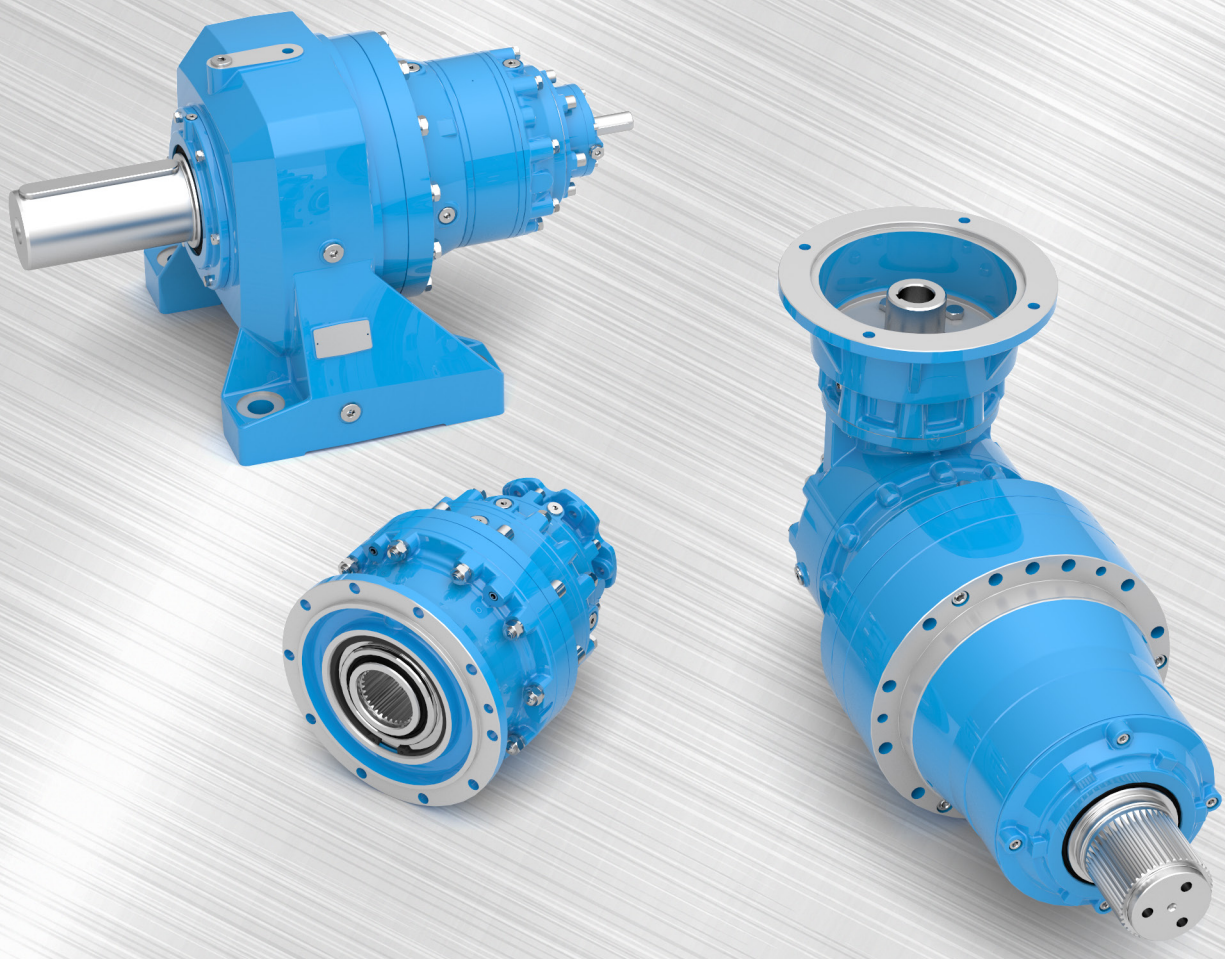
DANA BREVINI® Motion Systems

DC1A1A1_0000000R2-IMP
06 2025

Product Catalog

Brevini® Planetary Gearboxes
Industrial Series

Torque from 150 ft-lbs to 31000 ft-lbs



Planetary solutions

Brevini® Industrial Series planetary gearboxes with its modularity, wide range of characteristics and variants, allows to meet every possible application needs for both Industrial and Mobile applications.

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Technical and dimensional data

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Description	Measurement unit	Symbol
Radial load constant		c
Diameter of element mounted on shaft	[in]	d
Permissible axial load on output shaft	[lbf]	F_{a2}
Required axial load on the output shaft	[lbf]	F_{aR2}
Permissible radial load on input/output shaft	[lbf]	$F_{r1,2}$
Required radial load on the input/output shaft	[lbf]	$F_{rR1,2}$
Power increase factor		f_I
Thermal factor		f_K
Environmental factor		f_R
Duty factor		f_S
Speed factor		f_V
Operating life	[h]	h
Required operating life	[h]	h_R
Duty cycle		I
Reduction ratio		i
Input/output duration factor		$L_{h1,2}$
Number of starts per hour	[1/h]	N
Input speed	[rpm]	n_1
Max input speed	[rpm]	n_{1MAX}
Output speed	[rpm]	n_2
Hydraulic motor operating pressure	[bar]	p_A
Input power	[HP]	P_1
Output power	[HP]	P_2
Thermal power to be dissipated	[HP]	P_C
Electric motor nominal power	[HP]	P_n
Thermal power	[kW]	P_T
Corrected thermal power	[HP]	P_{T1}
Hydraulic motor capacity	[US Gal/min]	q
Brake safety factor		S_f
Required input torque	[ftlb]	T_{1R}
Transmissible output torque	[ftlb]	T_2
Output braking torque	[ftlb]	T_{2B}
Max output torque	[ftlb]	T_{2MAX}
Nominal output torque	[ftlb]	T_{2N}
Required output torque	[ftlb]	T_{2R}
Required maximum output torque	[ftlb]	T_{2RMAX}
Input braking torque	[ftlb]	T_B
Required input braking torque	[ftlb]	T_{BR}
Work environment temperature	[°F]	t_a
Operating time	[s]	t_f
Stopping time	[s]	t_r
Hydraulic motor displacement	[in^3]	V
Required hydraulic motor displacement	[in^3]	V_R
Input/output radial load application distance	[in]	$X_{1,2}$
Dynamic efficiency		η_d
Hydraulic motor mechanical efficiency		η_{mh}
Hydraulic motor volumetric efficiency		η_v

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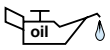
In-line gearboxes	EM, ED, ET, EQ, PD		Additional Planetary Stage on Bevel Gear	
Right-angle gearboxes	EC, PDA		Bevel gear dimensions by ratios	
Tightening torque	[ftlb]		Refer to page	
Lubrication	[US Gal]			

Outputs					
Male splined shaft	MN, MR, MNS9, MNR		Keyed hollow shaft	FP, FP1	
Female splined shaft	FE, FET		Hollow shaft for shrink disc	FS	
Keyed cylindrical shaft	MN1, MR1 MN2, MR2, PD, PDA, MN1S9		Male hexagonal shaft	ME	

Inputs					
Universal coupling			Male support		
Direct coupling			Light male support		
Central Joint Flange			Flanges for electric and hydraulic motors		
			Brakes		

Accessories	
Wheel flange	
Pinion	
Splined sleeve	
Lock washer	
Splined bar	

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Brevini Industrial Series

The Brevini Industrial series is a complete range of modular planetary gearboxes that combines high performance with low cost and size. The commercial success this range has achieved for more than 40 years testifies to its quality, reliability, ease of installation and low maintenance requirements.
Brevini Industrial series covers a full range of sizes that ensure optimum durability, quiet operation in all working conditions and efficiency to reduce operating costs and maximise availability.

The ISO 9001:2000 quality system for design, development, production, assembly and after-sales service guarantees a high supply standard at an international level.

The Brevini Industrial Series

The modular transmission system offers customers various benefits, including:
- Short lead times due to a high level of standardisation
- The torque is distributed proportionately among the sizes means the most suitable gearbox can be selected for every application
- High product quality
- Numerous available variants allow more flexible configuration for a wide range of applications
- Customised variants based on the modular system

Available options:
- From 1 to 4 planetary stages with the in-line configuration
- From 2 to 4 stages with the right-angle configuration
- Configurations with more stages are available on request
- 15 sizes based on the principle of modularity

Construction and Design:
- Flange, shaft and foot mounting options
- Keyed cylindrical shafts: male and female
- Splined shafts: male and female
- Female cylindrical shaft with retaining ring
  Horizontal and vertical installation possible

Output torques
T_{2N} from 740 ftlb Nm to 18440 ftlb

Ratios:
- i = 3.4 up to 3000 with the in-line configuration
- i = 10 up to 3000 with the right-angle configuration
- i > 3000 by combining more than 4 planetary stages

Casings
The Brevini Industrial series casings basically consist of an input flange, reduction stages, intermediate coupling flanges and output supports.
They are dimensioned to suit the loads transmitted through the gearbox, which increase from the input to the output.

Casing materials:
- Input supports: EN-GJL-250 grey cast iron
- Rim: high-quality hardened steel
- Intermediate coupling flange: EN-GJS-400-15 spheroidal-graphite cast iron
- Output supports: EN-GJS-400-15 spheroidal-graphite cast iron

Output shafts:
- Solid shaft, keyed or splined according to DIN5482
- Hollow shaft, keyed, splined according to DIN5482 or with keyway

Available inputs:
- Direct coupling with adapter flange for electric and hydraulic motors
- Keyed solid shaft
- SAHR (Spring Applied Hydraulically Released) brakes

IN-LINE AND RIGHT-ANGLE PLANETARY GEARBOXES

Gears
The Brevini Industrial series uses gears designed to optimise load distribution and minimise noise. The case-hardening processes are applied to the gears in-house to ensure control over the entire production process.

Bearings:
Only Class A bearings are used in the planet carriers to ensure that they meet the durability criteria required for industrial applications.

Seals:
The following sealing systems are available as standard for the input and output shafts:
- NBR and FKM radial shaft seals, VMQ on request
- Taconite seals on input and output shafts exposed to harsh environmental conditions

Lubrication:
- Oil bath lubricated gears and roller bearings as standard
- Sight glass plug as standard for vertical mounting configurations

Accessories:
Output:
- Available for male splined output shaft:
- Wheel flange
- Sleeve
- Integrated pinion
- Tab washer

Available for female hollow output shaft:
- Keyway
- Tab washer

Available for female splined output shaft:
- Splined rod

Input:
Anti-backlash devices

General:
- Quoted dimensional drawings are available as CAD files for various computer systems and interfaces
- Digital programs for selecting units
- Gear, shaft and bearing calculations with calculation proof
- Surface protection: painting cycles according to ISO 12944

Noise level:
- The gearbox noise level may vary with the size and number of stages, so no specific value has been declared
- If the noise does not cause abnormal vibration or overheating, do not consider it to be a risk for the application
- Unless specifically requested by the customer during the selection process or while developing the gearbox, the gearbox noise is not considered for design purposes
- Warranty claims related to noise will be assessed case-by-case

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Nominal output torque
T_{2N} [ftlb]
This is the conventional output torque that defines the size of the gearbox.

Transmissible output torque
T_2 [ftlb]
This is the output torque that the gearbox can transmit with a uniform and continuous load (duty factor fs=1), for different values of gearbox input speed and a **duration of 10000 hours**.

The T_2 values are calculated according to ISO 6336 for the gears and ISO 281 for the bearings, and are given in the size selection tables.

Max output torque
T_{2MAX} [ftlb]
This is the peak transmissible output torque that a gearbox can provide for short periods. For drives involving a high number of starts or reversals, the maximum operational torque must also be limited to suit the strength of the gears or shafts. The T_{2MAX} values are given in the size selection tables.

Required output torque
T_{2R} [ftlb]
This is the output torque required by the application, which must always be less than the transmissible output torque T_2 of the selected gearbox.

Required maximum output torque
T_{2RMAX} [ftlb]
This is the maximum output torque required by the application, which must always be less than the maximum transmissible output torque T_{2MAX} of the selected gearbox.

Input braking torque
T_B [ftlb]
This is the static braking torque delivered by the multi-disc brake that may be installed on the gearbox input.
The T_B values for the various brake configurations are given in the “Oil bath multi-disc brakes” section.

Required input braking torque
T_{BR} [ftlb]
This is the braking torque required at the gearbox input if the application involves the use of an input brake.
It can be calculated with the following equation:

$$T_{BR} = \frac{S_f \times T_{2R}}{i} \quad [ftlb] \qquad \textbf{(1)}$$

where

- S_f is the brake safety factor
- T_{2R} is the required output torque [ftlb]
- i is the reduction ratio

The brake safety factor S_f depends on the type of application and must be specified by the customer. Sometimes its minimum value is indicated by specific regulations relevant to the application.

Input speed
n_1 [rpm]
This is the speed of the motor coupled to the gearbox or, in general, the speed of the gearbox input stage. For drives with pulleys and belts, for example, its value must take the reduction ratio into account.

Max input speed
n_{1MAX} [rpm]
This is the maximum gearbox input speed for short periods or for intermittent duty. The gearbox may remain at a speed of n_{1MAX} for a maximum of 1 minute followed by a cooling period. If longer periods at that speed are expected and/or higher speed values are foreseen, we recommend contacting the Dana Sales Department.
The n_{1MAX} values are given in the selection tables.

Output speed
n_2 [rpm]
This is the gearbox output speed. It can be calculated with the following formula:

$$n_2 = \frac{n_1}{i} \quad [rpm] \qquad \textbf{(2)}$$

where n_1 is the input speed and i is the gearbox reduction ratio.

Reduction ratio
i
This is the ratio between the input speed n_1 and output speed n_2.

$$i = \frac{n_1}{n_2} \qquad \textbf{(3)}$$

Input power
P_1 [HP]
This is the power applied to the gearbox input. It can be calculated with the following formula:

$$P_1 = \frac{P_2}{\eta_d} \quad [HP] \qquad \textbf{(4)}$$

where
- P_2 is the output power
- η_d is the dynamic efficiency of the gearbox, the value of which is given in the table (4)

Output power
P_2 [HP]
This is the power transmitted at the gearbox output. It can be calculated with the following formula:

$$P_2 = \frac{T_{2R} \times n_2}{5200} \quad [HP] \qquad \textbf{(5)}$$

where T_{2R} is the required output torque [HP] and n_2 is the output speed.

Thermal power
P_T [HP]
This is the power that the gearbox can transmit continuously in the following conditions:

- with splash lubrication, without an auxiliary cooling circuit
- with horizontal mounting
- at an input speed of 1500 rpm
- for a maximum oil temperature of 176°F (oil viscosity ISO VG150)
- at an ambient temperature of 68°F
- for use in a “large environment”

The P_T values are given in the tables for selection of the various sizes.

If the type of operation, mounting position, input speed, ambient temperature or operating environment are different from those indicated above, it is advisable to use the factors f_K, f_V and f_R given below to correct the thermal power.

Thermal factor
f_K
With work cycles that involve intermittent gearbox use and/or an ambient temperature other than 68°C, the gearbox thermal rating can be adjusted to the specific application with the factor f_K given in the table below.

	Duty cycle I [%]	Ambient temperature [°F]				
		50°	68°	86°	104°	122°
f_K	100	1.15	1	0.85	0.7	0.6
	80	1.25	1.1	1	0.85	0.7
	60	1.4	1.25	1.1	1	0.85
	40	1.6	1.4	1.25	1.1	1
	20	1.8	1.6	1.4	1.25	1.1

Tab.(1)

The duty cycle I can be calculated as follows:

$$I = \frac{t_f}{t_r + t_f} \times 100 \qquad (6)$$

where t_f is the operating time at constant power and t_r is the rest time.

Speed factor

f_V

If the input speed is not 1500 rpm, the thermal power can be adapted to the specific situation with the factor f_V given in the table below. The table refers to the different gearbox mounting positions.

	Mounting position	n_1 [rpm]					
		3000	2500	2000	1500	1000	700
f_V	Horizontal mounting	0.50	0.65	0.80	1.00	1.15	1.30
	Vertical mounting	0.40	0.48	0.58	0.71	0.88	1.00

Tab.(2)

Environmental factor

f_R

If the gearbox is located in a restricted space or outdoors, the thermal power can be adapted with the aid of the factor f_R given in the table below.

	Restricted environment	Large environment	Outdoors
f_R	0.70	1.00	1.35

Tab.(3)

In general, the corrected thermal power of the gearbox will be

$$P_{T1} = P_T \times f_K \times f_V \times f_R \quad [HP] \qquad (7)$$

The power P_1 applied to the gearbox must always be less than the corrected thermal power P_{T1}.

$$P_1 \leq P_{T1} \qquad (8)$$

If the thermal power of the gearbox is less than the power applied, even in just one possible operating cycle condition, an auxiliary cooling circuit must be provided.
In such conditions, the thermal power to be dissipated P_C can be calculated with the following equation:

$$P_C = (P_1 - P_{T1}) \times (1 - \eta_d) \quad [HP] \qquad (9)$$

where η_d is the dynamic efficiency of the gearbox given by the table (4).

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Temperature

[°F]

The recommended ambient temperature is in the range -4°F/+104°F. The ideal gearbox operating temperature is from 122°F to 158°F, which corresponds to an oil temperature of approximately 140°F to 176°F.
For short periods, the oil temperature can reach 194°F.
The best system to keep the temperature under control is to use an auxiliary heat exchange system.
For low ambient temperatures, or for applications involving high operating temperatures, select appropriate lubricants and seals made of suitable materials.
Seals made of different types of elastomer, such as nitrile butadiene (NB), fluoride (PF) and silicone(SI), are available for this purpose.
Contact the Dana Sales Department for the relevant indications. The “Lubrication” section contains advice on choosing the most appropriate lubricant for different conditions.

Dynamic efficiency

η_d

This is given by the ratio between the output power P_2 transmitted by the gearbox and power P_1 applied at the input, and can be calculated with the following formula:

$$\eta_d = \frac{P_2}{P_1} \qquad \textbf{(10)}$$

Its value depends on many factors, including: transmitted power, input speed, lubricant viscosity, operating temperature and reduction ratio. The table below gives the approximate dynamic efficiency values.

	Reduction stages			
	1	2	3	4
	EM	ED - EC	ET - EC	EQ - EC
η_d	0.98	0.96	0.94	0.92

Tab.(4)

Duty factor

f_s

The duty factor depends on the type of prime mover and the type of machine driven by the gearbox. This is an empirical value drawn from experience with various applications, and takes into account load variations, transmission shocks and the variation uncertainty related to the parameters involved in power transmission.
The table below gives the duty factor values according to the nature of the load, the type of drive (electric, hydraulic and endothermic motor) and the number of starts per hour of the driven machine.

	Nature of the load		Drive type	No. of starts/h				
				16	32	63	125	250
f_s	**a**	Smooth	Electric mot.	1.05	1.10	1.15	1.25	1.40
			Hydraulic mot.	1.05	1.05	1.10	1.15	1.20
			Endothermic engine	1.25	--	--	--	--
	b	Variable with moderate shocks	Electric mot.	1.10	1.15	1.20	1.40	1.60
			Hydraulic mot.	1.05	1.00	1.10	1.20	1.30
			Endothermic engine	1.50	--	--	--	--
	c	Variable with strong shocks	Electric mot.	1.20	1.30	1.40	1.60	1.80
			Hydraulic mot.	1.10	1.20	1.25	1.35	1.50
			Endothermic engine	2.00	--	--	--	--

Tab.(5)

Regarding the nature of the load, the table below (6) classifies the most common machines into the three levels **a**, **b** and **c** given in the previous table (5).

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Nature of the load	Application field		Driven machine
a	Stirrers/Mixers		Liquids
b			Semi-liquids
b			Non-homogeneous liquid
b	Stone and clay processing		Brick presses
b			Tile machine
c			Compactors
a	Conveyors		Screw
a			Fed smoothly
b		For continuous cycle	Not fed smoothly
b			With motion reversal
c	Crane	Port	Load lifting
c			Auxiliary lifting
c			Arm lifting
c			Arm rotation
c			Crane travel
c		Container	Container lifting
c			Arm lifting
c		Industrial applications	Main lifting
c			Auxiliary lifting
c			Bridge
c			Trolley movement
b	Shredders		Stones and metals

Nature of the load	Application field		Driven machine
b	Dredgers		Cable coiler
b			Conveyor
c			Cutter head
b			Sieves
b			Bucket conveyor
b			Winches
b	Elevators		Bucket
a			Escalator
b	Extruders		In general
b		Plastic	Variable speed
b			Fixed speed
b		Rubber	Continuous cycle - screw
b			Intermittent cycle - screw
b		Food	Plate
b			Belt
b			Screw
a	Food industry		Cereal processing
b			Pasta mixers
b			Meat mincing

Tab. (6)

Nature of the load	Application field	Driven machine
b	Lifters/Elevators	Continuous cycle
b		Intermittent cycle
b		Skip lifting
b	Washing machines	Drums
b		Washing machine
c	Metal processing	Tippers
b		Ingot pusher
c		Shears
b		Extruder
b		Winder
b	Woodworking machines	Conveyors
b		Continuous cycle
b		Log processing
b		Planer
b		Traverser
b		Debarker
b		Planer feed
b		Chain traverser
b	Fabric processing	Dosing systems
b		Calenders
b		Driers

Nature of the load	Application field	Driven machine
b	Tape processing	Taping machnines
a		Winder & Unwinder
b		Trimmer
b		Flattener
b		Cylinder regulation
b		Scrap treatment
c		Shears
b		Slitters
b	Concrete processing	Concrete oven
b		Driers
b		Mixers
b	Plastic processing	Batch mixer
b		Continuous cycle mixer
b		Calenders
b	Rubber processing	Batch mixer
b		Continuous cycle mixer
b		Calenders
b		Sand heating

Tab. (6)

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Nature of the load	Application field		Driven machine
b	Paper processing		Stirrers (mixers)
b			Liquid stirrers
b			Calenders
c			Chippers
b			Chipper feeder
b			Polishing rollers
b		Conveyors	Bark chips
c			Logs
b		Driers	Cutter
b			Conveyors
b			Extruders
b		Screeners	Chips
b			Rotary
c			Vibrating
b			Size press
b			Super calender
b			Thickener (AC motor)
b			Thickener (DC motor)
b			Washing machine (AC motor)
b			Washing machine (DC motor)

Nature of the load	Application field		Driven machine
b	Water treatment		Bar screen
b			Chemical feeders
b			Dehydrator screens
b			Scum breakers
b			Mixer
b			Sludge collector
b			Thickener
b			Vacuum filters
a		Screens	Air washing
b			Rotary for gravel
c	Sugar processing		Beetroot slicer
b			Cane crushers
b			Shredders
b			Grinders

Tab. (6)

Lifetime factor

L_{h1}, L_{h2}

This is the product of the gearbox input speed n_1 or output speed n_2 and the hours of operation required by the application h_R:

$$L_{h1} = n_1 \times h_R \quad \textbf{(11)}$$

$$L_{h2} = n_2 \times h_R \quad \textbf{(12)}$$

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Permissible radial loads on output / input shafts

F_{r2}, F_{r1} [lbf]

For each gearbox size, the selection tables give the diagrams of permissible radial loads F_{r2} and F_{r1} on the output and input shafts respectively as a function of the distance X between the load application point and the shaft shoulder; the values are given for various values of bearing duration factor nxh.

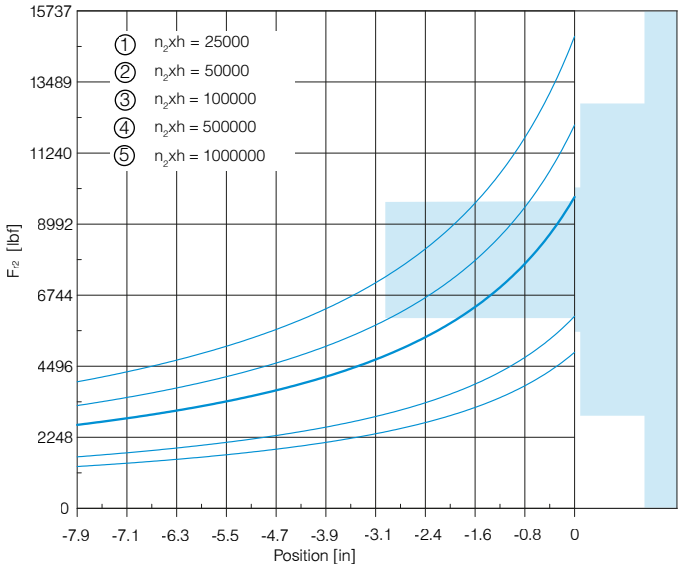


Fig. (1)

Contact the Dana Sales Department for duration factors $n_2$xh < 25000 cycles.

For sizes 150, 155, 250 and 255, the radial loads on output supports MN, MN1, MR and MR1 only apply if both support spigots are used on the customer's structure.
Contact the Dana Sales Department if the second spigot is not used.

Permissible output shaft axial loads

F_{a2} [lbf] and F_{a2MAX} [lbf]

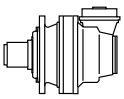
For each gearbox size, the tables give the permissible axial loads F_{a2} for continuous duration and F_{a2MAX} for intermittent duration.
If there are radial and axial loads on the output shaft at the same time, we recommend contacting the Dana Sales Department.
FE and FET gearboxes with female output shafts are normally used to transmit torque only, and are not designed to withstand radial and/or axial loads.

When using FP, FP1 and FS gearboxes with hollow shafts, contact the Dana Sales Department if there are axial loads.

The characteristic application data is required when selecting the gearbox; the list below can be used for that purpose.

Type of application:

	Description	Value	
T_{2R}	Required output torque		[ftlb]
T_{2RMAX}	Required maximum output torque		[ftlb]
n_2	Output speed		[rpm]
n_1	Input speed		[rpm]
P_2	Output power		[HP]
F_{rR2}	Required radial load on the output shaft		[lbf]
X_2*	Radial load F_{rR2} application distance		[in]
F_{aR2}**	Required axial load on the output shaft		[lbf]
F_{rR1}	Required radial load on the input shaft		[lbf]
X_1*	Radial load F_{rR1} application distance		[in]
h_R	Required duration		[h]
I	Duty cycle		[%]
N	Number of starts per hour		[1/h]
t_a	Work environment temperature		[°F]

Type of configuration required:  ☐ In-line  ☐ Right-angle

Output support type:

Parking brake: Yes ☐ No ☐

T_{BR}	Required braking torque:		[Nm]

Mounting position:

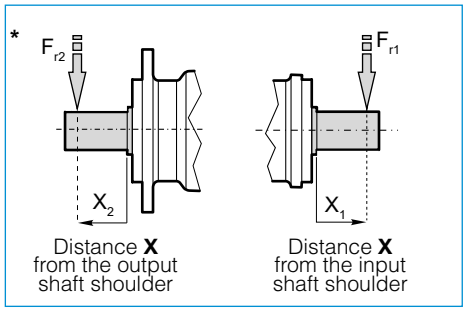
Motor type:

Hydraulic ☐ Electric ☐ Endothermic ☐ Other ☐

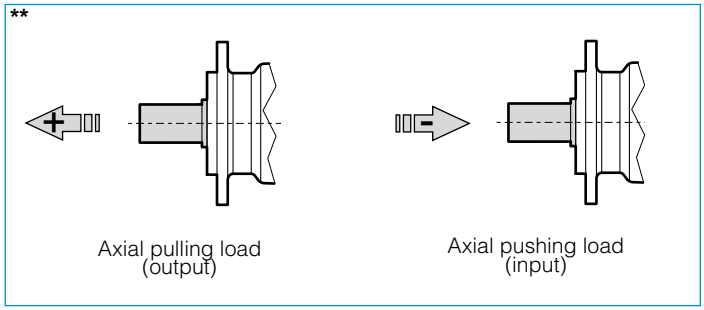
Work environment:

Restricted ☐ Large ☐ Outdoors ☐

* **X** is the distance between the load application point and the shaft shoulder (see diagrams in the selection tables)



** indicate the gearbox output loads with "+" and the input loads with "-".



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Make the selection as indicated below:

- select the appropriate duty factor f_S from the tables (5) and (6) above on the basis of the application, drive type and expected number of starts;
- calculate the required duration factor from the required duration h_R and the output speed n_2;

$$L_{h2} = n_2 \times h_R \qquad \textbf{(13)}$$

- calculate the required reduction ratio;

$$i = \frac{n_1}{n_2} \qquad \textbf{(14)}$$

- from the selection tables, choose the gearbox and configuration (in-line or right-angle) whose specifications satisfy the equation;

$$T_{2R} \times f_S \leq T_2 \qquad \textbf{(15)}$$

The chosen gearbox must have a reduction ratio as close as possible to the required ratio.

This type of selection is suitable when the required torque and rotation speed are almost constant during use; for an operating cycle with highly variable loads and speeds, base the selection on the gearbox size that is best for the application.
To do this, we recommend contacting the Dana Sales Department.

If a multi-disc brake is required at the gearbox input, proceed as follows:

1. calculate the required braking torque T_{BR} using the formula (1) on page A5:
2. from the brake selection tables (see the “Oil bath multi-disc brakes” section), choose the brake with the braking torque T_B that satisfies the equation:

$$T_{BR} \leq T_B \qquad \textbf{(17)}$$

After selecting the gearbox, carry out the following checks:

- check that the input speed n_1 required by the application is lower than the maximum permissible value n_{1MAX} given in the gearbox selection table
- check that the maximum torque required by the application T_{2RMAX} is lower than the maximum permissible torque T_{2MAX} given in the gearbox selection table
- check that the radial loads acting on the shafts F_{rR1} and F_{rR2} are lower than those given in the gearbox support selection table. The radial loads on the output shaft can be calculated as follows:

$$F_{rR2} = \frac{24 \times T_{2R} \times f_S \times c}{d} \quad [lbf] \qquad \textbf{(18)}$$

The radial loads on the input shaft can be calculated as follows:

$$F_{rR1} = \frac{24 \times T_{2R} \times f_S \times c}{d \times i \times \eta_d} \quad [lbf] \qquad \textbf{(19)}$$

Where T_{2R} is the required output torque, f_S is the duty factor and η_d is the dynamic efficiency of the gearbox.
Also,

c is a constant that depends on the type of transmission element mounted on the shaft.
The constant can have the following values:

c = 1 chain pinions
c = 1.06 gear wheels
c = 2 belt pulleys

d is the diameter (mm) of the transmission element mounted on the shaft.

Using the value X_2, refer to the output support selection tables for the selected gearbox, locate the permissible radial load F_{r2} for a duration factor $n_2xh \geq L_{h2}$ and check:

$$F_{rR2} \leq F_{r2} \qquad \textbf{(20)}$$

Similarly, using the value X_1, refer to the input support selection tables for the selected gearbox, locate the permissible radial load F_{r1} for a duration factor $n_1xh \geq L_{h1}$ and check:

$$F_{rR1} \leq F_{r1} \qquad \textbf{(21)}$$

check that the axial loads on the output shafts F_{aR2} are lower than those given in the output support selection tables. To do so, refer to the support selection tables for the selected gearbox, identify the permissible load for continuous and intermittent duration, F_{a2} and F_{a2MAX} respectively, and check that:

$$F_{aR2} \leq F_{a2} \quad \text{for continuous duration}$$
$$F_{aR2} \leq F_{a2MAX} \quad \text{for intermittent duration} \qquad \textbf{(22)}$$

If the radial and axial loads vary significantly during use, or the application involves numerous reversals, contact the Dana Sales Department for a more thorough check.
Take into account the recommendations given in the “Permissible loads on output shafts” section (page A12).

Check that the applied power P_1 is always lower than the corrected thermal power P_{T1} given by the formula (8). If the corrected thermal power of the gearbox is less than the power to be transmitted, even in just one of the possible operating cycle conditions, an auxiliary cooling circuit must be provided. Contact the Dana Sales Department to select this circuit.

If an input brake has been selected for the gearbox concerned, check that the calculated gearbox output braking torque is less than the maximum output torque T_{2MAX} transmissible by the gearbox:

1. calculate the gearbox output braking torque

$$T_{2B} = T_B \times i \quad [ftlb] \qquad \textbf{(23)}$$

2. check that

$$T_{2B} \leq T_{2MAX} \qquad \textbf{(24)}$$

CHOOSING THE MOTOR

This section provides some general information that is useful for selecting the gearbox drive motor.

Hydraulic motor
Based on the application, choose the most appropriate type of motor according to the table below. The values are only a guide

Type of application	**Light**		**Medium**		**Heavy**	
Operating pressure p_A [psi]	< 2500		2500 – 3600		3600 – 6500	
Motor type	Orbital	Gear	Radial piston	Axial piston	Cam	Axial piston
Speed n_1 [rpm]	< 700	< 3000	< 500	< 4000	< 200	< 4000
Mechanical efficiency η_{mh}	0.80	0.85	0.95	0.93	0.93	0.93
Volumetric efficiency η_v	0.90	0.87	0.95	0.95	0.95	0.95

Tab. (7)

Determine the required gearbox input torque with the formula:

$$T_{1R} = \frac{T_{2R}}{i \times \eta_d} \quad [ftlb] \qquad \textbf{(25)}$$

Where T_{2R} is the required output torque and η_d is the dynamic efficiency of the gearbox (table 4)

Calculate the theoretical displacement required for the hydraulic motor with the following formula:

$$V_R = \frac{74 \times T_{1R}}{p_A \times \eta_{mh}} \quad [in^3] \qquad \textbf{(26)}$$

where η_{mh} is the mechanical efficiency of the selected hydraulic motor (table 7) and p_A is the operating pressure of the motor. The actual motor displacement V must be such that:

$$V_R \leq V \qquad \textbf{(27)}$$

Lastly, calculate the required flow q for the motor feed:

$$q = 0.0043 \times \frac{V \times n_1}{\eta_v} \quad [gal/min] \qquad \textbf{(28)}$$

where n_1 is the gearbox input speed and η_v is the volumetric efficiency of the chosen motor (table 7).

Refer to the Dana Fluid Power catalogue, or the technical data sheets of other manufacturers for the final motor choice.

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Electric motor
Calculate the gearbox input power with the formula:

$$P_1 = \frac{P_2}{\eta_d} \quad [HP] \qquad \textbf{(29)}$$

Where P_2 is the output power and hd is the dynamic efficiency of the chosen gearbox (table 4).
From the technical data tables of the manufacturers of electric motors, select a motor whose nominal power P_n is such that:

$$P_1 \leq P_n \qquad \textbf{(30)}$$

Unless otherwise specified, the power P_n refers to continuous duty S1. If the operating conditions of the motors are different from S1, identify the corresponding type of duty according to the EN 60034-1 (CEI 2-3)/IEC 34-1 standards.

For S2 and S3 with motor sizes smaller than or equal to 132, a suitable factor f_l can be used to obtain the power increase relative to continuous duty S1.

The power increase factor fl can be obtained from the following table:

	Type of duty							
	S2				**S3**			
	Cycle duration [min]				**Duty cycle I [%]**			
	10	30	60	90	15%	25%	40%	60%
f_l	1.4	1.2	1.1	1.05	1.4	1.25	1.13	1.07

Tab. (8)

For the definition of the duty cycle I, refer to the formula (6) on page A7.

For duty S2 and S3, select an electric motor whose nominal power P_n satisfies the following equation:

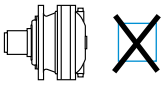
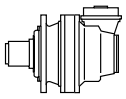
$$P_1 \leq P_n \times f_l \qquad \textbf{(31)}$$

EXAMPLE OF SELECTING THE GEARBOX

The characteristic application data is required when selecting the gearbox; the list below can be used for that purpose.

Type of application: **CONVEYOR NOT FED SMOOTHLY**

	Description	Value	
T_{2R}	Required output torque	3320	[ftlb]
T_{2RMAX}	Required maximum output torque	5900	[ftlb]
n_2	Output speed	12	[rpm]
n_1	Input speed	1500	[rpm]
P_2	Output power	-	[HP]
F_{rR2}	Required radial load on the output shaft	9000	[lbf]
X_2 *	Radial load F_{rR2} application distance	1.575	[in]
F_{aR2} **	Required axial load on the output shaft	-	[lbf]
F_{rR1}	Required radial load on the input shaft	-	[lbf]
X_1 *	Radial load F_{rR1} application distance	-	[in]
h_R	Required duration	10000	[h]
I	Duty cycle	100	[%]
N	Number of starts per hour	3	[1/h]
t_a	Work environment temperature	68	[°F]

Type of configuration required:  [X]  [ ]

Output support type:

Parking brake: Yes [ ] No [X]

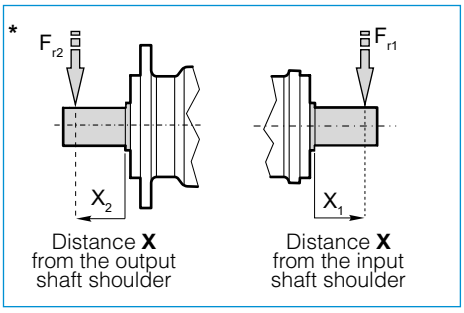
T_{BR}	Required braking torque:		[Nm]

Mounting position:

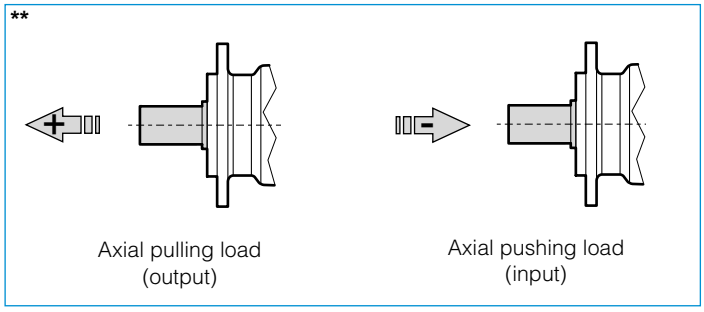
Motor type:
Hydraulic [ ] Electric [X] Endothermic [ ] Other [ ]

Work environment:
Restricted [ ] Large [X] Outdoors [ ]

* **X** is the distance between the load application point and the shaft shoulder (see diagrams in the selection tables)



** indicate the gearbox output loads with "+" and the input loads with "-".



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Selecting the gearbox
Calculate the factor L_{h2} from the formula (12):

$$L_{h2} = 12 \times 25000 = 300000$$

(all data in the selection tables is intended for a duration of 10000 [h])

Calculate the required reduction ratio according to the formula (3)

$$i = \frac{1500}{12} = 125$$

From the table (6), assess the type of load for this application “conveyor not smoothly fed”; load type “**b”** in this case (variable with moderate shocks).

Then use the load type “**b**”, number of starts/hour N < 16 and the type of electric motor to get the duty factor fs = 1.10 from the table (5).

From the selection tables, choose the gearbox and configuration whose specifications satisfy the equation (15)

$$T_{2R} \times f_S = 3320 \times 1.10 = 3652 \text{ [ftlb]} \leq T_2$$

The chosen gearbox must have a reduction ratio that is as close as possible to the calculated reduction ratio i=125.

From the table (9) at the end of the section, identify the size of the gearbox with a nominal torque T_{2N} immediately higher than the value calculated previously $T_{2R} \times f_S = 3320 \times 1.10 = 3652$ [ftlb]

Size	i		[in]		[in]	[in]	[in]	T_{2N} [ftlb]
010	3.38-3282	B40X36 DIN5482	1.654	A40X36 DIN5482	1.969	-	-	738
020	3.08-3235	B58X53 DIN5482	2.559	A58X53 DIN5482	2.953	1.969 2.756	2.732	1550
030	15.37-3097	B58X53 DIN5482	2.559	A58X53 DIN5482	2.953	2.559	-	2800
040	15.37-3170	B58X53 DIN5482	2.559	-	-	-	-	2800
045	3.50-3301	B58X53 DIN5482	2.559	A58X53 DIN5482	2.953	2.559 2.756	-	2800
046	3.50-3301	B58X53 DIN5482	2.559	-	-	-	2.732	2800
065	3.50-3170	B70X64 DIN5482	3.150	B70X64 DIN5482	3.543	2.756 3.150	2.756	4720
067	12.25-201.0	B70X64 DIN5482	3.150	B70X64 DIN5482	3.543	3.150	-	4720
090	4.08-3207	B80X74 DIN5482	3.543	B70X64 DIN5482	3.937	3.543	2.732	6785
091	11.22-42.37	B80X74 DIN5482	3.543	B70X64 DIN5482	3.937	3.543	-	6785
150	3.90 – 3460	B80X74 B100x94 DIN5482	3.937	B80X74 DIN5482	4.724	3.937	2.732	9590
155	19.50-272.7	B80X74 B100x94 DIN5482	3.937	B80X74 DIN5482	4.724	3.937	-	9590
250	4.04-2741	B100X94 DIN5482	4.331	B100X94 DIN5482	5.118	4.331	-	14750
255	16.48-2744	B100X94 DIN5482	4.331	B100X94 DIN5482	5.118	4.331	-	14750
320	19.95-245.3	-	-	B100X94 DIN5482	-	-	-	18440

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EXAMPLE OF SELECTING THE GEARBOX

Therefore consider size 065 and the performance table that corresponds to the selected gearbox type (in this case in-line).
Identify the solution with the reduction ratio "i" closest to the previously calculated required ratio of 125 from the performance table for size 065; the table indicates that a suitable solution is **ET3065**, with:

i = 123.9
T_2 = 4161 [Nm]
n_2 = 12.1 [rpm]
n_1 = 1500 [rpm]

	i_{eff}	1500 n_2 [rpm]	1500 T_2 [ftlb]	1500 P_2 [HP]	1000 n_2 [rpm]	1000 T_2 [ftlb]	1000 P_2 [HP]	500 n_2 [rpm]	500 T_2 [ftlb]	500 P_2 [HP]	n_{1MAX} [rpm]	T_{2MAX} [ftlb]	P_T [HP]
EM 1065 / PD 1065													
	3.50	429	1653	135.4	286	1867	101.9	143	2298	62.5			
	3.86	389	1701	126.1	259	1921	95.2	130	2365	58.3			
	4.33	346	1730	114.0	231	1954	85.8	115	2406	53.0	2500	7375	40.2
	5.00	300	1771	100.6	200	2000	76.4	100	2462	46.9			
	6.00	250	1845	88.5	167	2084	66.1	83	2567	40.8			
ED 2065 / PD 2065													
	10.78	139	2294	60.7	93	2590	45.7	46.4	3189	28.2		9800	
	12.25	122	2407	56.2	82	2718	42.2	40.8	3347	26.0			
	13.51	111	2477	52.4	74	2798	39.4	37	3445	24.3			
	15.16	99	2520	47.5	66	2846	35.8	33	3504	22.0			
	17.88	84	2648	42.2	56	2991	31.9	28	3682	19.6			
	20.65	73	2710	37.5	48.4	3061	28.2	24.2	3768	17.4			
	22.39	67	2833	36.2	44.7	3199	27.2	22.3	3938	16.8	3000	7375	24.1
	25.98	58	2962	32.6	38.5	3345	24.5	19.2	3791	13.9			
	27.99	54	2459	25.1	35.7	2631	17.8	17.9	2890	9.8			
	30.00	50	3031	28.8	33.3	3423	21.7	16.7	4041	12.9			
	36.25	41.4	3185	25.1	27.6	3407	17.8	13.8	3743	9.8			
	43.50	34.5	2929	19.2	23	3051	13.4	11.5	3261	7.1			
ET 3065 / PD 3065													
	51.22	29.3	3631	20.2	19.5	4101	15.3	9.8	4536	8.4			
	53.78	27.9	3752	20.0	18.6	4237	15.0	9.3	5216	9.3			
	60.44	24.8	3816	18.0	16.5	4310	13.5	8.3	4606	7.2			
	73.50	20.4	3730	14.5	13.6	4092	10.6	6.8	4612	6.0			
	78.51	19.1	4128	15.0	12.7	4429	10.7	6.4	4870	5.9			
	90.93	16.5	4314	13.5	11	4488	9.4	5.5	5022	5.2			
	98.27	15.3	4308	12.5	10.2	4508	8.7	5.1	4838	4.7			
	110.6	13.6	4483	11.5	9	4691	8.0	4.5	5382	4.7			
→	**123.9**	12.1	4161	9.7	8.1	4315	6.6	4	4905	3.8	3000	7375	18.8
	134.3	11.2	4463	9.5	7.4	4657	6.6	3.7	4986	3.5			
	155.1	9.7	4246	7.8	6.4	4443	5.5	3.2	5139	3.2			
	180.0	8.3	4303	6.8	5.6	4587	4.8	2.8	5288	2.8			
	208.2	7.2	4359	6.0	4.8	4730	4.3	2.4	5361	2.4			
	217.5	6.9	4053	5.4	4.6	4230	3.8	2.3	4533	2.0			
	251.6	6	4116	4.7	4	4293	3.2	2	4597	1.7			
	272.8	5.5	3964	4.2	3.7	4095	2.8	1.8	4306	1.5			

Check that the transmissible torque T_2 is greater than the torque required by the application $T_{2R} \times f_S = 3652$ [ftlb] according to the formula (15)

$$T_2 = 4161 > 3652 = T_{2R} \times f_S$$

The chosen gearbox is **ET3065** with **i=123.9**.

Checking the maximum torque

The performance table gives a maximum transmissible torque T_{2MAX}= 7375 [ftlb] for the selected ET3065 gearbox, with a reduction ratio i = 123.9.

This value is higher than the maximum required by the application T_{2RMAX}, which is 5900 [ftlb]. The selected gearbox is therefore suitable for transmitting the required maximum torque.

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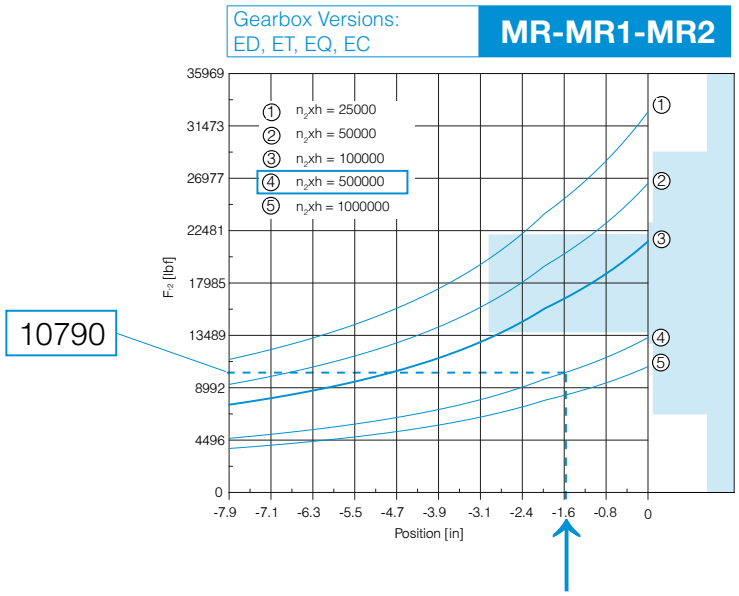
Checking the loads on the shafts
The tables of "Male splined shaft" output supports for size 065 (see page 065/4) show the types of male support are available: MR, MR2. Assume the MR is the selected type.
Use the load application distance **X_2 = 1.575 [in]** (from the application data), refer to the load graph F_{r2} for the chosen output (MR) and intersect the curve for n_2 x h = 500000 that satisfies the condition n_2 x h ≥ L_{h2}=120000 (calculated previously).
The load application axis of this curve gives the permissible radial load, which is **F_{r2}=10790 [lbf].**



Contact your local DANA representative for duration factors n_2 x h < 25000 cycles.

Since the permissible radial load value just defined F_{r2}, is greater than the required radial load F_{rR2} according to the formula (20), the selected support is suitable to operate in the required conditions.

$$F_{rR2} = 9000 \text{ [lbf]} < F_{r2} = 10790 \text{ [lbf]}$$

Checking the thermal power
The formula (5) can be used to calculate the transmitted output power:

$$P_2 = \frac{3320 \times 12}{5200} = 7.6 \text{ [HP]}$$

Considering a dynamic efficiency η_d = 0.94 for the **ET3065** gearbox as given by the table (4), the formula (4) can be used to calculate the power applied to the gearbox input:

$$P_1 = \frac{7.6}{0.94} = 8.0 \text{ [HP]}$$

The selection data table for the selected gearbox **ET3065** gives a dissipable thermal power of P_T = 18.8 HP.

Assuming a duty cycle I = 100 % and an ambient temperature of 68 °F (as given in the initial data on page A18), the table (1) on page A7 gives a thermal factor f_K = 1.0.
With an input speed n_1 = 1500 rpm and a horizontal mounting position, the table (2) gives a speed factor f_V = 1.0.
Lastly, for a "large" work environment, the table (3) gives an environmental factor f_R = 1.0.
According to the formula (7), the corrected thermal power is:

$$P_{T1} = 18.8 \times 1.0 \times 1.0 \times 1.0 = 18.8 \text{ [HP]}$$

The applied power P_1 is lower than the corrected thermal power P_{T1}, according to the formula (8):

$$P_1 = 8.0 \text{ [HP]} \leq P_{T1} = 18.8 \text{ [HP]}$$

The selected gearbox is suitable for operation without the need to provide an auxiliary cooling circuit.

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EXAMPLE OF SELECTING THE COOLING CIRCUIT

An **ED2150/FE** gearbox with a reduction ratio i = 20.16 must work in the following conditions:

- input speed n_1 = 1500 rpm;
- applied input power P_1 = 27 HP;
- horizontal mounting position;
- ambient temperature t_a = 86 °F;
- duty cycle I = 100%
- work environment: restricted

The selection data table for the **ED2150** gearbox concerned gives a dissipable thermal power P_T = 30.8 HP.

i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EM 1150 / PD 1150												
3.90	385	3509	257.5	256	3963	193.1	128	4879	119.3			
5.14	292	3692	205.2	195	4170	154.2	97	5134	95.2	2500	14750	53.6
6.27	239	3819	174.3	159	4312	131.4	80	5309	80.5			
ED 2150 / PD 2150												
13.65	110	4501	93.9	73	5084	71.1	36.6	6258	43.7			
16.11	93	4653	83.1	62	5255	62.1	31	6469	38.2			
17.99	83	5376	85.8	56	6072	64.2	27.8	6871	36.3			
20.16	74	4840	68.4	50	5466	51.6	24.8	6730	31.8	3000	14750	30.8
21.95	68	5561	72.4	45.6	6062	52.6	22.8	6469	28.0			
26.57	56	6044	64.9	37.6	6680	47.9	18.8	7116	25.5			
28.28	53	4550	46.0	35.4	4877	32.9	17.7	5373	18.1			
30.84	48.6	6320	58.6	32.4	6774	41.8	16.2	7210	22.3			
37.27	40.3	5997	46.0	26.8	6428	32.9	13.4	7082	18.1			
45.46	33	6252	39.3	22	6489	27.2	11	6898	14.5			

Assuming a duty cycle I = 100% and an ambient temperature of 86 °F, the table (1) on page A7 gives a thermal factor f_K = 0.85.
With an input speed n_1 = 1500 rpm and a horizontal mounting position, the table (2) gives a speed factor f_V = 1.0.
Lastly, for a "restricted" work environment, the table (3) gives an environmental factor f_R = 0.70.
According to the formula (7), the corrected thermal power is:

$$P_{T1} = 30.8 \times 0.85 \times 1.0 \times 0.70 = 18.3 \text{ [HP]}$$

The applied power P_1 is not lower than the corrected thermal power P_{T1}, according to the formula (8):

$$P_1 = 27 \text{ [HP]} \leq P_{T1} = 18.3 \text{ [HP]} \longrightarrow \textbf{Condition not verified!}$$

Therefore, an auxiliary cooling circuit is required for the gearbox concerned.

Then calculate the thermal power to be dissipated, according to the formula (9). To do this, get the dynamic efficiency η_d = 0.96 for the ED2150 gearbox from the table (4).
The thermal power to be dissipated $P_c = (P_1\text{-}P_{T1}) \times (1\text{-}\eta_d)$ must therefore be

$$P_c = (27\text{-}18.3) \times (1\text{-}0.96) = 0.35 \text{ [HP]}$$

After establishing the thermal power to be dissipated P_C, contact your local DANA representative to select the most suitable cooling circuit from those available.

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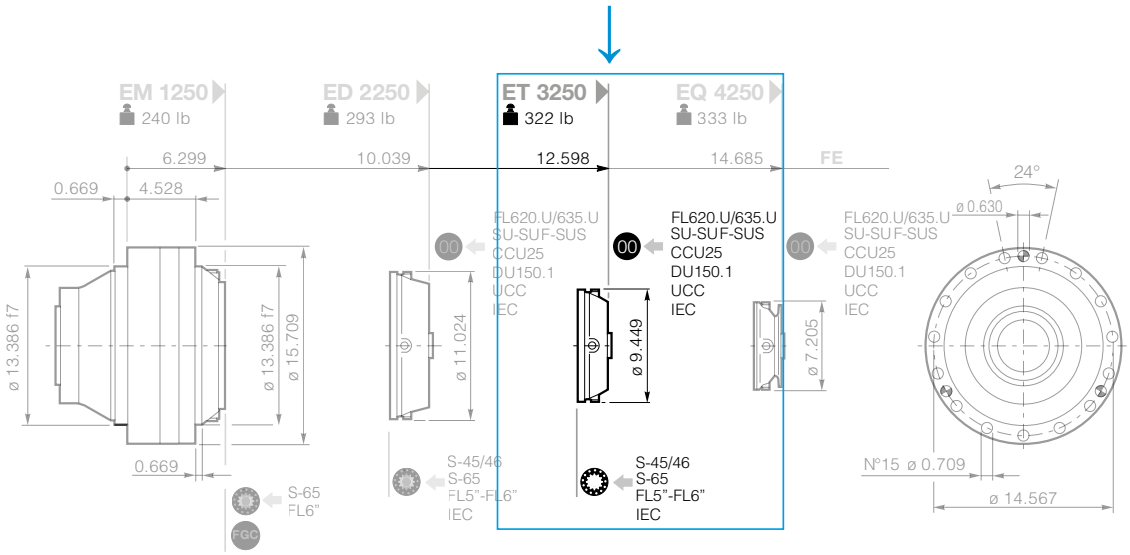
An **ET3250/FE** gearbox with a reduction ratio i = 70.7 must work in the following conditions:

- required output torque T_{2R} = 13275 Nm
- brake safety factor S_f = 1.2

Use the equation (1) on page A5 to calculate the required braking torque:

$$T_{BR} = \frac{1.2 \times 13275}{70.7} = 225 \text{ [ftlb]}$$

The dimensional tables for the **ET3250/FE** gearbox give the type of multi-disc disk brake, which is FL620/FL635/FL5 or FL6 depending on the input type.



In the table for the FL type on page B17 of the "Oil-bath multi-disc disk brakes" section, select the brake with a braking torque T_B immediately higher than the torque T_{BR} just calculated.

	T_B [ftlb]	P [psi]	P_{max} [bar]	Vo [US Gal] horizontal	Vo [US Gal] vertical	Va [US Gal] new plates
FL250.4C	133	203	4568	0.0792	0.1584	3.96
FL250.6C	205	203	4568	0.0792	0.1584	3.96
FL350.6C	308	290	4568	0.0792	0.1584	3.96
FL350.8C	421	290	4568	0.0792	0.1584	3.96
FL450.6C	398	377	4568	0.0792	0.1584	3.96
FL450.8C	544	377	4568	0.0792	0.1584	3.96
FL620.14C	201	377	3046	0.0528	0.1056	3.96
FL635.4C	92	218	4351	0.0528	0.1056	3.96
FL.635.6C	139	218	4351	0.0528	0.1056	3.96
FL635.10C	232	218	4351	0.0528	0.1056	3.96
FL635.12C	278	218	4351	0.0528	0.1056	3.96
FL650.10C	473	290	4568	0.132	0.264	3.96
FL650.12C	584	290	4568	0.132	0.264	3.96
FL650.14C	700	290	4568	0.132	0.264	3.96
FL750.10C	615	377	4568	0.132	0.264	3.96
FL750.12C	757	377	4568	0	0.264	3.96
FL750.14C	906	377	4568	0.132	0.264	3.96
FL960.12C	1127	319	4568	0.3168	0.6336	5.808
FL960.14C	1315	319	4568	0.3168	0.6336	5.808
FL960.16C	1503	319	4568	0.3168	0.6336	5.808
FL960.18C	1691	319	4568	0.3168	0.6336	5.808

This gives brake type FL350.6C, with a static braking torque T_B = 308 [ftlb].
The formula (23) on A15 can be used to calculate the gearbox output braking torque:

$$T_{2B} = 308 \times 70.7 = 21776 \text{ [ftlb]}$$

Click *i* button to return to main index

EXAMPLE OF SELECTING THE MULTI-DISC BRAKE

The selection table for ET3250 gearboxes gives the maximum transmissible torque T_{2MAX} for the ratio i = 70.70, which is T_{2MAX} = 25813 [ftlb]

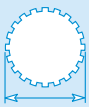
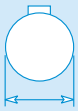
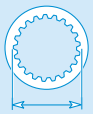
i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EM 1250												
4.04	371	4946	350.0	248	5586	262.8	124	6877	162.3			
5.12	293	5124	285.6	195	5787	215.9	98	7125	132.8	2500	25813	67.1
6.00	250	5306	252.1	167	5991	190.4	83	7376	116.7			
ED 2250												
14.14	106	6679	135.4	71	7542	101.9	35.4	9286	62.5			
15.59	96	6874	126.1	64	7763	95.2	32.1	9557	58.3			
17.49	86	6992	114.0	57	7896	85.8	28.6	9721	53.0			
20.20	74	7154	100.6	49.5	8080	76.4	24.8	9948	46.9	2500	25813	40.2
22.17	68	7955	101.9	45.1	8983	77.8	22.6	11060	47.5			
25.60	59	8305	92.5	39.1	9380	69.7	19.5	11548	42.9			
30.72	48.8	8772	81.8	32.6	9907	61.4	16.3	12197	37.8			
36.00	41.7	9082	72.4	27.8	10112	53.5	13.9	10757	28.4			
ET 3250												
43.55	34.4	9267	60.7	23	10465	45.7	11.5	12885	28.2			
49.49	30.3	9725	56.2	20.2	10984	42.2	10.1	13522	26.0			
58.40	25.7	10220	50.0	17.1	11543	37.7	8.6	14211	23.2			
61.23	24.5	10181	47.5	16.3	11498	35.8	8.2	14156	22.0			
70.70	21.2	10419	42.1	14.1	11767	31.6	7.1	14486	19.4	3000	25813	26.8
83.43	18	10949	37.5	12	12366	28.2	6	15223	17.4			
90.44	16.6	11445	36.2	11.1	12925	27.2	5.5	15913	16.8			
104.4	14.4	11712	32.0	9.6	13227	24.1	4.8	16100	14.6			
114.6	13.1	13021	32.5	8.7	13962	23.2	4.4	15524	12.9			
121.2	12.4	12248	28.8	8.3	13832	21.7	4.1	16325	12.9			
146.5	10.2	12870	25.1	6.8	13768	17.8	3.4	15123	9.8			
158.8	9.4	13872	24.9	6.3	14454	17.3	3.1	16172	9.7			
184.3	8.1	14042	21.7	5.4	14881	15.4	2.7	16403	8.4			
216.0	6.9	11408	15.0	4.6	12053	10.6	2.3	13805	6.0			
261.0	5.7	11588	12.7	3.8	12514	9.1	1.9	14316	5.2			

The gearbox output braking torque T_{2B} is lower than the maximum torque transmitted by the gearbox, according to the equation (24) on page A15:

$$T_{2B} = 21776 \text{ [ftlb]} \leq T_{2MAX} = 25813 \text{ [ftlb]}$$

The selected brake is therefore suitable for the gearbox concerned.

Click *i* button to return to main index

Size	i		 [in]		 [in]	 [in]	 [in]	T_{2N} [ftlb]
010	3.38-3282	B40X36 DIN5482	1.654	A40X36 DIN5482	1.969	-	-	738
020	3.08-3235	B58X53 DIN5482	2.559	A58X53 DIN5482	2.953	1.969 2.756	2.732	1550
030	15.37-3097	B58X53 DIN5482	2.559	A58X53 DIN5482	2.953	2.559	-	2800
040	15.37-3170	B58X53 DIN5482	2.559	-	-	-	-	2800
045	3.50-3301	B58X53 DIN5482	2.559	A58X53 DIN5482	2.953	2.559 2.756	-	2800
046	3.50-3301	B58X53 DIN5482	2.559	-	-	-	2.732	2800
065	3.50-3170	B70X64 DIN5482	3.150	B70X64 DIN5482	3.543	2.756 3.150	2.756	4720
067	12.25-201.0	B70X64 DIN5482	3.150	B70X64 DIN5482	3.543	3.150	-	4720
090	4.08-3207	B80X74 DIN5482	3.543	B70X64 DIN5482	3.937	3.543	2.732	6785
091	11.22-42.37	B80X74 DIN5482	3.543	B70X64 DIN5482	3.937	3.543	-	6785
150	3.90 – 3460	B80X74 B100x94 DIN5482	3.937	B80X74 DIN5482	4.724	3.937	2.732	9590
155	19.50-272.7	B80X74 B100x94 DIN5482	3.937	B80X74 DIN5482	4.724	3.937	-	9590
250	4.04-2741	B100X94 DIN5482	4.331	B100X94 DIN5482	5.118	4.331	-	14750
255	16.48-2744	B100X94 DIN5482	4.331	B100X94 DIN5482	5.118	4.331	-	14750
320	19.95-245.3	-	-	B100X94 DIN5482	-	-	-	18440

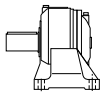
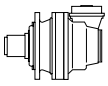
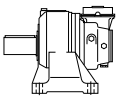
Tab. (9)

Click *i* button to return to main index

DESIGNATION

EM	1	020	MR

VERSION

- Linear
  - PD 
  - EM
  - ED
  - ET
  - EQ 
- Right-angle
  - EC 
  - PDA 

STAGES

- Linear
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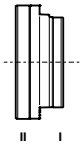
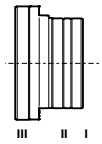
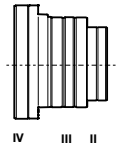
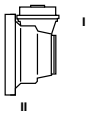
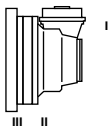
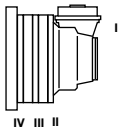
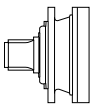
  - 2 
  - 3 
  - 4 
- Right-angle
  - 2 
  - 3 
  - 4 

SIZE

- 010
- 020
- 030
- 040
- 045
- 046
- 065
- 067
- 090
- 091
- 150
- 155
- 250
- 255
- 320

OUTPUT CONFIGURATION

- Flanged version
  - MN
MR
MNR
MNS9 
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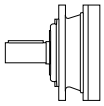
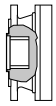
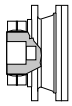
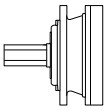
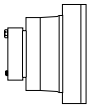
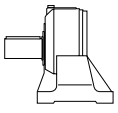
MR1
MN2
MR2
MN1S9 
  - FE
FET 
  - FS 
  - ME 
  - FP
FP1 
- Version with feet
  - MR1
MR2 

Designation example: **EM1020 / MR / 3.50 / S-45CR1 / B3**

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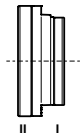
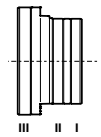
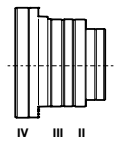
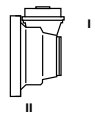
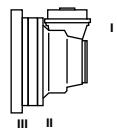
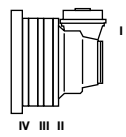
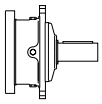
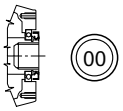
3.50 | **S-45CR1** | **B3**

ACTUAL RATIO

- Linear
  - 3.08 ↕ 7.25 
  - 10.41 ↕ 50.32 
  - 59.36 ↕ 325.7 
  - 360.4 ↕ 3160 
- Right-angle
  - 10.50 ↕ 33.50 
  - 46.09 ↕ 516.1 
  - 276.6 ↕ 3235 

INPUT CONFIGURATION

- Male input supports
  - S-45CR1
  - S-46C1
  - S-46C1.RL
  - S-65CR1
  - S-65CR1.RL
  - S-45SR
  - S-65SR 
  - 48.82
  - 45.70 
- Multi-disc brakes
  - FL250
  - FL350
  - FL450
  - FL650
  - FL750
  - FL960 
- Universal input
  - 00 

MOUNTING POSITION

- Linear
  - B3
  - B6
  - B7
  - ...
- Right-angle
  - V6A
  - V6B
  - V6A
  - V6B
  - B3A
  - ...

Designation example: **EM1020 / MR / 3.50 / S-45CR1 / B3**

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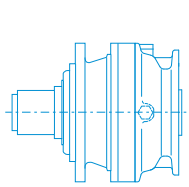
DANA
BREVINI®
Motion Systems



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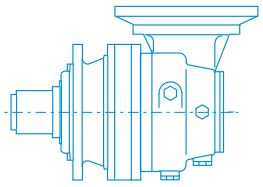
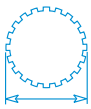
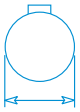
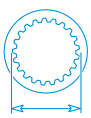
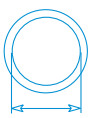


i_{eff}	3.38 - 3282
T_N (Nm)	740 ftlb
	B40X36 DIN5482
	1.5 in
	A40X36 DIN5482
	1.968 in

TECHNICAL DATA

10000 hours life

i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EM 1010 / PD 1010												
3.38	444	302	25.6	296	341	19.3	148	420	11.8			
4.39	342	318	20.7	228	359	15.6	114	443	9.7			
6.00	250	304	14.5	167	334	10.6	83	376	6.0	3000	1180	16.1
6.94	216	285	11.8	144	300	8.3	72	337	4.7			
10.50	143	152	4.2	95	157	2.8	47.6	165	1.5			
ED 2010 / PD 2010												
11.42	131	436	10.9	88	492	8.2	43.8	605	5.1			
14.84	101	471	9.1	67	532	6.8	33.7	656	4.2			
19.27	78	496	7.4	52	560	5.5	25.9	602	3.0			
20.28	74	518	7.2	49.3	585	5.5	24.7	676	3.2			
23.46	64	541	6.6	42.6	611	5.0	21.3	679	2.8			
26.34	57	544	5.9	38	592	4.3	19	608	2.1	3000	1180	10.7
30.47	49.2	569	5.4	32.8	596	3.8	16.4	611	1.9			
36.00	41.7	414	3.2	27.8	434	2.3	13.9	469	1.2			
41.64	36	421	3.0	24	442	2.0	12	476	1.1			
48.16	31.1	378	2.3	20.8	396	1.6	10.4	428	0.8			
ET 3010 / PD 3010												
65.14	23	677	3.0	15.4	687	2.0	7.7	702	1.0			
68.55	21.9	679	2.8	14.6	688	1.9	7.3	704	1.0			
79.29	18.9	682	2.4	12.6	691	1.6	6.3	707	0.8			
89.03	16.8	684	2.1	11.2	694	1.5	5.6	709	0.8			
103.0	14.6	688	1.9	9.7	697	1.3	4.9	712	0.7			
115.6	13	617	1.5	8.6	625	1.0	4.3	638	0.5			
121.7	12.3	692	1.6	8.2	701	1.1	4.1	715	0.6			
140.7	10.7	695	1.5	7.1	704	1.0	3.6	719	0.5			
162.8	9.2	698	1.2	6.1	707	0.8	3.1	722	0.4			
182.8	8.2	625	1.0	5.5	634	0.7	2.7	647	0.3			
211.4	7.1	628	0.8	4.7	636	0.6	2.4	649	0.3	3000	1180	6.7
216.0	6.9	504	0.7	4.6	540	0.5	2.3	589	0.3			
246.3	6.1	707	0.8	4.1	716	0.5	2	730	0.3			
276.6	5.4	634	0.7	3.6	642	0.4	1.8	654	0.2			
319.9	4.7	636	0.6	3.1	644	0.4	1.6	664	0.2			
372.6	4	608	0.5	2.7	624	0.3	1.3	651	0.2			
378.0	4	560	0.4	2.6	587	0.3	1.3	630	0.2			
437.2	3.4	580	0.4	2.3	590	0.3	1.1	644	0.1			
484.0	3.1	645	0.4	2.1	652	0.3	1	709	0.1			
661.5	2.3	590	0.3	1.5	617	0.2	0.76	686	0.1			
765.1	2	569	0.2	1.3	607	0.1	0.65	675	0.1			
EQ 4010 / PD 4010												
131	11.5	701	1.5	7.7	710	1.0	3.8	725	0.5			
170	8.8	707	1.2	5.9	715	0.8	2.9	730	0.4			
232	6.5	714	0.9	4.3	723	0.6	2.2	737	0.3			
286	5.2	718	0.7	3.5	727	0.5	1.7	741	0.2			
301	5	719	0.7	3.3	728	0.5	1.7	743	0.2			
348	4.3	723	0.6	2.9	731	0.4	1.4	746	0.2			
405	3.7	726	0.5	2.5	735	0.3	1.2	759	0.2			
452	3.3	728	0.5	2.2	737	0.3	1.1	772	0.2			
527	2.8	731	0.4	1.9	740	0.3	0.9	791	0.1			
550	2.7	732	0.4	1.8	740	0.3	0.9	797	0.1			
618	2.4	735	0.3	1.6	743	0.2	0.8	811	0.1			
720	2.1	738	0.3	1.4	746	0.2	0.7	830	0.1			
832	1.8	741	0.3	1.2	763	0.2	0.6	849	0.1			
935	1.6	743	0.2	1.1	777	0.2	0.5	864	0.1			
977	1.5	744	0.2	1	782	0.1	0.5	870	0.1			
1.130	1.3	750	0.2	0.9	799	0.1	0.4	889	0.1			
1.278	1.2	765	0.2	0.8	815	0.1	0.4	906	0.1			
1.478	1	782	0.1	0.7	833	0.1	0.3	926	0.1			
1.636	0.9	795	0.1	0.6	847	0.1	0.3	941	0.1			
1.709	0.9	801	0.1	0.6	853	0.1	0.3	947	0.1			
1.919	0.8	748	0.1	0.5	796	0.1	0.3	884	0.0			
2.236	0.7	835	0.1	0.4	888	0.1	0.2	986	0.0			
2.586	0.6	854	0.1	0.4	908	0.1	0.2	1007	0.0			
2.904	0.5	797	0.1	0.3	847	0.1	0.2	940	0.0			

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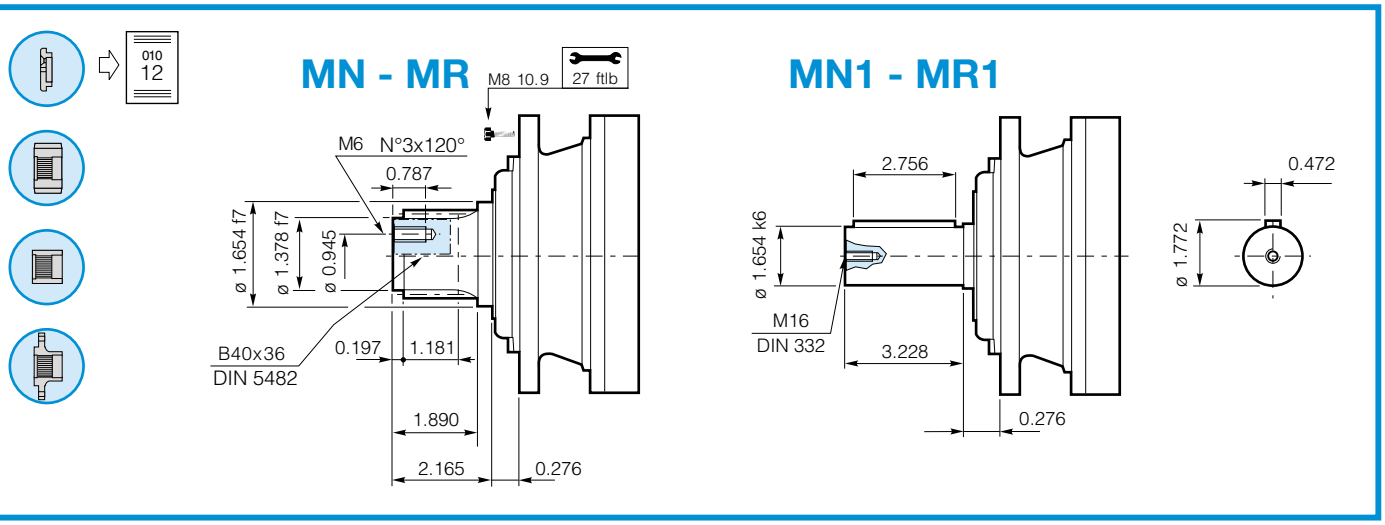
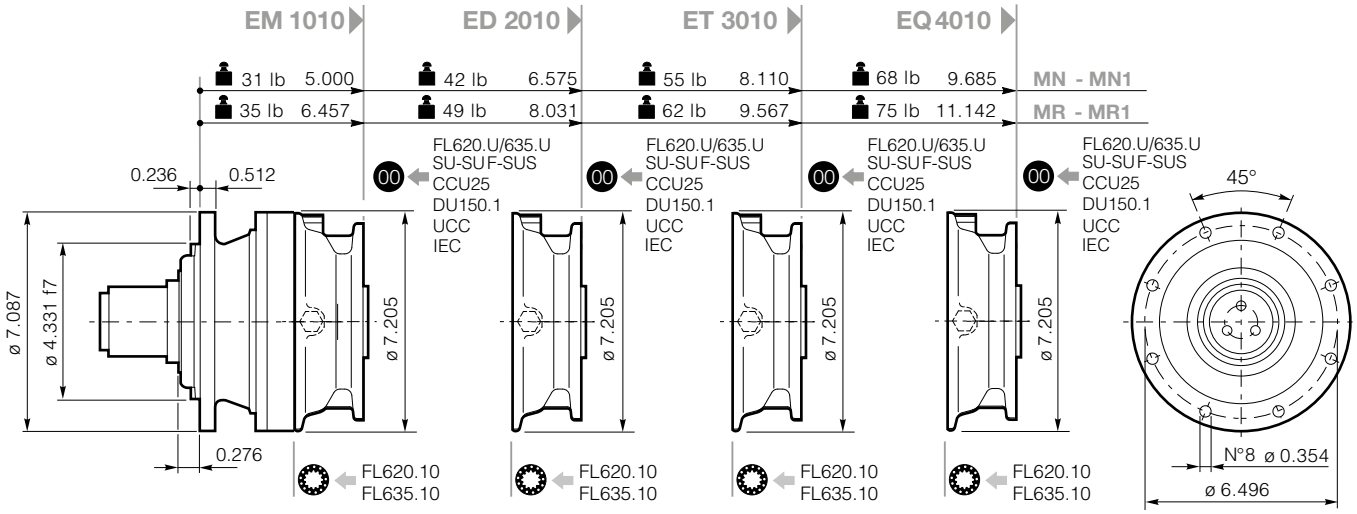
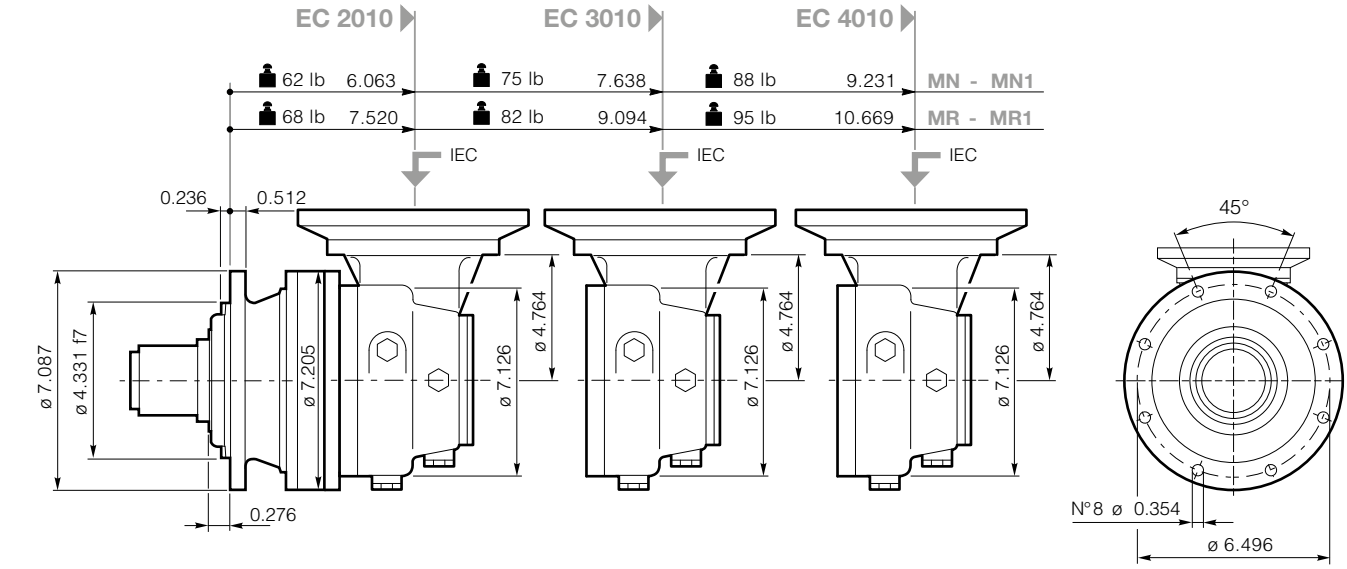
10000 hours life

i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EC 2010 / PDA 2010												
10.14	148	244	6.8	99	276	5.2	49.3	339	3.2	3000	1180	6.7
13.17	114	317	6.8	76	358	5.2	38	441	3.2			
16.53	91	243	4.2	61	275	3.2	30.3	339	2.0			
18.00	83	376	6.0	56	398	4.2	27.8	434	2.3			
21.47	70	316	4.2	46.6	358	3.2	23.3	440	2.0			
29.34	51	403	3.9	34.1	424	2.8	17	459	1.5			
33.94	44.2	361	3.1	29.5	380	2.1	14.7	412	1.2			
40.68	36.9	386	2.7	24.6	437	2.0	12.3	476	1.1			
47.05	31.9	376	2.3	21.3	395	1.6	10.6	428	0.9			
EC 3010 / PDA 3010												
34.27	43.8	605	5.1	29.2	671	3.8	14.6	688	1.9	3000	1180	5.4
44.51	33.7	656	4.2	22.5	678	3.0	11.2	694	1.5			
55.87	26.9	673	3.5	17.9	683	2.3	9	699	1.2			
60.84	24.7	676	3.2	16.4	685	2.1	8.2	701	1.1			
72.56	20.7	680	2.7	13.8	690	1.9	6.9	704	0.9			
77.46	19.4	681	2.5	12.9	691	1.7	6.5	706	0.9			
91.40	16.4	611	1.9	10.9	620	1.3	5.5	634	0.7			
99.17	15.1	687	2.0	10.1	696	1.3	5	712	0.7			
114.7	13.1	690	1.7	8.7	700	1.2	4.4	715	0.6			
128.8	11.6	619	1.3	7.8	627	0.9	3.9	640	0.5			
137.5	10.9	695	1.5	7.3	704	1.0	3.6	718	0.5			
159.0	9.4	698	1.3	6.3	707	0.8	3.1	721	0.4			
173.5	8.6	579	1.0	5.8	594	0.7	2.9	621	0.3			
206.6	7.3	628	0.9	4.8	636	0.6	2.4	649	0.3			
225.4	6.7	630	0.8	4.4	637	0.5	2.2	650	0.3			
240.6	6.2	591	0.7	4.2	607	0.5	2.1	634	0.3			
282.3	5.3	522	0.5	3.5	575	0.4	1.8	601	0.2			
312.5	4.8	636	0.6	3.2	644	0.4	1.6	661	0.2			
356.3	4.2	479	0.4	2.8	530	0.3	1.4	600	0.2			
427.1	3.5	577	0.4	2.3	589	0.3	1.2	642	0.1			
494.1	3	519	0.3	2	567	0.2	1	631	0.1			
EC 4010 / PDA 4010												
150.5	10	697	1.3	6.6	706	0.9	3.3	720	0.5	3000	1180	3.0
188.8	7.9	701	1.1	5.3	710	0.7	2.6	725	0.4			
205.6	7.3	704	1.0	4.9	712	0.7	2.4	726	0.3			
261.8	5.7	709	0.8	3.8	718	0.5	1.9	732	0.3			
267.1	5.6	709	0.8	3.7	718	0.5	1.9	732	0.3			
318.5	4.7	713	0.6	3.1	721	0.4	1.6	736	0.2			
359.9	4.2	715	0.6	2.8	724	0.4	1.4	738	0.2			
387.7	3.9	717	0.5	2.6	726	0.4	1.3	746	0.2			
441.6	3.4	720	0.5	2.3	728	0.3	1.1	761	0.2			
503.6	3	723	0.4	2	731	0.3	0.99	777	0.1			
537.6	2.8	723	0.4	1.9	732	0.3	0.93	785	0.1			
638.8	2.3	727	0.3	1.6	736	0.2	0.78	807	0.1			
688.2	2.2	729	0.3	1.5	738	0.2	0.73	816	0.1			
813.3	1.8	732	0.3	1.2	752	0.2	0.61	837	0.1			
893.9	1.7	656	0.2	1.1	700	0.1	0.56	780	0.1			
1056	1.4	738	0.2	0.95	783	0.1	0.47	872	0.1			
1104	1.4	740	0.2	0.91	788	0.1	0.45	878	0.1			
1204	1.2	750	0.2	0.83	799	0.1	0.42	889	0.1			
1444	1	771	0.1	0.69	822	0.1	0.35	914	0.1			
1670	0.9	789	0.1	0.6	841	0.1	0.3	934	0.1			
1822	0.82	674	0.1	0.55	717	0.1	0.27	797	0.0			
1959	0.77	685	0.1	0.51	728	0.1	0.26	807	0.0			
2169	0.69	754	0.1	0.46	802	0.1	0.23	891	0.0			
2527	0.59	709	0.1	0.4	754	0.1	0.2	837	0.0			
2964	0.51	729	0.1	0.34	774	0.1	0.17	858	0.0			
3282	0.46	804	0.1	0.3	854	0.1	0.15	947	0.0			

GEARBOX DIMENSIONS WITH OUTPUT







00 → B 14 | SU-SUF SUS → 010 9 | FL620 FL635 → 010 10 | IEC Motor → 010 11 | CCU25 → B 16 | DU150.1 UCC → B 17

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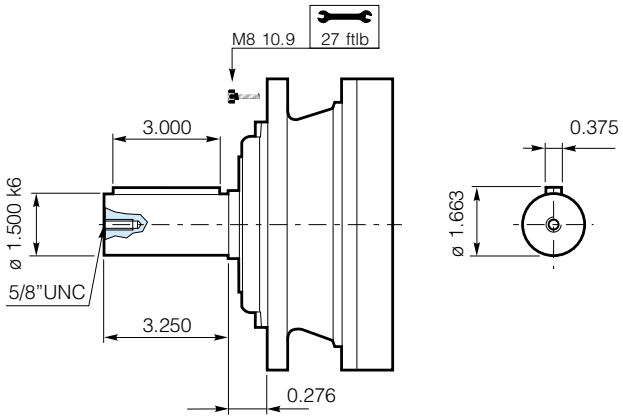
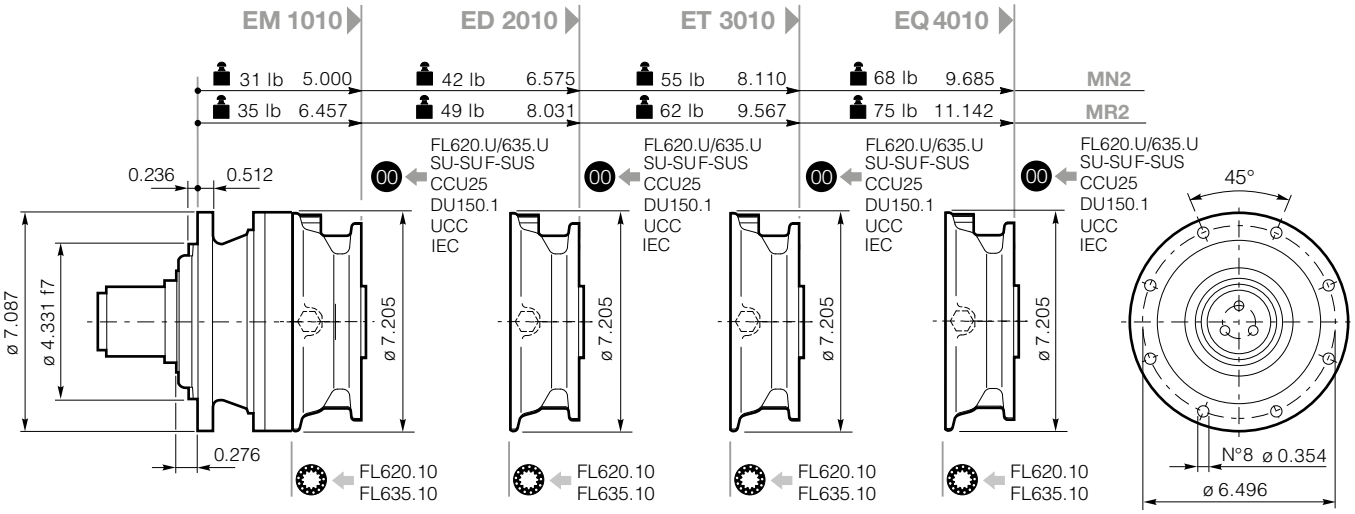
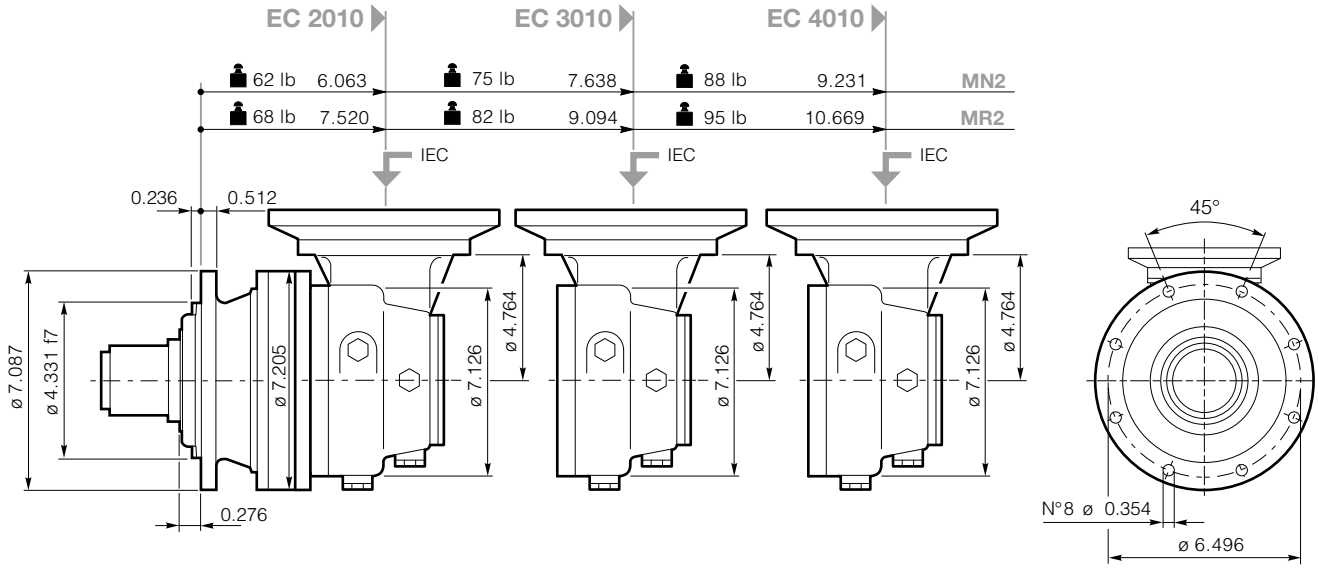
GEARBOX DIMENSIONS WITH OUTPUT

010 12







00 B 14 | SU-SUF SUS 010 9 | FL620 FL635 010 10 | IEC Motor 010 11 | CCU25 B 16 | DU150.1 UCC B 17

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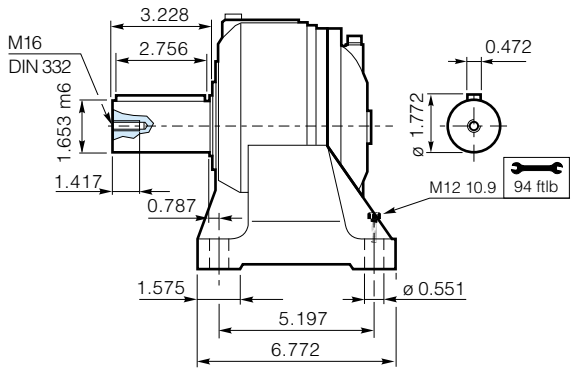
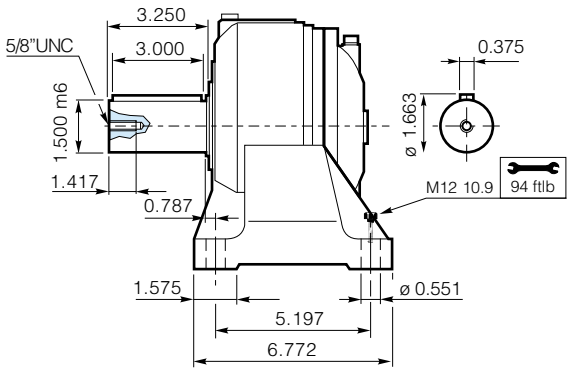
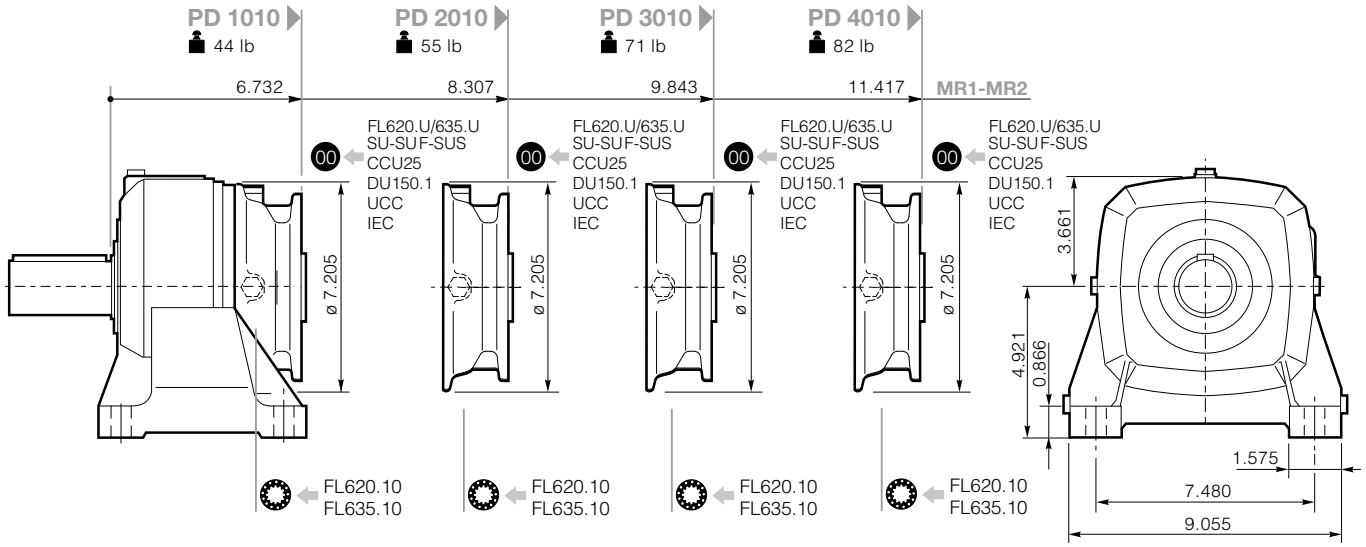
PD/PDA GEARBOX DIMENSIONS WITH OUTPUT

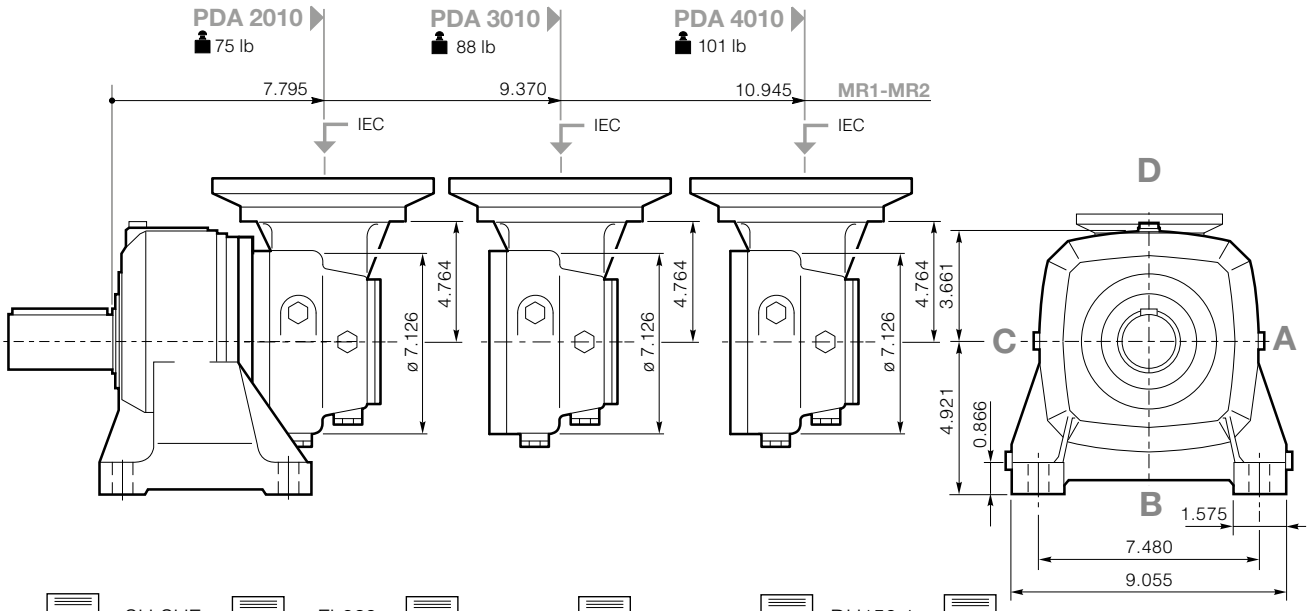
MR1



MR2







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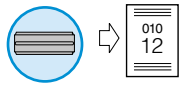

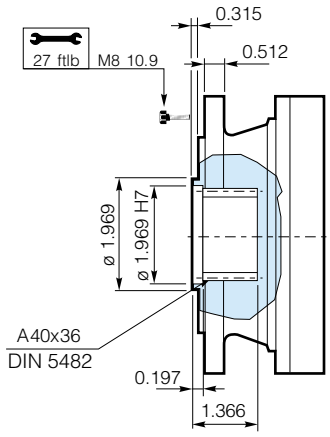

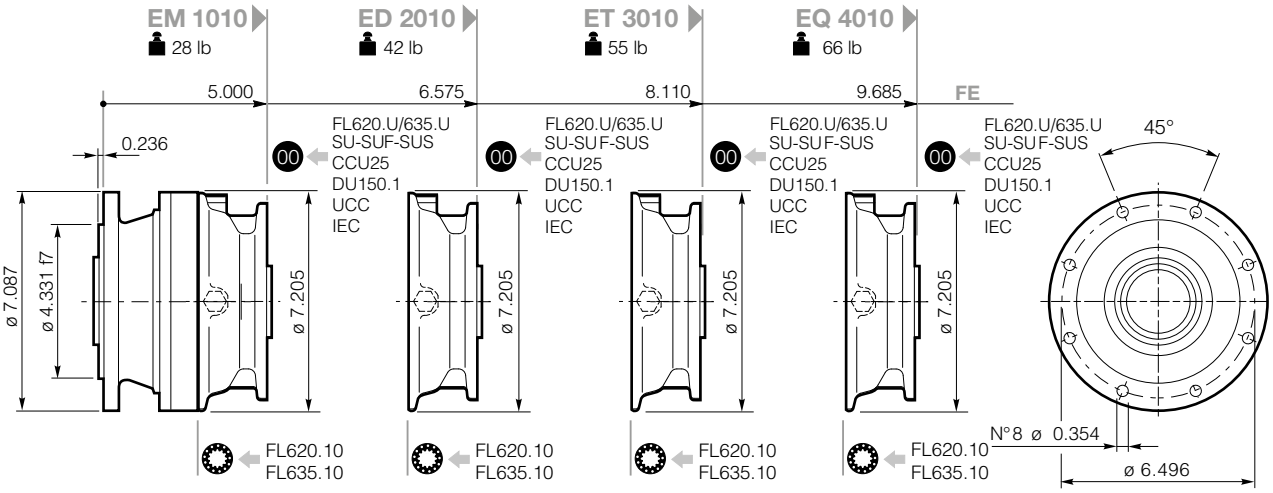

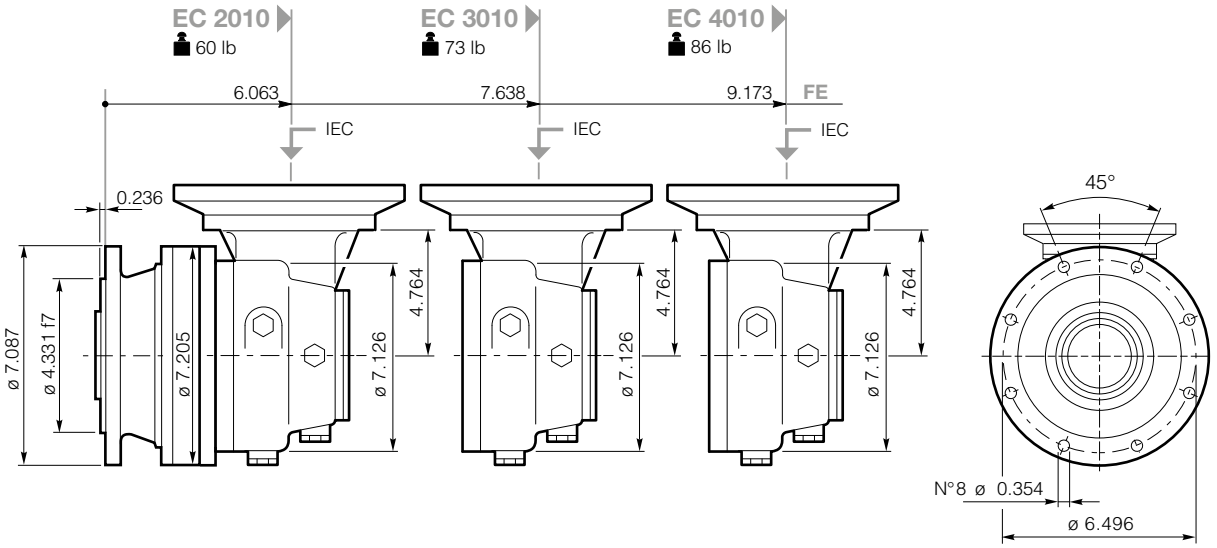

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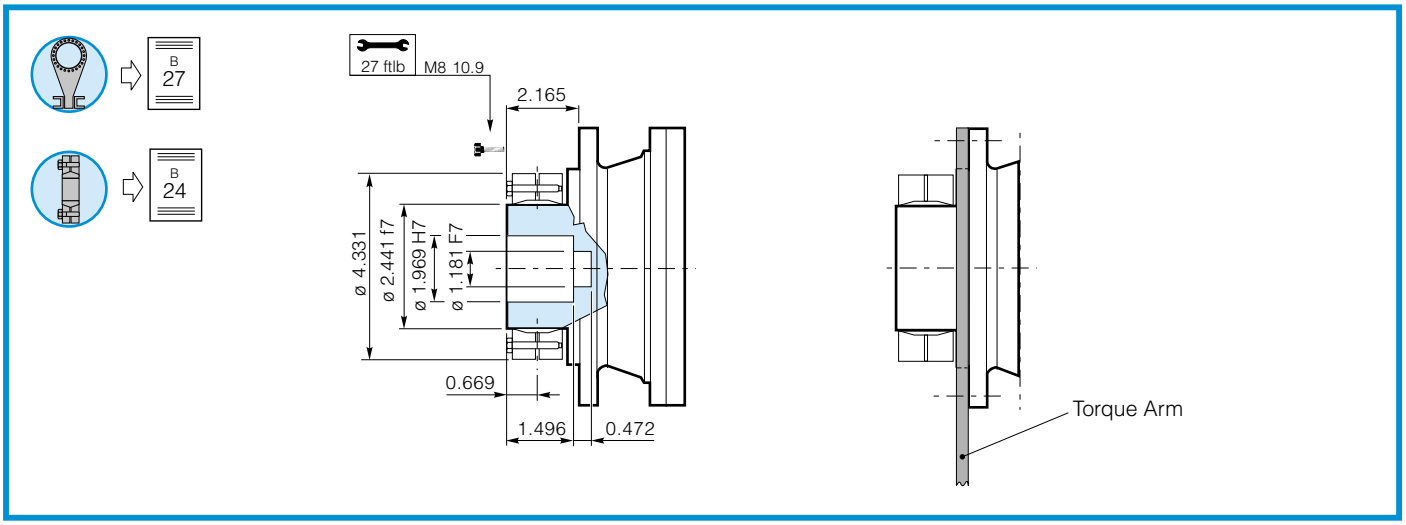
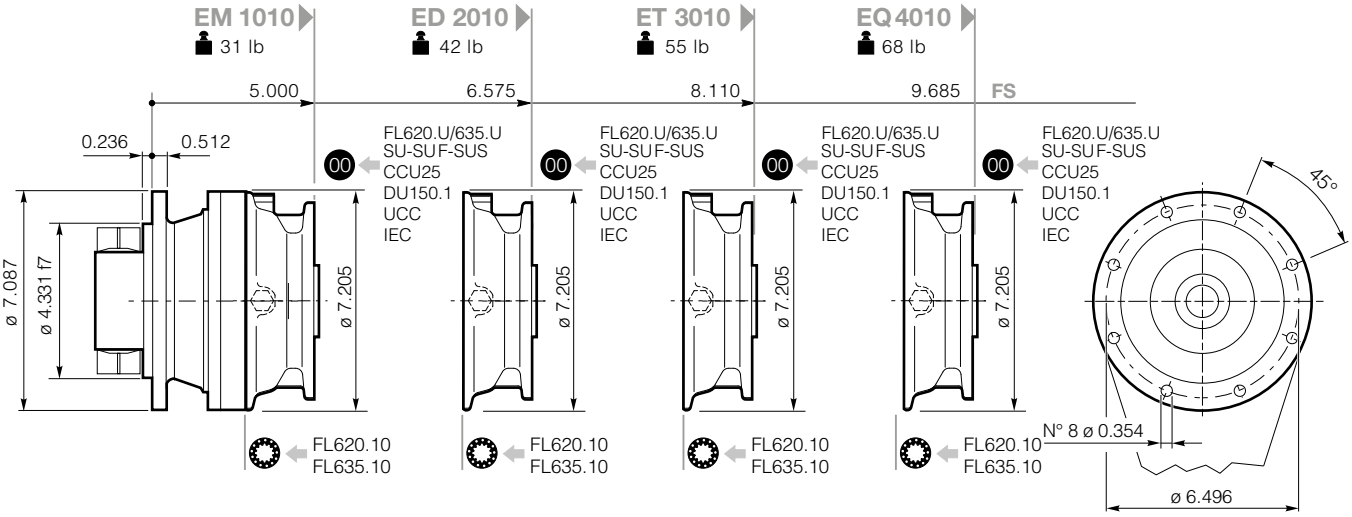
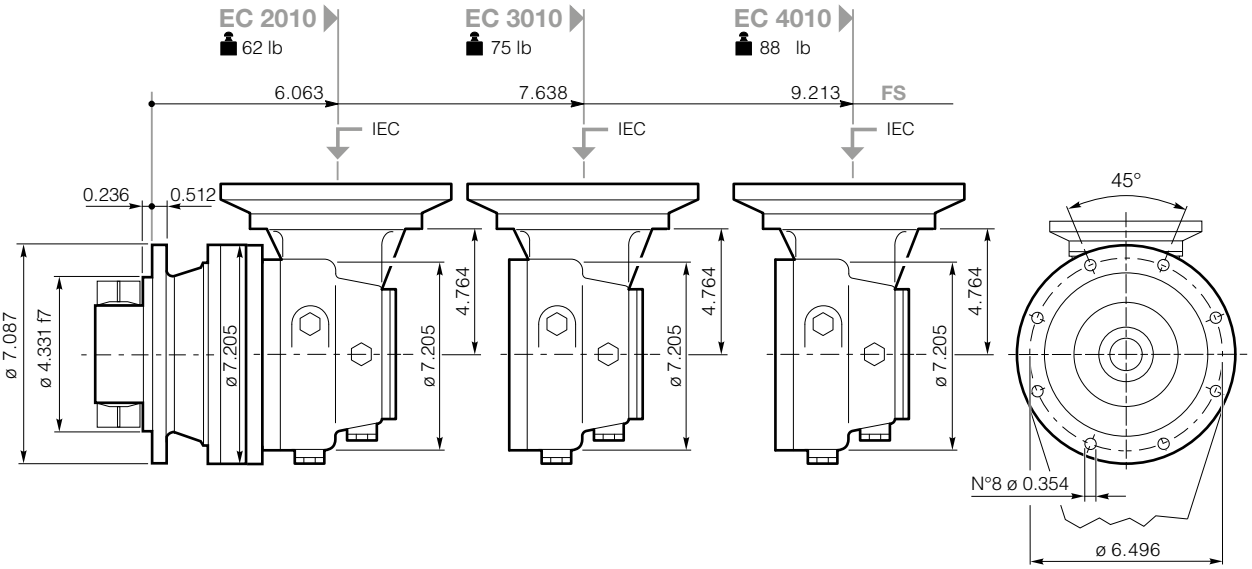
GEARBOX DIMENSIONS WITH OUTPUT







00 → B 14 | SU-SUF SUS → 010 9 | FL620 FL635 → 010 10 | IEC Motor → 010 11 | CCU25 → B 16 | DU150.1 UCC → B 17

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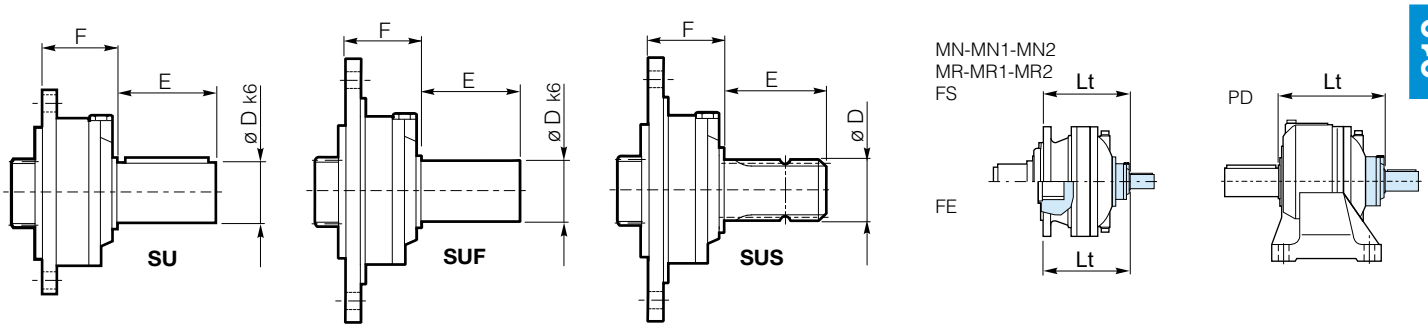
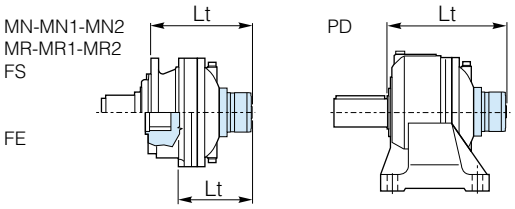
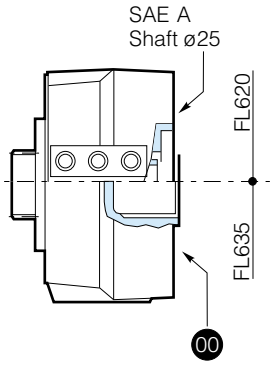
SU - SUF - SUS



	D	E	F		Lt		00
					MN-MN1-MN2-FE-FS	MR-MR1-MR2	PD
SU1 28x50	1.102	1.969	2.362	EM/PD 1010	7.362	8.819	9.094
				ED/PD 2010	8.937	10.394	10.669
				ET/PD 3010	10.472	11.929	12.205
				EQ/PD 4010	12.047	13.504	13.780
SU2 40x58	1.575	2.283	2.362	EM/PD 1010	7.362	8.819	9.094
				ED/PD 2010	8.937	10.394	10.669
				ET/PD 3010	10.472	11.929	12.205
				EQ/PD 4010	12.047	13.504	13.780
SU3 48x82	1.890	3.228	2.362	EM/PD 1010	7.362	8.819	9.094
				ED/PD 2010	8.937	10.394	10.669
				ET/PD 3010	10.472	11.929	12.205
				EQ/PD 4010	12.047	13.504	13.780
SU 42x80	1.654	3.150	3.996	EM/PD 1010	9.016	10.472	10.748
				ED/PD 2010	10.551	12.008	12.283
				ET/PD 3010	12.126	13.583	13.858
				EQ/PD 4010	13.661	15.118	15.394
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	EM/PD 1010	9.016	10.472	10.748
				ED/PD 2010	10.551	12.008	12.283
				ET/PD 3010	12.126	13.583	13.858
				EQ/PD 4010	13.661	15.118	15.394
SU2 1.5x3.25	1.500	3.250	2.362	EM/PD 1010	7.362	8.819	9.094
				ED/PD 2010	8.937	10.394	10.669
				ET/PD 3010	10.472	11.929	12.205
				EQ/PD 4010	12.047	13.504	13.780
SUF1 28x50	1.102	1.969	2.362	EM/PD 1010	7.362	8.819	9.094
				ED/PD 2010	8.937	10.394	10.669
				ET/PD 3010	10.472	11.929	12.205
				EQ/PD 4010	12.047	13.504	13.780
SUF2 40x58	1.575	2.283	2.362	EM/PD 1010	7.362	8.819	9.094
				ED/PD 2010	8.937	10.394	10.669
				ET/PD 3010	10.472	11.929	12.205
				EQ/PD 4010	12.047	13.504	13.780
SUF3 48x82	1.890	3.228	2.362	EM/PD 1010	7.362	8.819	9.094
				ED/PD 2010	8.937	10.394	10.669
				ET/PD 3010	10.472	11.929	12.205
				EQ/PD 4010	12.047	13.504	13.780

FL620.10 - FL635.10 / FL620.U - FL635.U

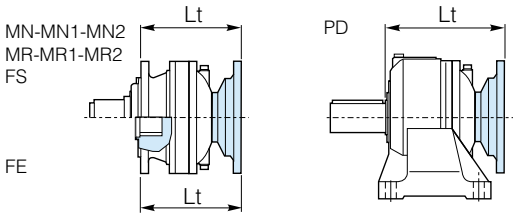




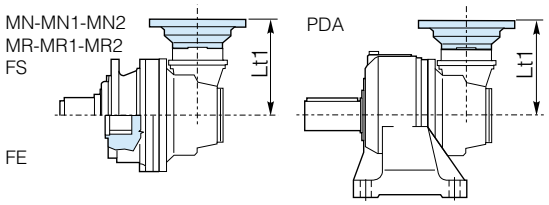
		Lt 00		
		MN-MN1-MN2 FE-FS	**MR-MR1-MR2**	**PD**
FL620.U	**EM/PD 1010**	9.134	10.571	10.846
	ED/PD 2010	10.669	12.146	12.421
	ET/PD 3010	12.244	13.681	13.957
	EQ/PD 4010	13.780	15.256	15.531
FL635.U	**EM/PD 1010**	8.583	10.039	10.315
	ED/PD 2010	10.157	11.614	11.890
	ET/PD 3010	11.693	13.150	13.425
	EQ/PD 4010	13.268	14.724	15.000

		Lt		
		MN-MN1-MN2 FE-FS	**MR-MR1-MR2**	**PD**
FL620.10	**EM/PD 1010**	7.500	8.957	9.232
	ED/PD 2010	9.075	10.531	10.787
	ET/PD 3010	10.610	12.067	12.618
	EQ/PD 4010	12.185	13.642	14.193
FL635.10	**EM/PD 1010**	6.772	8.228	6.772
	ED/PD 2010	8.346	9.803	8.346
	ET/PD 3010	9.882	11.339	9.882
	EQ/PD 4010	11.457	12.913	11.457

IEC Motor

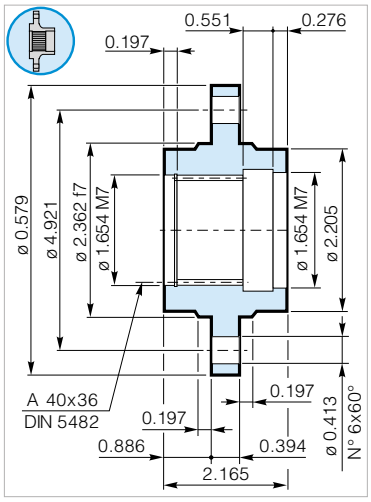


		Lt 00				
		IEC				
		63	71	80-90	100-112	132
EM1010	MN-MN1-MN2-FE-FS	5.787	5.866	6.063	6.102	8.740
	MR-MR1-MR2	7.244	7.323	7.520	7.559	10.197
ED2010	MN-MN1-MN2-FE-FS	7.362	7.441	7.638	7.677	10.315
	MR-MR1-MR2	8.819	8.898	9.094	9.134	11.772
ET3010	MN-MN1-MN2-FE-FS	8.898	8.976	9.173	9.213	11.850
	MR-MR1-MR2	10.354	10.433	10.630	10.669	13.307
EQ 4010	MN-MN1-MN2-FE-FS	10.472	10.551	10.748	10.787	13.425
	MR-MR1-MR2	11.929	12.008	12.205	12.244	14.882
PD1010	PD	7.520	7.598	7.795	7.835	10.472
PD 2010		9.094	9.173	9.370	9.409	12.047
PD 3010		10.630	10.709	10.905	10.945	13.583
PD 4010		12.205	12.283	12.480	12.520	15.157

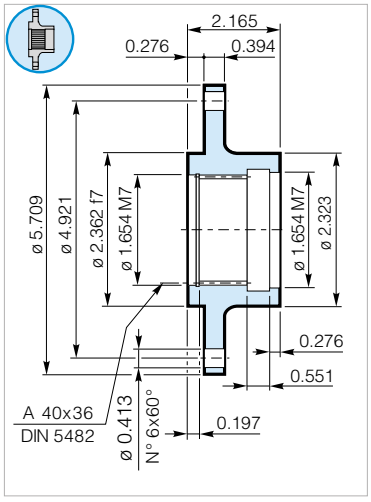


		Lt1				
		IEC				
		63	71	80-90	100-112	132
EC 2010	MN-MN1-MN2-FE FS-PDA	5.945	5.945	5.945	5.945	9.370
EC 3010						
EC 4010						

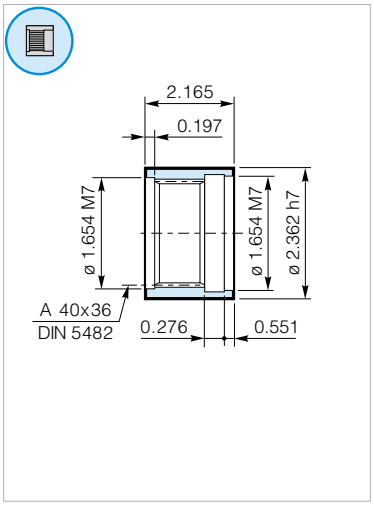
FA 010 MN-MR — Wheel Flange



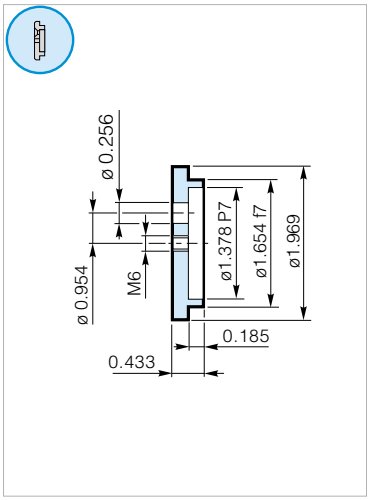
FR 010 MN-MR — Wheel Flange



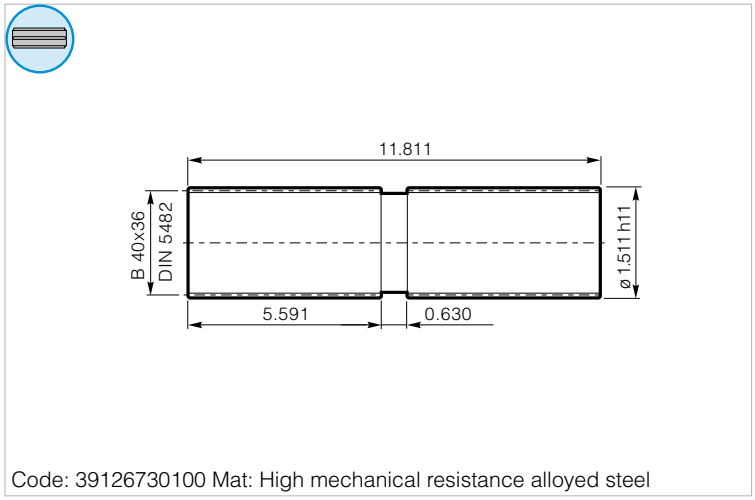
MS 010 MN-MR — Splined Sleeve



RDF 010 MN-MR — Lock Washer



BS 010 FE — Splined Bar

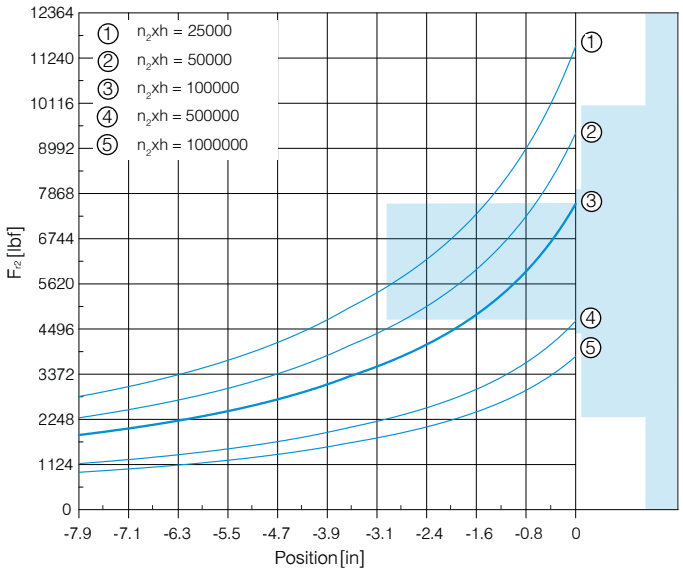


Code: 39126730100 Mat: High mechanical resistance alloyed steel

Output Radial Loads

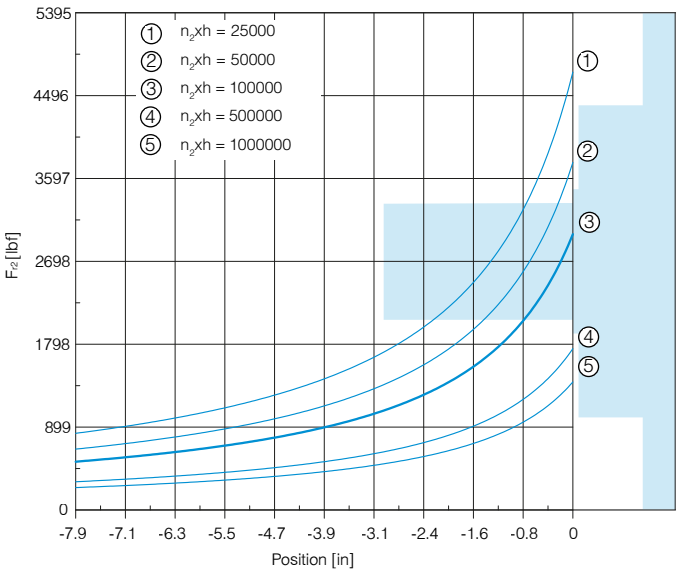
Gearbox Versions: ED, ET, EQ, EC

MR-MR1-MR2



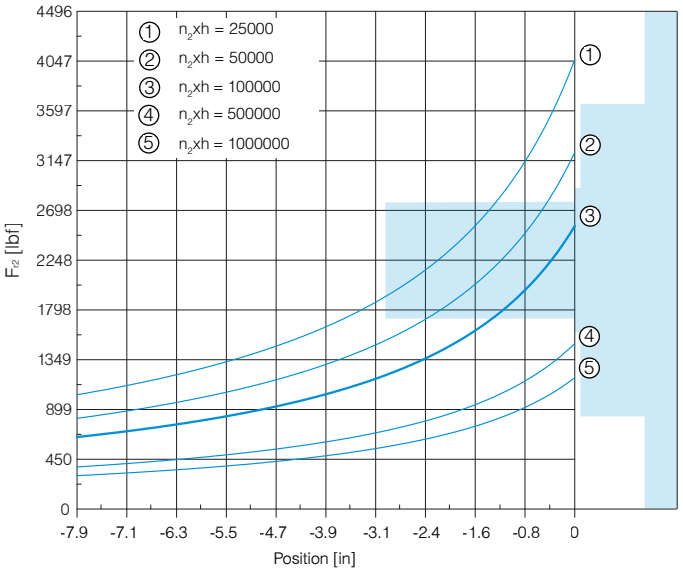
Gearbox Versions: ED, ET, EQ, EC

MN-MN1-MN2



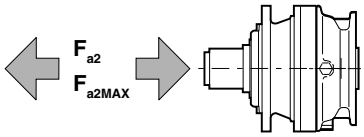
Gearbox Versions: PD, PDA

MR1-MR2



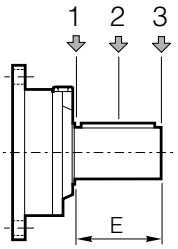
RADIAL AND AXIAL LOADS

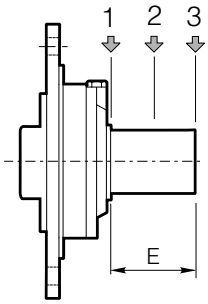
Output Axial Loads

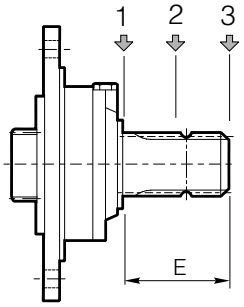


		Flange mounted		PD-PDA
		MN-MN1-MN2	MR-MR1-MR2	MR1-MR2
F_{a2}	[lbf]	2023	2023	1349
F_{a2MAX}	[lbf]	2023	2023	1349

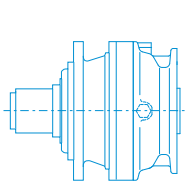
Input Radial Loads



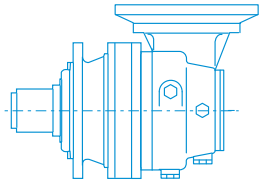


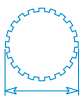
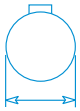
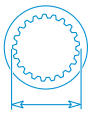
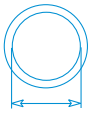
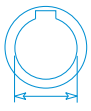


		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	E	1	2	3	1	2	3
SU 42x80	3.150	674.4	449.6	337.2	314.7	224.8	157.3
SU1 28x50	1.969	674.4	449.6	337.2	314.7	224.8	157.3
SU2 40x58	2.283	674.4	449.6	337.2	314.7	224.8	157.3
SU3 48x82	3.228	674.4	449.6	337.2	314.7	224.8	157.3
SUS 1 3/8”	3.819	629.4	404.6	337.2	292.2	202.3	134.9
SU2 1 1/2”x 3 1/4”	3.250	674.4	449.6	337.2	314.7	224.8	157.3
SUF1 28x50	1.969	674.4	449.6	337.2	314.7	224.8	157.3
SUF2 40x58	2.283	674.4	449.6	337.2	314.7	224.8	157.3
SUF3 48x82	3.228	674.4	449.6	337.2	314.7	224.8	157.3



020



i_{eff}	3.08 - 3235
T_{2N}	1550 ftlb
	B58X53 DIN5482
	2.560 in
	A58X53 DIN5482
	2.953 in
	2.732 in
	1.970 - 2.756 in

TECHNICAL DATA

10000 hours life

i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EM 1020 / PD 1020												
3.08	487	655	60.7	325	740	45.7	162	911	28.2	3000	2065	26.8
3.50	429	717	58.5	286	810	44.1	143	996	27.1			
4.13	363	741	51.2	242	837	38.6	121	1030	23.7			
5.17	290	771	42.6	193	855	31.5	97	949	17.4			
6.00	250	738	35.1	167	794	25.2	83	875	13.9			
7.25	207	636	25.1	138	681	17.8	69	749	9.8			
ED 2020 / PD 2020												
10.41	144	931	25.6	96	1052	19.3	48	1295	11.8	3000	2065	16.1
11.83	127	1033	24.9	85	1167	18.8	42.3	1437	11.5			
13.52	111	980	20.7	74	1107	15.6	37	1363	9.7			
15.37	98	1114	20.7	65	1257	15.6	32.5	1502	9.3			
18.13	83	1155	18.2	55	1265	13.3	27.6	1357	7.1			
21.00	71	1066	14.5	47.6	1169	10.6	23.8	1318	6.0			
22.70	66	994	12.5	44.1	1041	8.7	22	1117	4.7			
24.78	61	1252	14.5	40.4	1307	10.1	20.2	1398	5.4			
28.66	52	1180	11.8	34.9	1241	8.3	17.4	1394	4.7			
31.02	48.4	1030	9.5	32.2	1075	6.6	16.1	1151	3.5			
35.88	41.8	1047	8.3	27.9	1092	5.8	13.9	1167	3.1			
41.64	36	962	6.6	24	1003	4.6	12	1072	2.4			
50.32	29.8	823	4.7	19.9	858	3.2	9.9	919	1.7			
ET 3020 / PD3020												
59.36	25.3	1527	7.4	16.8	1679	5.4	8.4	1854	3.0	3000	2065	10.7
61.28	24.5	1372	6.4	16.3	1426	4.4	8.2	1533	2.4			
70.98	21.1	1564	6.3	14.1	1623	4.3	7	1822	2.4			
82.10	18.3	1586	5.5	12.2	1644	3.8	6.1	1877	2.1			
92.19	16.3	1602	5.0	10.8	1666	3.5	5.4	1922	2.0			
106.6	14.1	1623	4.3	9.4	1718	3.1	4.7	1979	1.7			
108.8	13.8	1448	3.8	9.2	1501	2.7	4.6	1726	1.5			
126.0	11.9	1448	3.2	7.9	1521	2.3	4	1643	1.2			
145.7	10.3	1474	3.0	6.9	1547	2.0	3.4	1669	1.1			
161.3	9.3	1721	3.1	6.2	1870	2.1	3.1	2065	1.2			
172.0	8.7	1511	2.5	5.8	1645	1.9	2.9	1893	1.0			
198.9	7.5	1558	2.3	5	1638	1.6	2.5	1771	0.8			
220.5	6.8	1548	2.0	4.5	1620	1.3	2.3	1743	0.8			
260.2	5.8	1648	1.7	3.8	1791	1.3	1.9	2054	0.8			
289.0	5.2	1167	1.2	3.5	1274	0.8	1.7	1471	0.5			
325.7	4.6	1352	1.2	3.1	1471	0.9	1.5	1694	0.5			
EQ 4020 / PD4020												
360.4	4.2	2027	1.6	2.8	2065	1.1	1.4	2065	0.5	3000	2065	5.4
404.7	3.7	2065	1.5	2.5	2065	1.0	1.2	2065	0.5			
468.1	3.2	2065	1.3	2.1	2065	0.8	1.1	2065	0.4			
502.5	3	1884	1.1	2	2040	0.8	0.99	2065	0.4			
569.8	2.6	2065	1.0	1.8	2065	0.7	0.88	2065	0.3			
639.8	2.3	2065	0.9	1.6	2065	0.6	0.78	2065	0.3			
708.2	2.1	2065	0.8	1.4	2065	0.5	0.71	2065	0.3			
835.7	1.8	2065	0.7	1.2	2065	0.5	0.6	2065	0.2			
892.1	1.7	2065	0.7	1.1	2065	0.4	0.56	2065	0.2			
1032	1.5	2065	0.6	0.97	2065	0.4	0.48	2065	0.2			
1120	1.3	2065	0.5	0.89	2065	0.3	0.45	2065	0.2			
1323	1.1	1961	0.4	0.76	2057	0.3	0.38	2065	0.1			
1380	1.1	1948	0.4	0.72	2065	0.3	0.36	2065	0.1			
1561	0.96	2065	0.4	0.64	2065	0.3	0.32	2065	0.1			
1806	0.83	2065	0.3	0.55	2065	0.2	0.28	2065	0.1			
1999	0.75	2065	0.3	0.5	2065	0.2	0.25	2065	0.1			
2315	0.65	2065	0.3	0.43	2065	0.2	0.22	2065	0.1			
2615	0.57	2052	0.2	0.38	2065	0.1	0.19	2065	0.1			
2732	0.55	2065	0.2	0.37	2065	0.1	0.18	2065	0.1			
3160	0.47	2065	0.2	0.32	2065	0.1	0.16	2065	0.1			

Click **DANA** button to return to section index

Click *i* button to return to main index

10000 hours life

i_{eff}	1500 n_2 [rpm]	1500 T_2 [ftlb]	1500 P_2 [HP]	1000 n_2 [rpm]	1000 T_2 [ftlb]	1000 P_2 [HP]	500 n_2 [rpm]	500 T_2 [ftlb]	500 P_2 [HP]	n_{1MAX} [rpm]	T_{2MAX} [ftlb]	P_T [HP]
EC 2020 / PDA 2020												
10.50*	143	996	27.1	95	1125	20.4	47.6	1386	12.6	3000	2065	10.7
12.39*	121	1030	23.7	81	1164	17.8	40.4	1307	10.1			
14.23	105	1027	20.7	70	1159	15.6	35.1	1428	9.5			
16.17	93	1134	20.0	62	1281	15.2	30.9	1510	8.9			
18.00*	83	875	13.9	56	918	9.7	27.8	988	5.2			
19.08	79	1173	17.6	52	1271	12.7	26.2	1364	6.8			
21.75*	69	749	9.8	46	785	6.8	23	846	3.8			
23.89	63	1001	11.9	41.9	1047	8.3	20.9	1122	4.4			
27.72	54	921	9.5	36.1	962	6.6	18	1031	3.5			
33.50	44.8	787	6.7	29.9	823	4.7	14.9	884	2.5			
EC 3020 / PDA 3020												
46.09	32.5	1111	6.8	21.7	1255	5.2	10.8	1545	3.2	3000	2065	6.7
52.42	28.6	1089	5.9	19.1	1133	4.2	9.5	1209	2.1			
57.85	25.9	853	4.2	17.3	964	3.2	8.6	1187	2.0			
63.00	23.8	1318	6.0	15.9	1395	4.2	7.9	1521	2.3			
68.26	22	1007	4.2	14.6	1137	3.2	7.3	1401	2.0			
75.13	20	1108	4.2	13.3	1252	3.2	6.7	1541	2.0			
88.66	16.9	1308	4.2	11.3	1474	3.2	5.6	1656	1.7			
102.7	14.6	1411	3.9	9.7	1485	2.8	4.9	1607	1.5			
111.0	13.5	1170	3.0	9	1215	2.1	4.5	1358	1.2			
121.2	12.4	1462	3.5	8.3	1529	2.4	4.1	1765	1.3			
142.4	10.5	1353	2.7	7	1529	2.0	3.5	1665	1.1			
168.0	8.9	1505	2.5	6	1637	1.9	3	1884	1.1			
175.5	8.5	1221	2.0	5.7	1291	1.3	2.8	1494	0.8			
194.3	7.7	1551	2.3	5.1	1634	1.6	2.6	1766	0.9			
210.3	7.1	1240	1.7	4.8	1342	1.2	2.4	1551	0.7			
243.3	6.2	1270	1.5	4.1	1384	1.1	2.1	1597	0.6			
282.3	5.3	1162	1.2	3.5	1267	0.9	1.8	1464	0.5			
308.1	4.9	1027	1.0	3.2	1055	0.7	1.6	1103	0.3			
368.1	4.1	904	0.7	2.7	929	0.5	1.4	970	0.3			
427.1	3.5	1049	0.7	2.3	1077	0.5	1.2	1125	0.3			
516.1	2.9	1090	0.6	1.9	1190	0.4	0.97	1360	0.3			
EC 4020 / PDA 4020												
276.6	5.4	1922	2.0	3.6	2065	1.5	1.8	2065	0.7	3000	2065	4.0
319.9	4.7	1979	1.7	3.1	2065	1.2	1.6	2065	0.6			
347.1	4.3	2011	1.6	2.9	2065	1.1	1.4	2065	0.5			
401.5	3.7	2065	1.5	2.5	2065	1.0	1.2	2065	0.5			
450.8	3.3	2065	1.3	2.2	2065	0.9	1.1	2065	0.4			
521.4	2.9	2065	1.1	1.9	2065	0.8	0.96	2065	0.4			
556.6	2.7	2065	1.1	1.8	2065	0.7	0.9	2065	0.3			
625.0	2.4	2065	0.9	1.6	2065	0.6	0.8	2065	0.3			
712.7	2.1	1757	0.7	1.4	1863	0.5	0.7	2065	0.3			
788.9	1.9	2065	0.8	1.3	2065	0.5	0.63	2065	0.2			
853.1	1.8	1841	0.6	1.2	1920	0.4	0.59	2065	0.2			
988.1	1.5	1828	0.5	1	2015	0.4	0.51	2065	0.2			
1094	1.4	2065	0.5	0.91	2065	0.4	0.46	2065	0.2			
1247	1.2	1678	0.4	0.8	1853	0.3	0.4	2065	0.2			
1495	1.0	2019	0.4	0.67	2064	0.3	0.33	2065	0.1			
1616	0.93	1870	0.3	0.62	2022	0.2	0.31	2065	0.1			
1729	0.87	1819	0.3	0.58	1986	0.2	0.29	2065	0.1			
2040	0.74	2065	0.3	0.49	2065	0.2	0.25	2065	0.1			
2208	0.68	1987	0.3	0.45	2065	0.2	0.23	2065	0.1			
2554	0.59	2043	0.2	0.39	2065	0.1	0.2	2065	0.1			
2787	0.54	1032	0.1	0.36	1097	0.1	0.18	1218	0.0			
3235	0.46	1197	0.1	0.31	1273	0.1	0.15	2065	0.1			

* (bg) All the ratios in light grey (ie. 10.50) have particular dimensions of bevel gears in some versions. See dimensional tables.

Click *i* button to return to main index

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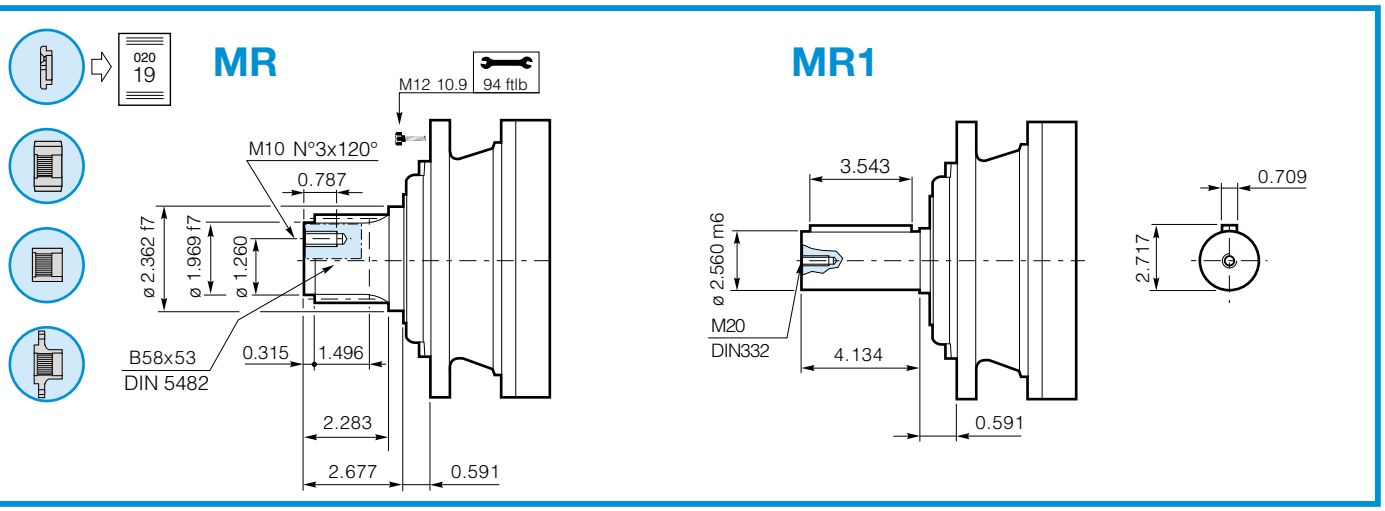
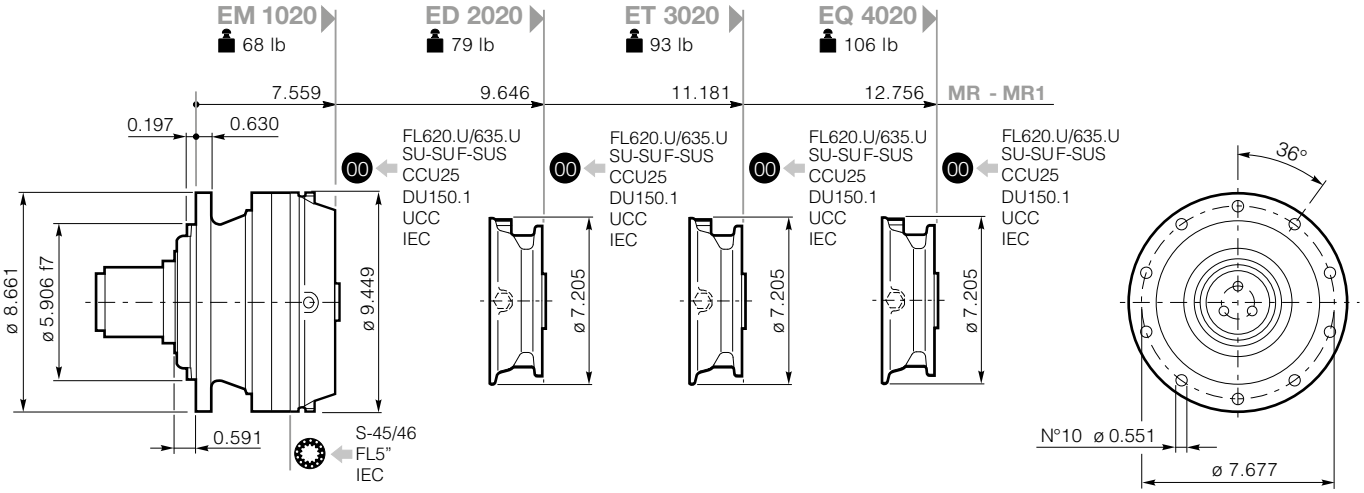
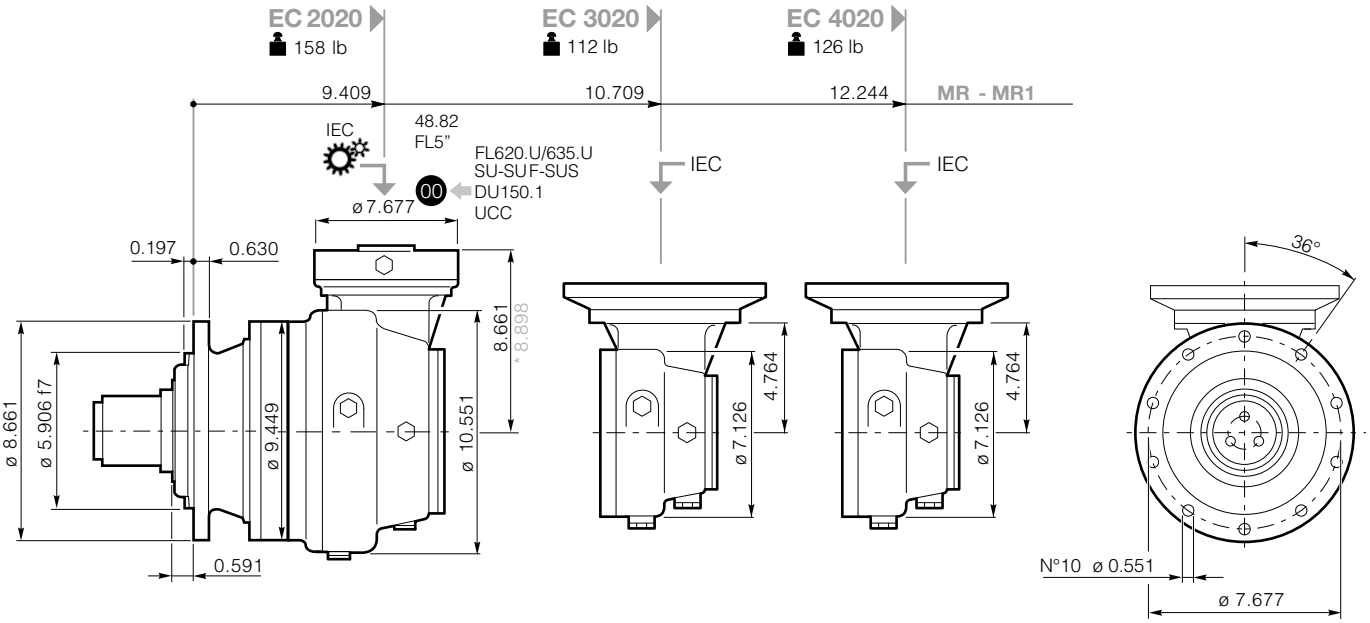
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 020 13 SU-SUF SUS 020 14 FL5" FL620 FL635 020 15 IEC 020 18 020 17 CCU25 B 17 DU150.1 UCC B 17 * bg 020 3

Click **DANA** button to return to section index
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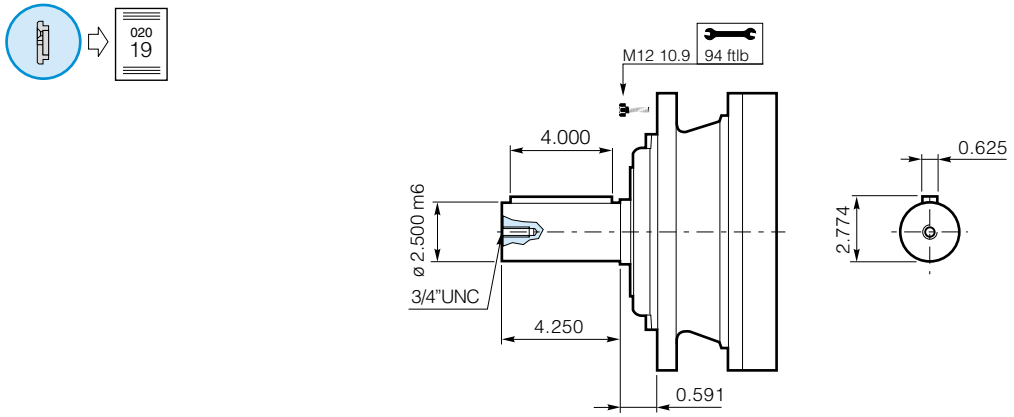

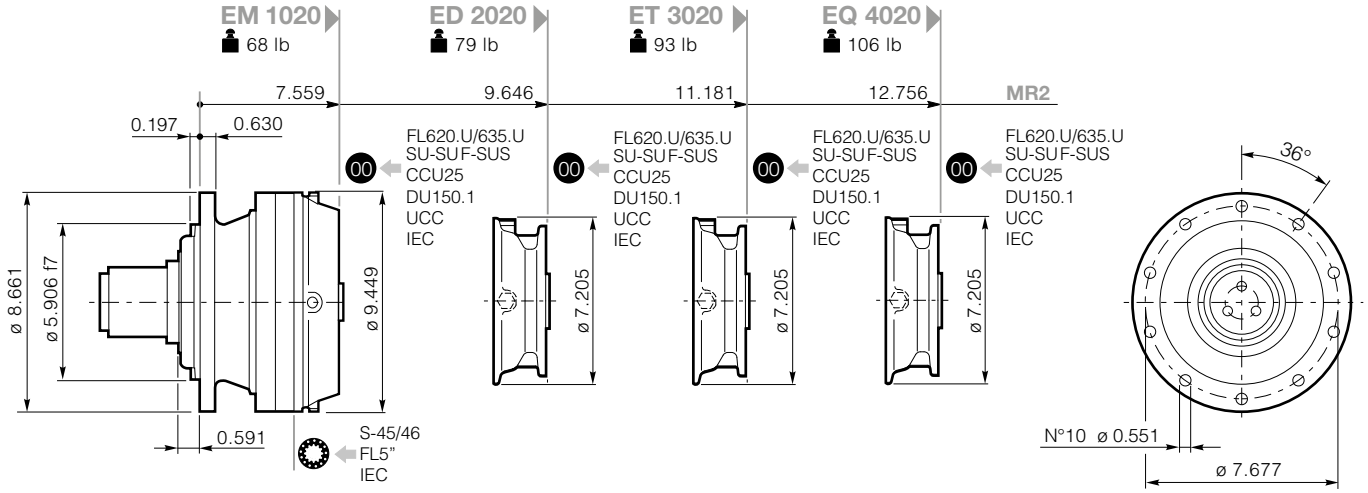

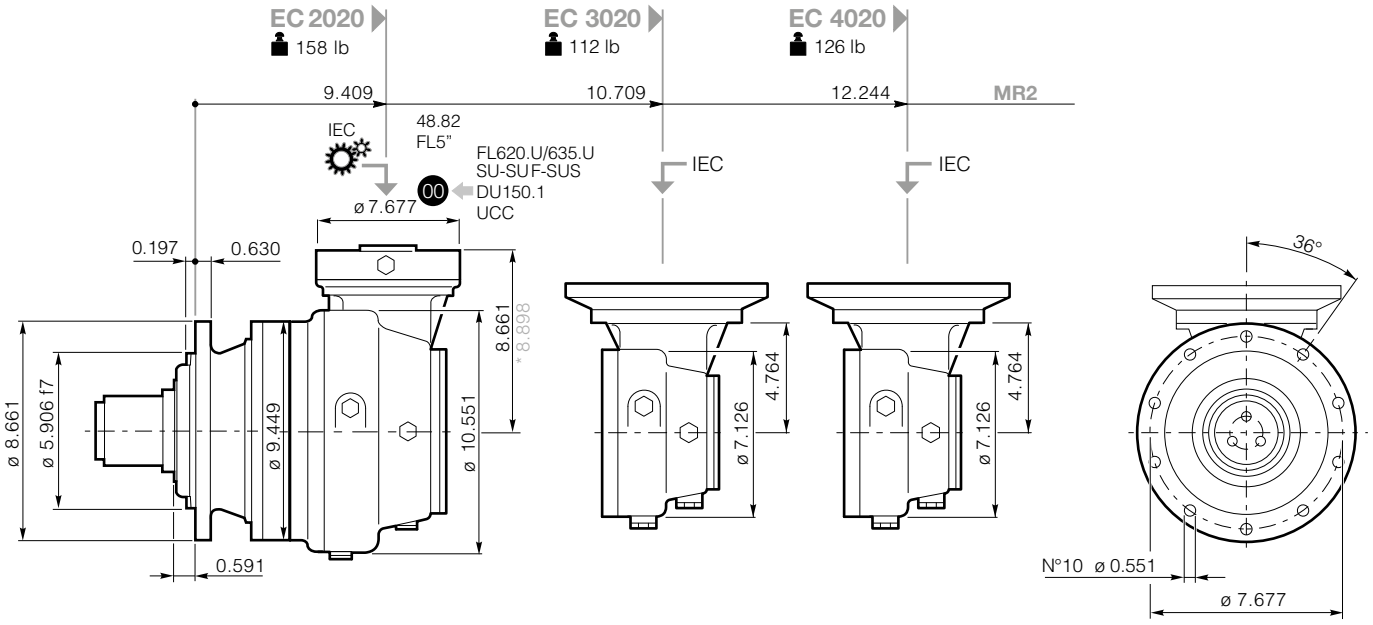

00 B 14 S-45/46 48.82 → 020 13 SU-SUF SUS → 020 14 FL5" FL620 FL635 → 020 15 IEC → 020 18 → 020 17 CCU25 → B 17 DU150.1 UCC → B 17 * bg → 020 3

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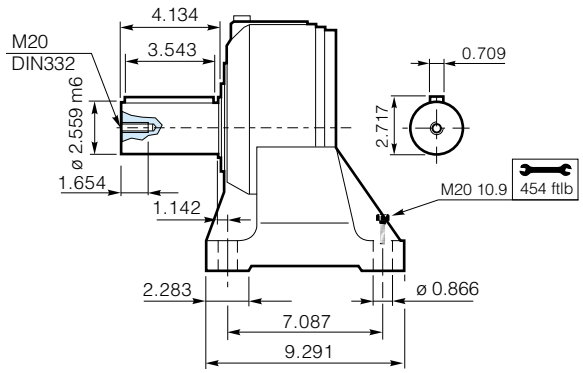
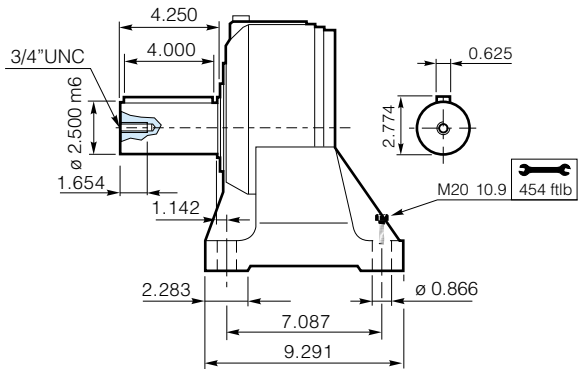
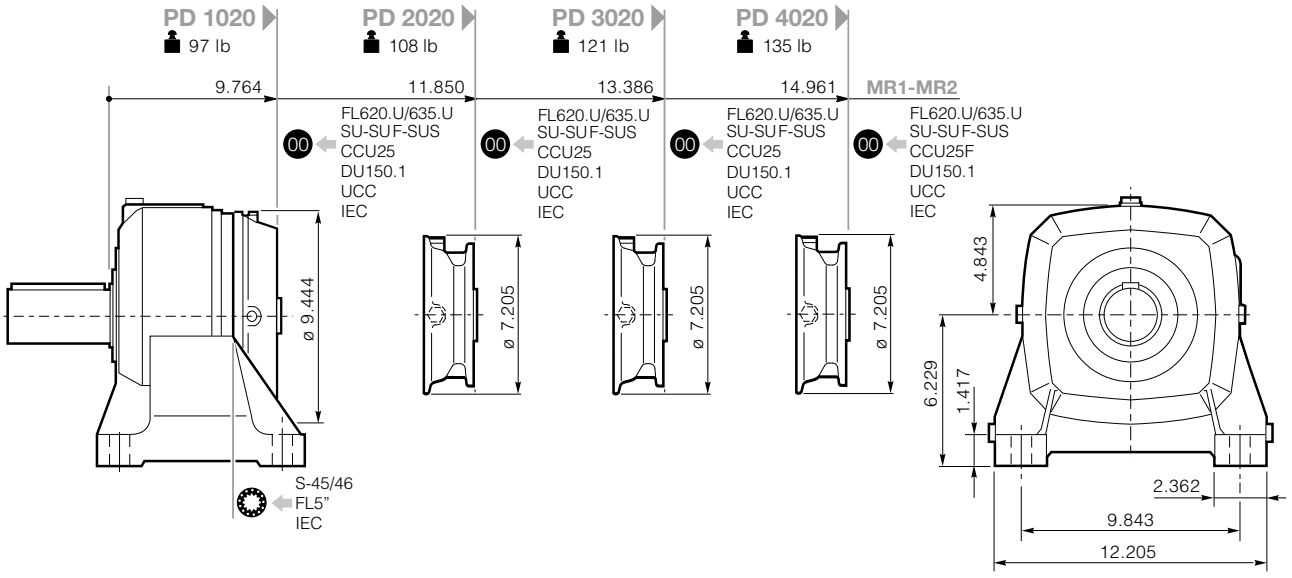
PD/PDA GEARBOX DIMENSIONS WITH OUTPUT

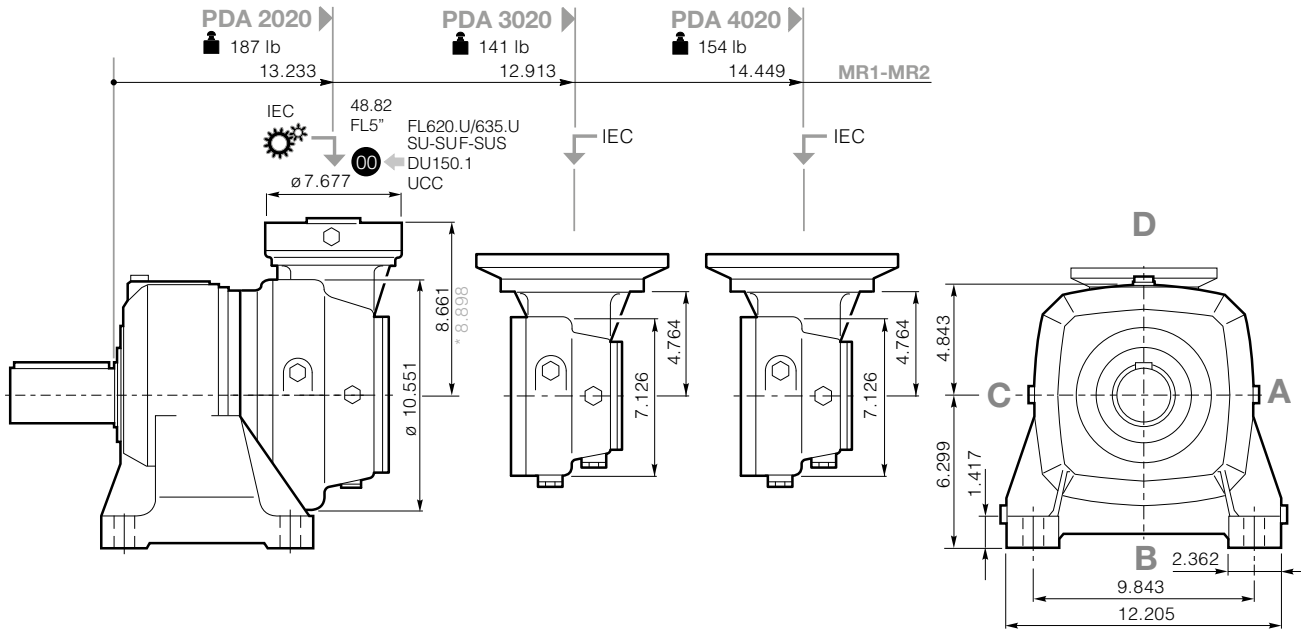
MR1



MR2







00 B 14 | S-45/46 48.82 020 13 | SU-SUF SUS 020 14 | FL5" FL620 FL635 020 15 | IEC 020 18 | 020 17 | CCU25 B 17 | DU150.1 UCC B 17 | * bg 020 3

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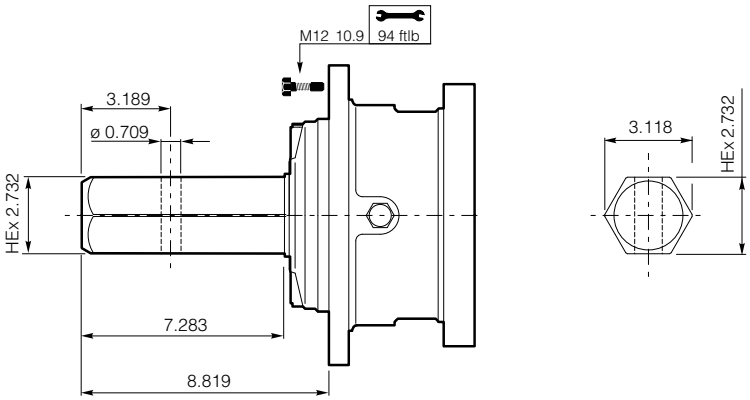

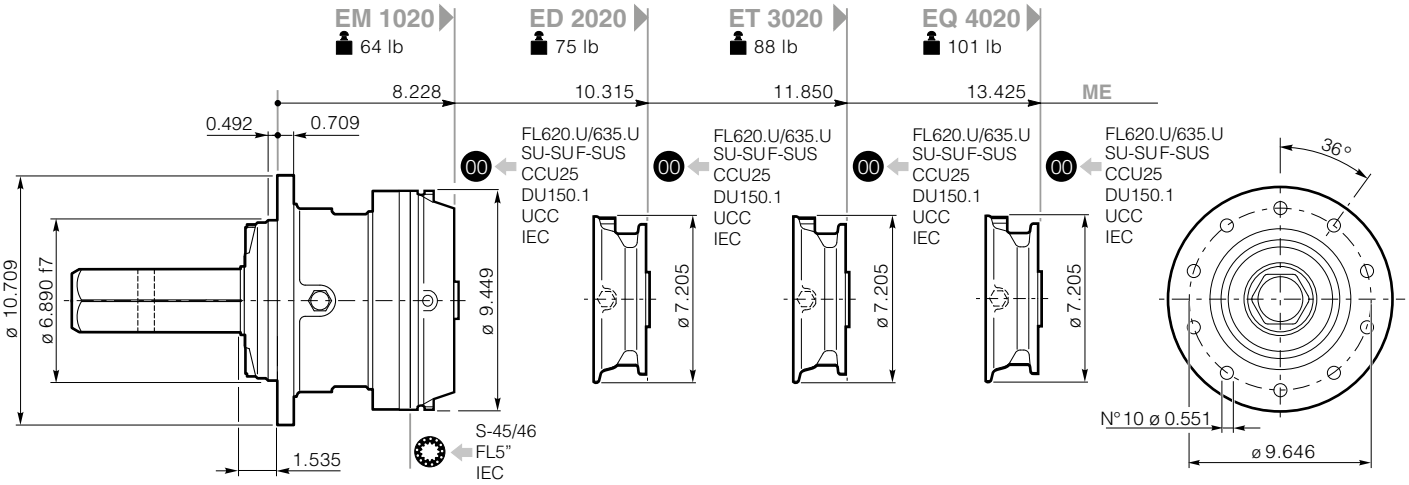

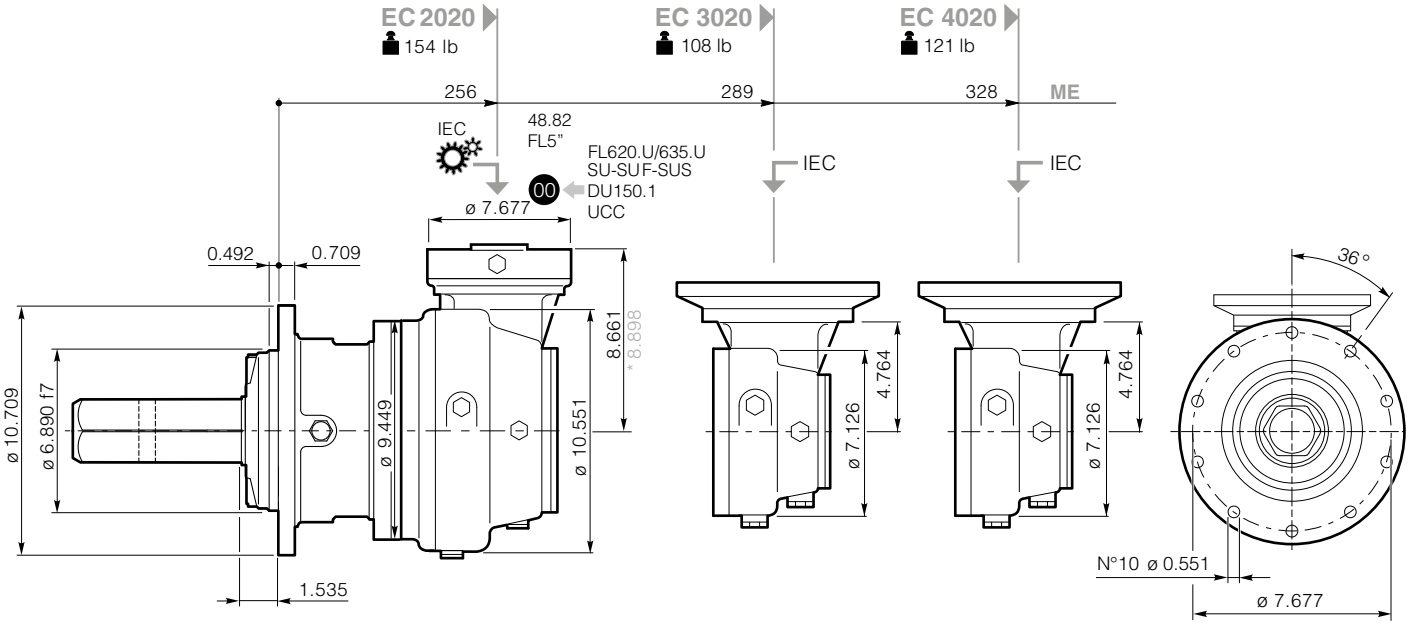

00 B 14 S-45/46 48.82 → 020 13
SU-SUF SUS → 020 14
FL5" FL620 FL635 → 020 15
IEC → 020 18
→ 020 17
CCU25 → B 17
DU150.1 UCC → B 17
* bg → 020 3

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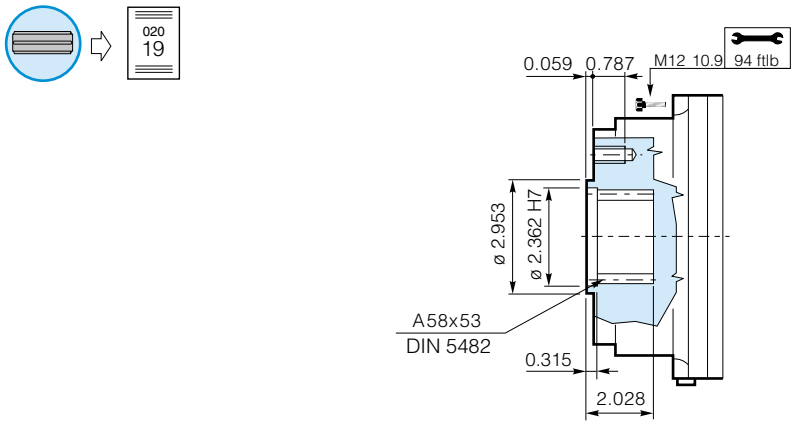
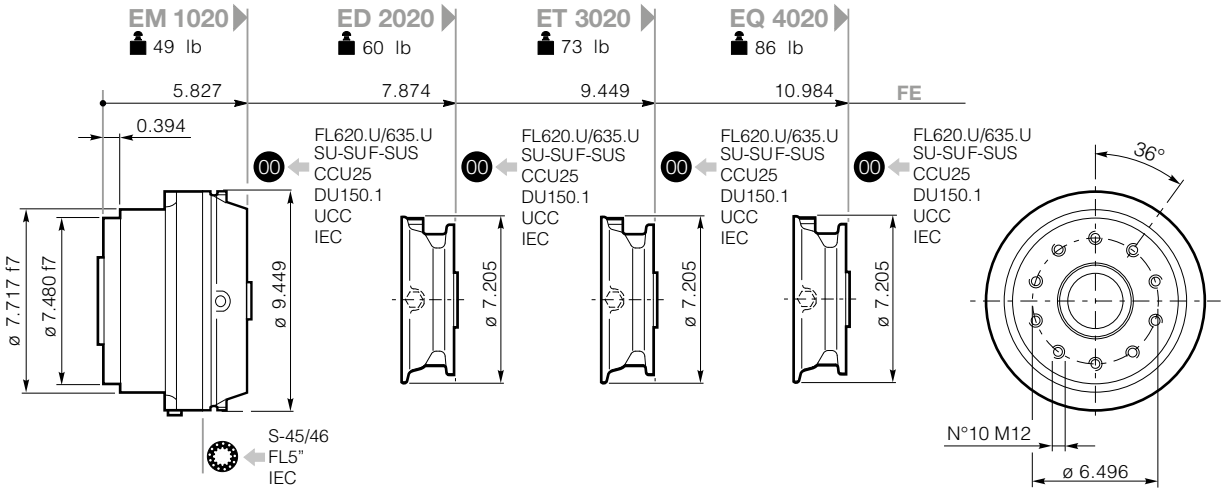
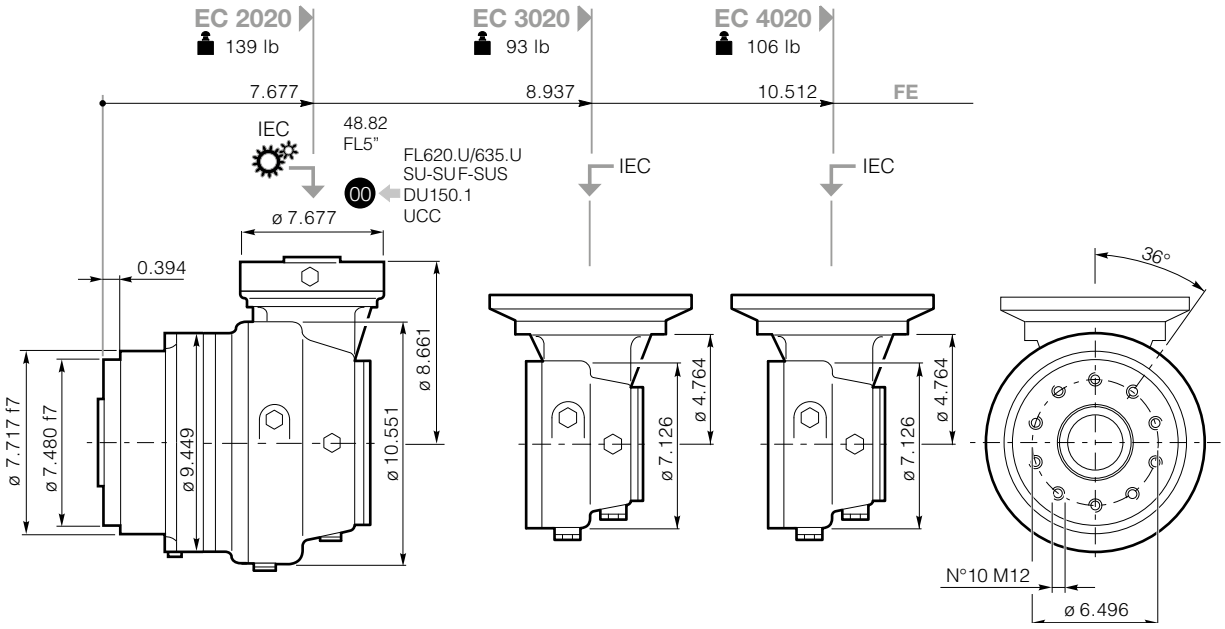
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 | S-45/46 48.82 020 13 | SU-SUF SUS 020 14 | FL5" FL620 FL635 020 15 | IEC 020 18 | 020 17 | CCU25 B 17 | DU150.1 UCC B 17 | * bg 020 3

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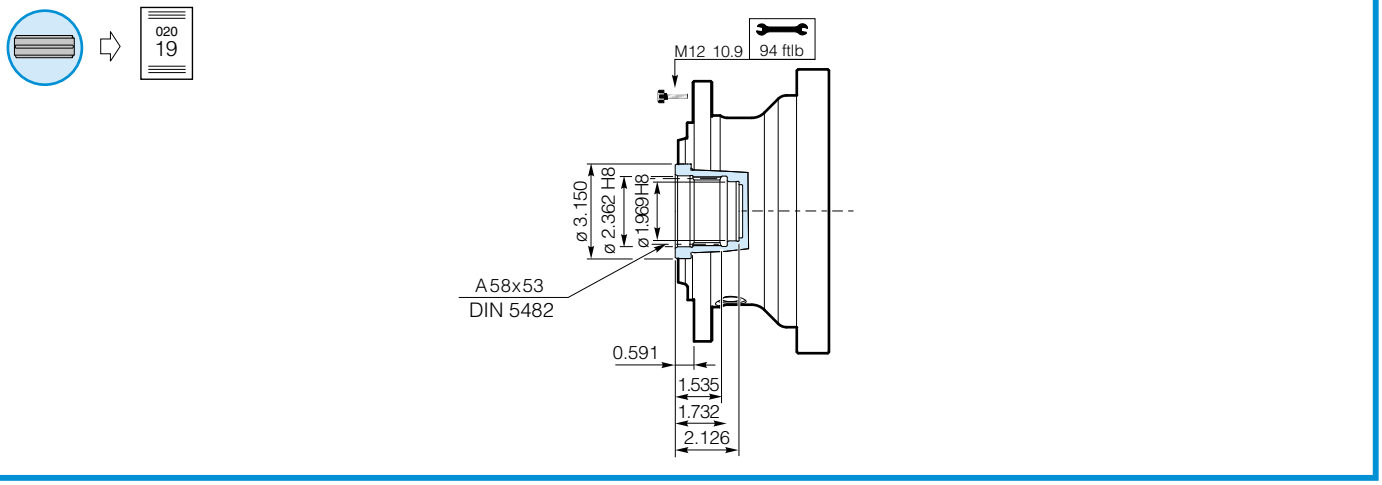

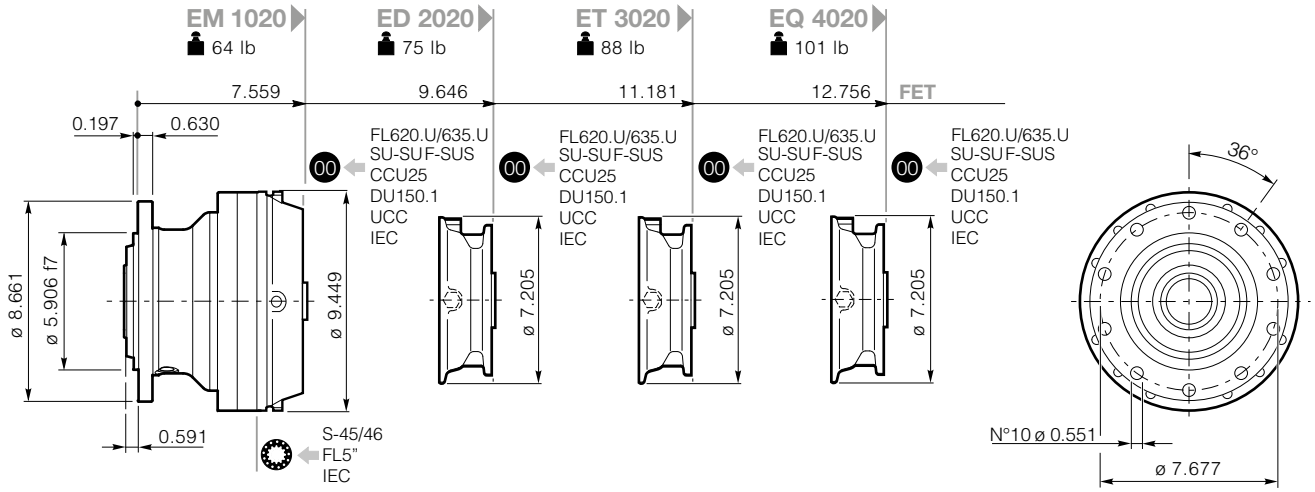

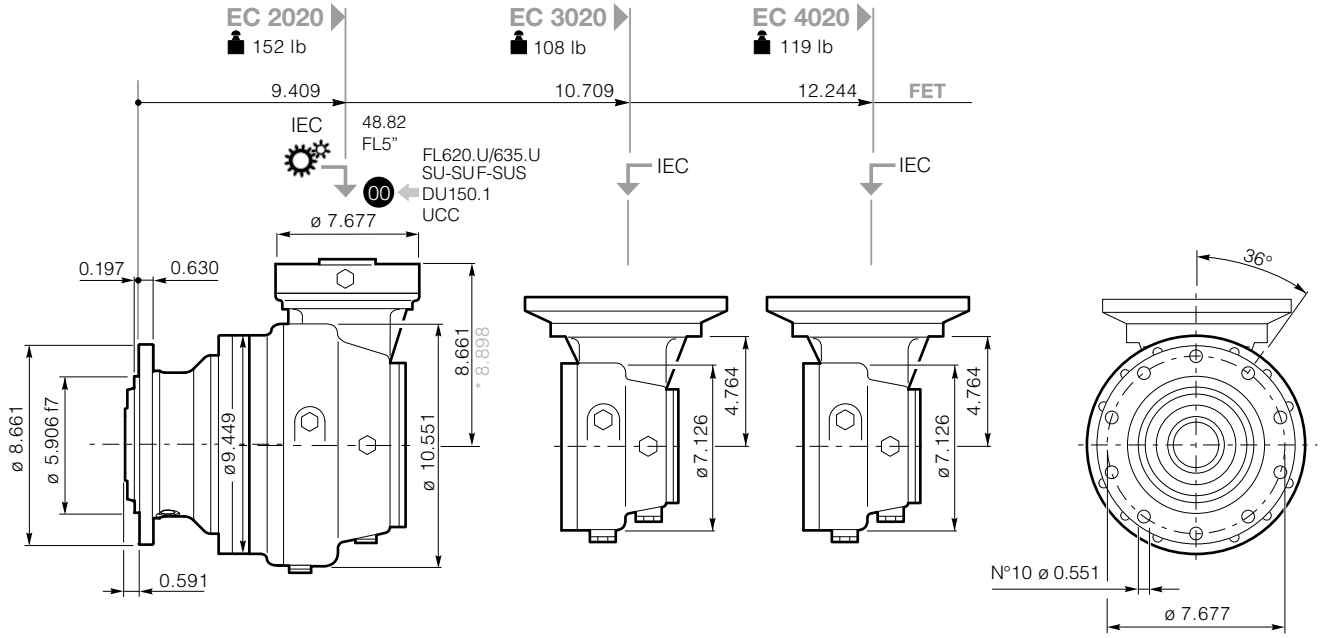

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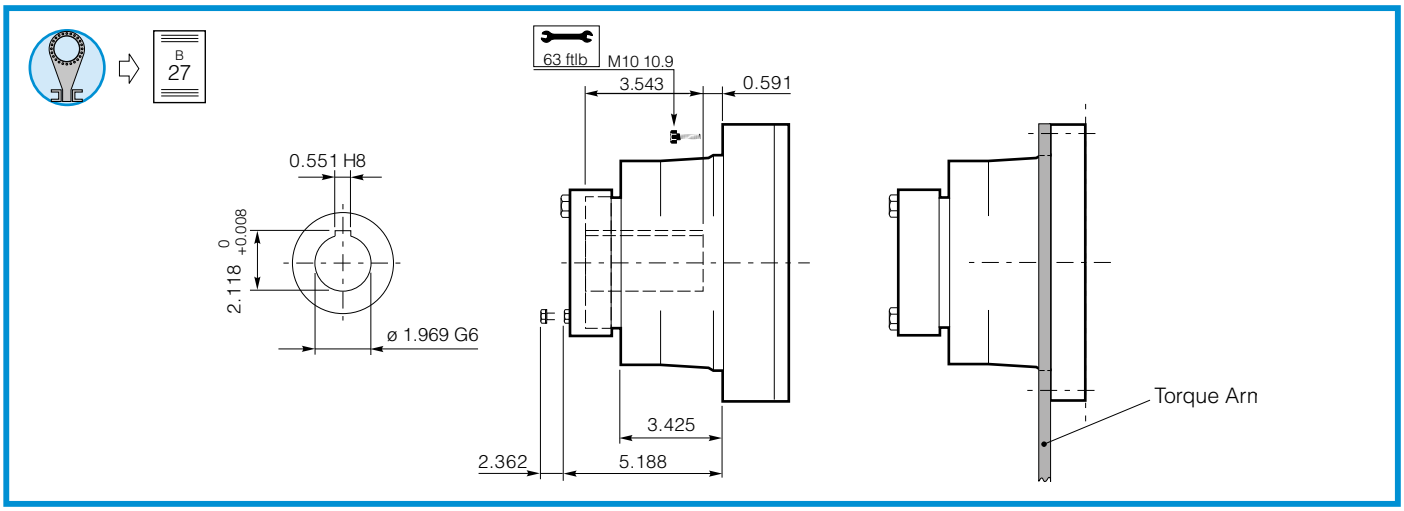
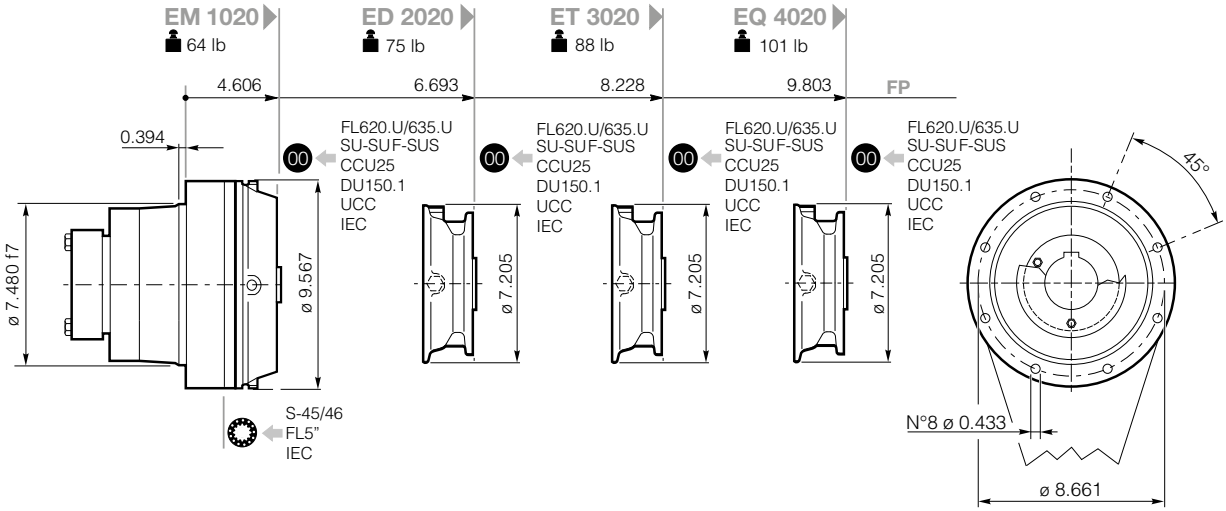
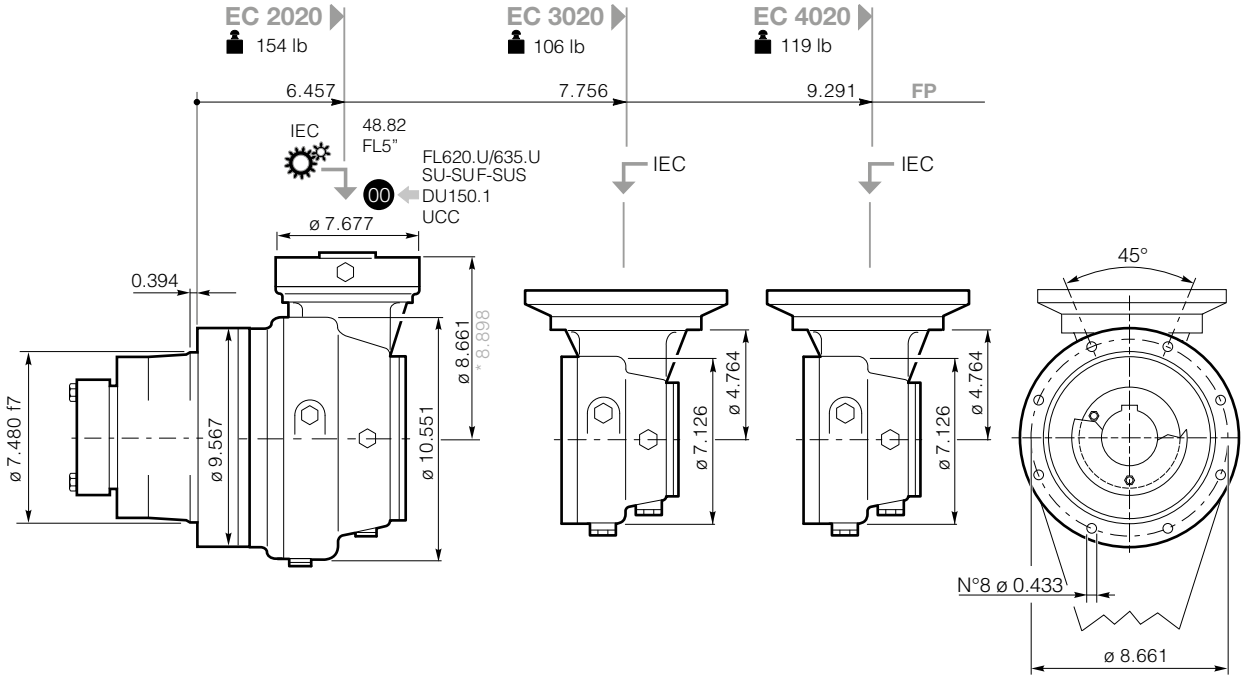
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 | S-45/46 48.82 020 13 | SU-SUF SUS 020 14 | FL5" FL620 FL635 020 15 | IEC 020 18 | 020 17 | CCU25 B 17 | DU150.1 UCC B 17 | * bg 020 3

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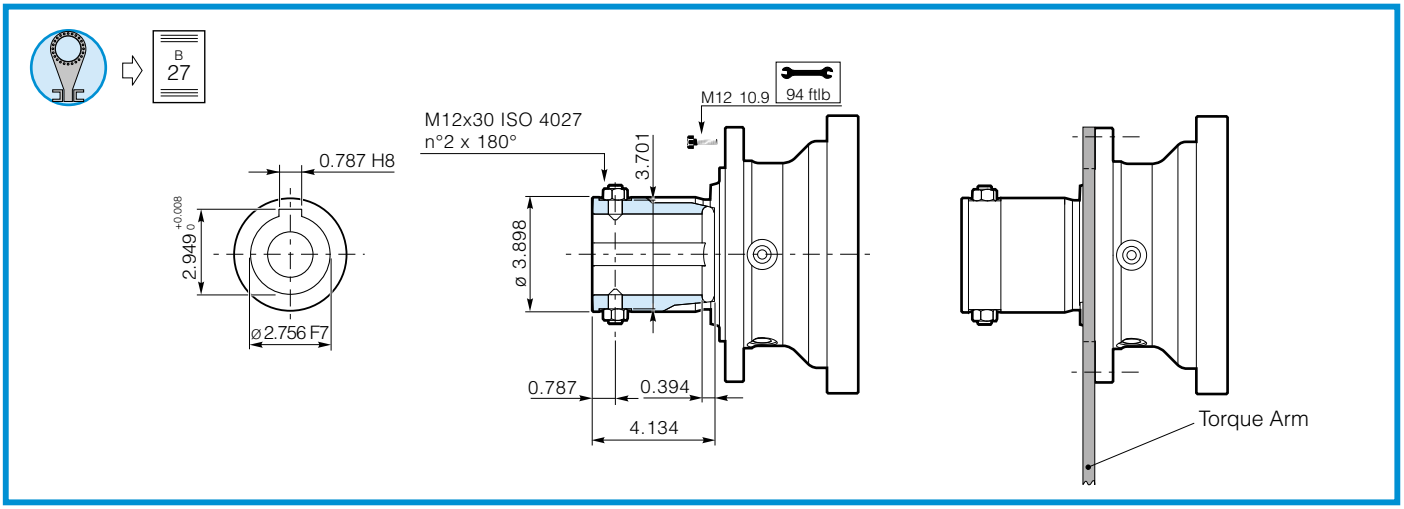

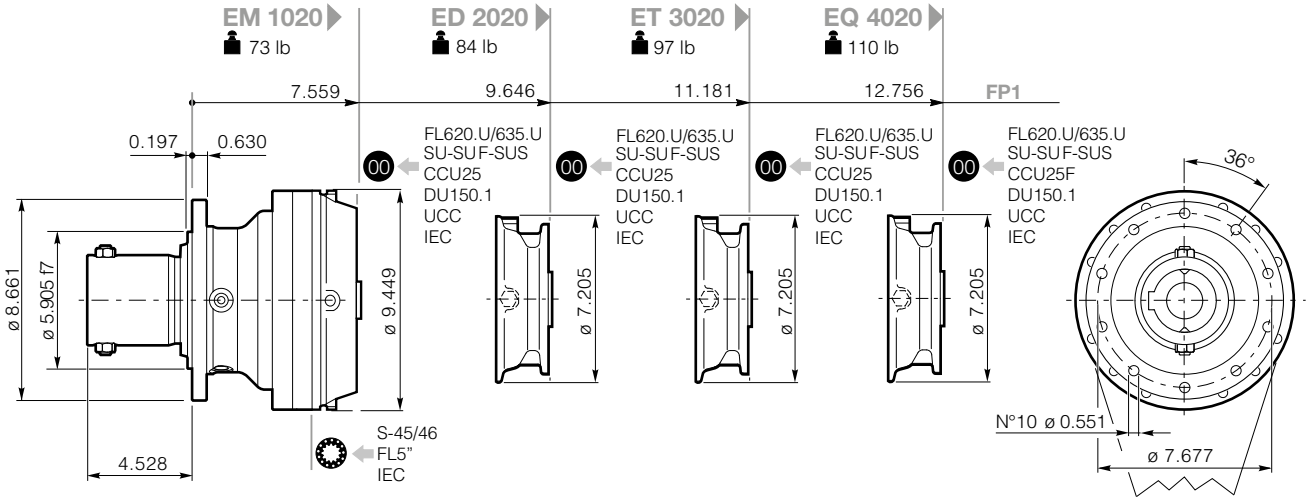

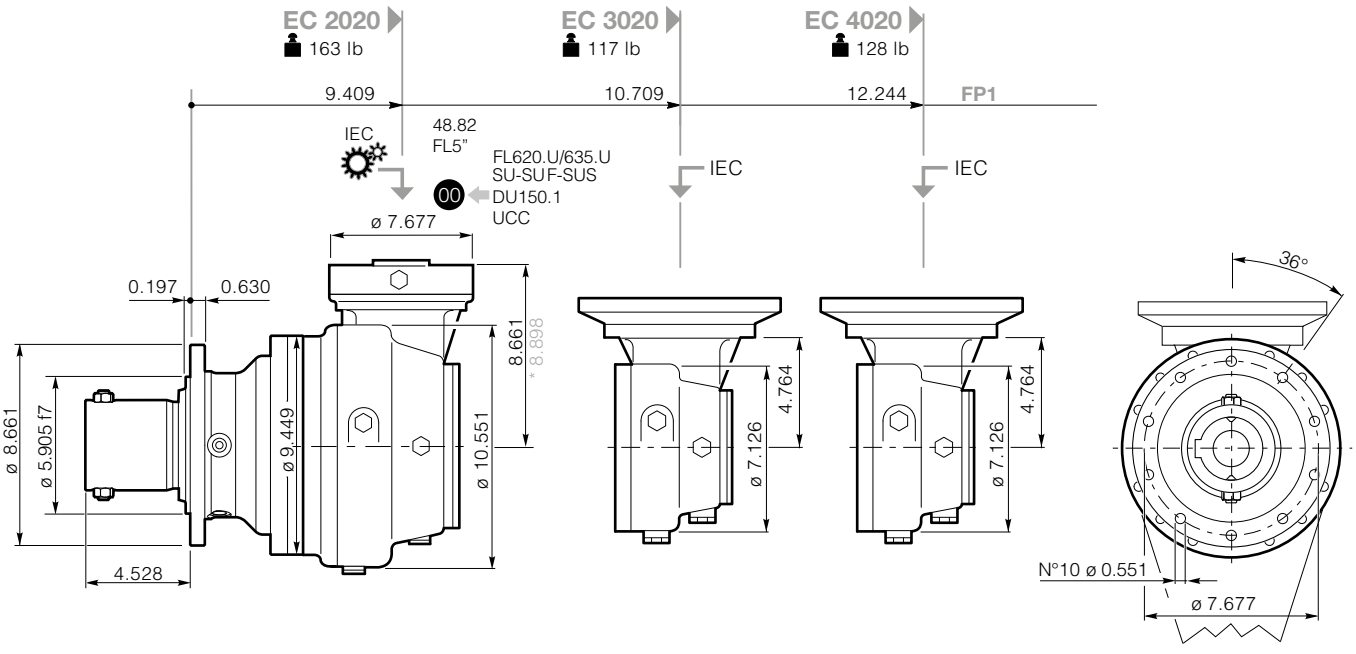

00 B 14 S-45/46 48.82 020 13 SU-SUF SUS 020 14 FL5" FL620 FL635 020 15 IEC 020 18 020 17 CCU25 B 17 DU150.1 UCC B 17 * bg 020 3

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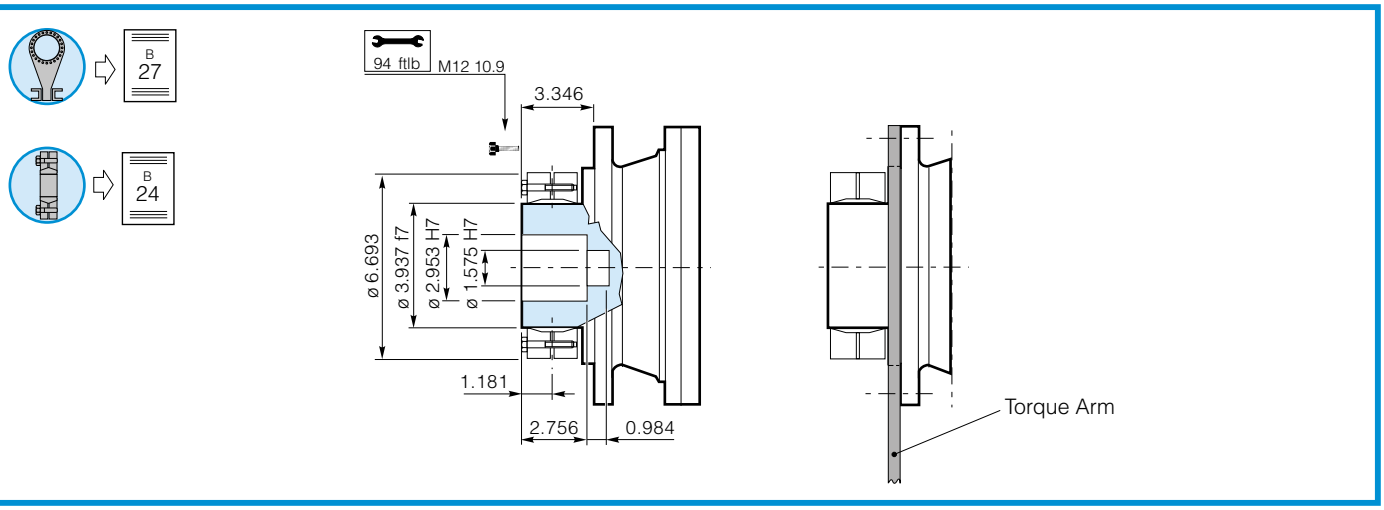
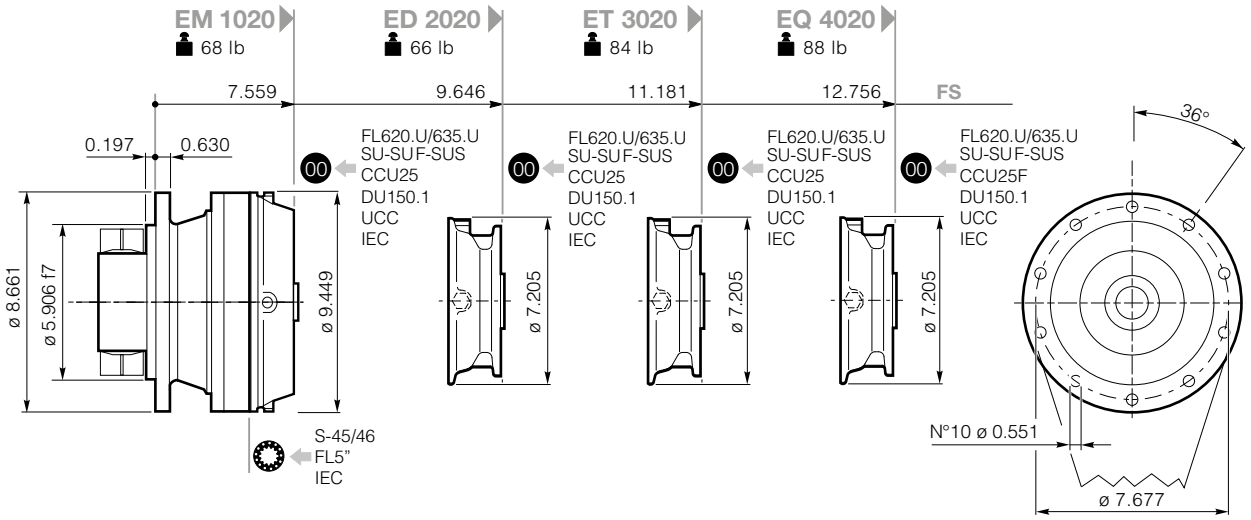
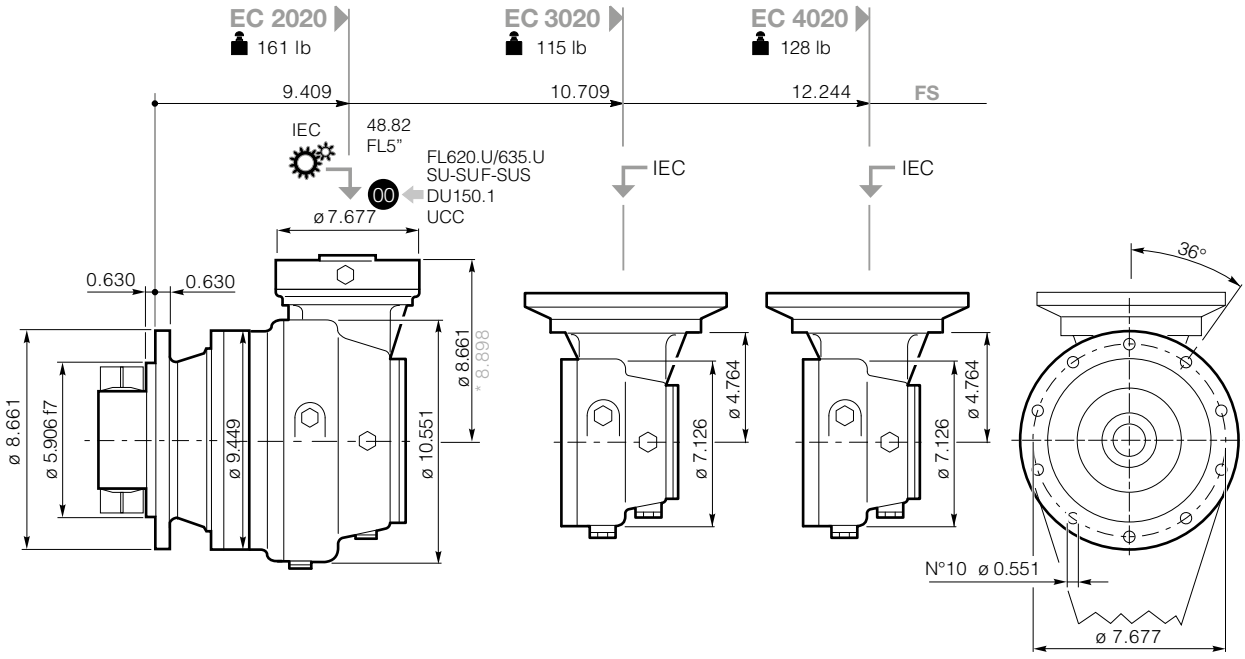
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 | S-45/46 48.82 020 13 | SU-SUF SUS 020 14 | FL5" FL620 FL635 020 15 | IEC 020 18 | 020 17 | CCU25 B 17 | DU150.1 UCC B 17 | * bg 020 3

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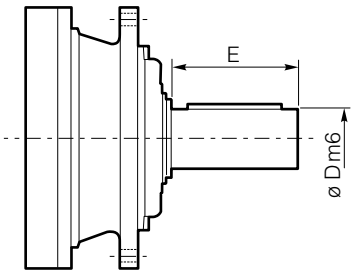
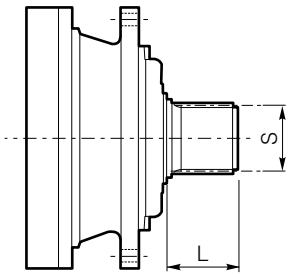
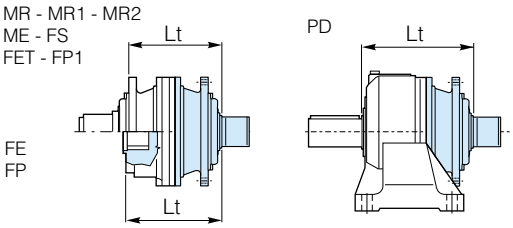
S-45CR1 - S-46C1 - S-45SR



S-45CR1 - S-46C1



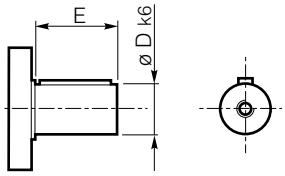
S-45SR

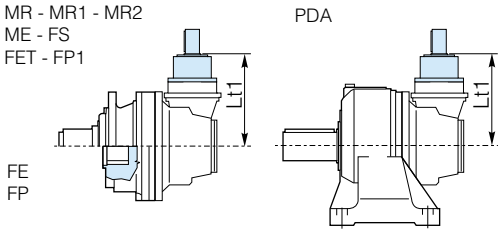


	D	E	L	S DIN5482		Lt				
						MR-MR1-MR2-FS-FET-FP1	ME	FE	FP	PD
S-45CR1	2.559	4.134	-	-	EM/PD 1020	10.039	10.709	8.268	7.087	12.244
S-46C1	2.559	4.134	-	-		11.654	12.323	9.921	8.701	13.858
S-45SR	-	-	2.677	B58x53 DIN5482		10.039	10.709	8.268	7.087	12.244

For more informations, go to page B13

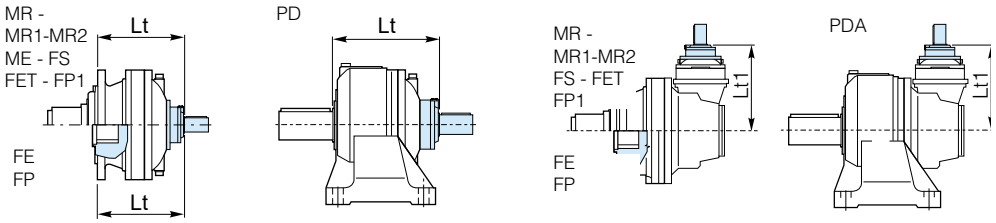
48.82

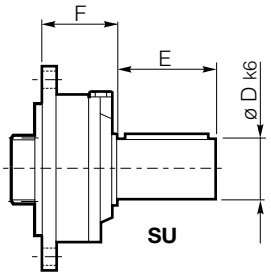


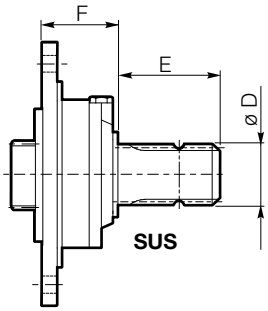


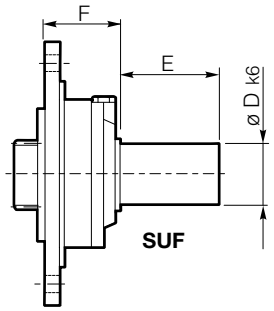
	D	E		Lt1
				MR - MR1-MR2 - ME - FS - FE - FET - FP - FP1 - PDA
48.82	1.890	3.228	EC/PDA 2020	11.024

SU - SUF - SUS









	D	E	F		Lt 00				
					MR-MR1-MR2 FS-FET-FP1	ME	FE	FP	PD
SU1 28x50	1.102	1.969	2.362	EM/PD 1020	9.921	10.591	8.189	6.968	12.126
				ED/PD 2020	12.008	12.677	10.236	9.055	14.213
				ET/PD 3020	13.543	14.213	11.811	10.591	15.748
				EQ/PD 4020	15.118	15.787	13.346	12.165	17.323
SU2 40x58	1.575	2.283	2.362	EM/PD 1020	9.921	10.591	8.189	6.968	12.126
				ED/PD 2020	12.008	12.677	10.236	9.055	14.213
				ET/PD 3020	13.543	14.213	11.811	10.591	15.748
				EQ/PD 4020	15.118	15.787	13.346	12.165	17.323
SU3 48x82	1.890	3.228	2.362	EM/PD 1020	9.921	10.591	8.189	6.968	12.126
				ED/PD 2020	12.008	12.677	10.236	9.055	14.213
				ET/PD 3020	13.543	14.213	11.811	10.591	15.748
				EQ/PD 4020	15.118	15.787	13.346	12.165	17.323
SU 42x80	1.654	3.150	3.996	EM/PD 1020	11.575	12.244	9.803	8.622	13.780
				ED/PD 2020	13.622	14.291	11.890	10.669	15.827
				ET/PD 3020	15.197	15.866	13.425	12.244	17.402
				EQ/PD 4020	16.732	17.402	15.000	13.780	18.937
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	EM/PD 1020	11.575	12.244	9.803	8.622	13.760
				ED/PD 2020	13.622	14.291	11.890	10.669	15.846
				ET/PD 3020	15.197	15.866	13.425	12.244	17.382
				EQ/PD 4020	16.732	17.402	15.000	13.780	18.957
SU2 1.5x3.25	1.500	3.250	2.362	EM/PD 1020	9.921	10.591	8.189	6.968	12.126
				ED/PD 2020	12.008	12.677	10.236	9.055	14.213
				ET/PD 3020	13.543	14.213	11.811	10.591	15.748
				EQ/PD 4020	15.118	15.787	13.346	12.165	17.323
SUF1 28x50	1.102	1.969	2.362	EM/PD 1020	9.921	10.591	8.189	6.968	12.126
				ED/PD 2020	12.008	12.677	10.236	9.055	14.213
				ET/PD 3020	13.543	14.213	11.811	10.591	15.748
				EQ/PD 4020	15.118	15.787	13.346	12.165	17.323
SUF2 40x58	1.575	2.283	2.362	EM/PD 1020	9.921	10.591	8.189	6.968	12.126
				ED/PD 2020	12.008	12.677	10.236	9.055	14.213
				ET/PD 3020	13.543	14.213	11.811	10.591	15.748
				EQ/PD 4020	15.118	15.787	13.346	12.165	17.323
SUF3 48x82	1.890	3.228	2.362	EM/PD 1020	9.921	10.591	8.189	6.968	12.126
				ED/PD 2020	12.008	12.677	10.236	9.055	14.213
				ET/PD 3020	13.543	14.213	11.811	10.591	15.748
				EQ/PD 4020	15.118	15.787	13.346	12.165	17.323

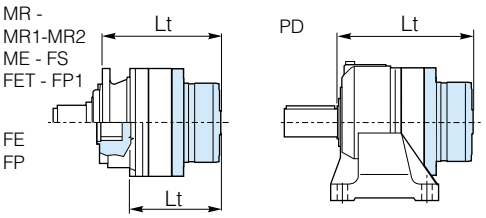
	D	E	F		Lt1 00
					MR-MR1-MR2-FS-FET FP1-ME-FE-FP-PDA
SU1 28x50	1.102	1.969	2.362	EC/PDA 2020	11.024
SU2 40x58	1.575	2.283	2.362	EC/PDA 2020*	11.260
SU3 48x82	1.890	3.228	2.362		
SU 42x80	1.654	3.150	3.996	EC/PDA 2020	12.677
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	EC/PDA 2020*	12.913
SU2 1.5x3.25	1.500	3.250	2.362		
SUF1 28x50	1.102	1.969	2.362	EC/PDA 2020	11.024
SUF2 40x58	1.575	2.283	2.362	EC/PDA 2020*	11.260
SUF3 48x82	1.890	3.228	2.362		

* bg 020 3

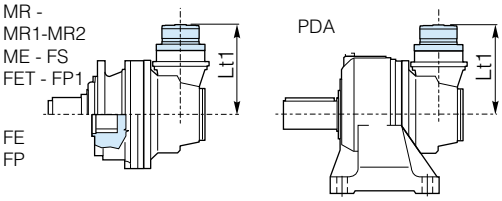
Click **DANA** button to return to section index

Click *i* button to return to main index

FL5” FL250 - FL350 - FL450

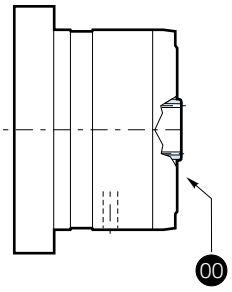


		Lt				
		MR-MR1-MR2 FS-FET-FP1	ME	FE	FP	PD
FL250 FL350 FL450	EM/PD 1020	11.260	11.890	9.488	8.307	13.465

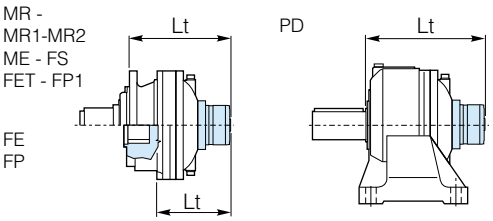


		Lt1
		MR - MR1-MR2 - ME - FS - FE - FET - FP - FP1 - PDA
FL250 FL350 FL450	EC/PDA 2020	11.024
	EC/PDA 2020*	14.842

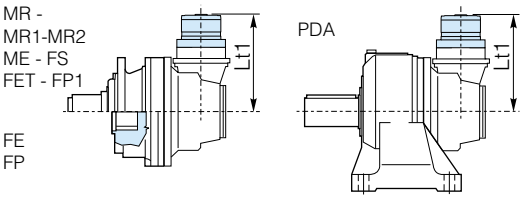
* bg 020 3



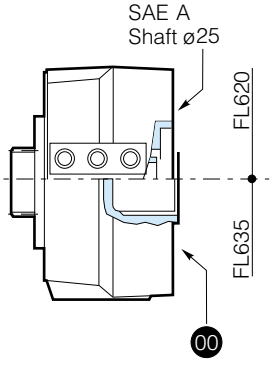
FL620.10 - FL635.10 / FL620.U - FL635.U



		Lt 00				
		MR-MR1-MR2-FS-FET-FP1	ME	FE	FP	PD
FL620.U	EM/PD 1020	11.693	12.362	9.921	8.740	13.898
	ED/PD 2020	13.740	14.409	12.008	10.787	15.945
	ET/PD 3020	15.315	15.984	13.543	12.362	17.520
	EQ/PD 4020	16.850	17.520	15.118	13.898	19.055
FL635.U	EM/PD 1020	11.142	11.811	9.409	8.189	13.346
	ED/PD 2020	13.228	13.898	11.457	10.276	15.433
	ET/PD 3020	14.764	15.433	13.031	11.811	16.968
	EQ/PD 4020	16.339	17.008	14.567	13.386	18.543



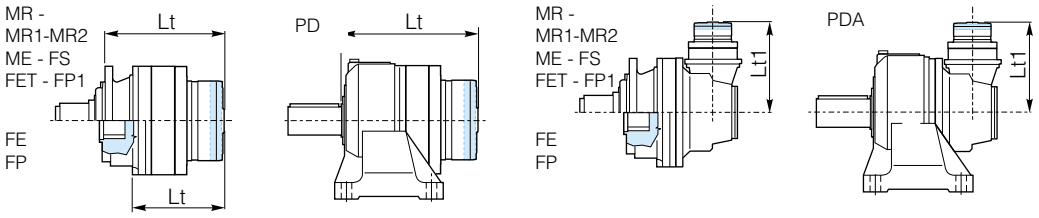
		Lt				
		MR-MR1-MR2-FS-FET-FP1	ME	FE	FP	PD
FL620.10	ED/PD 2020	12.126	12.795	10.394	9.173	14.331
	ET/PD 3020	13.701	14.370	11.929	10.748	15.905
	EQ/PD 4020	15.236	15.905	13.504	12.283	17.441
FL635.10	ED/PD 2020	11.417	12.087	9.685	8.465	13.622
	ET/PD 3020	12.992	13.661	11.220	10.039	15.197
	EQ/PD 4020	14.528	15.197	12.795	11.575	16.732



		Lt1
		MR - MR1-MR2 - ME - FS - FE - FET - FP - FP1 - PDA
FL620.U	EC/PDA 2020	12.795
	EC/PDA 2020*	13.031
FL635.U	EC/PDA 2020	12.244
	EC/PDA 2020*	12.480

* bg 020 3

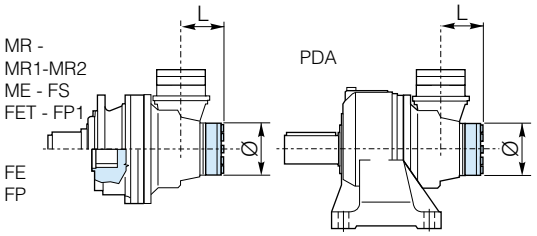
RL



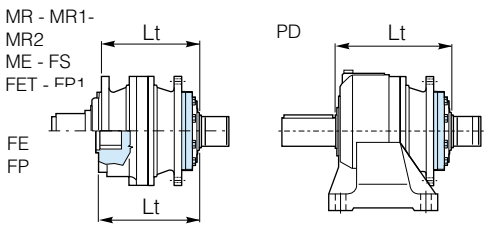
				Lt				
				MR-MR1-MR2 FS-FET-FP1	ME	FE	FP	PD
RL	+	FL250 FL350 FL450	EM/PD 1020	12.283	12.953	10.512	9.331	14.488

				Lt1
				MR - MR1-MR2 - ME - FS - FE - FET - FP - FP1 - PDA
RL	+	FL250 FL350 FL450	EC/PDA 2020	12.047
			EC/PDA 2020*	15.866

* bg 020 3

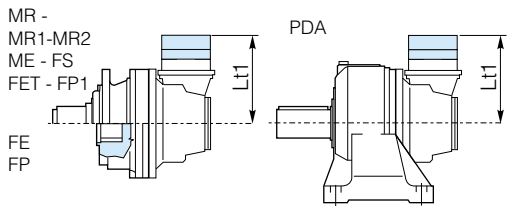


				L	Ø
RL	+	CC40	EC/PDA 2020	5.323	5.906
			EC/PDA 2020*		

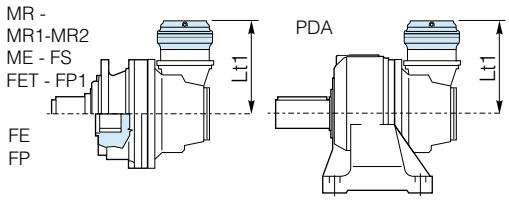


				Lt				
				MR-MR1-MR2 FS-FET-FP1	ME	FE	FP	PD
RL	+	S46C1	EM/PD 1020	12.441	13.110	10.709	9.488	14.646

ADDITIONAL PLANETARY STAGE ON BEVEL GEAR



EM1010 - EM1020

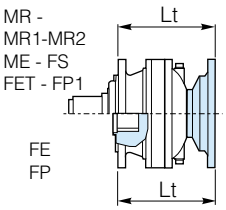


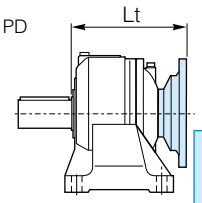
ED2010 - ED2020 ED2021

		Lt1	
		EC2020 PDA2020	EC2020* PDA2020*
	EM1010	12.874	13.110
	EM1020	13.583	13.819
	ED2010	14.409	14.646
	ED2020	15.669	15.905
	ED2021	16.260	16.496

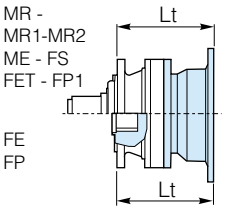
* bg 020 3

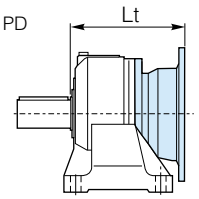
IEC Motor



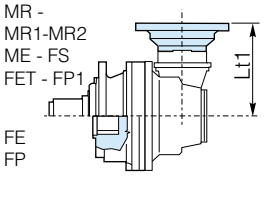


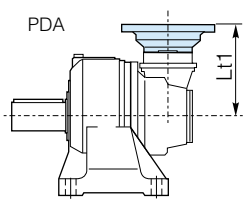
		Lt 00 IEC							
		63	71	80 90	100 112	132	160 180	200	225
EM 1020	MR-MR1-MR2-FS-FET-FP1	8.346	8.425	8.622	8.661	11.299	12.520	12.953	14.134
	ME	9.016	9.094	9.291	9.331	11.968	13.189	13.622	14.803
	FE	6.614	6.693	6.890	6.929	9.567	10.787	11.220	12.402
	FP	5.394	5.472	5.669	5.709	8.346	9.567	10.000	11.181
ED 2020	MR-MR1-MR2-FS-FET-FP1	10.433	10.512	10.709	10.748	13.386	14.606	15.039	16.220
	ME	11.102	11.181	11.378	11.417	14.055	15.276	15.709	16.890
	FE	8.661	8.740	8.937	8.976	11.614	12.835	13.268	14.449
	FP	7.480	7.559	7.756	7.795	10.433	11.654	12.087	13.268
ET 3020	MR-MR1-MR2-FS-FET-FP1	11.968	12.047	12.244	12.283	14.921	16.142	16.575	17.756
	ME	12.638	12.717	12.913	12.953	15.591	16.811	17.244	18.425
	FE	10.236	10.315	10.512	10.551	13.189	14.409	14.842	16.024
	FP	9.016	9.094	9.291	9.331	11.968	13.189	13.622	14.803
EQ 4020	MR-MR1-MR2-FS-FET-FP1	13.543	13.622	13.819	13.858	16.496	17.717	18.150	19.331
	ME	14.213	14.291	14.488	14.528	17.165	18.386	18.819	20.000
	FE	11.772	11.850	12.047	12.087	14.724	15.945	16.378	17.559
	FP	10.591	10.669	10.866	10.905	13.543	14.764	15.197	16.378
PD 1020	PD	10.551	10.630	10.827	10.866	13.504	14.724	15.157	16.339
PD 2020		12.638	12.717	12.913	14.921	15.591	16.811	17.244	18.425
PD 3020		14.173	14.252	14.449	14.685	17.126	18.346	18.779	19.961
PD 4020		15.748	15.827	16.024	16.063	18.701	19.921	20.354	21.535





		Lt IEC	
		160 180	200
EM 1020	MR-MR1-MR2 FS-FET-FP1	12.520	12.913
	ME	13.189	13.583
	FE	10.787	11.181
	FP	9.567	9.961
PD 1020	PD	14.724	15.118



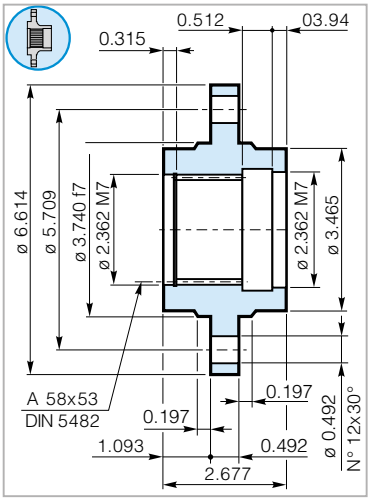


		Lt1 00 IEC							
		63	71	80 90	100 112	132	160 180	200	225
EC/PDA 2020	MR - MR1-MR2 - ME - FS - FE FET - FP - FP1 - PDA	9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC/PDA 2020*		9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472

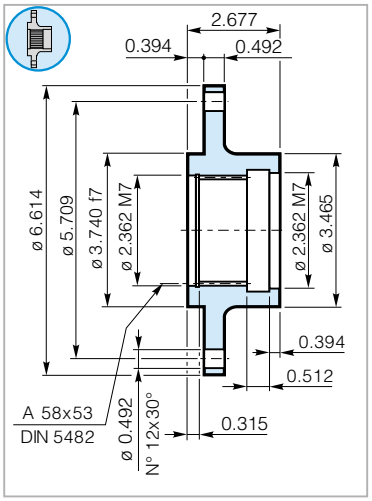
		Lt1 IEC				
		63	71	80 90	100 112	132
EC/PDA 3020	MR - MR1-MR2 - ME - FS - FE FET - FP - FP1 - PDA	5.945	5.945	5.945	5.945	9.370
EC/PDA 4020		5.945	5.945	5.945	5.945	9.370

* bg 020 3

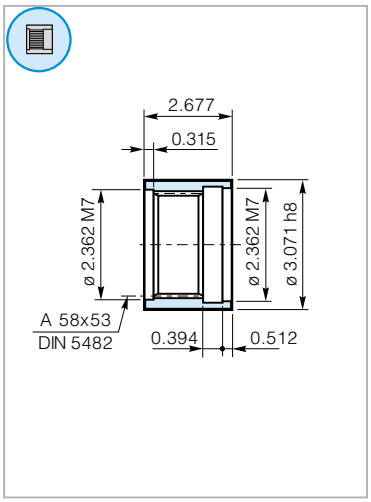
FA 020 MR — Wheel Flange



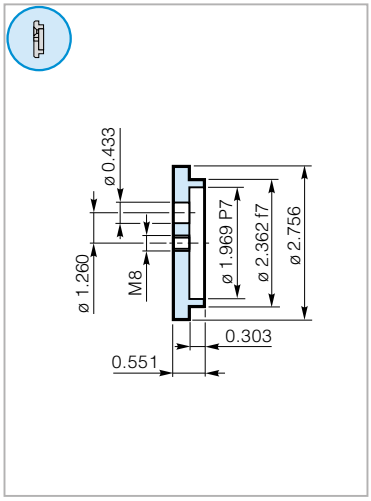
FR 020 MR — Wheel Flange



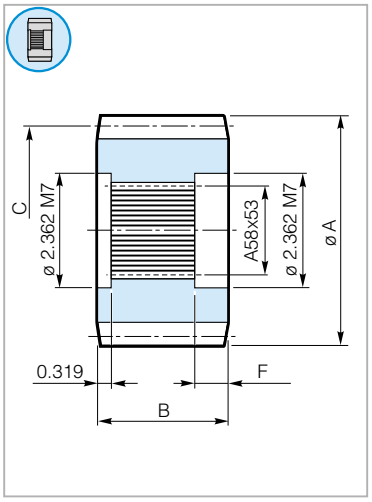
MS 020 MR — Splined Sleeve



RDF 020 MR — Lock Washer

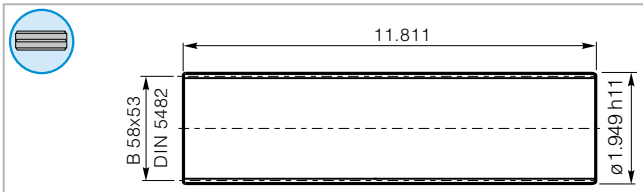


MR — Pinions



A	B	C			F
		m	z	x	
4.528	2.677	0.315	0.472	0.016	0.925
3.921	2.677	0.236	0.551	0.020	0.925
5.039	2.677	0.315	0.512	0.028	0.925
5.551	2.677	0.315	0.591	0.020	0.925
5.157	2.953	0.315	0.551	0.020	0.925
5.197	2.559	0.236	0.787	0.000	0.925
4.646	2.992	0.315	0.472	0.020	0.925
4.764	3.228	0.315	0.472	0.024	0.925

BS 020 FE — Splined Bar



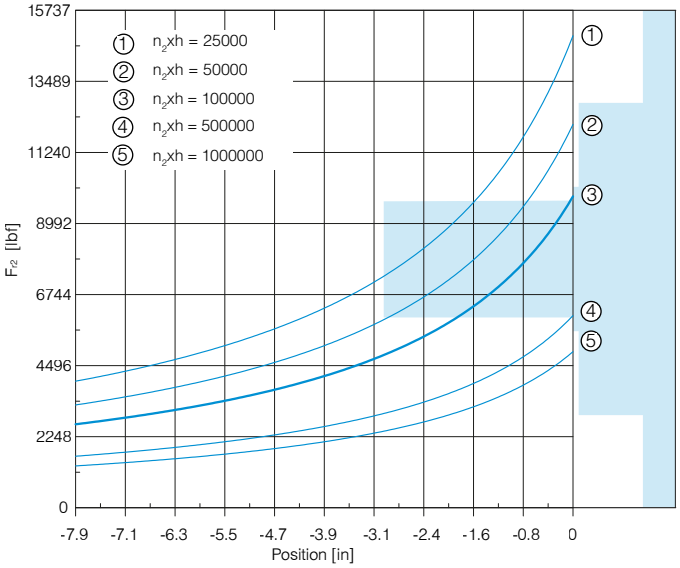
Code: 39127030100 Mat: High mechanical resistance alloyed steel

RADIAL AND AXIAL LOADS

Output Radial Loads

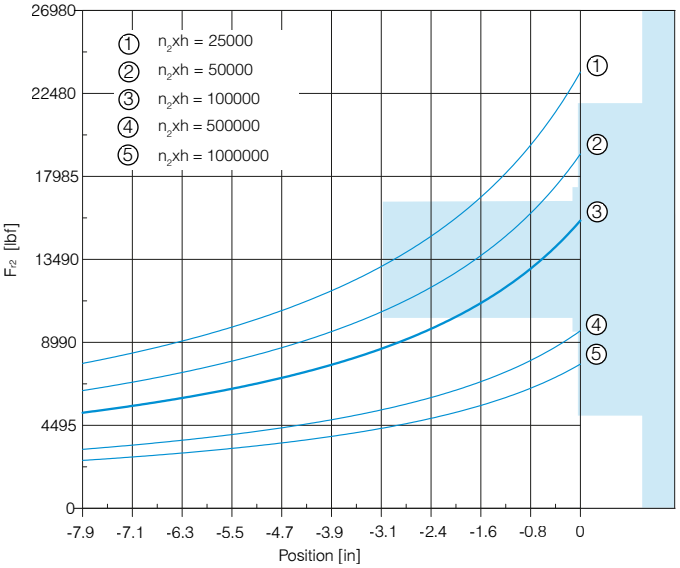
Gearbox Versions:
ED, ET, EQ, EC

MR-MR1-MR2

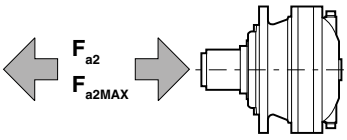


Gearbox Versions:
PD, PDA

MR1-MR2

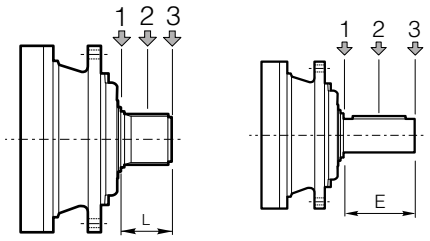


Output Axial Loads

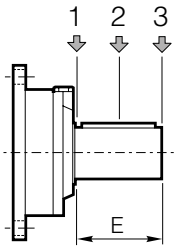


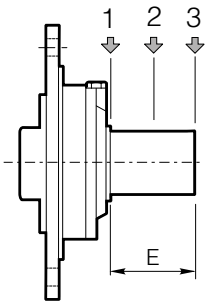
		Flange mounted		PD-PDA
		MN-MN1-MN2	MR-MR1-MR2	MR1-MR2
F$_{a2}$	[lbf]	-	7868	5620
F$_{a2MAX}$	[lbf]	-	13488	5620

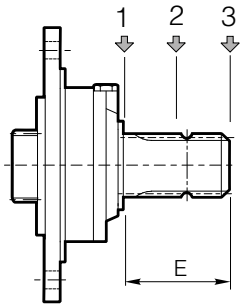
Input Radial Loads



			F_{r1} [lbf]					
			$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	L	E	1	2	3	1	2	3
S-45CR1	-	4.134	2248	1348.8	899.2	1124	674.4	449.6
S-46C1	-	4.134	3147.2	1978.2	1438.7	1573.6	989.1	719.4
S-45SR	2.677	-	2248	1348.8	899.2	1124	674.4	449.6

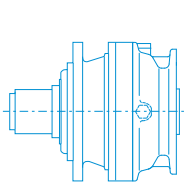






		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	E	1	2	3	1	2	3
SU 42x80	3.150	674.4	449.6	337.2	314.7	224.8	157.4
SU1 28x50	1.969	674.4	449.6	337.2	314.7	224.8	157.4
SU2 40x58	2.283	674.4	449.6	337.2	314.7	224.8	157.4
SU3 48x82	3.228	674.4	449.6	337.2	314.7	224.8	157.4
SUS 1 3/8”	3.819	629.4	404.6	337.2	292.2	202.3	134.9
SU2 1 1/2”x 3 1/4”	3.250	674.4	449.6	337.2	314.7	224.8	157.4
SUF1 28x50	1.969	674.4	449.6	337.2	314.7	224.8	157.4
SUF2 40x58	2.283	674.4	449.6	337.2	314.7	224.8	157.4
SUF3 48x82	3.228	674.4	449.6	337.2	314.7	224.8	157.4

DANA BREVINI®
Motion Systems



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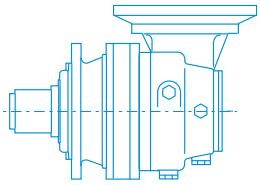
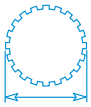
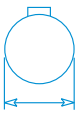
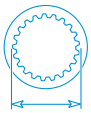
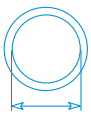
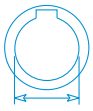


i_{eff}	15.37 - 3097
T_{2N}	2800 ftlb
	B58X53 DIN5482
	2.560 in
	A58X53 DIN5482
	2.953 in
	2.560 in

TECHNICAL DATA

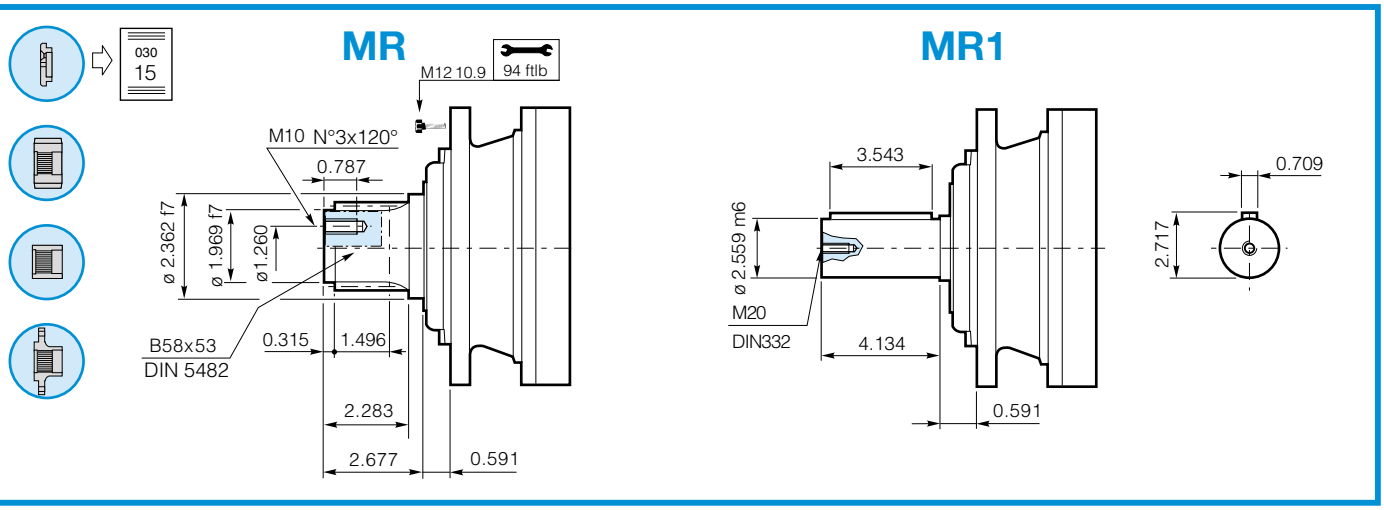
10000 hours life

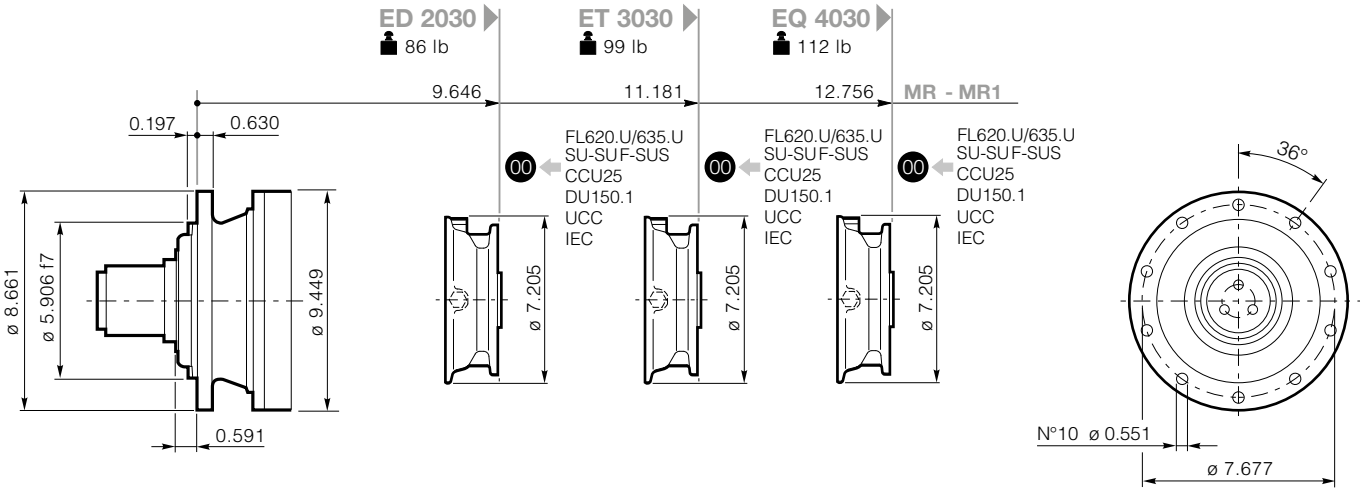
i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
ED 2030 / PD 2030												
15.37	98	1114	20.7	65	1257	15.6	32.5	1549	9.7	3000	4130	16
17.47	86	1564	25.6	57	1766	19.3	28.6	2015	11.0			
20.28	74	1627	22.9	49.3	1707	16.1	24.7	1839	8.6			
22.70	66	1645	20.7	44.1	1858	15.6	22	2069	8.7			
26.34	57	1679	18.2	38	1757	12.7	19	1888	6.8			
31.02	48.4	1574	14.5	32.2	1727	10.6	16.1	1946	6.0		4425	
36.00	41.7	1739	13.8	27.8	1816	9.7	13.9	1947	5.1			
41.64	36	1715	11.8	24	1804	8.3	12	1975	4.6			
43.50	34.5	1495	9.8	23	1563	6.8	11.5	1679	3.6			
50.32	29.8	1519	8.6	19.9	1587	6.0	9.9	1703	3.2			
ET 3030 / PD 3030												
59.06	25.4	2039	9.9	16.9	2123	6.8	8.5	2269	3.6	3000	4425	10.7
61.28	24.5	1947	9.1	16.3	2199	6.8	8.2	2707	4.2			
70.98	21.1	1812	7.2	14.1	2047	5.5	7	2364	3.2			
83.76	17.9	2139	7.2	11.9	2415	5.5	6	2790	3.2			
89.03	16.8	1911	6.2	11.2	1988	4.3	5.6	2121	2.3			
96.88	15.5	2234	6.6	10.3	2523	5.0	5.2	2805	2.8			
108.8	13.8	2250	5.9	9.2	2449	4.3	4.6	2515	2.1			
124.2	12.1	1805	4.2	8.1	1864	2.8	4	1960	1.5			
146.6	10.2	2130	4.2	6.8	2200	2.8	3.4	2314	1.5			
157.5	9.5	2243	4.0	6.3	2345	2.8	3.2	2725	1.6			
186.1	8.1	2139	3.2	5.4	2246	2.3	2.7	2428	1.2			
198.9	7.5	1560	2.3	5	1638	1.6	2.5	1771	0.8			
215.3	7	2178	3.0	4.6	2285	2.0	2.3	2465	1.1			
249.0	6	1953	2.3	4	2050	1.6	2	2217	0.8			
289.0	5.2	2156	2.1	3.5	2358	1.6	1.7	2573	0.8			
325.7	4.6	2287	2.0	3.1	2392	1.3	1.5	2575	0.8			
EQ 4030 / PD 4030												
367.7	4.1	2828	2.1	2.7	2867	1.5	1.4	2929	0.8	3000	4425	5.4
404.7	3.7	2159	1.5	2.5	2187	1.0	1.2	2234	0.5			
460.3	3.3	2710	1.7	2.2	2950	1.2	1.1	3396	0.7			
495.4	3	2857	1.6	2	2895	1.1	1	2956	0.6			
581.3	2.6	2872	1.5	1.7	2909	1.0	0.86	2970	0.5			
643.5	2.3	2881	1.3	1.6	2918	0.9	0.78	2979	0.4			
691.5	2.2	2951	1.2	1.4	3207	0.9	0.72	3314	0.5			
817.1	1.8	3055	1.1	1.2	3263	0.8	0.61	3331	0.4			
879.4	1.7	2909	1.0	1.1	2946	0.6	0.57	3005	0.3			
1017	1.5	2923	0.8	0.98	2958	0.5	0.49	3018	0.3			
1142	1.3	2618	0.7	0.88	2650	0.4	0.44	2704	0.2			
1304	1.2	2128	0.5	0.77	2184	0.3	0.38	2280	0.2			
1430	1	3278	0.7	0.7	3317	0.4	0.35	3384	0.2			
1539	0.97	2512	0.5	0.65	2577	0.3	0.32	2691	0.2			
1806	0.83	2395	0.4	0.55	2437	0.3	0.28	2660	0.1			
1999	0.75	2662	0.4	0.5	2693	0.3	0.25	2927	0.1			
2268	0.66	3320	0.4	0.44	3526	0.3	0.22	3779	0.2			
2502	0.6	3333	0.4	0.4	3372	0.3	0.2	3665	0.1			
2904	0.52	3485	0.3	0.34	3770	0.2	0.17	4253	0.1			
3170	0.47	2981	0.3	0.32	3232	0.2	0.16	3697	0.1			

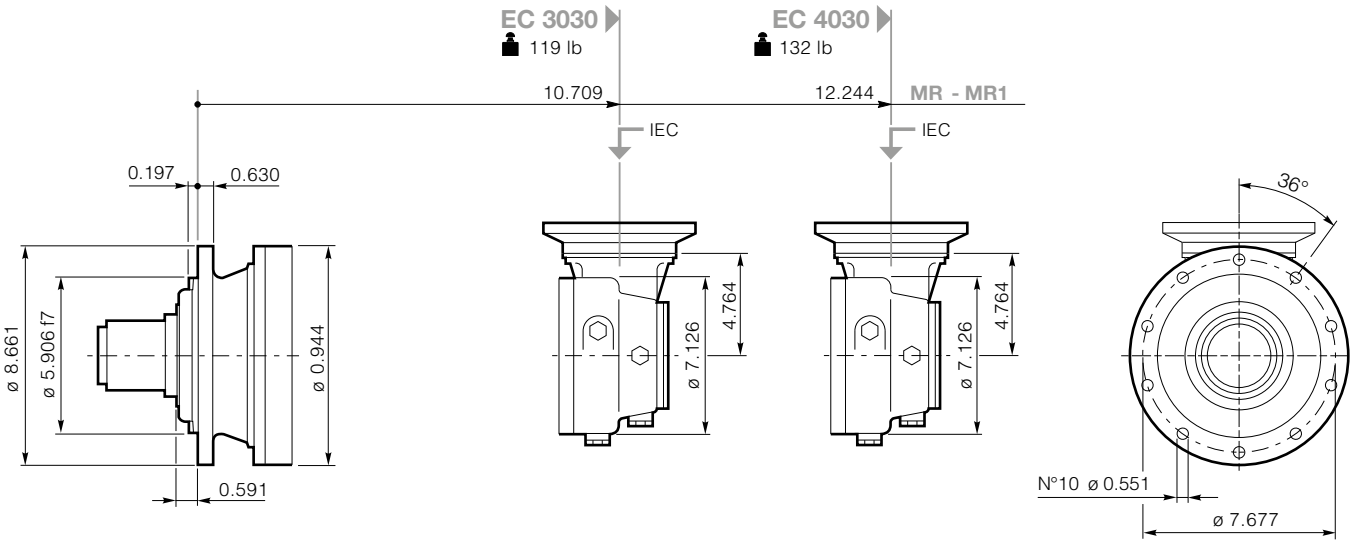
10000 hours life

i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EC 3030 / PDA 3030												
35.49	42.3	856	6.8	28.2	966	5.2	14.1	1190	3.2			
41.88	35.8	1010	6.8	23.9	1140	5.2	11.9	1403	3.2			
46.09	32.5	1111	6.8	21.7	1255	5.2	10.8	1545	3.2			
52.42	28.6	1264	6.8	19.1	1427	5.2	9.5	1757	3.2			
54.39	27.6	1311	6.8	18.4	1481	5.2	9.2	1823	3.2			
60.84	24.7	1467	6.8	16.4	1656	5.2	8.2	2039	3.2			
68.09	22	1642	6.8	14.7	1854	5.2	7.3	2283	3.2			
79.02	19	1888	6.8	12.7	1965	4.7	6.3	2098	2.5			
88.66	16.9	1308	4.2	11.3	1477	3.2	5.6	1819	2.0			
99.17	15.1	1463	4.2	10.1	1653	3.2	5	2035	2.0	3000	4425	6.7
111.0	13.5	1638	4.2	9	1850	3.2	4.5	2277	2.0			
128.8	11.6	1901	4.2	7.8	2058	3.1	3.9	2300	1.7			
140.2	10.7	1492	3.1	7.1	1571	2.1	3.6	1704	1.2			
151.7	9.9	2084	3.9	6.6	2193	2.8	3.3	2374	1.5			
176.0	8.5	2041	3.4	5.7	2119	2.3	2.8	2460	1.3			
203.6	7.4	2069	3.0	4.9	2183	2.0	2.5	2475	1.2			
215.8	7	1763	2.3	4.6	1833	1.6	2.3	2134	0.9			
244.1	6.1	2104	2.4	4.1	2272	1.7	2	2637	1.0			
282.3	5.3	2145	2.1	3.5	2346	1.6	1.8	2567	0.9			
EC 4030 / PDA 4030												
319.9	4.7	2815	2.5	3.1	2854	1.7	1.6	2918	0.9			
347.1	4.3	2406	2.0	2.9	2438	1.3	1.4	2491	0.7			
401.5	3.7	2418	1.7	2.5	2449	1.2	1.2	2502	0.6			
473.7	3.2	2853	1.7	2.1	2890	1.2	1.1	2951	0.6			
481.2	3.1	2432	1.5	2.1	2463	1.0	1	2515	0.5			
567.9	2.6	2870	1.5	1.8	2906	1.0	0.88	2968	0.5			
656.8	2.3	2883	1.3	1.5	2920	0.8	0.76	2980	0.4			
716.7	2.1	2391	1.0	1.4	2455	0.7	0.7	2566	0.3			
822.2	1.8	3058	1.1	1.2	3320	0.8	0.61	3731	0.4			
930.9	1.6	2602	0.8	1.1	2634	0.5	0.54	2688	0.3			
993.8	1.5	2443	0.7	1	2507	0.5	0.5	2619	0.3	3000	4425	4
1165	1.3	3258	0.8	0.86	3297	0.5	0.43	3365	0.3			
1291	1.2	2628	0.6	0.77	2659	0.4	0.39	2732	0.2			
1352	1.1	2994	0.6	0.74	3247	0.5	0.37	3719	0.3			
1616	0.93	3290	0.6	0.62	3329	0.4	0.31	3420	0.2			
1848	0.81	3187	0.5	0.54	3454	0.4	0.27	3660	0.2			
1959	0.77	2814	0.4	0.51	3111	0.3	0.26	3553	0.2			
2208	0.68	2982	0.4	0.45	3049	0.3	0.23	3319	0.1			
2563	0.59	3401	0.4	0.39	3539	0.3	0.2	3851	0.1			
2964	0.51	3117	0.3	0.34	3404	0.2	0.17	3789	0.1			
3097	0.48	2967	0.3	0.32	3217	0.2	0.16	3681	0.1			

GEARBOX DIMENSIONS WITH OUTPUT







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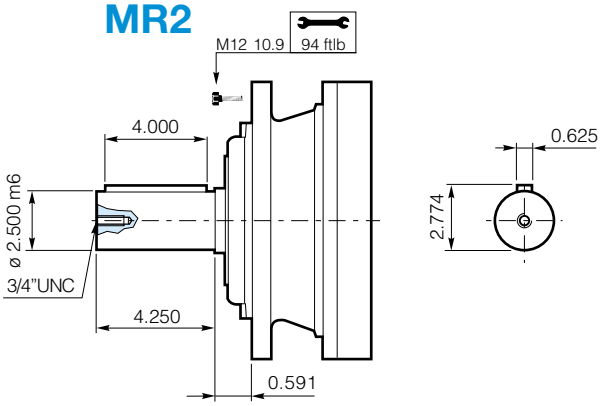
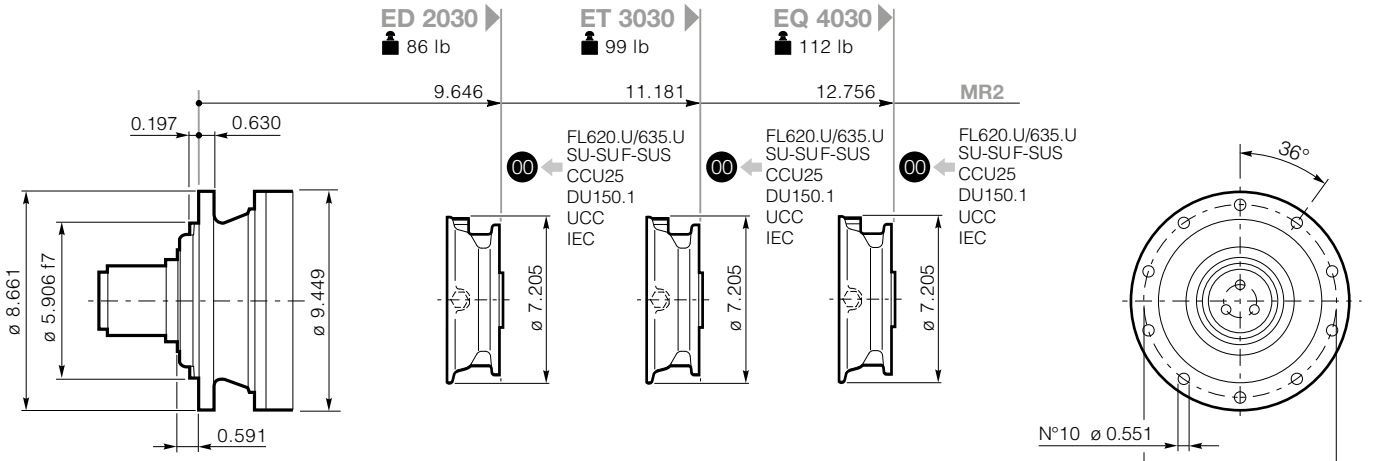
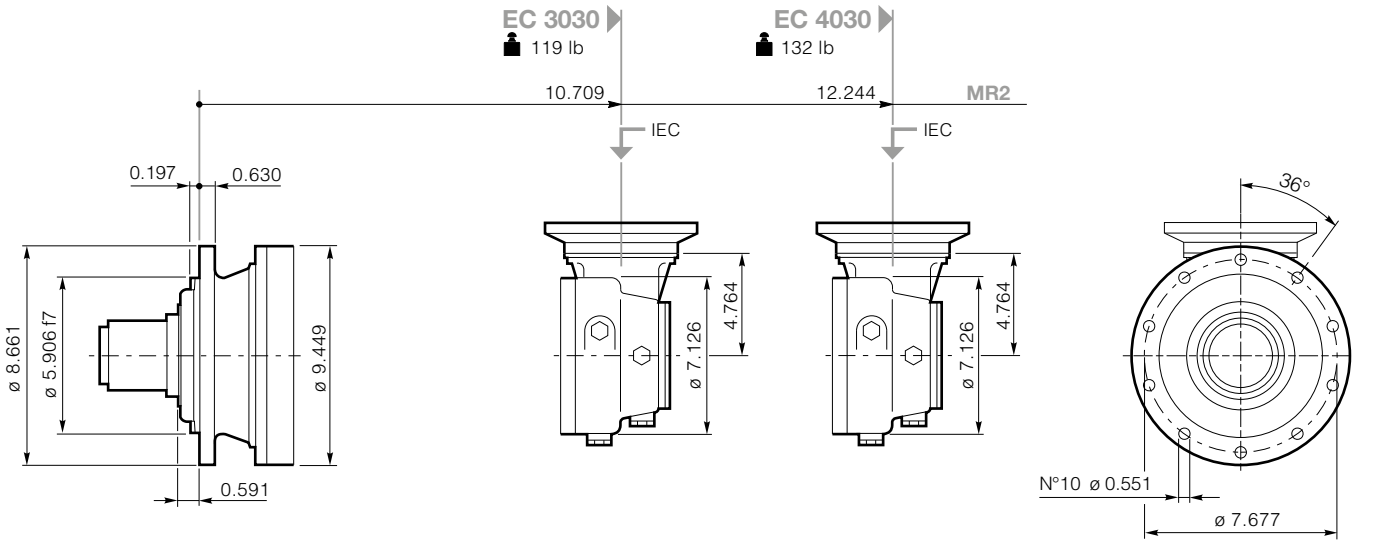
MR2







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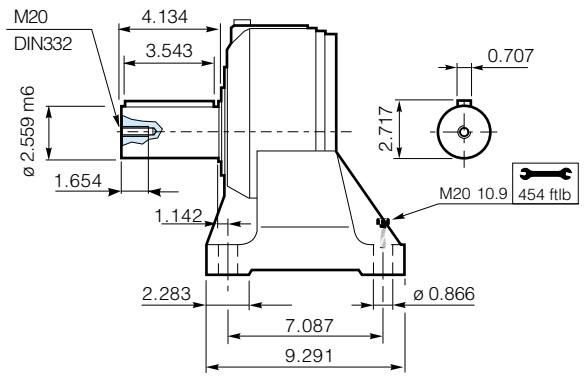
MR1 - MR2 PD/PDA GEARBOX DIMENSIONS WITH OUTPUT

MR1



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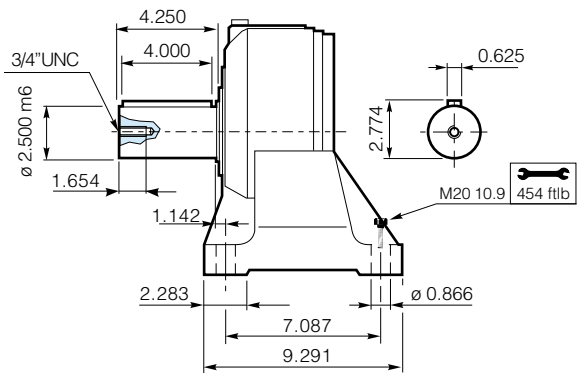

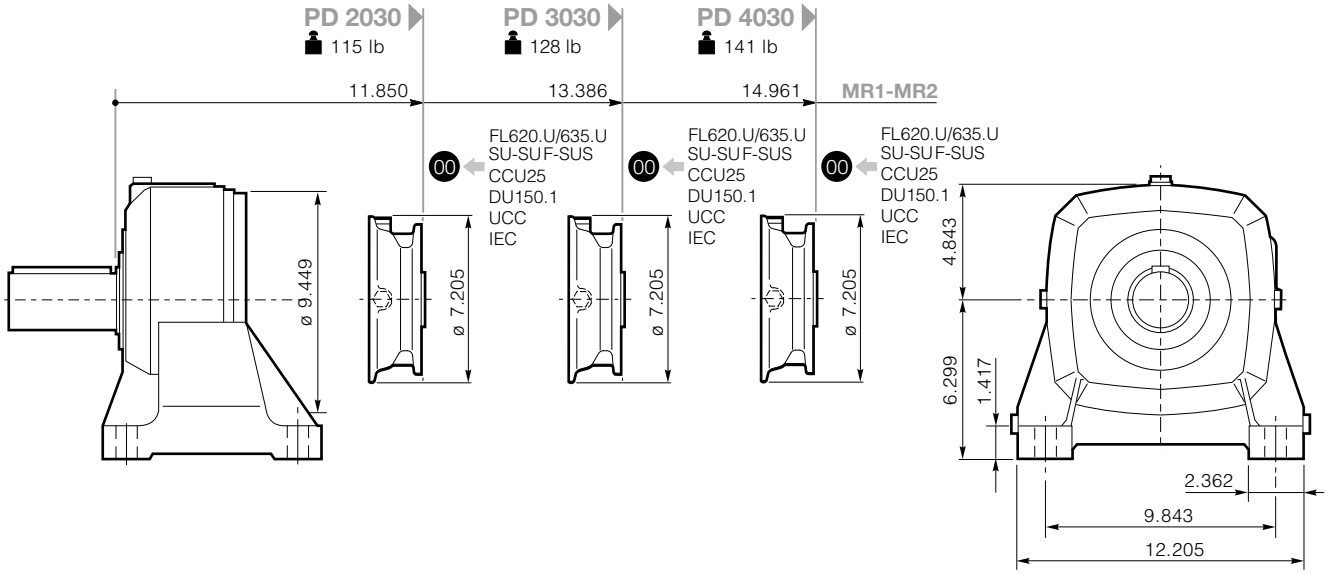

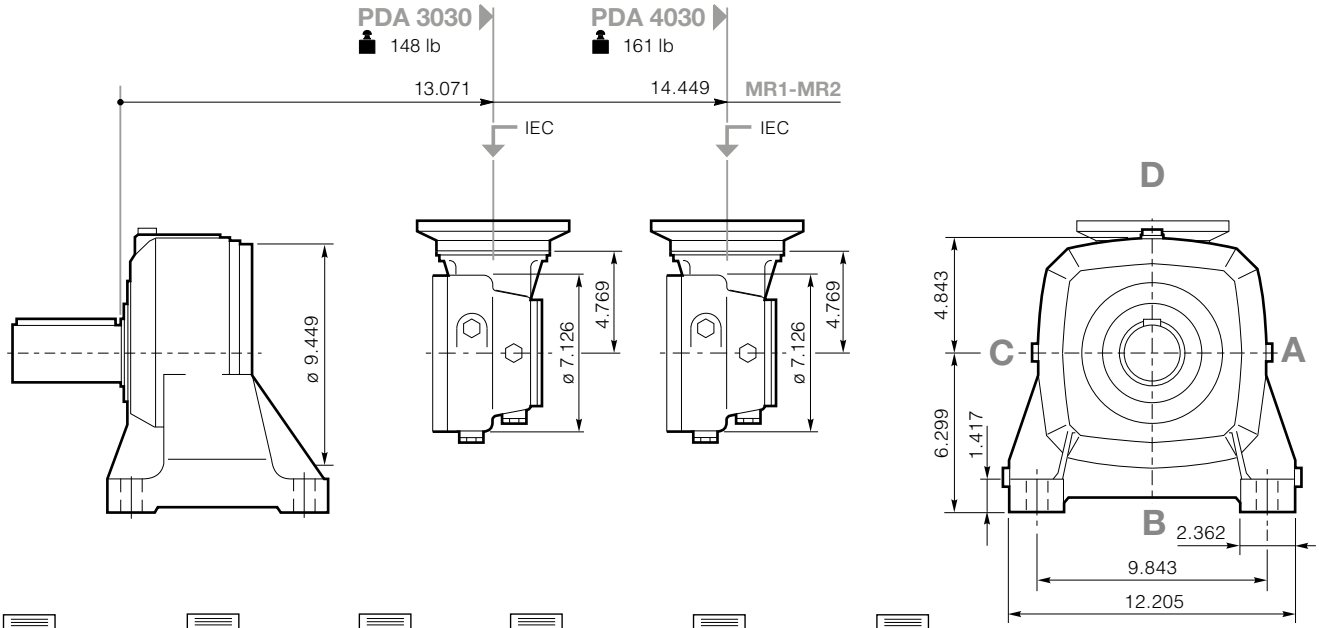

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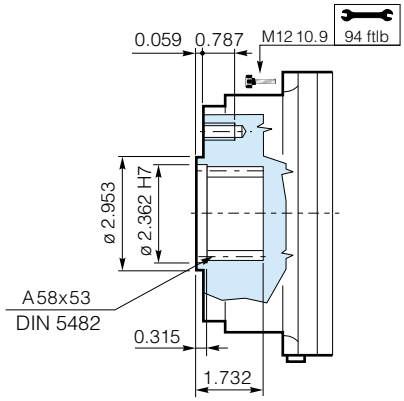

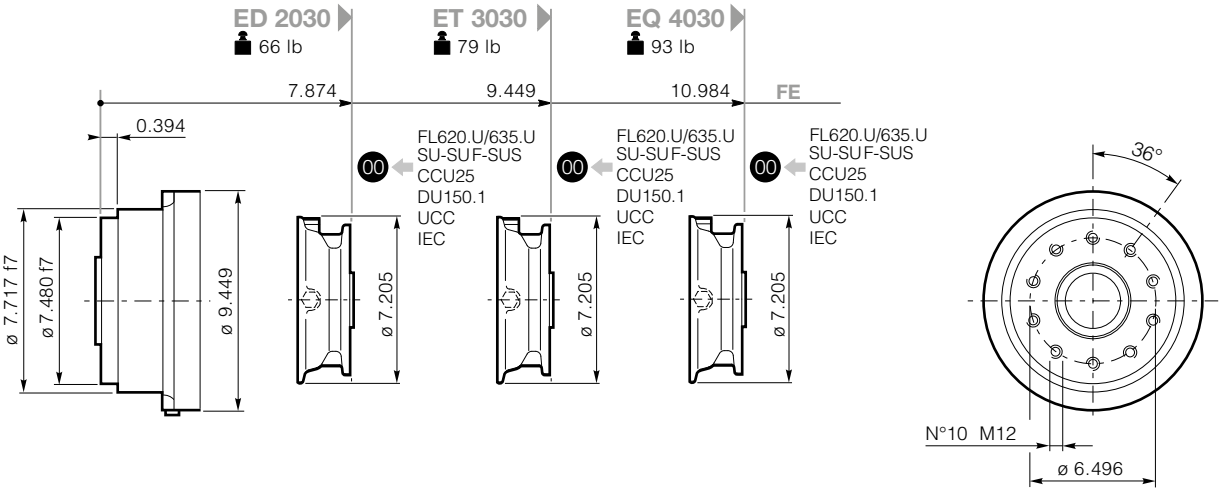

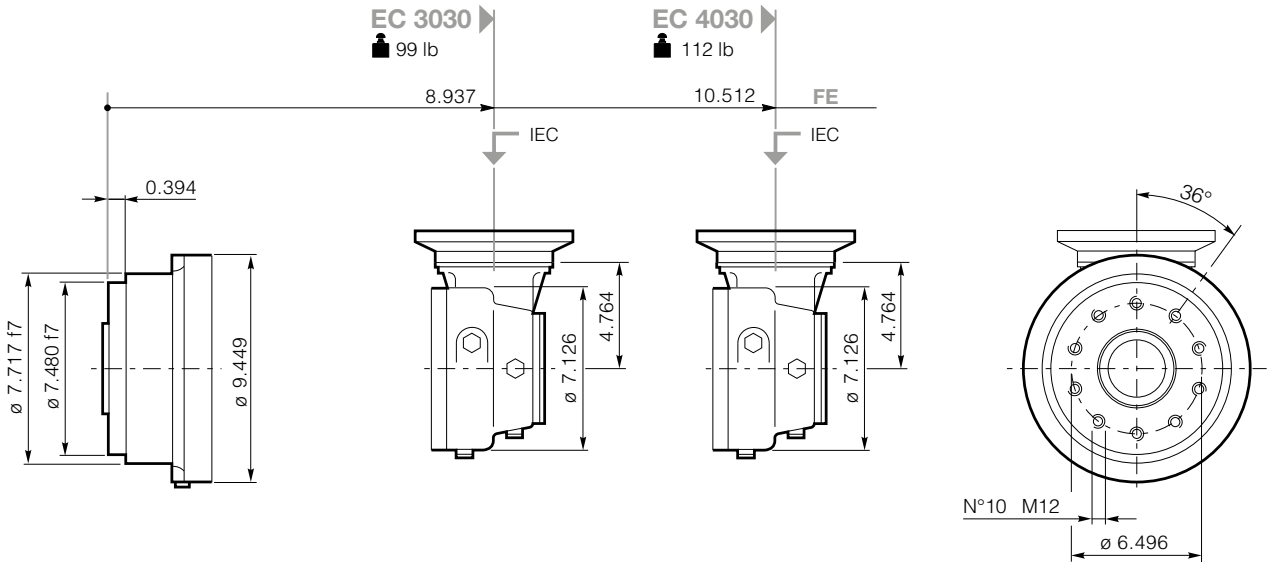

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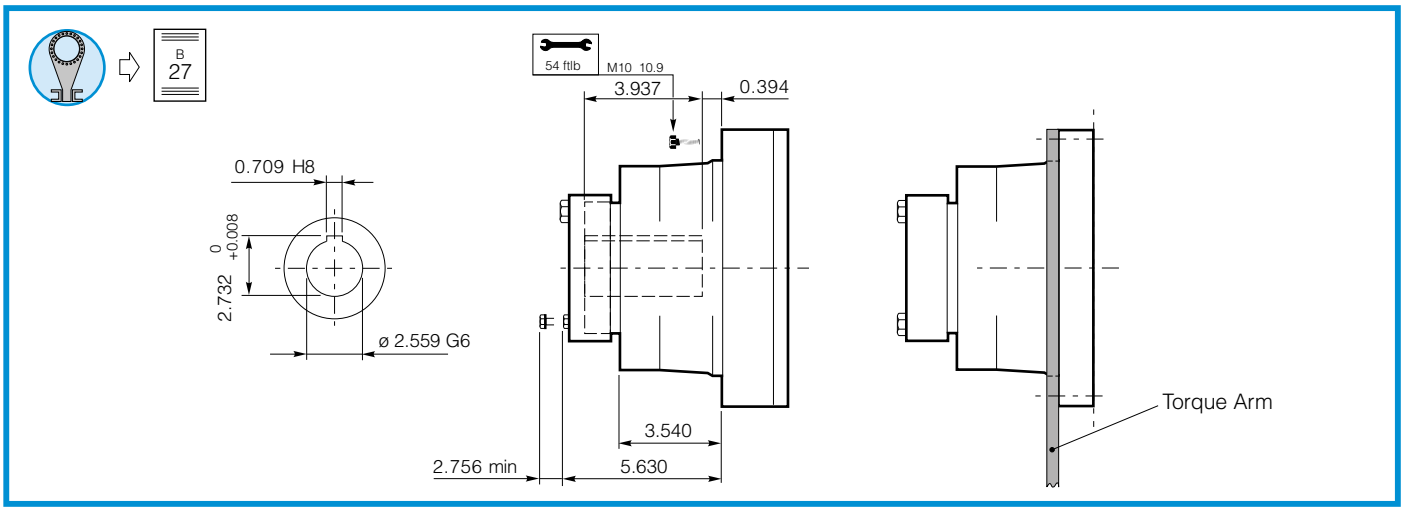
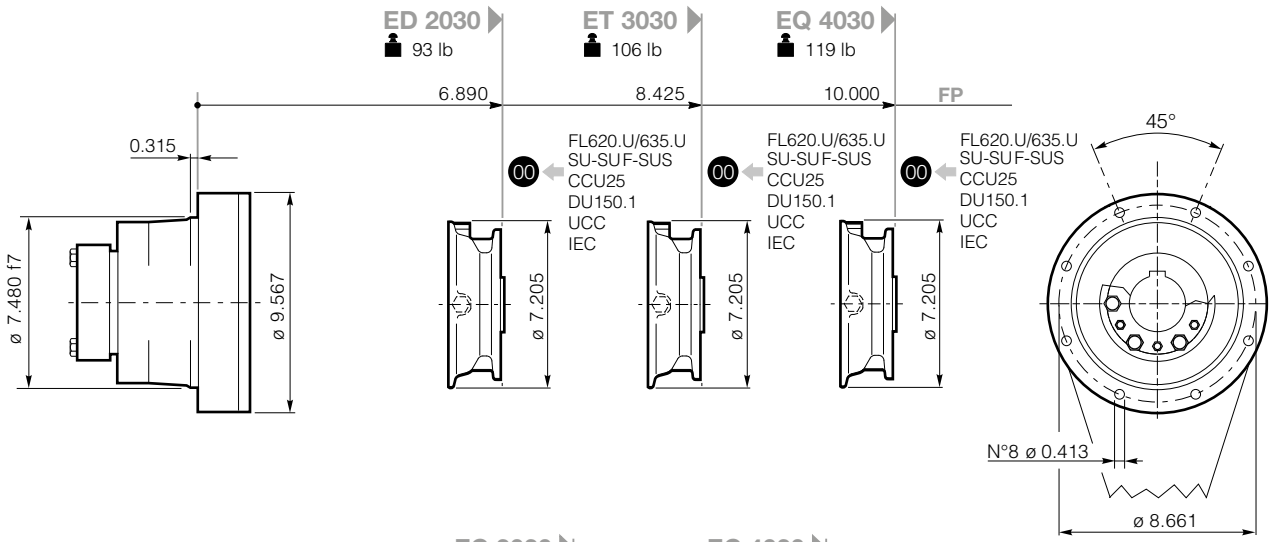
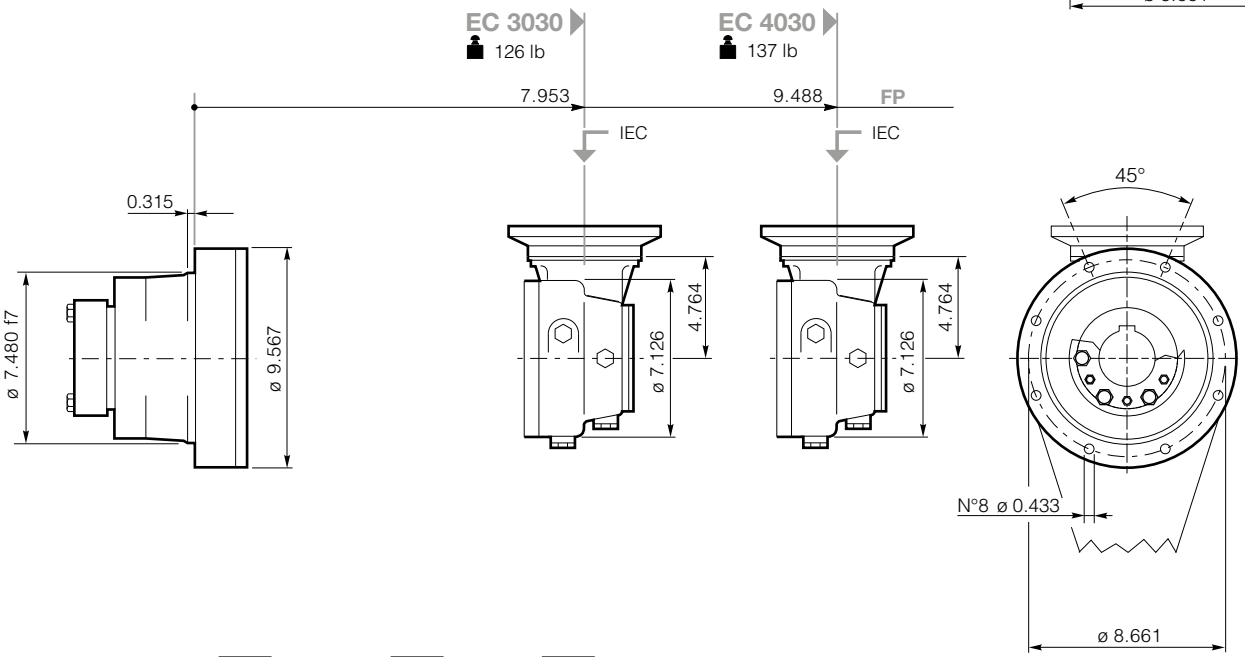
GEARBOX DIMENSIONS WITH OUTPUT







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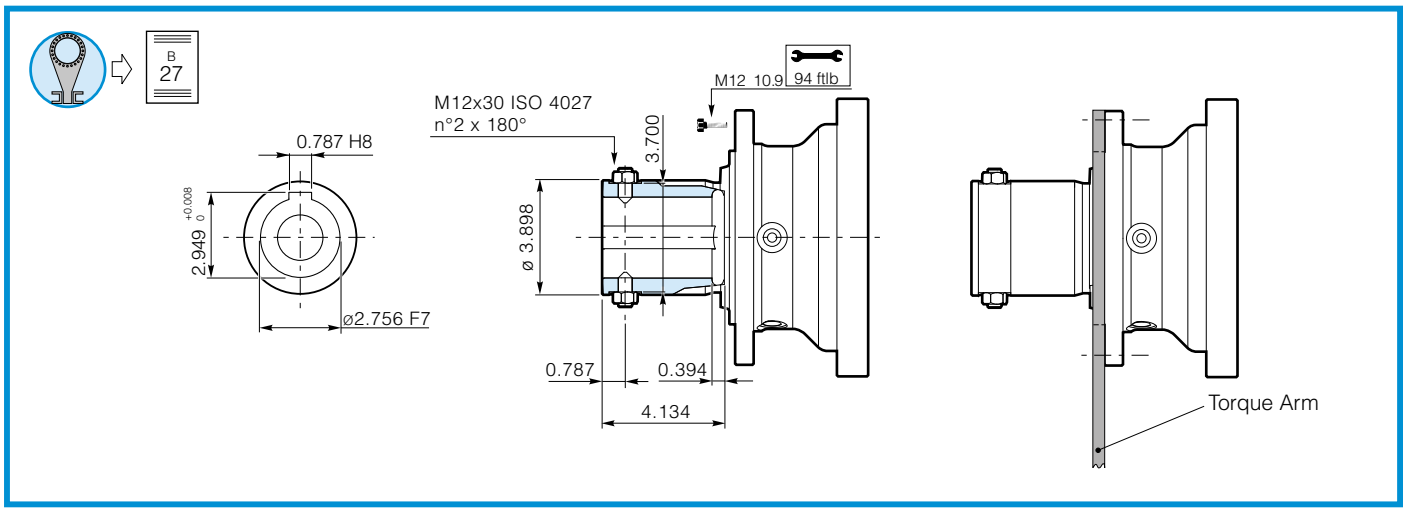

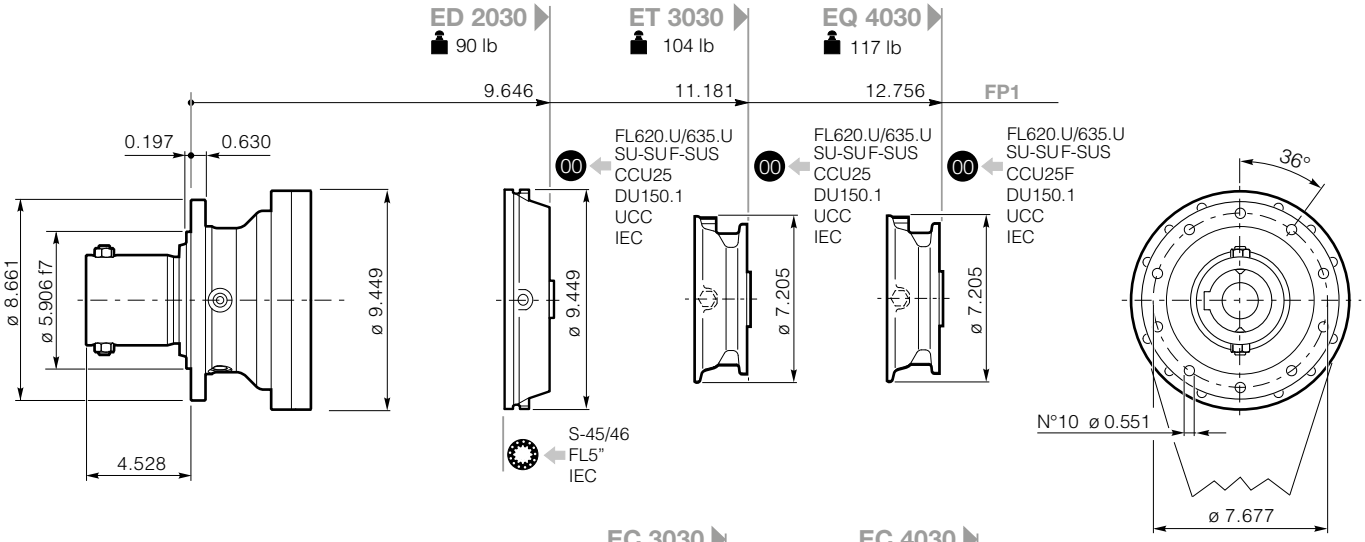

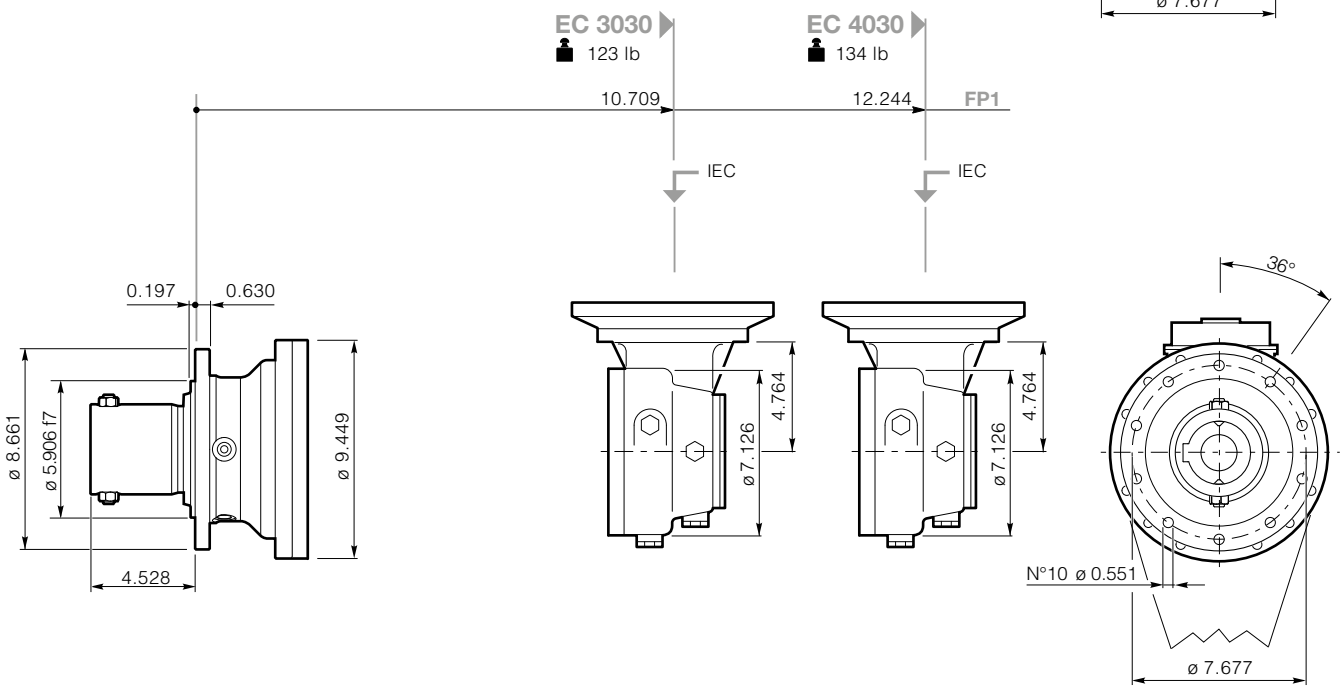

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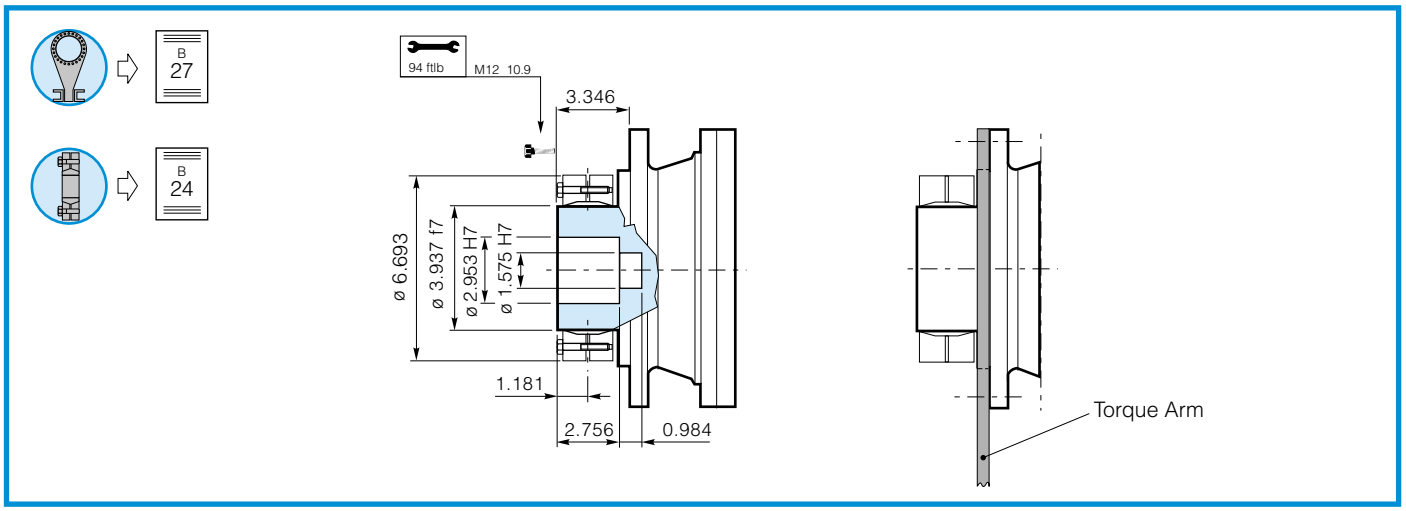
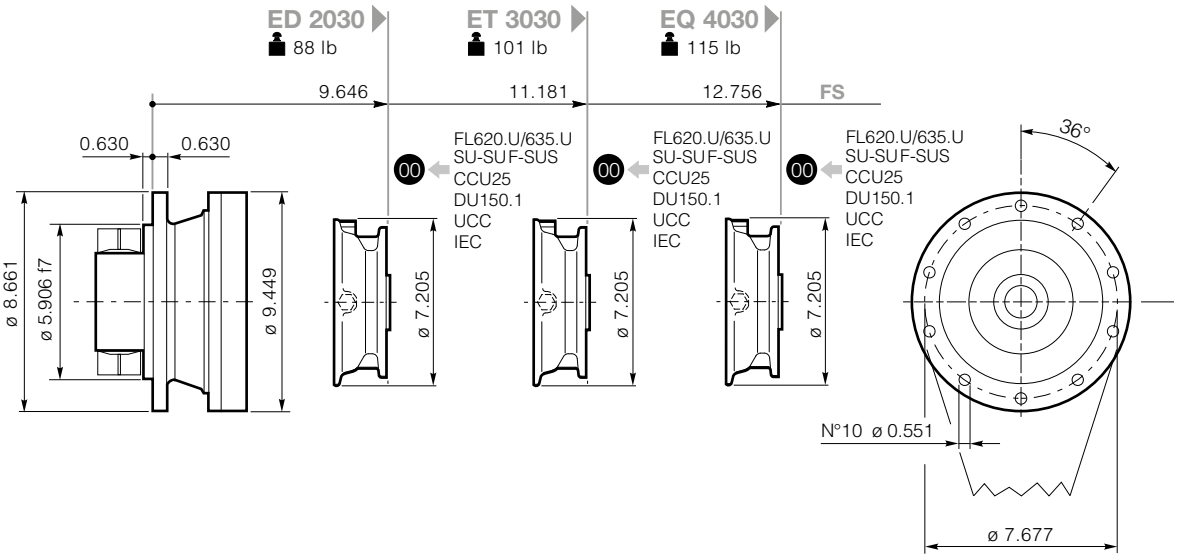
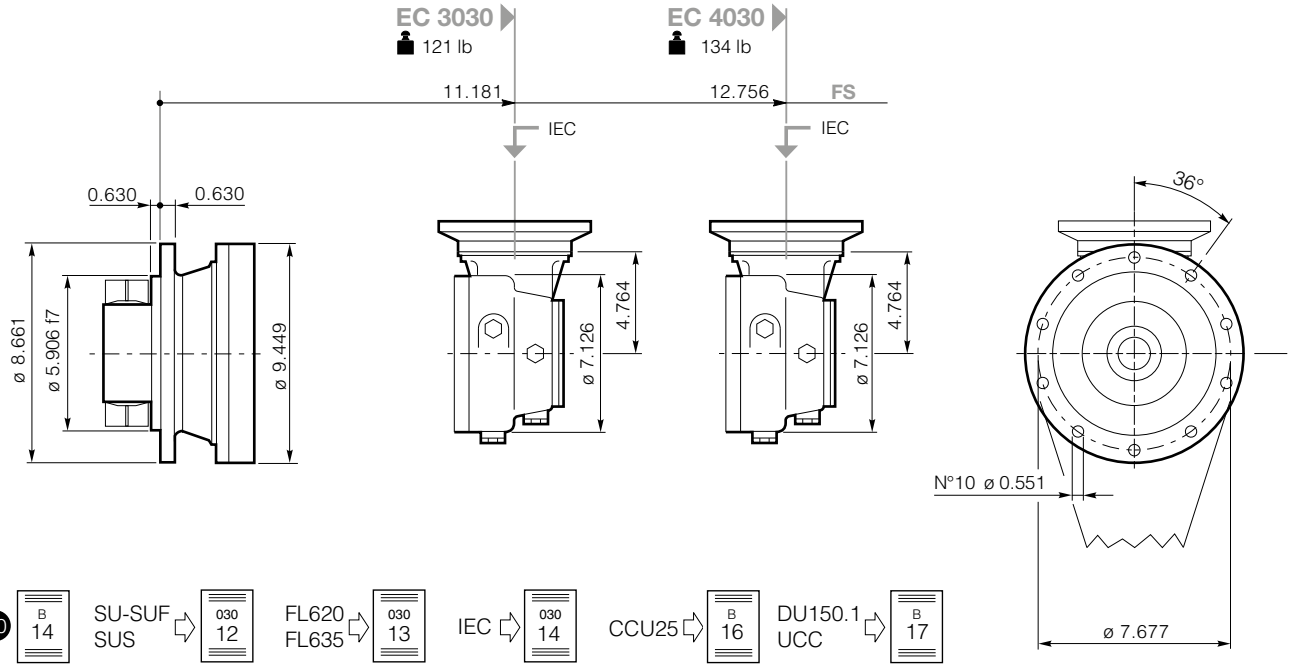
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 SU-SUF SUS 030 12 FL620 FL635 030 13 IEC 030 14 CCU25 B 16 DU150.1 UCC B 17

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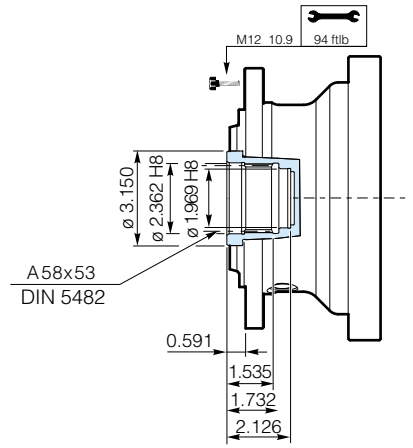
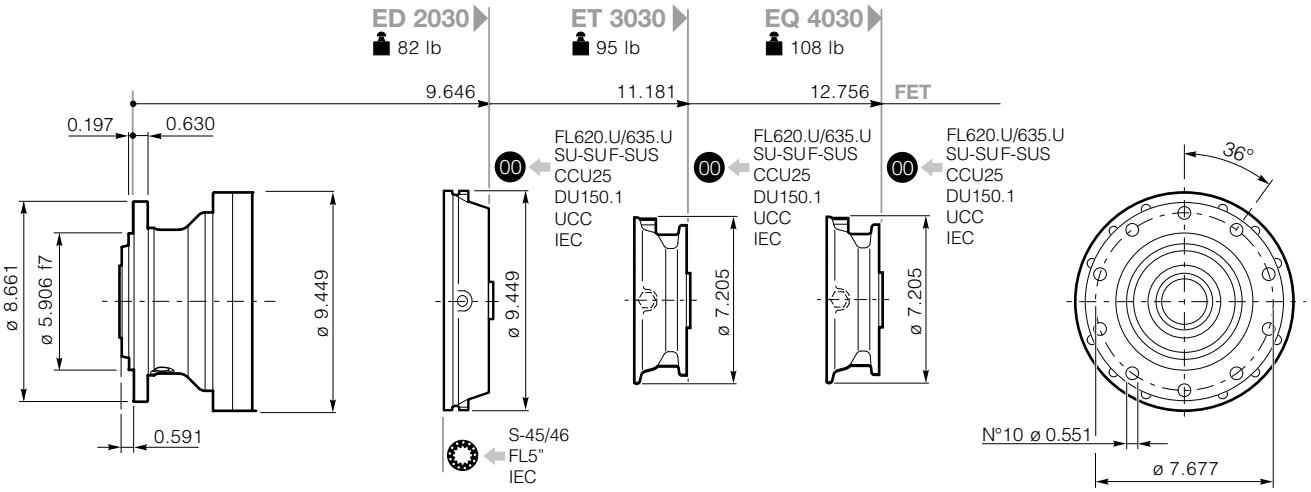
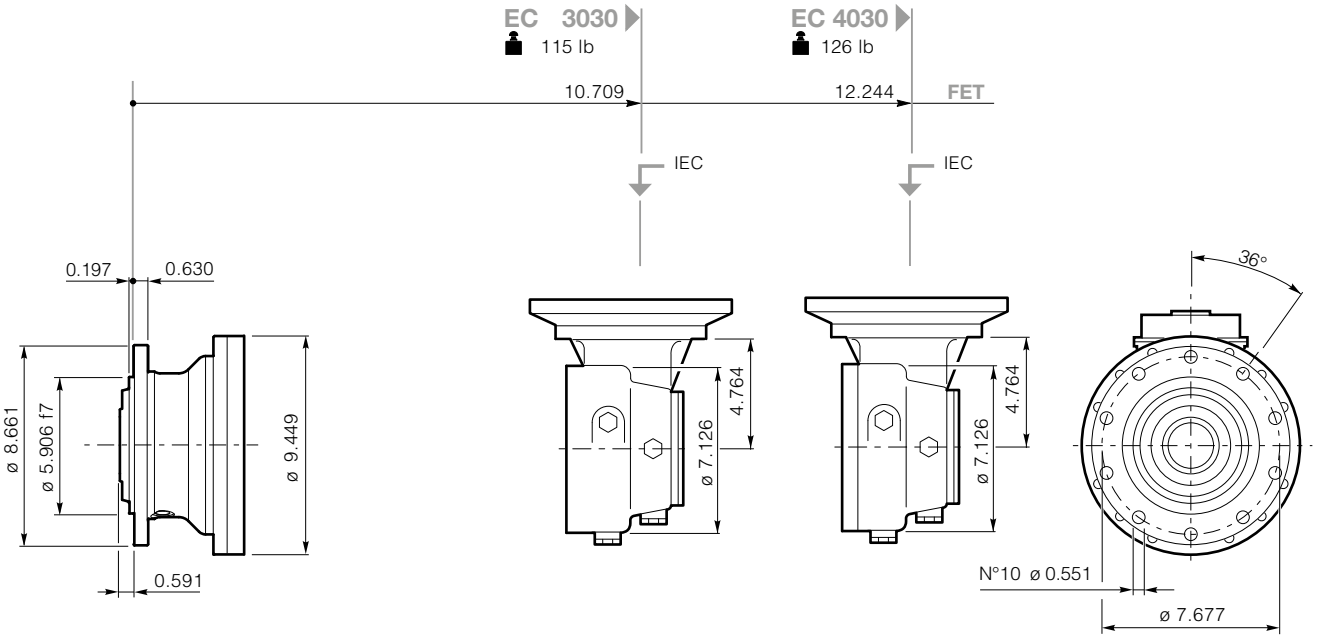
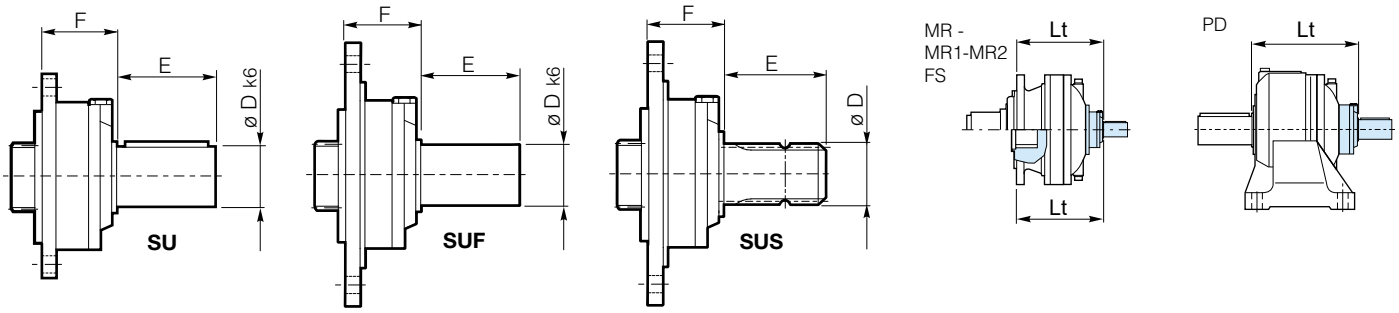






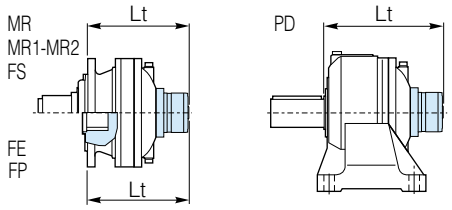
00 B 14 SU-SUF SUS 030 12 FL620 FL635 030 13 IEC 030 14 CCU25 B 16 DU150.1 UCC B 17

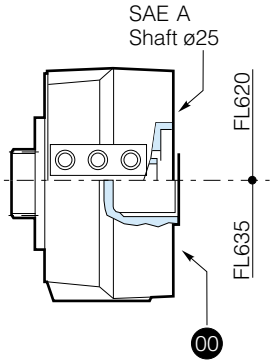
SU - SUF - SUS



	D	E	F		Lt			
					MR-MR1-MR2-FS-FET-FP1	FE	FP	PD
SU1 28x50	1.102	1.969	2.362	ED/PD 2030	12.008	10.236	9.252	14.213
				ET/PD 3030	13.543	11.811	10.787	15.748
				EQ/PD 4030	15.118	13.346	12.362	17.323
SU2 40x58	1.575	2.283	2.362	ED/PD 2030	12.008	10.236	9.252	14.213
				ET/PD 3030	13.543	11.811	10.787	15.748
				EQ/PD 4030	15.118	13.346	12.362	17.323
SU3 48x82	1.890	3.228	2.362	ED/PD 2030	12.008	10.236	9.252	14.213
				ET/PD 3030	13.543	11.811	10.787	15.748
				EQ/PD 4030	15.118	13.346	12.362	17.323
SU 42x80	1.654	3.150	3.996	ED/PD 2030	13.622	11.890	10.866	15.827
				ET/PD 3030	15.197	13.425	12.441	17.402
				EQ/PD 4030	16.732	15.000	13.976	18.937
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	ED/PD2030	13.622	11.890	10.866	15.827
				ET/PD 3030	15.197	13.425	12.441	17.402
				EQ/PD 4030	16.732	15.000	13.976	18.937
SU2 1.5x3.25	1.500	3.250	2.362	ED/PD 2030	12.008	10.236	9.252	14.213
				ET /PD3030	13.543	11.811	10.787	15.748
				EQ/PD 4030	15.118	13.346	12.362	17.323
SUF1 28x50	1.102	1.969	2.362	ED/PD 2030	12.008	10.236	9.252	14.213
				ET/PD 3030	13.543	11.811	10.787	15.748
				EQ/PD 4030	15.118	13.346	12.362	17.323
SUF2 40x58	1.575	2.283	2.362	ED/PD 2030	12.008	10.236	9.252	14.213
				ET/PD 3030	13.543	11.811	10.787	15.748
				EQ/PD 4030	15.118	13.346	12.362	17.323
SUF3 48x82	1.890	3.228	2.362	ED/PD 2030	12.008	10.236	9.252	14.213
				ET/PD 3030	13.543	11.811	10.787	15.748
				EQ/PD 4030	15.118	13.346	12.362	17.323

FL620.10 - FL635.10 / FL620.U - FL635.U

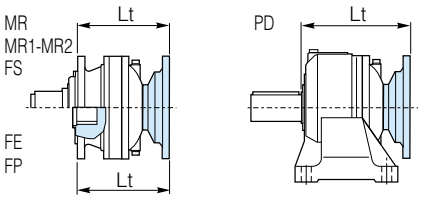




		Lt 00			
		MR-MR1-MR2-FS-FET-FP1	FE	FP	PD
FL620.U	ED/PD 2030	13.740	12.008	10.984	15.945
	ET/PD 3030	15.315	13.543	12.559	17.520
	EQ/PD 4030	16.850	15.118	14.094	19.055
FL635.U	ED/PD 2030	13.228	11.457	10.472	15.433
	ET/PD 3030	14.764	13.031	12.008	16.968
	EQ/PD 4030	16.339	14.567	13.583	18.543

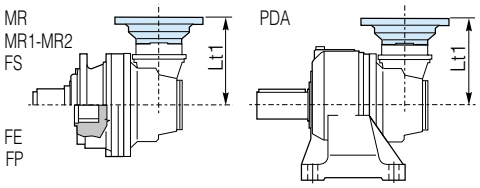
		Lt			
		MR-MR1-MR2-FS-FET-FP1	FE	FP	PD
FL620.10	ED/PD 2030	12.126	10.394	9.370	14.331
	ET/PD 3030	13.701	11.929	10.945	15.905
	EQ/PD 4030	15.236	13.504	12.480	17.441
FL635.10	ED/PD 2030	11.417	9.685	8.661	13.622
	ET/PD 3030	12.992	11.220	10.236	15.197
	EQ/PD 4030	14.528	12.795	11.772	16.732

IEC Motor



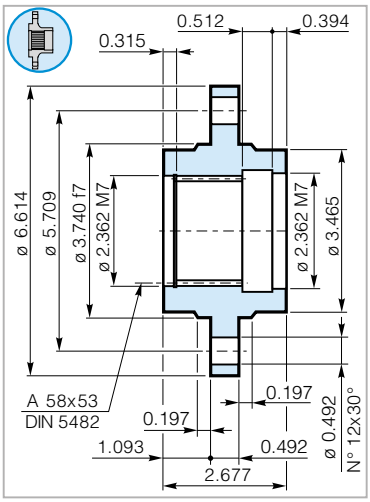
030

		Lt 00				
		IEC				
		63	71	80-90	100-112	132
ED 2030	MR-MR1-MR2-FS-FET-FP1	10.433	10.512	10.709	10.748	13.386
ET 3030	MR-MR1-MR2-FS-FET-FP1	11.968	12.047	12.244	12.283	14.921
EQ 4030	MR-MR1-MR2-FS-FET-FP1	13.543	13.622	13.819	13.858	16.496
ED 2030	FE	8.661	8.740	8.937	8.976	11.614
ET 3030	FE	10.236	10.315	10.512	10.551	13.189
EQ 4030	FE	11.772	11.850	12.047	12.087	14.724
ED 2030	FP	7.677	7.756	7.953	7.992	10.630
ET 3030	FP	9.213	9.291	9.488	9.528	12.165
EQ 4030	FP	10.787	10.866	11.063	11.102	13.740
PD 2030	PD	12.618	12.697	12.894	12.933	15.571
PD 3030	PD	14.173	14.252	14.449	14.488	17.126
PD 4030	PD	15.728	15.807	16.004	16.043	18.681

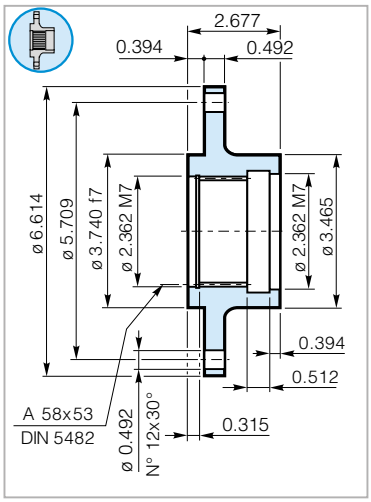


		Lt1				
		IEC				
		63	71	80-90	100-112	132
EC/PDA 3030	MR-MR1-MR2-FE-FS-FP-FET-FP1-PDA	5.945	5.945	5.945	5.945	9.370
EC/PDA 3030	MR-MR1-MR2-FE-FS-FP-FET-FP1-PDA	5.945	5.945	5.945	5.945	9.370

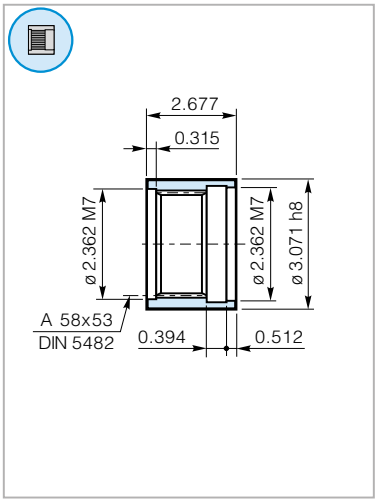
FA 030 MR — Wheel Flange



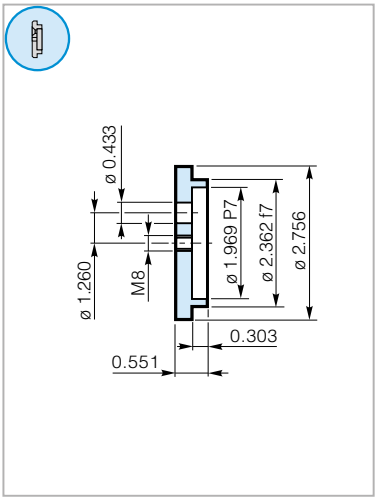
FR 030 MR — Wheel Flange



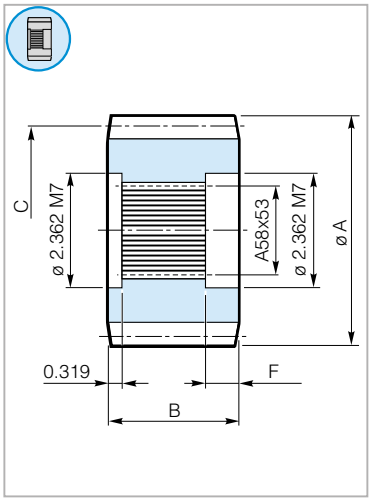
MS 030 MR — Splined Sleeve



RDF 030 MR — Lock Washer

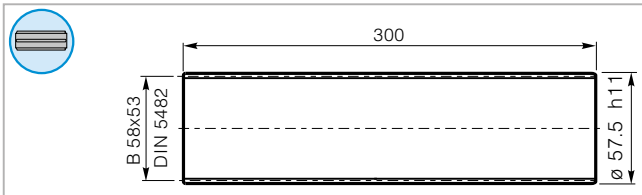


MR — Pinions



A	B	C			F
		m	z	x	
4.528	2.677	0.315	0.472	0.016	0.925
3.921	2.677	0.236	0.551	0.020	0.925
5.039	2.677	0.315	0.512	0.028	0.925
5.551	2.677	0.315	0.591	0.020	0.925
5.157	2.953	0.315	0.551	0.020	0.925
5.197	2.559	0.236	0.787	0.000	0.925
4.646	2.992	0.315	0.472	0.020	0.925
4.764	3.228	0.315	0.472	0.024	0.925

BS 030 FE — Splined Bar

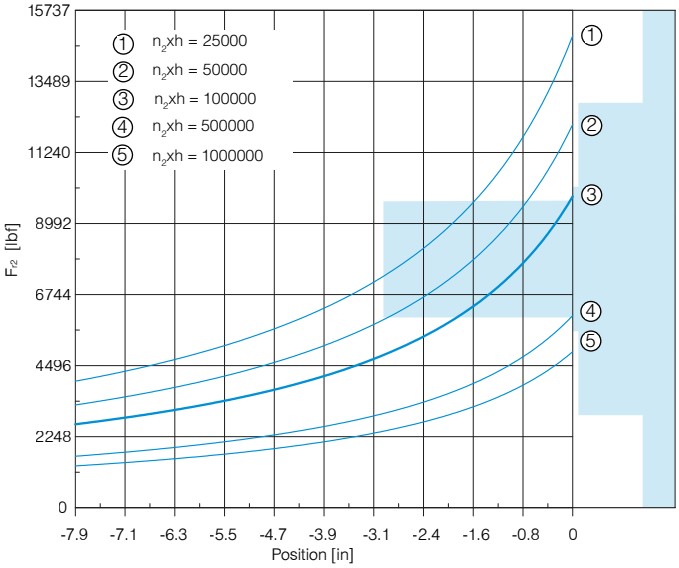


Code: 39127030100 Mat: High mechanical resistance alloyed steel

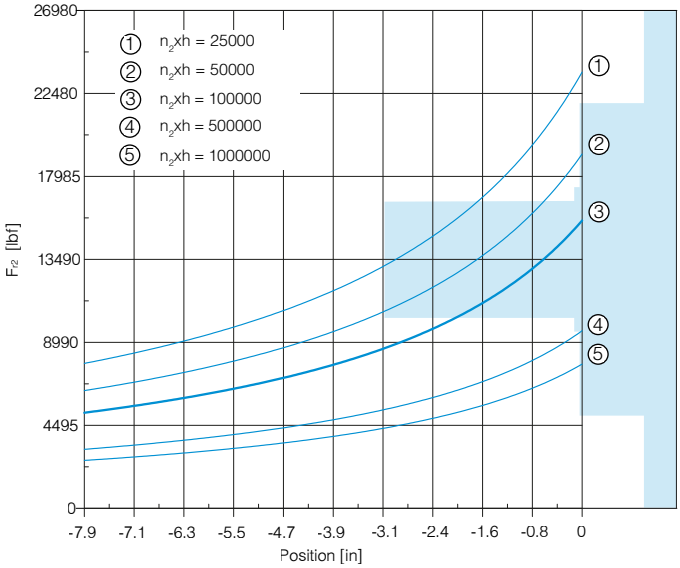
RADIAL AND AXIAL LOADS

Output Radial Loads

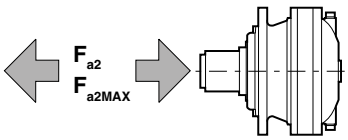
Gearbox Versions: ED, ET, EQ, EC — **MR-MR1-MR2**



Gearbox Versions: PD, PDA — **MR1-MR2**

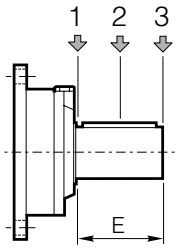


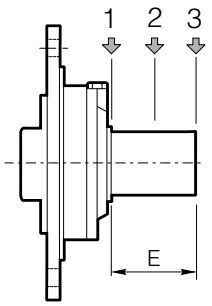
Output Axial Loads

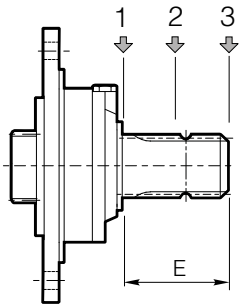


		Flange mounted MR-MR1-MR2	PD-PDA MR1-MR2
F$_{a2}$	[lbf]	7868	5620
F$_{a2MAX}$	[lbf]	13500	5620

Input Radial Loads

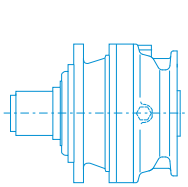




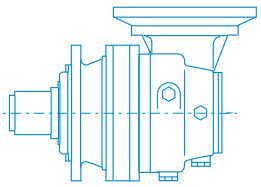


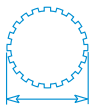
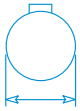
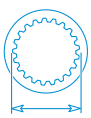
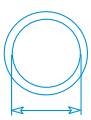
		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	**E**	**1**	**2**	**3**	**1**	**2**	**3**
SU 42x80	3.150	674	450	337	315	225	157
SU1 28x50	1.969	674	450	337	315	225	157
SU2 40x58	2.283	674	450	337	315	225	157
SU3 48x82	3.228	674	450	337	315	225	157
SUS 1 3/8”	3.819	629	405	337	292	202	135
SU2 1 1/2”x 3 1/4”	3.250	674	450	337	315	225	157
SUF1 28x50	1.969	674	450	337	315	225	157
SUF2 40x58	2.283	674	450	337	315	225	157
SUF3 48x82	3.228	674	450	337	315	225	157

DANA
BREVINI®
Motion Systems



040



i_{eff}	15.37 - 3170
T_{2N}	2800 ftlb
	B58X53 DIN5482
	2.560 in
	-
	-

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TECHNICAL DATA

10000 hours life

i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
ED 2040 / PD 2040												
15.37	98	1114	20.7	65	1257	15.6	32.5	1549	9.7	3000	4130	16
17.47	86	1564	25.6	57	1766	19.3	28.6	2015	11.0			
20.28	74	1627	22.9	49.3	1707	16.1	24.7	1839	8.6			
22.70	66	1645	20.7	44.1	1858	15.6	22	2069	8.7			
26.34	57	1679	18.2	38	1757	12.7	19	1888	6.8			
31.02	48.4	1574	14.5	32.2	1727	10.6	16.1	1946	6.0		4425	
36.00	41.7	1739	13.8	27.8	1816	9.7	13.9	1947	5.1			
41.64	36	1715	11.8	24	1804	8.3	12	1975	4.6			
43.50	34.5	1495	9.8	23	1563	6.8	11.5	1679	3.6			
50.32	29.8	1519	8.6	19.9	1587	6.0	9.9	1703	3.2			
ET 3040 / PD 3040												
59.06	25.4	2039	9.9	16.9	2123	6.8	8.5	2269	3.6	3000	4425	10.7
61.28	24.5	1947	9.1	16.3	2199	6.8	8.2	2707	4.2			
70.98	21.1	1812	7.2	14.1	2047	5.5	7	2364	3.2			
83.76	17.9	2139	7.2	11.9	2415	5.5	6	2790	3.2			
89.03	16.8	1911	6.2	11.2	1988	4.3	5.6	2121	2.3			
96.88	15.5	2234	6.6	10.3	2523	5.0	5.2	2805	2.8			
108.8	13.8	2250	5.9	9.2	2449	4.3	4.6	2515	2.1			
124.2	12.1	1805	4.2	8.1	1864	2.8	4	1960	1.5			
146.6	10.2	2130	4.2	6.8	2200	2.8	3.4	2314	1.5			
157.5	9.5	2243	4.0	6.3	2345	2.8	3.2	2725	1.6			
186.1	8.1	2139	3.2	5.4	2246	2.3	2.7	2428	1.2			
198.9	7.5	1560	2.3	5	1638	1.6	2.5	1771	0.8			
215.3	7	2178	3.0	4.6	2285	2.0	2.3	2465	1.1			
249.0	6	1953	2.3	4	2050	1.6	2	2217	0.8			
289.0	5.2	2156	2.1	3.5	2358	1.6	1.7	2573	0.8			
325.7	4.6	2287	2.0	3.1	2392	1.3	1.5	2575	0.8			
EQ 4040 / PD 4040												
367.7	4.1	2828	2.1	2.7	2867	1.5	1.4	2929	0.8	3000	4425	5.4
404.7	3.7	2159	1.5	2.5	2187	1.0	1.2	2234	0.5			
460.3	3.3	2710	1.7	2.2	2950	1.2	1.1	3396	0.7			
495.4	3	2857	1.6	2	2895	1.1	1	2956	0.6			
581.3	2.6	2872	1.5	1.7	2909	1.0	0.86	2970	0.5			
643.5	2.3	2881	1.3	1.6	2918	0.9	0.78	2979	0.4			
691.5	2.2	2951	1.2	1.4	3207	0.9	0.72	3314	0.5			
817.1	1.8	3055	1.1	1.2	3263	0.8	0.61	3331	0.4			
879.4	1.7	2909	1.0	1.1	2946	0.6	0.57	3005	0.3			
1017	1.5	2923	0.8	0.98	2958	0.5	0.49	3018	0.3			
1142	1.3	2618	0.7	0.88	2650	0.4	0.44	2704	0.2			
1304	1.2	2128	0.5	0.77	2184	0.3	0.38	2280	0.2			
1430	1	3278	0.7	0.7	3317	0.4	0.35	3384	0.2			
1539	0.97	2512	0.5	0.65	2577	0.3	0.32	2691	0.2			
1806	0.83	2395	0.4	0.55	2437	0.3	0.28	2660	0.1			
1999	0.75	2662	0.4	0.5	2693	0.3	0.25	2927	0.1			
2268	0.66	3320	0.4	0.44	3526	0.3	0.22	3779	0.2			
2502	0.6	3333	0.4	0.4	3372	0.3	0.2	3665	0.1			
2904	0.52	3485	0.3	0.34	3770	0.2	0.17	4253	0.1			
3170	0.47	2981	0.3	0.32	3232	0.2	0.16	3697	0.1			

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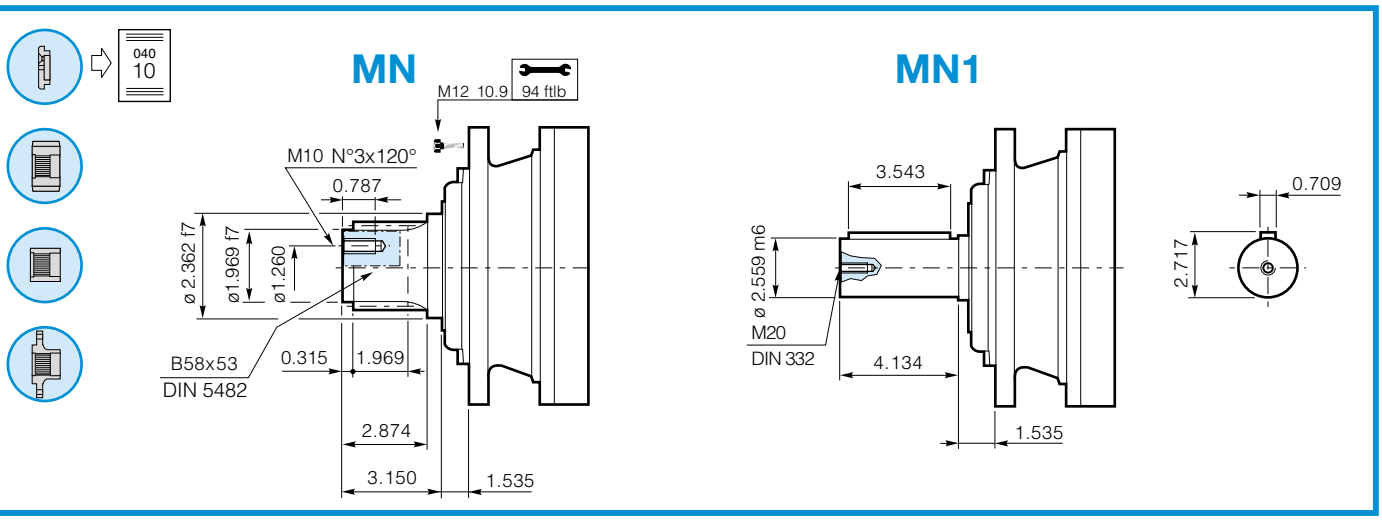
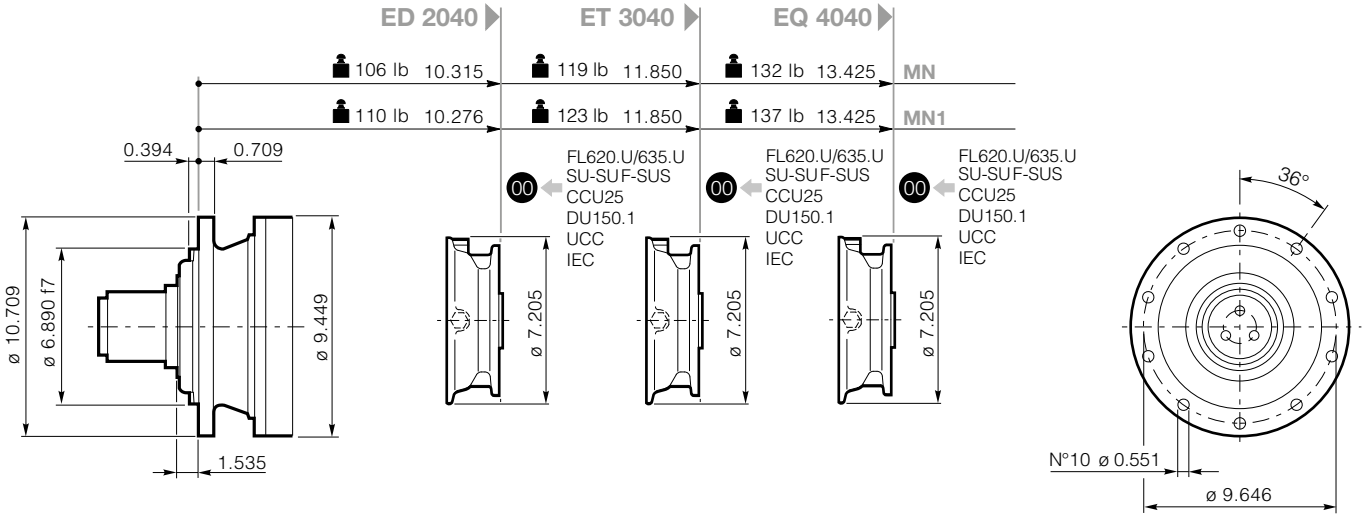
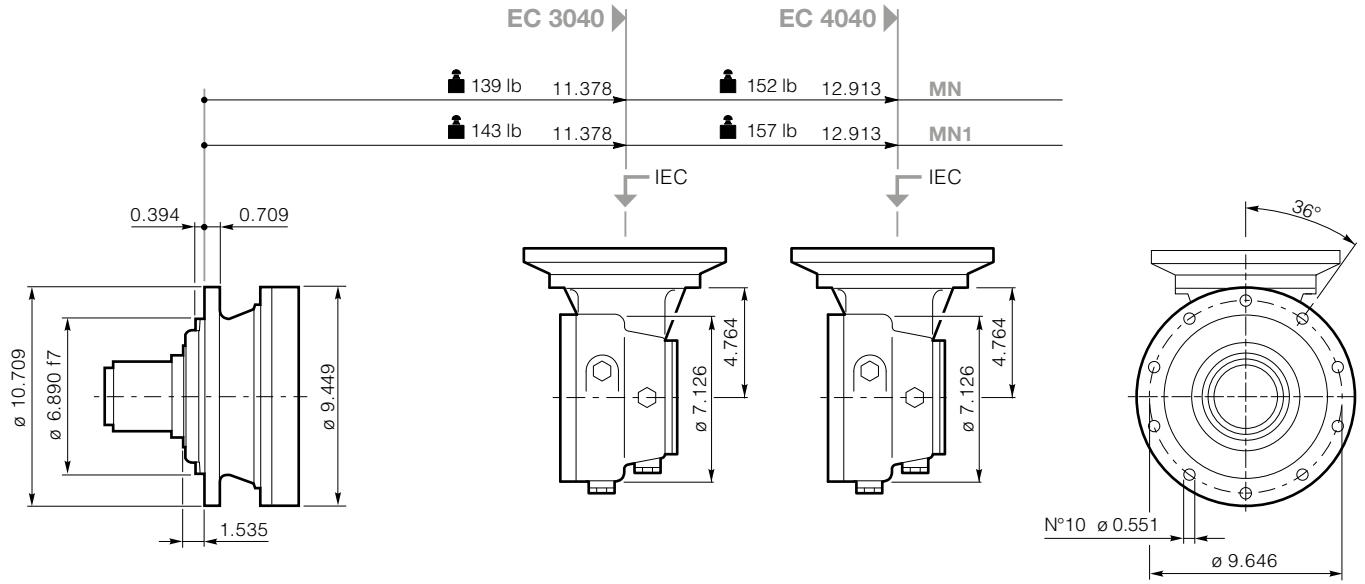
10000 hours life

i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EC 3040 / PDA 3040												
35.49	42.3	856	6.8	28.2	966	5.2	14.1	1190	3.2			
41.88	35.8	1010	6.8	23.9	1140	5.2	11.9	1403	3.2			
46.09	32.5	1111	6.8	21.7	1255	5.2	10.8	1545	3.2			
52.42	28.6	1264	6.8	19.1	1427	5.2	9.5	1757	3.2			
54.39	27.6	1311	6.8	18.4	1481	5.2	9.2	1823	3.2			
60.84	24.7	1467	6.8	16.4	1656	5.2	8.2	2039	3.2			
68.09	22	1642	6.8	14.7	1854	5.2	7.3	2283	3.2			
79.02	19	1888	6.8	12.7	1965	4.7	6.3	2098	2.5			
88.66	16.9	1308	4.2	11.3	1477	3.2	5.6	1819	2.0			
99.17	15.1	1463	4.2	10.1	1653	3.2	5	2035	2.0	3000	4425	6.7
111.0	13.5	1638	4.2	9	1850	3.2	4.5	2277	2.0			
128.8	11.6	1901	4.2	7.8	2058	3.1	3.9	2300	1.7			
140.2	10.7	1492	3.1	7.1	1571	2.1	3.6	1704	1.2			
151.7	9.9	2084	3.9	6.6	2193	2.8	3.3	2374	1.5			
176.0	8.5	2041	3.4	5.7	2119	2.3	2.8	2460	1.3			
203.6	7.4	2069	3.0	4.9	2183	2.0	2.5	2475	1.2			
215.8	7	1763	2.3	4.6	1833	1.6	2.3	2134	0.9			
244.1	6.1	2104	2.4	4.1	2272	1.7	2	2637	1.0			
282.3	5.3	2145	2.1	3.5	2346	1.6	1.8	2567	0.9			
EC 4040 / PDA 4040												
319.9	4.7	2815	2.5	3.1	2854	1.7	1.6	2918	0.9			
347.1	4.3	2406	2.0	2.9	2438	1.3	1.4	2491	0.7			
401.5	3.7	2418	1.7	2.5	2449	1.2	1.2	2502	0.6			
473.7	3.2	2853	1.7	2.1	2890	1.2	1.1	2951	0.6			
481.2	3.1	2432	1.5	2.1	2463	1.0	1	2515	0.5			
567.9	2.6	2870	1.5	1.8	2906	1.0	0.88	2968	0.5			
656.8	2.3	2883	1.3	1.5	2920	0.8	0.76	2980	0.4			
716.7	2.1	2391	1.0	1.4	2455	0.7	0.7	2566	0.3			
822.2	1.8	3058	1.1	1.2	3320	0.8	0.61	3731	0.4			
930.9	1.6	2602	0.8	1.1	2634	0.5	0.54	2688	0.3			
993.8	1.5	2443	0.7	1	2507	0.5	0.5	2619	0.3	3000	4425	4
1165	1.3	3258	0.8	0.86	3297	0.5	0.43	3365	0.3			
1291	1.2	2628	0.6	0.77	2659	0.4	0.39	2732	0.2			
1352	1.1	2994	0.6	0.74	3247	0.5	0.37	3719	0.3			
1616	0.93	3290	0.6	0.62	3329	0.4	0.31	3420	0.2			
1848	0.81	3187	0.5	0.54	3454	0.4	0.27	3660	0.2			
1959	0.77	2814	0.4	0.51	3111	0.3	0.26	3553	0.2			
2208	0.68	2982	0.4	0.45	3049	0.3	0.23	3319	0.1			
2563	0.59	3401	0.4	0.39	3539	0.3	0.2	3851	0.1			
2964	0.51	3117	0.3	0.34	3404	0.2	0.17	3789	0.1			
3097	0.48	2967	0.3	0.32	3217	0.2	0.16	3681	0.1			

GEARBOX DIMENSIONS WITH OUTPUT



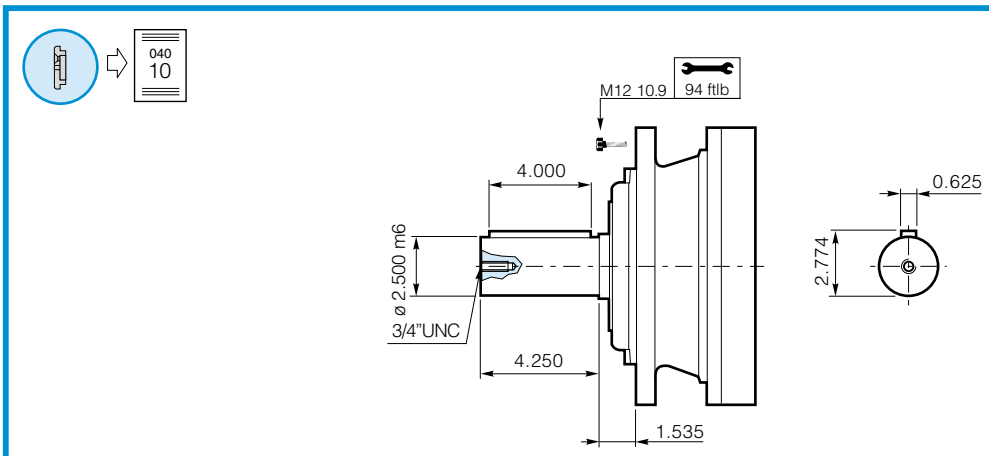


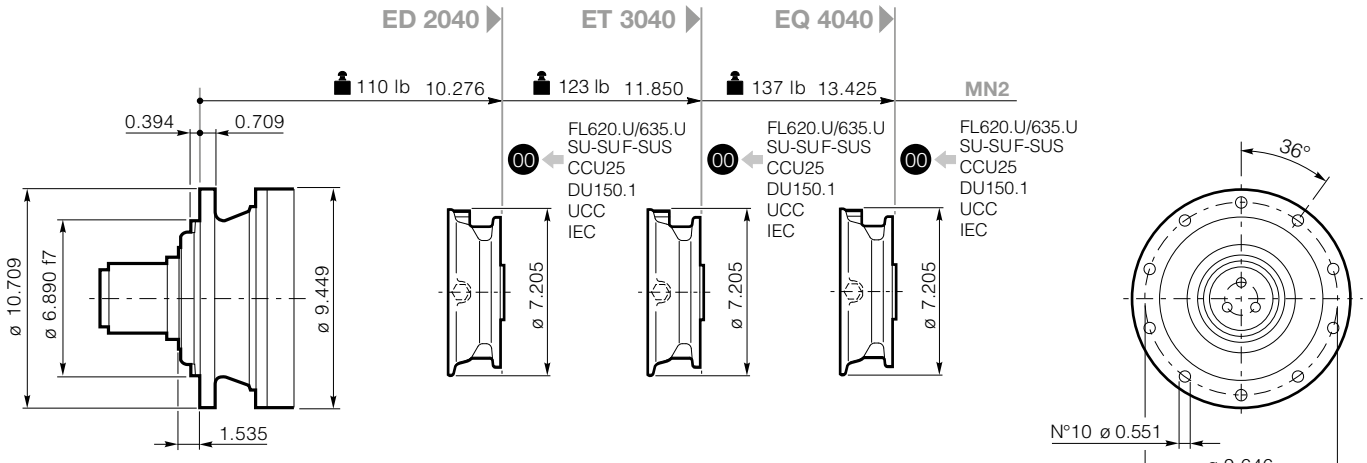


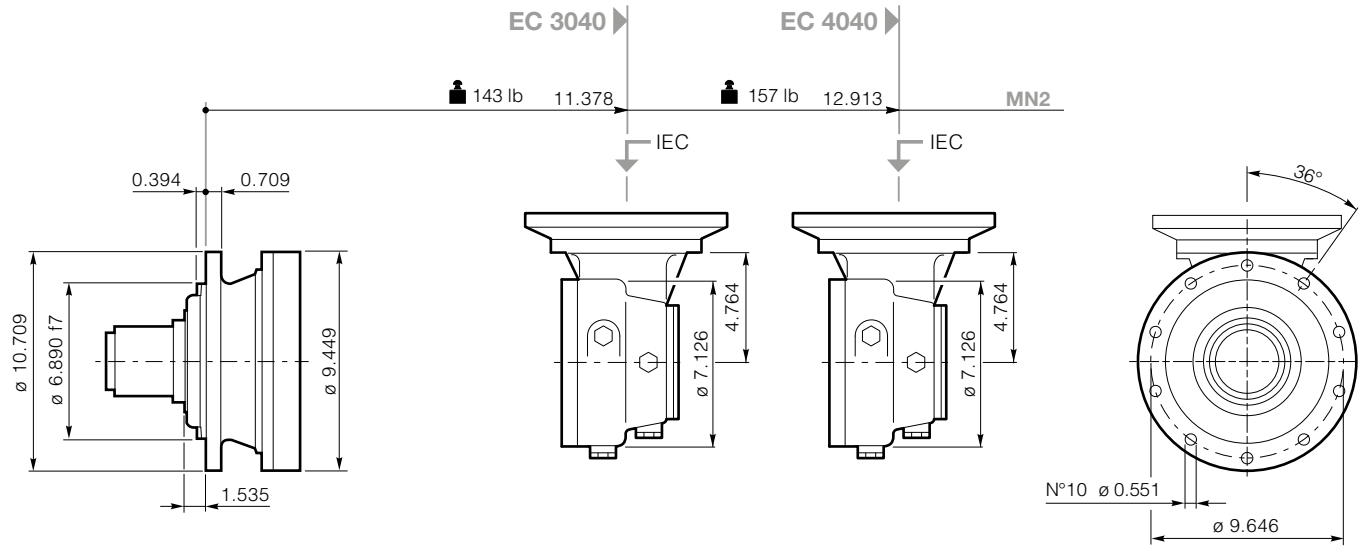
00 → B 14 | SU-SUF SUS → 040 7 | FL620 FL635 → 040 8 | IEC → 040 9 | CCU25 → B 16 | DU150.1 UCC → B 17

Click **DANA** button to return to section index

Click *i* button to return to main index





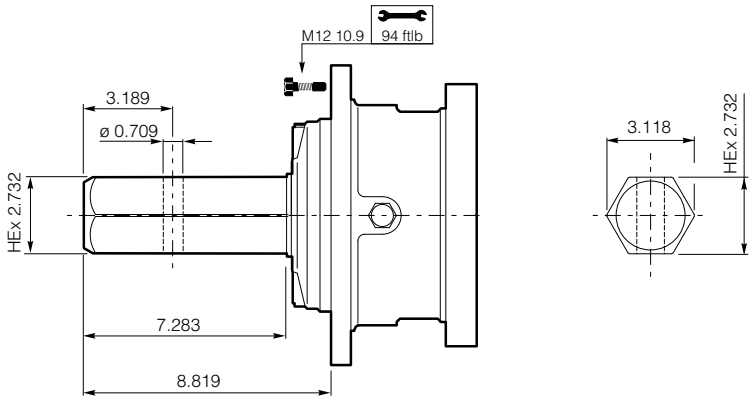


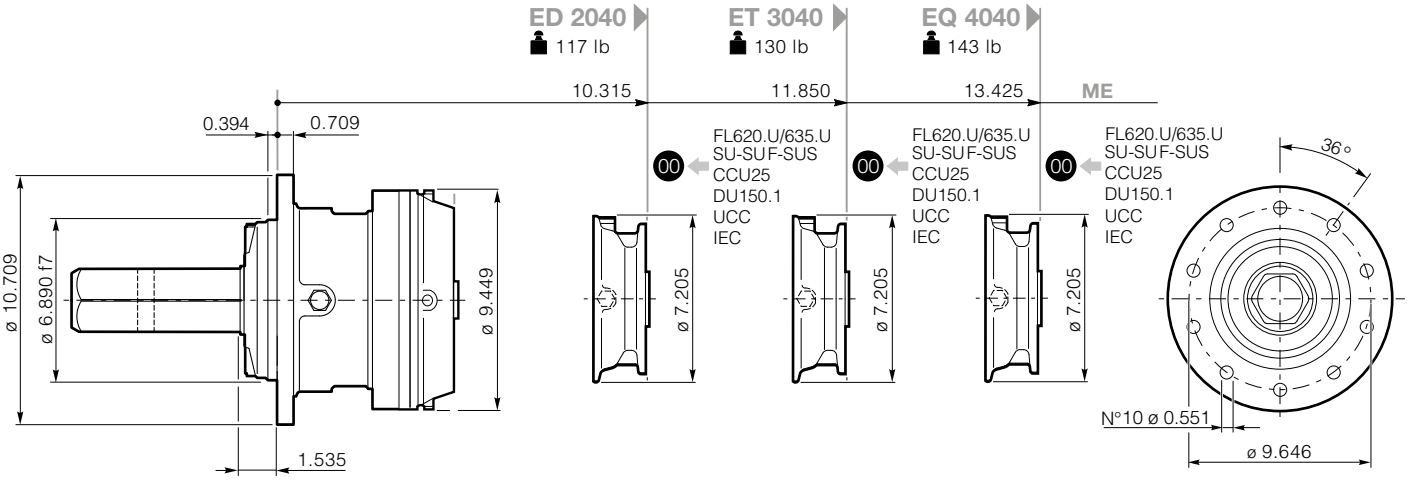
00 B 14 | SU-SUF SUS 040 7 | FL620 FL635 040 8 | IEC 040 9 | CCU25 B 16 | DU150.1 UCC B 17

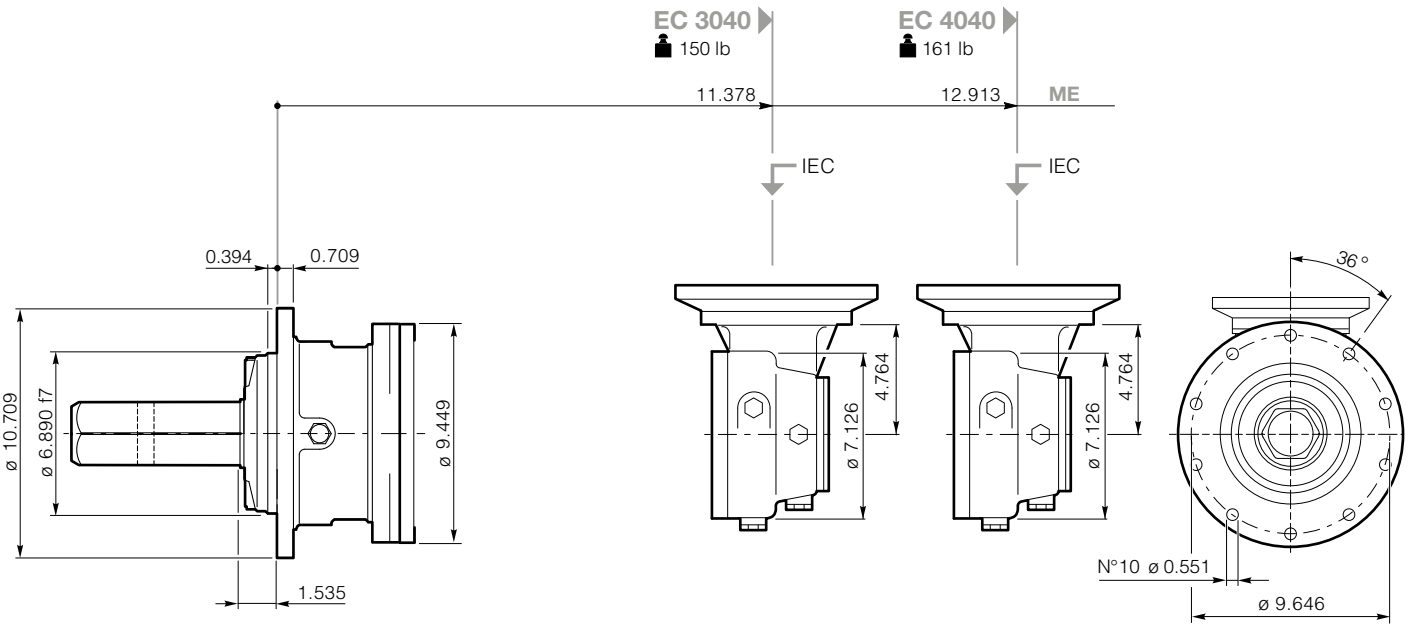
Click *i* button to return to main index

Click **DANA** button to return to section index

GEARBOX DIMENSIONS WITH OUTPUT





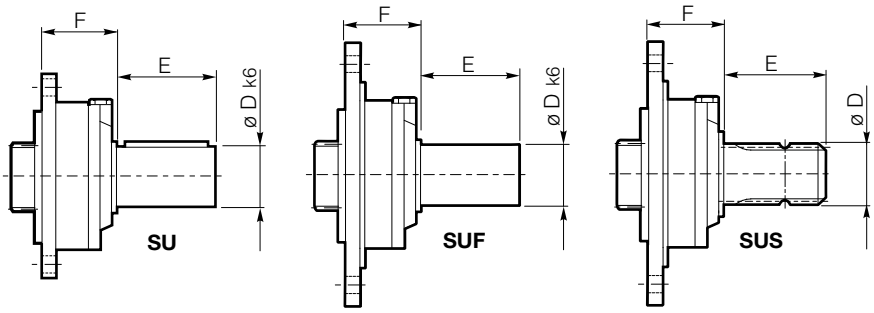


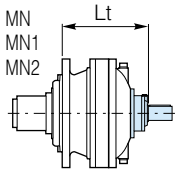
00 B 14 SU-SUF SUS 040 7 FL620 FL635 040 8 IEC 040 9 CCU25 B 16 DU150.1 UCC B 17

Click **DANA** button to return to section index

Click *i* button to return to main index

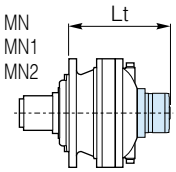
SU - SUF - SUS

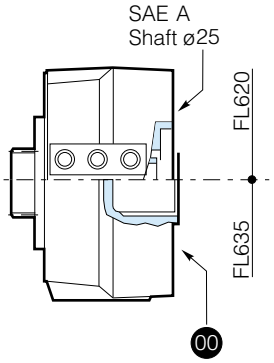




	D	E	F		Lt 00 MN-MN1-MN2-ME
SU1 28x50	1.102	1.969	2.362	ED 2040	12.677
				ET 3040	14.213
				EQ 4040	15.787
SU2 40x58	1.575	2.283	2.362	ED 2040	12.677
				ET 3040	14.213
				EQ 4040	15.787
SU3 48x82	1.890	3.228	2.362	ED 2040	12.677
				ET 3040	14.213
				EQ 4040	15.787
SU 42x80	1.654	3.150	3.996	ED 2040	14.291
				ET 3040	15.866
				EQ 4040	17.402
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	ED 2040	14.291
				ET 3040	15.866
				EQ 4040	17.402
SU2 1.5x3.25	1.500	3.250	2.362	ED 2040	12.677
				ET 3040	14.213
				EQ 4040	15.787
SUF1 28x50	1.102	1.969	2.362	ED 2040	12.677
				ET 3040	14.213
				EQ 4040	15.787
SUF2 40x58	1.575	2.283	2.362	ED 2040	12.677
				ET 3040	14.213
				EQ 4040	15.787
SUF3 48x82	1.890	3.228	2.362	ED 2040	12.677
				ET 3040	14.213
				EQ 4040	15.787

FL620.10 - FL635.10 / FL620.U - FL635.U

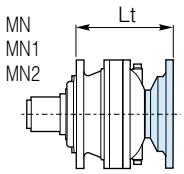




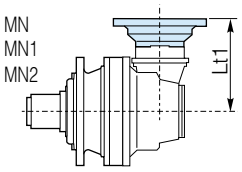
		Lt 00
		MN-MN1-MN2-ME
FL620.U	ED 2040	14.409
	ET 3040	15.984
	EQ 4040	17.520
FL635.U	ED 2040	13.898
	ET 3040	15.433
	EQ 4040	17.008

		Lt
		MN-MN1-MN2-ME
FL620.10	ED 2040	12.795
	ET 3040	14.370
	EQ 4040	15.905
FL635.10	ED 2040	12.087
	ET 3040	13.661
	EQ 4040	15.197

IEC Motor

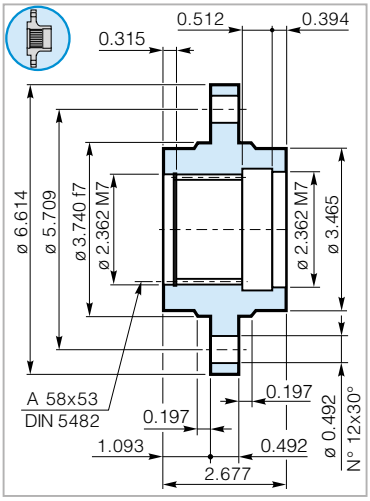


		Lt 00				
		IEC				
		63	71	80 90	100 112	132
ED 2040	MN-MN1-MN2-ME	11.102	11.181	11.378	11.417	14.055
ET 3040	MN-MN1-MN2-ME	12.638	12.717	12.913	12.953	15.591
EQ 4040	MN-MN1-MN2-ME	14.213	14.291	14.488	14.528	17.165

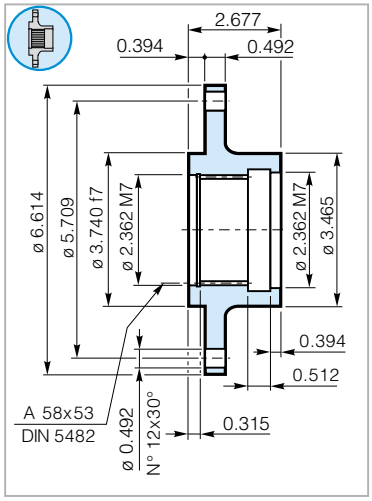


		Lt1				
		IEC				
		63	71	80 90	100 112	132
EC 3040	MN-MN1-MN2-ME	5.945	5.945	5.945	5.945	9.370
EC 4040	MN-MN1-MN2-ME	5.945	5.945	5.945	5.945	9.370

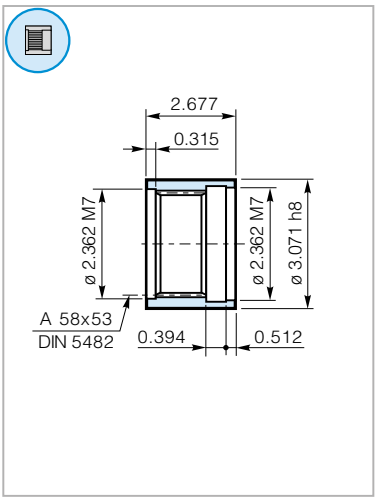
FA 040 MN — Wheel Flange



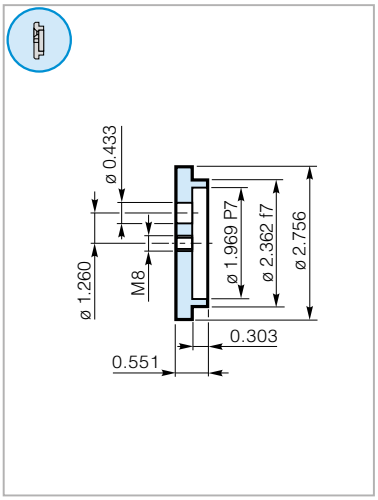
FR 040 MN — Wheel Flange



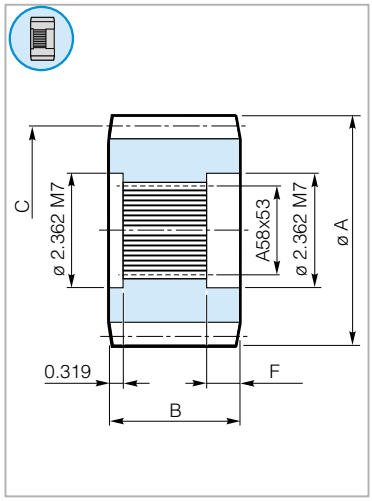
MS 040 MN — Splined Sleeve



RDF 040 MN — Lock Washer



MN — Pinions

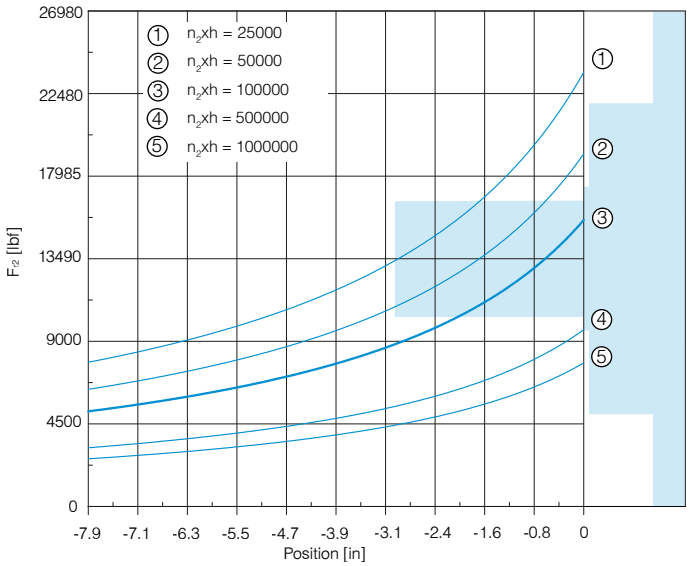


A	B	C			F
		m	z	x	
3.921	3.150	0.236	0.551	0.020	0.925
4.528	3.150	0.315	0.472	0.016	0.925
5.630	3.150	0.394	0.472	0.016	0.925
5.354	3.150	0.315	0.591	0.000	0.925
5.591	3.150	0.394	0.512	0.000	0.925
5.236	3.543	0.315	0.551	0.020	0.925
6.378	4.055	0.394	0.551	0.012	0.925

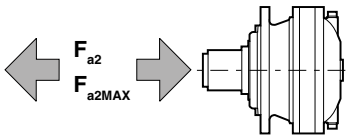
Output Radial Loads

Gearbox Versions:
ED, ET, EQ, EC

MN-MN1-MN2

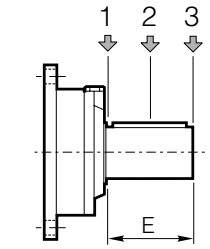


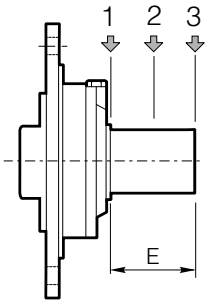
Output Axial Loads

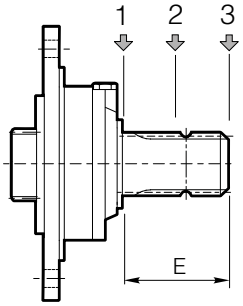


		Flange mounted
		MN-MN1-MN2
F_{a2}	[lbf]	10116
F_{a2MAX}	[lbf]	17984

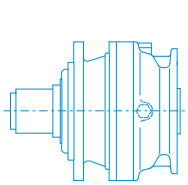
Input Radial Loads



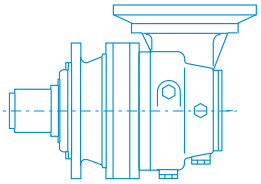


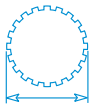
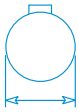
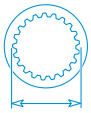
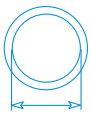
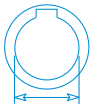


		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	**E**	**1**	**2**	**3**	**1**	**2**	**3**
SU 42x80	3.150	674	450	337	315	225	157
SU1 28x50	1.969	674	450	337	315	225	157
SU2 40x58	2.283	674	450	337	315	225	157
SU3 48x82	3.228	674	450	337	315	225	157
SUS 1 3/8”	3.819	629	405	337	292	202	135
SU2 1 1/2”x 3 1/4”	3.250	674	450	337	315	225	157
SUF1 28x50	1.969	674	450	337	315	225	157
SUF2 40x58	2.283	674	450	337	315	225	157
SUF3 48x82	3.228	674	450	337	315	225	157



045



i_{eff}	3.50 - 3301
T_{2N}	2800 ftlb
	B58X53 DIN5482
	2.560 in
	A58X53 DIN5482
	2.953 in
	2.560 - 2.756 in

TECHNICAL DATA

10000
hours life

i_{eff}	1500 n_2 [rpm]	1500 T_2 [ftlb]	1500 P_2 [HP]	1000 n_2 [rpm]	1000 T_2 [ftlb]	1000 P_2 [HP]	500 n_2 [rpm]	500 T_2 [ftlb]	500 P_2 [HP]	n_{1MAX} [rpm]	T_{2MAX} [ftlb]	P_T [HP]
EM 1045 / PD 1045												
3.50	429	1154	93.9	286	1303	71.1	143	1604	43.7	3000	4130	26.8
4.13	363	1193	83.1	242	1347	62.1	121	1659	38.2			
5.17	290	1240	68.4	193	1401	51.6	97	1725	31.8		4425	
6.00	250	1277	60.9	167	1443	45.7	83	1603	25.5			
7.25	207	1167	46.0	138	1250	32.9	69	1378	18.1			
ED 2045 / PD 2045												
10.78	139	1617	42.9	93	1826	32.3	46.4	2249	19.8	3000	4425	20.1
12.25	122	1680	39.2	82	1898	29.5	40.8	2336	18.1			
14.46	104	1766	34.9	69	1994	26.3	34.6	2455	16.2			
17.06	88	1825	30.6	59	2061	23.1	29.3	2502	13.9			
18.10	83	1889	29.8	55	2134	22.4	27.6	2627	13.8			
21.00	71	1975	26.8	47.6	2231	20.2	23.8	2746	12.5			
25.38	59	2091	23.6	39.4	2361	17.7	19.7	2620	9.8			
29.94	50	2162	20.7	33.4	2441	15.6	16.7	2642	8.4			
31.02	48.4	1904	17.6	32.2	1990	12.2	16.1	2134	6.6			
36.00	41.7	1739	13.8	27.8	1816	9.7	13.9	1947	5.1			
43.50	34.5	1775	11.7	23	1852	8.0	11.5	1983	4.3			
52.56	28.5	1527	8.3	19	1594	5.8	9.5	1710	3.1			
ET 3045 / PD 3045												
53.78	27.9	2620	13.9	18.6	2921	10.3	9.3	3182	5.6	3000	4425	13.4
63.46	23.6	2752	12.3	15.8	2966	8.9	7.9	3296	5.0			
73.50	20.4	2877	11.1	13.6	3007	7.8	6.8	3399	4.4			
79.44	18.9	2917	10.5	12.6	3028	7.2	6.3	3454	4.2			
92.19	16.3	2957	9.1	10.8	3078	6.3	5.4	3563	3.6			
100.3	15	2981	8.4	10	3134	5.9	5	3625	3.5			
108.6	13.8	3002	7.9	9.2	3188	5.6	4.6	3685	3.2			
125.6	11.9	3042	7.0	8	3289	5.0	4	3795	2.8			
145.7	10.3	3113	6.2	6.9	3393	4.4	3.4	3752	2.4			
152.3	9.9	2836	5.4	6.6	2960	3.8	3.3	3173	2.0			
176.1	8.5	2881	4.7	5.7	3005	3.2	2.8	3218	1.7			
207.8	7.2	2928	4.0	4.8	3190	3.0	2.4	3644	1.6			
224.2	6.7	2976	3.8	4.5	3241	2.8	2.2	3539	1.5			
260.2	5.8	3072	3.4	3.8	3342	2.4	1.9	3665	1.3			
280.7	5.3	2435	2.4	3.6	2659	1.7	1.8	3073	1.0			
314.4	4.8	3196	3.0	3.2	3474	2.1	1.6	3704	1.1			
364.8	4.1	1875	1.5	2.7	2056	1.1	1.4	2392	0.6			
EQ 4045 / PD 4045												
404.7	3.7	3725	2.7	2.5	3868	1.9	1.2	4141	1.0	3000	4425	8
441.0	3.4	3918	2.5	2.3	3996	1.7	1.1	4192	0.9			
510.1	2.9	3969	2.3	2	4011	1.5	0.98	4280	0.8			
551.3	2.7	3977	2.0	1.8	4019	1.3	0.91	4327	0.8			
639.8	2.3	3887	1.7	1.6	4034	1.2	0.78	4419	0.7			
696.2	2.2	4001	1.6	1.4	4053	1.1	0.72	4425	0.6			
773.1	1.9	3336	1.2	1.3	3465	0.9	0.65	4029	0.5			
913.5	1.6	3389	1.1	1.1	3589	0.8	0.55	4176	0.4			
1011	1.5	4039	1.1	0.99	4275	0.8	0.49	4425	0.4			
1140	1.3	4104	1.0	0.88	4348	0.7	0.44	4425	0.4			
1222	1.2	3498	0.8	0.82	3828	0.6	0.41	4440	0.3			
1442	1	3936	0.8	0.69	4168	0.5	0.35	4592	0.3			
1599	0.94	3714	0.7	0.63	4058	0.5	0.31	4695	0.3			
1849	0.81	3835	0.6	0.54	4186	0.4	0.27	4837	0.3			
1995	0.75	3256	0.5	0.5	3341	0.3	0.25	3488	0.2			
2315	0.65	3779	0.5	0.43	3877	0.3	0.22	4048	0.2			
2623	0.57	3417	0.4	0.38	3697	0.3	0.19	4219	0.1			
2798	0.54	4194	0.4	0.36	4425	0.3	0.18	4425	0.1			
3301	0.45	4423	0.4	0.3	4425	0.3	0.15	4425	0.1			

10000 hours life

i_{eff}	1500 n_2 [rpm]	1500 T_2 [ftlb]	1500 P_2 [HP]	1000 n_2 [rpm]	1000 T_2 [ftlb]	1000 P_2 [HP]	500 n_2 [rpm]	500 T_2 [ftlb]	500 P_2 [HP]	n_{1MAX} [rpm]	T_{2MAX} [ftlb]	P_T [HP]
EC 2045 / PDA 2045												
10.50*	143	1604	43.7	95	1812	32.9	47.6	2231	20.2	3000	4425	13.4
12.39*	121	1659	38.2	81	1873	28.8	40.4	2306	17.7			
16.17	93	1167	20.7	62	1318	15.6	30.9	1623	9.5			
18.00*	83	1603	25.5	56	1684	17.8	27.8	1816	9.7			
19.08	79	1377	20.7	52	1555	15.6	26.2	1915	9.5			
21.75*	69	1378	18.1	46	1447	12.6	23	1563	6.8			
23.89	63	1724	20.7	41.9	1935	15.4	20.9	2080	8.3			
27.72	54	1689	17.4	36.1	1767	12.2	18	1898	6.6			
33.50	44.8	1451	12.3	29.9	1519	8.6	14.9	1634	4.7			
EC 3045 / PDA 3045												
36.75	40.8	2336	18.1	27.2	2639	13.7	13.6	3007	7.8	3000	4425	9.4
43.37*	34.6	2455	16.2	23.1	2773	12.2	11.5	3052	6.7			
49.80	30.1	2560	14.6	20.1	2891	11.0	10	3130	6.0			
56.60	26.5	2659	13.4	17.7	2935	9.9	8.8	3217	5.4			
63.00*	23.8	2746	12.5	15.9	2965	9.0	7.9	3291	5.0			
73.57	20.4	2085	8.0	13.6	2169	5.6	6.8	2315	3.0			
83.60	17.9	2931	10.1	12	3042	7.0	6	3491	4.0			
89.83*	16.7	2642	8.4	11.1	2743	5.8	5.6	3095	3.2			
97.02	15.5	2971	8.7	10.3	3112	6.2	5.2	3600	3.5			
114.5	13.1	2702	6.7	8.7	2810	4.7	4.4	3255	2.7			
123.5	12.1	2193	5.1	8.1	2277	3.5	4	2587	2.0			
138.3	10.8	2749	5.6	7.2	2927	4.0	3.6	3385	2.3			
166.3	9	2030	3.5	6	2108	2.4	3	2431	1.3			
173.2	8.7	2263	3.8	5.8	2394	2.7	2.9	2780	1.5			
201.0	7.5	2066	3.0	5	2176	2.0	2.5	2531	1.2			
242.8	6.2	1784	2.1	4.1	1874	1.5	2.1	2190	0.9			
EC 4045 / PDA 4045												
276.6	5.4	3563	3.6	3.6	3734	2.5	1.8	3980	1.3	3000	4425	4
310.3	4.8	3648	3.4	3.2	3960	2.4	1.6	4031	1.2			
347.1	4.3	3671	3.1	2.9	3814	2.1	1.4	4051	1.1			
414.7	3.6	3869	2.7	2.4	3990	1.9	1.2	4156	1.0			
450.8	3.3	3763	2.4	2.2	3907	1.6	1.1	4205	0.9			
498.3	3	3967	2.3	2	4008	1.5	1	4266	0.8			
570.0	2.6	2999	1.5	1.8	3082	1.0	0.88	3224	0.5			
625.0	2.4	3879	1.7	1.6	4024	1.2	0.8	4404	0.7			
712.7	2.1	3925	1.6	1.4	4067	1.1	0.7	4425	0.6			
799.3	1.9	3347	1.2	1.3	3482	0.8	0.63	4058	0.5			
929.1	1.6	3099	1.0	1.1	3182	0.7	0.54	3325	0.3			
988.1	1.5	4037	1.2	1	4261	0.8	0.51	4425	0.4			
1078	1.4	3597	1.0	0.93	3693	0.7	0.46	3859	0.3			
1194	1.3	3480	0.8	0.84	3808	0.6	0.42	4418	0.3			
1409	1.1	3923	0.8	0.71	4154	0.6	0.35	4425	0.3			
1593	0.94	3494	0.6	0.63	3783	0.5	0.31	4321	0.3			
1806	0.83	3816	0.6	0.55	4165	0.4	0.28	4425	0.2			
1925	0.78	3627	0.5	0.52	3925	0.4	0.26	4425	0.2			
2208	0.68	3726	0.5	0.45	4030	0.3	0.23	4425	0.2			
2563	0.59	3401	0.4	0.39	3680	0.3	0.2	4200	0.2			
2668	0.56	3866	0.4	0.37	4179	0.3	0.19	4425	0.2			
3097	0.48	3529	0.3	0.32	3817	0.2	0.16	4351	0.1			

* (bg) All the ratios in light grey (ie. 10.50) have particular dimensions of bevel gears in some versions. See dimensional tables.

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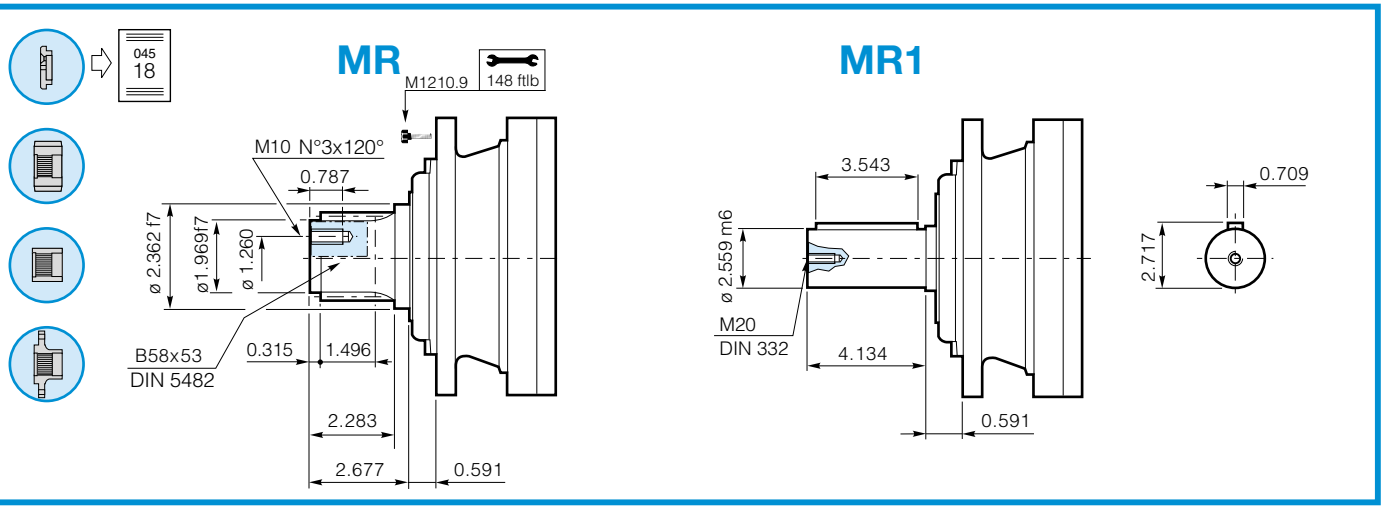
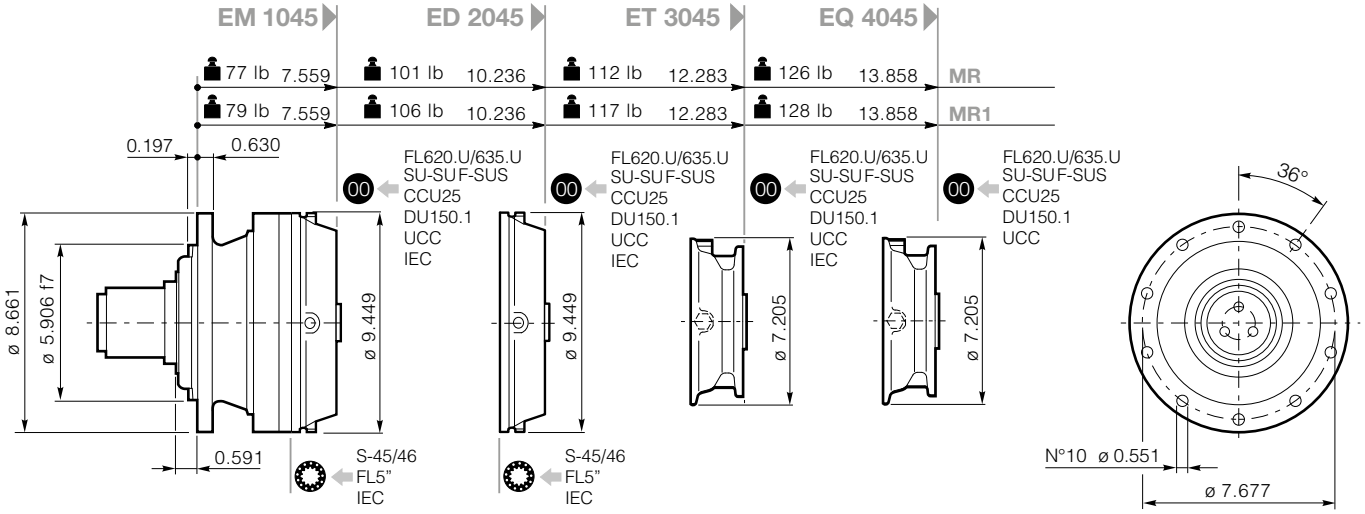
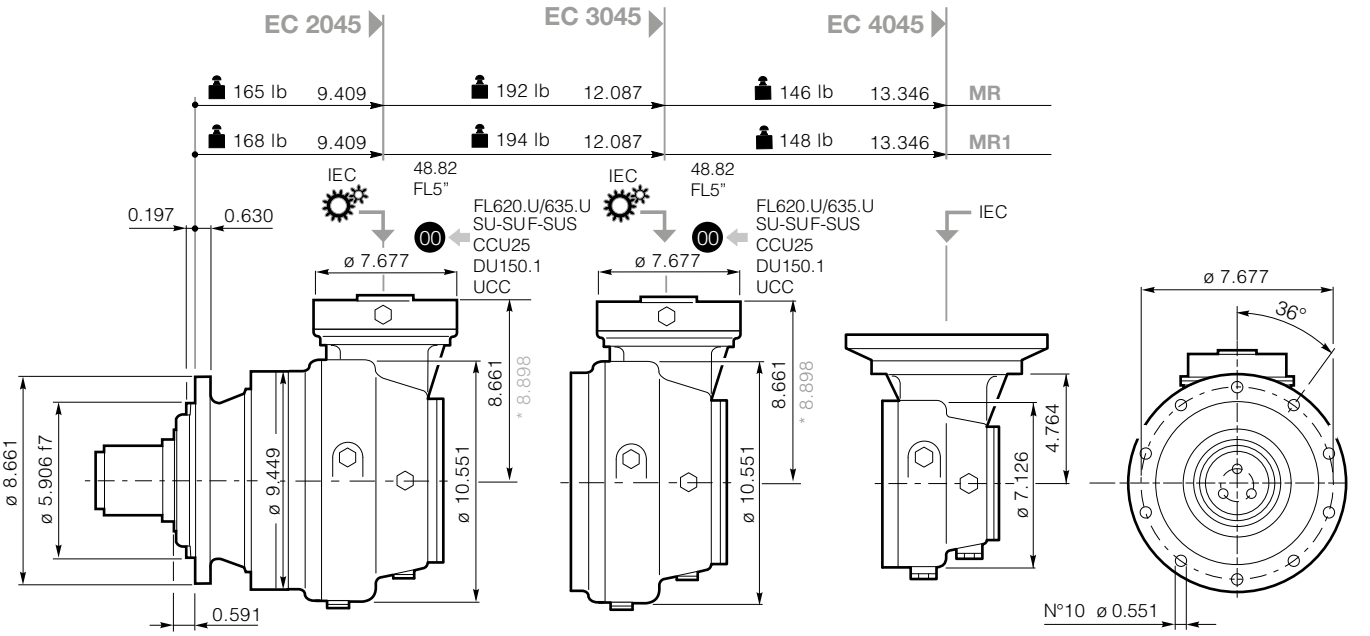
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 → 045 12 SU-SUF SUS → 045 13 FL5" FL620 FL635 → 045 14 IEC → 045 17 → 045 16 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 045 3

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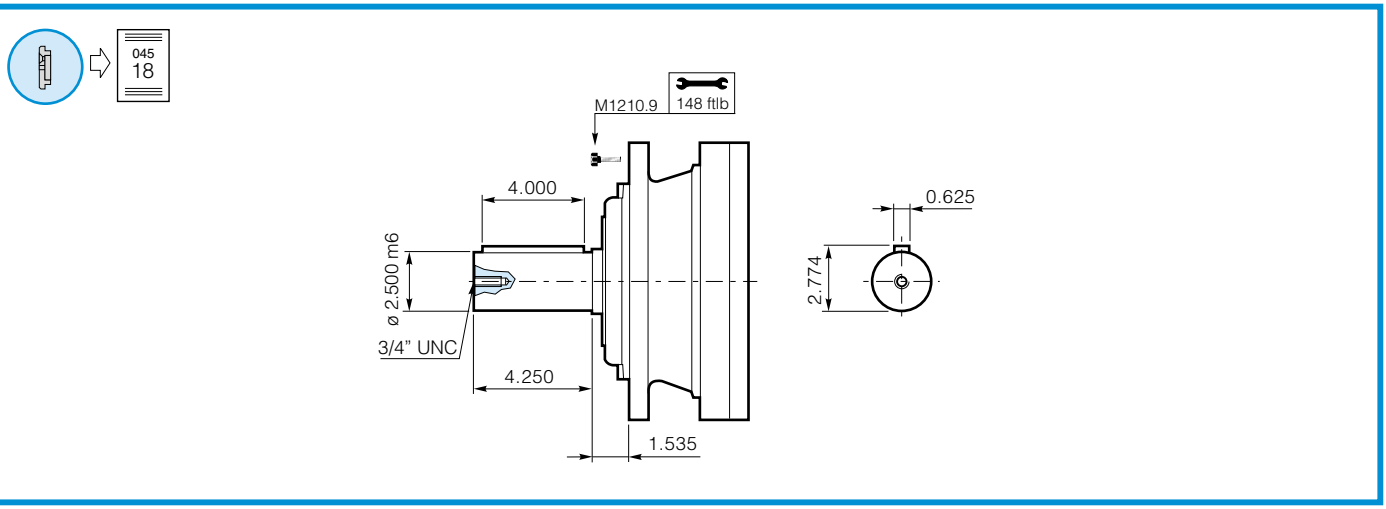

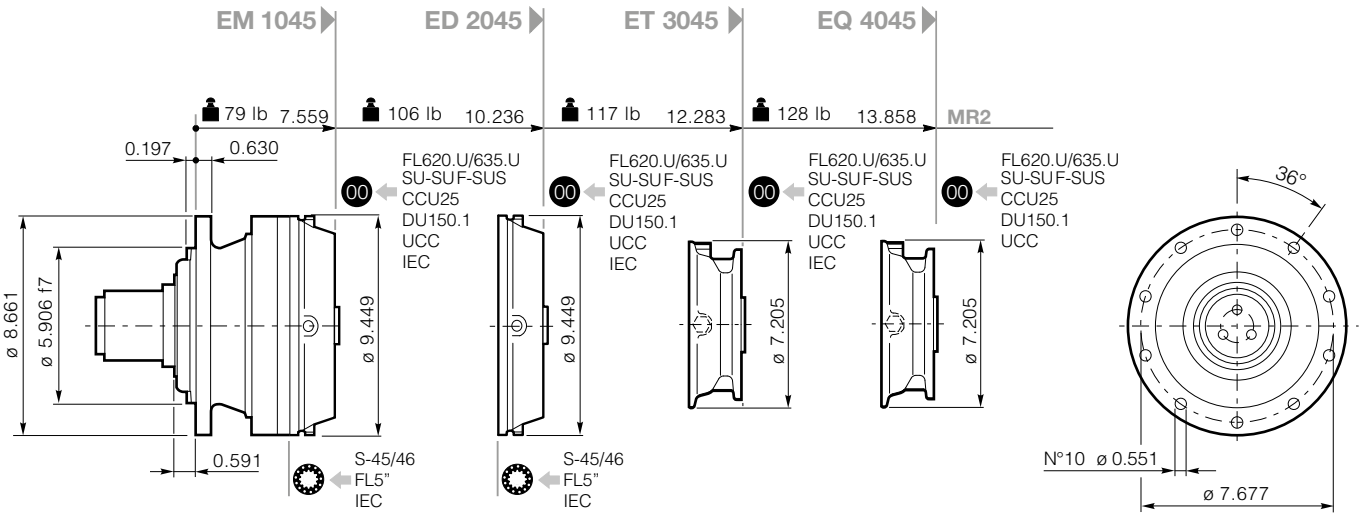

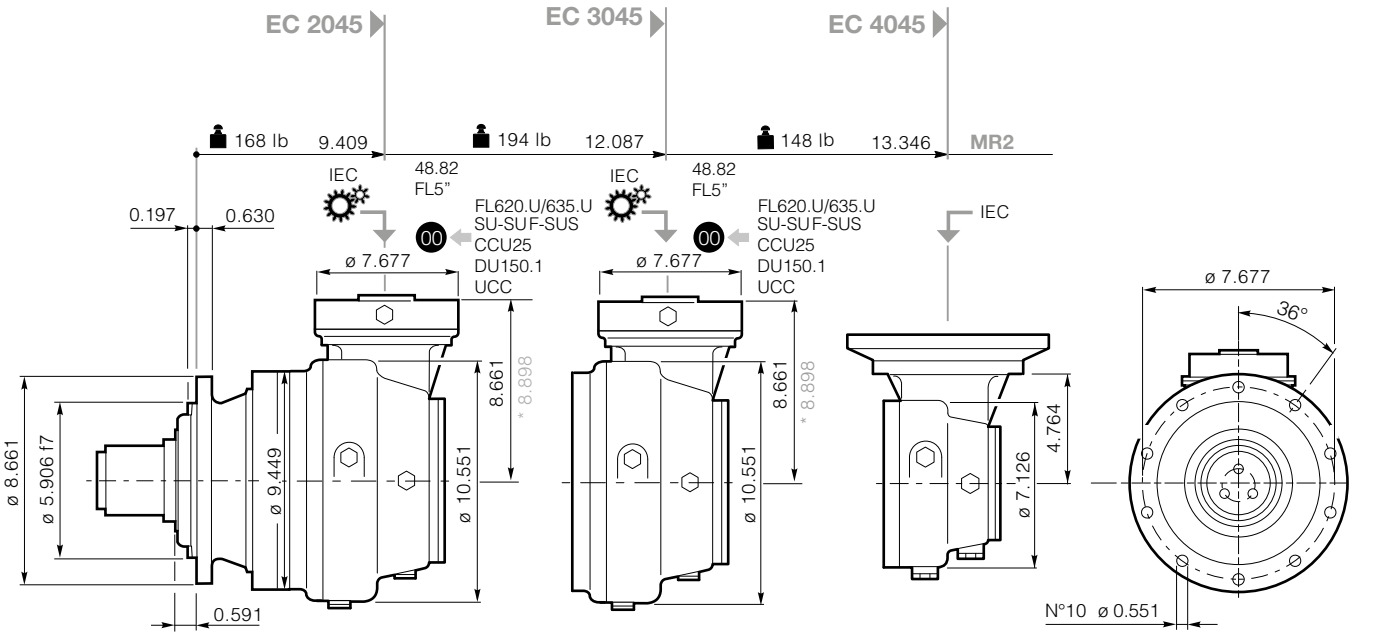

00 B 14 | S-45/46 48.82 045 12 | SU-SUF SUS 045 13 | FL5" FL620 FL635 045 14 | IEC 045 17 | 045 16 | CCU25 B 16 | DU150.1 UCC B 17 | * bg 045 3

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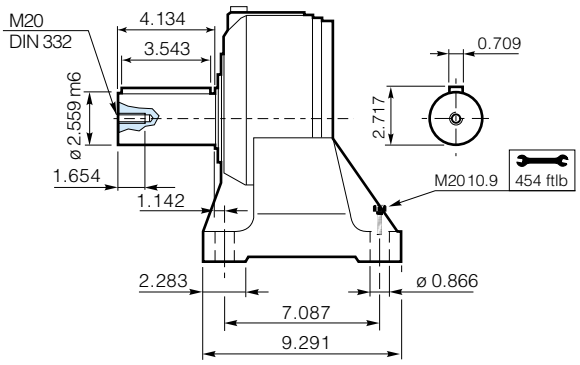
MR1 - MR2 PD/PDA GEARBOX DIMENSIONS WITH OUTPUT

MR1



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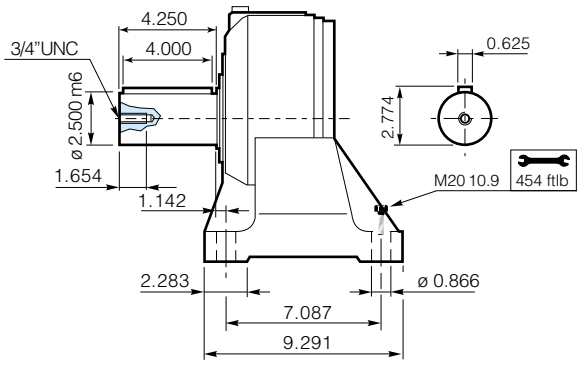

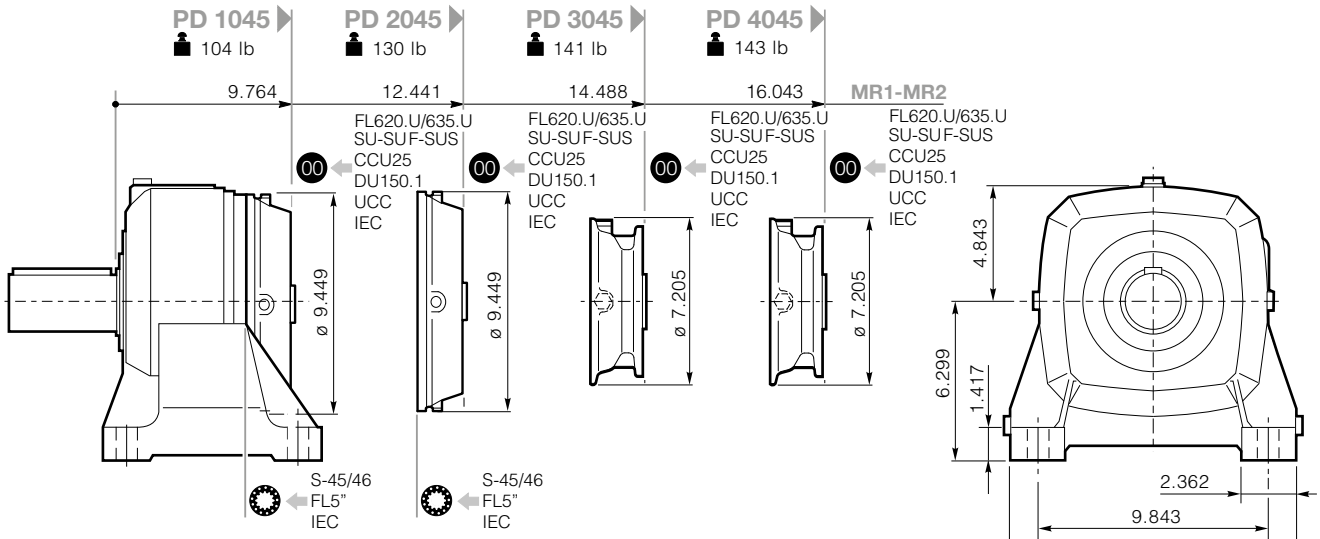

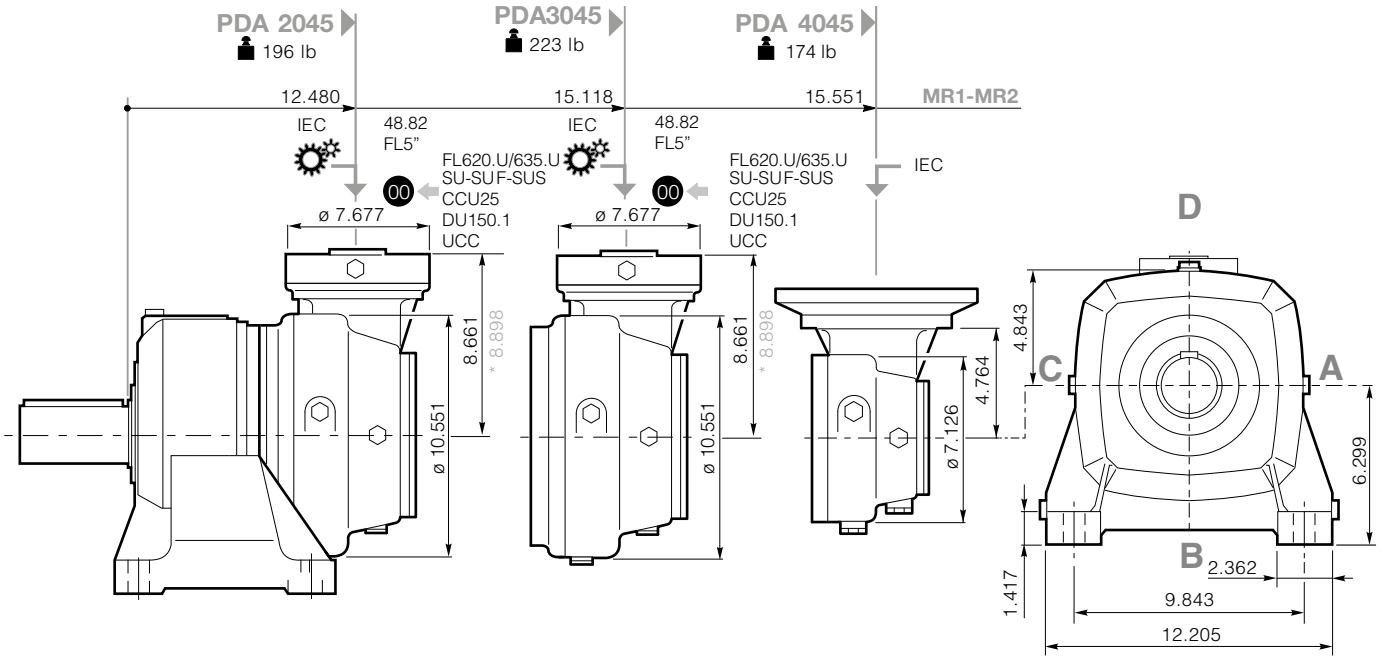

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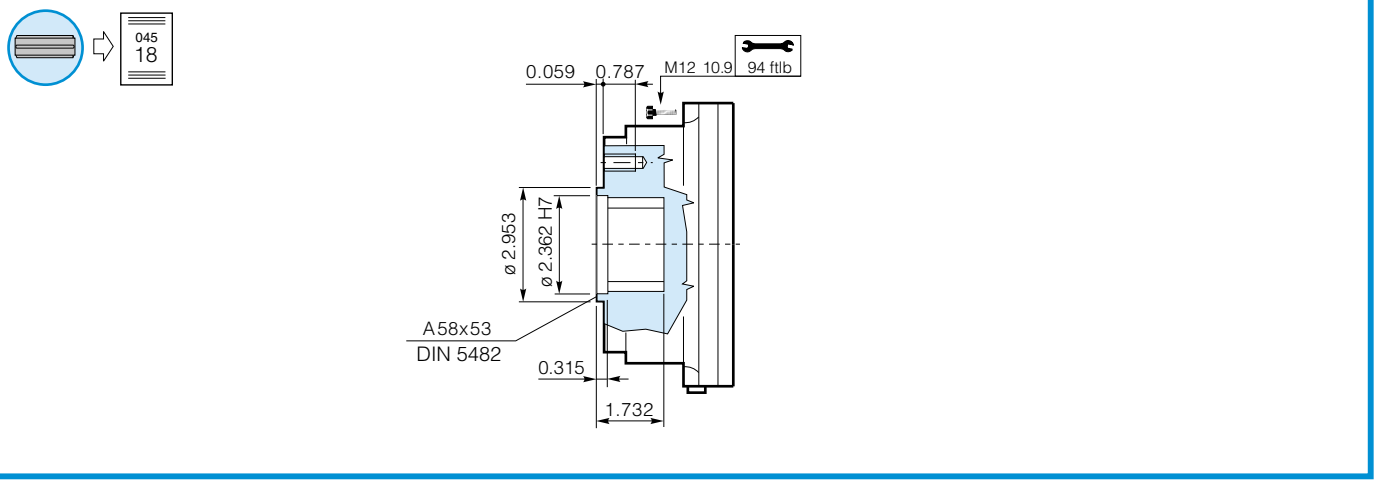

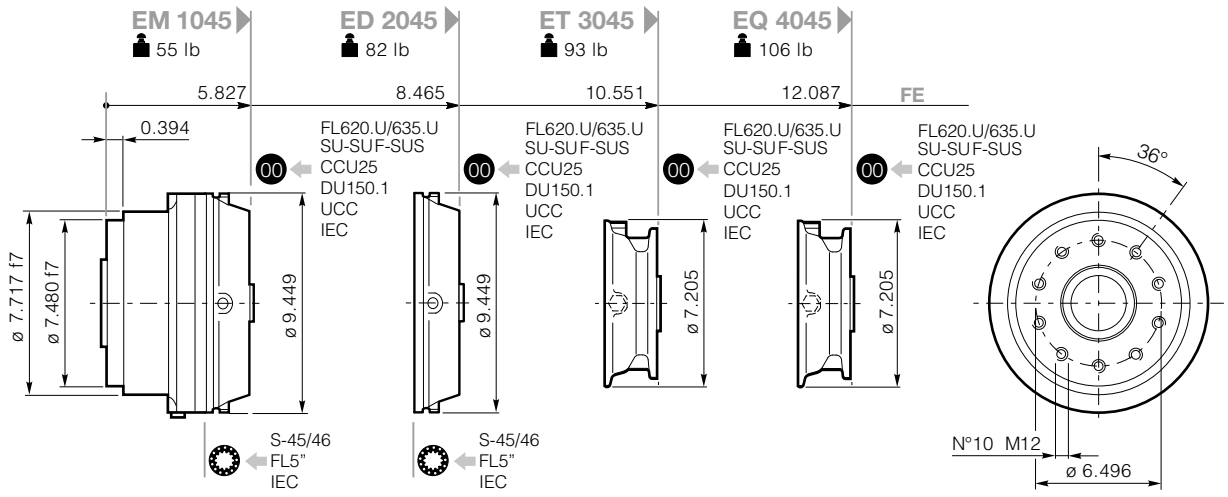

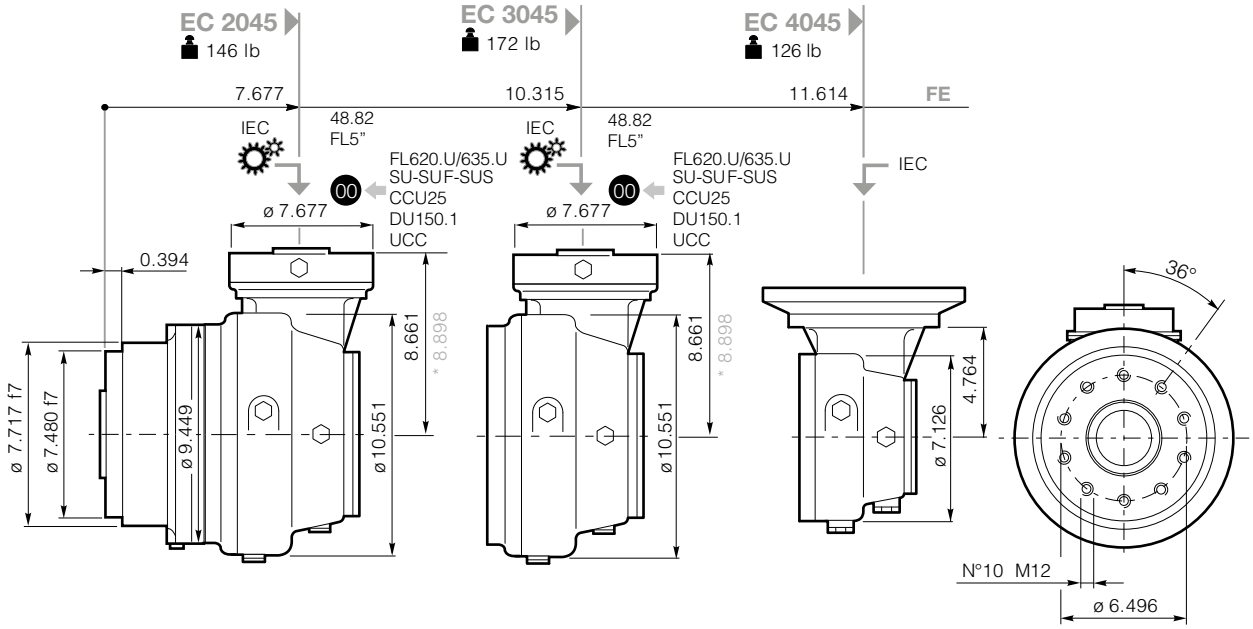

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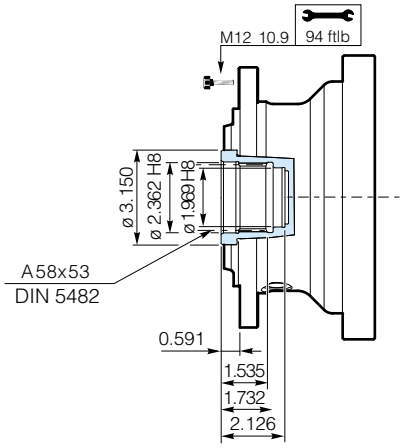
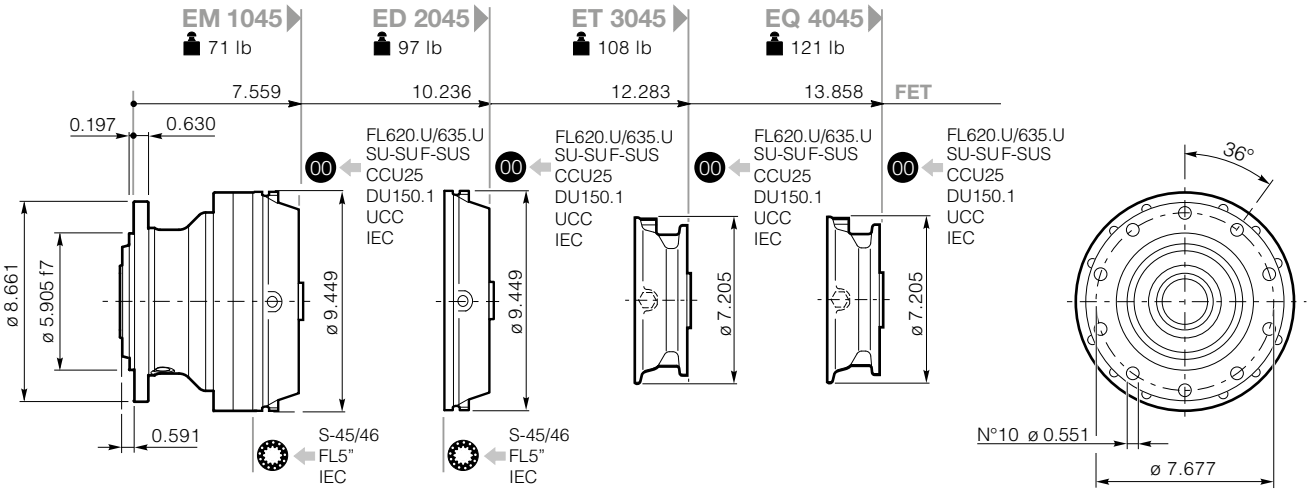
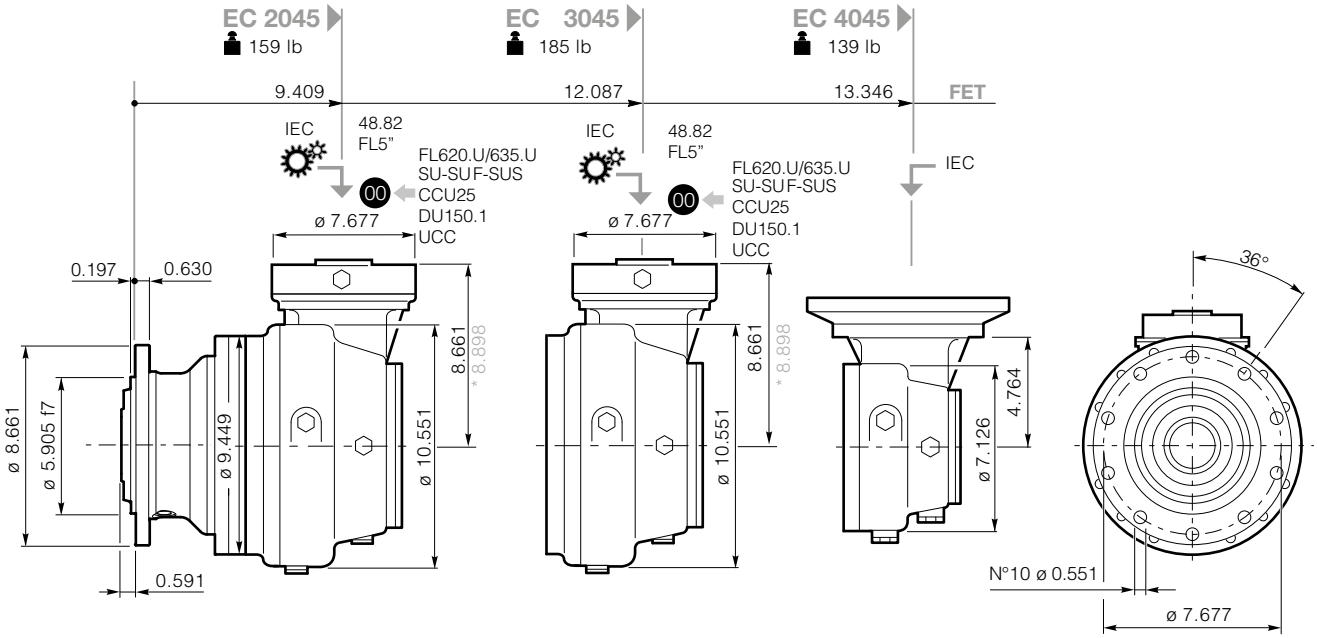
GEARBOX DIMENSIONS WITH OUTPUT

045 18







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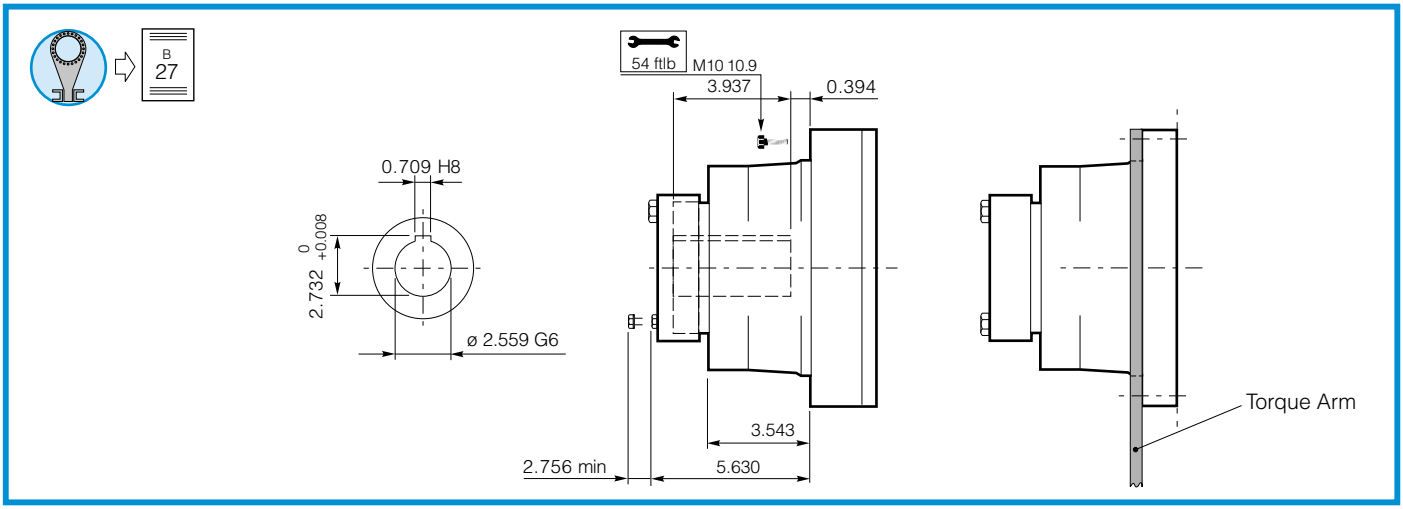

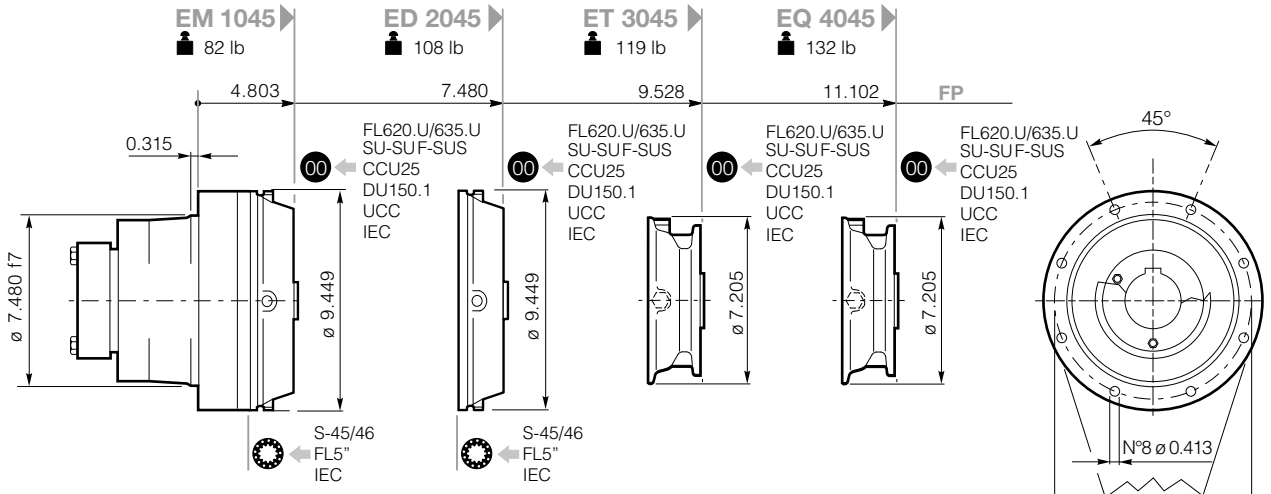

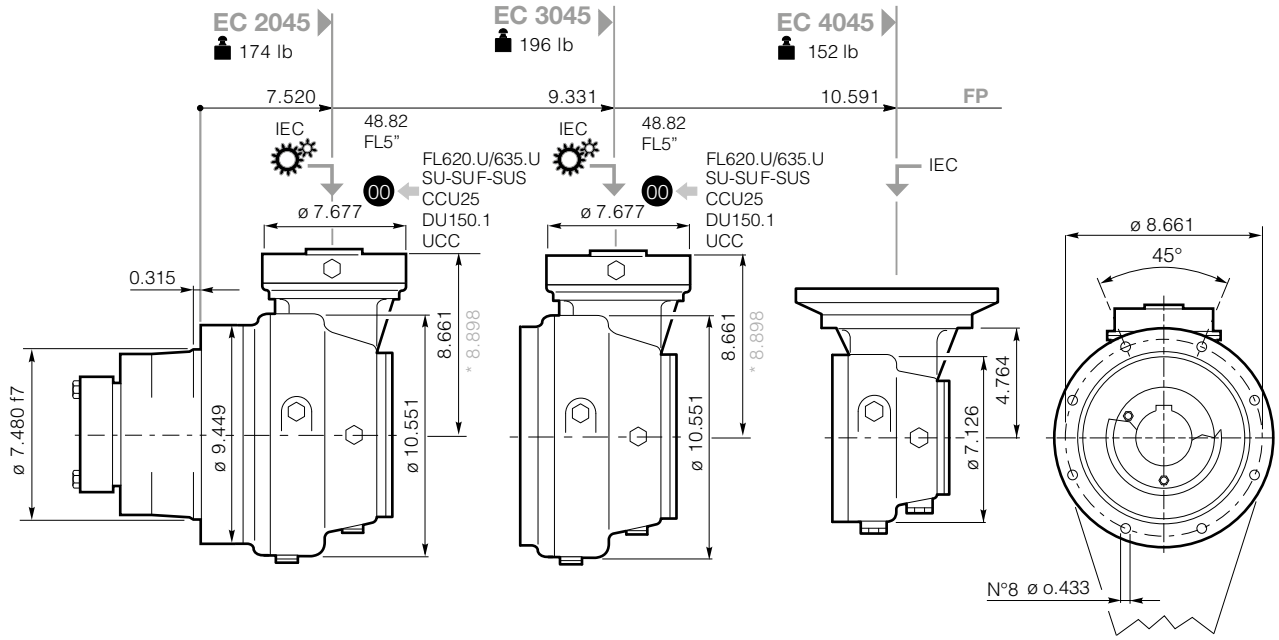

00 B 14 S-45/46 48.82 → 045 12 | SU-SUF SUS → 045 13 | FL5" FL620 FL635 → 045 14 | IEC → 045 17 | → 045 16 | CCU25 → B 16 | DU150.1 UCC → B 17 | * bg → 045 3

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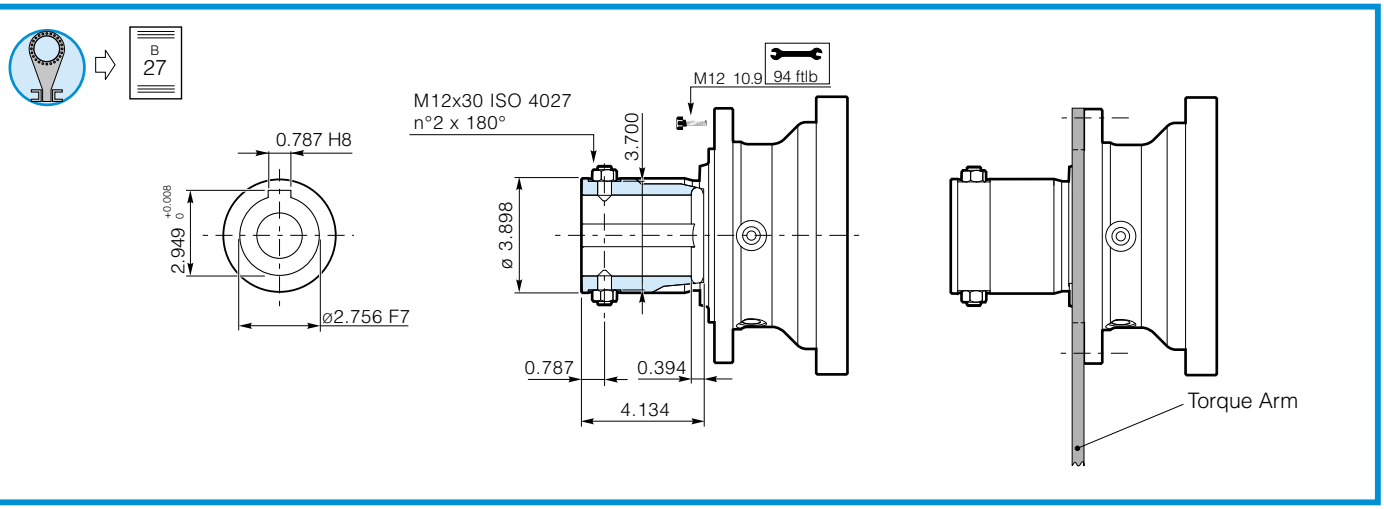
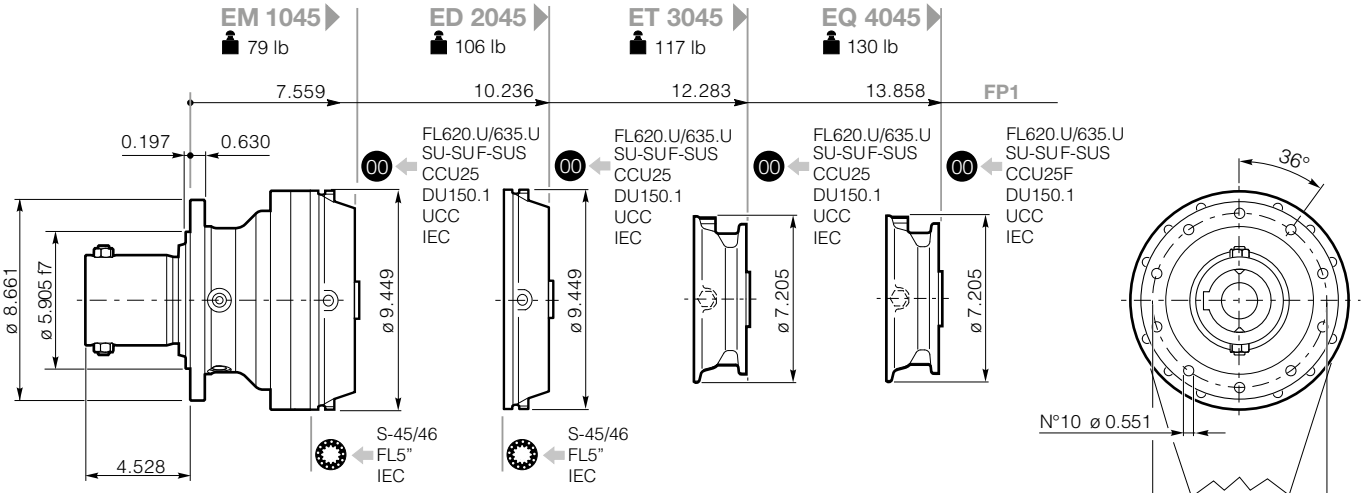
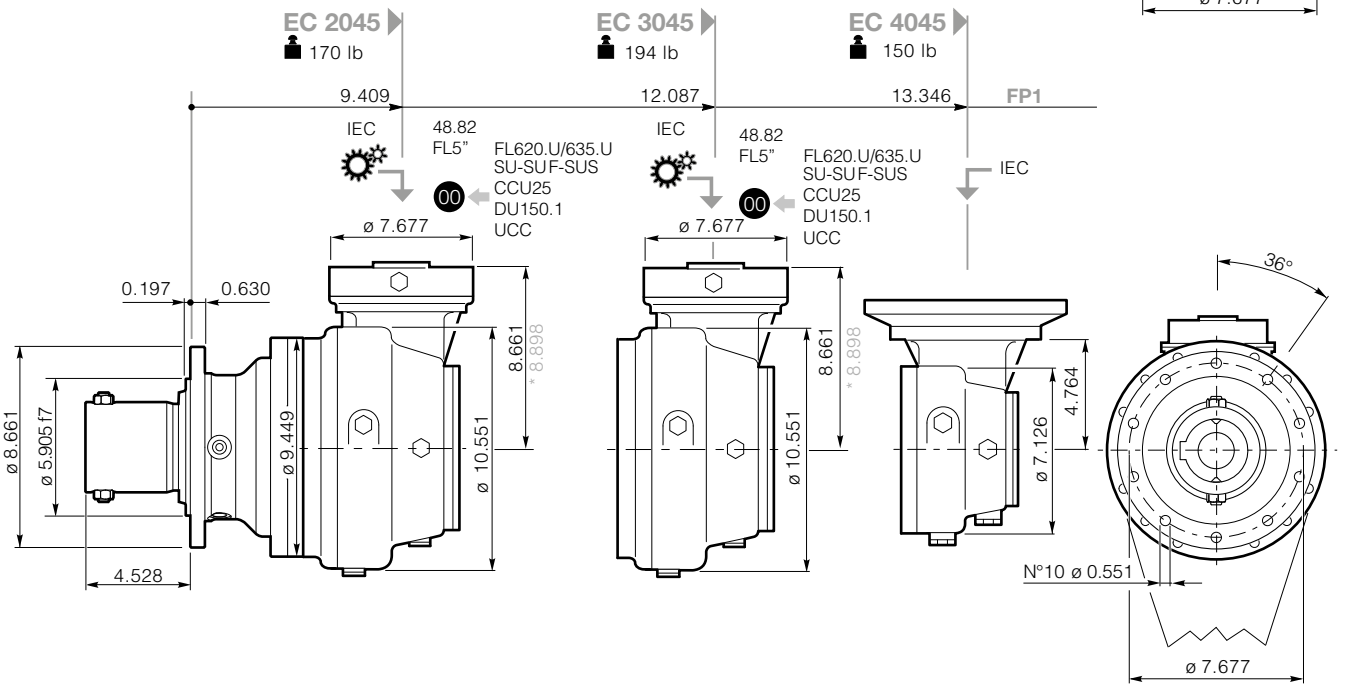
GEARBOX DIMENSIONS WITH OUTPUT







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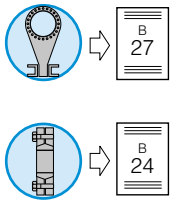

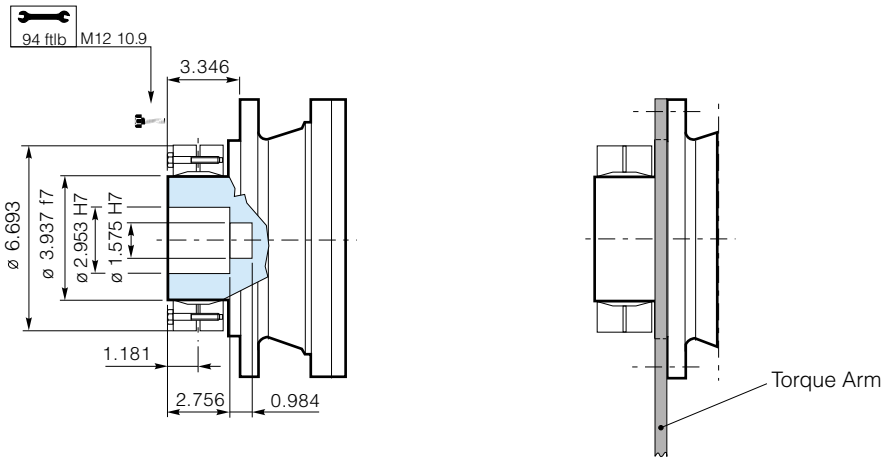

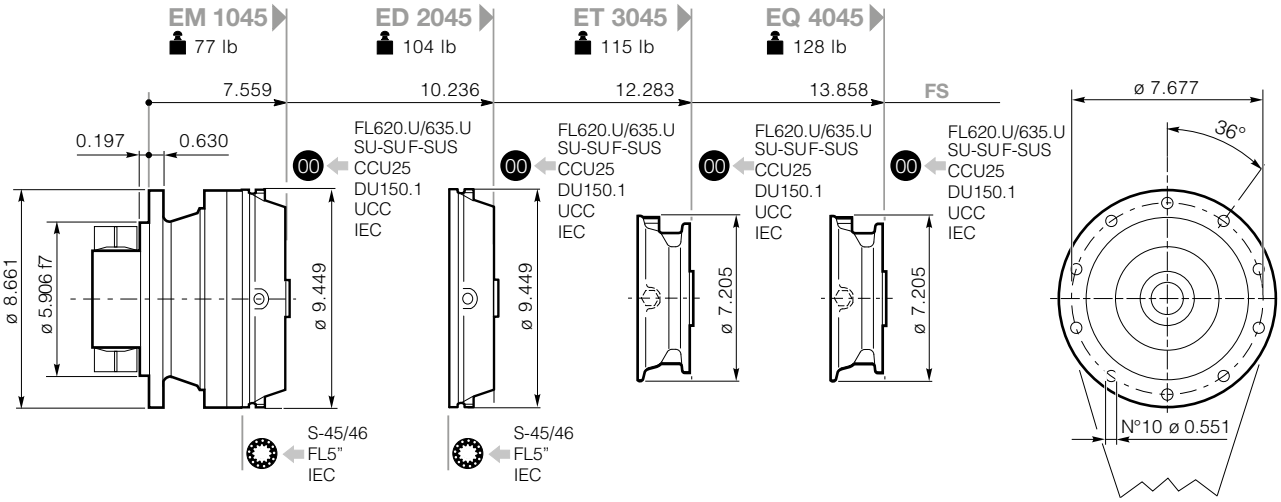

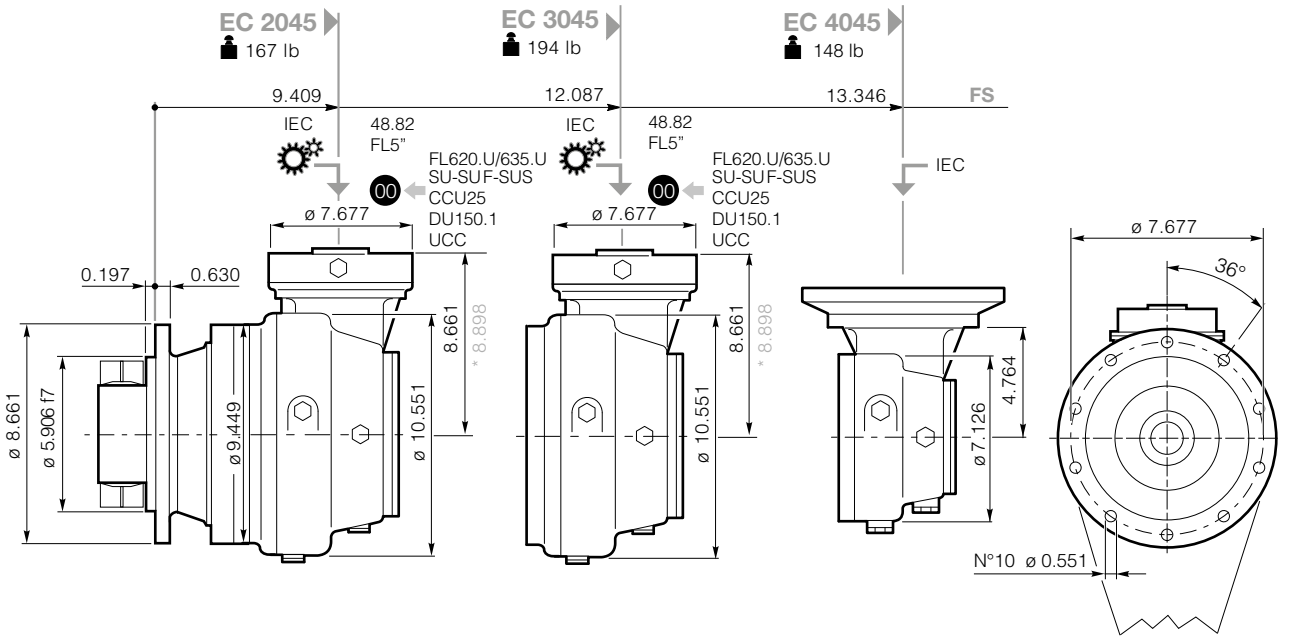

00 B 14 S-45/46 48.82 045 12 SU-SUF SUS 045 13 FL5" FL620 FL635 045 14 IEC 045 17 045 16 CCU25 B 16 DU150.1 UCC B 17 * bg 045 3

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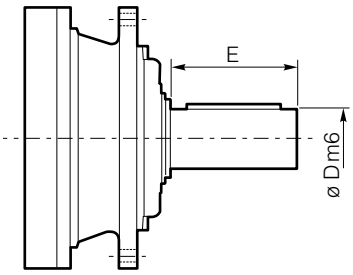
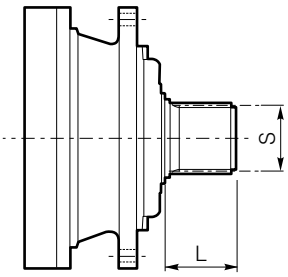
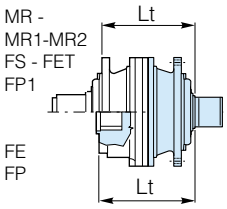
S-45CR1 - S-46C1 - S-45SR

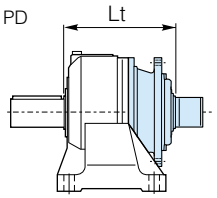


S45 CR1 - S46 C1



S45 SR

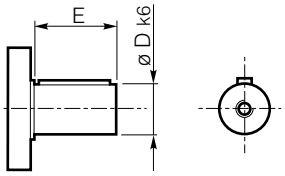


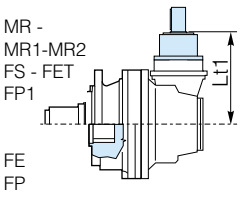


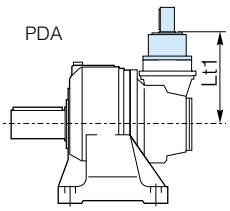
	D	E	L	S DIN5482		Lt			
						MR-MR1-MR2-FS-FET-FP1	FE	FP	PD
S-45CR1	2.559	4.134	-	-	EM/PD 1045	10.039	8.268	7.283	12.244
					ED/PD 2045	12.677	10.945	9.921	14.882
S-46C1	2.559	4.134	-	-	EM/PD 1045	11.654	9.921	8.898	13.858
					ED/PD 2045	14.331	12.559	11.575	16.535
S-45SR	-	-	2.677	B58x53 DIN5482	EM/PD 1045	10.039	8.268	7.283	12.244
					ED/PD 2045	12.677	10.945	9.921	14.882

For more informations, go to page B13

48.82

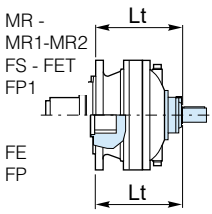


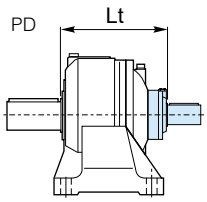


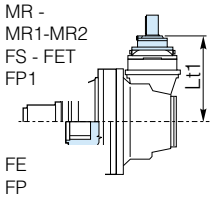


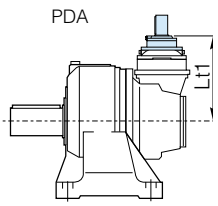
	D	E		Lt1
				MR - MR1-MR2 - FS - FE - FET - FP - FP1 - PDA
48.82	1.890	3.228	EC/PDA 2045	11.024
			EC/PDA 3045	11.024

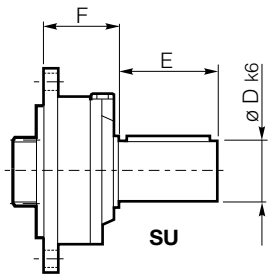
SU - SUF - SUS

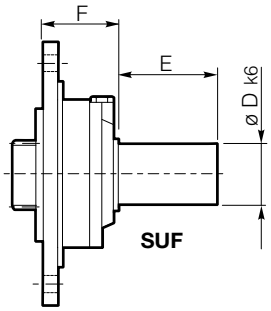


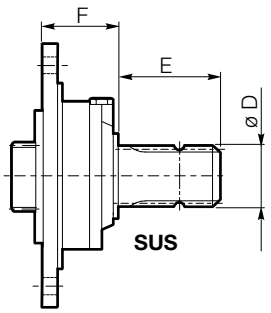












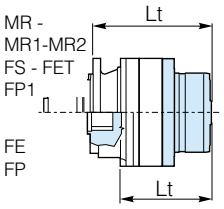
	D	E	F		Lt MR-MR1-MR2-FS-FET-FP1	Lt FE	Lt FP	Lt PD
SU1 28x50	1.102	1.969	2.362	EM/PD 1045	9.921	8.189	7.165	12.126
				ED/PD 2045	12.598	10.827	9.843	14.803
				ET/PD 3045	14.646	12.913	11.890	16.850
				EQ/PD 4045	16.220	14.449	13.465	18.425
SU2 40x58	1.575	2.283	2.362	EM/PD 1045	9.921	8.189	7.165	12.126
				ED/PD 2045	12.598	10.827	9.843	14.803
				ET/PD 3045	14.646	12.913	11.890	16.850
				EQ/PD 4045	16.220	14.449	13.465	18.425
SU3 48x82	1.890	3.228	2.362	EM/PD1045	9.921	8.189	7.165	12.126
				ED/PD 2045	12.598	10.827	9.843	14.803
				ET/PD 3045	14.646	12.913	11.890	16.850
				EQ/PD 4045	16.220	14.449	13.465	18.425
SU 42x80	1.654	3.150	3.996	EM/PD 1045	11.575	9.803	8.819	13.780
				ED/PD 2045	14.213	12.480	11.457	16.417
				ET/PD 3045	16.299	14.528	13.543	18.504
				EQ/PD 4045	17.835	16.102	15.079	20.039
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	EM/PD 1045	11.575	9.803	8.819	13.780
				ED/PD 2045	14.213	12.480	11.457	16.417
				ET/PD 3045	16.299	14.528	13.543	18.504
				EQ/PD 4045	17.835	16.102	15.079	20.039
SU2 1.5x3.25	1.500	3.250	2.362	EM/PD 1045	9.921	8.189	7.165	12.126
				ED/PD 2045	12.598	10.827	9.843	14.803
				ET/PD 3045	14.646	12.913	11.890	16.850
				EQ/PD 4045	16.220	14.449	13.465	18.425
SUF1 28x50	1.102	1.969	2.362	EM/PD 1045	9.921	8.189	7.165	12.126
				ED/PD 2045	12.598	10.827	9.843	14.803
				ET/PD 3045	14.646	12.913	11.890	16.850
				EQ/PD 4045	16.220	14.449	13.465	18.425
SUF2 40x58	1.575	2.283	2.362	EM/PD 1045	9.921	8.189	7.165	12.126
				ED/PD 2045	12.598	10.827	9.843	14.803
				ET/PD 3045	14.646	12.913	11.890	16.850
				EQ/PD 4045	16.220	14.449	13.465	18.425
SUF3 48x82	1.890	3.228	2.362	EM/PD 1045	9.921	8.189	7.165	12.126
				ED/PD 2045	12.598	10.827	9.843	14.803
				ET/PD 3045	14.646	12.913	11.890	16.850
				EQ/PD 4045	16.220	14.449	13.465	18.425

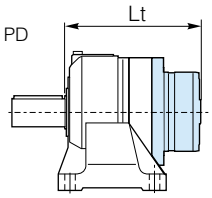
	D	E	F		Lt1 MR-MR1-MR2-FS-FET-FP1-FE-FP-PDA
SU1 28x50	1.102	1.969	2.362	EC/PDA 2045 EC/PDA 3045	11.024
SU2 40x58	1.575	2.283	2.362		
SU3 48x82	1.890	3.228	2.362	EC/PDA 2045* EC/PDA 3045*	11.260
SU 42x80	1.654	3.150	3.996	EC/PDA 2045 EC/PDA 3045	12.677
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	EC/PDA 2045* EC/PDA 3045*	12.913
SU2 1.5x3.25	1.500	3.250	2.362	EC/PDA 2045 EC/PDA 3045	11.024
SUF1 28x50	1.102	1.969	2.362		
SUF2 40x58	1.575	2.283	2.362	EC/PDA 2045* EC/PDA 3045*	11.260
SUF3 48x82	1.890	3.228	2.362		

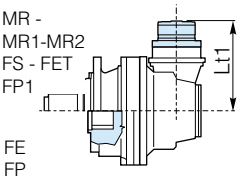
* bg 045 3

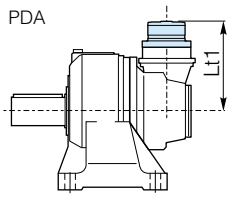
045

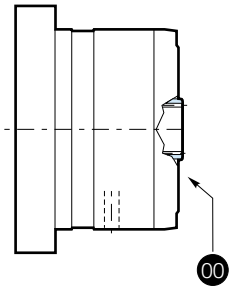
FL5” FL250 - FL350 - FL450 / FL750











		Lt			
		MR-MR1-MR2-FS-FET-FP1	FE	FP	PD
FL250 FL350 FL450	EM/PD 1045	11.260	9.488	8.504	13.465
	ED/PD 2045	13.898	12.165	11.142	16.102
FL750	EM/PD 1045	11.772	10.039	9.016	13.976
	ED/PD 2045	14.449	12.677	11.693	16.654

		Lt1
		MR - MR1-MR2 - FS - FE - FET - FP - FP1 - PDA
FL250 FL350 FL450	EC/PDA 2045	11.024
	EC/PDA 2045*	14.842
	EC/PDA 3045	11.024
	EC/PDA 3045*	14.842

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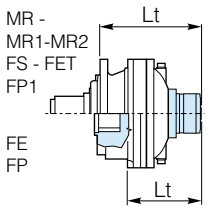
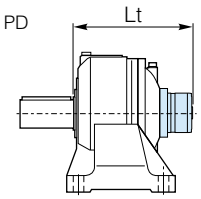
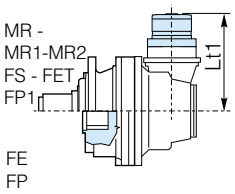
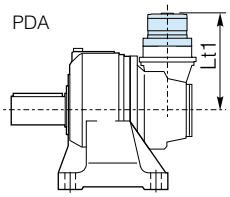
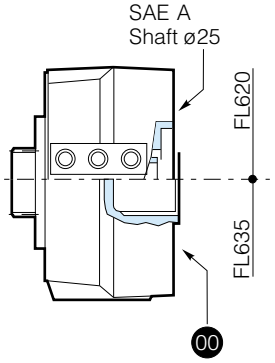
FL620.10 - FL635.10 / FL620.U - FL635.U











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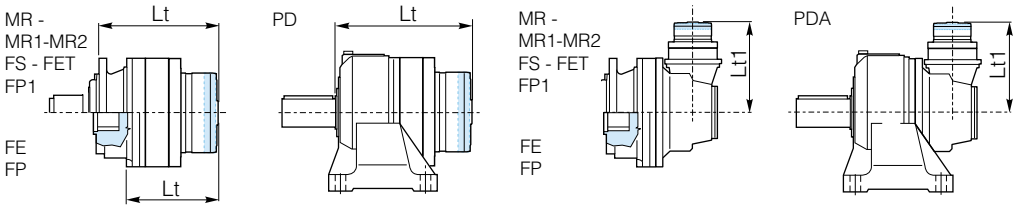
		Lt				00
		MR-MR1-MR2-FS-FET-FP1	FE	FP	PD	
FL620.U	EM/PD 1045	11.693	9.921	8.937	13.898	
	ED/PD 2045	14.331	12.598	11.575	16.535	
	ET/PD 3045	16.417	14.646	13.661	18.622	
	EQ/PD 4045	17.953	16.220	15.197	20.157	
FL635.U	EM/PD 1045	11.142	9.409	8.386	13.346	
	ED/PD 2045	13.819	12.047	11.063	16.024	
	ET/PD 3045	15.866	14.134	13.110	18.071	
	EQ/PD 4045	17.441	15.669	14.685	19.646	

		Lt			
		MR-MR1-MR2-FS-FET-FP1	FE	FP	PD
FL620.10	ET/PD 3045	14.803	13.031	12.047	17.008
	EQ/PD 4045	16.339	14.606	13.583	18.543
FL635.10	ET/PD 3045	14.094	12.323	11.339	16.299
	EQ/PD 4045	15.630	13.898	12.874	17.835

		Lt1
		MR - MR1-MR2 - FS - FE - FET - FP - FP1 - PDA
FL620.U	EC/PDA 2045	12.795
	EC/PDA 2045*	13.031
	EC/PDA 3045	12.795
	EC/PDA 3045*	13.031
FL635.U	EC/PDA 2045	12.244
	EC/PDA 2045*	12.480
	EC/PDA 3045	12.244
	EC/PDA 3045*	12.480

RL



				Lt			
				MR-MR1-MR2-FS-FET-FP1	FE	FP	PD
RL	+	FL250 FL350 FL450	EM/PD 1045	12.283	10.512	9.528	14.488
			ED/PD 2045	14.921	13.189	12.165	17.126
		FL750	EM/PD 1045	12.795	11.063	10.039	15.000
			ED/PD 2045	15.472	13.701	12.717	17.677

				Lt1
				MR - MR1-MR2 - FS - FE - FET - FP - FP1 - PDA
RL	+	FL250 FL350 FL450	EC/PDA 2045	12.047
			EC/PDA 2045*	15.866
			EC/PDA 3045	12.047
			EC/PDA 3045*	15.866

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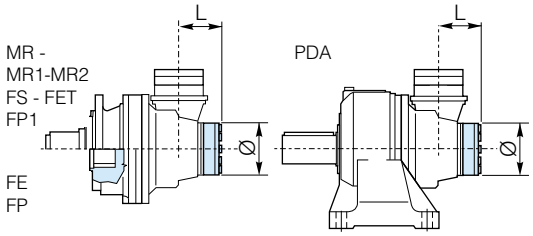
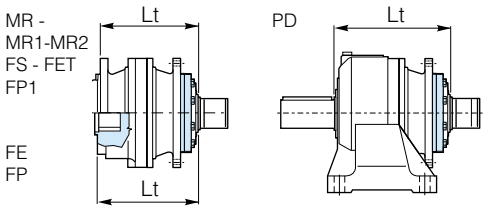
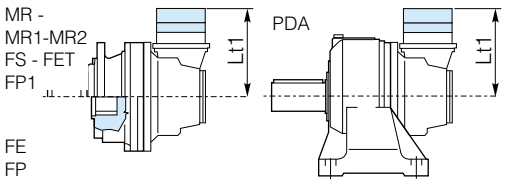


				L	Ø
RL	+	CC40	EC/PDA 2045	5.323	5.906
			EC/PDA 3045	5.323	5.906

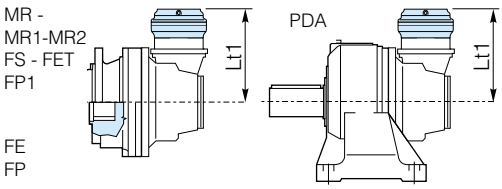


				Lt			
				MR-MR1-MR2-FS-FE-FET-FP-FP1	FE	FP	PD
RL	+	S46C1	EM/PD 1045	12.441	10.709	9.685	14.646
			ED/PD 2045	15.118	13.346	12.362	17.323

ADDITIONAL PLANETARY STAGE ON BEVEL GEAR



EM1010 - EM1020

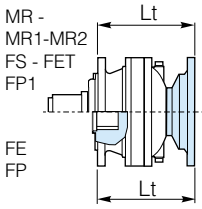


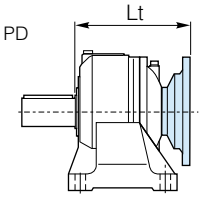
ED2010 - ED2020 ED2021

		Lt1		
		EC2045 PDA2045	**EC2045* PDA2045***	**EC3045 PDA3045**
	EM1010	12.874	13.110	12.874
	EM1020	13.583	13.819	13.583
	ED2010	14.409	14.646	14.409
	ED2020	15.669	15.905	15.669
	ED2021	16.260	16.496	16.260

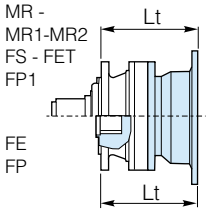
* bg 045 3

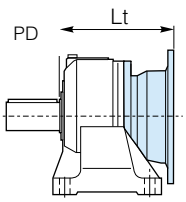
IEC Motor



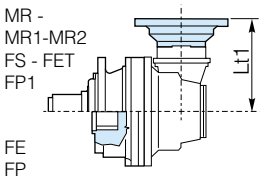


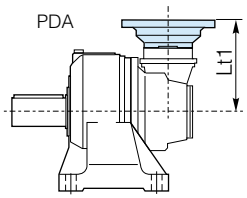
		Lt 00							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
EM 1045	MR-MR1-MR2-FS-FET-FP1	8.346	8.425	8.622	8.661	11.299	12.520	12.953	14.134
	FE	6.614	6.693	6.890	6.929	9.567	10.787	11.220	12.402
	FP	5.591	5.669	5.866	5.906	8.543	9.764	10.197	11.378
ED 2045	MR-MR1-MR2-FS-FET-FP1	11.024	11.102	11.299	11.339	13.976	15.197	15.630	16.811
	FE	9.252	9.331	9.528	9.567	12.205	13.425	13.858	15.039
	FP	8.268	8.346	8.543	8.583	11.220	12.441	12.874	14.055
ET 3045	MR-MR1-MR2-FS-FET-FP1	13.071	13.150	13.346	13.386	16.024	17.244	17.677	18.858
	FE	11.339	11.417	11.614	11.654	14.291	15.512	15.945	17.126
	FP	10.315	11.575	10.591	10.630	13.268	14.488	14.921	16.102
EQ 4045	MR-MR1-MR2-FS-FET-FP1	14.646	14.724	14.921	14.961	17.598	18.819	19.252	20.433
	FE	12.874	12.953	13.150	13.189	15.827	17.047	17.480	18.661
	FP	11.890	11.968	12.165	12.205	14.842	16.063	16.496	17.677
PD 1045	PD	10.551	10.630	10.827	10.866	13.504	14.724	15.157	16.339
PD 2045		13.228	13.307	13.504	13.543	16.181	17.402	17.835	19.016
PD 3045		15.276	15.354	15.551	15.591	18.228	19.449	19.882	21.063
PD 4045		16.850	16.929	17.126	17.165	19.803	21.024	21.457	22.638





		Lt		
		IEC		
		160 180	200	225
EM 1045	MR-MR1-MR2-FS-FET-FP1	12.520	12.913	-
	FE	10.787	11.181	-
	FP	9.764	10.157	-
ED 2045	MR-MR1-MR2-FS-FET-FP1	15.197	15.591	-
	FE	13.425	13.819	-
	FP	12.441	12.835	-
PD 1045	PD	14.724	15.118	16.299
PD 2045		17.402	17.795	-

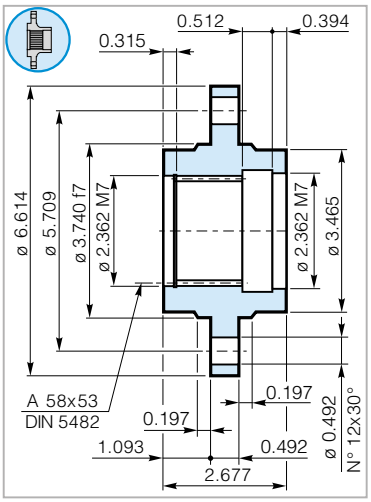




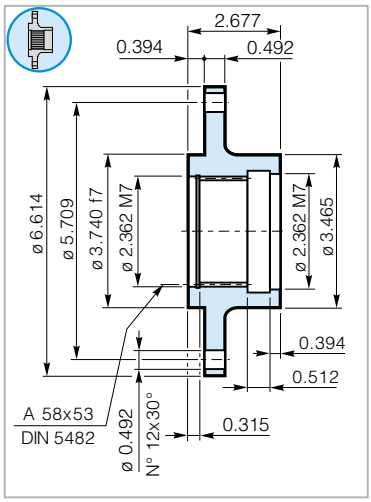
		Lt1							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
EC/PDA 2045	MR - MR1-MR2 - FS - FE FET - FP - FP1 - PDA	9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC/PDA 2045*		9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472
EC/PDA 3045		9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC/PDA 3045*		9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472
EC/PDA 4045		5.945	5.945	5.945	5.945	9.370	-	-	-

* bg 045 3

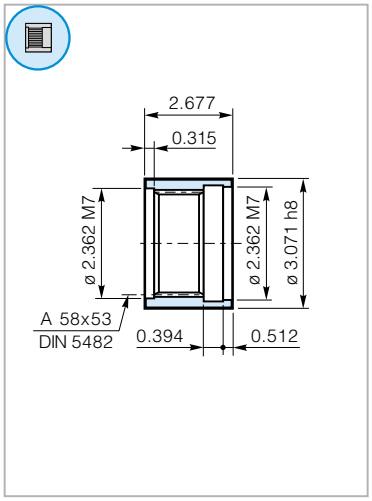
FA 045 MR — Wheel Flange



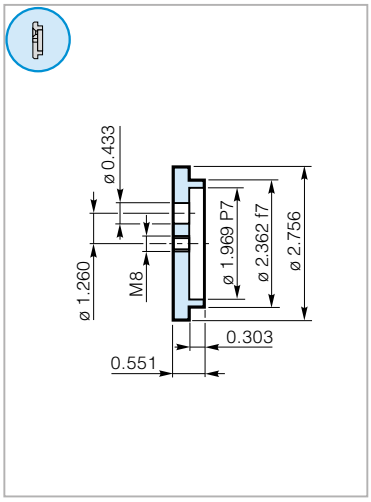
FR 045 MR — Wheel Flange



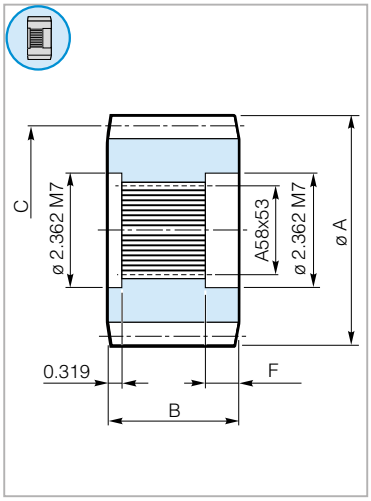
MS 045 MR — Splined Sleeve



RDF 045 MR — Lock Washer



MR — Pinions



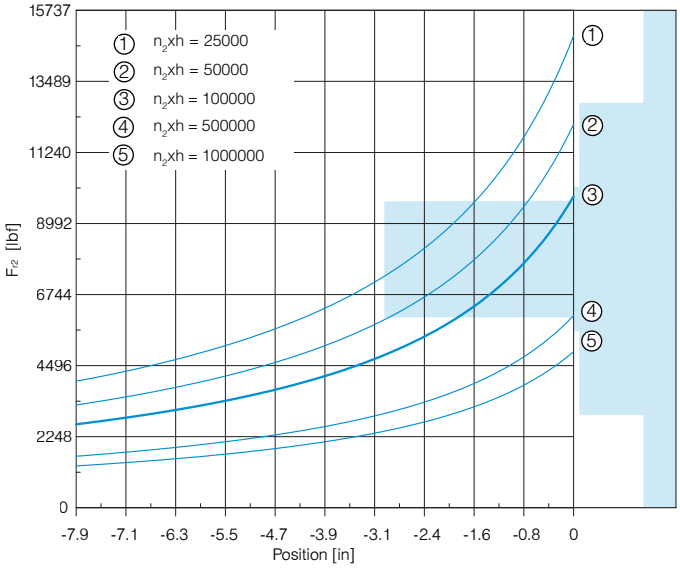
A	B	C			F
		m	z	x	
4.528	2.677	0.315	0.472	0.016	0.925
3.921	2.677	0.236	0.551	0.020	0.925
5.039	2.677	0.315	0.512	0.028	0.925
5.551	2.677	0.315	0.591	0.020	0.925
5.157	2.953	0.315	0.551	0.020	0.925
5.197	2.559	0.236	0.787	0.000	0.925
4.646	2.992	0.315	0.472	0.020	0.925
4.764	3.228	0.315	0.472	0.024	0.925

BS 045 FE — Splined Bar

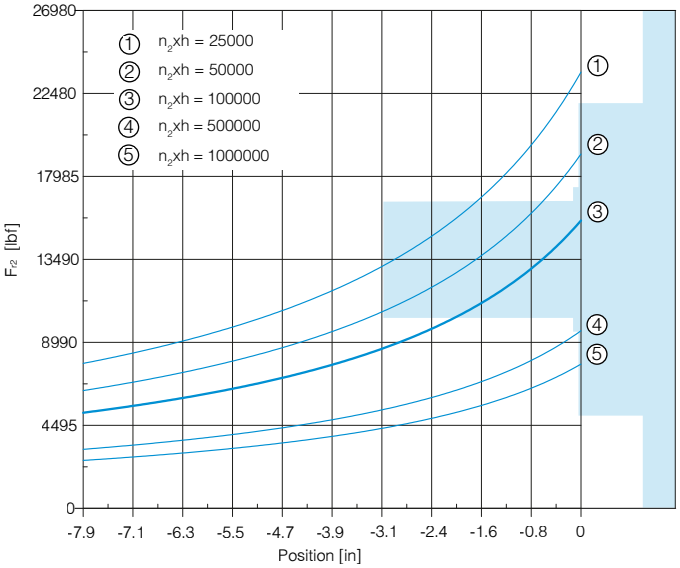
Code: 39127030100 Mat: High mechanical resistance alloyed steel

Output Radial Loads

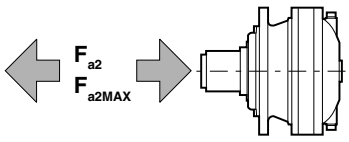
Gearbox Versions: ED, ET, EQ, EC — **MR-MR1-MR2**



Gearbox Versions: PD, PDA — **MR1-MR2**

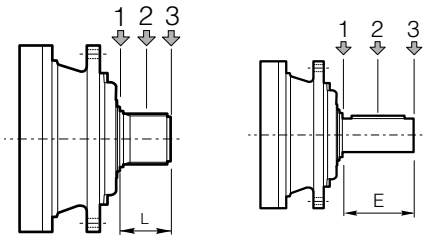


Output Axial Loads

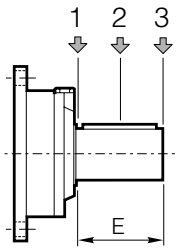


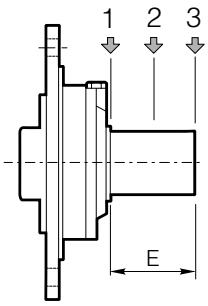
		Flange mounted		PD-PDA
		MN-MN1-MN2	MR-MR1-MR2	MR1-MR2
F_{a2}	[lbf]	–	7868	5620
F_{a2MAX}	[lbf]	–	13488	5620

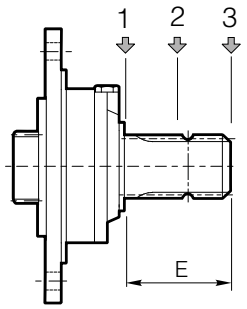
Input Radial Loads



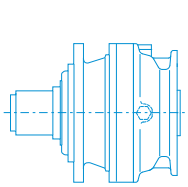
			F_{r1} [lbf]					
			$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	L	E	1	2	3	1	2	3
S-45CR1	-	4.134	2248	1349	899	1124	674	450
S-46C1	-	4.134	3147	1978	1439	1574	989	719
S-45SR	2.677	-	2248	1349	899	1124	674	450



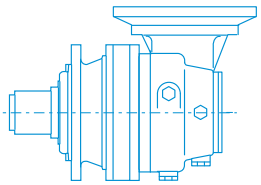


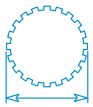
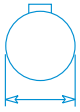
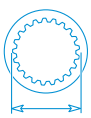


		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	E	1	2	3	1	2	3
SU 42x80	3.150	674	450	337	315	225	157
SU1 28x50	1.969	674	450	337	315	225	157
SU2 40x58	2.283	674	450	337	315	225	157
SU3 48x82	3.228	674	450	337	315	225	157
SUS 1 3/8”	3.819	629	405	337	292	202	135
SU2 1 1/2”x 3 1/4”	3.250	674	450	337	315	225	157
SUF1 28x50	1.969	674	450	337	315	225	157
SUF2 40x58	2.283	674	450	337	315	225	157
SUF3 48x82	3.228	674	450	337	315	225	157



046



i_{eff}	3.50 - 3301
T_{2N}	2800 ftlb
	B58X53 DIN5482
	2.560 in
	-
	2.732 in

TECHNICAL DATA

10000
hours life

i_{eff}	1500 n_2 [rpm]	1500 T_2 [ftlb]	1500 P_2 [HP]	1000 n_2 [rpm]	1000 T_2 [ftlb]	1000 P_2 [HP]	500 n_2 [rpm]	500 T_2 [ftlb]	500 P_2 [HP]	n_{1MAX} [rpm]	T_{2MAX} [ftlb]	P_T [HP]
EM 1046 / PD 1046												
3.50	429	1154	93.9	286	1303	71.1	143	1604	43.7	3000	4130	26.8
4.13	363	1193	83.1	242	1347	62.1	121	1659	38.2			
5.17	290	1240	68.4	193	1401	51.6	97	1725	31.8		4425	
6.00	250	1277	60.9	167	1443	45.7	83	1603	25.5			
7.25	207	1167	46.0	138	1250	32.9	69	1378	18.1			
ED 2046 / PD 2046												
10.78	139	1617	42.9	93	1826	32.3	46.4	2249	19.8	3000	4425	20.1
12.25	122	1680	39.2	82	1898	29.5	40.8	2336	18.1			
14.46	104	1766	34.9	69	1994	26.3	34.6	2455	16.2			
17.06	88	1825	30.6	59	2061	23.1	29.3	2502	13.9			
18.10	83	1889	29.8	55	2134	22.4	27.6	2627	13.8			
21.00	71	1975	26.8	47.6	2231	20.2	23.8	2746	12.5			
25.38	59	2091	23.6	39.4	2361	17.7	19.7	2620	9.8			
29.94	50	2162	20.7	33.4	2441	15.6	16.7	2642	8.4			
31.02	48.4	1904	17.6	32.2	1990	12.2	16.1	2134	6.6			
36.00	41.7	1739	13.8	27.8	1816	9.7	13.9	1947	5.1			
43.50	34.5	1775	11.7	23	1852	8.0	11.5	1983	4.3			
52.56	28.5	1527	8.3	19	1594	5.8	9.5	1710	3.1			
ET 3046 / PD 3046												
53.78	27.9	2620	13.9	18.6	2921	10.3	9.3	3182	5.6	3000	4425	13.4
63.46	23.6	2752	12.3	15.8	2966	8.9	7.9	3296	5.0			
73.50	20.4	2877	11.1	13.6	3007	7.8	6.8	3399	4.4			
79.44	18.9	2917	10.5	12.6	3028	7.2	6.3	3454	4.2			
92.19	16.3	2957	9.1	10.8	3078	6.3	5.4	3563	3.6			
100.3	15	2981	8.4	10	3134	5.9	5	3625	3.5			
108.6	13.8	3002	7.9	9.2	3188	5.6	4.6	3685	3.2			
125.6	11.9	3042	7.0	8	3289	5.0	4	3795	2.8			
145.7	10.3	3113	6.2	6.9	3393	4.4	3.4	3752	2.4			
152.3	9.9	2836	5.4	6.6	2960	3.8	3.3	3173	2.0			
176.1	8.5	2881	4.7	5.7	3005	3.2	2.8	3218	1.7			
207.8	7.2	2928	4.0	4.8	3190	3.0	2.4	3644	1.6			
224.2	6.7	2976	3.8	4.5	3241	2.8	2.2	3539	1.5			
260.2	5.8	3072	3.4	3.8	3342	2.4	1.9	3665	1.3			
280.7	5.3	2435	2.4	3.6	2659	1.7	1.8	3073	1.0			
314.4	4.8	3196	3.0	3.2	3474	2.1	1.6	3704	1.1			
364.8	4.1	1875	1.5	2.7	2056	1.1	1.4	2392	0.6			
EQ 4046 / PD4046												
404.7	3.7	3725	2.7	2.5	3868	1.9	1.2	4141	1.0	3000	4425	8
441.0	3.4	3918	2.5	2.3	3996	1.7	1.1	4192	0.9			
510.1	2.9	3969	2.3	2	4011	1.5	0.98	4280	0.8			
551.3	2.7	3977	2.0	1.8	4019	1.3	0.91	4327	0.8			
639.8	2.3	3887	1.7	1.6	4034	1.2	0.78	4419	0.7			
696.2	2.2	4001	1.6	1.4	4053	1.1	0.72	4425	0.6			
773.1	1.9	3336	1.2	1.3	3465	0.9	0.65	4029	0.5			
913.5	1.6	3389	1.1	1.1	3589	0.8	0.55	4176	0.4			
1011	1.5	4039	1.1	0.99	4275	0.8	0.49	4425	0.4			
1140	1.3	4104	1.0	0.88	4348	0.7	0.44	4425	0.4			
1222	1.2	3498	0.8	0.82	3828	0.6	0.41	4440	0.3			
1442	1	3936	0.8	0.69	4168	0.5	0.35	4592	0.3			
1599	0.94	3714	0.7	0.63	4058	0.5	0.31	4695	0.3			
1849	0.81	3835	0.6	0.54	4186	0.4	0.27	4837	0.3			
1995	0.75	3256	0.5	0.5	3341	0.3	0.25	3488	0.2			
2315	0.65	3779	0.5	0.43	3877	0.3	0.22	4048	0.2			
2623	0.57	3417	0.4	0.38	3697	0.3	0.19	4219	0.1			
2798	0.54	4194	0.4	0.36	4425	0.3	0.18	4425	0.1			
3301	0.45	4423	0.4	0.3	4425	0.3	0.15	4425	0.1			

10000 hours life

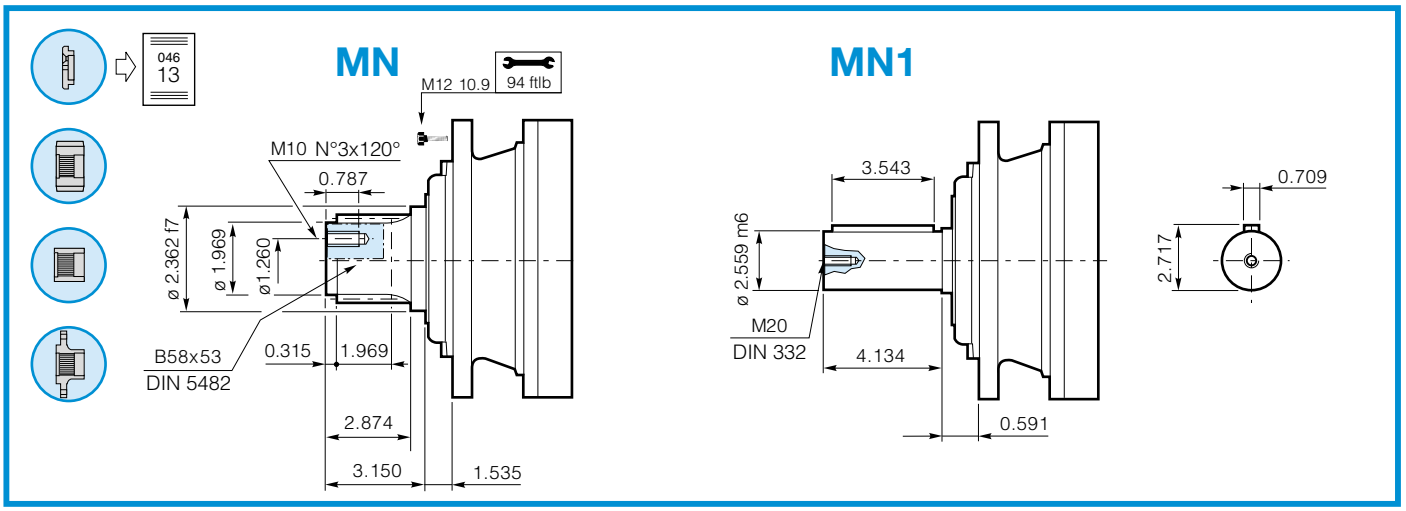
i_{eff}	1500 n_2 [rpm]	1500 T_2 [ftlb]	1500 P_2 [HP]	1000 n_2 [rpm]	1000 T_2 [ftlb]	1000 P_2 [HP]	500 n_2 [rpm]	500 T_2 [ftlb]	500 P_2 [HP]	n_{1MAX} [rpm]	T_{2MAX} [ftlb]	P_T [HP]
EC 2046 / PDA 2046												
10.50	143	1604	43.7	95	1812	32.9	47.6	2231	20.2			
12.39	121	1659	38.2	81	1873	28.8	40.4	2306	17.7			
16.17	93	1167	20.7	62	1318	15.6	30.9	1623	9.5			
18.00	83	1603	25.5	56	1684	17.8	27.8	1816	9.7			
19.08	79	1377	20.7	52	1555	15.6	26.2	1915	9.5	3000	4425	13.4
21.75	69	1378	18.1	46	1447	12.6	23	1563	6.8			
23.89	63	1724	20.7	41.9	1935	15.4	20.9	2080	8.3			
27.72	54	1689	17.4	36.1	1767	12.2	18	1898	6.6			
33.50	44.8	1451	12.3	29.9	1519	8.6	14.9	1634	4.7			
EC 3046 / PDA 3046												
36.75	40.8	2336	18.1	27.2	2639	13.7	13.6	3007	7.8			
43.37	34.6	2455	16.2	23.1	2773	12.2	11.5	3052	6.7			
49.80	30.1	2560	14.6	20.1	2891	11.0	10	3130	6.0			
56.60	26.5	2659	13.4	17.7	2935	9.9	8.8	3217	5.4			
63.00	23.8	2746	12.5	15.9	2965	9.0	7.9	3291	5.0			
73.57	20.4	2085	8.0	13.6	2169	5.6	6.8	2315	3.0			
83.60	17.9	2931	10.1	12	3042	7.0	6	3491	4.0			
89.83	16.7	2642	8.4	11.1	2743	5.8	5.6	3095	3.2			
97.02	15.5	2971	8.7	10.3	3112	6.2	5.2	3600	3.5	3000	4425	9.4
114.5	13.1	2702	6.7	8.7	2810	4.7	4.4	3255	2.7			
123.5	12.1	2193	5.1	8.1	2277	3.5	4	2587	2.0			
138.3	10.8	2749	5.6	7.2	2927	4.0	3.6	3385	2.3			
166.3	9	2030	3.5	6	2108	2.4	3	2431	1.3			
173.2	8.7	2263	3.8	5.8	2394	2.7	2.9	2780	1.5			
201.0	7.5	2066	3.0	5	2176	2.0	2.5	2531	1.2			
242.8	6.2	1784	2.1	4.1	1874	1.5	2.1	2190	0.9			
EC 4046 / PDA 4046												
276.6	5.4	3563	3.6	3.6	3734	2.5	1.8	3980	1.3			
310.3	4.8	3648	3.4	3.2	3960	2.4	1.6	4031	1.2			
347.1	4.3	3671	3.1	2.9	3814	2.1	1.4	4051	1.1			
414.7	3.6	3869	2.7	2.4	3990	1.9	1.2	4156	1.0			
450.8	3.3	3763	2.4	2.2	3907	1.6	1.1	4205	0.9			
498.3	3	3967	2.3	2	4008	1.5	1	4266	0.8			
570.0	2.6	2999	1.5	1.8	3082	1.0	0.88	3224	0.5			
625.0	2.4	3879	1.7	1.6	4024	1.2	0.8	4404	0.7			
712.7	2.1	3925	1.6	1.4	4067	1.1	0.7	4425	0.6			
799.3	1.9	3347	1.2	1.3	3482	0.8	0.63	4058	0.5			
929.1	1.6	3099	1.0	1.1	3182	0.7	0.54	3325	0.3			
988.1	1.5	4037	1.2	1	4261	0.8	0.51	4425	0.4	3000	4425	4
1078	1.4	3597	1.0	0.93	3693	0.7	0.46	3859	0.3			
1194	1.3	3480	0.8	0.84	3808	0.6	0.42	4418	0.3			
1409	1.1	3923	0.8	0.71	4154	0.6	0.35	4425	0.3			
1593	0.94	3494	0.6	0.63	3783	0.5	0.31	4321	0.3			
1806	0.83	3816	0.6	0.55	4165	0.4	0.28	4425	0.2			
1925	0.78	3627	0.5	0.52	3925	0.4	0.26	4425	0.2			
2208	0.68	3726	0.5	0.45	4030	0.3	0.23	4425	0.2			
2563	0.59	3401	0.4	0.39	3680	0.3	0.2	4200	0.2			
2668	0.56	3866	0.4	0.37	4179	0.3	0.19	4425	0.2			
3097	0.48	3529	0.3	0.32	3817	0.2	0.16	4351	0.1			

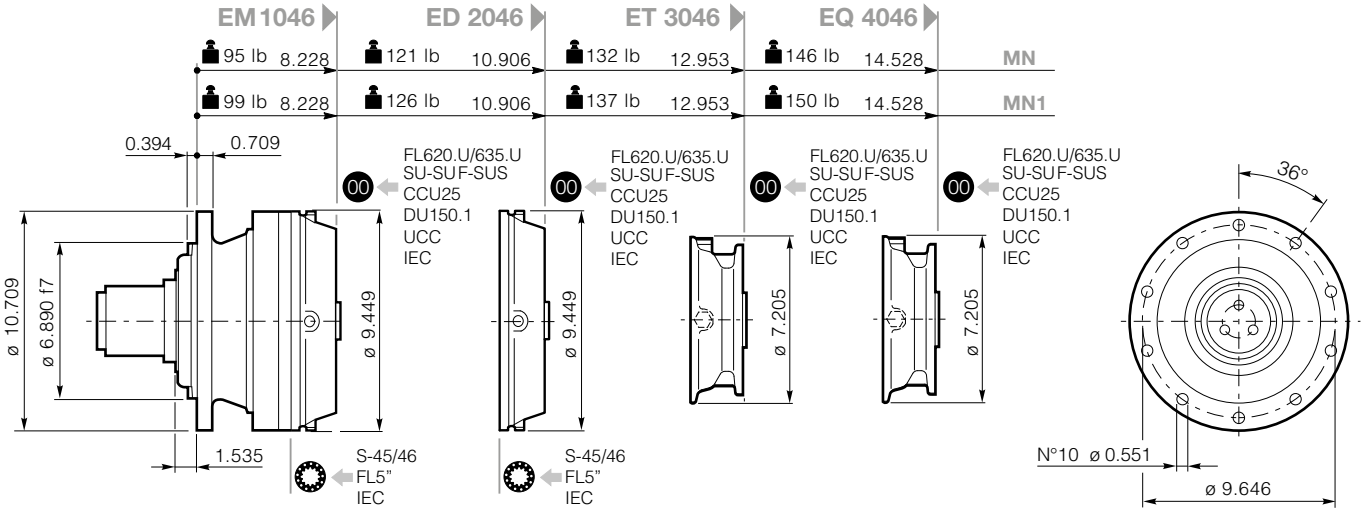
* (bg) All the ratios in light grey (ie. 10.50) have particular dimensions of bevel gears in some versions. See dimensional tables.

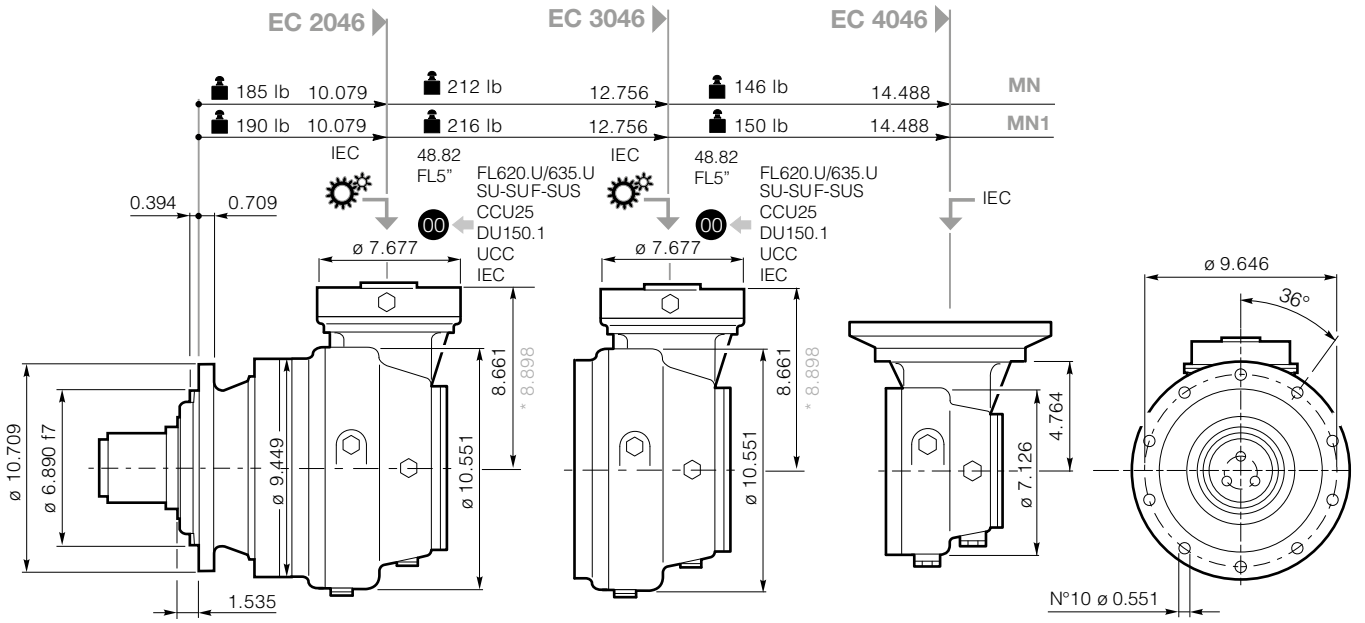
Click *i* button to return to main index

Click **DANA** button to return to section index

GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 | S-45/46 48.82 046 7 | SU-SUF SUS 046 8 | FL5" FL620 FL635 046 9 | IEC 046 11 | 046 11 | CCU25 B 16 | DU150.1 UCC B 17 | * bg 046 3

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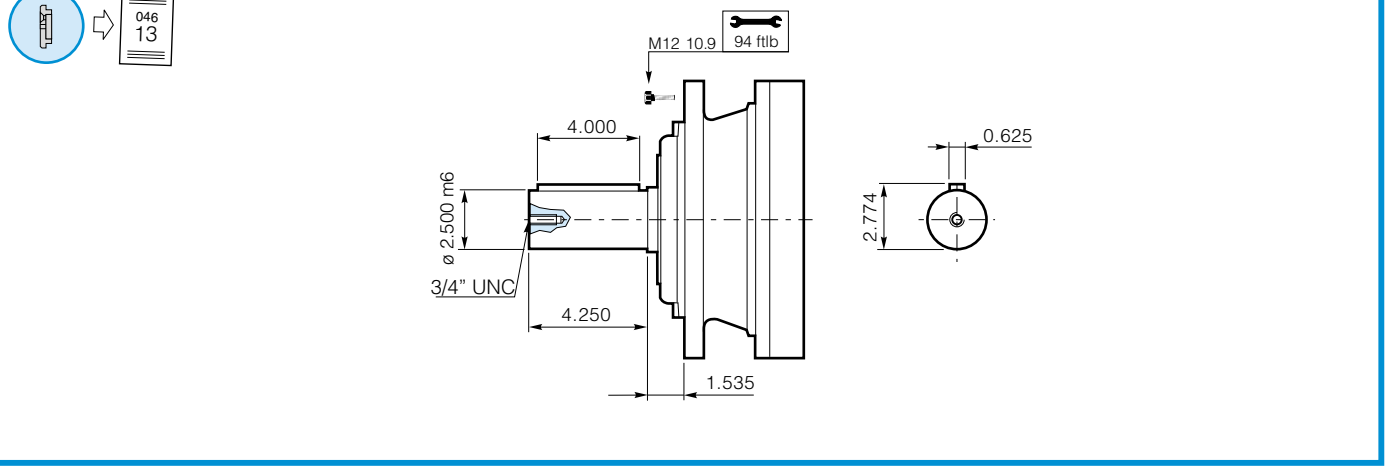

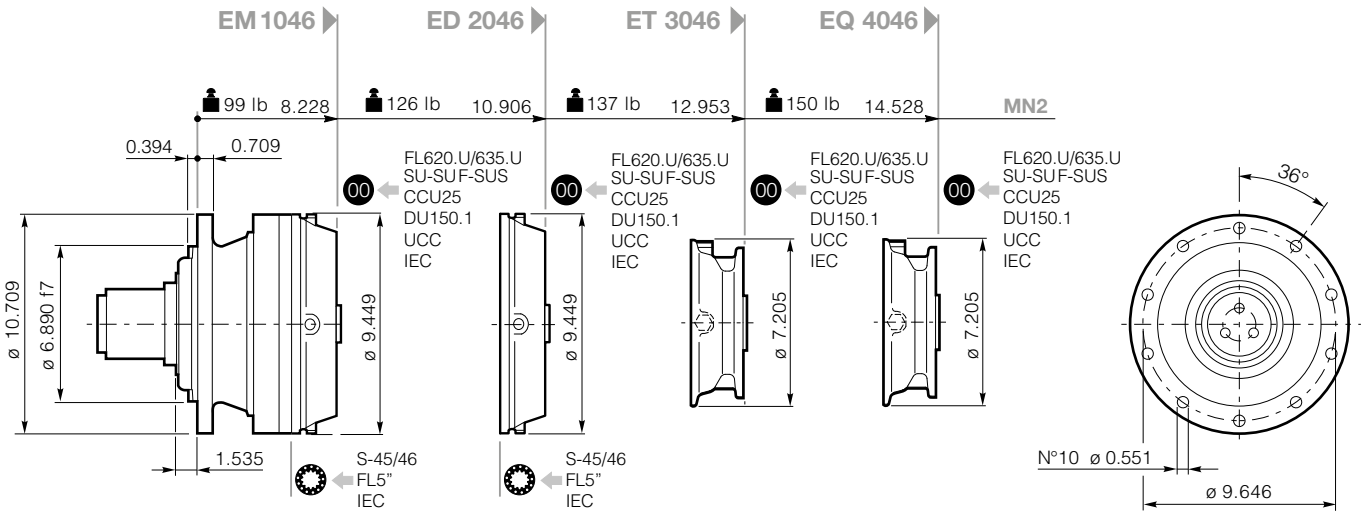

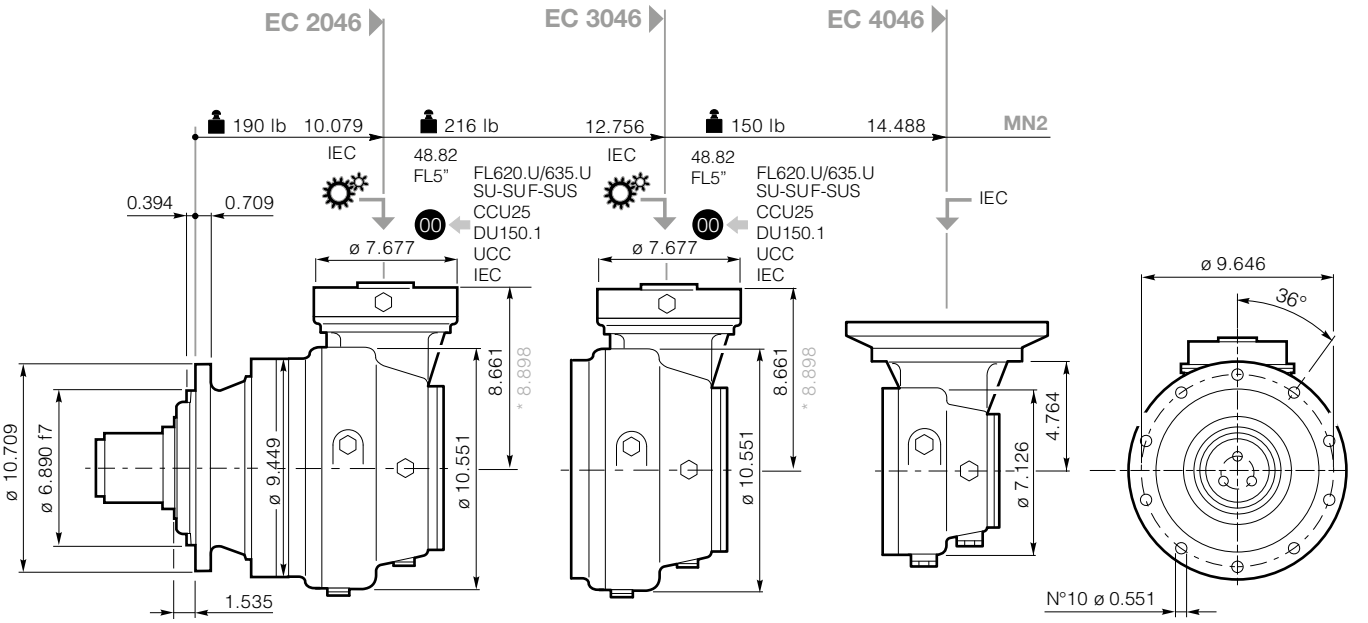

00 B 14 S-45/46 48.82 → 046 7 SU-SUF SUS → 046 8 FL5" FL620 FL635 → 046 9 IEC → 046 11 → 046 11 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 046 3

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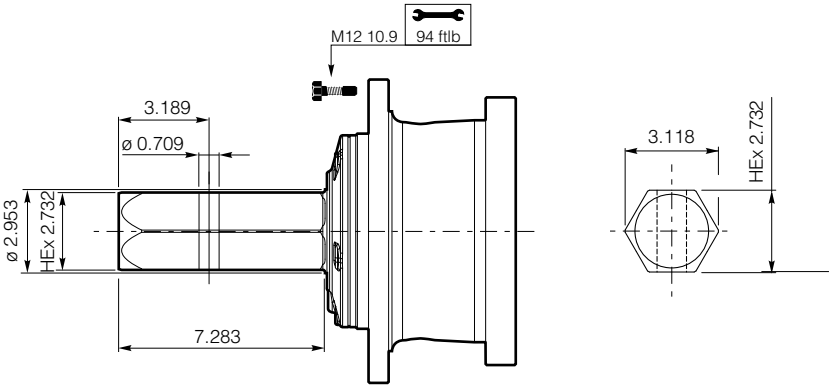
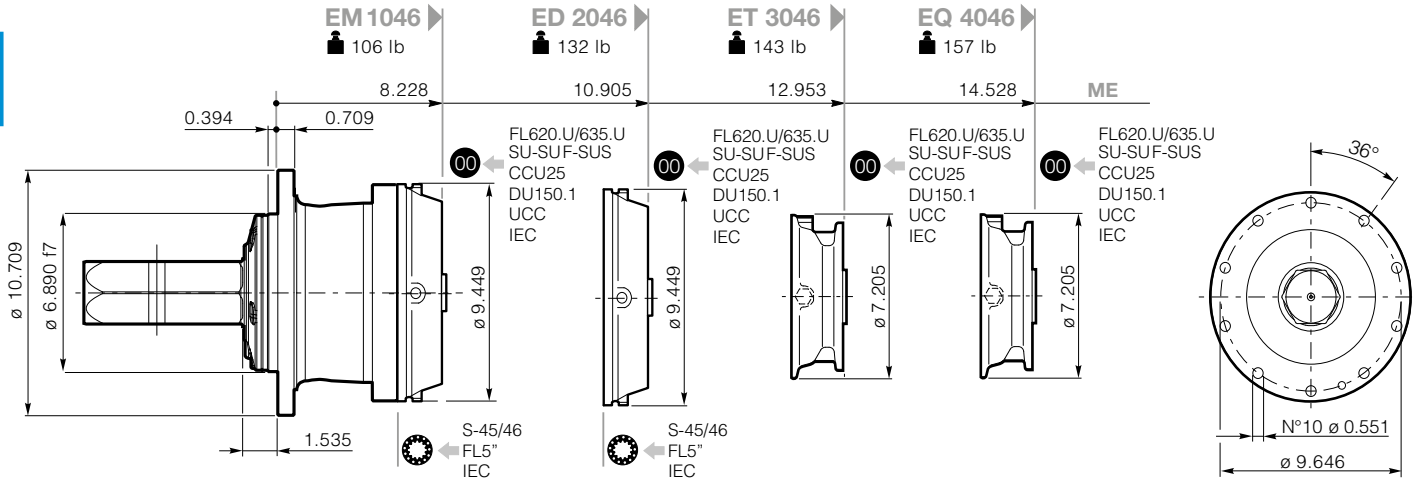
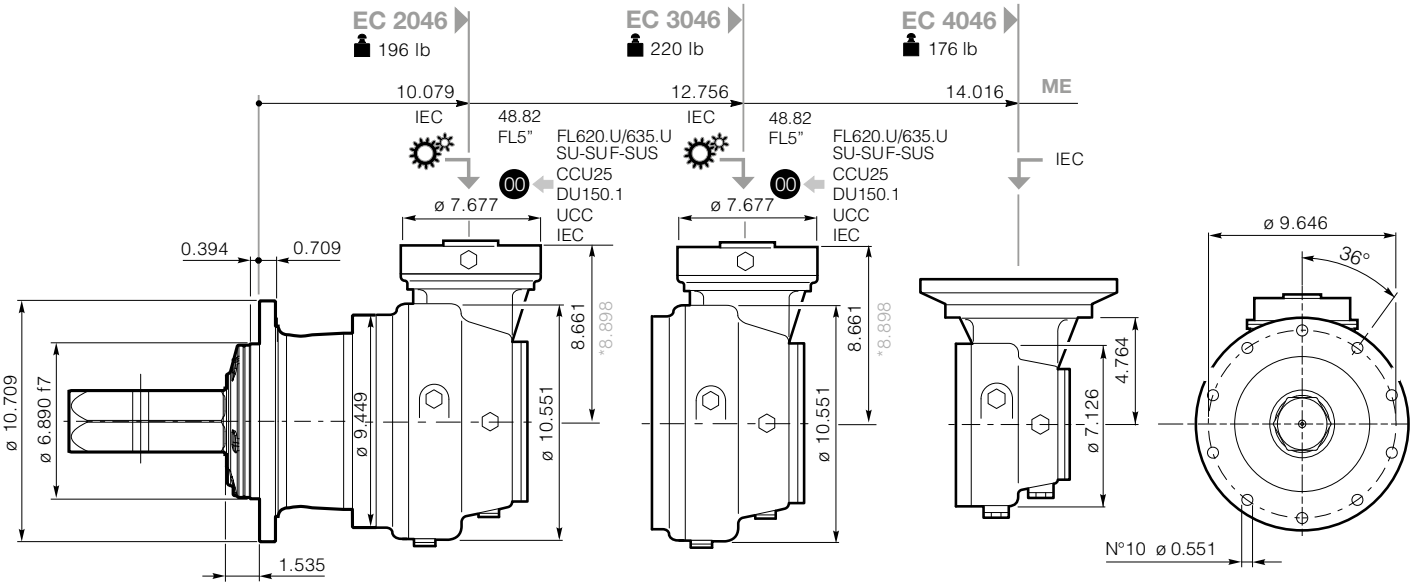
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 → 046 7 SU-SUF SUS → 046 8 FL5" FL620 FL635 → 046 9 IEC → 046 11 → 046 11 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 046 3

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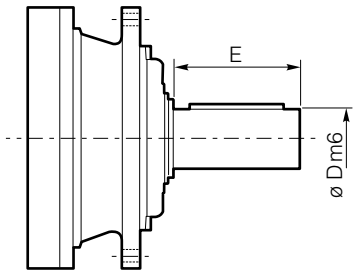
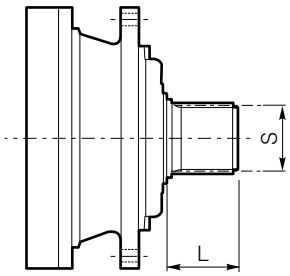
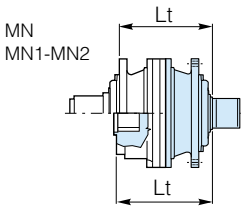
S-45CR1 - S-46C1 - S-45SR



S-45CR1 - S-46C1



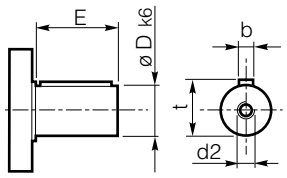
S-45SR

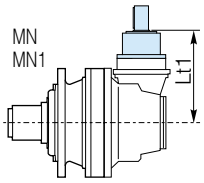


	D m6	E	L	S DIN5482		Lt MN-MN1-MN2-ME
S-45CR1	2.559	4.134	-	-	EM 1046	10.709
					ED 2046	13.346
S-46C1	2.559	4.134	-	-	EM 1046	12.323
					ED 2046	15.000
S-45SR	-	-	2.677	B58x53 DIN5482	EM 1046	10.709
					ED 2046	13.346

For more informations, go to page B13

48.82





	D	E		Lt1 MN-MN1-MN2-ME
48.82	1.890	3.228	EC 2046	11.024
			EC 3046	11.024

For the input configuration S46C1, 4882 (CC40 - CC41), FL5" can be fitted with an anti-return device.
For further information and technical data, contact Dana Sale Technical Support

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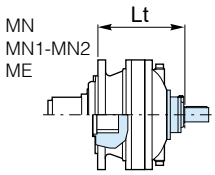
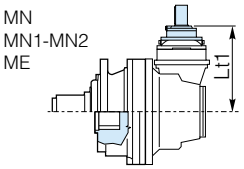
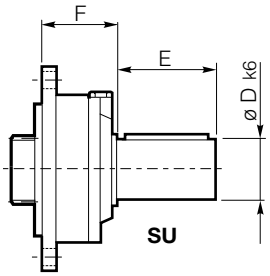
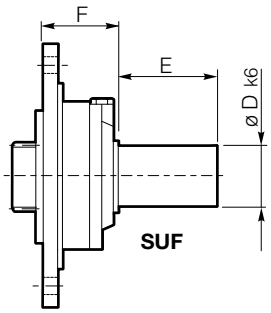
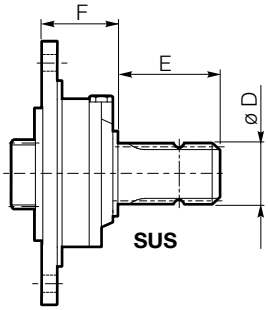
SU - SUF - SUS









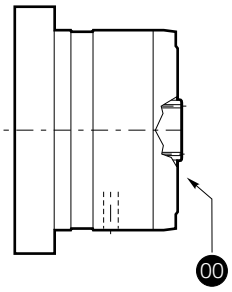


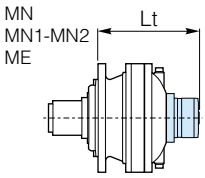
	D	E	F		Lt 00 MN-MN1-MN2 -ME
SU1 28x50	1.102	1.969	2.362	EM 1046	10.591
				ED 2046	13.268
				ET 3046	15.315
				EQ 4046	16.890
SU2 40x58	1.575	2.283	2.362	EM 1046	10.591
				ED 2046	13.268
				ET 3046	15.315
				EQ 4046	16.890
SU3 48x82	1.890	3.228	2.362	EM1046	10.591
				ED 2046	13.268
				ET 3046	15.315
				EQ 4046	16.890
SU 42x80	1.654	3.150	3.996	EM 1046	12.244
				ED 2046	14.882
				ET 3046	16.968
				EQ 4046	18.504
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	EM 1046	12.244
				ED 2046	14.882
				ET 3046	16.968
				EQ 4046	18.504
SU2 1.5x3.25	1.500	3.250	2.362	EM 1046	10.591
				ED 2046	13.268
				ET 3046	15.315
				EQ 4046	16.890
SUF1 28x50	1.102	1.969	2.362	EM 1046	10.591
				ED 2046	13.268
				ET 3046	15.315
				EQ 4046	16.890
SUF2 40x58	1.575	2.283	2.362	EM 1046	10.591
				ED 2046	13.268
				ET 3046	15.315
				EQ 4046	16.890
SUF3 48x82	1.890	3.228	2.362	EM 1046	10.591
				ED 2046	13.268
				ET 3046	15.315
				EQ 4046	16.890

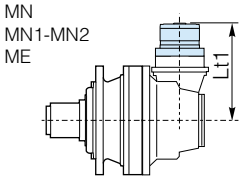
	D	E	F		Lt1 00 MN-MN1-MN2-ME
SU1 28x50	1.102	1.969	2.362	EC 2046 EC 3046	11.024
SU2 40x58	1.575	2.283	2.362		
SU3 48x82	1.890	3.228	2.362	EC 2046* EC 3046*	11.260
SU 42x80	1.654	3.150	3.996	EC 2046 EC 3046	12.677
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	EC 2046* EC 3046*	12.913
SU2 1.5x3.25	1.500	3.250	2.362	EC 2046 EC 3046	11.024
SUF1 28x50	1.102	1.969	2.362		
SUF2 40x58	1.575	2.283	2.362	EC 2046* EC 3046*	11.260
SUF3 48x82	1.890	3.228	2.362		

* bg 046 3

FL5” FL250 - FL350 - FL450 / FL750





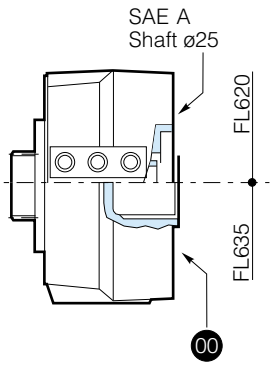


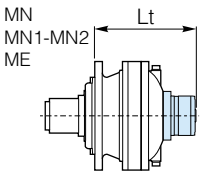
		Lt MN-MN1-MN2 - ME
FL250 FL350 FL450	EM 1046	11.929
	ED 2046	14.567
FL650 FL750	EM 1046	12.441
	ED 2046	15.118

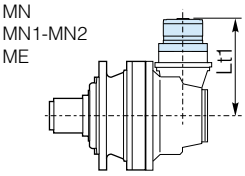
		Lt1 MN-MN1-MN2 - ME
FL250 FL350 FL450	EC 2046	11.024
	EC 2046*	14.842
	EC 3046	11.024
	EC 3046*	14.842

* bg 046 3

FL620.10 - FL635.10 / FL620.U - FL635.U







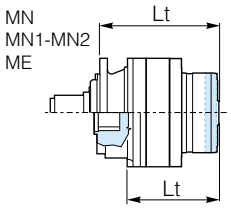
		Lt 00 MN-MN1-MN2 - ME
FL620.U	EM 1046	12.362
	ED 2046	15.000
	ET 3046	17.087
	EQ 4046	18.622
FL635.U	EM 1046	11.811
	ED 2046	14.488
	ET 3046	16.535
	EQ 4046	18.110

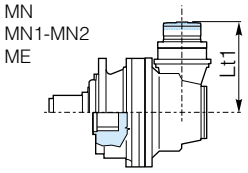
		Lt MN-MN1-MN2 - ME
FL620.10	ED 2046	15.472
	ET 3046	17.008
FL635.10	ED 2046	14.764
	ET 3046	16.299

		Lt1 00 MN-MN1-MN2 - ME
FL620.U	EC 2046	12.795
	EC 2046*	13.031
	EC 3046	12.795
	EC 3046*	13.031
FL635.U	EC 2046	12.244
	EC 2046*	12.480
	EC 3046	12.244
	EC 3046*	12.480

* bg 046 3

RL

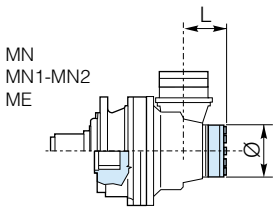




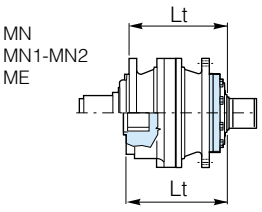
				Lt
				MN-MN1-MN2 - ME
RL	+	FL250 FL350 FL450	EM 1046	12.953
			ED 2046	15.591
		FL750	EM 1046	13.465
			ED 2046	16.142

				Lt1
				MN-MN1-MN2 - ME
RL	+	FL250 FL350 FL450	EC 2046	12.047
			EC 2046*	15.866
			EC 3046	12.047
			EC 3046*	15.866

* bg 046 3



				L	Ø
RL	+	CC40	EC2046	5.323	5.906
			EC3046	5.323	5.906



				Lt
				MN-MN1-MN2 - ME
RL	+	S46C1	EM 1046	13.110
			ED 2046	15.787

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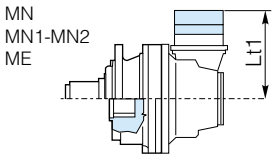
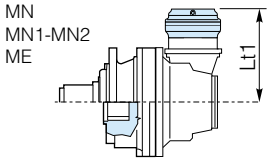


EM1010 - EM1020

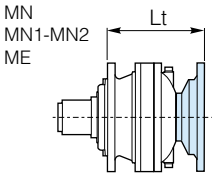


ED2010 - ED2020 ED2022

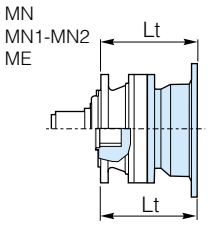
		Lt1			
		EC2046 PDA2046	EC2046* PDA2046*	**EC3046 PDA3046**	EC3046* PDA3046*
	EM1010	12.874	13.110	12.874	13.110
	EM1020	13.583	13.819	13.583	13.819
	ED2010	14.409	14.646	14.409	14.646
	ED2020	15.669	15.905	15.669	15.905
	ED2021	16.260	16.496	16.260	16.496

* bg 046 3

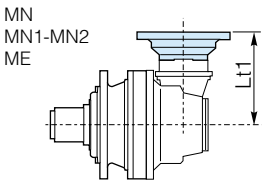
IEC Motor



		Lt 00							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
EM 1046	MN-MN1-MN2-ME	9.016	9.094	9.291	9.331	11.968	13.189	13.622	14.803
ED 2046	MN-MN1-MN2-ME	11.693	11.772	11.968	12.008	14.646	15.866	16.299	17.480
ET 3046	MN-MN1-MN2-ME	13.740	13.819	14.016	14.055	16.693	17.913	18.346	19.528
EQ 4046	MN-MN1-MN2-ME	15.315	15.394	15.591	15.630	18.268	19.488	19.921	21.102

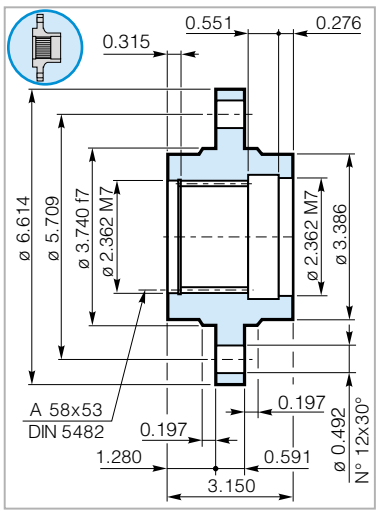


		Lt	
		IEC	
		160 180	200
EM 1046	MN-MN1-MN2-ME	13.189	13.583
ED 2046	MN-MN1-MN2-ME	15.866	16.260

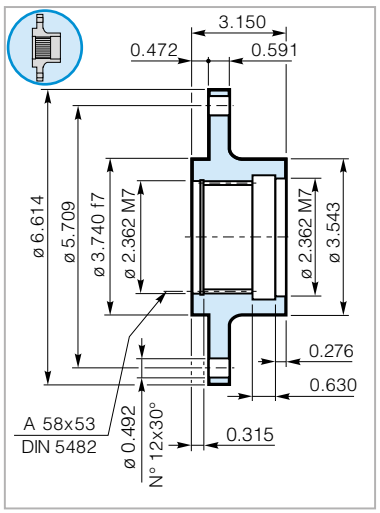


		Lt1 00							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
EC 2046	MN-MN1-MN2-ME	9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC 2046*	MN-MN1-MN2-ME	9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472
EC 3046	MN-MN1-MN2-ME	9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC 3046*	MN-MN1-MN2-ME	9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472
EC 4046	MN-MN1-MN2-ME	5.945	5.945	5.945	5.945	9.370	-	-	-

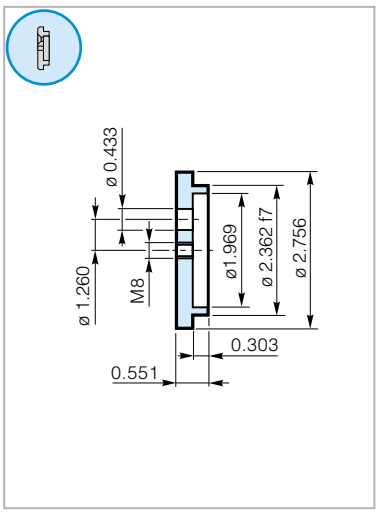
FA 046 MN — Wheel Flange



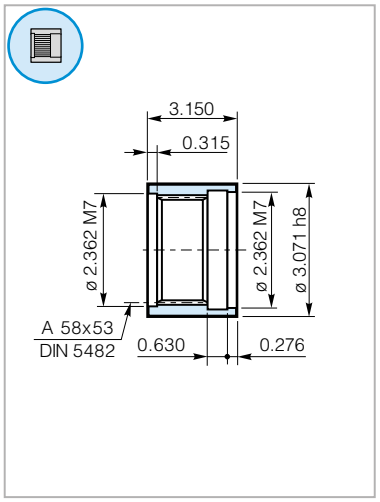
FR 046 MN — Wheel Flange



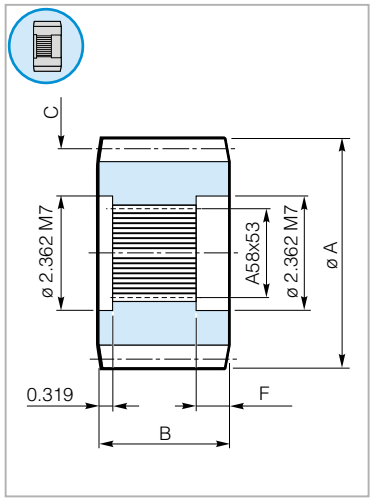
RDF 046 MN — Lock Washer



MS 046 MN — Splined Sleeve



MN — Pinions



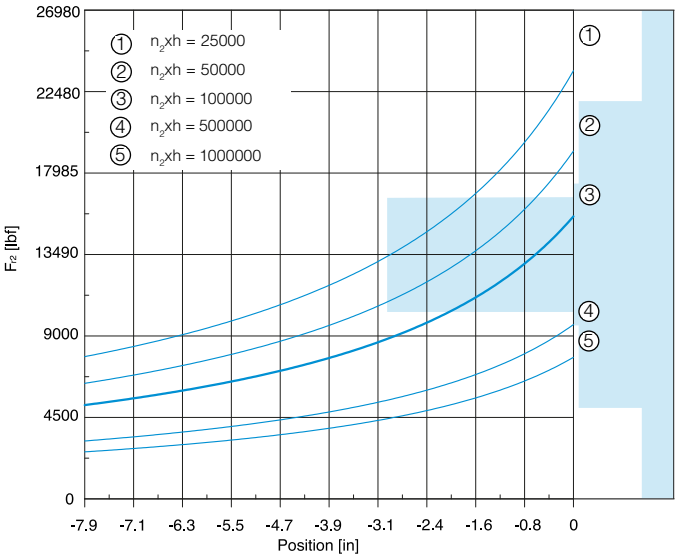
A	B	C			F
		m	z	x	
3.921	3.150	0.236	0.551	0.020	0.925
4.528	3.150	0.315	0.472	0.016	0.925
5.630	3.150	0.394	0.472	0.016	0.925
5.354	3.150	0.315	0.591	0.000	0.925
5.591	3.150	0.394	0.512	0.000	0.925
5.236	3.543	0.315	0.551	0.020	0.925
6.378	4.055	0.394	0.551	0.012	0.925

RADIAL AND AXIAL LOADS

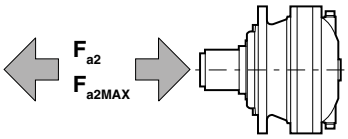
Output Radial Loads

Gearbox Versions:
ED, ET, EQ, EC

MN-MN1-MN2

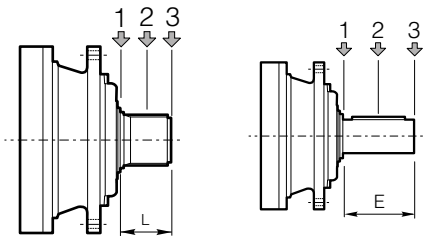


Output Axial Loads



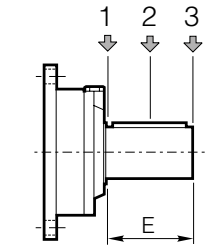
		Flange mounted		PD-PDA
		MN-MN1-MN2	MR-MR2	MR2
F_{a2}	[lbf]	10116	-	-
F_{a2MAX}	[lbf]	17984	-	-

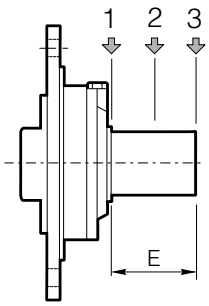
Input Radial Loads

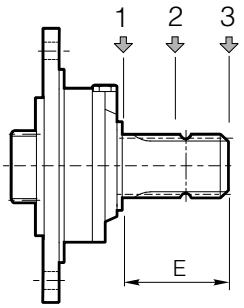


			F_{r1} [lbf]					
			$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	L	E	1	2	3	1	2	3
S-45CR1	-	4.134	2248	1349	899	1124	674	450
S-46C1	-	4.134	3147	1978	1439	1574	989	719
S-45SR	2.677	-	2248	1349	899	1124	674	450

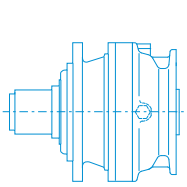
Input Radial Loads



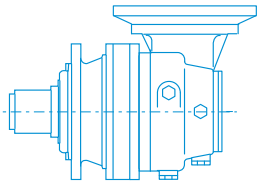


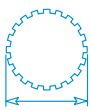
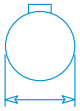
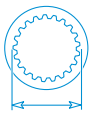
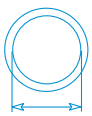
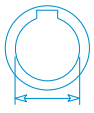


		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	**E**	**1**	**2**	**3**	**1**	**2**	**3**
SU 42x80	3.150	674	450	337	315	225	157
SU1 28x50	1.969	674	450	337	315	225	157
SU2 40x58	2.283	674	450	337	315	225	157
SU3 48x82	3.228	674	450	337	315	225	157
SUS 1 3/8”	3.819	629	405	337	292	202	135
SU2 1 1/2”x 3 1/4”	3.250	674	450	337	315	225	157
SUF1 28x50	1.969	674	450	337	315	225	157
SUF2 40x58	2.283	674	450	337	315	225	157
SUF3 48x82	3.228	674	450	337	315	225	157



065



i_{eff}	3.50 - 3170
T_{2N}	4720 ftlb
	B70X64 DIN5482
	3.150 in
	B70X64 DIN5482
	3.543 in
	2.756 in
	2.756 - 3.150 in

TECHNICAL DATA

10000
hours life

i_{eff}	1500 n_2 [rpm]	1500 T_2 [ftlb]	1500 P_2 [HP]	1000 n_2 [rpm]	1000 T_2 [ftlb]	1000 P_2 [HP]	500 n_2 [rpm]	500 T_2 [ftlb]	500 P_2 [HP]	n_{1MAX} [rpm]	T_{2MAX} [ftlb]	P_T [HP]
EM 1065 / PD 1065												
3.50	429	1653	135.4	286	1867	101.9	143	2298	62.5			
3.86	389	1701	126.1	259	1921	95.2	130	2365	58.3			
4.33	346	1730	114.0	231	1954	85.8	115	2406	53.0	2500	7375	40.2
5.00	300	1771	100.6	200	2000	76.4	100	2462	46.9			
6.00	250	1845	88.5	167	2084	66.1	83	2567	40.8			
ED 2065 / PD 2065												
10.78	139	2294	60.7	93	2590	45.7	46.4	3189	28.2		9800	
12.25	122	2407	56.2	82	2718	42.2	40.8	3347	26.0			
13.51	111	2477	52.4	74	2798	39.4	37	3445	24.3			
15.16	99	2520	47.5	66	2846	35.8	33	3504	22.0			
17.88	84	2648	42.2	56	2991	31.9	28	3682	19.6			
20.65	73	2710	37.5	48.4	3061	28.2	24.2	3768	17.4	3000	7375	24.1
22.39	67	2833	36.2	44.7	3199	27.2	22.3	3938	16.8			
25.98	58	2962	32.6	38.5	3345	24.5	19.2	3791	13.9			
27.99	54	2459	25.1	35.7	2631	17.8	17.9	2890	9.8			
30.00	50	3031	28.8	33.3	3423	21.7	16.7	4041	12.9			
36.25	41.4	3185	25.1	27.6	3407	17.8	13.8	3743	9.8			
43.50	34.5	2929	19.2	23	3051	13.4	11.5	3261	7.1			
ET 3065 / PD 3065												
51.22	29.3	3631	20.2	19.5	4101	15.3	9.8	4536	8.4			
53.78	27.9	3752	20.0	18.6	4237	15.0	9.3	5216	9.3			
60.44	24.8	3816	18.0	16.5	4310	13.5	8.3	4606	7.2			
73.50	20.4	3730	14.5	13.6	4092	10.6	6.8	4612	6.0			
78.51	19.1	4128	15.0	12.7	4429	10.7	6.4	4870	5.9			
90.93	16.5	4314	13.5	11	4488	9.4	5.5	5022	5.2			
98.27	15.3	4308	12.5	10.2	4508	8.7	5.1	4838	4.7			
110.6	13.6	4483	11.5	9	4691	8.0	4.5	5382	4.7			
123.9	12.1	4161	9.7	8.1	4315	6.6	4	4905	3.8	3000	7375	18.8
134.3	11.2	4463	9.5	7.4	4657	6.6	3.7	4986	3.5			
155.1	9.7	4246	7.8	6.4	4443	5.5	3.2	5139	3.2			
180.0	8.3	4303	6.8	5.6	4587	4.8	2.8	5288	2.8			
208.2	7.2	4359	6.0	4.8	4730	4.3	2.4	5361	2.4			
217.5	6.9	4053	5.4	4.6	4230	3.8	2.3	4533	2.0			
251.6	6	4116	4.7	4	4293	3.2	2	4597	1.7			
272.8	5.5	3964	4.2	3.7	4095	2.8	1.8	4306	1.5			
EQ 4065 / PD 4065												
322.7	4.6	5608	5.0	3.1	5831	3.5	1.5	6727	2.0			
373.2	4	5682	4.3	2.7	6012	3.1	1.3	6927	1.7			
411.6	3.6	5666	3.9	2.4	6145	2.8	1.2	7034	1.6			
441.0	3.4	5069	3.2	2.3	5323	2.3	1.1	5753	1.2			
510.1	2.9	5161	3.0	2	5414	2.0	0.98	5843	1.1			
555.3	2.7	5619	3.0	1.8	5894	2.0	0.9	6362	1.1			
631.1	2.4	5957	2.7	1.6	6453	2.0	0.79	7229	1.1			
696.2	2.2	5455	2.3	1.4	5733	1.6	0.72	6199	0.8			
771.8	1.9	5419	2.0	1.3	5670	1.3	0.65	6102	0.8			
892.7	1.7	4864	1.6	1.1	5094	1.1	0.56	5493	0.6			
994.6	1.5	5988	1.7	1	6482	1.2	0.5	7375	0.7	3000	7375	10.7
1104	1.4	6017	1.6	0.91	6302	1.1	0.45	6796	0.6			
1303	1.2	6865	1.5	0.77	7375	1.1	0.38	7375	0.5			
1445	1	5838	1.2	0.69	6370	0.8	0.35	7355	0.5			
1631	0.92	6036	1.1	0.61	6567	0.8	0.31	7375	0.4			
1884	0.8	6781	1.0	0.53	7325	0.7	0.27	7375	0.3			
2095	0.72	5342	0.7	0.48	5781	0.5	0.24	6598	0.3			
2186	0.69	6382	0.8	0.46	6947	0.6	0.23	7375	0.3			
2468	0.61	4028	0.5	0.41	4133	0.3	0.2	4316	0.2			
2850	0.53	4651	0.5	0.35	4772	0.3	0.18	4983	0.2			
3170	0.47	5791	0.5	0.32	6258	0.4	0.16	7128	0.2			

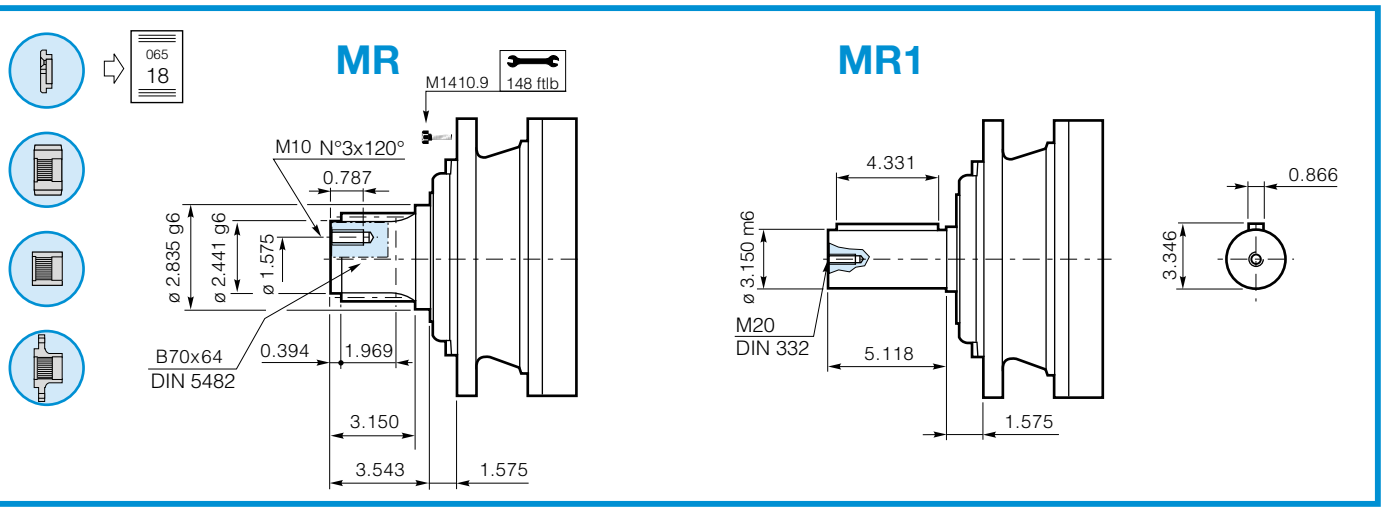
10000 hours life

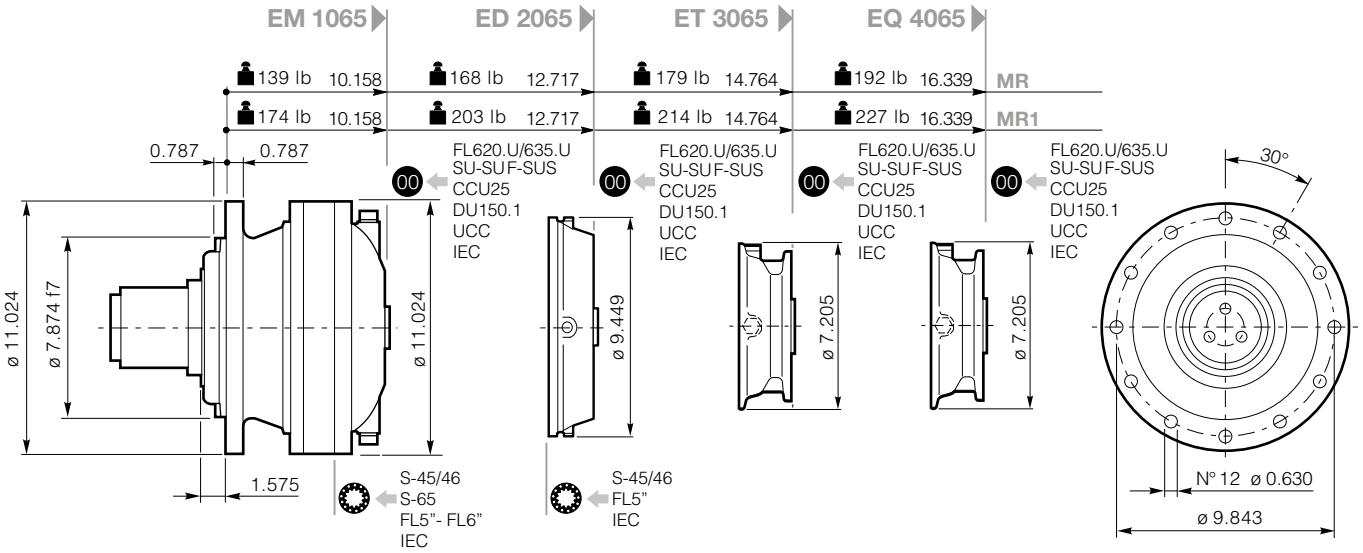
i_{eff}	1500 n_2 [rpm]	1500 T_2 [ftlb]	1500 P_2 [HP]	1000 n_2 [rpm]	1000 T_2 [ftlb]	1000 P_2 [HP]	500 n_2 [rpm]	500 T_2 [ftlb]	500 P_2 [HP]	n_{1MAX} [rpm]	T_{2MAX} [ftlb]	P_T [HP]
EC 2065 / PDA 2065												
10.50	143	1746	47.5	95	1972	35.8	47.6	2428	22.0	3000	7375	18.8
12.39	130	1926	47.5	86	2175	35.8	43.2	2678	22.0			
16.17	115	2160	47.5	77	2440	35.8	38.5	3004	22.0			
18.00	93	1167	20.7	62	1318	15.6	30.9	1623	9.5			
19.08	84	1287	20.7	56	1454	15.6	28	1789	9.5			
21.75	75	1443	20.7	50	1631	15.6	25	2007	9.5			
23.89	65	1667	20.7	43.3	1883	15.6	21.6	2318	9.5			
27.72	54	2001	20.7	36.1	2259	15.6	18	2782	9.5			
EC 3065 / PDA 3065												
40.53	37	3445	24.3	24.7	3890	18.2	12.3	4522	10.6	3000	7375	14.8
45.47	33	3504	22.0	22	3957	16.6	11	4488	9.4			
49.80	30.1	3595	20.7	20.1	4059	15.6	10	4998	9.5			
56.60	26.5	3810	19.2	17.7	4303	14.5	8.8	5283	8.9			
62.42	24	3921	18.0	16	4415	13.4	8	4814	7.4			
70.02	21.4	3988	16.2	14.3	4384	11.9	7.1	4753	6.4			
80.85	18.6	4000	14.1	12.4	4153	9.8	6.2	4483	5.2			
92.20	16.3	3863	11.9	10.8	4040	8.3	5.4	4334	4.4			
103.4	14.5	4333	11.9	9.7	4532	8.3	4.8	4862	4.4			
108.8	13.8	3743	9.8	9.2	3926	6.8	4.6	4230	3.8			
120.0	12.5	3988	9.5	8.3	4167	6.6	4.2	4466	3.5			
138.6	10.8	4203	8.7	7.2	4358	6.0	3.6	5021	3.5			
166.3	9	3336	5.8	6	3463	4.0	3	3985	2.3			
201.0	7.5	3395	4.8	5	3574	3.4	2.5	4148	2.0			
EC 4065 / PDA 4065												
220.5	6.8	4612	6.0	4.5	4884	4.2	2.3	5323	2.3	3000	7375	9.4
255.0	5.9	4135	4.7	3.9	4378	3.2	2	4776	1.7			
281.3	5.3	4561	4.7	3.6	4828	3.2	1.8	5267	1.7			
315.5	4.8	5116	4.7	3.2	5415	3.2	1.6	5909	1.7			
359.4	4.2	4938	3.9	2.8	5196	2.8	1.4	5626	1.5			
415.7	3.6	4426	3.1	2.4	4660	2.1	1.2	5053	1.2			
451.1	3.3	4289	2.7	2.2	4843	2.0	1.1	5963	1.3			
498.3	3	4738	2.7	2	5351	2.0	1	5828	1.1			
576.4	2.6	4615	2.3	1.7	4845	1.6	0.87	5240	0.9			
635.7	2.4	5089	2.3	1.6	5344	1.6	0.79	5779	0.9			
713.1	2.1	5709	2.3	1.4	5994	1.6	0.7	6483	0.9			
823.4	1.8	5767	2.0	1.2	6248	1.5	0.61	7140	0.8			
892.9	1.7	5541	1.7	1.1	5748	1.2	0.56	6660	0.7			
1018	1.5	5607	1.6	0.98	5909	1.1	0.49	6845	0.6			
1149	1.3	3834	1.0	0.87	3937	0.7	0.44	4115	0.3			
1220	1.2	5700	1.3	0.82	6145	1.0	0.41	7106	0.5			
1412	1.1	5809	1.2	0.71	6338	0.9	0.35	7320	0.5			
1594	0.94	3917	0.7	0.63	4020	0.5	0.31	4199	0.3			
1840	0.82	4523	0.7	0.54	4643	0.5	0.27	4849	0.3			
1861	0.81	5070	0.8	0.54	5546	0.6	0.27	6429	0.3			
2136	0.7	5250	0.7	0.47	5387	0.5	0.23	5628	0.3			
2581	0.58	5451	0.6	0.39	5951	0.4	0.19	6800	0.3			
3097	0.48	5765	0.5	0.32	6231	0.4	0.16	7097	0.2			

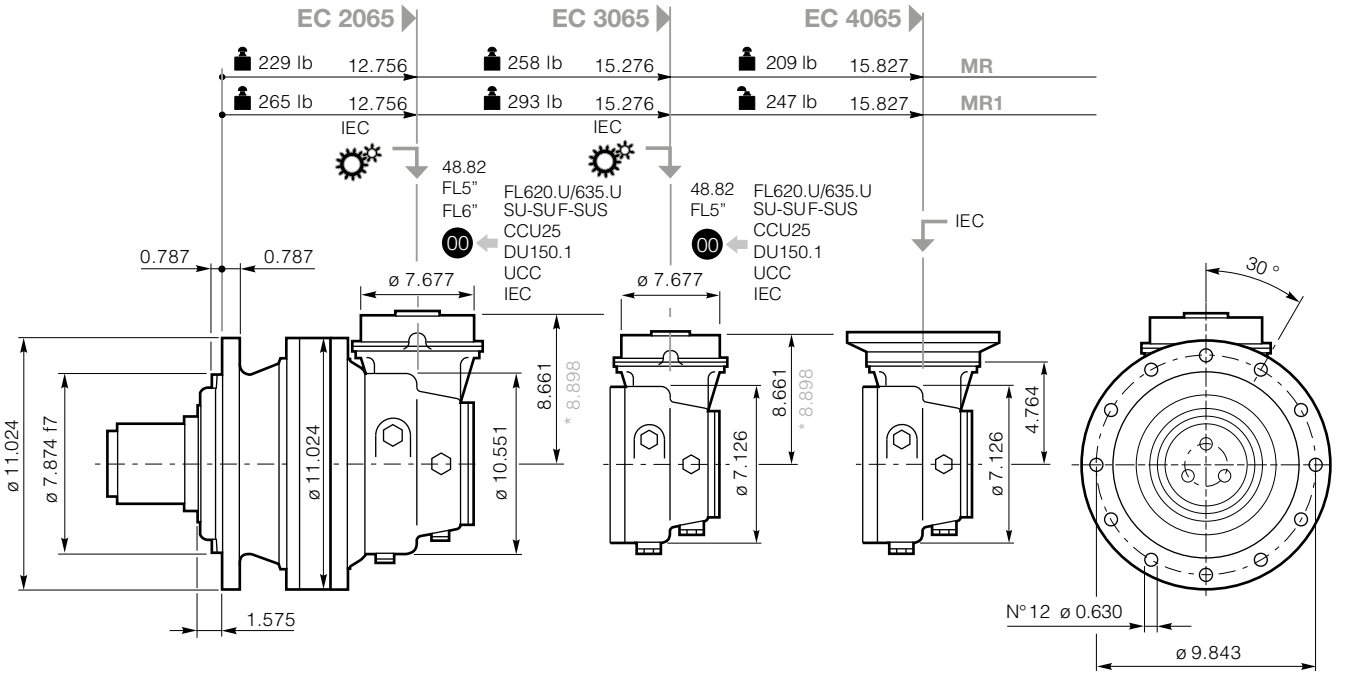
* (bg) All the ratios in light grey (ie. 10.50) have particular dimensions of bevel gears in some versions. See dimensional tables.

065

GEARBOX DIMENSIONS WITH OUTPUT

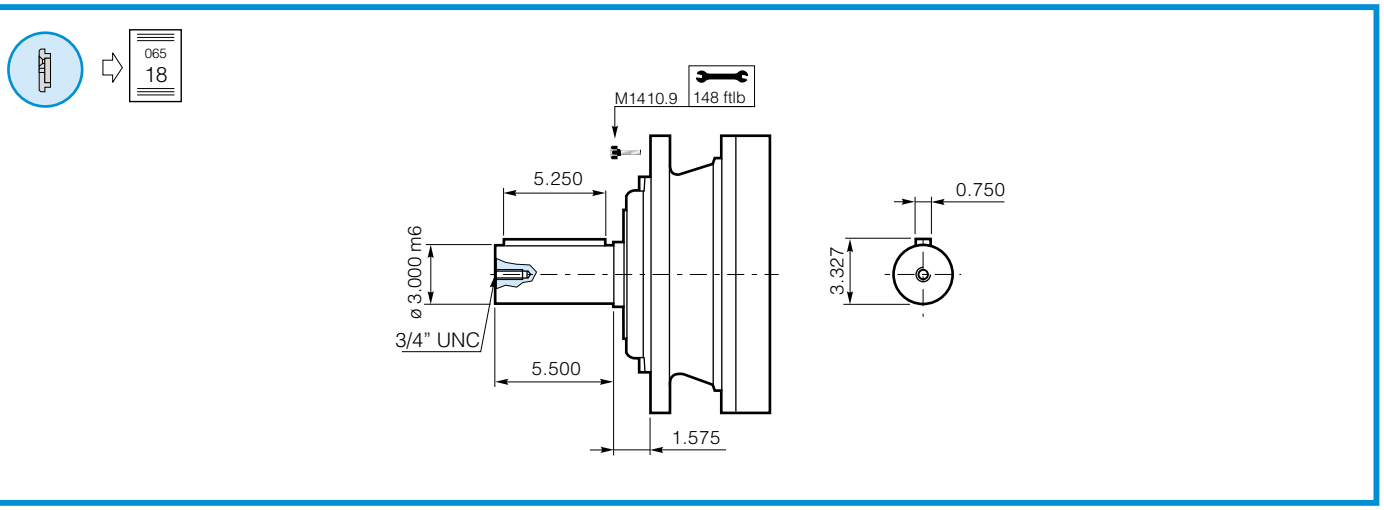


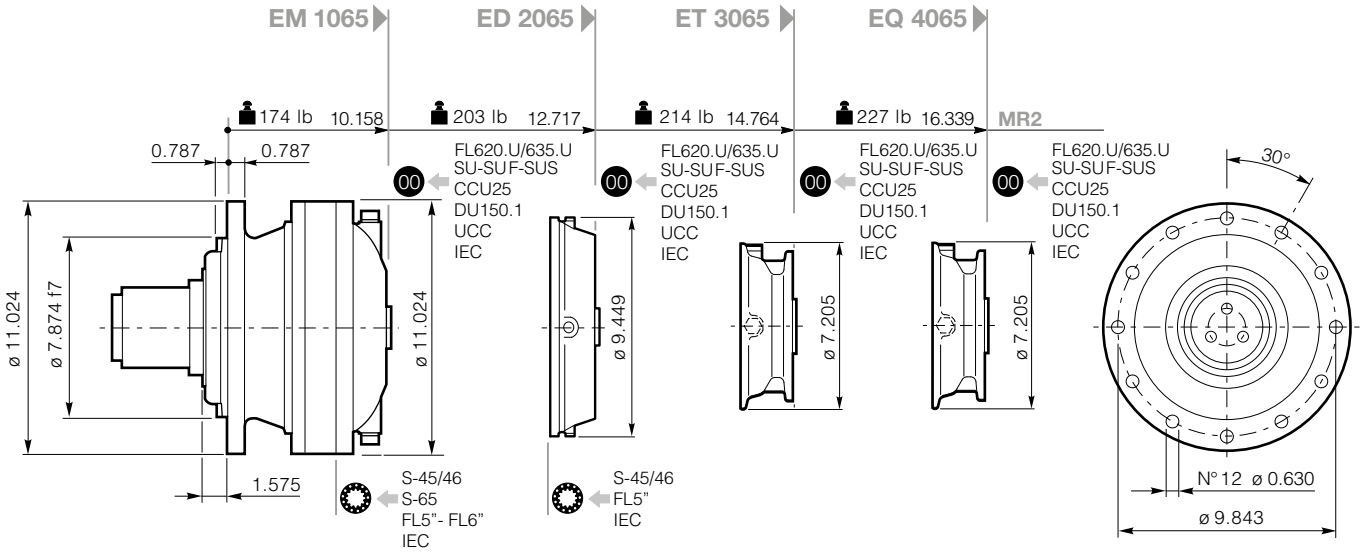


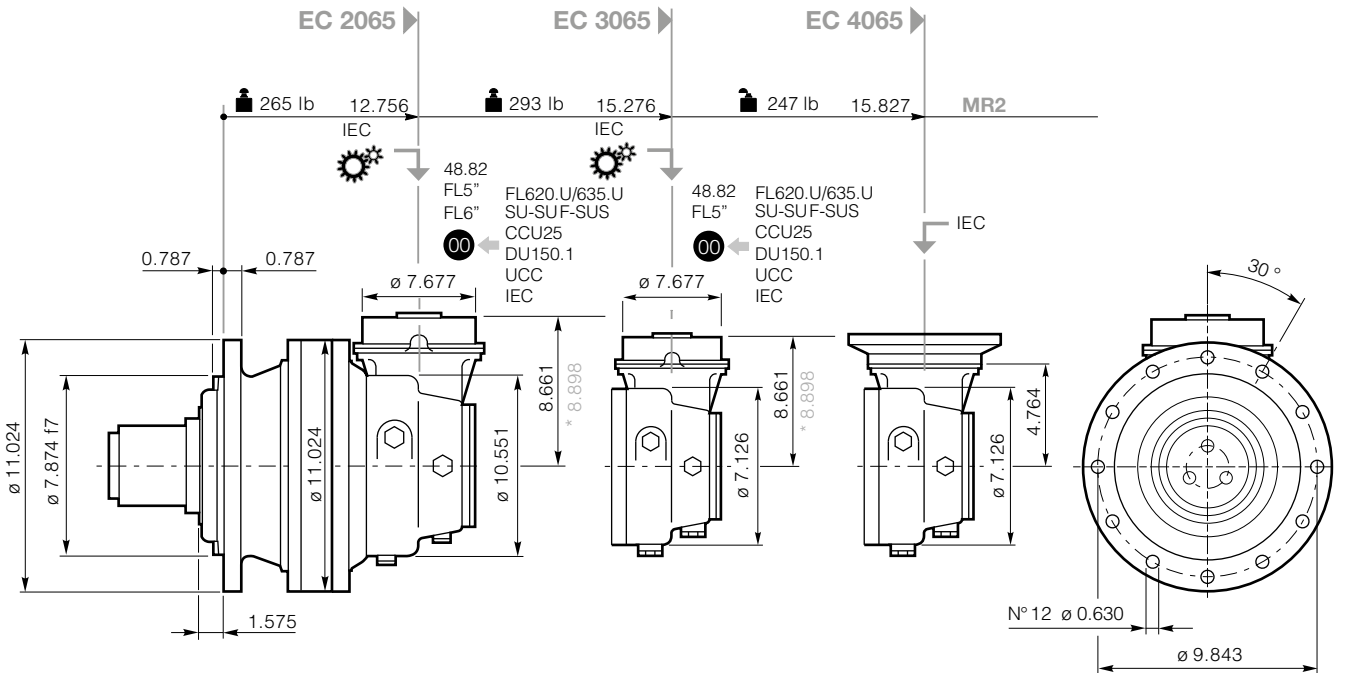


00 B 14 S-45/46 48.82 → 065 12
SU-SUF SUS → 065 13
FL5"- FL6" FL620 FL635 → 065 14
IEC → 065 17
065 16
CCU25 → B 16
DU150.1 UCC → B 17
* bg → 065 3

Click **DANA** button to return to section index
Click *i* button to return to main index

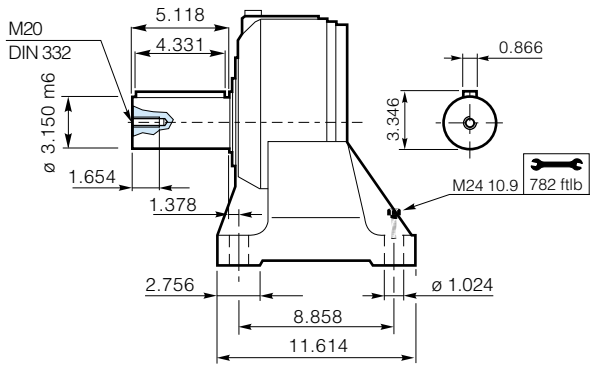

065
18
M14 10.9
148 ftlb
5.250
0.750
ø 3.000 m6
3/4" UNC
3.327
5.500
1.575


EM 1065
ED 2065
ET 3065
EQ 4065
174 lb 10.158
203 lb 12.717
214 lb 14.764
227 lb 16.339
MR2
0.787
0.787
FL620.U/635.U
SU-SUF-SUS
CCU25
DU150.1
UCC
IEC
ø 11.024
ø 7.874 f7
ø 11.024
ø 9.449
ø 7.205
ø 7.205
30°
1.575
S-45/46
S-65
FL5"- FL6"
IEC
S-45/46
FL5"
IEC
N° 12 ø 0.630
ø 9.843

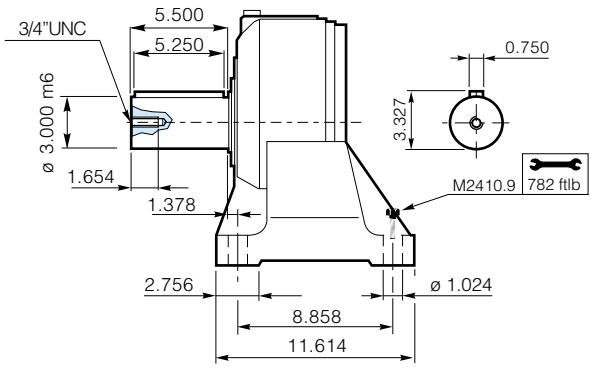

EC 2065
EC 3065
EC 4065
265 lb 12.756
IEC
293 lb 15.276
IEC
247 lb 15.827
MR2
48.82
FL5"
FL6"
FL620.U/635.U
SU-SUF-SUS
CCU25
DU150.1
UCC
IEC
IEC
0.787
0.787
ø 7.677
ø 7.677
ø 11.024
ø 7.874 f7
ø 11.024
ø 10.551
8.661
* 8.898
ø 7.126
8.661
* 8.898
ø 7.126
4.764
30°
1.575
N° 12 ø 0.630
ø 9.843

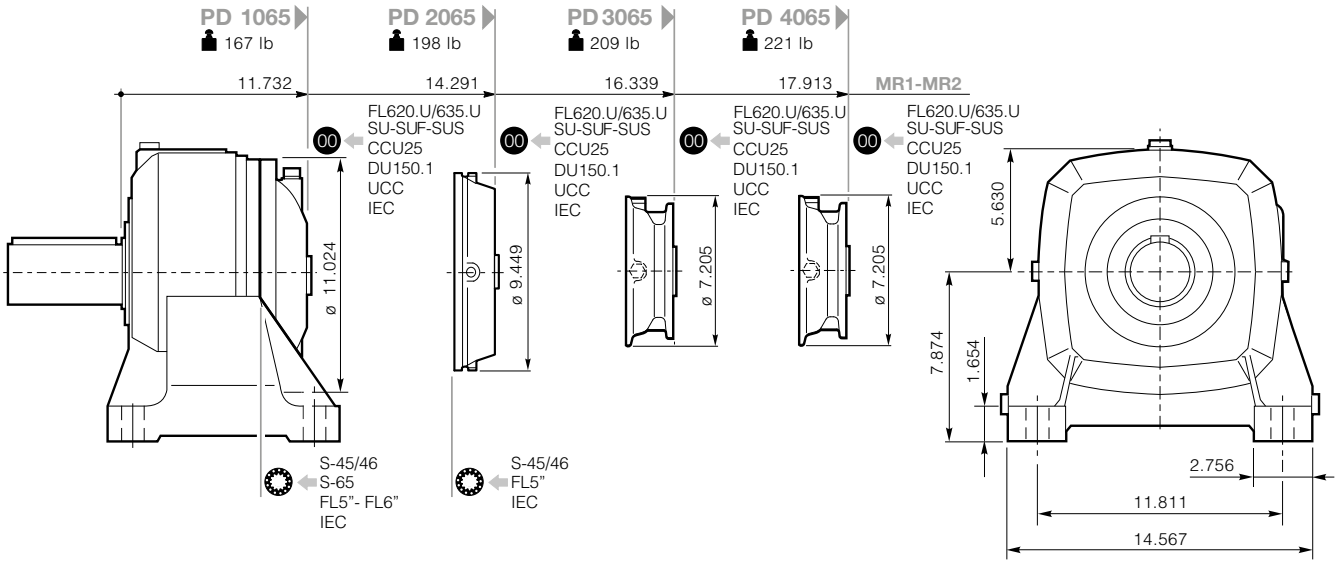
PD/PDA GEARBOX DIMENSIONS WITH OUTPUT

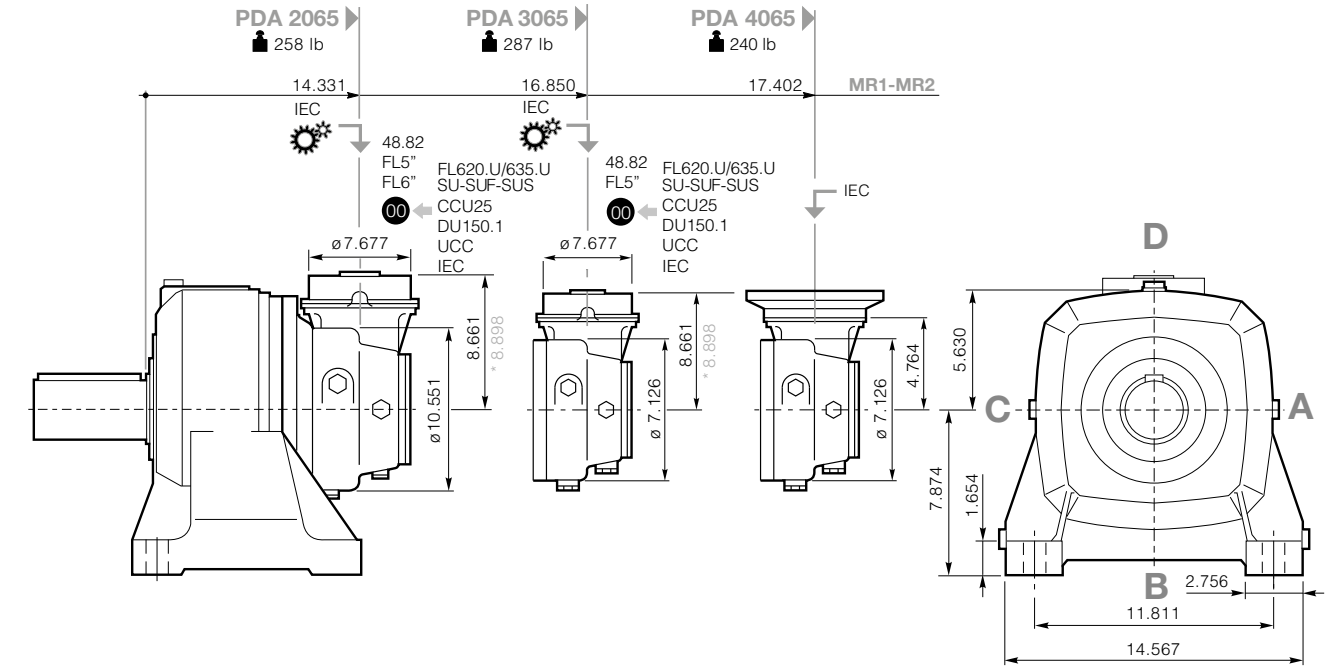
MR1



MR2



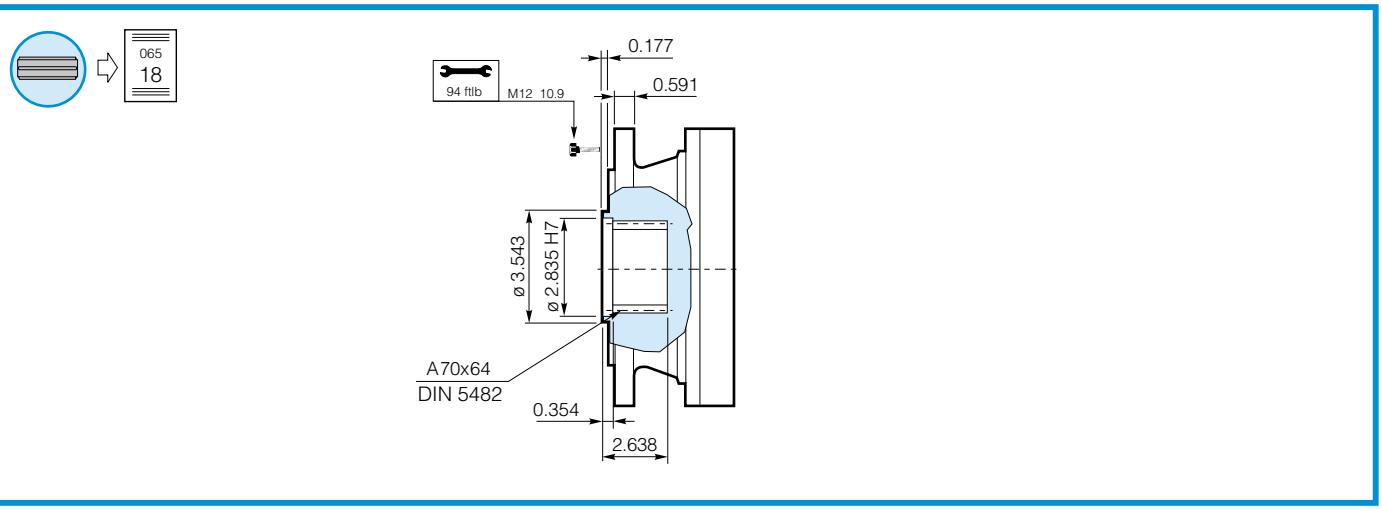


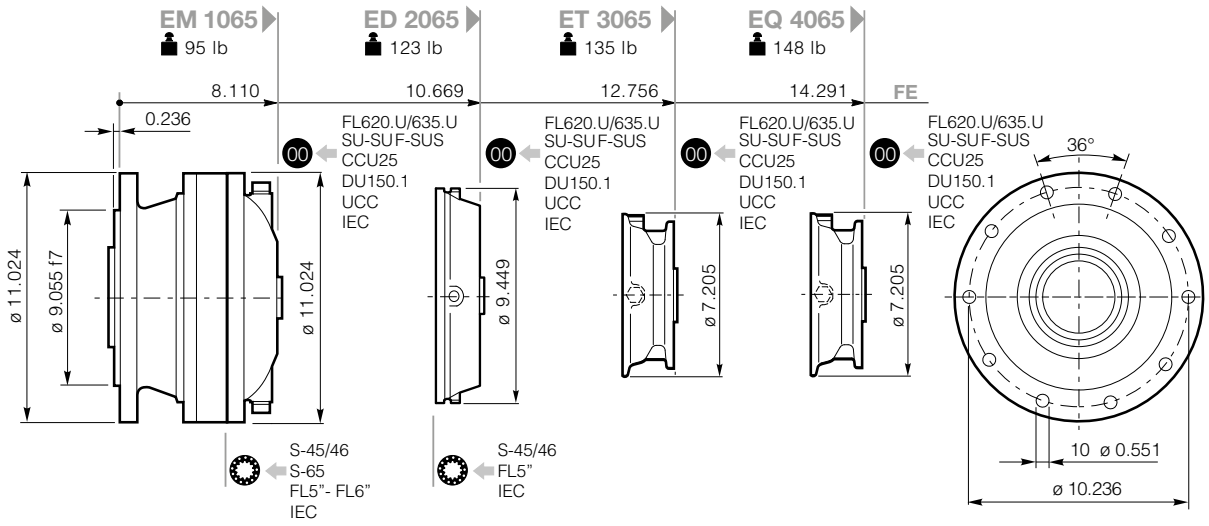


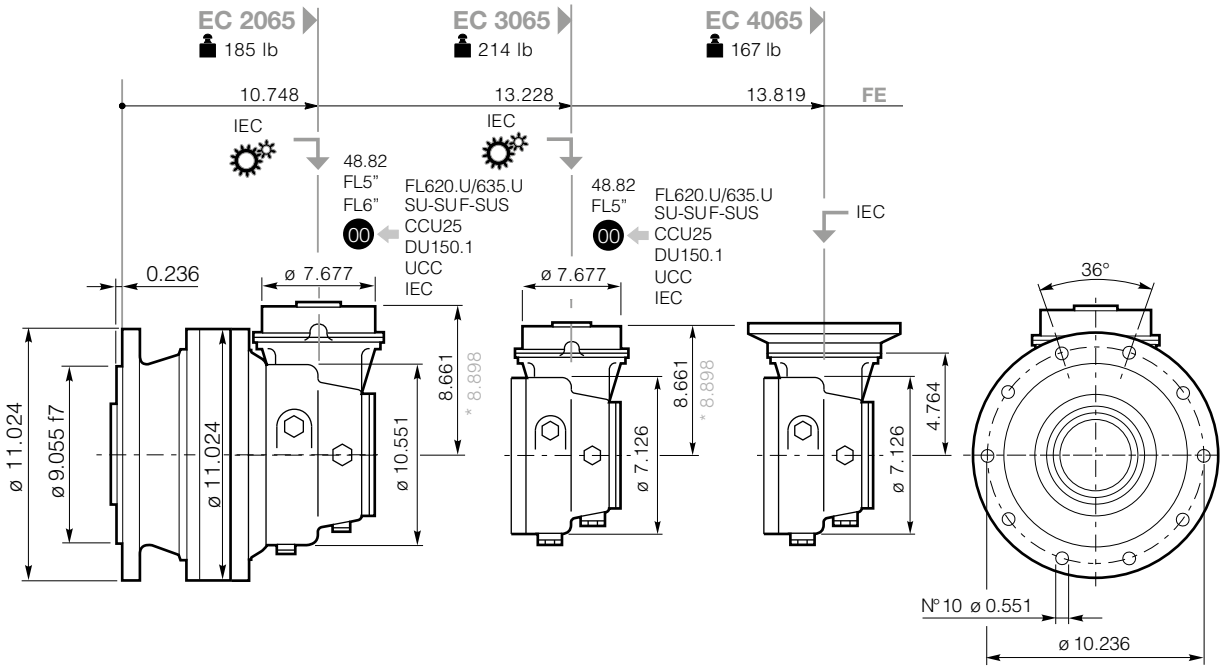
00 B 14 S-45/46 48.82 → 065 12 SU-SUF SUS → 065 13 FL5"- FL6" FL620 FL635 → 065 14 IEC → 065 17 → 065 16 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 065 3

Click **DANA** button to return to section index

Click *i* button to return to main index





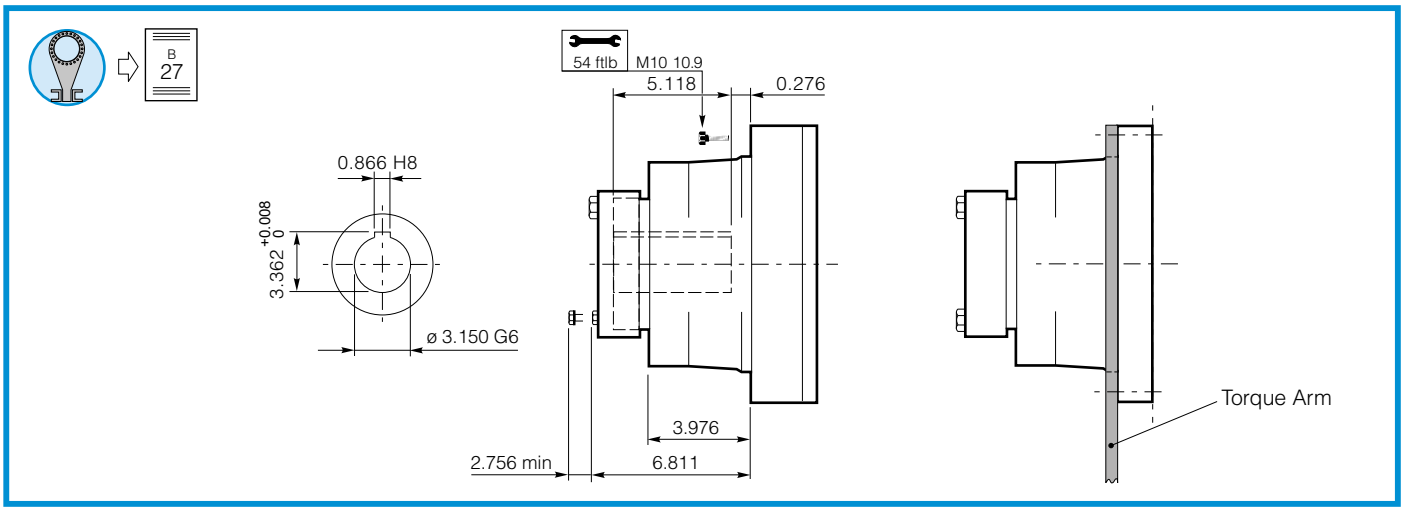


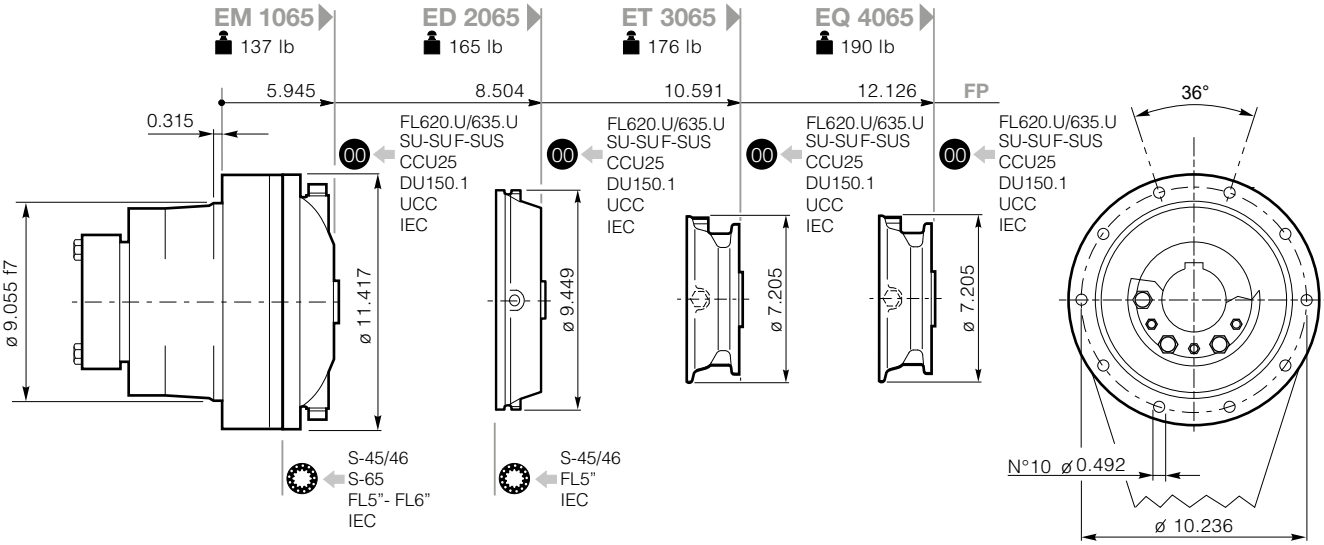
00 B 14 S-45/46 48.82 065 12 SU-SUF SUS 065 13 FL5"- FL6" FL620 FL635 065 14 IEC 065 17 065 16 CCU25 B 16 DU150.1 UCC B 17 * bg 065 3

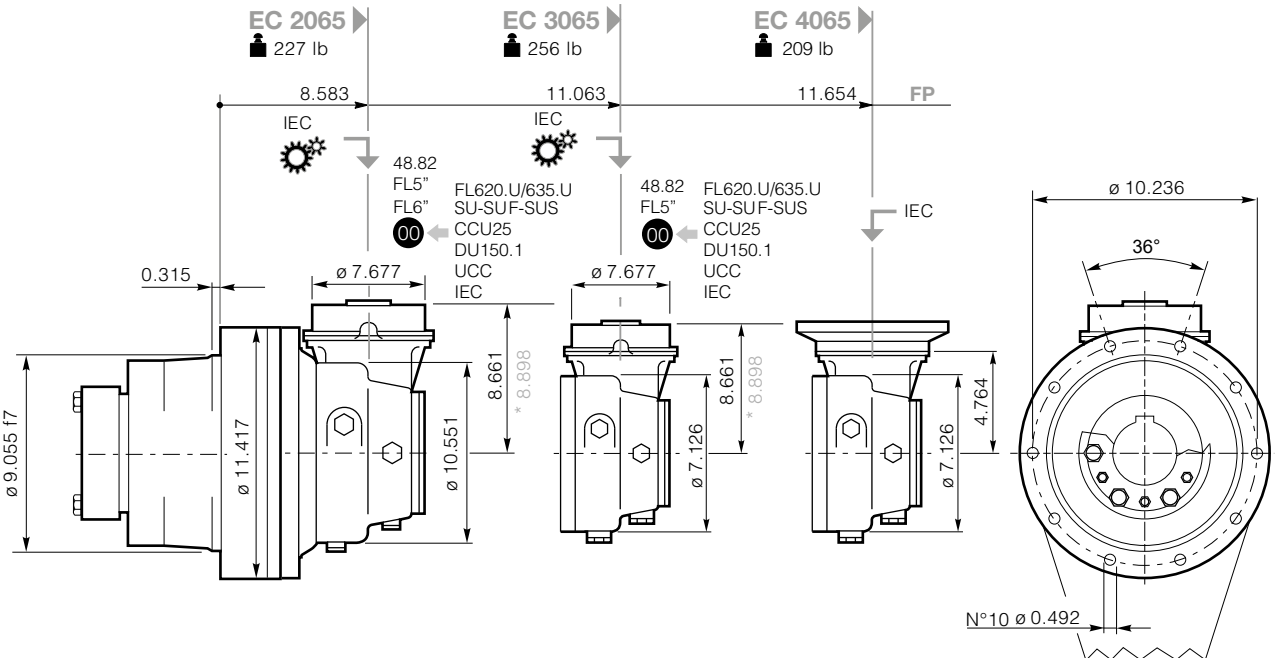
Click *i* button to return to main index

Click **DANA** button to return to section index

GEARBOX DIMENSIONS WITH OUTPUT

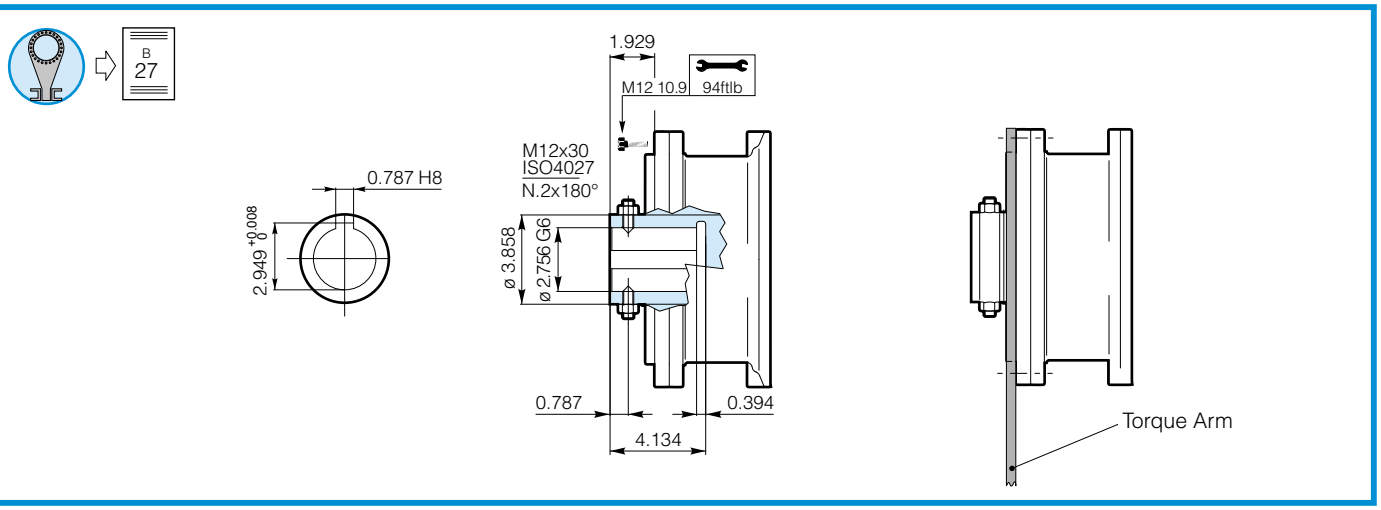


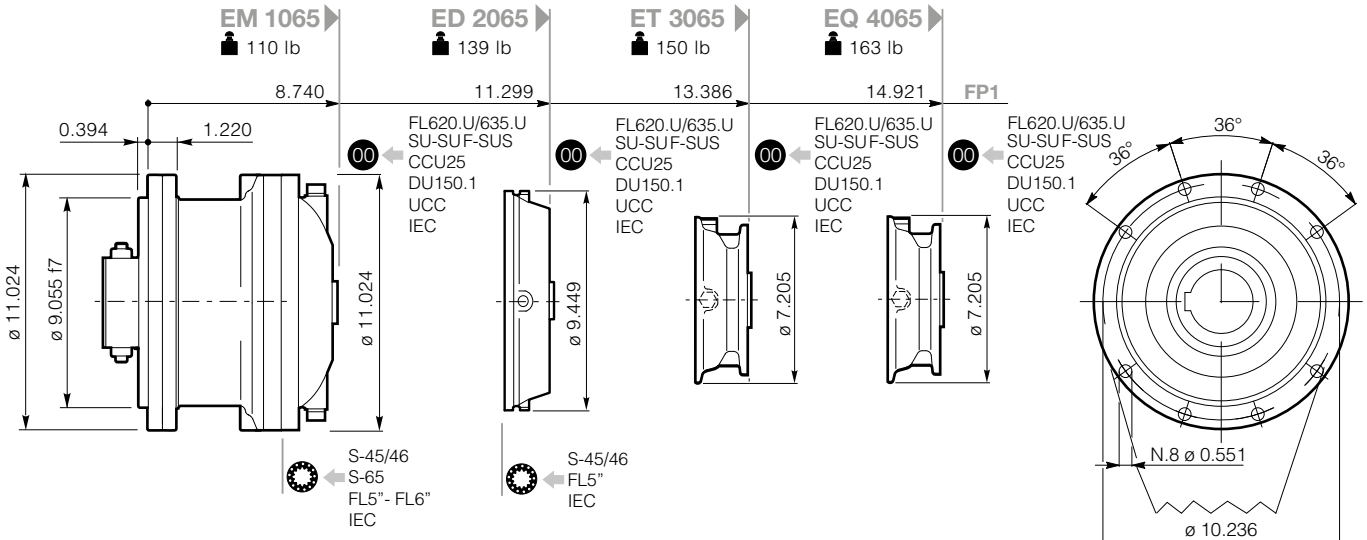


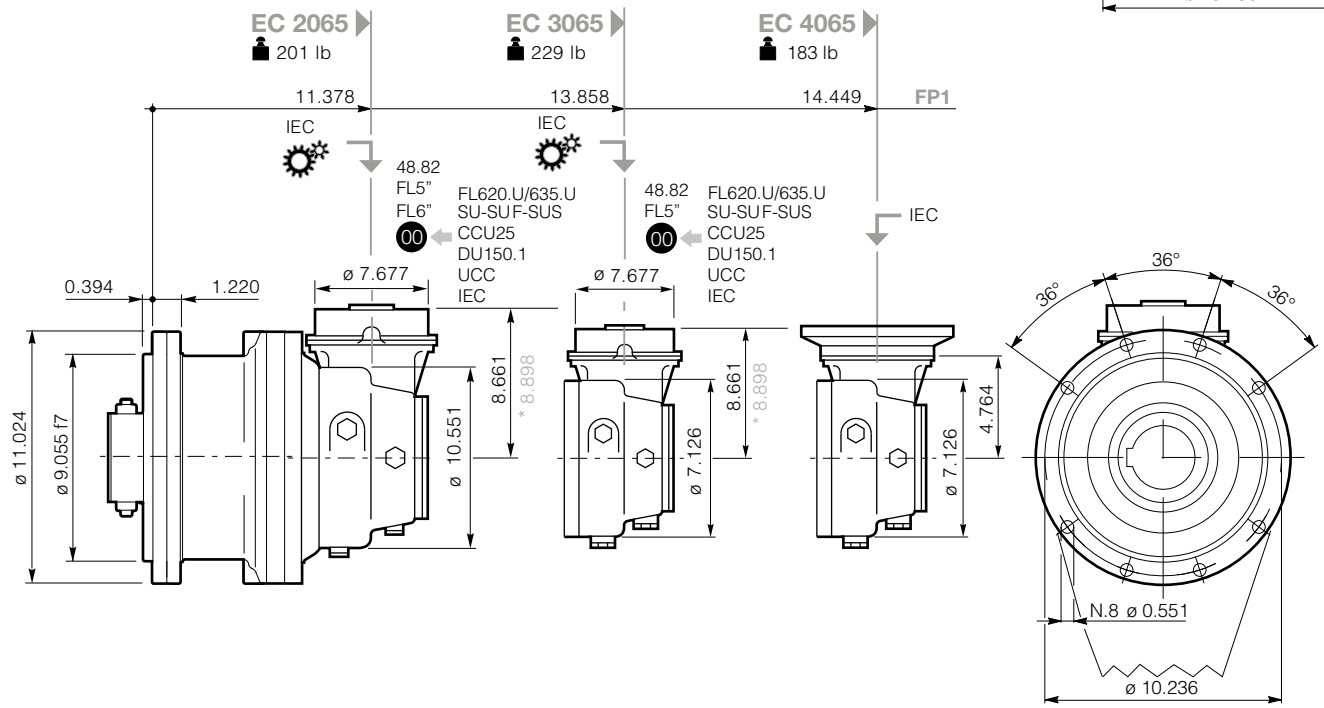


00 B 14 S-45/46 48.82 065 12 SU-SUF SUS 065 13 FL5"- FL6" FL620 FL635 065 14 IEC 065 17 065 16 CCU25 B 16 DU150.1 UCC B 17 * bg 065 3

Click **DANA** button to return to section index
Click *i* button to return to main index





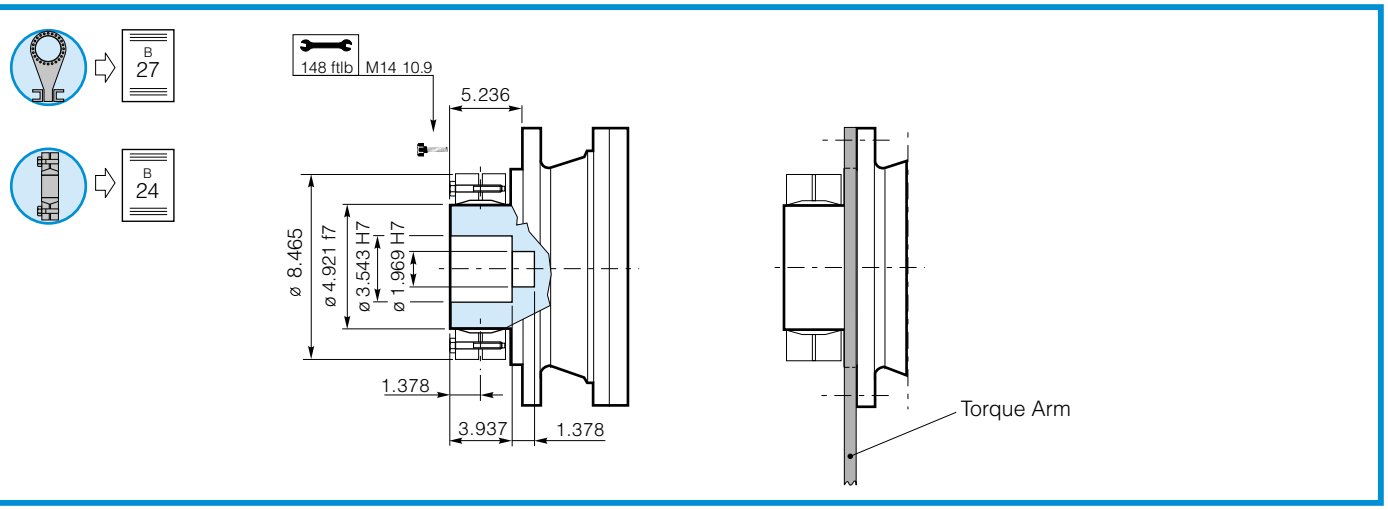


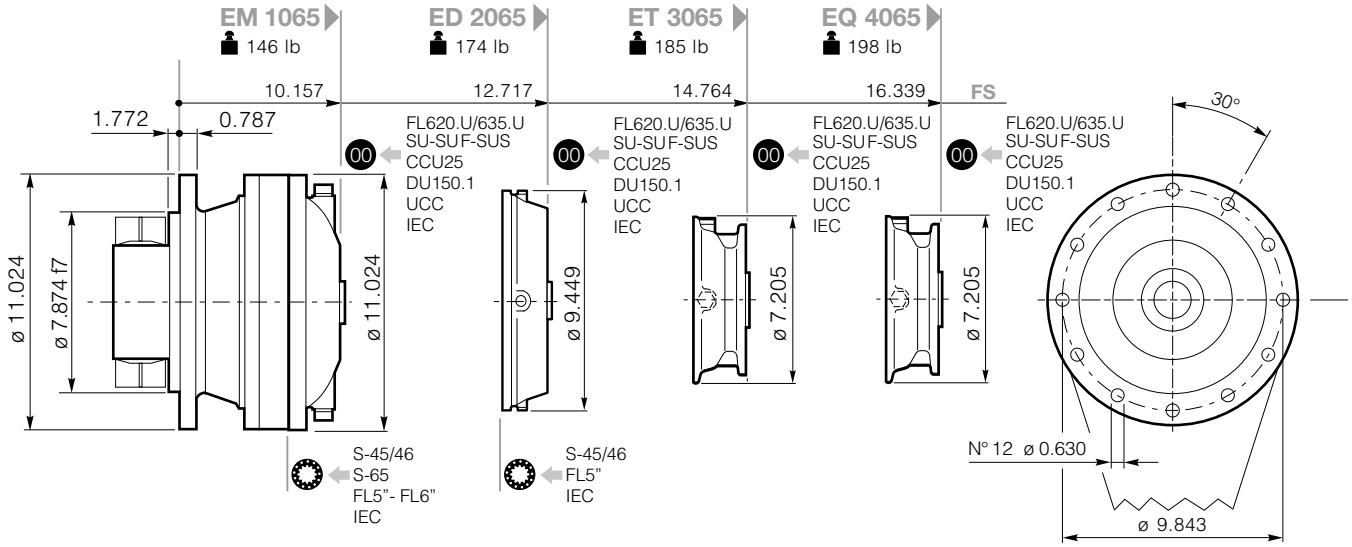
00 B 14 S-45/46 48.82 065 12 SU-SUF SUS 065 13 FL5"- FL6" FL620 FL635 065 14 IEC 065 17 065 16 CCU25 B 16 DU150.1 UCC B 17 * bg 065 3

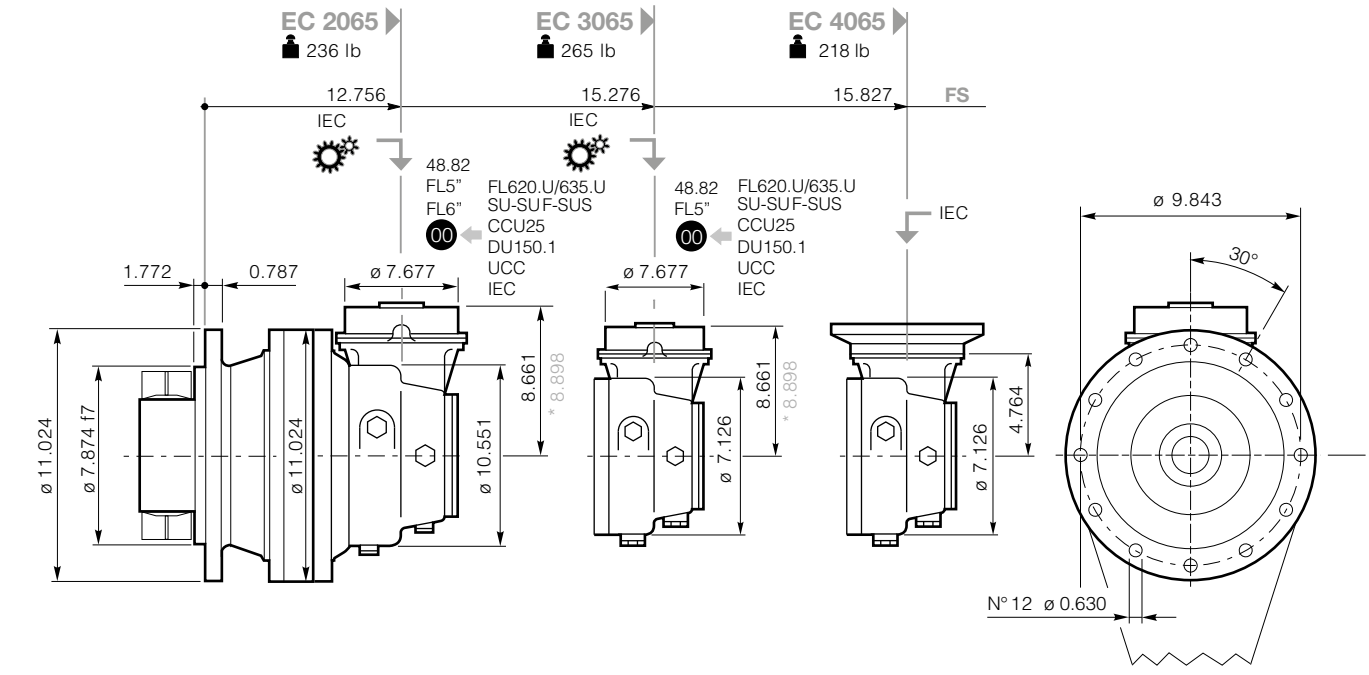
Click *i* button to return to main index

Click **DANA** button to return to section index

GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 065 12 SU-SUF SUS 065 13 FL5"- FL6" FL620 FL635 065 14 IEC 065 17 065 16 CCU25 B 16 DU150.1 UCC B 17 * bg 065 3

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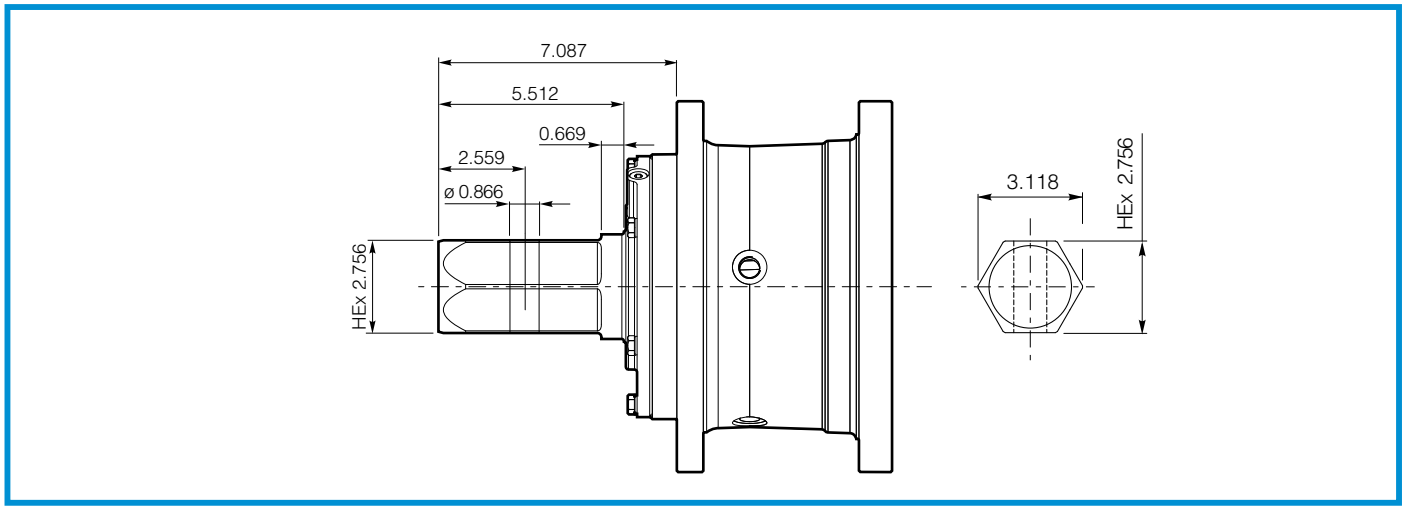

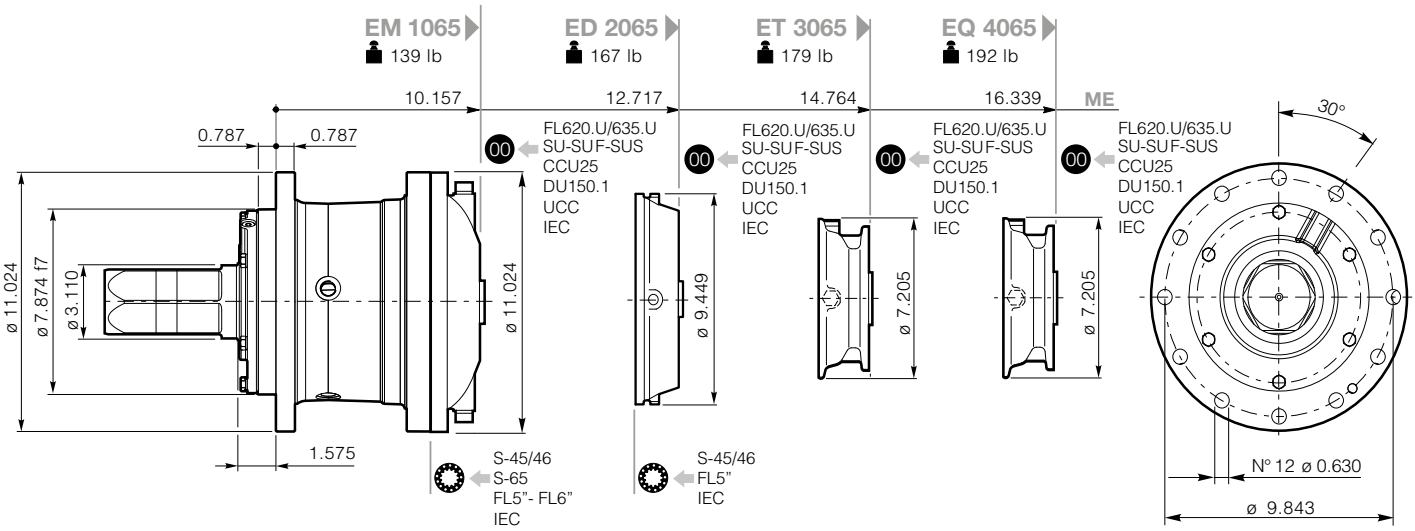

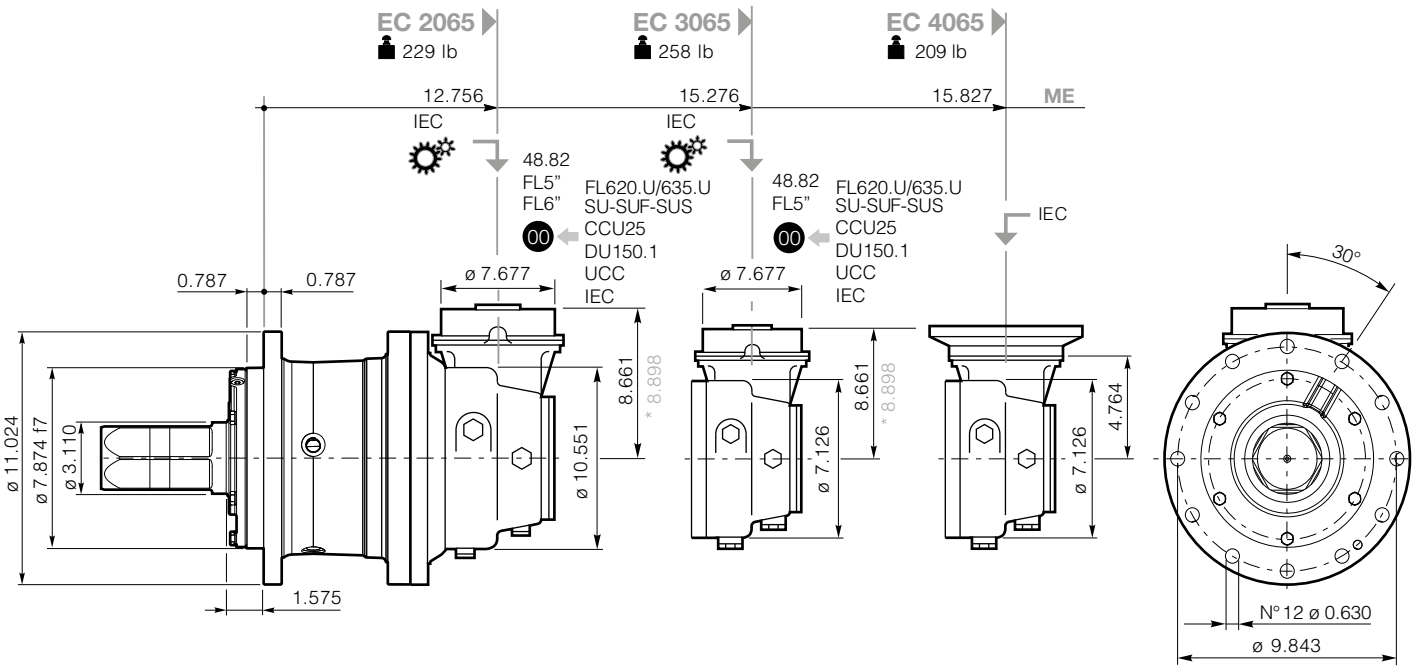

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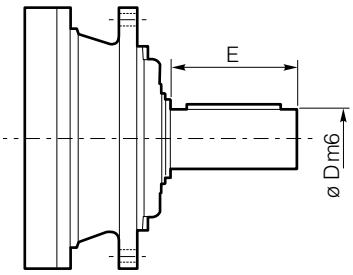
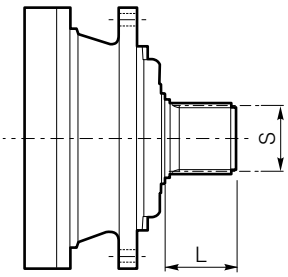
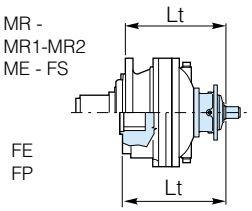
S-45CR1 - S-46C1 - S-65CR1 - S-45SR - S-65SR

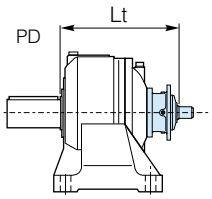


S-45CR1 - S-46C1 - S-65CR1



S-45SR - S-65SR

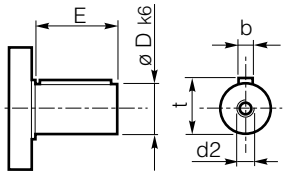


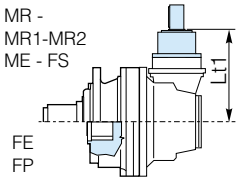


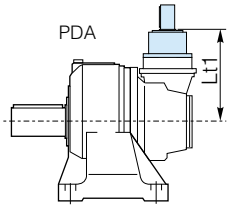
	Dm6	E	L	S DIN5482		Lt				
						MR-MR1-MR2-FS-ME	FE	FP1	FP	PD
S-45CR1	2.559	4.134	-	-	EM/PD 1065	15.157	13.150	13.780	10.984	16.732
					ED/PD 2065	15.157	13.150	13.780	10.984	16.732
S-46C1	2.559	4.134	-	-	EM/PD 1065	16.811	14.764	15.394	12.598	18.386
					ED/PD 2065	16.811	14.764	15.394	12.598	18.386
S-45SR	-	-	2.677	B58x53	EM/PD 1065	15.157	13.150	13.780	10.984	16.732
					ED/PD 2065	15.157	13.150	13.780	10.984	16.732
S-65CR1	3.150	5.118	-	-	EM/PD 1065	16.693	14.685	15.315	12.520	18.268
S-65SR	-	-	3.543	B70x64	EM/PD 1065	16.693	14.685	15.315	12.520	18.268

For more informations, go to page B13

48.82

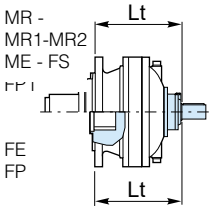


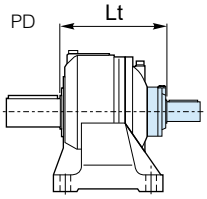


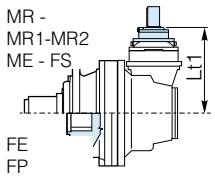


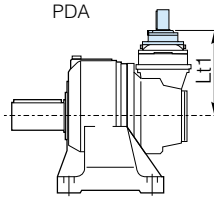
	D	E		Lt1
				MR-MR1-MR2-FS-FE-FP-FP1-ME-PDA
48.82	1.890	3.228	EC/PDA 2065	11.024
			EC/PDA 3065	11.024

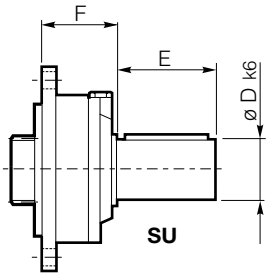
SU - SUF - SUS

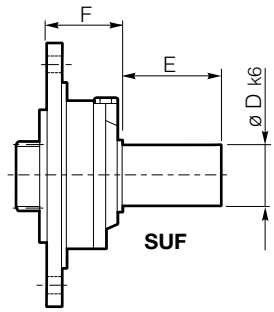


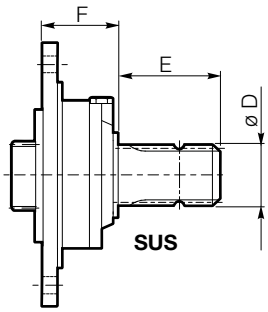












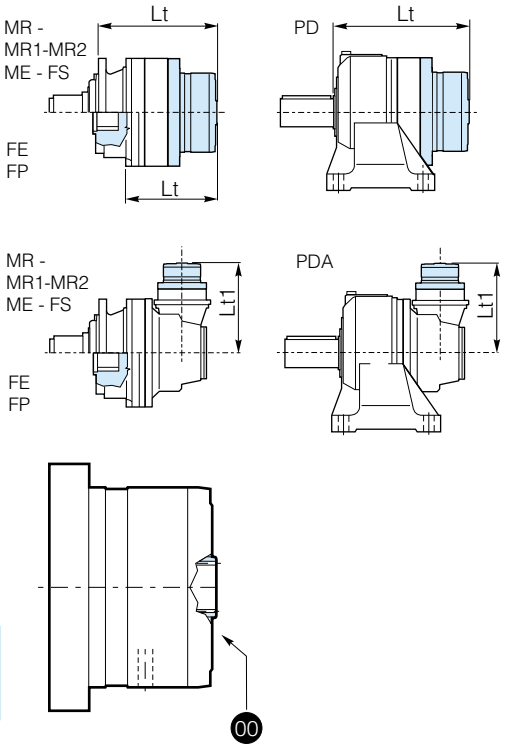
	D	E	F		Lt MR-MR1-MR2-FS-ME	Lt FE	Lt FP1	Lt FP	Lt PD
SU1 28x50	1.102	1.969	2.362	EM/PD 1065	12.520	10.472	11.102	8.307	14.094
				ED/PD 2065	15.079	13.031	13.661	10.866	16.654
				ET/PD 3065	17.126	15.118	15.748	12.953	18.701
				EQ/PD 4065	18.701	16.654	17.283	14.488	20.276
SU2 40x58	1.575	2.283	2.362	EM/PD 1065	12.520	10.472	11.102	8.307	14.094
				ED/PD 2065	15.079	13.031	13.661	10.866	16.654
				ET/PD 3065	17.126	15.118	15.748	12.953	18.701
				EQ/PD 4065	18.701	16.654	17.283	14.488	20.276
SU3 48x82	1.890	3.228	2.362	EM/PD 1065	12.520	10.472	11.102	8.307	14.094
				ED/PD 2065	15.079	13.031	13.661	10.866	16.654
				ET/PD 3065	17.126	15.118	15.748	12.953	18.701
				EQ/PD 4065	18.701	16.654	17.283	14.488	20.276
SU 42x80	1.654	3.150	3.996	EM/PD 1065	14.134	12.126	12.756	9.961	15.709
				ED/PD 2065	16.693	14.685	15.315	12.520	18.268
				ET/PD 3065	18.779	16.732	17.362	14.567	20.354
				EQ/PD 4065	20.315	18.307	18.937	16.142	21.890
SUS 1 3/8"	1 3/8" DIN9611	3.819	3.996	EM/PD 1065	14.134	12.126	12.756	9.961	15.709
				ED/PD 2065	16.693	14.685	15.315	12.520	18.268
				ET/PD 3065	18.779	16.732	17.362	14.567	20.354
				EQ/PD 4065	20.315	18.307	18.937	16.142	21.890
SU2 1.5x3.25	1.500	3.250	2.362	EM/PD 1065	12.520	10.472	11.102	8.307	14.094
				ED/PD 2065	15.079	13.031	13.661	10.866	16.654
				ET/PD 3065	17.126	15.118	15.748	12.953	18.701
				EQ/PD 4065	18.701	16.654	17.283	14.488	20.276
SUF1 28x50	1.102	1.969	2.362	EM/PD 1065	12.520	10.472	11.102	8.307	14.094
				ED/PD 2065	15.079	13.031	13.661	10.866	16.654
				ET/PD 3065	17.126	15.118	15.748	12.953	18.701
				EQ/PD 4065	18.701	16.654	17.283	14.488	20.276
SUF2 40x58	1.575	2.283	2.362	EM/PD 1065	12.520	10.472	11.102	8.307	14.094
				ED/PD 2065	15.079	13.031	13.661	10.866	16.654
				ET/PD 3065	17.126	15.118	15.748	12.953	18.701
				EQ/PD 4065	18.701	16.654	17.283	14.488	20.276
SUF3 48x82	1.890	3.228	2.362	EM/PD 1065	12.520	10.472	11.102	8.307	14.094
				ED/PD 2065	15.079	13.031	13.661	10.866	16.654
				ET/PD 3065	17.126	15.118	15.748	12.953	18.701
				EQ/PD 4065	18.701	16.654	17.283	14.488	20.276

	D	E	F		Lt1 MR-MR1-MR2-FS-ME-FE-FP1-FP-PDA
SU1 28x50	1.102	1.969	2.362	EC/PDA 2065	11.024
SU2 40x58	1.575	2.283	2.362	EC/PDA 3065	
SU3 48x82	1.890	3.228	2.362	EC/PDA 2065*	11.260
				EC/PDA 3065*	
SU 42x80	1.654	3.150	3.996	EC/PDA 2065	12.677
SUS 1 3/8"	1 3/8" DIN9611	3.819	3.996	EC/PDA 3065	
				EC/PDA 2065*	12.913
				EC/PDA 3065*	
SU2 1.5x3.25	1.500	3.250	2.362	EC/PDA 2065	11.024
SUF1 28x50	1.102	1.969	2.362	EC/PDA 3065	
SUF2 40x58	1.575	2.283	2.362	EC/PDA 2065*	11.260
SUF3 48x82	1.890	3.228	2.362	EC/PDA 3065*	

* bg 065 3

065

FL5” FL6” FL250 - FL350 - FL450 / FL750

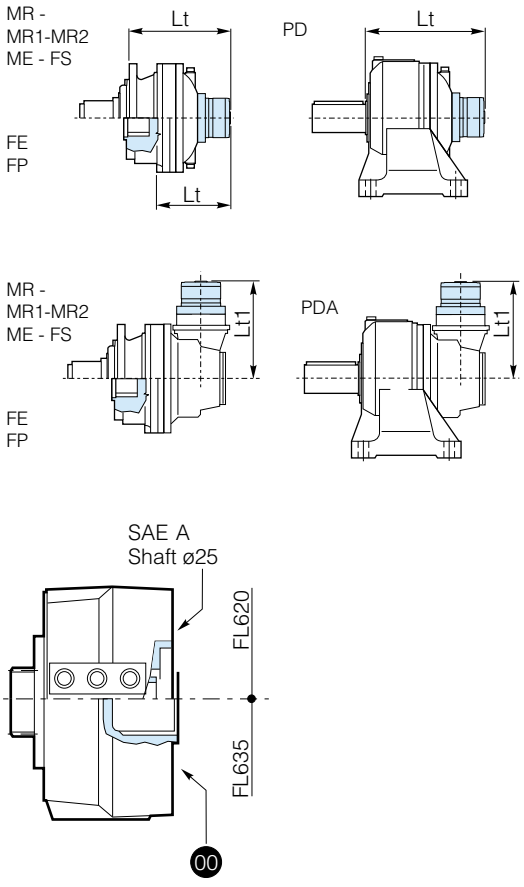


		Lt				
		MR-MR1-MR2-FS-ME	FE	FP1	FP	PD
FL250 FL350 FL450	EM/PD 1065	14.291	12.283	12.913	10.118	15.866
	ED/PD 2065	16.378	14.370	15.000	12.205	17.953
FL750	EM/PD 1065	14.842	12.795	13.425	10.630	16.417
	ED/PD 2065	16.929	14.882	15.512	12.717	18.504
FL960	EM/PD 1065	15.394	13.346	13.976	11.181	16.968

		Lt1
		MR - MR1-MR2 - FS - ME - FE - FP-FP1- PDA
FL250 FL350 FL450	EC/PDA 2065	11.024
	EC/PDA 2065*	14.842
	EC/PDA 3065	11.024
	EC/PDA 3065*	14.842

* bg 065 3

FL620.10 - FL635.10 / FL620.U - FL635.U



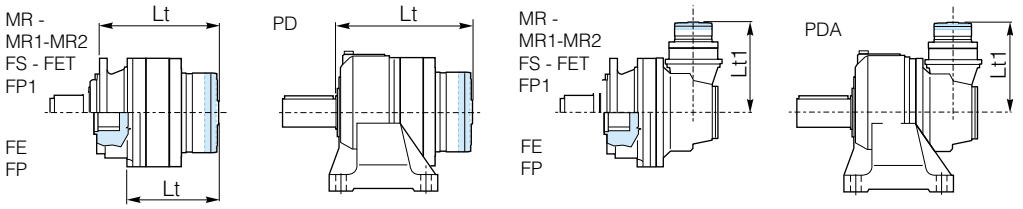
		Lt				
		MR-MR1-MR2-FS-ME	FE	FP1	FP	PD
FL620.U	EM/PD 1065	14.252	12.244	12.874	10.079	15.827
	ED/PD 2065	16.811	14.803	15.433	12.638	18.386
	ET/PD 3065	18.898	16.850	17.480	14.685	20.472
	EQ/PD 4065	20.433	18.425	19.055	16.260	22.008
FL635.U	EM/PD 1065	13.780	11.693	12.323	9.528	15.315
	ED/PD 2065	16.299	14.252	14.882	12.087	17.874
	ET/PD 3065	18.346	16.339	16.968	14.173	19.921
	EQ/PD 4065	19.921	17.874	18.504	15.709	21.496

		Lt				
		MR-MR1-MR2-FS-ME	FE	FP1	FP	PD
FL620.10	ED/PD 3065	17.283	15.236	15.866	13.071	18.858
	ET/PD 4065	18.819	16.811	17.441	14.646	20.394
FL635.10	ED/PD 3065	16.575	14.528	15.157	12.362	18.150
	ET/PD 4065	18.110	16.102	16.732	13.937	19.685

		Lt1				
		MR-MR1-MR2-FS-ME	FE	FP1	FP	PDA
FL620.U	EC/PDA 2065	12.795	12.795	12.795	12.795	12.795
	EC/PDA 2065*	13.031	13.031	13.031	13.031	13.031
	EC/PDA 3065	12.795	12.795	12.795	12.795	12.795
	EC/PDA 3065*	13.031	13.031	13.031	13.031	13.031
FL635.U	EC/PDA 2065	12.244	12.244	12.244	12.244	12.244
	EC/PDA 2065*	12.480	12.480	12.480	12.480	12.480
	EC/PDA 3065	12.244	12.244	12.244	12.244	12.244
	EC/PDA 3065*	12.480	12.480	12.480	12.480	12.480

* bg 065 3

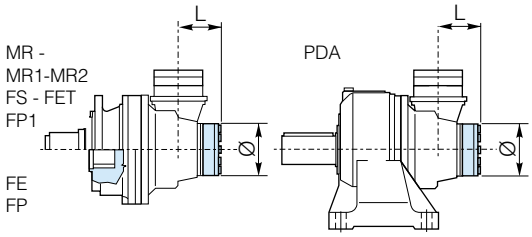
RL



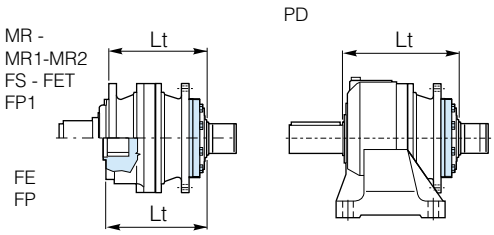
				Lt				
				MR-MR1-MR2-FS-ME	FE	FP1	FP	PD
RL	+	FL250 FL350 FL450	EM/PD 1065	15.315	13.307	13.937	11.142	16.890
			ED/PD 2065	17.402	15.394	16.024	13.228	18.976
		FL750	EM/PD 1065	15.866	13.819	14.449	11.654	17.441
			ED/PD 2065	17.953	15.905	16.535	13.740	19.528

				Lt1
				MR - MR1-MR2 - FS - FE - ME - FP - FP1 - PDA
RL	+	FL250 FL350 FL450	EC/PDA 2065	12.047
			EC/PDA 2065*	15.866
			EC/PDA 3065	12.047
			EC/PDA 3065*	15.866
		FL750	EC/PDA 2065	12.047
			EC/PDA 2065*	15.866
			EC/PDA 3065	12.047
			EC/PDA 3065*	15.866

* bg 065 3



				L	Ø
RL	+	CC40	EC/PDA 2065	5.323	5.906
			EC/PDA 3065	5.323	5.906

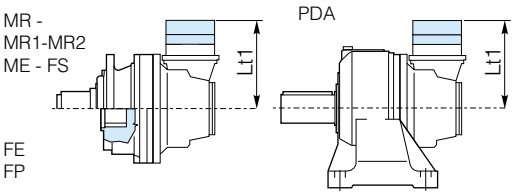


				Lt				
				MR-MR1-MR2-FS-ME	FE	FP1	FP	PD
RL	+	S46C1	EM/PD 1065	17.598	15.551	16.181	13.386	19.173
			ED/PD 2065	17.598	15.551	16.181	13.386	19.173

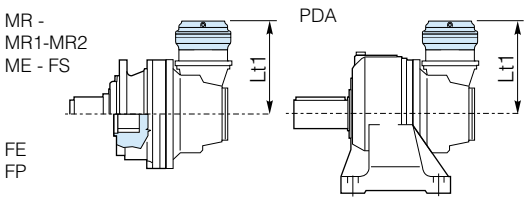
Click *i* button to return to main index

Click **DANA** button to return to section index

ADDITIONAL PLANETARY STAGE ON BEVEL GEAR



EM1010 - EM1020

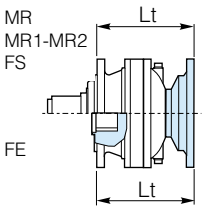


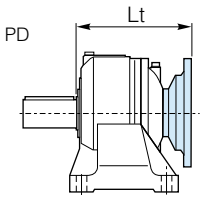
ED2010 - ED2020 ED2022

		Lt1			
		EC2065 PDA2065	EC2065* PDA2065*	**EC3065 PDA3065**	EC3065* PDA3065*
	EM1010	12.874	13.110	12.874	13.110
	EM1020	13.583	13.819	13.583	13.819
	ED2010	14.409	14.646	14.409	14.646
	ED2020	15.669	15.905	15.669	15.905
	ED2021	16.260	16.496	16.260	16.496

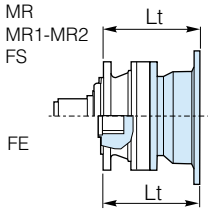
* bg 065 3

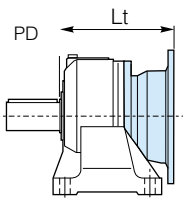
IEC Motor



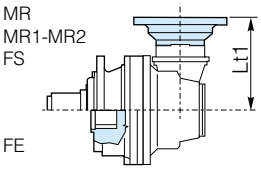


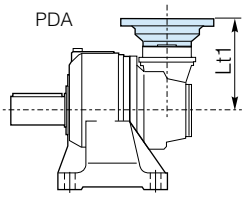
		Lt (00) IEC 63	71	80 90	100 112	132	160 180	200	225
EM 1065	MR-MR1-MR2-FS-ME	10.945	11.024	11.220	11.260	13.898	15.118	15.551	16.732
EM1065	FE	8.898	8.976	9.173	9.213	11.850	13.071	13.504	14.685
EM 1065	FP	6.732	6.811	7.008	7.047	9.685	10.905	11.339	12.520
EM 1065	FP1	9.528	9.606	9.803	9.843	12.480	13.701	14.134	15.315
ED 2065	MR-MR1-MR2-FS-ME	13.504	13.583	13.780	13.819	16.457	17.677	18.110	19.291
ED 2065	FE	11.457	11.535	11.732	11.772	14.409	15.630	16.063	17.244
ED 2065	FP	9.291	9.370	9.567	9.606	12.244	13.465	13.898	15.079
ED 2065	FP1	12.087	12.165	12.362	12.402	15.039	16.260	16.693	17.874
ET 3065	MR-MR1-MR2-FS-ME	15.551	15.630	15.827	15.866	18.504	19.724	20.157	21.339
ET 3065	FE	13.543	13.622	13.819	13.858	16.496	17.717	18.150	19.331
ET 3065	FP	11.378	11.457	11.654	11.693	14.331	15.551	15.984	17.165
ET 3065	FP1	14.173	14.252	14.449	14.488	17.126	18.346	18.779	19.961
EQ 4065	MR-MR1-MR2-FS-ME	17.126	17.205	17.402	17.441	20.079	21.299	21.732	22.913
EQ 4065	FE	15.079	15.157	15.354	15.394	18.031	19.252	19.685	20.866
EQ 4065	FP	12.913	12.992	13.189	13.228	15.866	17.087	17.520	18.701
EQ 4065	FP1	15.709	15.787	15.984	16.024	18.661	19.882	20.315	21.496
PD 1065	PD	12.520	12.598	12.795	12.835	15.472	16.693	17.126	18.307
PD 2065		15.079	15.157	15.354	15.394	18.031	19.252	19.685	20.866
PD 3065		17.126	17.205	17.402	17.441	20.079	21.299	21.732	22.913
PD 4065		18.701	18.779	18.976	19.016	21.654	22.874	23.307	24.488





		Lt IEC 160 180	200	225
EM 1065	MR-MR1-MR2-FS-ME	14.331	15.512	16.693
EM1065	FE	12.283	13.465	14.646
EM 1065	FP	10.118	11.299	12.480
EM 1065	FP1	12.913	14.094	15.276
ED 2065	MR-MR1-MR2-FS-ME	17.677	18.071	19.252
ED 2065	FE	15.630	16.024	17.205
ED 2065	FP	13.465	13.858	15.039
EM 1065	FP1	16.260	16.654	17.835
PD 1065	PD	15.905	17.087	18.268
PD 2065		19.252	19.646	20.827

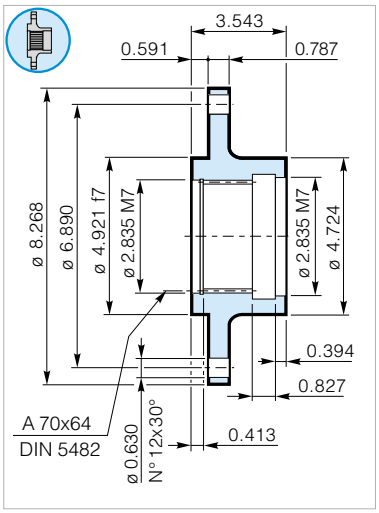




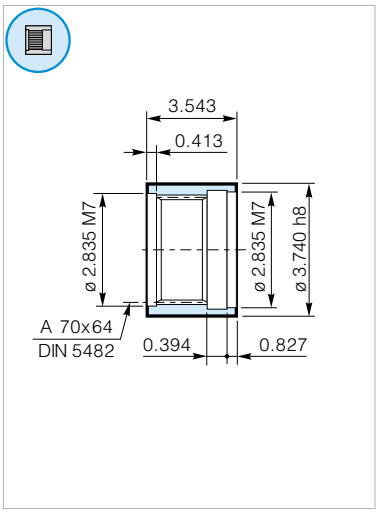
		Lt1 IEC 63	71	80 90	100 112	132	160 180	200	225
EC 2065	MR-MR1-MR2-FE-ME-FS FP-FP1-PDA	9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC 2065*		9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472
EC 3065		9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC 3065*		9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472
EC 4065		5.945	5.945	5.945	5.945	9.370	-	-	-
EC 4065*		5.945	5.945	5.945	5.945	9.370	-	-	-

* bg 065 3

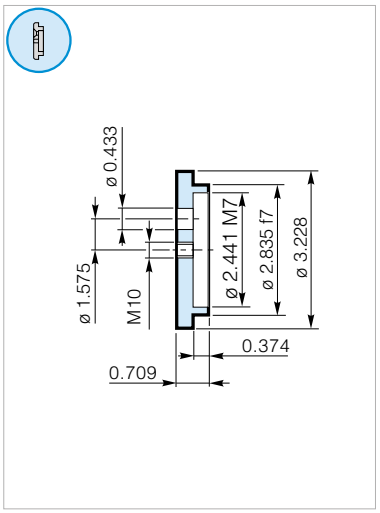
FR 065 MR — Wheel Flange



MS 065 MR — Splined Sleeve

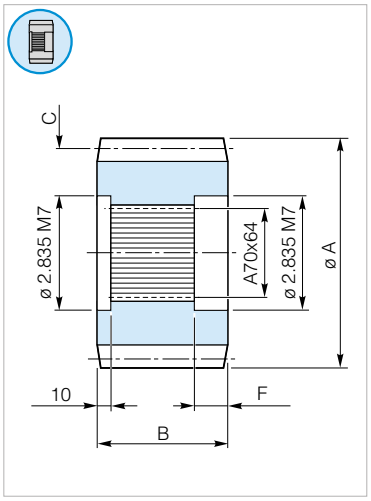


RDF 065 MR — Lock Washer



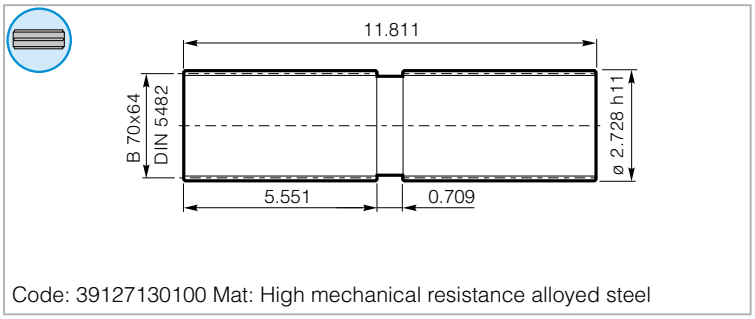
065

MR — Pinions



A	B	C			F
		m	z	x	
5.354	3.150	0.394	0.433	0.020	1.220
6.299	3.543	0.394	0.512	0.020	1.220
5.866	3.543	0.394	0.472	0.020	1.220
6.693	3.858	0.394	0.591	0.000	1.220
6.299	3.898	0.394	0.512	0.020	1.220
5.433	3.937	0.394	0.433	0.020	1.220
6.299	4.134	0.394	0.512	0.020	1.220
8.622	4.528	0.630	0.433	0.016	1.220
9.803	4.528	0.551	0.591	0.020	1.220

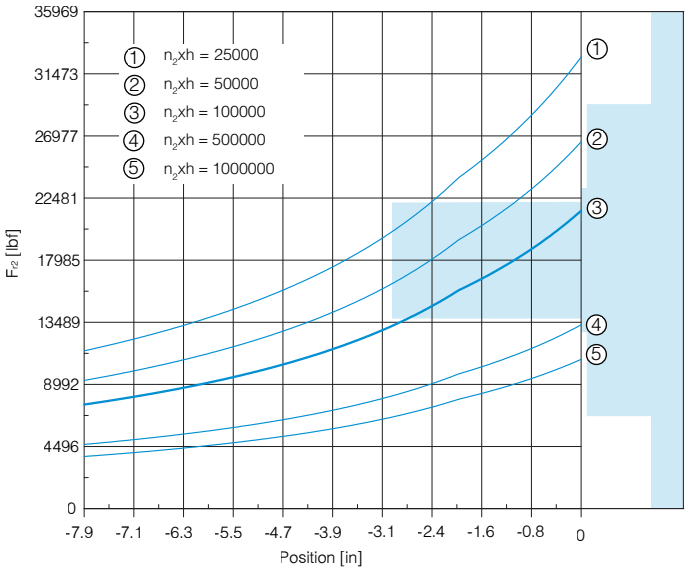
BS 065 FE — Splined Bar



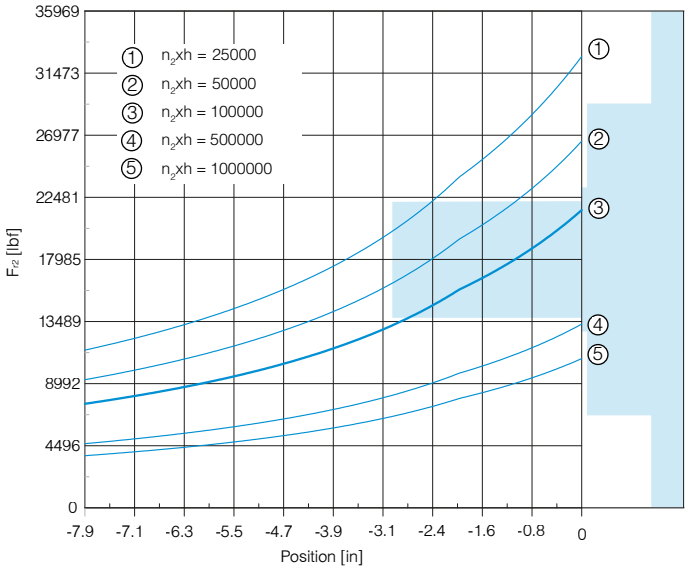
Code: 39127130100 Mat: High mechanical resistance alloyed steel

Output Radial Loads

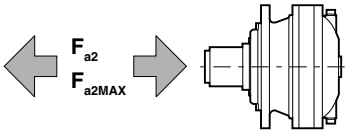
Gearbox Versions: ED, ET, EQ, EC — **MR-MR1-MR2**



Gearbox Versions: PD, PDA — **MR1-MR2**

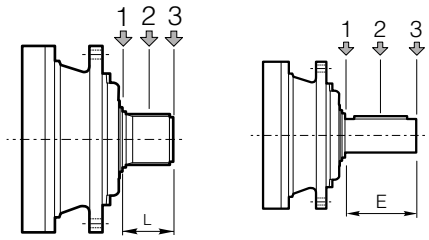


Output Axial Loads



		Flange mounted		PD-PDA
		MN-MN2	MR-MR1-MR2	MR1-MR2
F_{a2}	[lbf]	–	11240	6744
F_{a2MAX}	[lbf]	–	20232	6744

Input Radial Loads

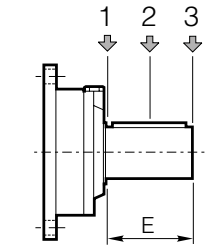


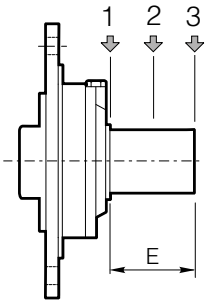
			F_{r1} [lbf]					
			$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	L	E	1	2	3	1	2	3
S-45CR1	-	4.134	2248	1349	899	1124	674	450
S-46C1	-	4.134	3147	1978	1439	1574	989	719
S-45SR	2.677	-	2248	1349	899	1124	674	450
S-65CR1	-	5.118	5350	3484	2158	2675	1753	1079
S-65SR	3.543	-	5350	3484	2158	2675	1753	1079

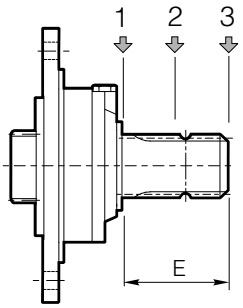
Click *i* button to return to main index

Click **DANA** button to return to section index

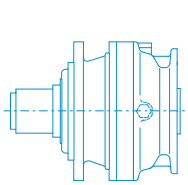
Input Radial Loads



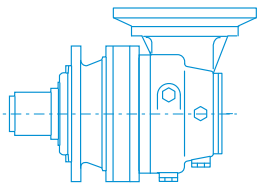




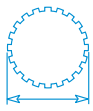
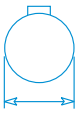
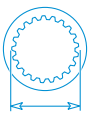
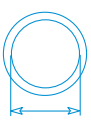
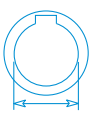
		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	**E**	**1**	**2**	**3**	**1**	**2**	**3**
SU 42x80	3.150	674	450	337	315	225	157
SU1 28x50	1.969	674	450	337	315	225	157
SU2 40x58	2.283	674	450	337	315	225	157
SU3 48x82	3.228	674	450	337	315	225	157
SUS 1 3/8”	3.819	629	405	337	292	202	135
SU2 1 1/2”x 3 1/4”	3.250	674	450	337	315	225	157
SUF1 28x50	1.969	674	450	337	315	225	157
SUF2 40x58	2.283	674	450	337	315	225	157
SUF3 48x82	3.228	674	450	337	315	225	157



067



Page

i_{eff}	12.25 - 201.0
T_{2N}	4720
	B70X64 DIN5482
	3.150 in
	B70X64 DIN5482
	3.543 in
	3.150 in

TECHNICAL DATA

10000
hours life

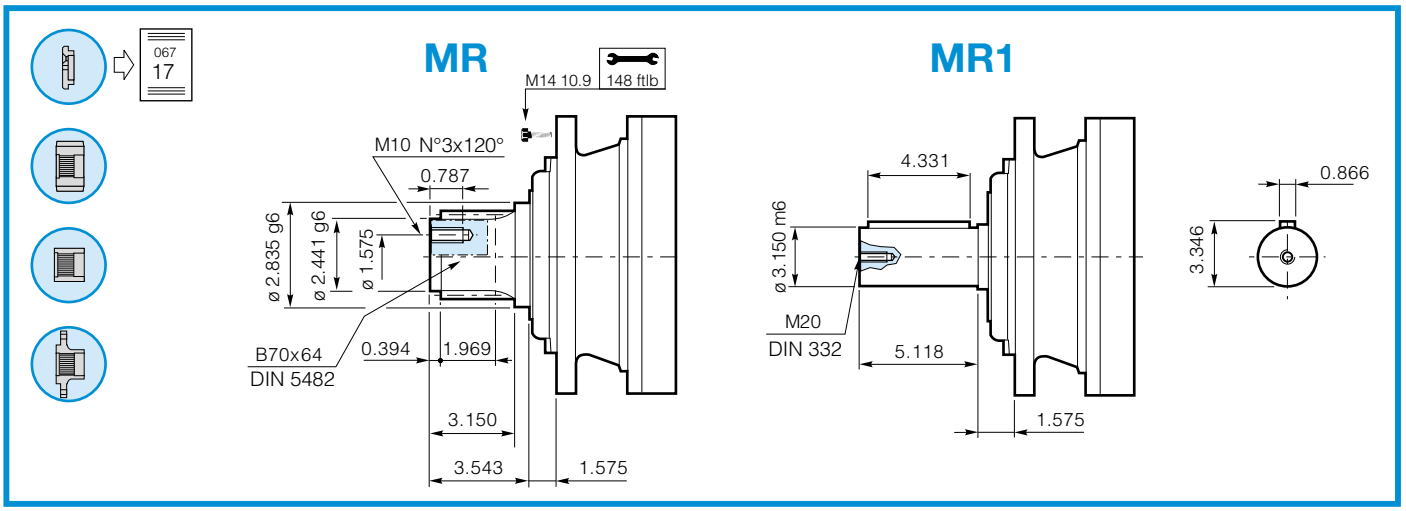
i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
ED 2067 / PD 2067												
12.25	122	2407	56.2	82	2718	42.2	40.8	3347	26.0		7228	
14.46	104	2530	50.0	69	2857	37.7	34.6	3517	23.2			
15.16	99	2520	47.5	66	2846	35.8	33	3504	22.0			
18.10	83	2706	42.8	55	3056	32.2	27.6	3763	19.8			
21.00	71	2830	38.5	47.6	3196	29.0	23.8	3935	17.8			
22.39	67	2833	36.2	44.7	3199	27.2	22.3	3938	16.8	3000		24.1
25.38	59	2995	33.7	39.4	3382	25.3	19.7	4164	15.7		7375	
27.99	54	3082	31.5	35.7	3481	23.7	17.9	4286	14.6			
31.39	47.8	3135	28.6	31.9	3541	21.5	15.9	4340	13.1			
36.25	41.4	3208	25.3	27.6	3623	19.0	13.8	4112	10.9			
43.50	34.5	2929	19.2	23	3051	13.4	11.5	3261	7.1			
ET 3067 / PD 3067												
50.59	29.6	3684	20.8	19.8	4160	15.7	9.9	5122	9.7			
55.80	26.9	3791	19.4	17.9	4282	14.6	9	4700	8.0			
63.33	23.7	3940	17.8	15.8	4450	13.4	7.9	5432	8.2			
73.50	20.4	4120	16.0	13.6	4654	12.1	6.8	5603	7.2			
78.35	19.1	4125	15.0	12.8	4428	10.7	6.4	4868	5.9			
88.81	16.9	4362	14.1	11.3	4925	10.6	5.6	5825	6.3			
104.8	14.3	4584	12.5	9.5	5176	9.4	4.8	6025	5.5			
108.6	13.8	4401	11.5	9.2	4564	8.0	4.6	5223	4.6			
126.0	11.9	4844	11.0	7.9	5427	8.2	4	6253	4.7	3000	7375	18.8
144.7	10.4	4592	9.1	6.9	4966	6.6	3.5	5727	3.8			
152.3	9.8	4558	8.6	6.6	4904	6.2	3.3	5655	3.5			
184.0	8.2	4644	7.2	5.4	5059	5.2	2.7	5827	3.0			
202.9	7.4	4896	6.8	4.9	5328	5.0	2.5	6127	2.8			
227.6	6.6	4835	6.0	4.4	5261	4.4	2.2	6051	2.5			
262.8	5.7	4560	5.0	3.8	4966	3.6	1.9	5718	2.0			
315.4	4.8	3609	3.2	3.2	3940	2.4	1.6	4554	1.3			

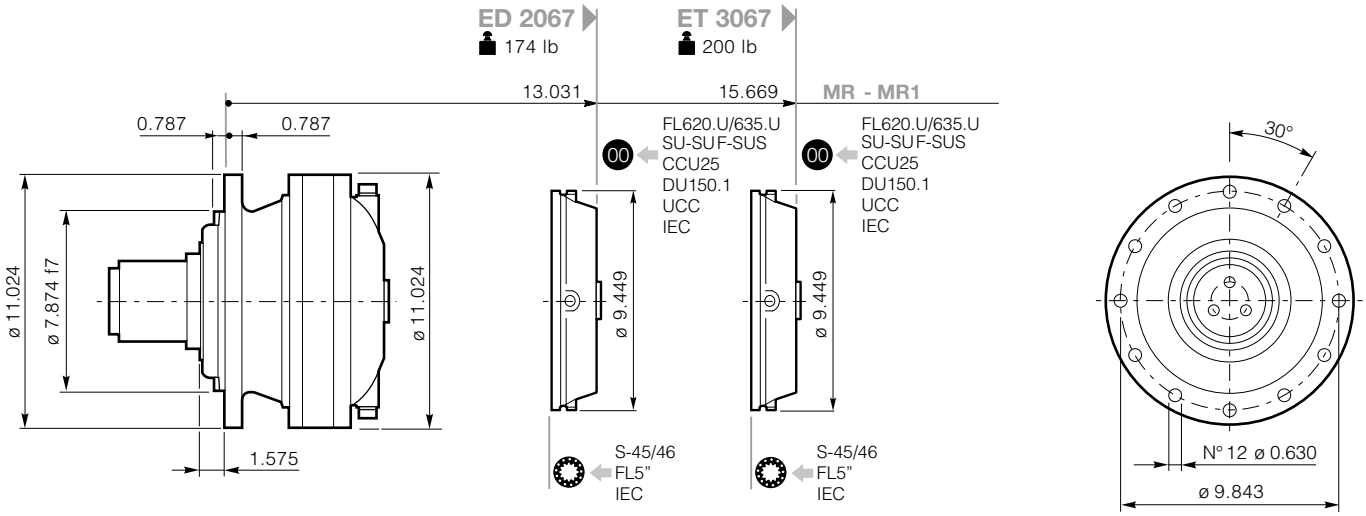
10000 hours life

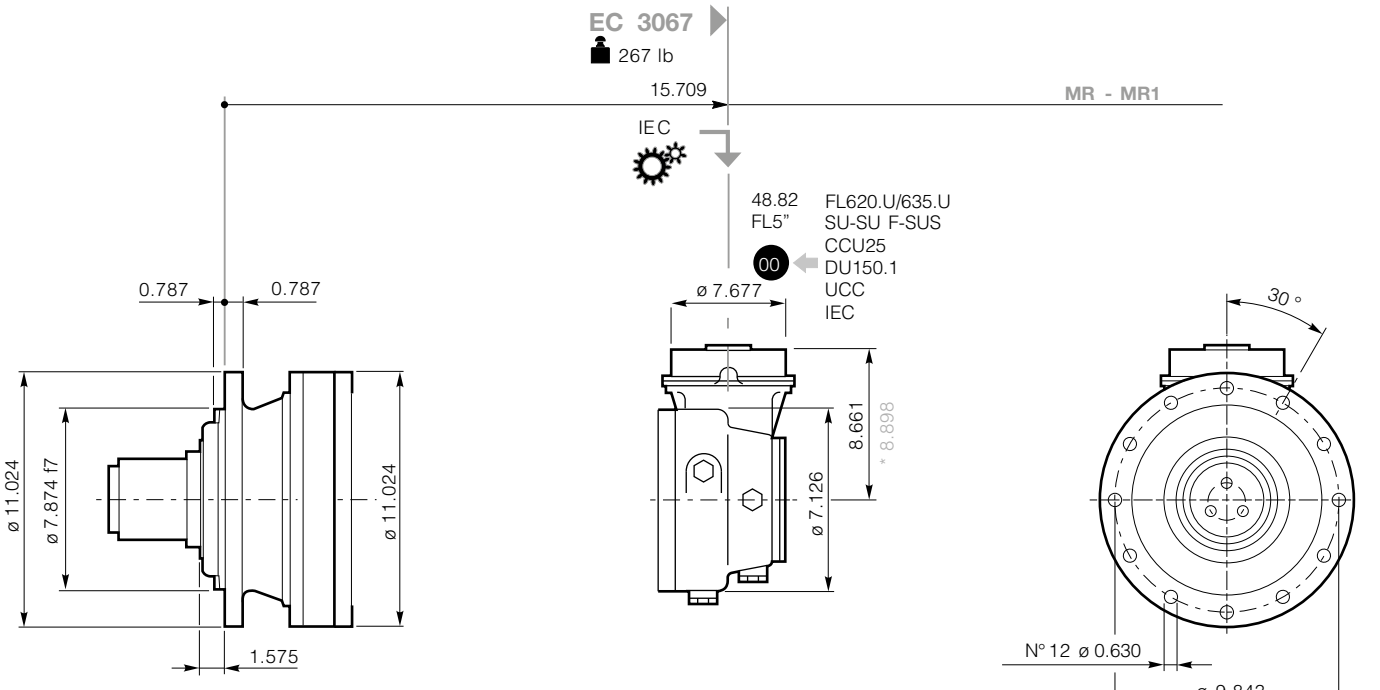
i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EC 3067 / PDA 3067												
40.53	37	3445	24.3	24.7	3890	18.2	12.3	4522	10.6	3000	7375	14.8
43.37	34.6	3517	23.2	23.1	3972	17.4	11.5	4890	10.7			
47.83	31.4	3620	21.6	20.9	4088	16.2	10.5	4589	9.1			
56.60	26.5	3810	19.2	17.7	4303	14.5	8.8	5297	8.9			
63.00	23.8	3921	17.8	15.9	4415	13.3	7.9	4814	7.2			
70.02	21.4	3988	16.2	14.3	4384	11.9	7.1	4753	6.4			
83.60	17.9	4283	14.6	12	4837	11.0	6	5753	6.6			
92.20	16.3	4408	13.7	10.8	4574	9.4	5.4	5224	5.4			
97.02	15.5	4478	13.1	10.3	5058	9.9	5.2	5931	5.8			
117.2	12.8	4740	11.5	8.5	5318	8.6	4.3	5722	4.7			
120.0	12.5	4437	10.6	8.3	4600	7.2	4.2	5319	4.2			
145.0	10.3	4512	8.9	6.9	4789	6.3	3.4	5528	3.6			
167.5	9	4275	7.2	6	4516	5.1	3	5220	3.0			
201.0	7.5	3395	4.8	5	3574	3.4	2.5	4148	2.0			

* (bg) All the ratios in light grey (ie. 40.53) have particular dimensions of bevel gears in some versions. See dimensional tables.

GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 → 067 11 SU-SUF SUS → 067 12 FL5"- FL6" FL620 FL635 → 067 13 IEC → 067 16 → 067 15 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 067 3

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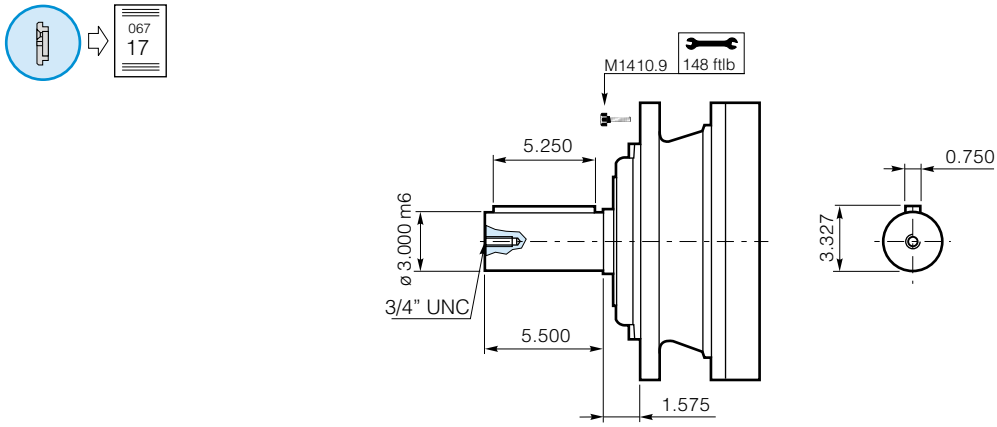

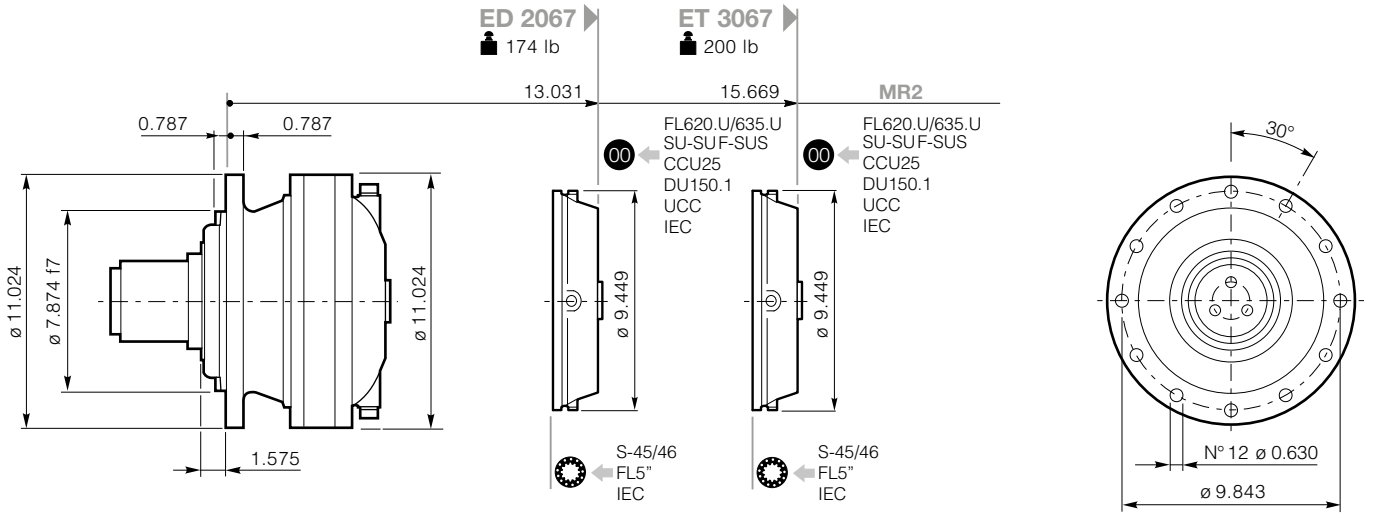

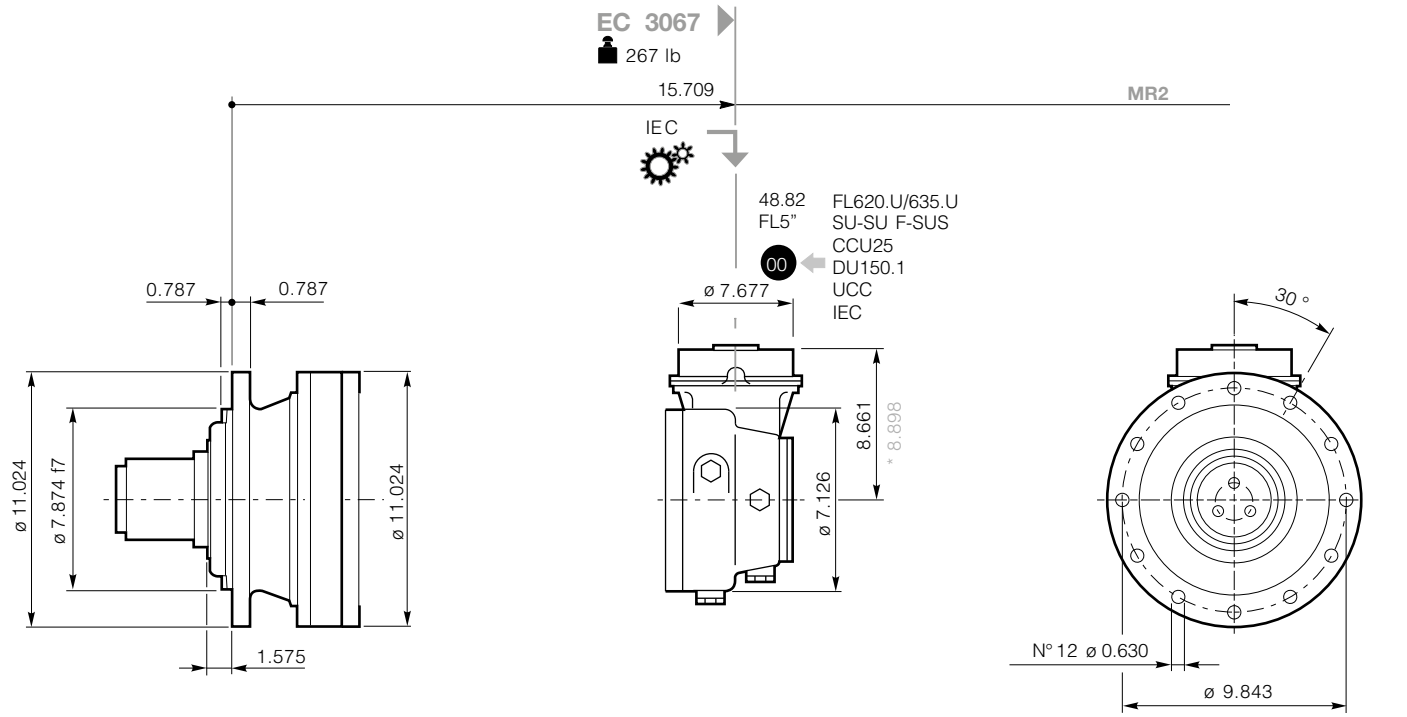

00 B 14 S-45/46 48.82 → 067 11 SU-SUF SUS → 067 12 FL5"- FL6" FL620 FL635 → 067 13 IEC → 067 16 → 067 15 CCU25 → B 16 DU150.1 UCC → B 17 * (bg) → 067 3

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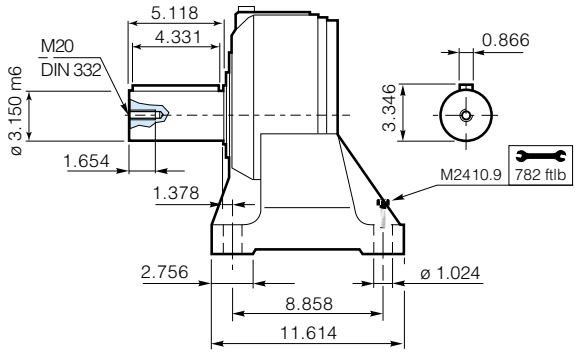
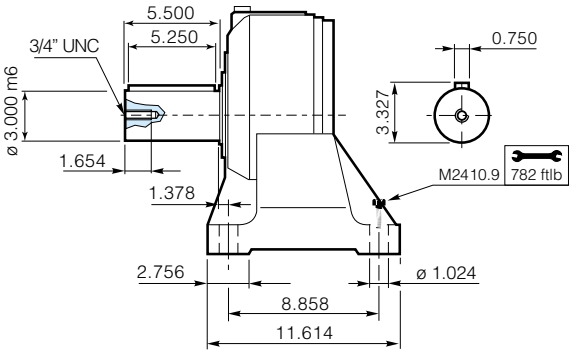
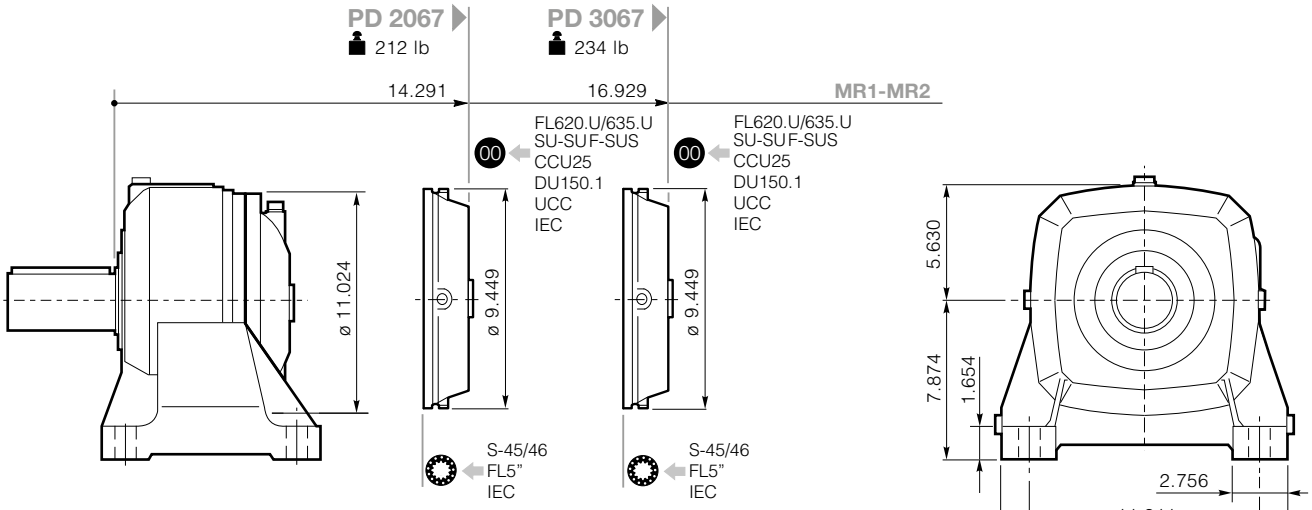
MR1 - MR2 PD/PDA GEARBOX DIMENSIONS WITH OUTPUT

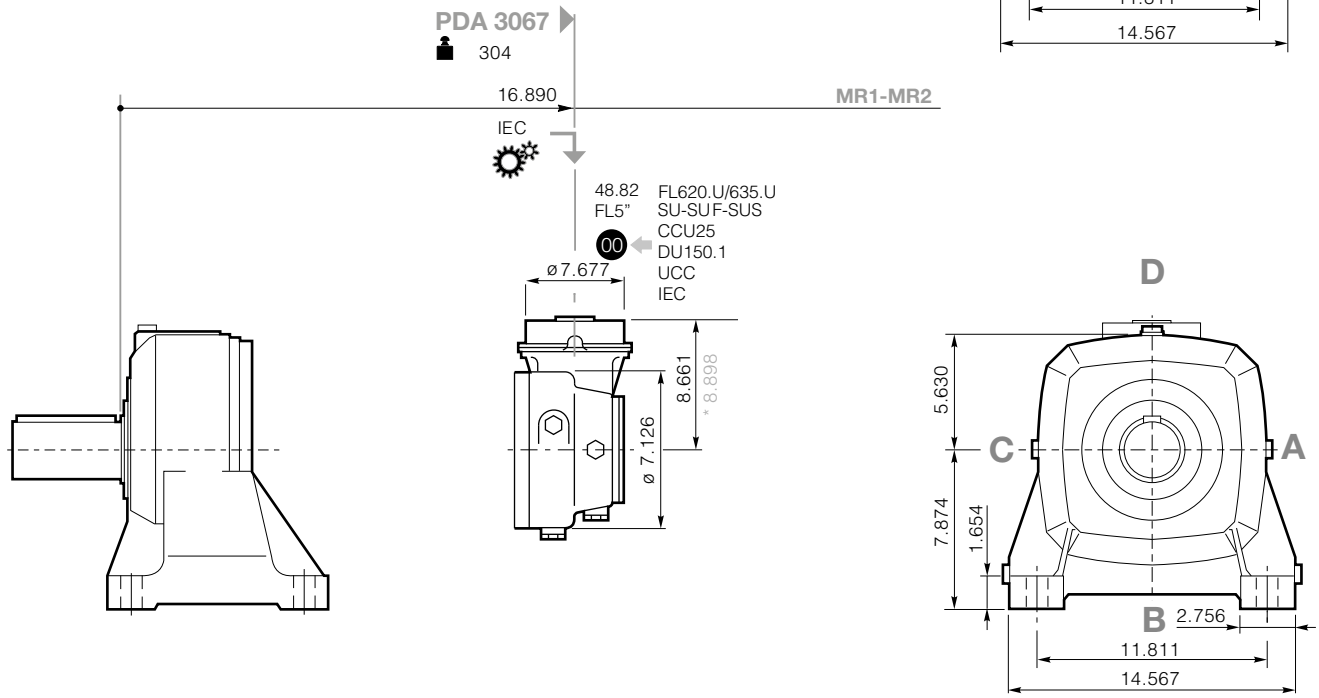
MR1



MR2







00 B 14 | S-45/46 48.82 067 11 | SU-SUF SUS 067 12 | FL5"- FL6" FL620 FL635 067 13 | IEC 067 16 | 067 15 | CCU25 B 16 | DU150.1 UCC B 17 | * bg 067 3

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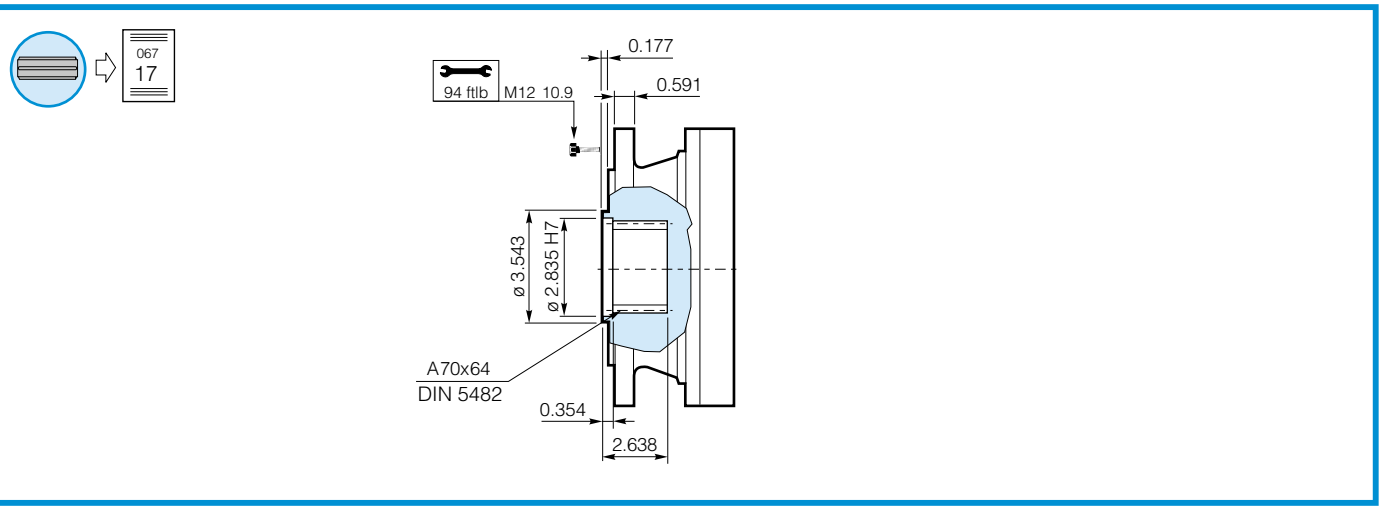

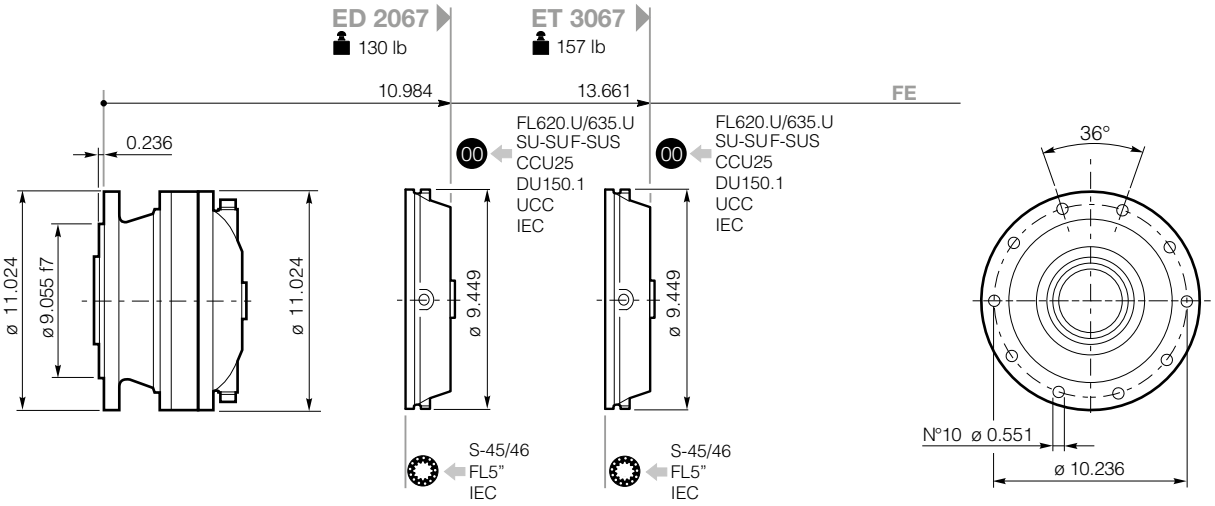

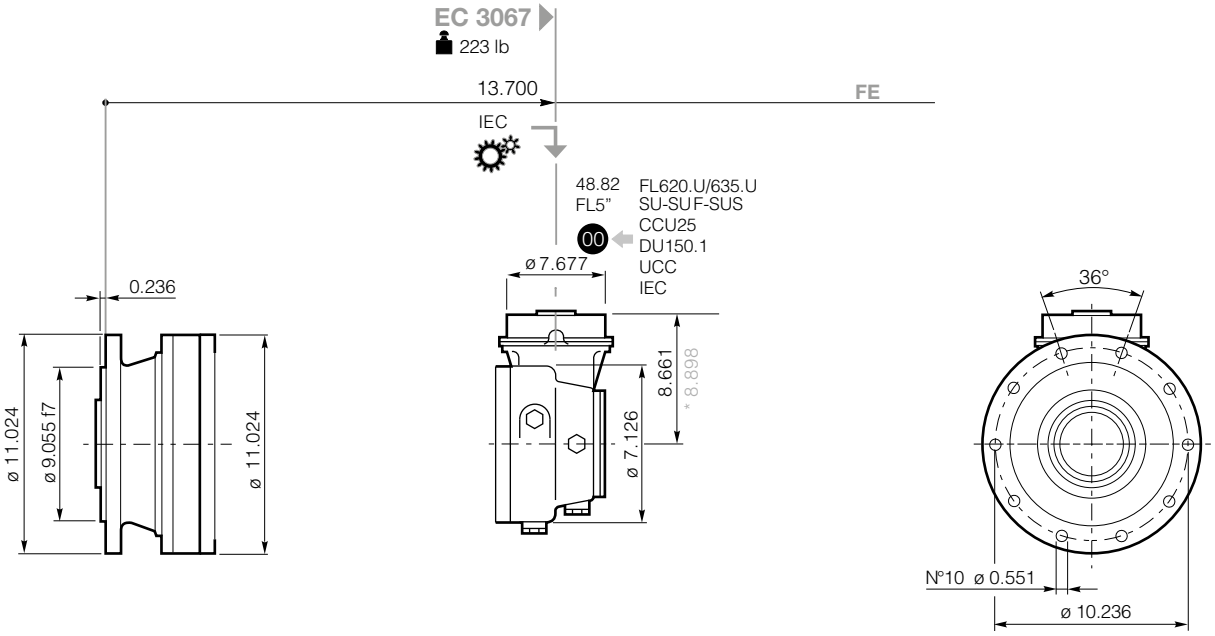

00 B 14 S-45/46 48.82 → 067 11 SU-SUF SUS → 067 12 FL5"- FL6" FL620 FL635 → 067 13 IEC → 067 16 → 067 15 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 067 3

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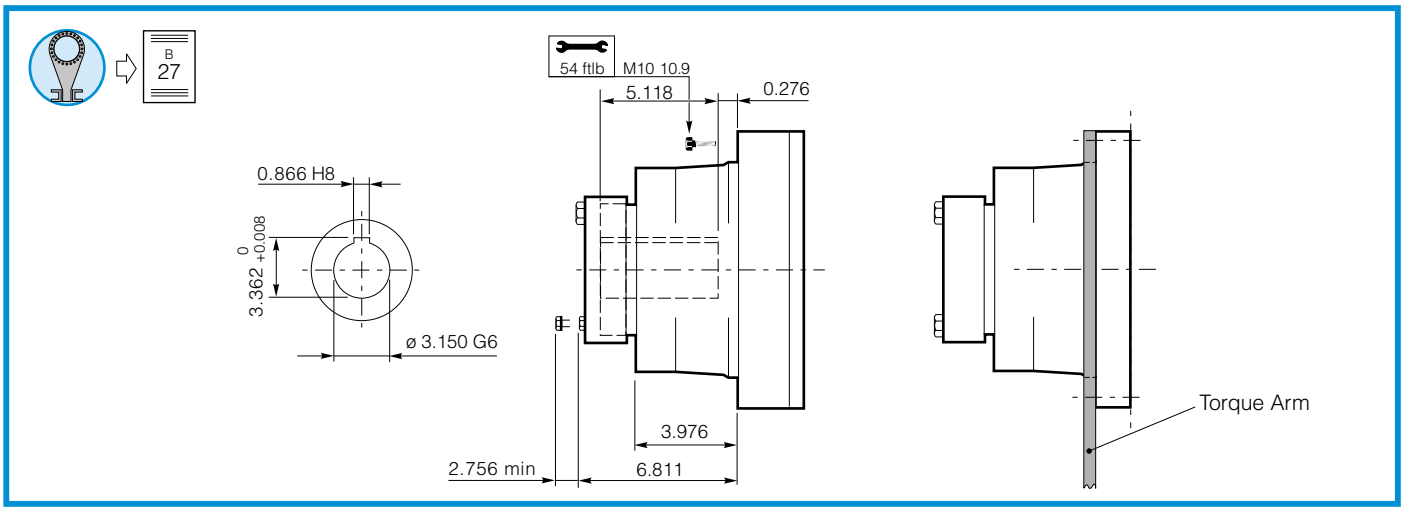
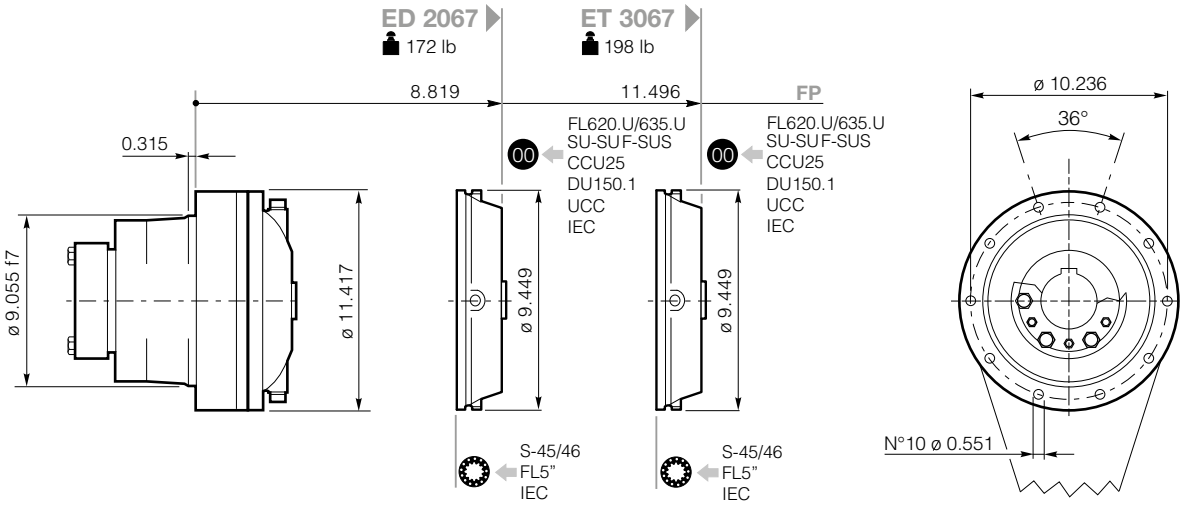
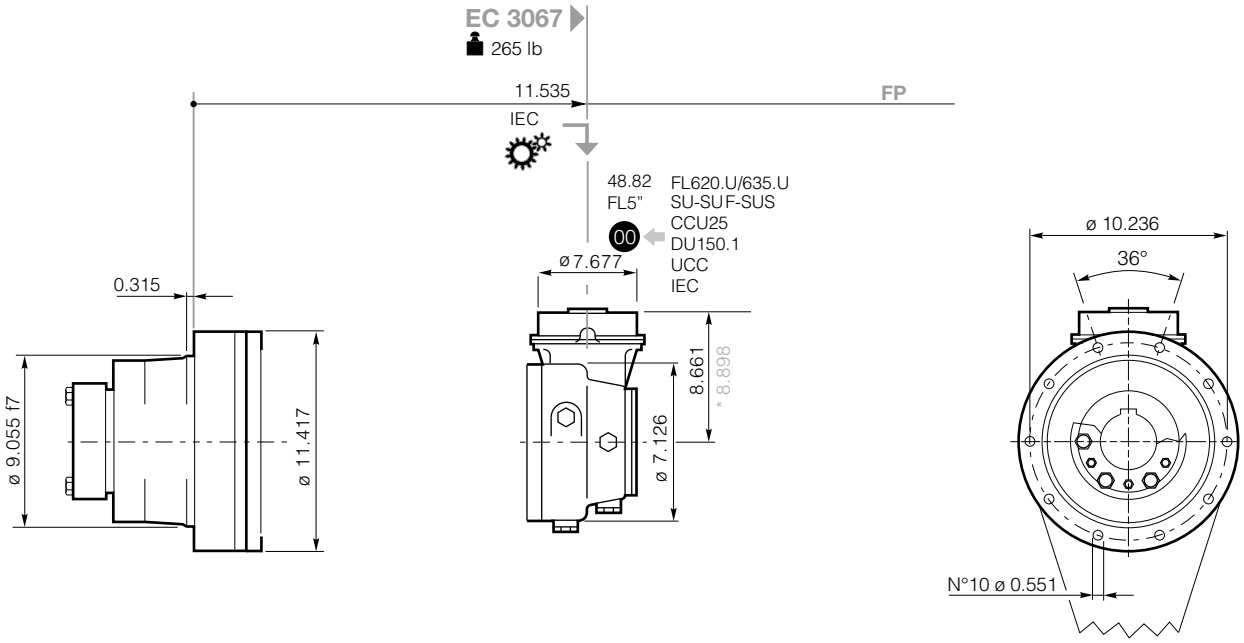
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 → 067 11 SU-SUF SUS → 067 12 FL5"- FL6" FL620 FL635 → 067 13 IEC → 067 16 → 067 15 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 067 3

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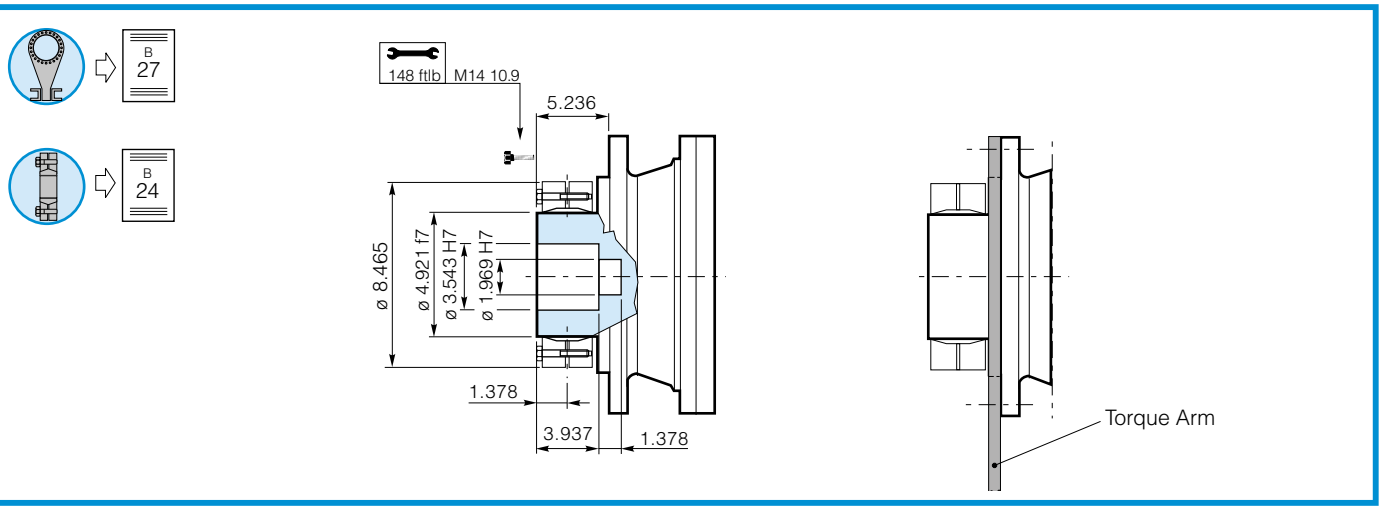

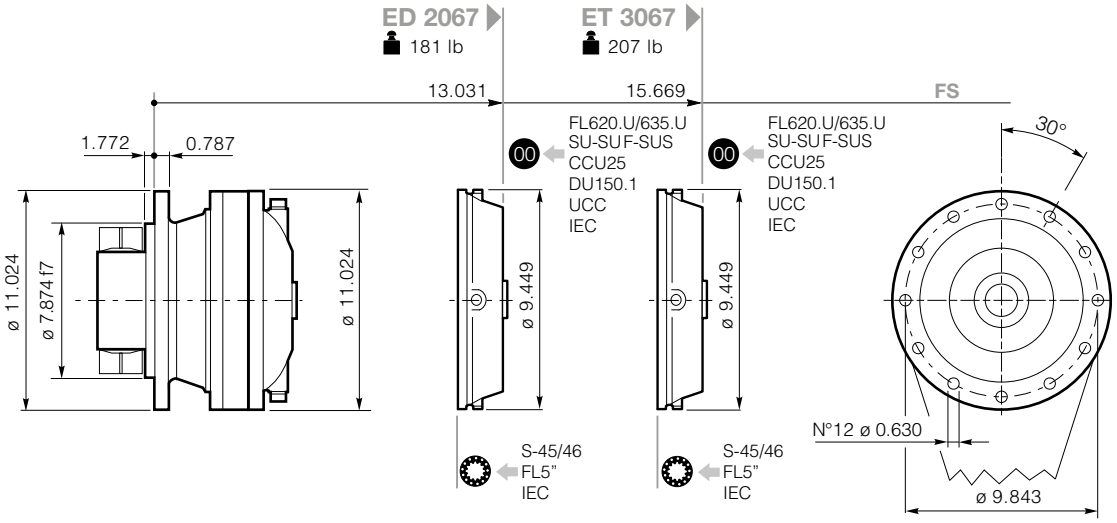

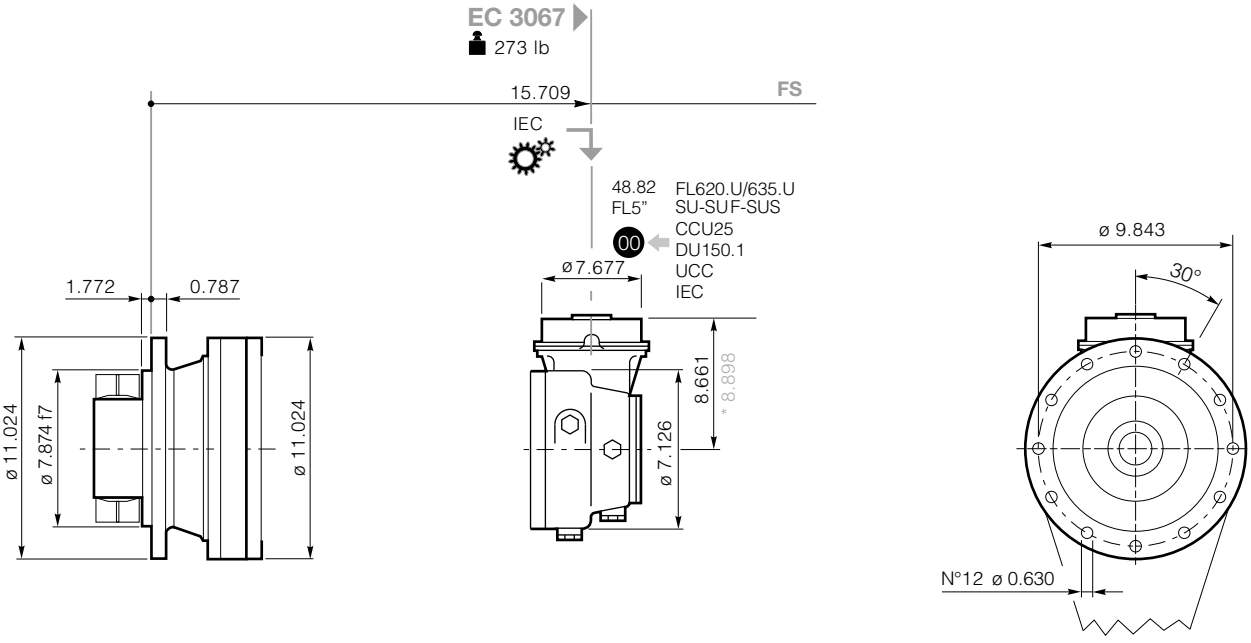

00 B 14 S-45/46 48.82 → 067 11 SU-SUF SUS → 067 12 FL5"- FL6" FL620 FL635 → 067 13 IEC → 067 16 → 067 15 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 067 3

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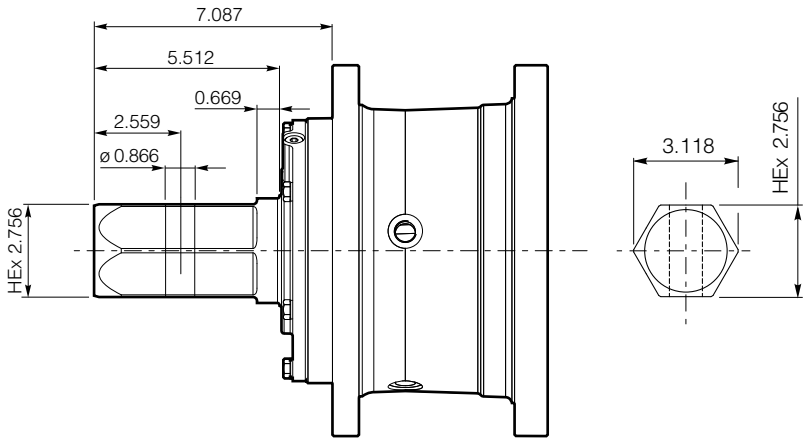
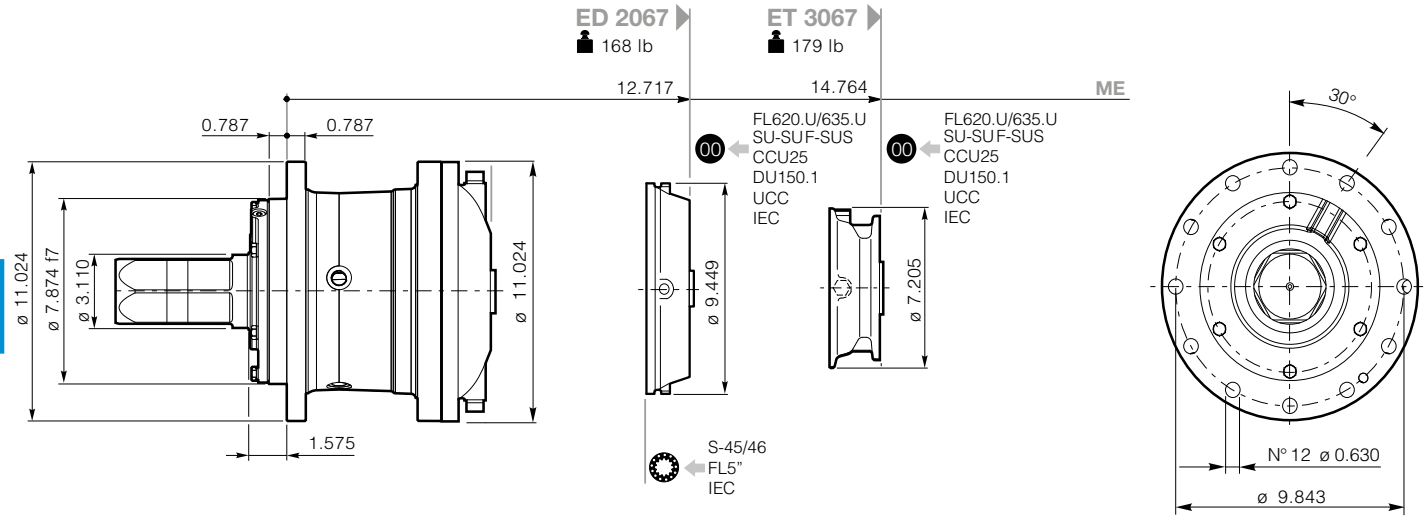
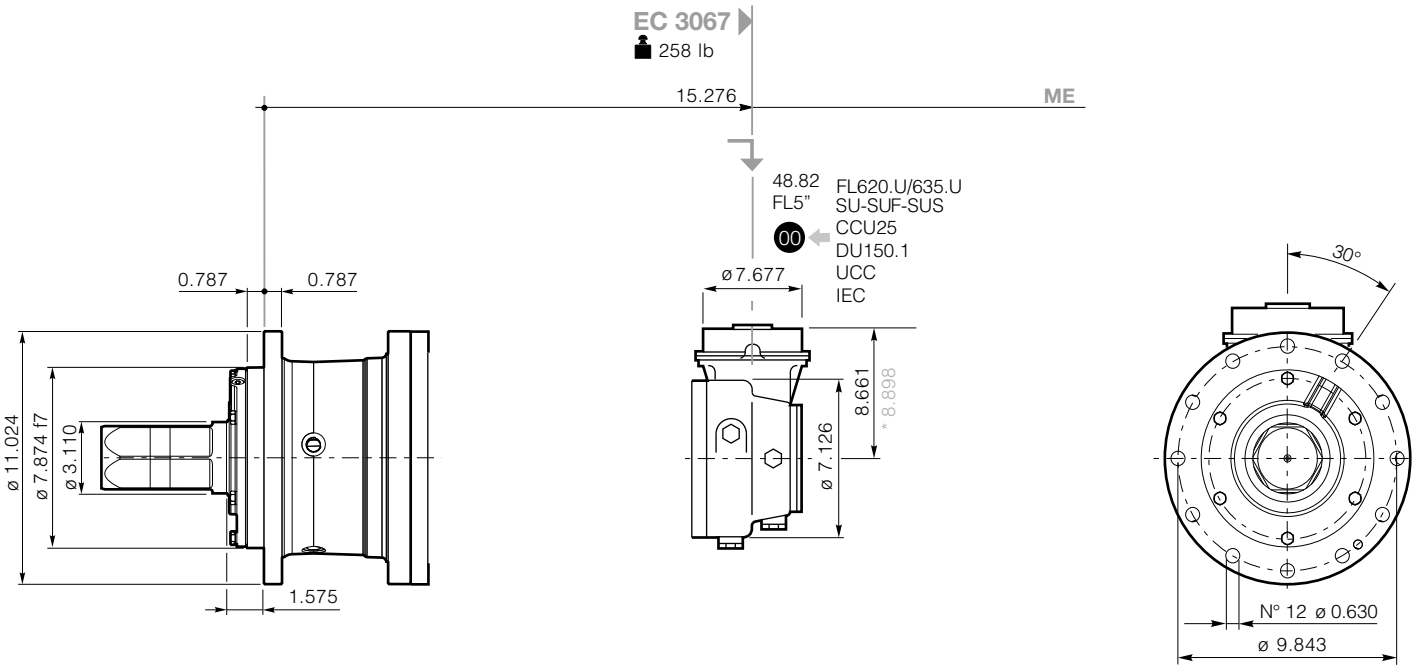
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 067 11 SU-SUF SUS 067 12 FL5"- FL6" FL620 FL635 067 13 IEC 067 16 067 15 CCU25 B 16 DU150.1 UCC B 17 * bg 067 3

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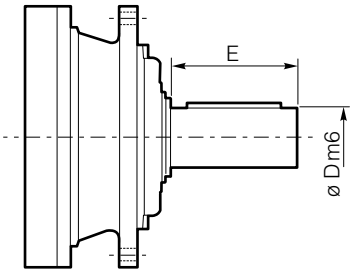
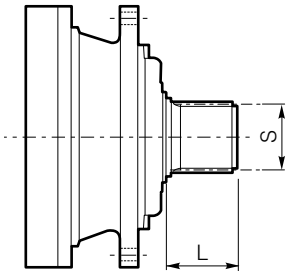
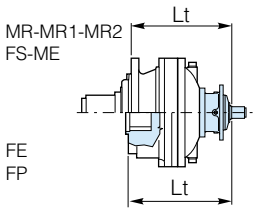
S-45CR1 - S-46C1 - S-45SR

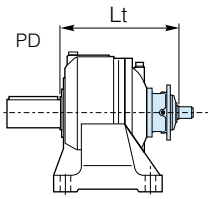


S-45CR1 - S-46C1



S-45SR

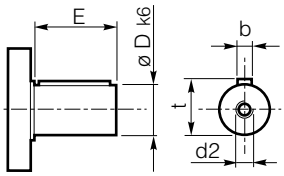


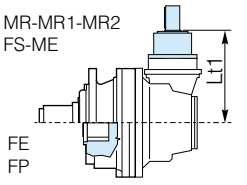


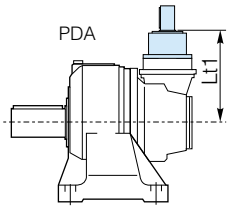
	D m6	E	L	S DIN5482		Lt			
						MR-MR1-MR2-FS-ME	FE	FP	PD
S-45CR1	2.559	4.134	-	-	ED/PD 2067	15.472	13.465	11.299	17.047
					ET/PD 3067	18.150	16.102	13.937	19.724
S-46C1	2.559	4.134	-	-	ED/PD 2067	17.126	15.079	12.913	18.701
					ET/PD 3067	19.764	17.756	15.591	21.339
S-45SR	-	-	2.677	B58x53	ED/PD 2067	15.472	13.465	11.299	17.047
					ET/PD 3067	18.150	16.102	13.937	19.724

For more informations, go to page B13

48.82







	D	E		Lt1
				MR-MR1-MR2-FS-FE-FP-PDA
48.82	1.890	3.228	EC/PDA 3067	11.024

For the input configuration S46C1, 4882 (CC40 - CC41), FL5" can be fitted with an anti-return device.
For further information and technical data, contact Dana Sale Technical Support

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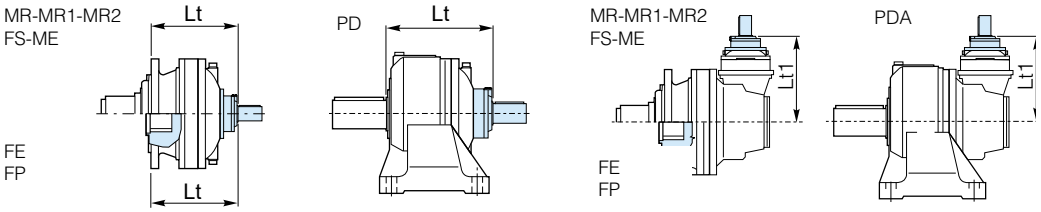
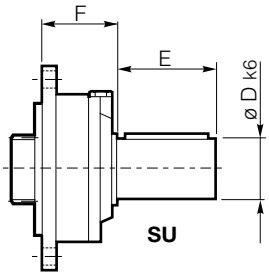
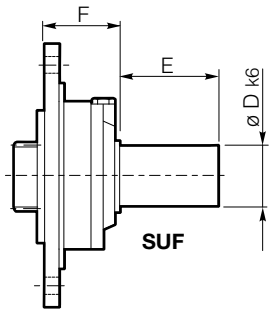
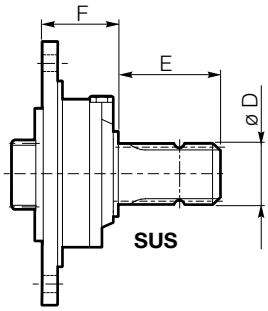
SU - SUF - SUS







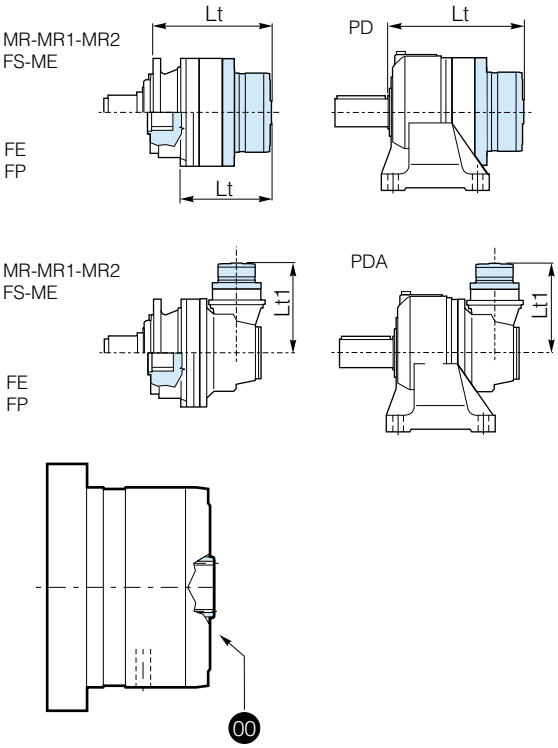


	D	E	F		Lt (00)			
					MR-MR1-FS-ME	FE	FP	PD
SU1 28x50	1.102	1.969	2.362	ED/PD 2067	15.394	13.346	11.181	16.968
				ET/PD 3067	18.031	16.024	13.858	19.606
SU2 40x58	1.575	2.283	2.362	ED/PD 2067	15.394	13.346	11.181	16.968
				ET/PD 3067	18.031	16.024	13.858	19.606
SU3 48x82	1.890	3.228	2.362	ED/PD 2067	15.394	13.346	11.181	16.968
				ET/PD 3067	18.031	16.024	13.858	19.606
SU 42x80	1.654	3.150	3.996	ED/PD 2067	17.008	15.000	12.835	18.583
				ET/PD 3067	19.685	17.638	15.472	21.260
SUS 1 3/8"	1 3/8" DIN9611	3.819	3.996	ED/PD 2067	17.008	15.000	12.835	18.583
				ET/PD 3067	19.685	17.638	15.472	21.260
SU2 1.5x3.25	1.500	3.250	2.362	ED/PD 2067	15.394	13.346	11.181	16.968
				ET/PD 3067	18.031	16.024	13.858	19.606
SUF1 28x50	1.102	1.969	2.362	ED/PD 2067	15.394	13.346	11.181	16.968
				ET/PD 3067	18.031	16.024	13.858	19.606
SUF2 40x58	1.575	2.283	2.362	ED/PD 2067	15.394	13.346	11.181	16.968
				ET/PD 3067	18.031	16.024	13.858	19.606
SUF3 48x82	1.890	3.228	2.362	ED/PD 2067	15.394	13.346	11.181	16.968
				ET/PD 3067	18.031	16.024	13.858	19.606

	D	E	F		Lt1 (00)
					MR-MR1-FS-FE-FP-ME-PDA
SU1 28x50	1.102	1.969	2.362	EC/PDA 3067 EC/PDA 3065*	11.024 11.260
SU2 40x58	1.575	2.283	2.362		
SU3 48x82	1.890	3.228	2.362		
SU 42x80	1.654	3.150	3.996	EC/PDA 3067 EC/PDA 3067*	12.657 12.894
SUS 1 3/8"	1 3/8" DIN9611	3.819	3.996		
SU2 1.5x3.25	1.500	3.250	2.362	EC/PDA 3067 EC/PDA 3067*	11.024 11.260
SUF1 28x50	1.102	1.969	2.362		
SUF2 40x58	1.575	2.283	2.362		
SUF3 48x82	1.890	3.228	2.362		

* (bg) 067 3

FL620.10 - FL635.10 / FL620.U - FL635.U

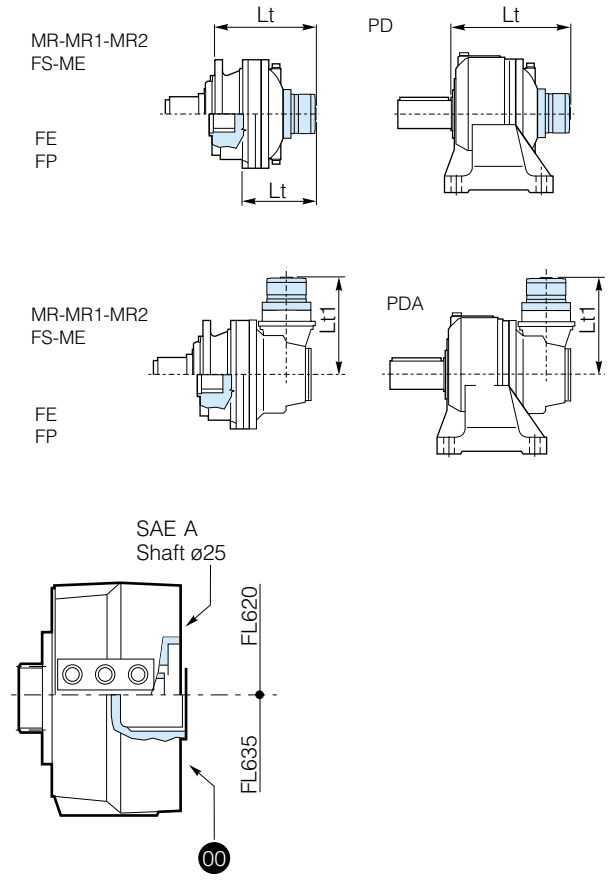


		Lt			
		MR-MR1-MR2-FS-ME	FE	FP	PD
FL250 FL350 FL450	ED/PD 2067	16.693	14.685	12.520	18.268
	ET/PD 3067	19.370	17.323	15.157	20.945
FL650 FL750	ED/PD 2067	17.244	15.197	13.031	18.819
	ET/PD 3067	19.882	17.874	15.709	21.457

		Lt1			
		MR-MR1-MR2-FS-ME	FE	FP	PDA
FL250 FL350 FL450	EC/PDA 3067	11.024	11.024	11.024	11.024
	EC/PDA 3067*	14.842	14.842	14.842	14.842

* bg 067 3

FL620.10 - FL635.10 / FL620.U - FL635.U

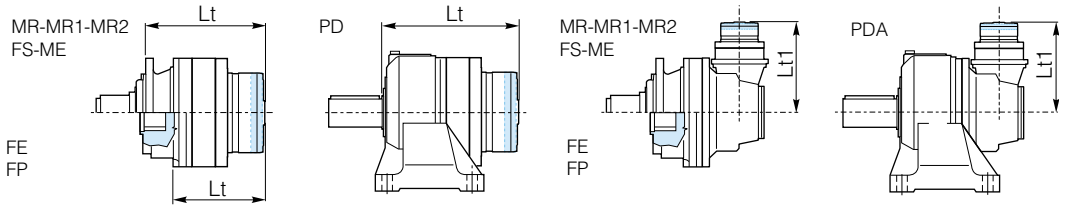


		Lt			
		MR-MR1-MR2 FS-ME	FE	FP	PD
FL620.U	ED/PD 2067	17.126	15.118	12.953	18.701
	ET/PD 3067	19.803	17.756	15.591	21.378
FL635.U	ED/PD 2067	16.614	14.567	12.402	18.189
	ET/PD 3067	19.252	17.244	15.079	20.827

		Lt1			
		MR-MR1-MR2 FS-ME	FE	FP	PDA
FL620.U	EC/PDA 3067	12.795	12.795	12.795	12.795
	EC/PDA 3067*	13.031	13.031	13.031	13.031
FL635.U	EC/PDA 3067	12.244	12.244	12.244	12.244
	EC/PDA 3067*	12.480	12.480	12.480	12.480

* bg 067 3

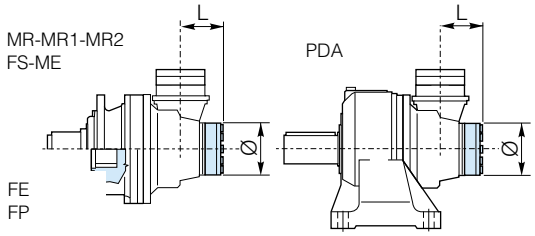
RL



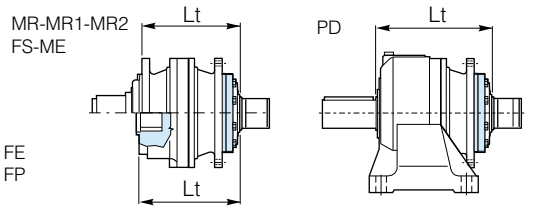
				Lt			
				MR-MR1-MR2-FS-ME	FE	FP	PD
RL	+	FL250 FL350 FL450	ED/PD 2067	17.717	15.709	13.543	19.291
			ET/PD 3067	20.394	18.346	16.181	21.968
		FL650 FL750	ED/PD 2067	18.268	16.220	14.055	19.842
			ET/PD 3067	20.905	18.898	16.732	22.480

				Lt1
				MR-MR1-MR2-FS-FE-ME-FP-PDA
RL	+	FL250 FL350 FL450	EC/PDA 3067	12.047
			EC/PDA 3067*	15.866

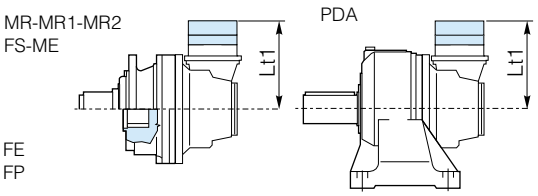
* bg 067 3



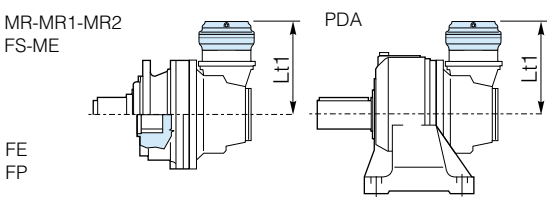
				L	Ø
RL	+	CC40	EC/PDA 3067	5.323	5.906



				Lt			
				MR-MR1-MR2-FS-ME	FE	FP	PD
RL	+	S46C1	ED/PD 2067	17.913	15.866	13.701	19.488
			ET/PD 3067	20.551	18.543	16.378	22.126



EM1010 - EM1020

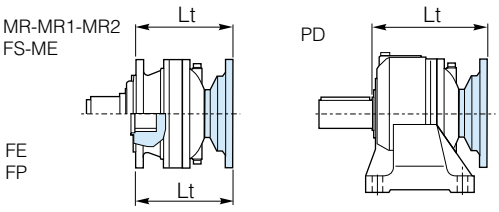


ED2010 - ED2020 ED2022

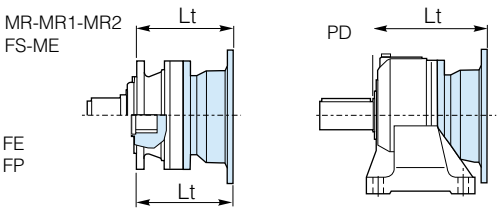
		Lt1	
		EC3067 PDA3067	EC3067* PDA3067*
	EM1010	12.874	13.110
	EM1020	13.583	13.819
	ED2010	14.409	14.685
	ED2020	15.669	15.905
	ED2021	16.260	16.496

* bg 067 3

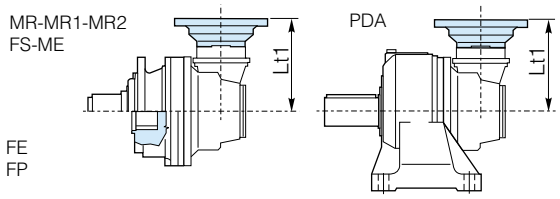
IEC Motor



		Lt 00							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
ED 2067	MR-MR1-MR2-FS-ME	13.819	13.898	14.094	14.134	16.772	17.992	18.425	19.606
ED 2067	FE	11.772	11.850	12.047	12.087	14.724	15.945	16.378	17.559
ED 2067	FP	9.606	9.685	9.882	9.921	12.559	13.780	14.213	15.394
ET 3067	MR-MR1-MR2-FS-ME	16.457	16.535	16.732	16.772	19.409	20.630	21.063	22.244
ET 3067	FE	14.449	14.528	14.724	14.764	17.402	18.622	19.055	20.236
ET 3067	FP	12.283	12.362	12.559	12.598	15.236	16.457	16.890	18.071
PD 2067	PD	15.394	15.472	15.669	15.709	18.346	19.567	20.000	21.181
PD 3067	PD	18.031	18.110	18.307	18.346	20.984	22.205	22.638	23.819

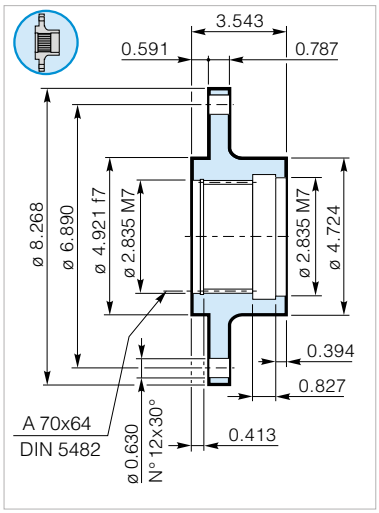


		Lt		
		IEC		
		160 180	200	225
ED 2067	MR-MR1-MR2-FS-ME	17.992	18.386	19.567
ED 2067	FE	15.945	16.339	17.520
ED 2067	FP	13.780	14.173	15.354
ED 2067	PD	19.567	19.961	21.142
ET 3067	MR-MR1-MR2-FS-ME	20.630	21.024	-
ET 3067	FE	18.622	19.016	-
ET 3067	FP	16.457	16.850	-
PD 3067	PD	22.205	22.598	-

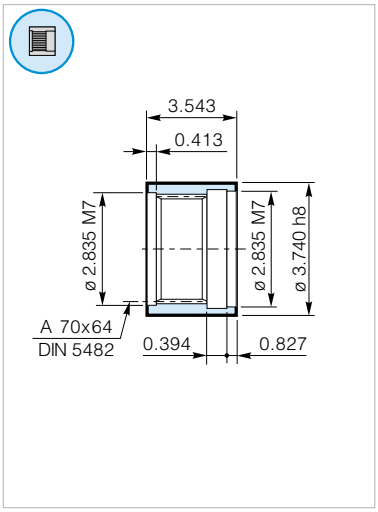


		Lt1							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
EC 3067	MR-MR1-MR2-FE-FS-FP	9.449	9.528	9.724	9.764	12.402	13.622	14.055	-
EC 3067*	MR-MR1-MR2-FE-FS-FP	9.685	9.764	9.961	10.000	12.638	13.858	14.291	-
PDA 3067	PDA	9.449	9.528	9.724	9.764	12.402	13.622	14.055	-
PDA 3067*	PDA	9.685	9.764	9.961	10.000	12.638	13.858	14.291	-

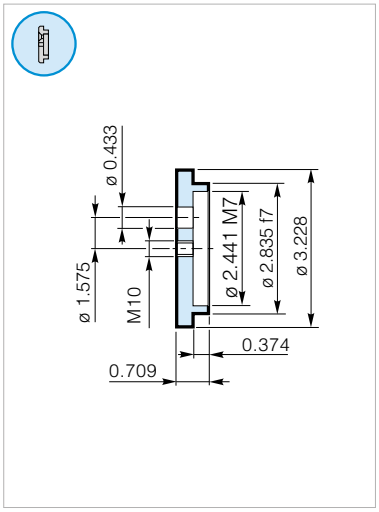
FR 067 MR — Wheel Flange



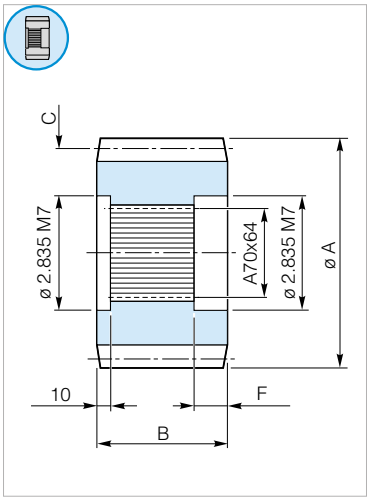
MS 067 MR — Splined Sleeve



RDF 067 MR — Lock Washer

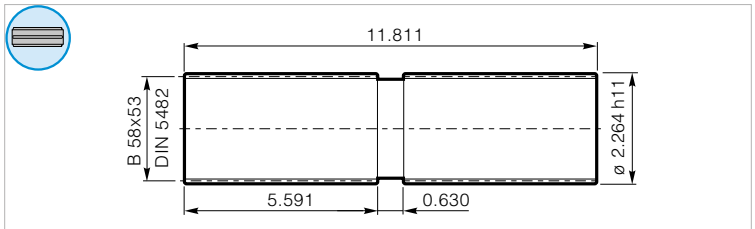


MR — Pinions



A	B	C			F
		m	z	x	
5.354	3.150	0.394	0.433	0.020	1.220
6.299	3.543	0.394	0.512	0.020	1.220
5.866	3.543	0.394	0.472	0.020	1.220
6.693	3.858	0.394	0.591	0.000	1.220
6.299	3.898	0.394	0.512	0.020	1.220
5.433	3.937	0.394	0.433	0.020	1.220
6.299	4.134	0.394	0.512	0.020	1.220
8.622	4.528	0.630	0.433	0.016	1.220
9.803	4.528	0.551	0.591	0.020	1.220

BS 067 FE — Splined Bar

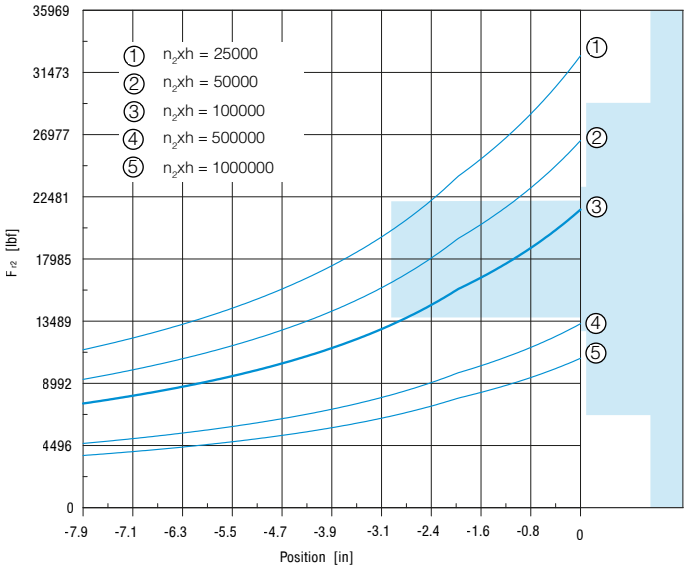


Code: 39127030100 Mat: High mechanical resistance alloyed steel

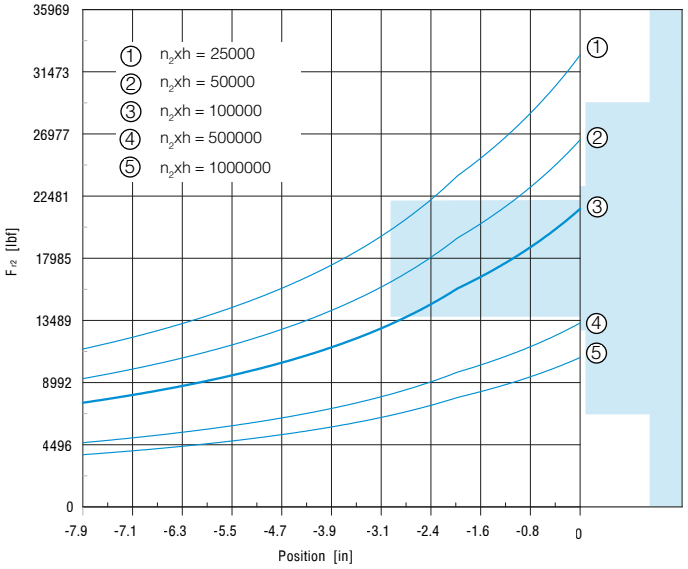
RADIAL AND AXIAL LOADS

Output Radial Loads

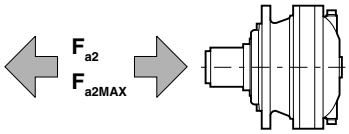
Gearbox Versions: ED, ET, EQ, EC — **MR-MR1-MR2**



Gearbox Versions: PD, PDA — **MR1-MR2**

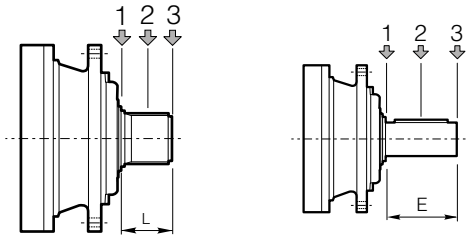


Output Axial Loads



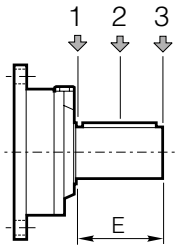
		Flange mounted		PD-PDA
		MN-MN1	MR-MR1-MR2	MR1-MR2
F_{a2}	[lbf]	–	11240	6744
F_{a2MAX}	[lbf]	–	20232	6744

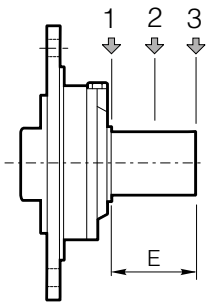
Input Radial Loads

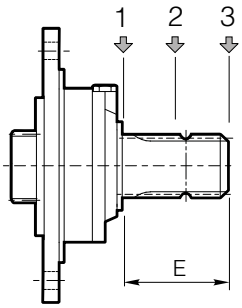


			F_{r1} [lbf]					
			$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	L	E	1	2	3	1	2	3
S-45CR1	-	4.134	2248	1349	899	1124	674	450
S-46C1	-	4.134	3147	1978	1439	1574	989	719
S-45SR	2.677	-	2248	1349	899	1124	674	450

Input Radial Loads

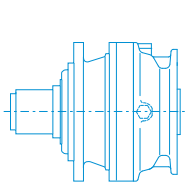




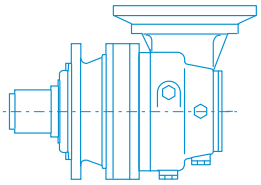


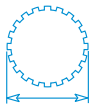
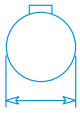
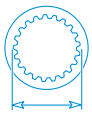
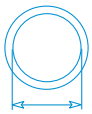
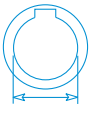
		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	**E**	**1**	**2**	**3**	**1**	**2**	**3**
SU 42x80	3.150	674	450	337	315	225	157
SU1 28x50	1.969	674	450	337	315	225	157
SU2 40x58	2.283	674	450	337	315	225	157
SU3 48x82	3.228	674	450	337	315	225	157
SUS 1 3/8”	3.819	629	405	337	292	202	135
SU2 1 1/2”x 3 1/4”	3.250	674	450	337	315	225	157
SUF1 28x50	1.969	674	450	337	315	225	157
SUF2 40x58	2.283	674	450	337	315	225	157
SUF3 48x82	3.228	674	450	337	315	225	157

DANA
BREVINI®
Motion Systems



090



i_{eff}	4.08 - 3207
T_{2N}	6785 ftlb
	B80X74 DIN5482
	3.543 in
	B70X64 DIN5482
	3.937 in
	2.732 in
	3.543 in

TECHNICAL DATA

10000
hours life

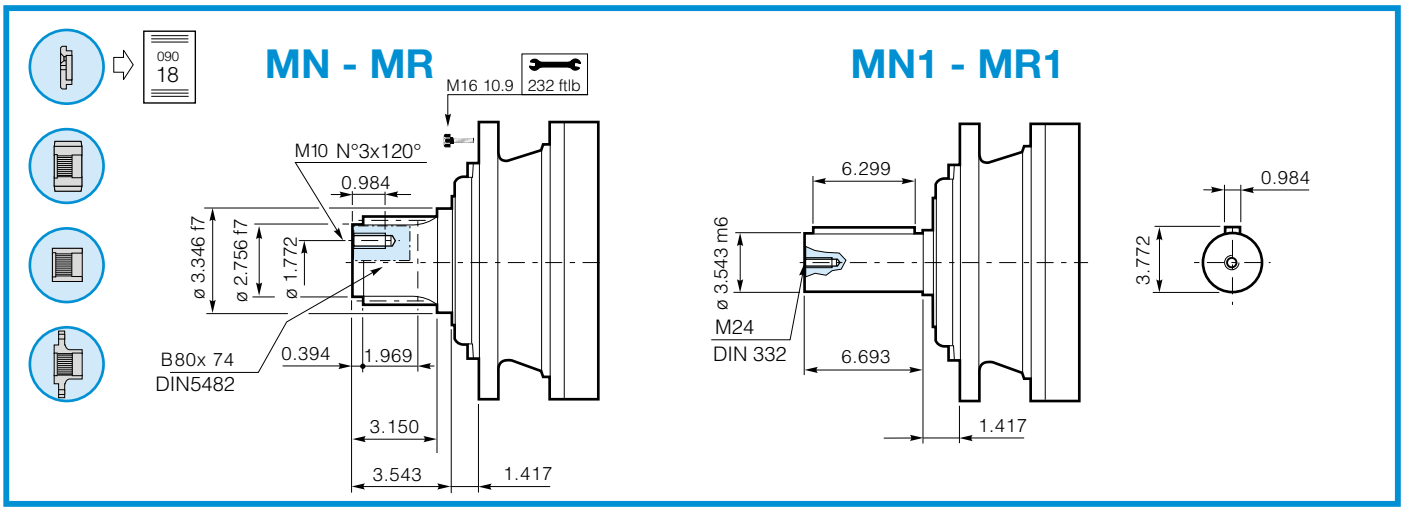
i_{eff}	1500 n_2 [rpm]	1500 T_2 [ftlb]	1500 P_2 [HP]	1000 n_2 [rpm]	1000 T_2 [ftlb]	1000 P_2 [HP]	500 n_2 [rpm]	500 T_2 [ftlb]	500 P_2 [HP]	n_{1MAX} [rpm]	T_{2MAX} [ftlb]	P_T [HP]
EM 1090 / PD 1090												
4.08	368	2165	151.5	245	2446	114.0	123	3010	69.7			
5.05	297	2252	127.4	198	2544	96.6	99	3131	59.0			
5.81	258	2302	112.6	172	2600	85.8	86	3201	52.4	2500	8164	71.9
6.92	217	2394	99.2	145	2704	73.8	72	3329	45.9			
8.70	172	2115	69.7	115	2269	49.6	57	2505	27.4			
ED 2090 / PD 2090												
14.28	105	3154	63.0	70	3561	47.5	35	4384	29.2			
16.85	89	3314	56.2	59	3743	42.2	29.7	4608	26.0			
17.68	85	3280	53.0	57	3704	40.0	28.3	4561	24.5			
21.09	71	3545	48.0	47.4	4003	36.2	23.7	4929	22.3			
24.48	61	3707	43.3	40.8	4186	32.6	20.4	5154	20.0			
29.58	51	3924	38.0	33.8	4431	28.6	16.9	5455	17.6	3000	11063	30.8
30.30	49.5	3856	36.3	33	4354	27.4	16.5	5361	16.9			
36.61	41	4081	31.8	27.3	4609	24.0	13.7	5674	14.8			
41.52	36.1	3615	24.8	24.1	3766	17.3	12	4024	9.3			
44.98	33.3	2676	17.0	22.2	2803	11.8	11.1	3018	6.4			
50.17	29.9	3686	21.1	19.9	3836	14.6	10	4095	7.8			
ET 3090 / PD 3090												
58.98	25.4	4825	23.3	17	5450	17.6	8.5	6710	10.9			
61.86	24.2	4776	22.0	16.2	5394	16.6	8.1	6124	9.4			
73.83	20.3	5163	20.0	13.5	5830	15.0	6.8	7177	9.3			
75.40	19.9	5195	19.7	13.3	5867	14.9	6.6	7223	9.1			
87.12	17.2	5425	17.8	11.5	6127	13.4	5.7	7543	8.2			
101.1	14.8	5673	16.1	9.9	6407	12.1	4.9	7658	7.2			
109.1	13.8	5803	15.2	9.2	6554	11.4	4.6	8069	7.1			
126.6	11.9	6068	13.7	7.9	6854	10.3	4	8438	6.3			
146.9	10.2	6345	12.3	6.8	7166	9.3	3.4	7946	5.1	3000	11063	20.1
152.9	9.8	6423	11.9	6.5	7253	9.0	3.3	8867	5.5			
177.5	8.5	6716	10.9	5.6	7558	8.0	2.8	8093	4.3			
209.2	7.2	5443	7.4	4.8	5767	5.2	2.4	6633	3.1			
219.7	6.8	6216	8.0	4.6	6755	5.9	2.3	7753	3.4			
252.7	5.9	5533	6.3	4	5995	4.6	2	6886	2.5			
265.4	5.7	6464	7.0	3.8	7017	5.1	1.9	8043	3.0			
305.4	4.9	5735	5.4	3.3	6229	3.9	1.6	7146	2.3			
363.7	4.1	4502	3.5	2.7	4904	2.5	1.4	5647	1.5			
EQ 4090 / PD 4090												
409.3	3.7	8629	6.0	2.4	9461	4.4	1.2	10078	2.3			
443.0	3.4	8837	5.6	2.3	9572	4.2	1.1	10187	2.1			
512.4	2.9	9139	5.1	2	9606	3.6	0.98	10391	1.9			
555.6	2.7	9030	4.7	1.8	9378	3.2	0.9	10506	1.7			
654.3	2.3	9170	4.0	1.5	9604	2.8	0.76	10742	1.6			
718.5	2.1	9590	3.8	1.4	9899	2.7	0.7	10878	1.5			
779.1	1.9	8391	3.1	1.3	8781	2.1	0.64	10217	1.2			
878.3	1.7	9424	3.1	1.1	10175	2.1	0.57	11063	1.2			
1019	1.5	8603	2.4	0.98	9321	1.7	0.49	10815	1.0			
1145	1.3	9937	2.4	0.87	10549	1.7	0.44	11063	0.9	3000	11063	14.8
1232	1.2	8885	2.0	0.81	9713	1.5	0.41	11063	0.9			
1329	1.1	10187	2.1	0.75	10764	1.6	0.38	11063	0.8			
1606	0.93	10453	1.9	0.62	11043	1.3	0.31	11063	0.7			
1864	0.8	9731	1.5	0.54	10612	1.1	0.27	11063	0.6			
1988	0.75	9569	1.3	0.5	10315	1.0	0.25	11063	0.5			
2307	0.65	9838	1.2	0.43	10602	0.9	0.22	11063	0.5			
2524	0.59	6656	0.8	0.4	7191	0.5	0.2	8186	0.3			
2787	0.54	10189	1.0	0.36	10974	0.8	0.18	11063	0.4			
3207	0.47	9062	0.8	0.31	9765	0.6	0.16	11063	0.3			

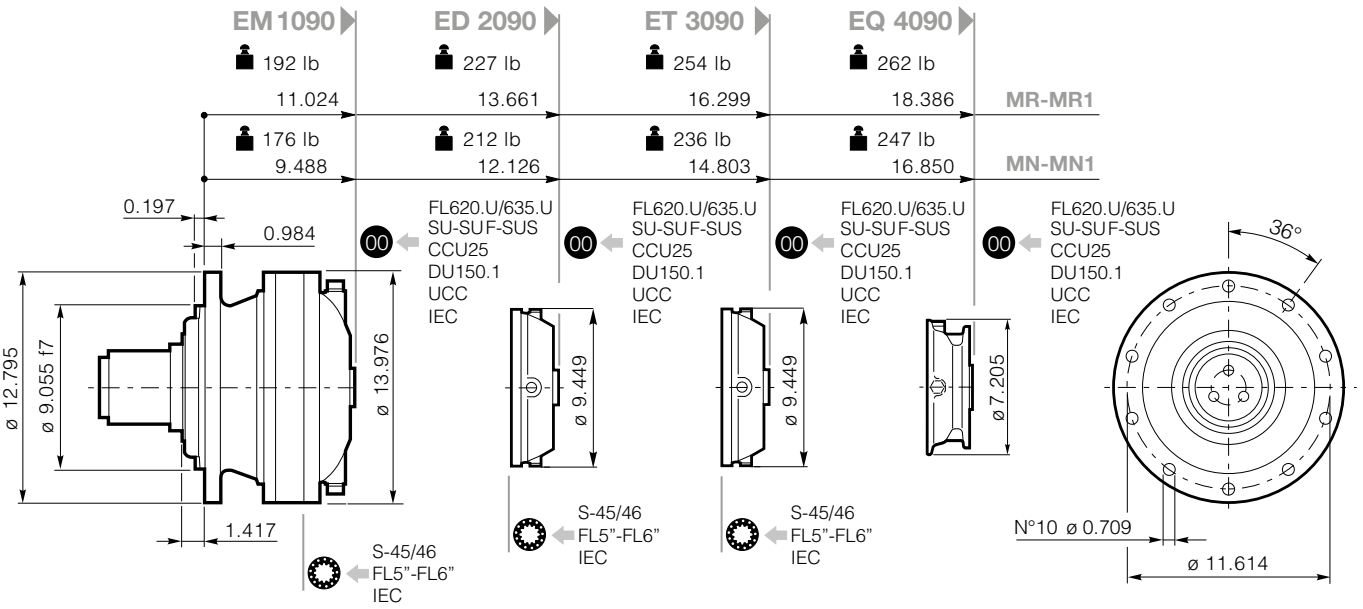
10000 hours life

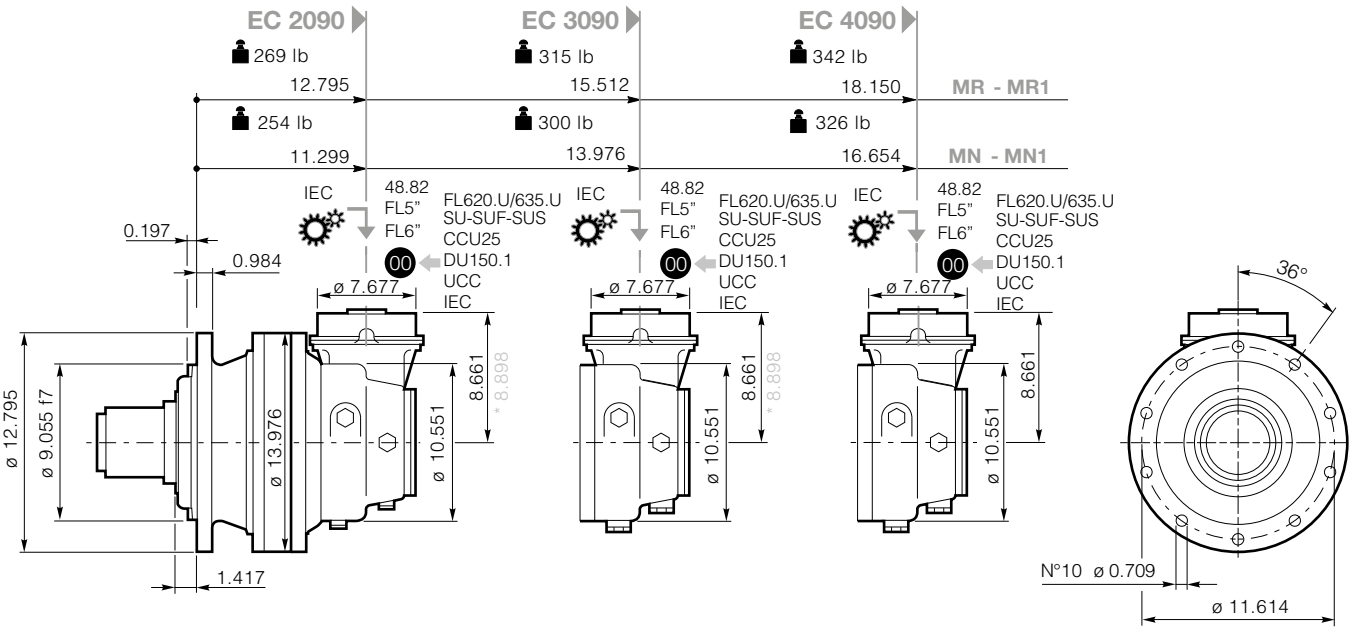
i_{eff}	1500 n_2 [rpm]	1500 T_2 [ftlb]	1500 P_2 [HP]	1000 n_2 [rpm]	1000 T_2 [ftlb]	1000 P_2 [HP]	500 n_2 [rpm]	500 T_2 [ftlb]	500 P_2 [HP]	n_{1MAX} [rpm]	T_{2MAX} [ftlb]	P_T [HP]
EC 2090 / PDA 2090												
12.24	123	2036	47.5	82	2299	35.8	40.8	2831	22.0	3000	11063	24.1
15.15	99	2519	47.5	66	2845	35.8	33	3503	22.0			
17.43	86	2899	47.5	57	3274	35.8	28.7	4030	22.0			
20.76	72	3329	45.9	48.2	3505	32.2	24.1	3766	17.3			
23.33	64	1684	20.7	42.9	1901	15.6	21.4	2341	9.5			
26.84	56	1937	20.7	37.3	2187	15.6	18.6	2693	9.5			
31.97	46.9	2308	20.7	31.3	2606	15.6	15.6	3208	9.5			
40.19	37.3	2642	18.8	24.9	2768	13.1	12.4	2983	7.1			
EC 3090 / PDA 3090												
42.84	35	4384	29.2	23.3	4952	22.0	11.7	6096	13.5	3000	11063	20.1
50.55	29.7	4608	26.0	19.8	5204	19.6	9.9	6407	12.1			
53.03	28.3	4561	24.5	18.9	5150	18.5	9.4	6043	10.9			
65.97	22.7	4762	20.7	15.2	5378	15.6	7.6	6621	9.5			
73.44	20.4	5154	20.0	13.6	5821	15.2	6.8	7166	9.3			
77.85	19.3	5245	19.3	12.8	5924	14.5	6.4	7292	9.0			
90.90	16.5	5361	16.9	11	5963	12.5	5.5	6500	6.8			
97.45	15.4	5611	16.5	10.3	6337	12.3	5.1	7801	7.6			
113.1	13.3	5867	14.9	8.8	6626	11.1	4.4	7744	6.6			
120.6	12.4	5836	13.8	8.3	6111	9.7	4.1	6884	5.5			
140.0	10.7	5977	12.2	7.1	6190	8.4	3.6	7093	4.8			
161.1	9.3	5322	9.4	6.2	5512	6.6	3.1	6296	3.8			
169.1	8.9	6076	10.3	5.9	6404	7.2	3	7364	4.2			
194.6	7.7	5410	7.9	5.1	5682	5.5	2.6	6539	3.2			
231.8	6.5	4257	5.2	4.3	4460	3.6	2.2	5155	2.1			
EC 4090 / PDA 4090												
285.8	5.2	6562	6.6	3.5	7122	4.7	1.7	8159	2.7	3000	11063	13.4
321.5	4.7	8027	7.1	3.1	9033	5.4	1.6	9750	3.0			
341.1	4.4	8170	6.8	2.9	8960	5.0	1.5	9694	2.7			
395.8	3.8	8544	6.2	2.5	9401	4.6	1.3	10032	2.4			
467.1	3.2	8978	5.5	2.1	9585	3.9	1.1	10261	2.1			
503.8	3	8947	5.1	2	9294	3.5	0.99	10368	2.0			
564.4	2.7	9310	4.7	1.8	9629	3.2	0.89	10529	1.7			
623.6	2.4	7669	3.5	1.6	8297	2.5	0.8	9461	1.5			
706.5	2.1	9236	3.8	1.4	9769	2.7	0.71	10854	1.5			
820.0	1.8	8430	3.0	1.2	8882	2.0	0.61	10329	1.2			
874.5	1.7	8190	2.7	1.1	8850	1.9	0.57	10075	1.1			
1015	1.5	8427	2.4	0.99	9102	1.7	0.49	10356	1.0			
1168	1.3	7489	1.9	0.86	8092	1.3	0.43	9212	0.8			
1226	1.2	8737	2.0	0.82	9432	1.5	0.41	10721	0.8			
1411	1.1	7766	1.6	0.71	8386	1.1	0.35	9539	0.6			
1680	0.89	6151	1.0	0.6	6654	0.8	0.3	7590	0.4			
1748	0.86	4665	0.8	0.57	5081	0.5	0.29	5855	0.3			
2113	0.71	4856	0.7	0.47	5284	0.5	0.24	6081	0.3			

* (bg) All the ratios in light grey (ie. 12.24) have particular dimensions of bevel gears in some versions. See dimensional tables.

EARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 → 090 11 SU-SUF SUS → 090 12 FL5"- FL6' FL620 FL635 → 090 13 IEC → 090 16 → 090 15 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 090 3

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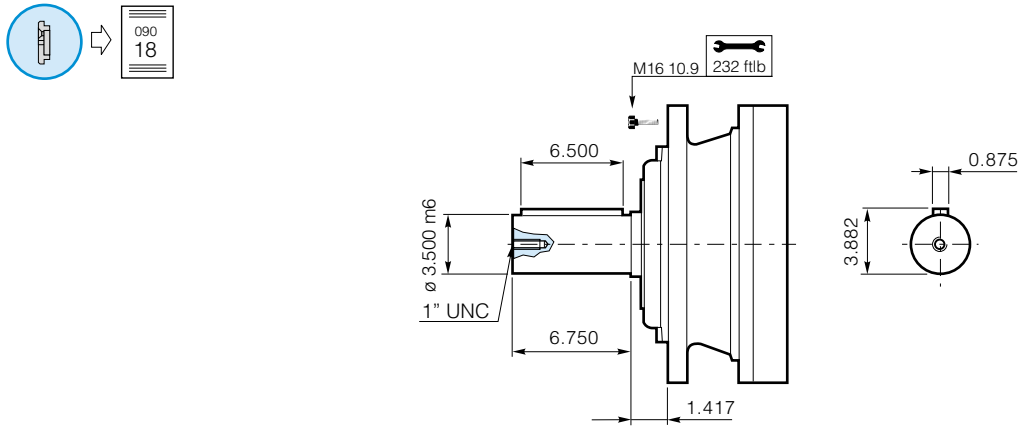

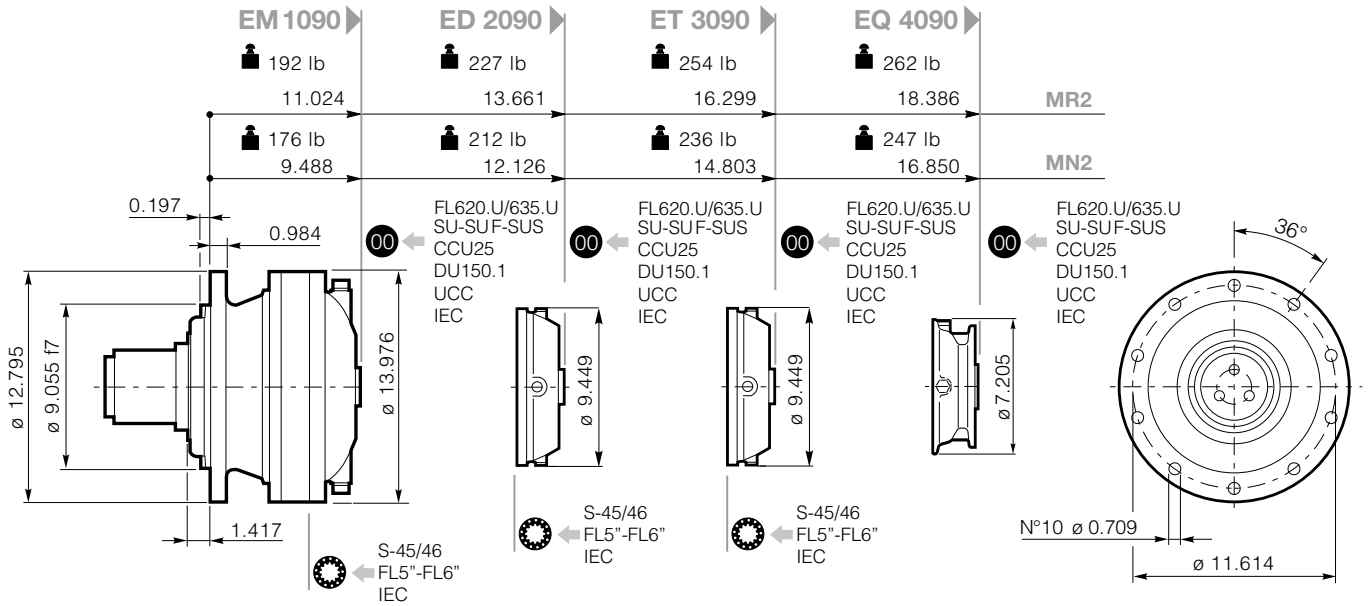

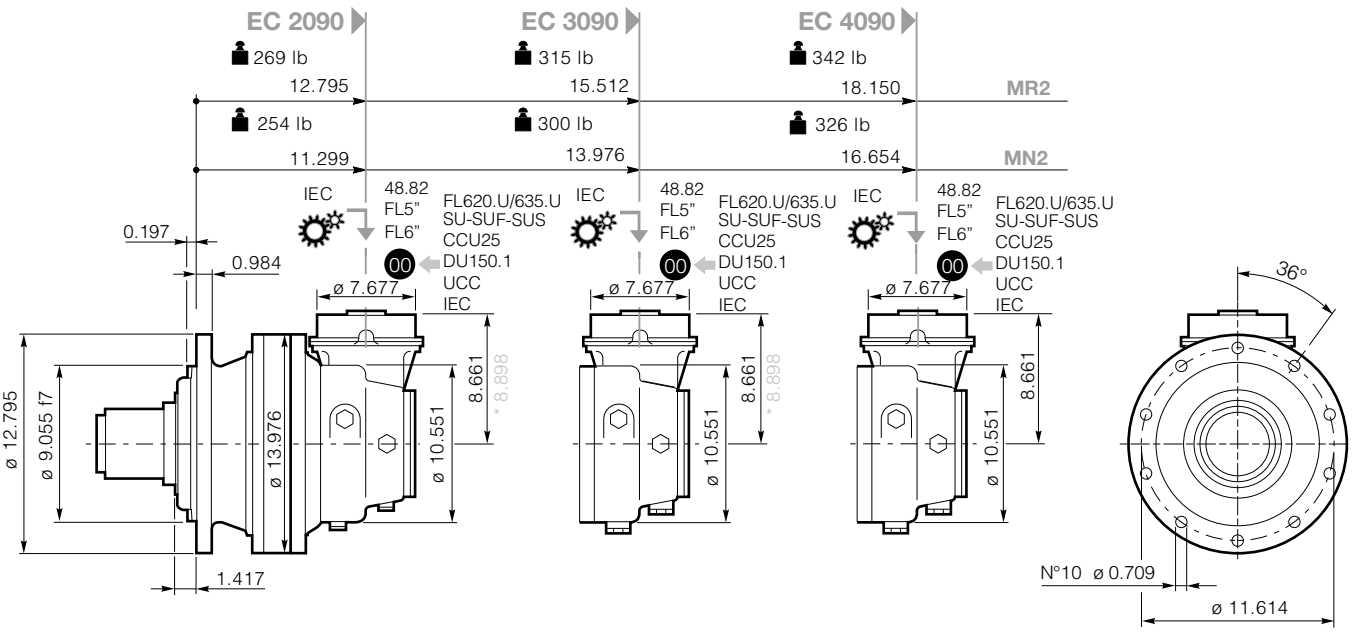

00 B 14 S-45/46 48.82 | 090 11 SU-SUF SUS | 090 12 FL5"- FL6" FL620 FL635 | 090 13 IEC | 090 16 | 090 15 CCU25 | B 16 DU150.1 UCC | B 17 * bg | 090 3

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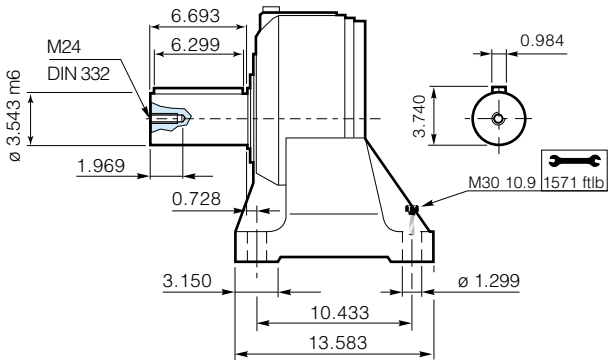
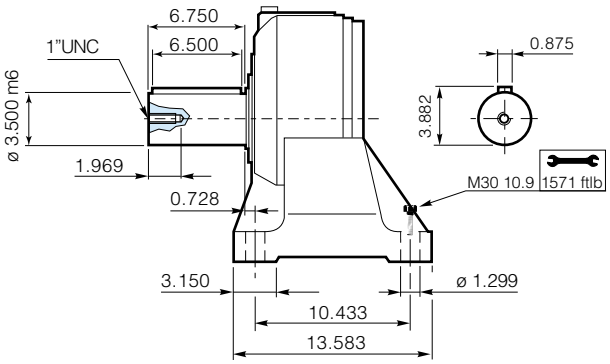
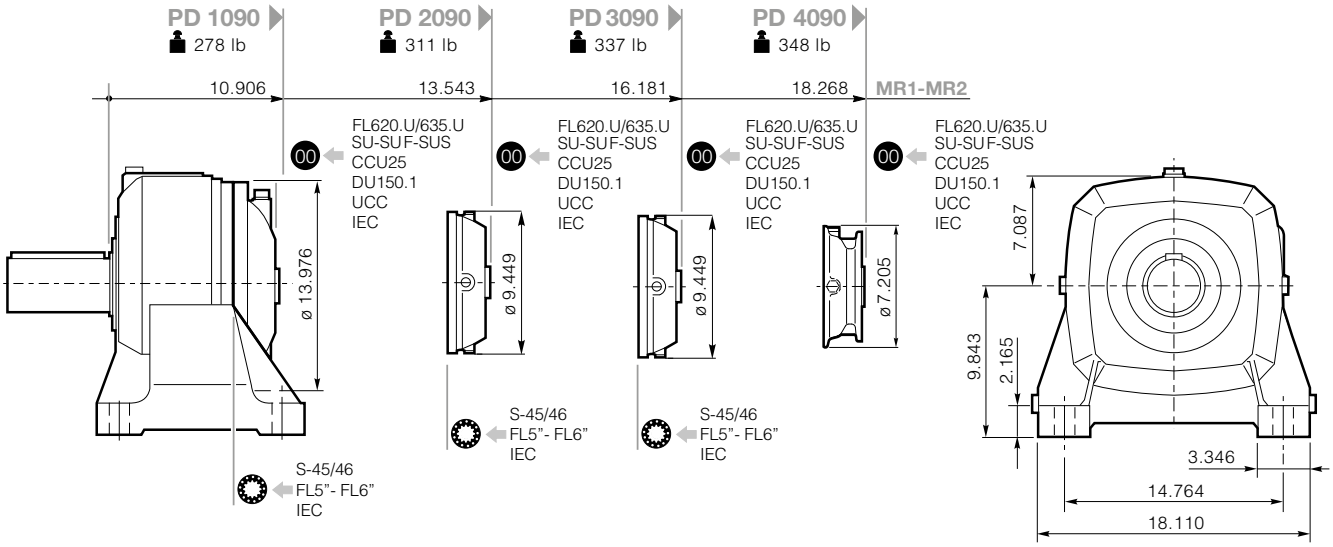
PD/PDA GEARBOX DIMENSIONS WITH OUTPUT

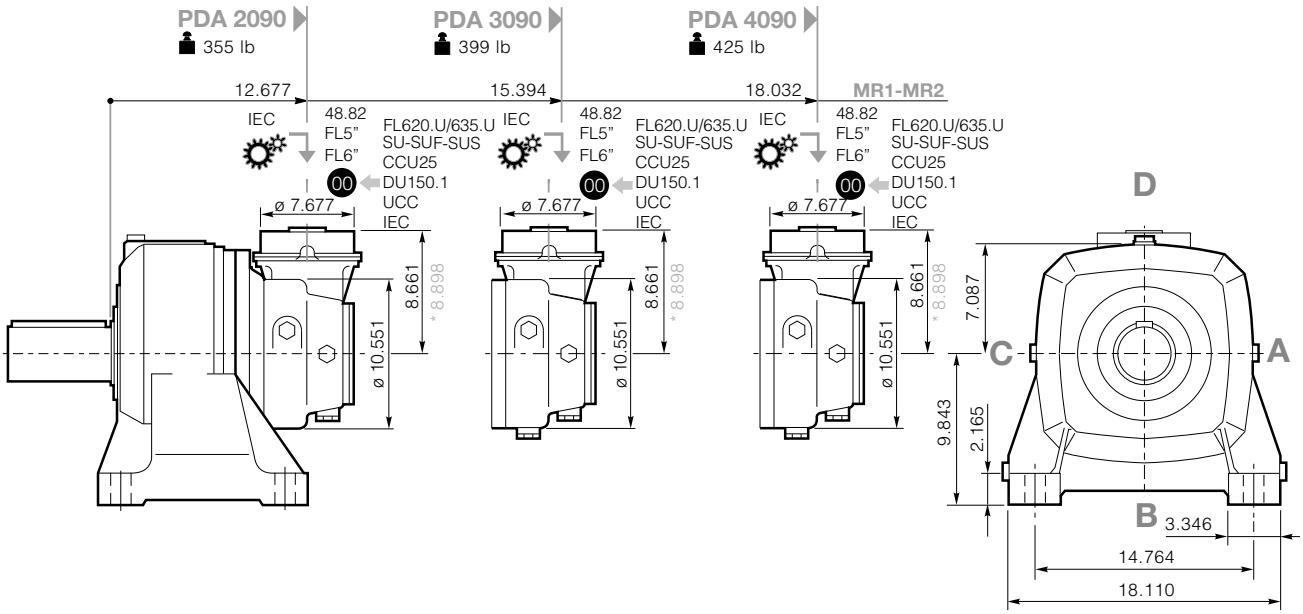
MR1



MR2







00 B 14 S-45/46 48.82 090 11 SU-SUF SUS 090 12 FL5"- FL6' FL620 FL635 090 13 IEC 090 16 090 15 CCU25 B 16 DU150.1 UCC B 17 * bg 090 3

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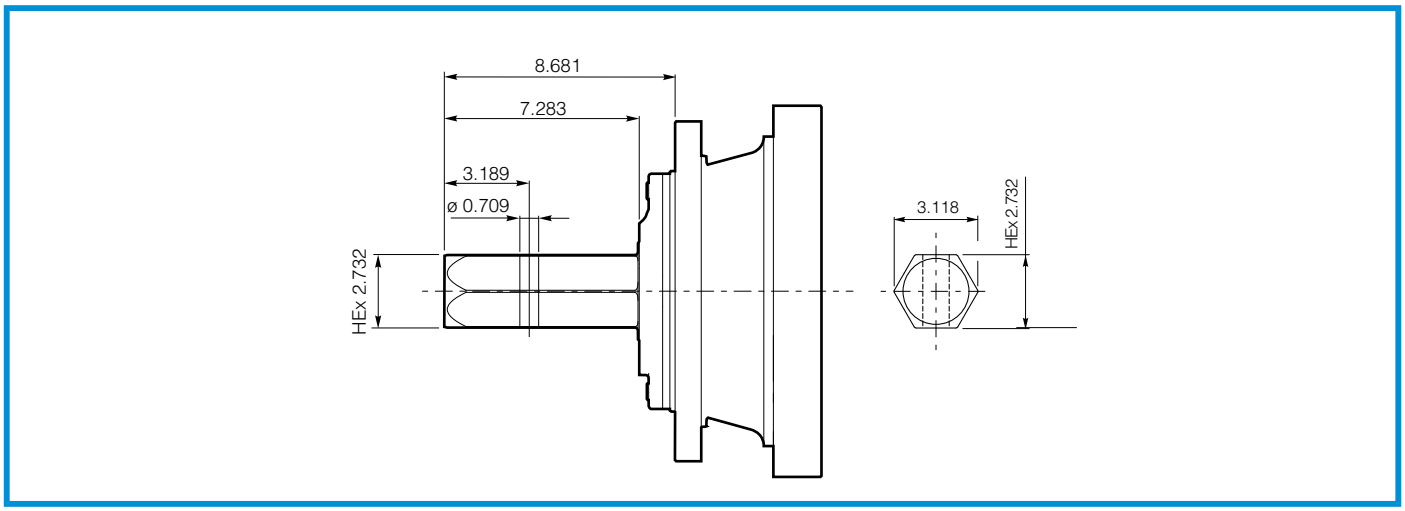

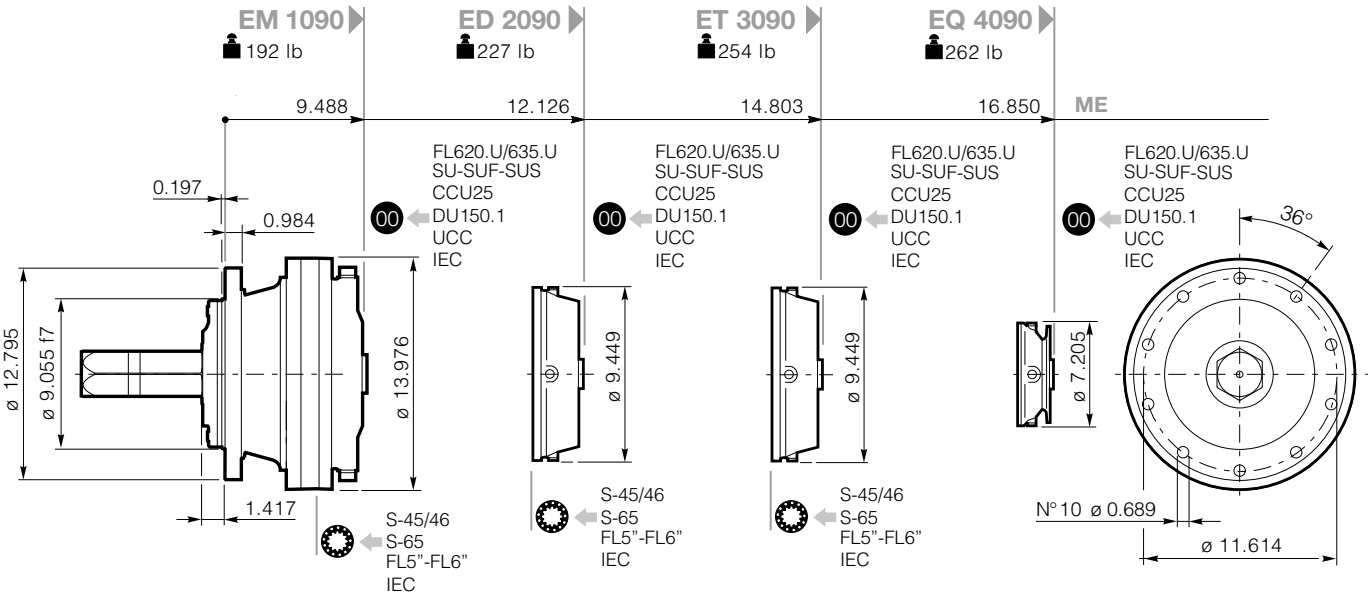

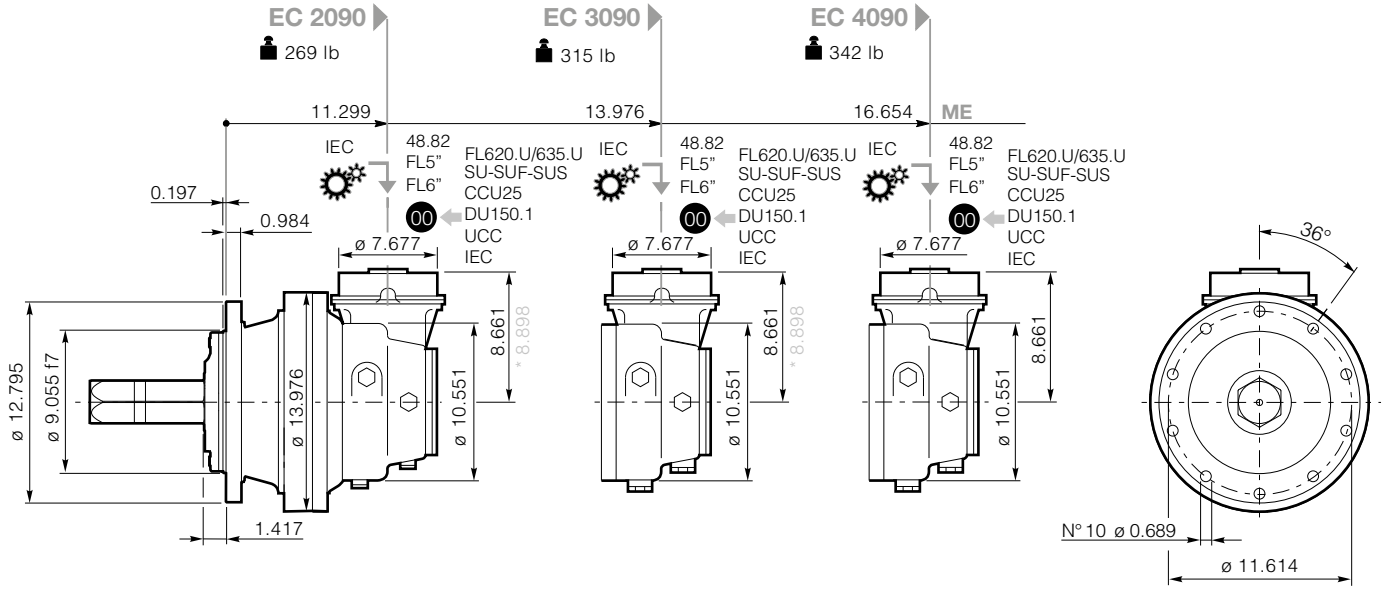

00 → B 14 S-45/46 48.82 → 090 11 SU-SUF SUS → 090 12 FL5"- FL6' FL620 FL635 → 090 13 IEC → 090 16 → 090 15 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 090 3

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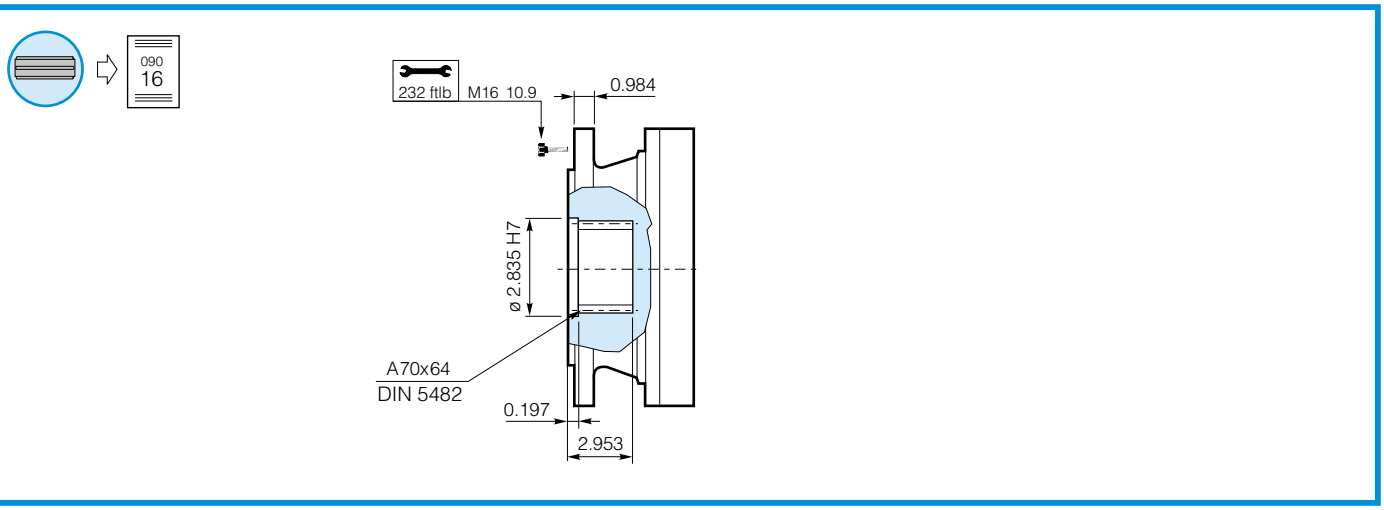
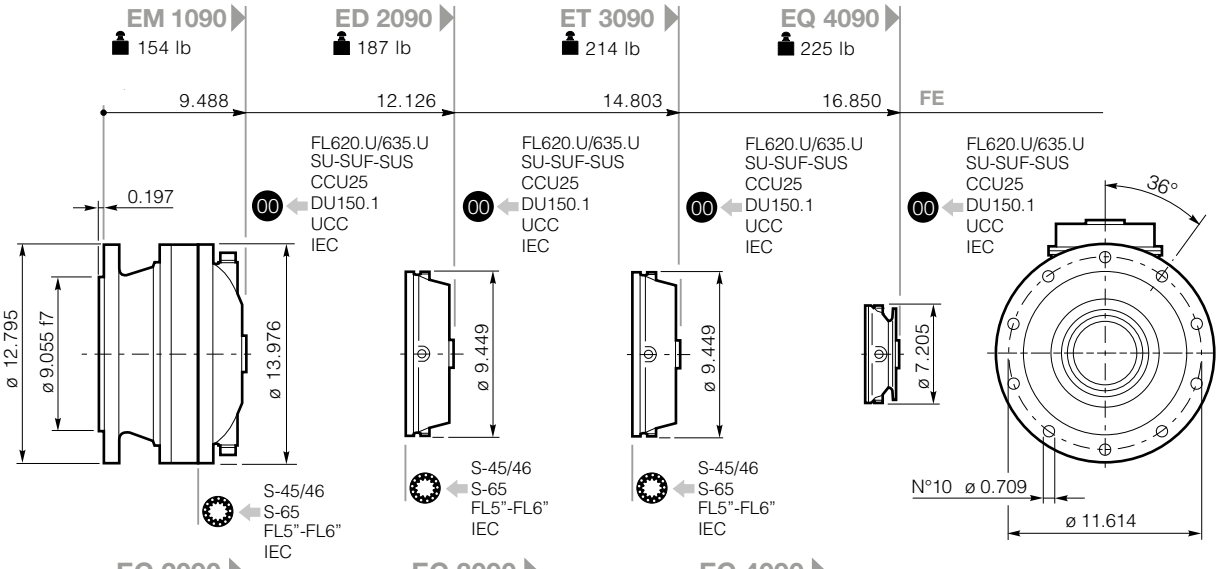
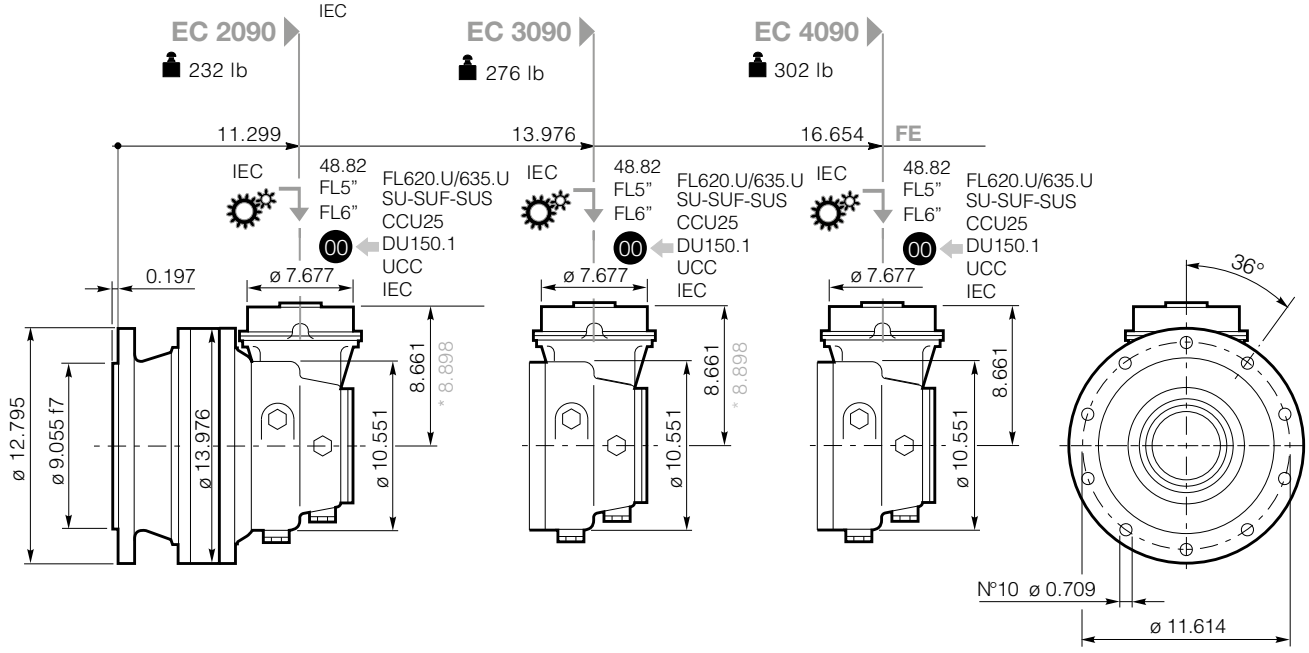
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 ⇨ 090 11 SU-SUF SUS ⇨ 090 12 FL5"- FL6' FL620 FL635 ⇨ 090 13 IEC ⇨ 090 16 ⇨ 090 15 CCU25 ⇨ B 16 DU150.1 UCC ⇨ B 17 * bg ⇨ 090 3

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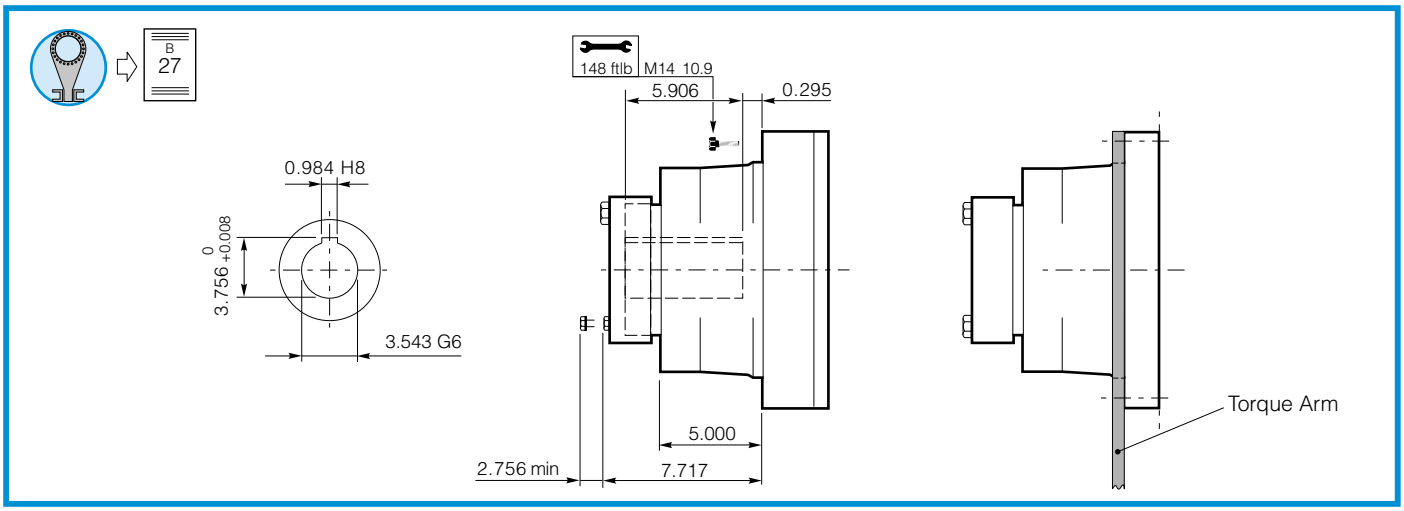

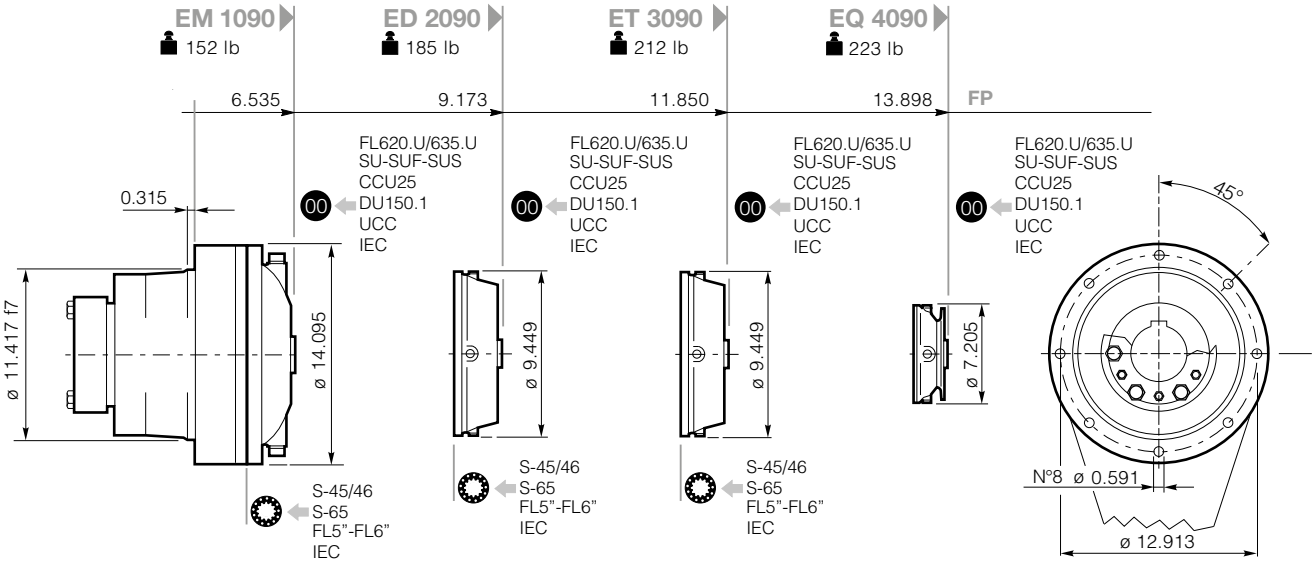

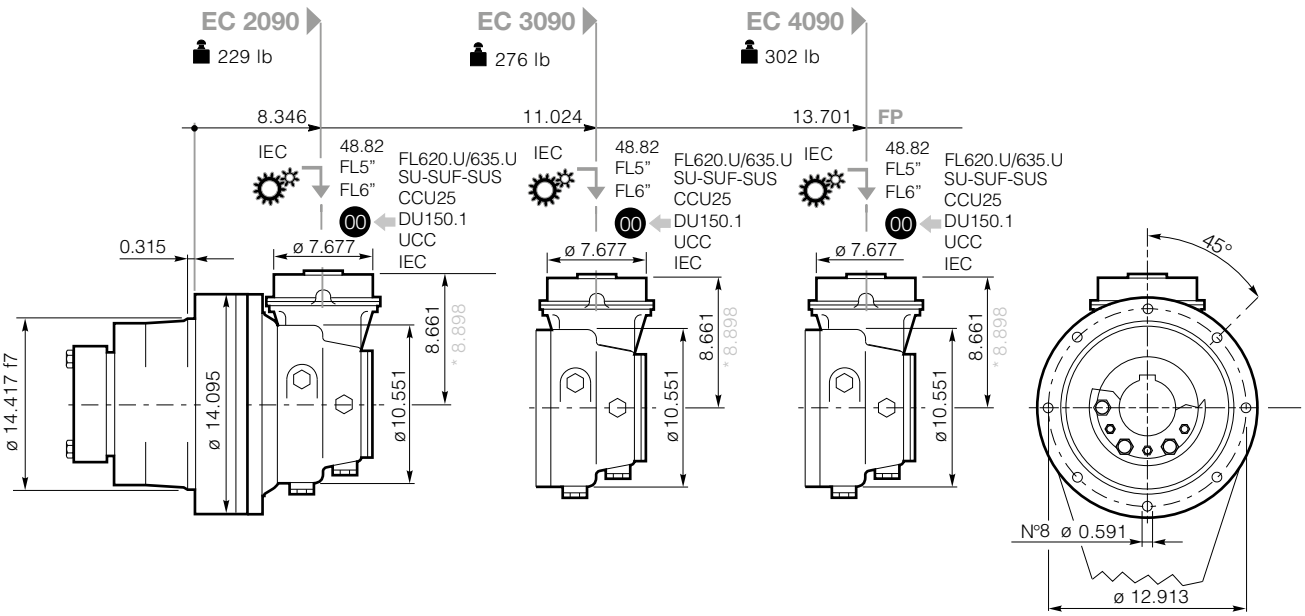

00 B 14 S-45/46 48.82 → 090 11 SU-SUF SUS → 090 12 FL5"- FL6" FL620 FL635 → 090 13 IEC → 090 16 → 090 15 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 090 3

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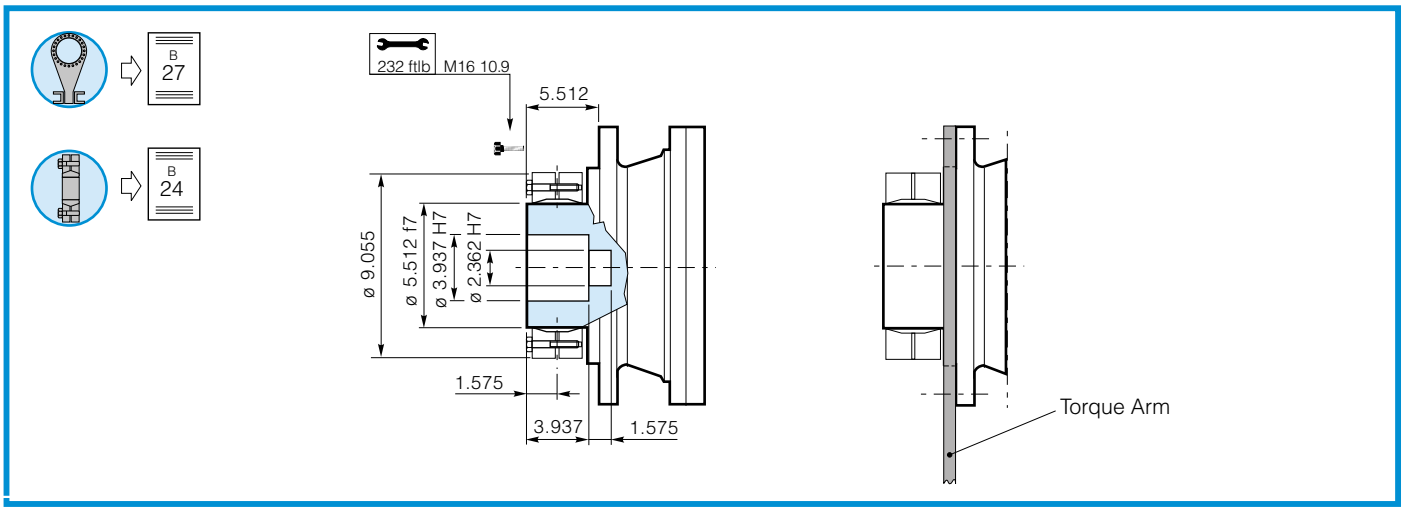
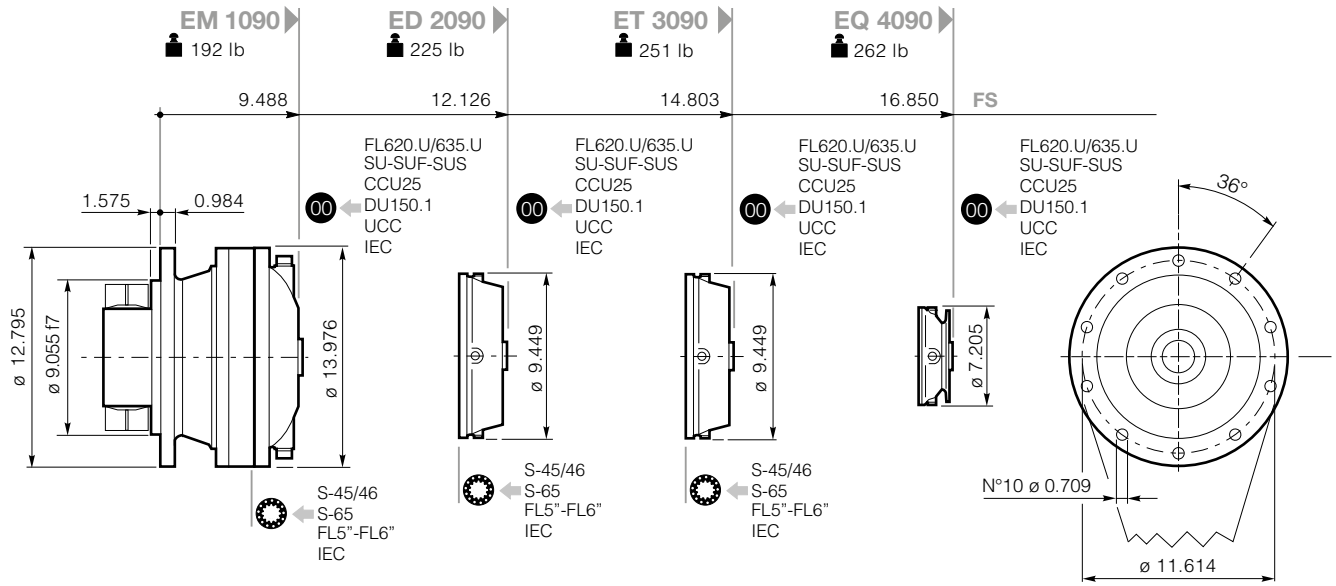
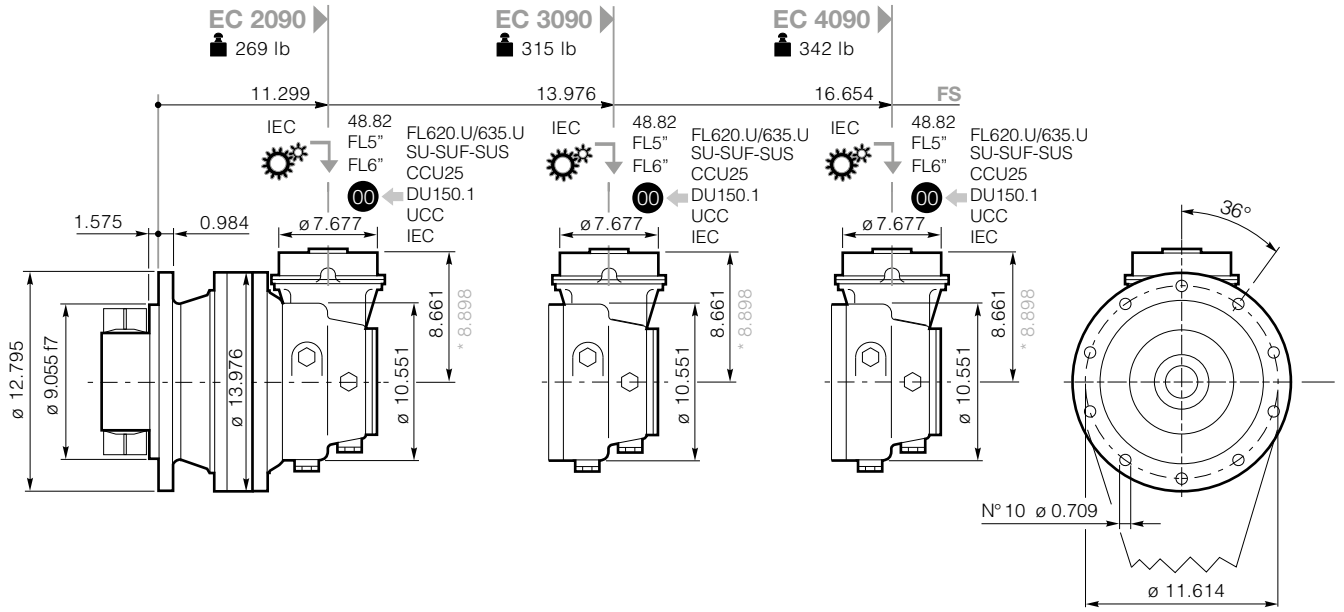
GEARBOX DIMENSIONS WITH OUTPUT







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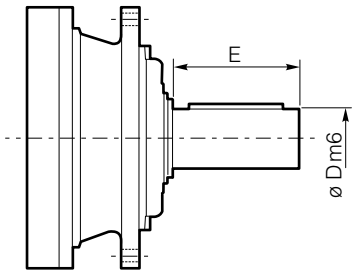
S-45CR1 - S-46C1 - S-65CR1 - S-45SR - S-65SR



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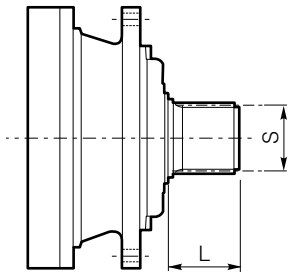
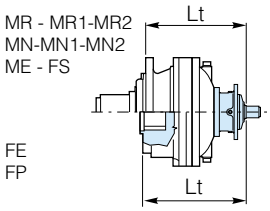
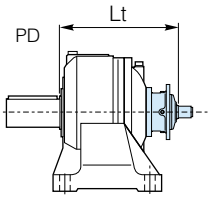


S-45SR - S-65SR

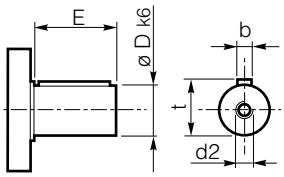


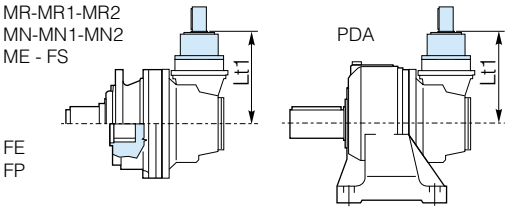


	D m6	E	L	S DIN5482		Lt MN-MN1-MN2-FS-FE-ME	Lt MR-MR1 MR2	Lt FP	Lt PD
S-45CR1	2.559	4.134	-	-	EM/PD 1090	14.606	16.102	11.654	15.984
					ED/PD 2090	14.606	16.102	11.654	15.984
					ET/PD 3090	17.244	18.779	14.291	18.268
S-46C1	2.559	4.134	-	-	EM/PD 1090	16.220	17.756	13.268	17.638
					ED/PD 2090	16.220	17.756	13.268	17.638
					ET/PD 3090	18.898	20.394	15.945	20.276
S-45SR	-	-	2.677	B58x53	EM/PD 1090	14.606	16.102	11.654	15.984
					ED/PD 2090	14.606	16.102	11.654	15.984
S-65CR1	3.150	5.118	-	-	EM1090	16.142	17.657	13.189	17.539
S-65SR	-	-	3.543	B70x64	EM1090	16.142	17.657	13.189	17.539

For more informations, go to page B13

48.82

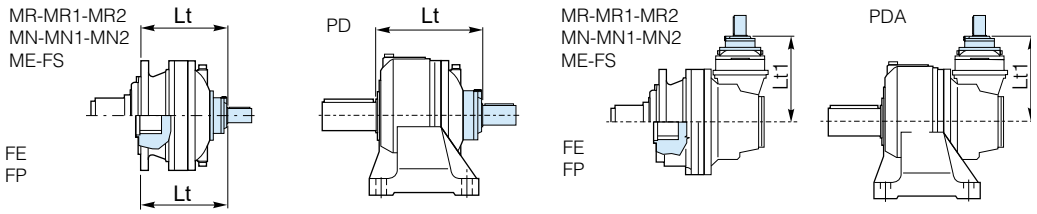


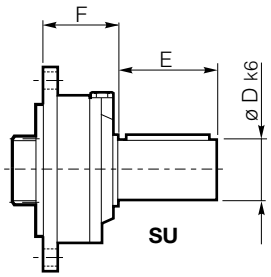


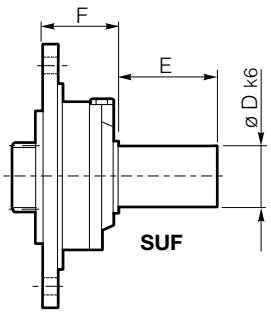
	D	E		Lt1 MN-MN1-MN2-MR-MR1-MR2-FS-FE-FP-ME-PDA
48.82	1.890	3.228	EC/PDA 2090	11.024
			EC/PDA 3090	11.024
			EC/PDA 4090	11.024

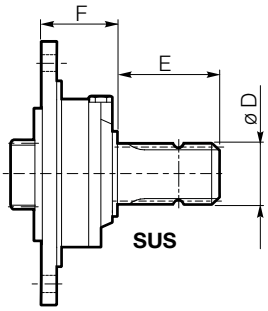
For the input configuration S46C1, 4882 (CC40 - CC41), FL5" can be fitted with an anti-return device.
For further information and technical data, contact Dana Sale Technical Support

SU - SUF - SUS







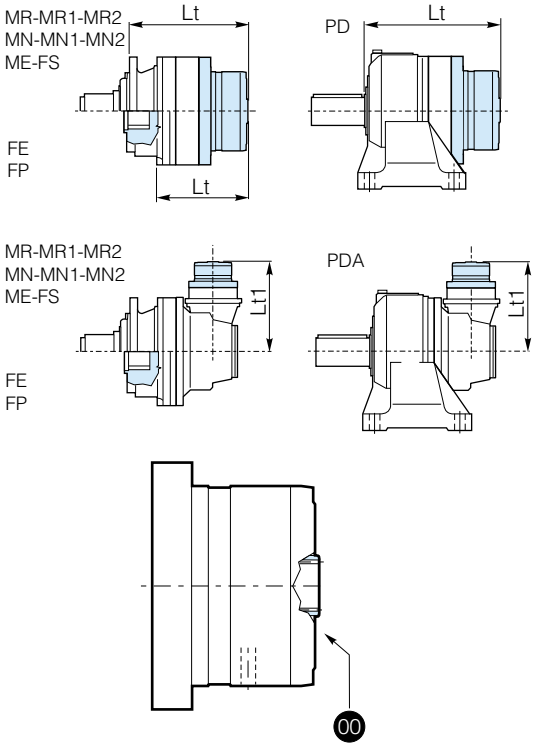


	D	E	F		Lt 00			
					MN-MN1-MN2-FS-FE-ME	MR-MR1-MR2	FP	PD
SU1 28x50	1.102	1.969	2.362	EM/PD 1090	11.850	13.386	8.898	13.268
				ED/PD 2090	14.488	16.024	11.535	15.905
				ET/PD 3090	17.165	18.661	14.213	18.543
				EQ/PD 4090	19.213	20.748	16.260	20.630
SU2 40x58	1.575	2.283	2.362	EM/PD 1090	11.850	13.386	8.898	13.268
				ED/PD 2090	14.488	16.024	11.535	15.905
				ET/PD 3090	17.165	18.661	14.213	18.543
				EQ/PD 4090	19.213	20.748	16.260	20.630
SU3 48x82	1.890	3.228	2.362	EM/PD 1090	11.850	13.386	8.898	13.268
				ED/PD 2090	14.488	16.024	11.535	15.905
				ET/PD 3090	17.165	18.661	14.213	18.543
				EQ/PD 4090	19.213	20.748	16.260	20.630
SU 42x80	1.654	3.150	3.996	EM/PD 1090	13.504	15.039	10.551	14.921
				ED/PD 2090	16.142	17.677	13.189	17.559
				ET/PD 3090	18.779	20.315	15.827	20.197
				EQ/PD 4090	20.866	22.362	17.913	22.244
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	EM/PD 1090	13.504	15.039	10.551	14.921
				ED/PD 2090	16.142	17.677	13.189	17.559
				ET/PD 3090	18.779	20.315	15.827	20.197
				EQ/PD 4090	20.866	22.362	17.913	22.244
SU2 1.5x3.25	1.500	3.250	2.362	EM/PD 1090	11.850	13.386	8.898	13.268
				ED/PD 2090	14.488	16.024	11.535	15.905
				ET/PD 3090	17.165	18.661	14.213	18.543
				EQ/PD 4090	19.213	20.748	16.260	20.630
SUF1 28x50	1.102	1.969	2.362	EM/PD 1090	11.850	13.386	8.898	13.268
				ED/PD 2090	14.488	16.024	11.535	15.905
				ET/PD 3090	17.165	18.661	14.213	18.543
				EQ/PD 4090	19.213	20.748	16.260	20.630
SUF2 40x58	1.575	2.283	2.362	EM/PD 1090	11.850	13.386	8.898	13.268
				ED/PD 2090	14.488	16.024	11.535	15.905
				ET/PD 3090	17.165	18.661	14.213	18.543
				EQ/PD 4090	19.213	20.748	16.260	20.630
SUF3 48x82	1.890	3.228	2.362	EM/PD 1090	11.850	13.386	8.898	13.268
				ED/PD 2090	14.488	16.024	11.535	15.905
				ET/PD 3090	17.165	18.661	14.213	18.543
				EQ/PD 4090	19.213	20.748	16.260	20.630

	D	E	F		Lt1 00
					MR-MR1-MR2-MN-MN1-MN2-FS-FE-ME-FP-PDA
SU1 28x50	1.102	1.969	2.362	EC/PDA 2090 EC/PDA 3090 EC/PDA 4090 EC/PDA 2090* EC/PDA 3090*	11.024 11.260
SU2 40x58	1.575	2.283	2.362		
SU3 48x82	1.890	3.228	2.362		
SU 42x80	1.654	3.150	3.996	EC/PDA 2090 EC/PDA 3090 EC/PDA 4090 EC/PDA 2090* EC/PDA 3090*	12.677 12.913
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996		
SU2 1.5x3.25	1.500	3.250	2.362	EC/PDA 2090 EC/PDA 3090 EC/PDA 4090 EC/PDA 2090* EC/PDA 3090*	11.024 11.260
SUF1 28x50	1.102	1.969	2.362		
SUF2 40x58	1.575	2.283	2.362		
SUF3 48x82	1.890	3.228	2.362		

* bg 090 3

FL5” FL6” FL250 - FL350 - FL450 / FL650 - FL750

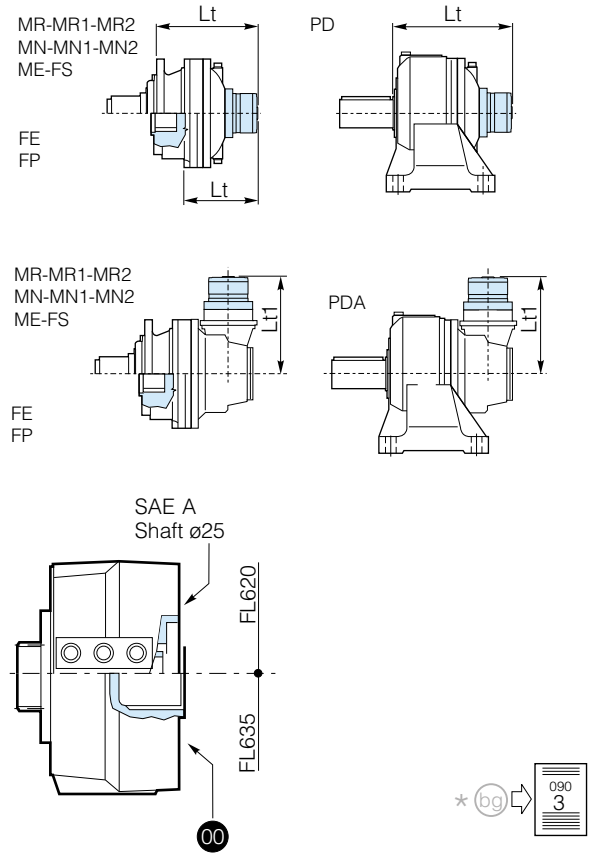


		Lt			
		MN-MN1-MN2 FE-FS-ME	MR-MR1 MR2	FP	PD
FL250 FL350 FL450	EM/PD 1090	13.425	14.961	10.472	14.842
	ED/PD 2090	15.827	17.323	12.874	17.244
	ET/PD 3090	18.465	20.000	15.512	19.882
FL650 FL750	EM/PD 1090	13.976	15.472	11.024	15.354
	ED/PD 2090	16.339	17.874	13.386	17.756
	ET/PD 3090	19.016	20.512	16.063	20.394
FL960	EM/PD 1090	14.528	16.024	11.575	15.905
	ED/PD 2090	17.402	18.937	14.449	18.819

		Lt1
		MN-MN1-MN2-FE-FS-ME-MR MR1-MR2-FP-PDA
FL250 FL350 FL450	EC/PDA 2090	11.024
	EC/PDA 2090*	14.842
	EC/PDA 3090	11.024
	EC/PDA 3090*	14.842
	EC/PDA 4090	11.024
	EC/PDA 4090*	14.842

* bg 090 3

FL620.10 - FL635.10 / FL620.U - FL635.U



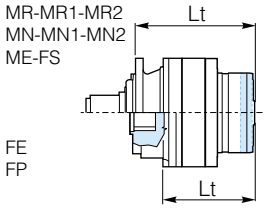
		Lt			
		MN-MN1-MN2 FE-FS-ME	MR-MR1-MR2	FP	PD
FL620.U	EM/PD 1090	13.622	15.118	10.669	15.000
	ED/PD 2090	16.260	17.756	13.307	17.638
	ET/PD 3090	18.898	20.433	15.945	20.315
	EQ/PD 4090	20.984	22.480	18.031	22.362
FL635.U	EM/PD 1090	13.071	14.606	10.118	14.488
	ED/PD 2090	15.709	17.244	12.756	17.126
	ET/PD 3090	18.386	19.882	15.433	19.764
	EQ/PD 4090	20.433	21.968	17.480	21.850

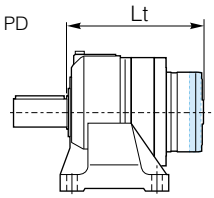
		Lt			
		MN-MN1-MN2 FE-FS-ME	MR-MR1-MR2	FP	PD
FL620.10	EQ/PD 4090	19.370	20.866	16.417	20.748
FL635.10	EQ/PD 4090	18.661	20.157	15.709	20.039

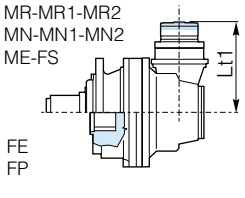
		Lt1			
		MN-MN1-MN2 FE-FS-ME	MR-MR1-MR2	FP	PDA
FL620.U	EC/PDA 2090	12.795	12.795	12.795	12.795
	EC/PDA 2090*	13.031	13.031	13.031	13.031
	EC/PDA 3090	12.795	12.795	12.795	12.795
	EC/PDA 3090*	13.031	13.031	13.031	13.031
	EC/PDA 4090	12.795	12.795	12.795	12.795
	EC/PDA 4090*	13.031	13.031	13.031	13.031
FL635.U	EC/PDA 2090	12.244	12.244	12.244	12.244
	EC/PDA 2090*	12.480	12.480	12.480	12.480
	EC/PDA 3090	12.244	12.244	12.244	12.244
	EC/PDA 3090*	12.480	12.480	12.480	12.480
	EC/PDA 4090	12.244	12.244	12.244	12.244
	EC/PDA 4090*	12.480	12.480	12.480	12.480

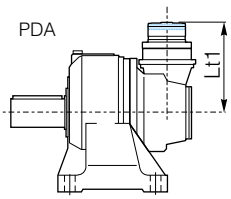
* bg 090 3

RL





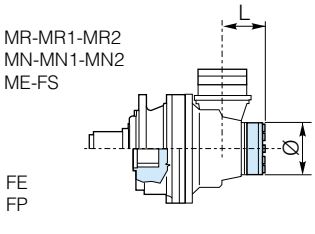


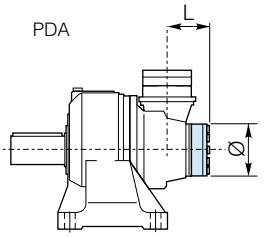


				Lt			
				MN-MN1-MN2-FE-FS-ME	MR-MR1-MR2	FP	PD
RL	+	FL250 FL350 FL450	EM/PD 1090	14.449	15.945	11.496	15.827
			ED/PD 2090	16.850	18.346	13.898	18.228
			ET/PD 3090	19.488	21.024	16.535	20.905
		FL650 FL750	EM/PD 1090	15.000	16.496	12.047	16.378
			ED/PD 2090	17.362	18.898	14.409	18.779
			ET/PD 3090	20.039	21.535	17.087	21.417
		FL960	EM/PD 1090	15.551	17.047	12.598	16.929
			ED/PD 2090	18.425	19.961	15.472	19.842

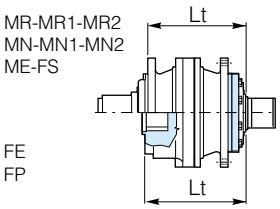
				Lt1
				MR-MR1-MR2-MN-MN1-MN2-FS-FE-ME-FP-PDA
RL	+	FL250 FL350 FL450	EC/PDA 2090	12.047
			EC/PDA 2090*	15.866
			EC/PDA 3090	12.047
			EC/PDA 3090*	15.866
			EC/PDA 4090	12.047
			EC/PDA 4090*	15.866

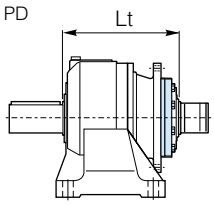
* bg 090 3





				L	Ø
RL	+	CC40	EC/PDA 2090	135.2	150
			EC/PDA 3090	135.2	150
			EC/PDA 4090	135.2	150



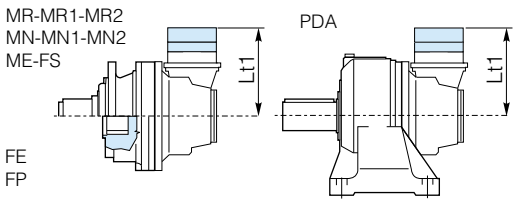


				Lt			
				MN-MN1-MN2-FE-FS-ME	MR-MR1-MR2	FP	PD
RL	+	S46C1	EM/PD 1090	432	471	357	468
			ED/PD 2090	432	471	357	468
			ET/PD 3090	500	538	425	535

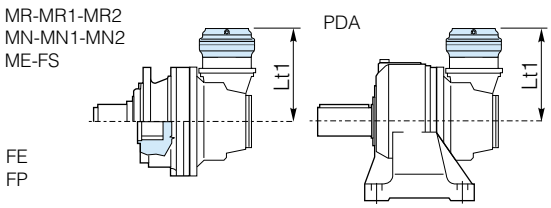
Click **DANA** button to return to section index

Click *i* button to return to main index

ADDITIONAL PLANETARY STAGE ON BEVEL GEAR



EM1010 - EM1020

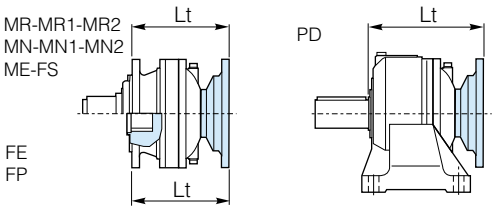


ED2010 - ED2020 ED2021

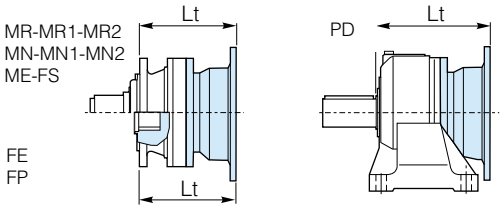
		Lt1				
		EC2090 PDA2090	EC2090* PDA2090*	**EC3090 PDA3090**	EC3090* PDA3090*	**EC4090 PDA4090**
	EM1010	12.874	13.110	12.874	13.110	12.874
	EM1020	13.583	13.819	13.583	13.819	13.583
	ED2010	14.409	14.646	14.409	14.646	14.409
	ED2020	15.669	15.905	15.669	15.905	15.669
	ED2021	16.260	16.496	16.260	16.496	16.260

* bg 090 3

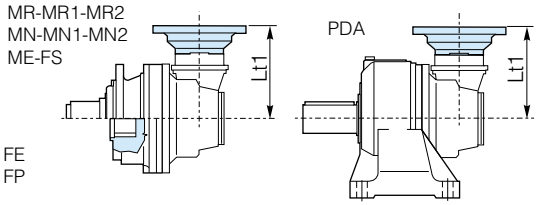
IEC Motor



		Lt 00							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
EM 1090	MN-MN1-MN2-FE-FS-ME	10.276	10.354	10.551	10.591	13.228	14.449	14.882	16.063
EM 1090	MR-MR1-MR2	11.811	11.890	12.087	12.126	14.764	15.984	16.417	17.598
EM 1090	FP	7.323	7.402	7.598	7.638	10.276	11.496	11.929	13.110
ED 2090	MN-MN1-MN2-FE-FS-ME	12.913	12.992	13.189	13.228	15.866	17.087	17.520	18.701
ED 2090	MR-MR1-MR2	14.449	14.528	14.724	14.764	17.402	18.622	19.055	20.236
ED 2090	FP	9.961	10.039	10.236	10.276	12.913	14.134	14.567	15.748
ET 3090	MN-MN1-MN2-FE-FS-ME	15.591	15.669	15.866	15.905	18.543	19.764	20.197	21.378
ET 3090	MR-MR1-MR2	17.087	17.165	17.362	17.402	20.039	21.260	21.693	22.874
ET 3090	FP	12.638	12.362	12.913	12.953	15.591	16.811	17.244	18.425
EQ 4090	MN-MN1-MN2-FE-FS-ME	17.638	17.717	17.913	17.953	20.591	21.811	22.244	23.425
EQ 4090	MR-MR1-MR2	19.173	19.252	19.449	19.488	22.126	23.346	23.779	24.961
EQ 4090	FP	14.685	14.764	14.961	15.000	17.638	18.858	19.291	20.472
PD 1090	PD	11.693	11.772	11.968	12.008	14.646	15.866	16.299	17.480
PD 2090	PD	14.331	14.409	14.606	14.646	17.283	18.504	18.937	20.118
PD 3090	PD	16.968	17.047	17.244	17.283	19.921	21.142	21.575	22.756
PD 4090	PD	19.055	19.134	19.331	19.370	22.008	23.228	23.661	24.842



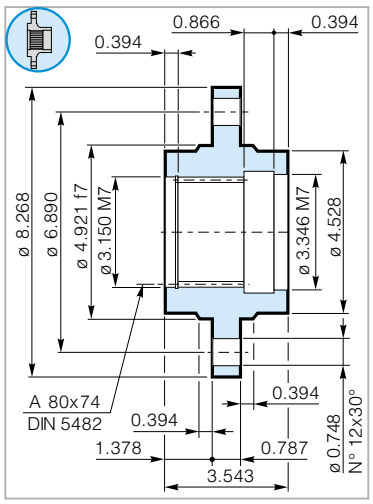
		Lt		
		IEC		
		160 180	200	225
EM 1090	MN-MN1-MN2-FE-FS-ME	13.425	14.961	16.063
EM 1090	MR-MR1-MR2	14.961	16.496	17.598
EM 1090	FP	10.472	12.008	13.110
ED 2090	MN-MN1-MN2-FE-FS-ME	17.087	17.480	18.661
ED 2090	MR-MR1-MR2	18.622	19.016	20.197
ED 2090	FP	14.134	14.528	15.709
ET 3090	MN-MN1-MN2-FE-FS-ME	19.882	20.157	-
ET 3090	MR-MR1-MR2	21.260	21.654	-
ET 3090	FP	16.811	17.205	-



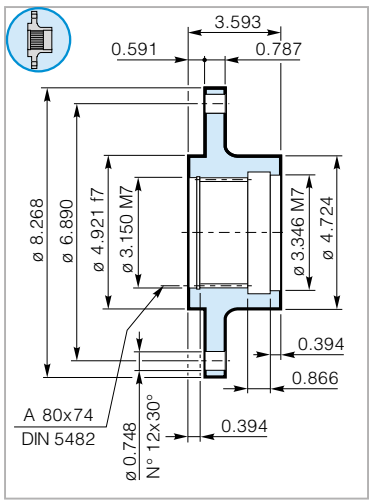
		Lt1							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
EC/PDA 2090	MN-MR-MN1-MN2-MR1-MR2 FE-FS-ME-FP-PDA	9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC/PDA 2090*		9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472
EC/PDA 3090		9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC/PDA 3090*		9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472
EC/PDA 4090		9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236

* bg 090 3

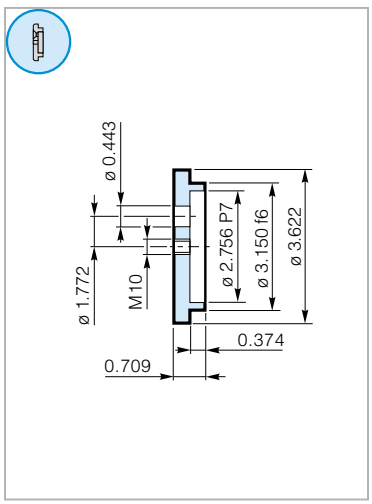
FA 090 MN - MR — Wheel Flange



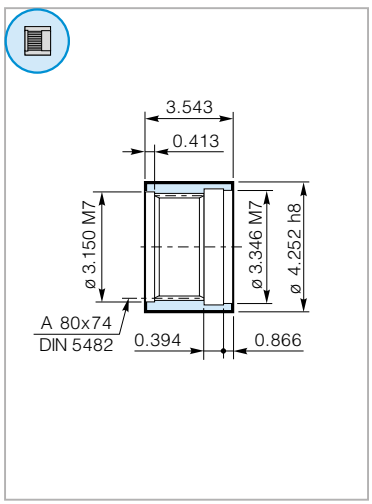
FR 090 MN - MR — Wheel Flange



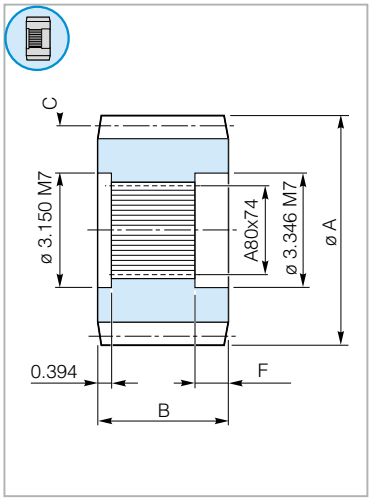
RDF 090 MN - MR — Lock Washer



MS 090 MN - MR — Splined Sleeve

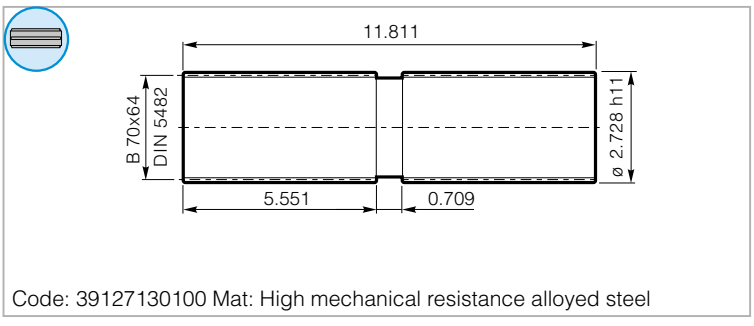


MN - MR — Pinions



A	B	C			F
		m	z	x	
7.087	3.465	0.394	0.591	0.020	1.220
6.378	3.937	0.394	0.551	0.012	1.220
5.709	3.543	0.394	0.472	0.020	1.220

BS 090 FE — Splined Bar

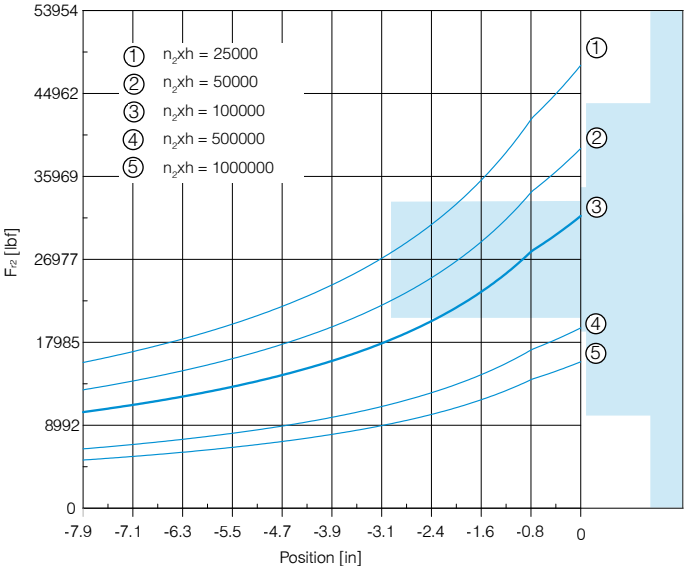


Code: 39127130100 Mat: High mechanical resistance alloyed steel

Output Radial Loads

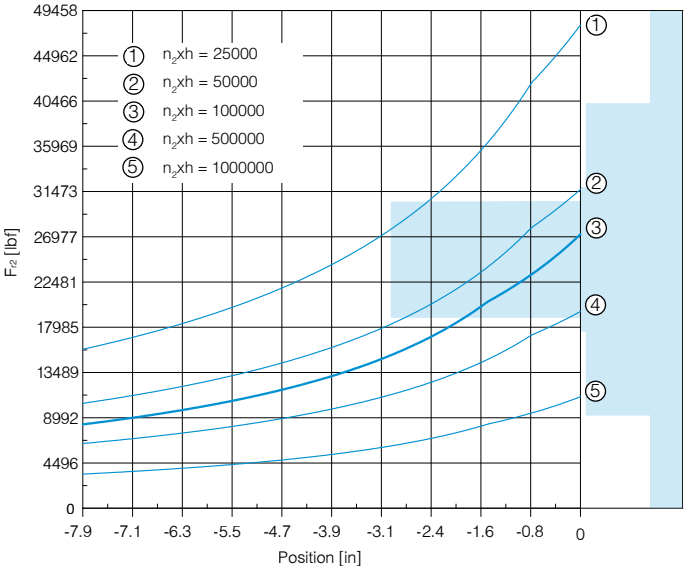
Gearbox Versions:
ED, ET, EQ, EC

MR-MR1-MR2



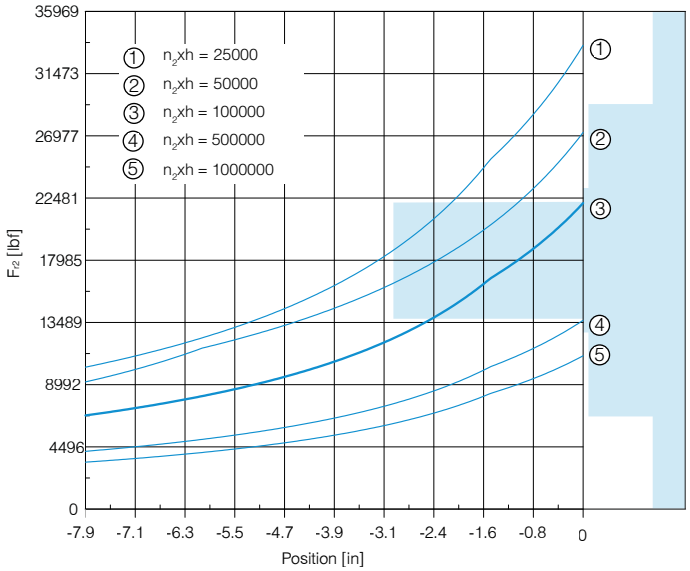
Gearbox Versions:
ED, ET, EQ, EC

MN-MN1-MN2

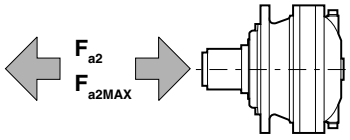


Gearbox Versions:
PD, PDA

MR1-MR2

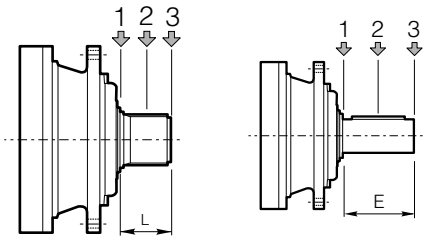


Output Axial Loads



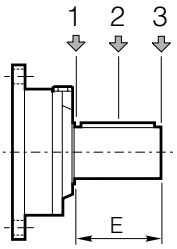
		Flange mounted		PD-PDA
		MN-MN1-MN2	MR-MR1-MR2	MR1-MR2
F_{a2}	[lbf]	10790	17984	7868
F_{a2MAX}	[lbf]	13488	20232	7868

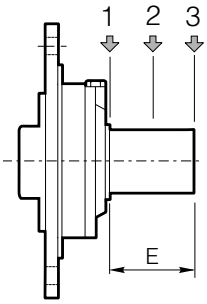
Input Radial Loads

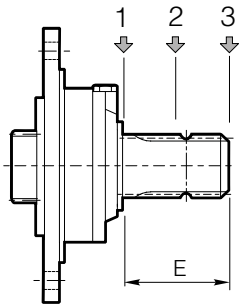


			F_{r1} [lbf]					
			$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	L	E	1	2	3	1	2	3
S-45CR1	-	4.134	2248	1349	899	1124	674	450
S-46C1	-	4.134	3147	1978	1439	1574	989	719
S-45SR	2.677	-	2248	1349	899	1124	674	450
S-65CR1	-	5.118	5350	3484	2158	2675	1753	1079
S-65SR	3.543	-	5350	3484	2158	2675	1753	1079

Input Radial Loads

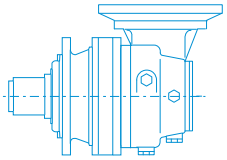


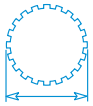
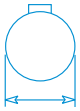
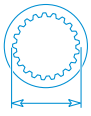
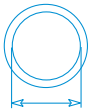
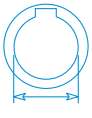




		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	**E**	**1**	**2**	**3**	**1**	**2**	**3**
SU 42x80	3.150	674	450	337	315	225	157
SU1 28x50	1.969	674	450	337	315	225	157
SU2 40x58	2.283	674	450	337	315	225	157
SU3 48x82	3.228	674	450	337	315	225	157
SUS 1 3/8”	3.819	629	405	337	292	202	135
SU2 1 1/2”x 3 1/4”	3.250	674	450	337	315	225	157
SUF1 28x50	1.969	674	450	337	315	225	157
SUF2 40x58	2.283	674	450	337	315	225	157
SUF3 48x82	3.228	674	450	337	315	225	157

091

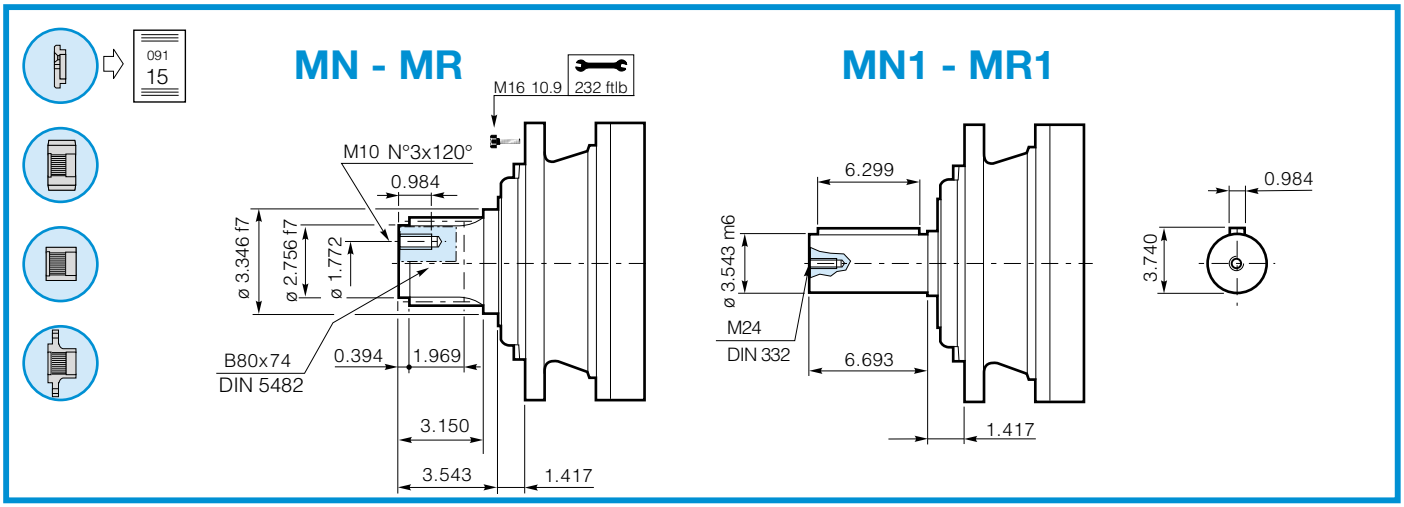


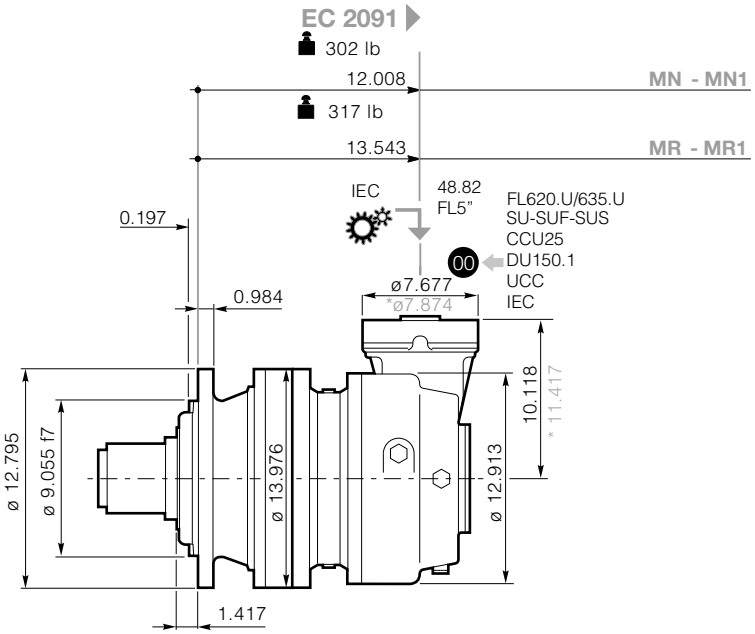
i_{eff}	11.22 - 42.37
T_{2N}	6785 ftlb
	B80X74 DIN5482
	3.543 in
	B70X64 DIN5482
	3.937 in
	3.543 in

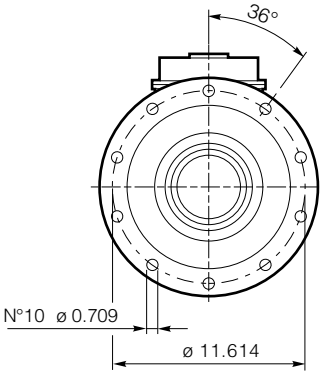
10000
hours life

i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2	T_2	P_2	n_2	T_2	P_2	n_2	T_2	P_2			
EC 2091 / PDA 2091	[rpm]	[ftlb]	[HP]	[rpm]	[ftlb]	[HP]	[rpm]	[ftlb]	[HP]	[rpm]	[ftlb]	[HP]
11.22	134	2933	75.1	89	3313	56.2	44.6	4078	34.6			
13.89	108	3051	62.8	72	3446	47.2	36	4242	29.1			
15.98	94	3119	55.8	63	3522	42.0	31.3	4337	25.9			
17.68	85	2928	47.3	57	3307	35.7	28.3	4071	22.0			
20.34	74	3353	47.1	49.2	3787	35.4	24.6	4662	21.9	3000	11063	24.1
24.59	61	2929	34.1	40.7	3308	25.6	20.3	4072	15.8			
28.29	53	3370	34.1	35.3	3806	25.6	17.7	4685	15.8			
33.70	44.5	3536	30.0	29.7	3689	20.8	14.8	3946	11.1			
42.37	35.4	2658	18.0	23.6	2784	12.5	11.8	2999	6.7			

GEARBOX DIMENSIONS WITH OUTPUT







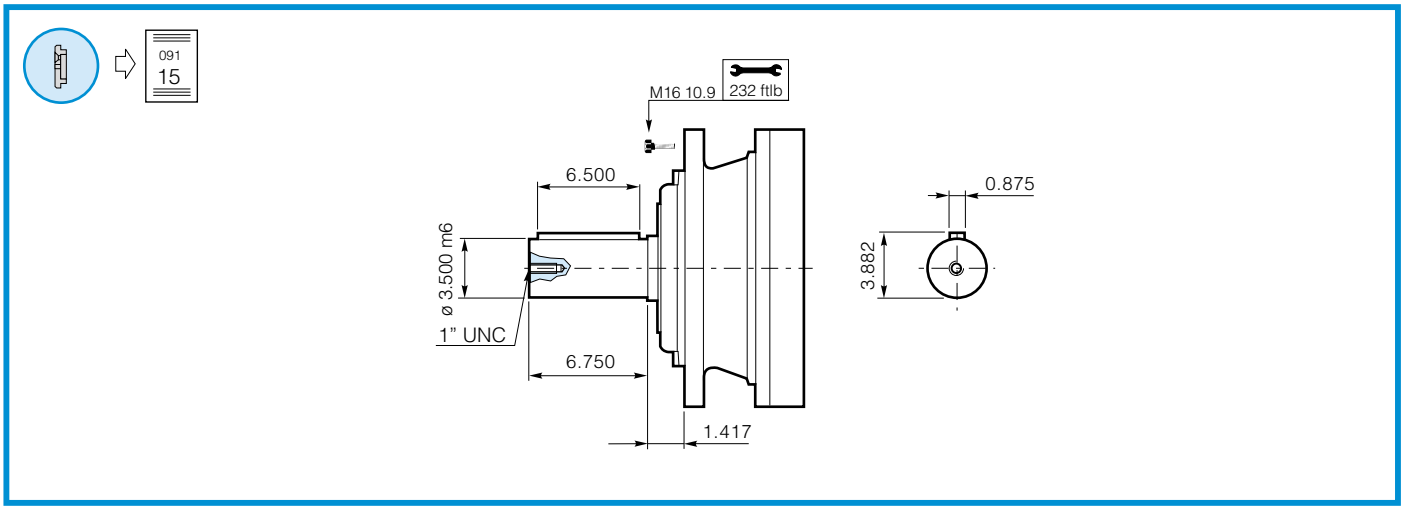
091

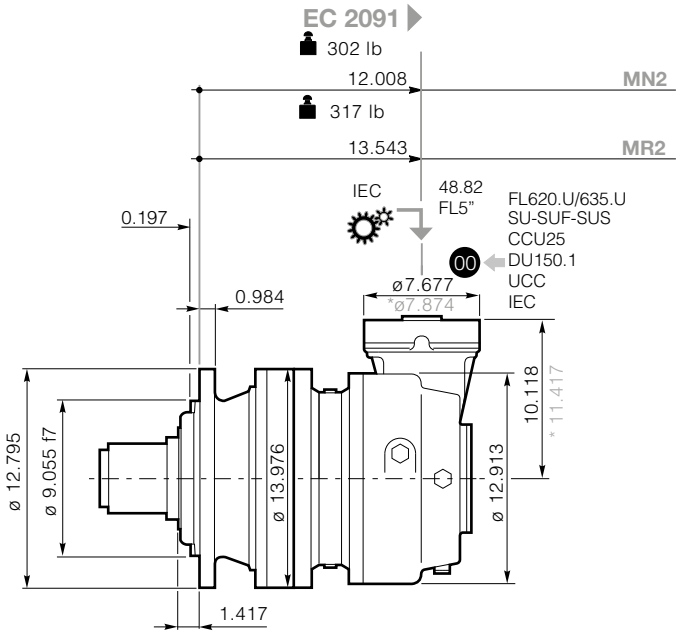
00 B 14 | 48.82 091 10 | SU-SUF SUS 091 10 | FL5" 091 11 | IEC 091 14 | 091 12 | CCU25 B 16 | DU150.1 UCC B 17

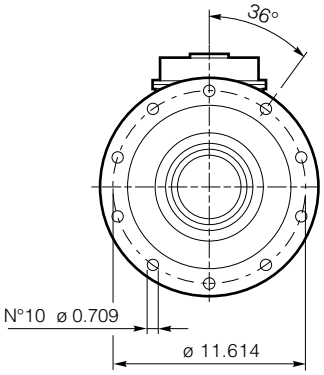
Click *i* button to return to main index

Click **DANA** button to return to section index

GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 | 48.82 091 10 | SU-SUF SUS 091 10 | FL5" 091 11 | IEC 091 14 | 091 12 | CCU25 B 16 | DU150.1 UCC B 17

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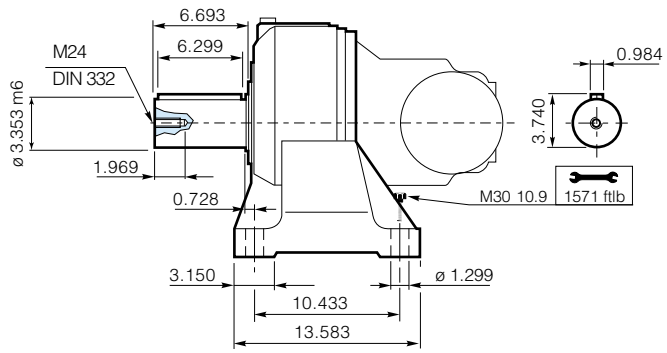
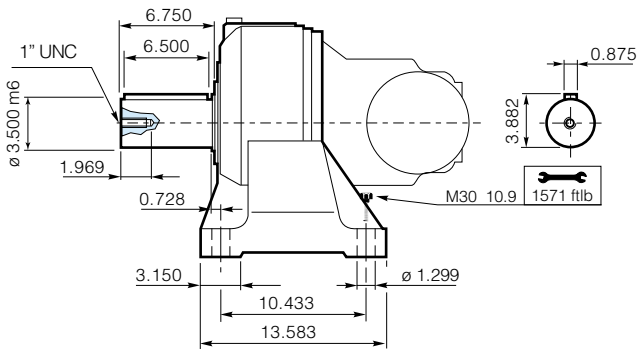
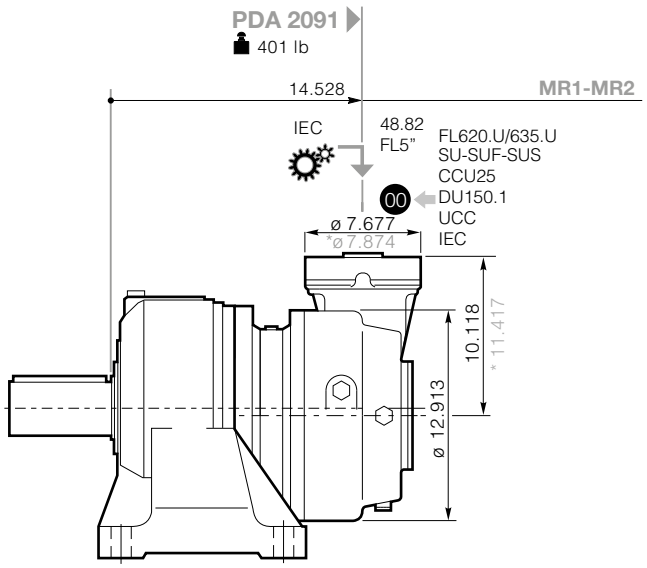
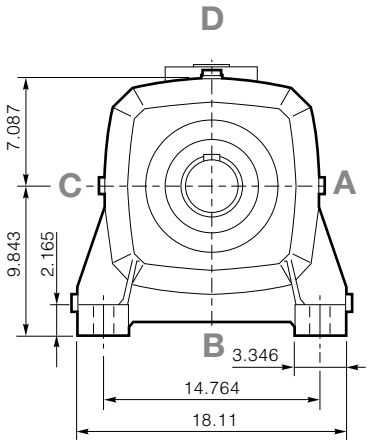
MR1



MR2







00 B 14 | 48.82 091 10 | SU-SUF SUS 091 10 | FL5" 091 11 | IEC 091 14 | 091 12 | CCU25 B 16 | DU150.1 UCC B 17

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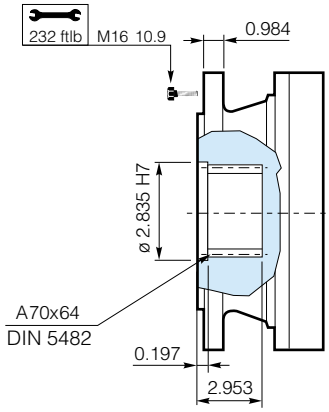
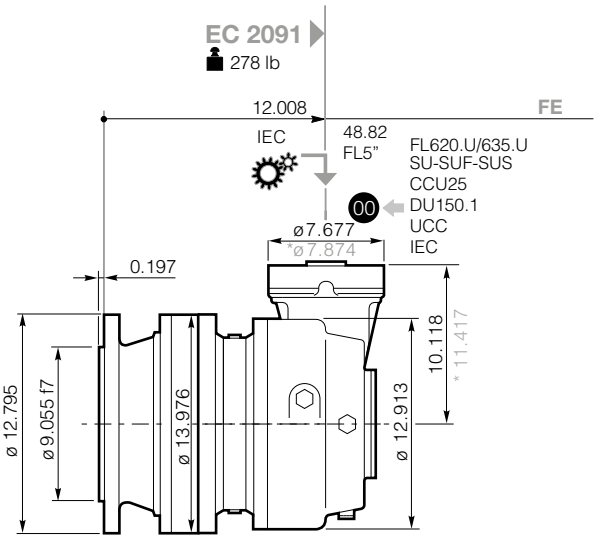
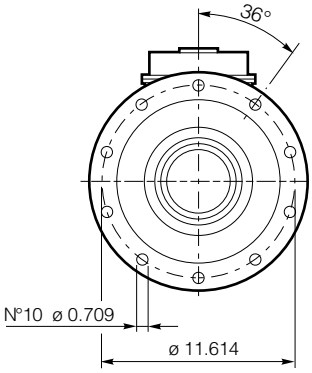
GEARBOX DIMENSIONS WITH OUTPUT

091 15







00 B 14 | 48.82 091 10 | SU-SUF SUS 091 10 | FL5" 091 11 | IEC 091 14 | 091 12 | CCU25 B 16 | DU150.1 UCC B 17

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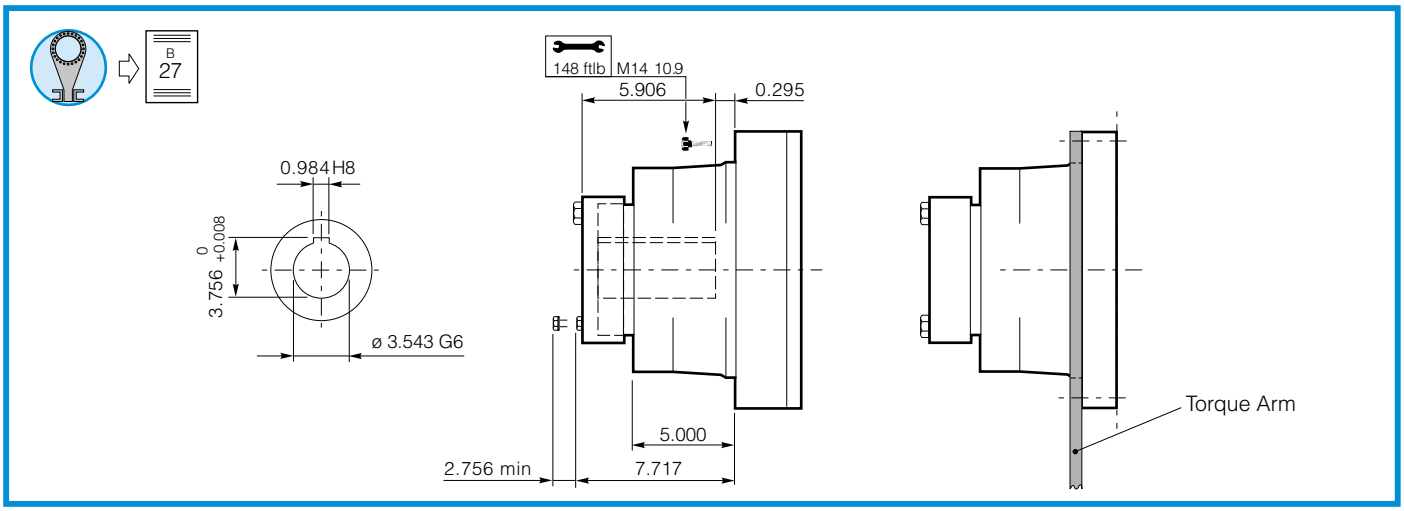

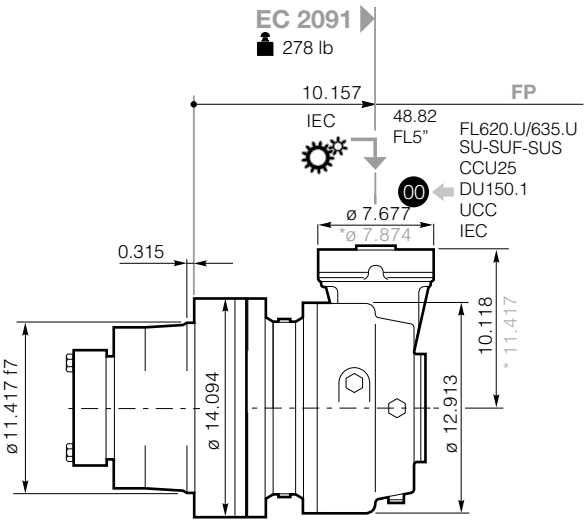

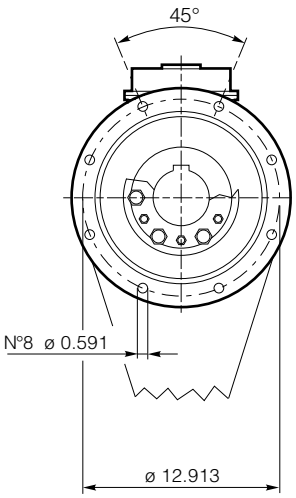

091

00 B 14 | 48.82 091 10 | SU-SUF SUS 091 10 | FL5" 091 11 | IEC 091 14 | 091 12 | CCU25 B 16 | DU150.1 UCC B 17

Click *i* button to return to main index

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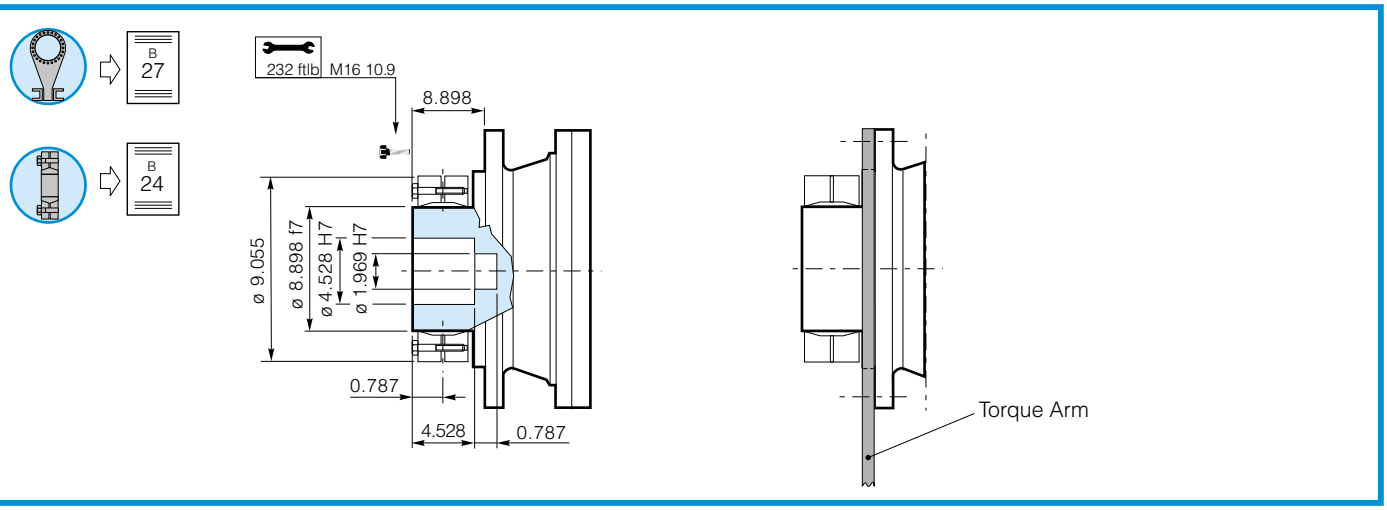
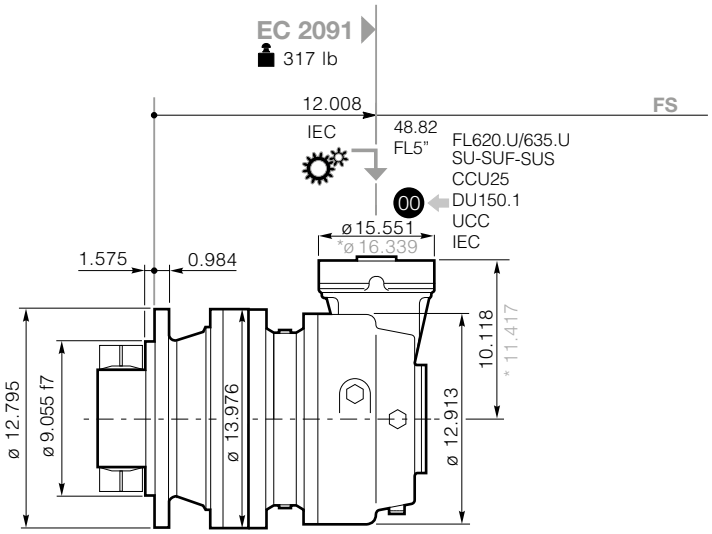
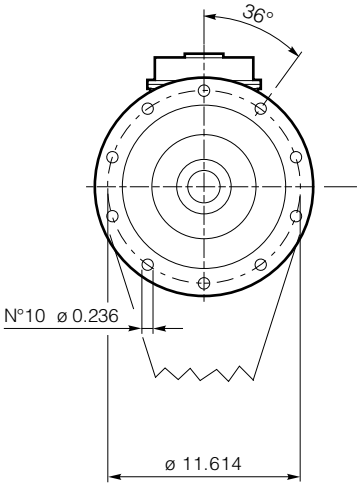
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 | 48.82 091 10 | SU-SUF SUS 091 10 | FL5" 091 11 | IEC 091 14 | 091 12 | CCU25 B 16 | DU150.1 UCC B 17

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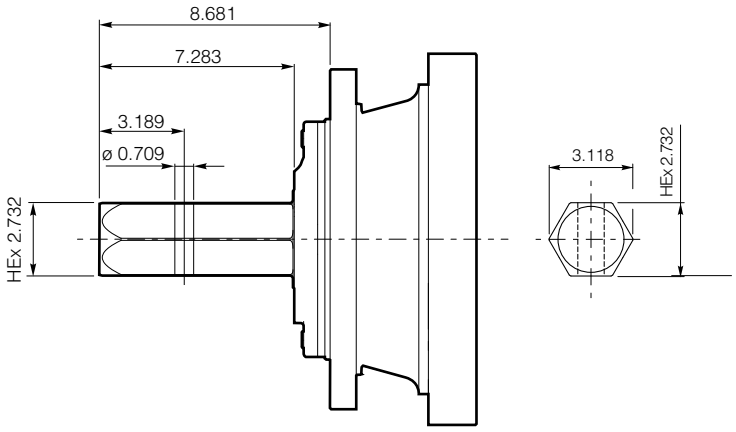

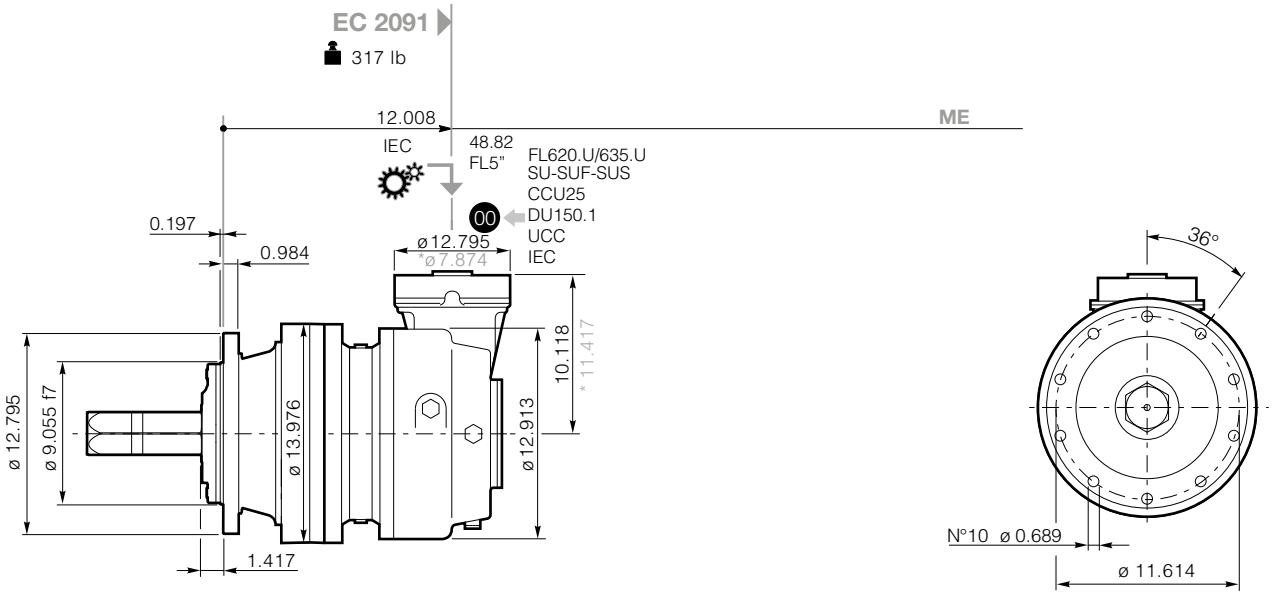

091

00 B 14 | 48.82 091 10 | SU-SUF SUS 091 10 | FL5" 091 11 | IEC 091 14 | 091 12 | CCU25 B 16 | DU150.1 UCC B 17

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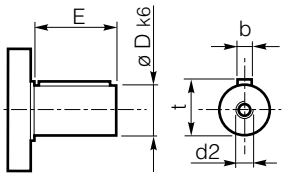
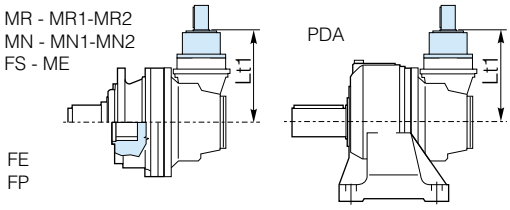
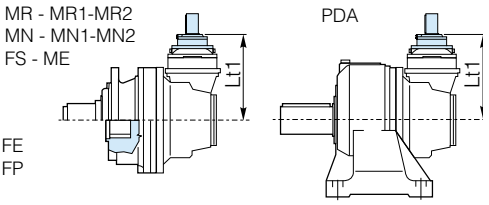
48.82

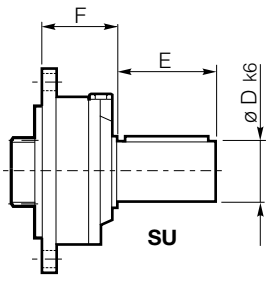


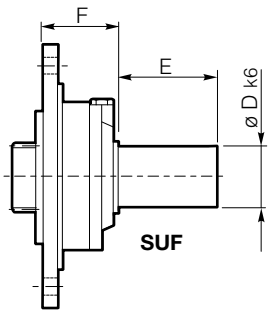


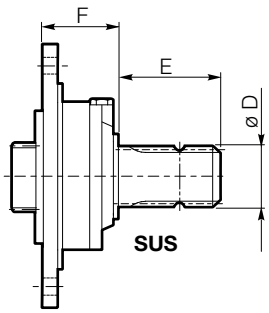
	D	E		Lt1
				MN-MN1-MN2-MR-MR1-MR2-FS-FE-ME-FP-PDA
48.82	1.890	3.228	EC/PDA 2091	12.480

SU - SUF - SUS





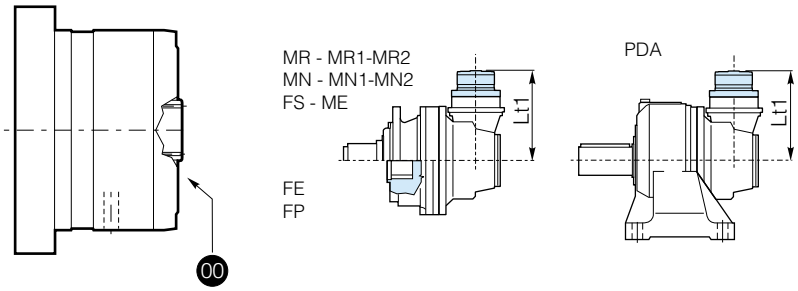




	D	E	F		Lt1 (00)
					MR-MR1-MR2-MN-MN1-MN2-FS-FE-ME-FP-PDA
SU1 28x50	1.102	1.969	2.362	EC/PDA 2091	12.480
SU2 40x58	1.575	2.283	2.362		
SU3 48x82	1.890	3.228	2.362		
SU 42x80	1.654	3.150	3.996	EC/PDA 2091	14.134
SUS 1 3/8"	1 3/8" DIN9611	3.819	3.996		
SU2 1.5x3.25	1.500	3.250	2.362	EC/PDA 2091	12.480
SUF1 28x50	1.102	1.969	2.362		
SUF2 40x58	1.575	2.283	2.362		
SUF3 48x82	1.890	3.228	2.362		

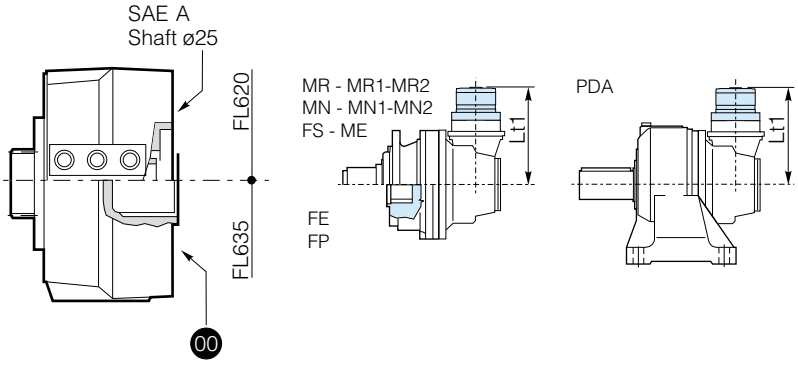
For the input configuration 4882 (CC40 - CC41), FL5" can be fitted with an anti-return device.
For further information and technical data, contact Dana Sale Technical Support

FL5” FL6” FL250 - FL350 - FL450 / FL650 - FL750



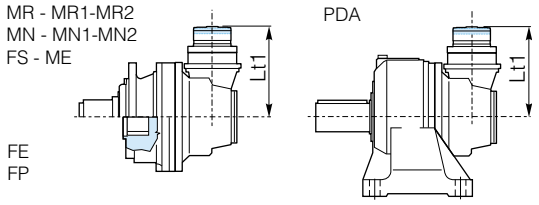
		Lt1 MN-MN1-MN2-MR-MR1-MR2-FE-ME-FS-FP-PDA			
FL250 FL350 FL450	EC/PDA 2091	16.102	16.102	16.102	16.102
FL650 FL750	EC/PDA 2091	16.614	16.614	16.614	16.614

FL620.U - FL635.U

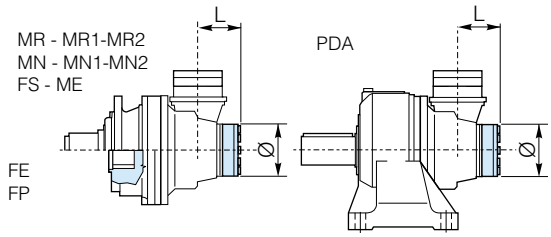


		Lt1 00 MN-MN1-MN2-MR-MR1-MR2-FE-ME-FS-FP-PDA			
FL620.U	EC/PDA 2091	14.252	14.252	14.252	14.252
FL635.U	EC/PDA 2091	13.701	13.701	13.701	13.701

RL



				Lt1
				MR-MR1-MR2- MN-MN1-MN2-FS-FE-ME-FP-PDA
RL	+	FL250 FL350 FL450	EC/PDA 2091	17.126



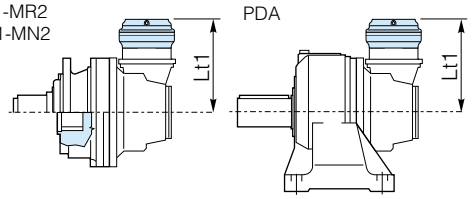
				L	Ø
RL	+	CC40	EC/PDA 2091	5.323	5.906

ADDITIONAL PLANETARY STAGE ON BEVEL GEAR

MR - MR1-MR2
MN - MN1-MN2
FS - ME

FE
FP

PDA

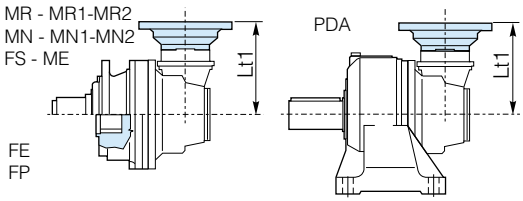


ED2010 - ED2020 ED2021

	Lt1
	EC2091 PDA2091
EM1010	14.331
EM1020	15.039
ED2010	15.866
ED2020	17.126
ED2021	17.717

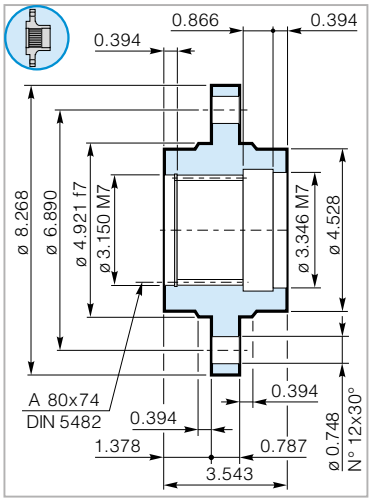
IEC ADAPTOR

IEC Motor

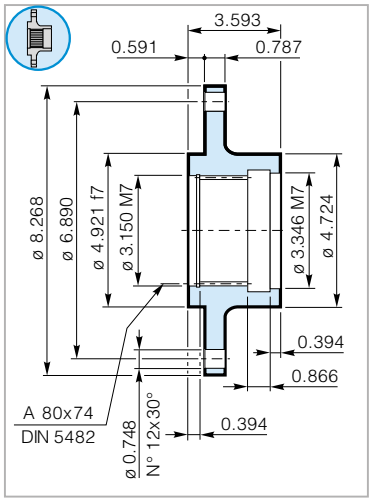


		Lt1							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
EC/PDA 2091	MN-MR-MN1-MN2-MR1-MR2 FE-ME-FS-FP-PDA	10.905	10.984	11.181	11.220	13.858	15.079	15.512	16.693

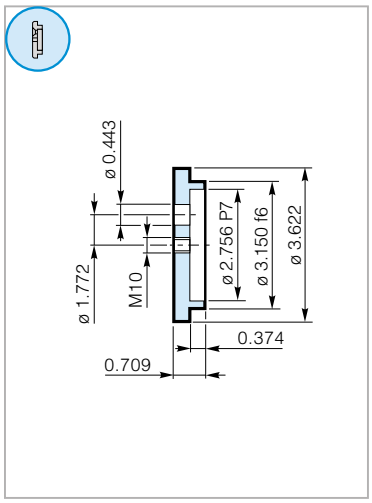
FA 091 MN - MR Wheel Flange



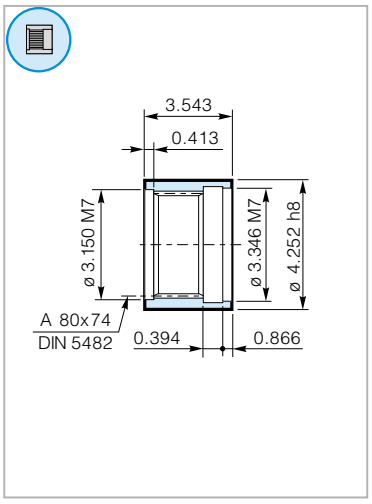
FR 091 MN - MR Wheel Flange



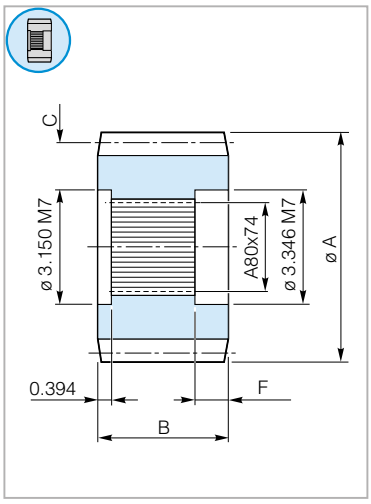
RDF 091 MN - MR Lock Washer



MS 091 MN - MR Splined Sleeve

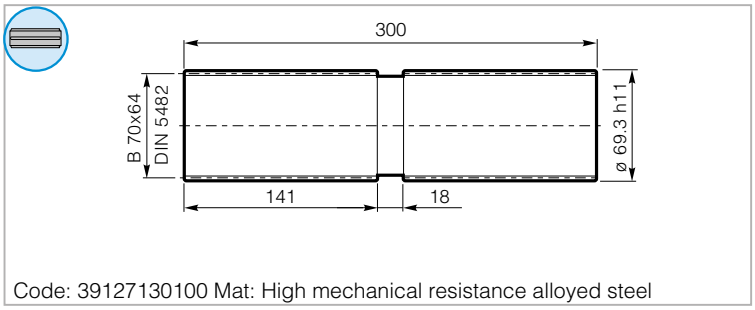


MN - MR Pinions



A	B	C			F
		m	z	x	
7.087	3.465	0.394	0.591	0.020	1.220
6.378	3.937	0.394	0.551	0.012	1.220
5.709	3.543	0.394	0.472	0.020	1.220

BS 091 FE Splined Bar

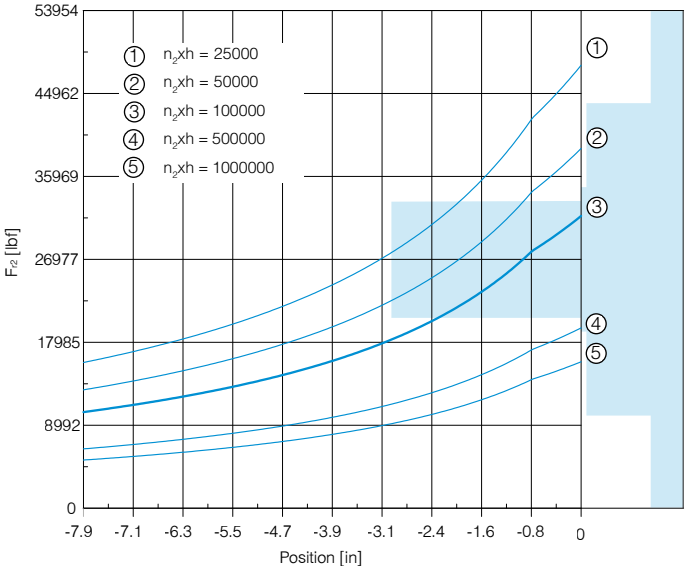


Code: 39127130100 Mat: High mechanical resistance alloyed steel

Output Radial Loads

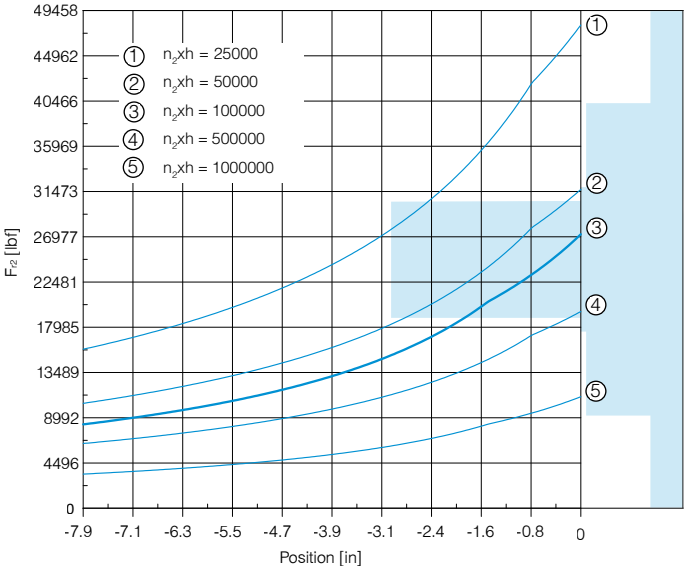
Gearbox Versions:
ED, ET, EQ, EC

MR-MR1-MR2



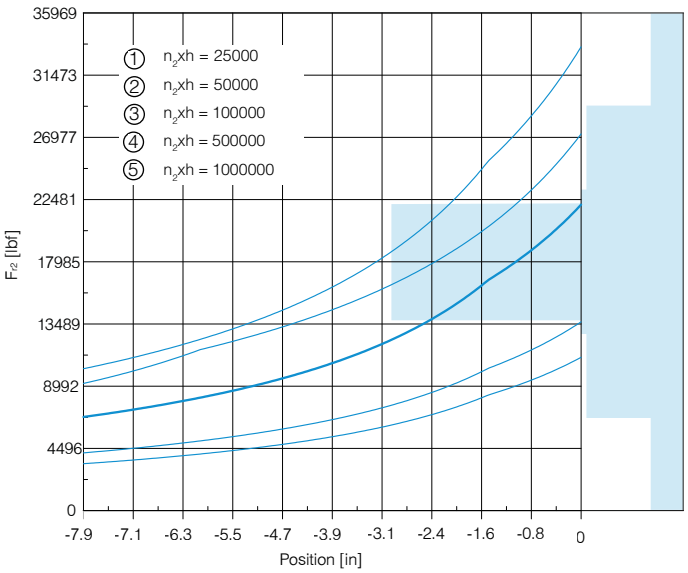
Gearbox Versions:
ED, ET, EQ, EC

MN-MN1-MN2

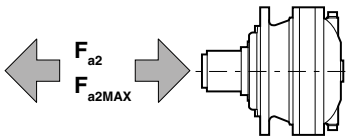


Gearbox Versions:
PD, PDA

MR1-MR2

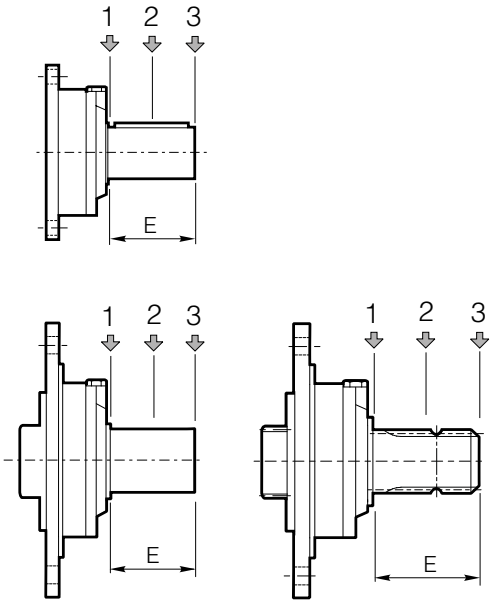


Output Axial Loads



		Flange mounted		PDA
		MN-MN1-MN2	MR-MR1-MR2	MR1-MR2
F_{a2}	[lbf]	10790	17984	7868
F_{a2MAX}	[lbf]	13488	20232	7868

Input Radial Loads



		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	E	1	2	3	1	2	3
SU 42x80	3.150	674	450	337	315	225	157
SU1 28x50	1.969	674	450	337	315	225	157
SU2 40x58	2.283	674	450	337	315	225	157
SU3 48x82	3.228	674	450	337	315	225	157
SUS 1 3/8”	3.819	629	405	337	292	202	135
SU2 1 1/2”x 3 1/4”	3.250	674	450	337	315	225	157
SUF1 28x50	1.969	674	450	337	315	225	157
SUF2 40x58	2.283	674	450	337	315	225	157
SUF3 48x82	3.228	674	450	337	315	225	157

DANA
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Motion Systems

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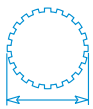
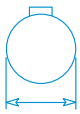
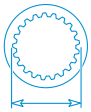
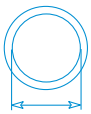
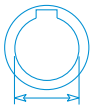
Page

i_{eff}	3.90 - 3460
T_{2N}	9587 ftlb
	B80X74 B100x94 DIN5482
	3.937 in
	B80X74 DIN5482
	4.724 in
	3.937 in
	2.732 in

TECHNICAL DATA

10000
hours life

i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EM 1150 / PD 1150												
3.90	385	3509	257.5	256	3963	193.1	128	4879	119.3			
5.14	292	3692	205.2	195	4170	154.2	97	5134	95.2	2500	14750	53.6
6.27	239	3819	174.3	159	4312	131.4	80	5309	80.5			
ED 2150 / PD 2150												
13.65	110	4501	93.9	73	5084	71.1	36.6	6258	43.7			
16.11	93	4653	83.1	62	5255	62.1	31	6469	38.2			
17.99	83	5376	85.8	56	6072	64.2	27.8	6871	36.3			
20.16	74	4840	68.4	50	5466	51.6	24.8	6730	31.8			
21.95	68	5561	72.4	45.6	6062	52.6	22.8	6469	28.0			
26.57	56	6044	64.9	37.6	6680	47.9	18.8	7116	25.5	3000	14750	30.8
28.28	53	4550	46.0	35.4	4877	32.9	17.7	5373	18.1			
30.84	48.6	6320	58.6	32.4	6774	41.8	16.2	7210	22.3			
37.27	40.3	5997	46.0	26.8	6428	32.9	13.4	7082	18.1			
45.46	33	6252	39.3	22	6489	27.2	11	6898	14.5			
ET 3150 / PD 3150												
47.78	31.4	6555	39.2	20.9	7402	29.5	10.5	9113	18.1			
56.37	26.6	6888	34.9	17.7	7779	26.3	8.9	9577	16.2			
62.96	23.8	6968	31.6	15.9	7223	21.9	7.9	7664	11.5			
70.57	21.3	7368	29.8	14.2	8321	22.4	7.1	10245	13.8			
81.90	18.3	7705	26.8	12.2	8702	20.2	6.1	10713	12.5			
93.01	16.1	7213	22.1	10.8	7470	15.3	5.4	8128	8.3			
98.96	15.2	8155	23.6	10.1	9210	17.7	5.1	10219	9.8			
107.9	13.9	7307	19.3	9.3	7565	13.4	4.6	8374	7.4			
127.4	11.8	7412	16.6	7.9	7671	11.5	3.9	8653	6.4	3000	14750	20.1
137.4	10.9	7460	15.6	7.3	7720	10.7	3.6	8784	6.0			
159.4	9.4	7555	13.5	6.3	7879	9.4	3.1	9044	5.4			
185.0	8.1	7651	11.8	5.4	8120	8.3	2.7	9309	4.8			
192.7	7.8	7677	11.4	5.2	8186	8.0	2.6	9382	4.7			
223.6	6.7	7773	9.9	4.5	8433	7.2	2.2	9656	4.2			
235.0	6.4	7225	8.7	4.3	7669	6.2	2.1	8801	3.6			
270.2	5.6	7849	8.3	3.7	8195	5.8	1.9	8792	3.1			
329.6	4.6	7565	6.6	3	8207	4.7	1.5	9398	2.7			
EQ 4150 / PD 4150												
359.5	4.2	11536	9.1	2.8	12006	6.3	1.4	13896	3.6			
391.2	3.8	11626	8.4	2.6	12226	5.9	1.3	14139	3.5			
461.7	3.2	10573	6.6	2.2	11040	4.6	1.1	12785	2.7			
491.4	3.1	11869	6.8	2	12835	5.0	1	14437	2.8			
568.4	2.6	12142	6.2	1.8	13234	4.4	0.88	14636	2.4			
645.5	2.3	9585	4.3	1.5	10357	3.1	0.77	11791	1.7			
700.7	2.1	11068	4.6	1.4	12069	3.2	0.71	13923	1.9			
810.4	1.9	11421	4.0	1.2	12443	3.0	0.62	14212	1.6			
883.9	1.7	10180	3.4	1.1	10989	2.4	0.57	12492	1.3			
1039	1.4	11730	3.2	0.96	12214	2.3	0.48	13054	1.2			
1110	1.4	10629	2.7	0.9	11371	2.0	0.45	13021	1.1	3000	14750	14.8
1226	1.2	12466	3.0	0.82	13552	2.1	0.41	14445	1.1			
1342	1.1	10882	2.3	0.75	11855	1.7	0.37	13476	1.0			
1552	0.97	11193	2.0	0.64	12198	1.5	0.32	13833	0.8			
1875	0.8	9637	1.5	0.53	10568	1.1	0.27	12297	0.6			
2023	0.74	11886	1.7	0.49	12803	1.2	0.25	14506	0.7			
2348	0.64	12217	1.5	0.43	13154	1.1	0.21	14750	0.6			
2468	0.61	11172	1.3	0.41	12040	0.9	0.2	13653	0.5			
2837	0.53	10589	1.1	0.35	11579	0.8	0.18	13418	0.5			
3460	0.43	11892	1.0	0.29	12806	0.7	0.14	14503	0.4			

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10000 hours life

i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EC 2150 / PDA 2150												
10.73	140	3082	81.8	93	3480	61.8	46.6	4285	38.1	3000	14750	24.1
14.14	106	4062	81.8	71	4587	61.8	35.4	5648	38.1			
17.99	83	2980	47.3	56	3366	35.7	27.8	4144	22.0			
18.99	79	2262	34.1	53	2554	25.6	26.3	3145	15.8		12156	
21.95	68	3635	47.3	45.6	4106	35.7	22.8	5055	22.0			
25.03	60	2981	34.1	40	3367	25.6	20	4145	15.8		14750	
30.53	49.1	3637	34.1	32.8	4106	25.6	16.4	5056	15.8			
EC 3150 / PDA 3150												
48.32	31	6469	38.2	20.7	7306	28.8	10.3	8995	17.7	3000	14750	20.1
53.97	27.8	6871	36.3	18.5	7126	25.1	9.3	7565	13.4			
63.06	23.8	4552	20.7	15.9	5140	15.6	7.9	6328	9.5			
74.41	20.2	5371	20.7	13.4	6066	15.6	6.7	7468	9.5			
83.11	18	5999	20.7	12	6775	15.6	6	7946	9.1			
92.52	16.2	7210	22.3	10.8	7466	15.4	5.4	8120	8.3			
98.07	15.3	7079	20.7	10.2	7504	14.6	5.1	8215	7.9			
111.8	13.4	7082	18.1	8.9	7439	12.6	4.5	8034	6.8			
122.8	12.2	7389	17.2	8.1	7647	11.8	4.1	8590	6.7			
142.5	10.5	7483	15.0	7	7744	10.3	3.5	8846	5.9			
149.8	10	6954	13.3	6.7	7198	9.1	3.3	8052	5.1			
172.2	8.7	7462	12.3	5.8	7810	8.6	2.9	8403	4.7			
210.0	7.1	7157	9.8	4.8	7496	6.8	2.4	8610	3.9			
EC 4150 / PDA 4150												
260.5	5.8	10902	11.9	3.8	11624	8.4	1.9	12993	4.7	3000	14750	13.4
296.9	5.1	10219	9.8	3.4	10717	6.8	1.7	11546	3.8			
326.0	4.6	11432	10.1	3.1	11864	7.0	1.5	13618	4.0			
350.3	4.3	10305	8.4	2.9	10699	5.8	1.4	12069	3.2			
384.7	3.9	10396	7.8	2.6	10790	5.4	1.3	12309	3.1			
457.2	3.3	10750	6.7	2.2	11236	4.7	1.1	12061	2.5			
498.7	3	9118	5.2	2	9860	3.8	1	11240	2.1			
555.1	2.7	9309	4.8	1.8	10065	3.5	0.9	11371	2.0			
634.7	2.4	9554	4.3	1.6	10324	3.1	0.79	11754	1.7			
711.0	2.1	9765	3.9	1.4	10548	2.8	0.7	12003	1.6			
810.5	1.9	8792	3.1	1.2	9147	2.1	0.62	10228	1.2			
890.1	1.7	10193	3.2	1.1	11004	2.4	0.56	12508	1.3			
1033	1.5	10485	3.0	0.97	11189	2.0	0.48	12852	1.2			
1086	1.4	9569	2.5	0.92	10336	1.9	0.46	11761	1.0			
1248	1.2	9171	2.1	0.8	9634	1.5	0.4	11261	0.9			
1523	0.99	10206	1.9	0.66	11012	1.3	0.33	12512	0.8			

* (bg) All the ratios in light grey (ie. 10.73) have particular dimensions of bevel gears in some versions. See dimensional tables.

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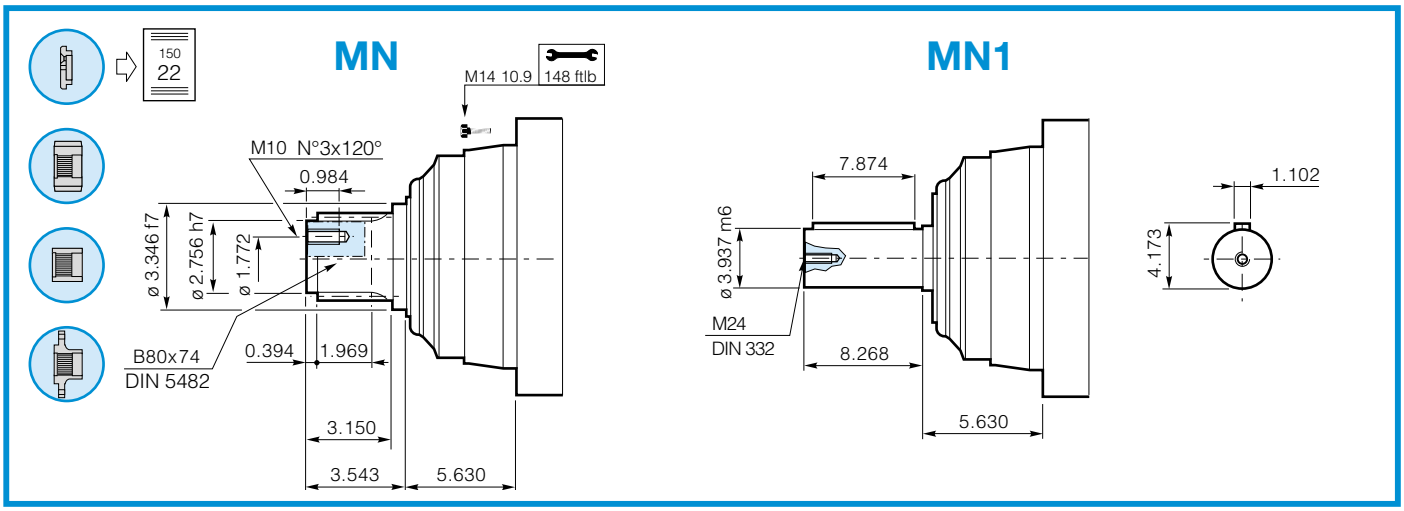
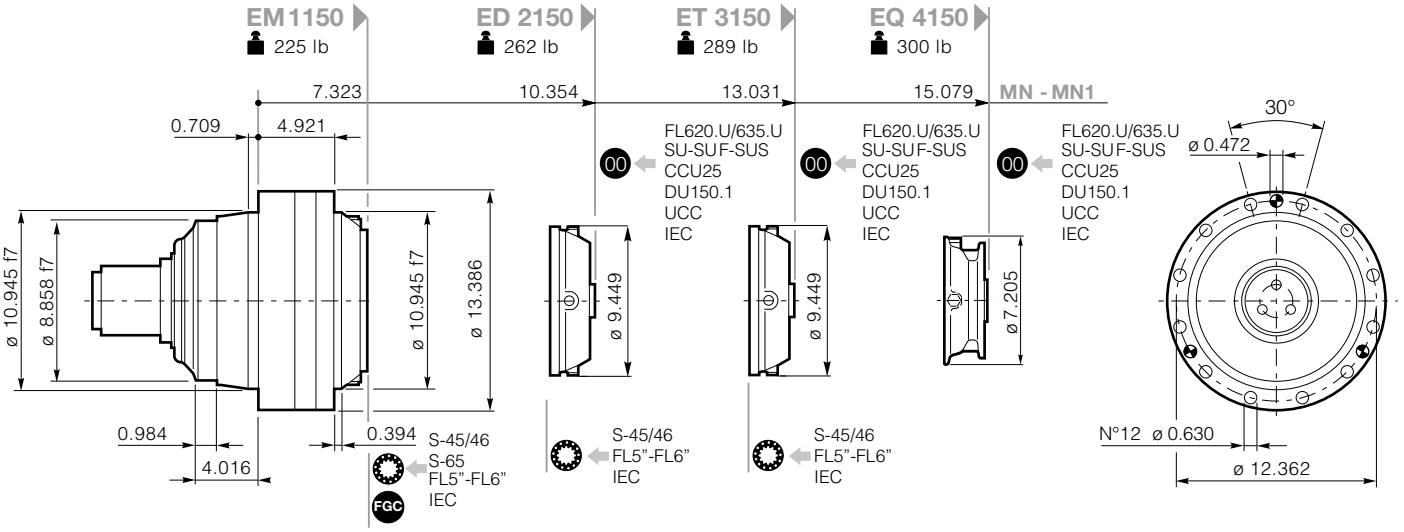
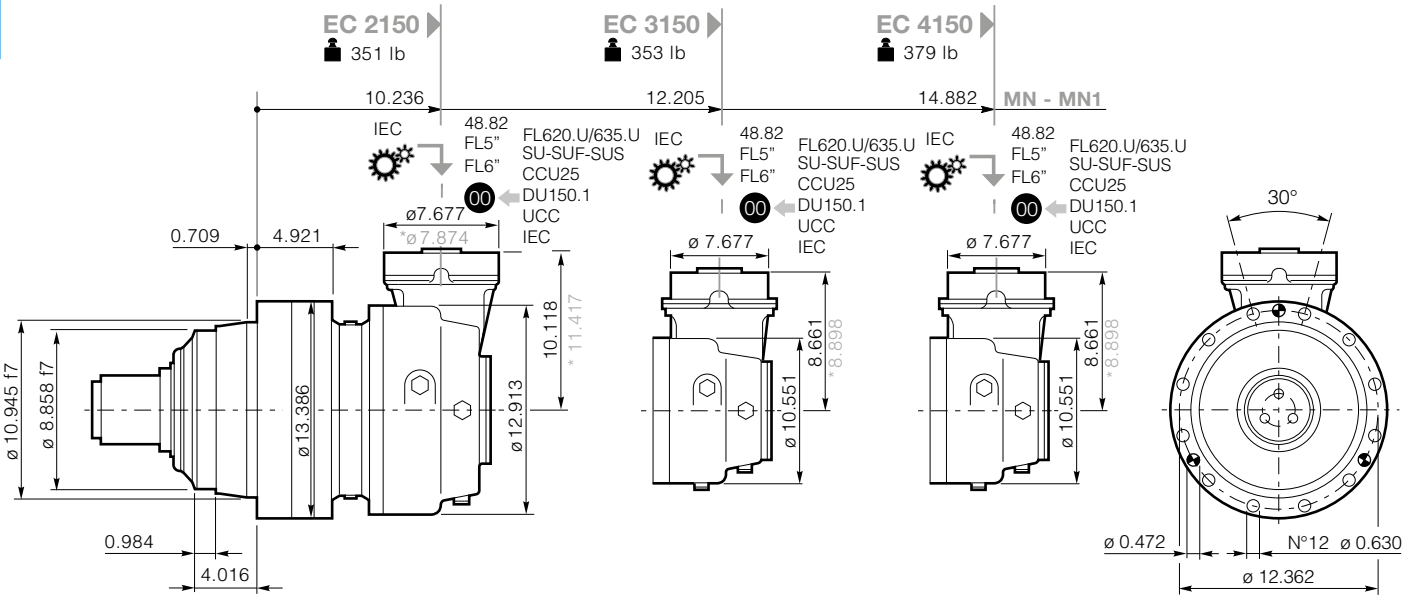
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 150 15 SU-SUF SUS 150 16 FL5"- FL6' FL620 FL635 150 18 IEC 150 21 150 20 CCU25 B 16 DU150.1 UCC B 17 * bg 150 3

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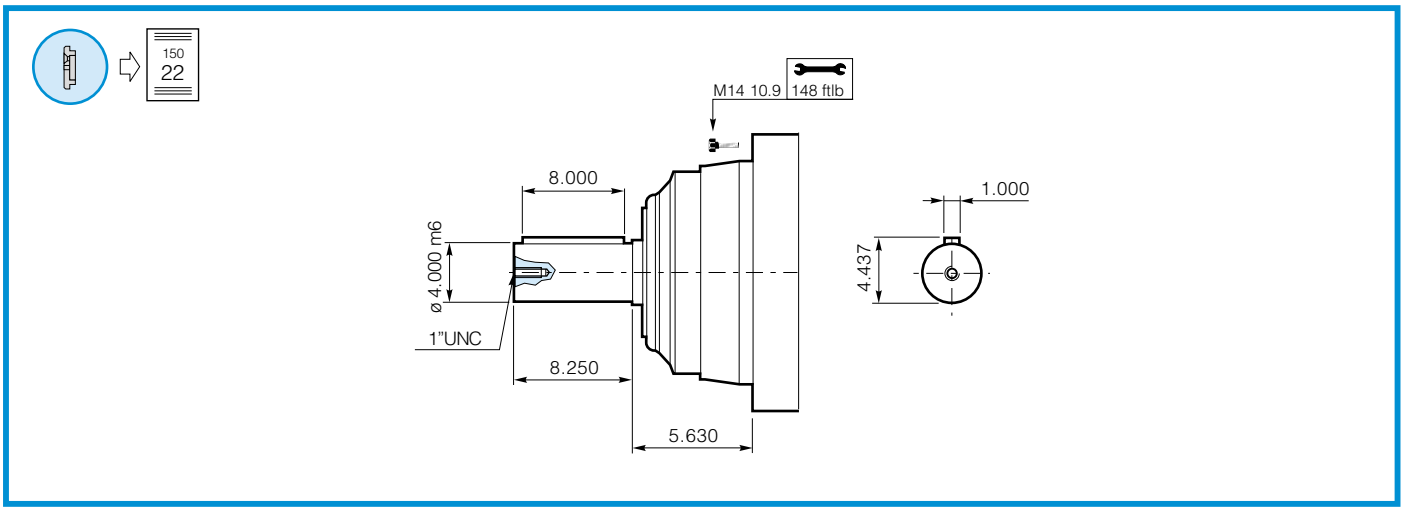

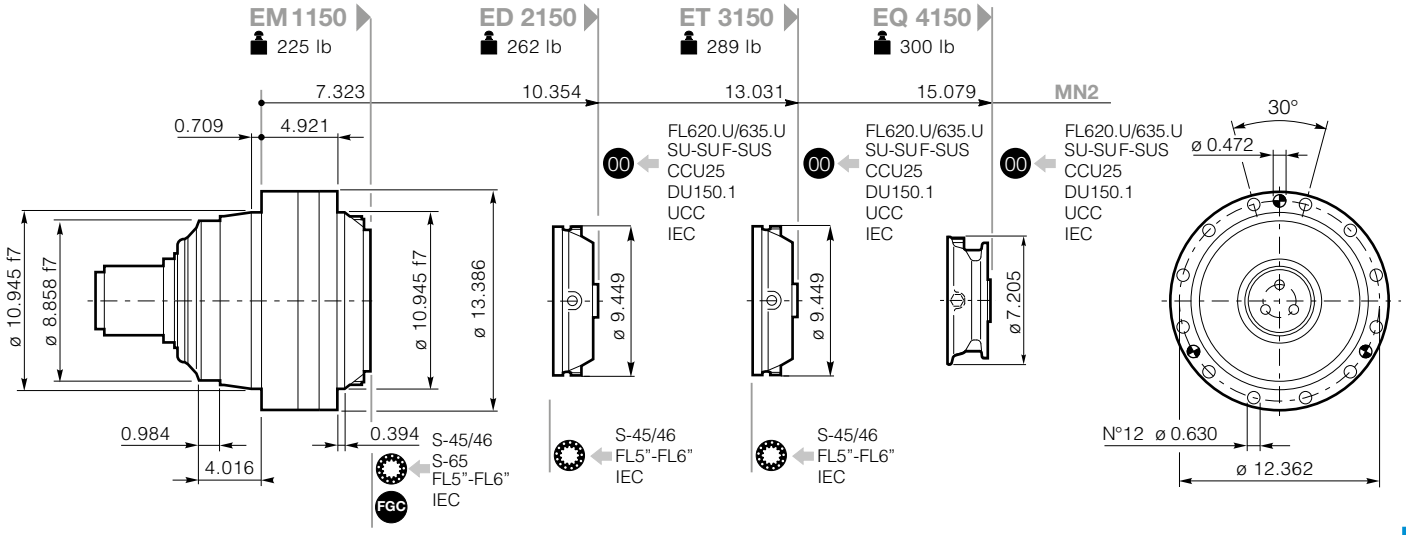

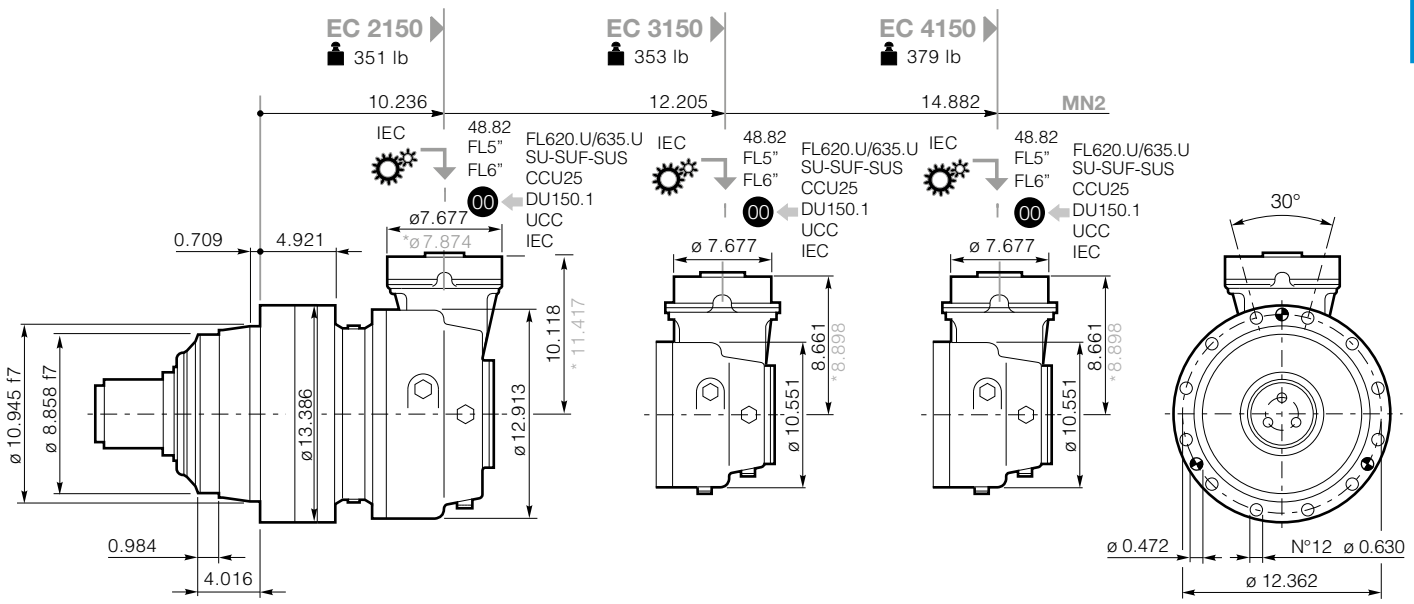

00 B 14 S-45/46 48.82 → 150 15 SU-SUF SUS → 150 16 FL5"- FL6' FL620 FL635 → 150 18 IEC → 150 21 → 150 20 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 150 3

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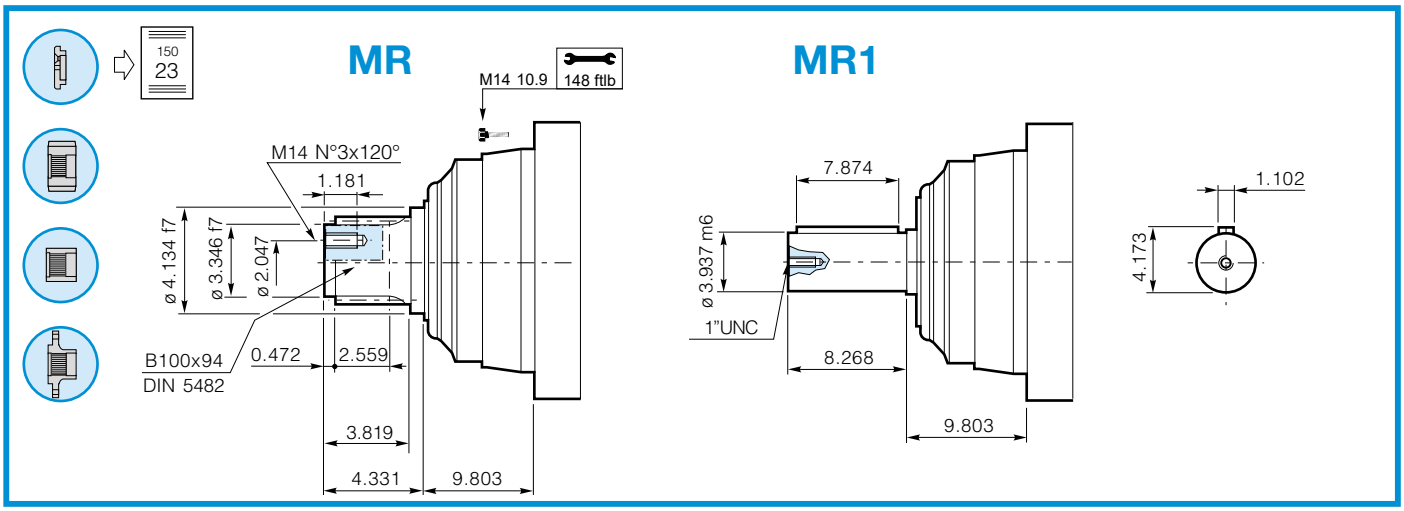
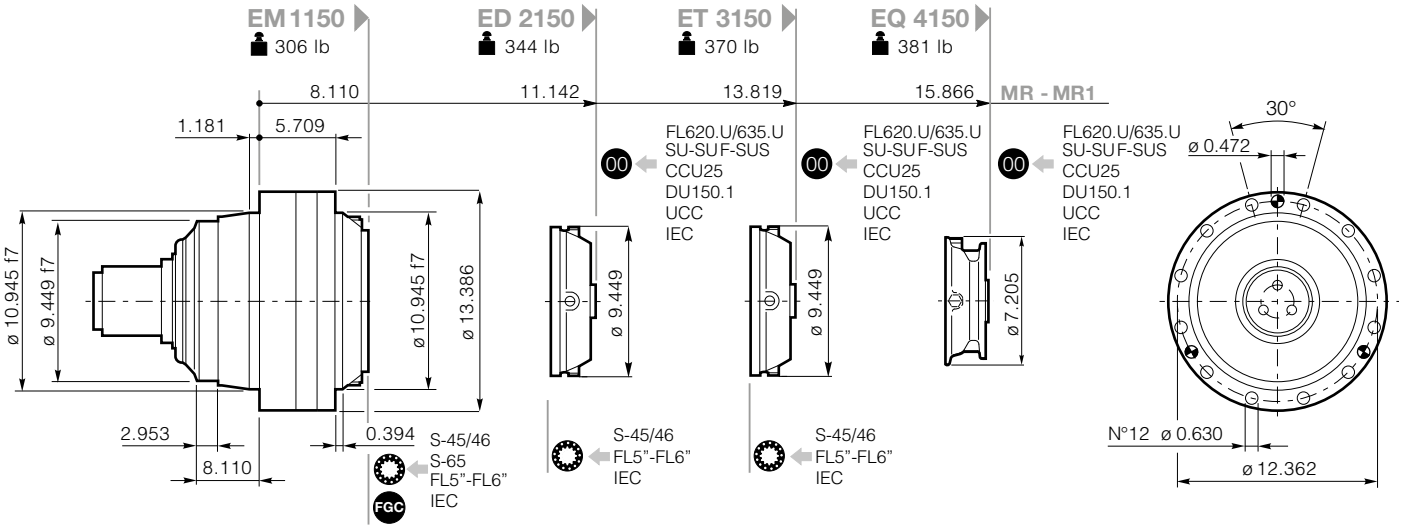
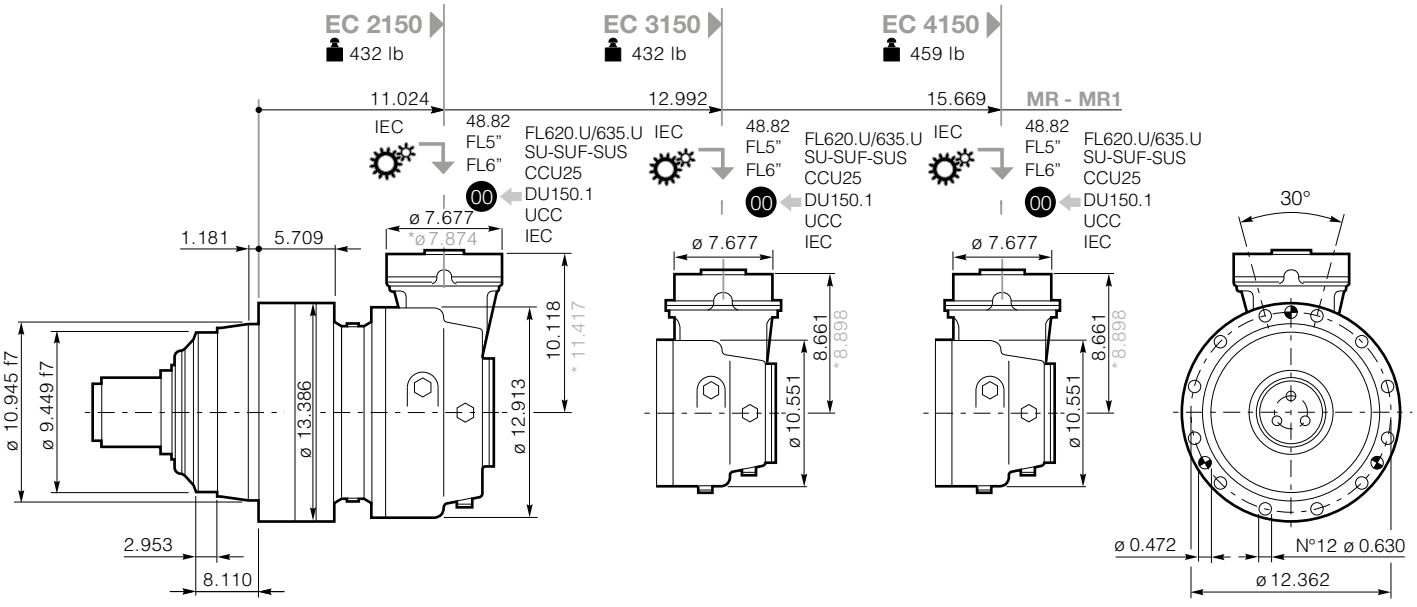
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 → 150 15 SU-SUF SUS → 150 16 FL5"- FL6' FL620 FL635 → 150 18 IEC → 150 21 → 150 20 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 150 3

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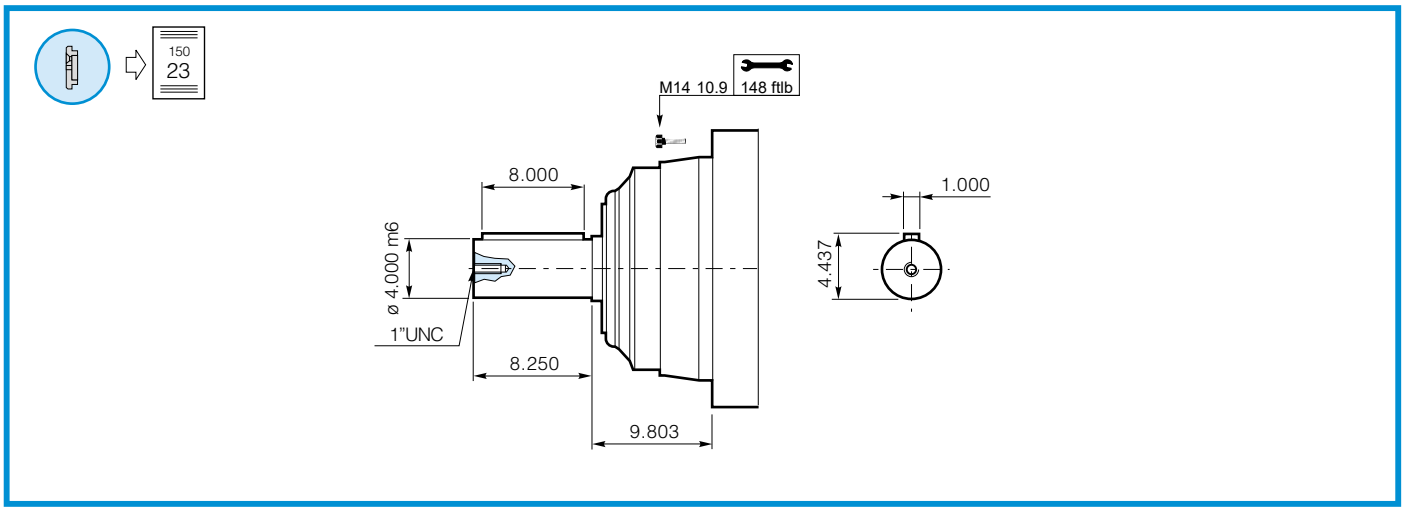
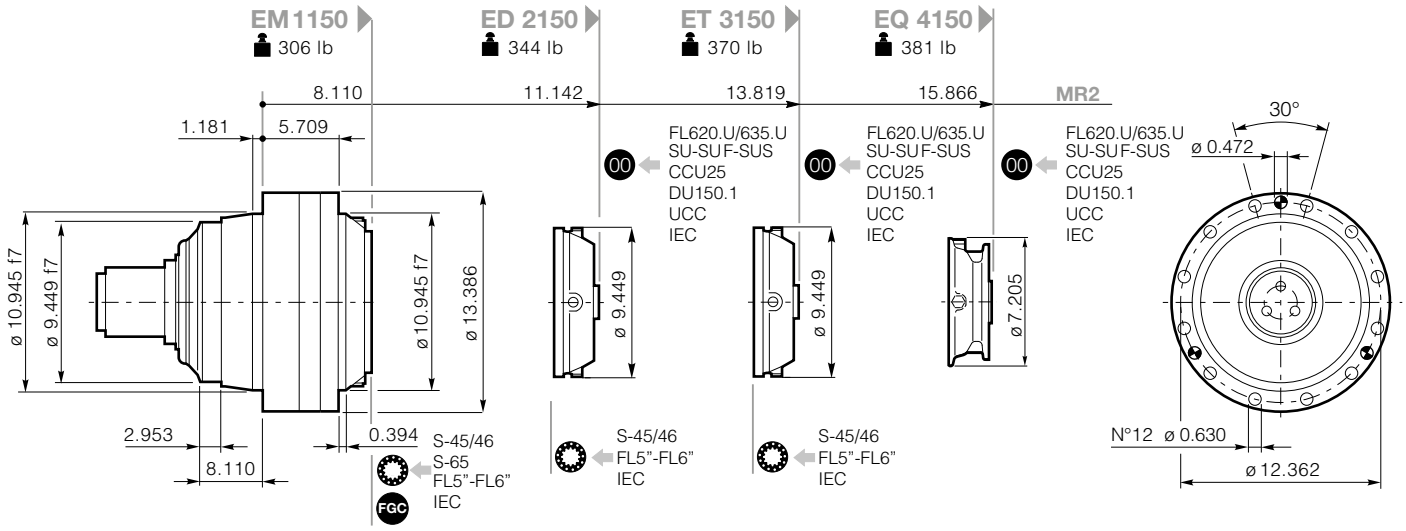
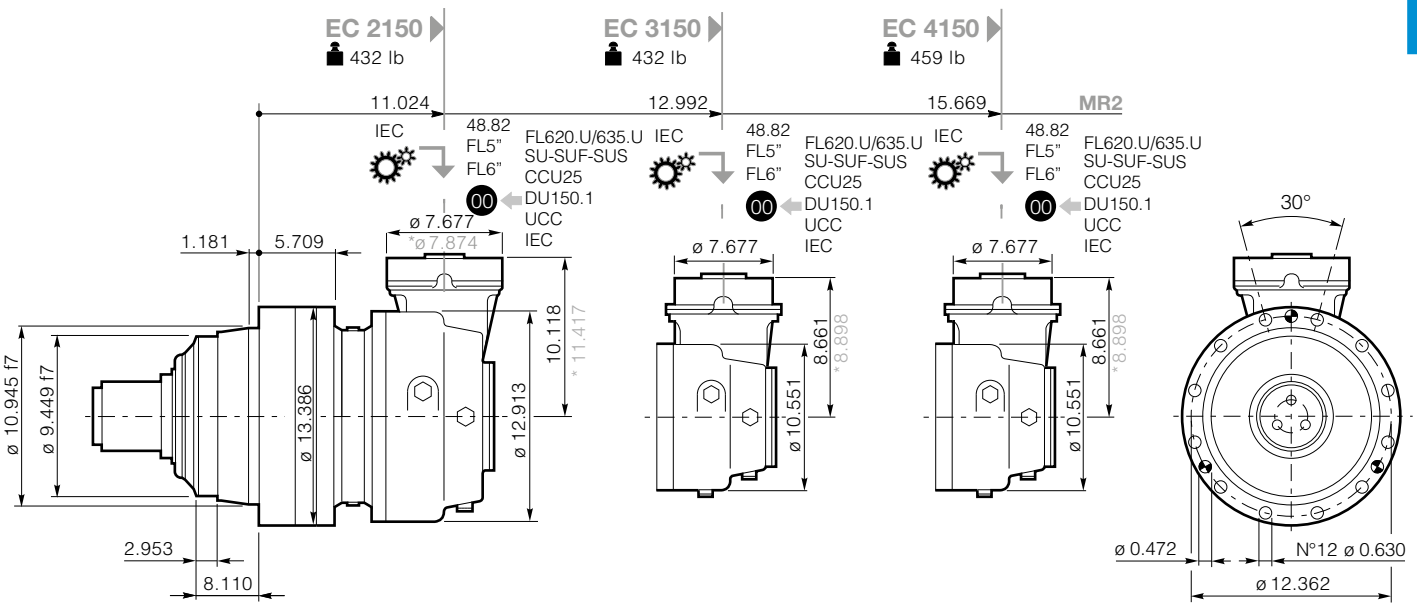






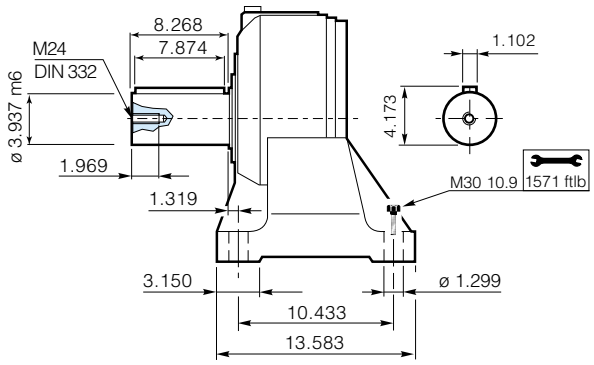
00 B 14 S-45/46 48.82 150 15 SU-SUF SUS 150 16 FL5"- FL6' FL620 FL635 150 18 IEC 150 21 150 20 CCU25 B 16 DU150.1 UCC B 17 * bg 150 3

Click *i* button to return to main index

Click **DANA** button to return to section index

PD/PDA GEARBOX DIMENSIONS WITH OUTPUT

MR1



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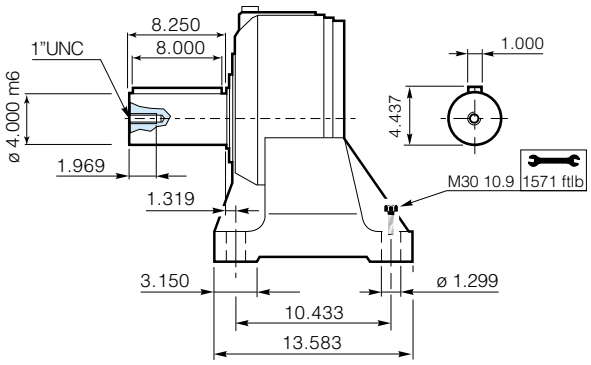
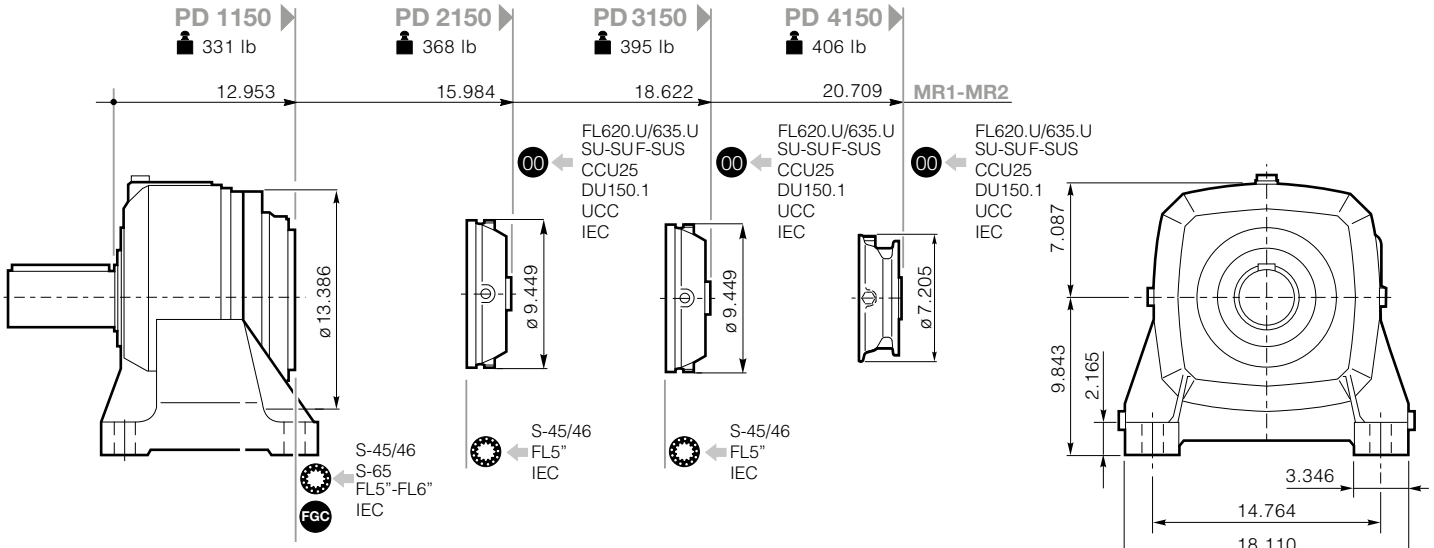
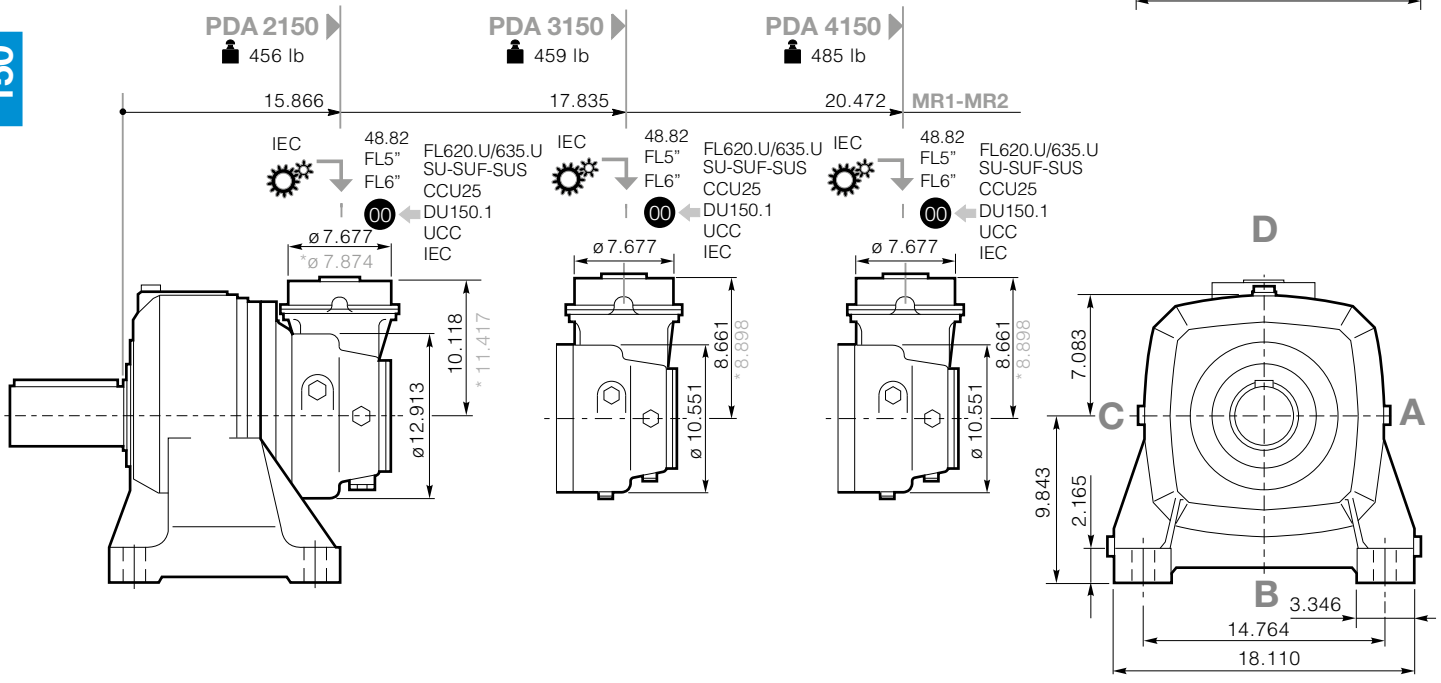


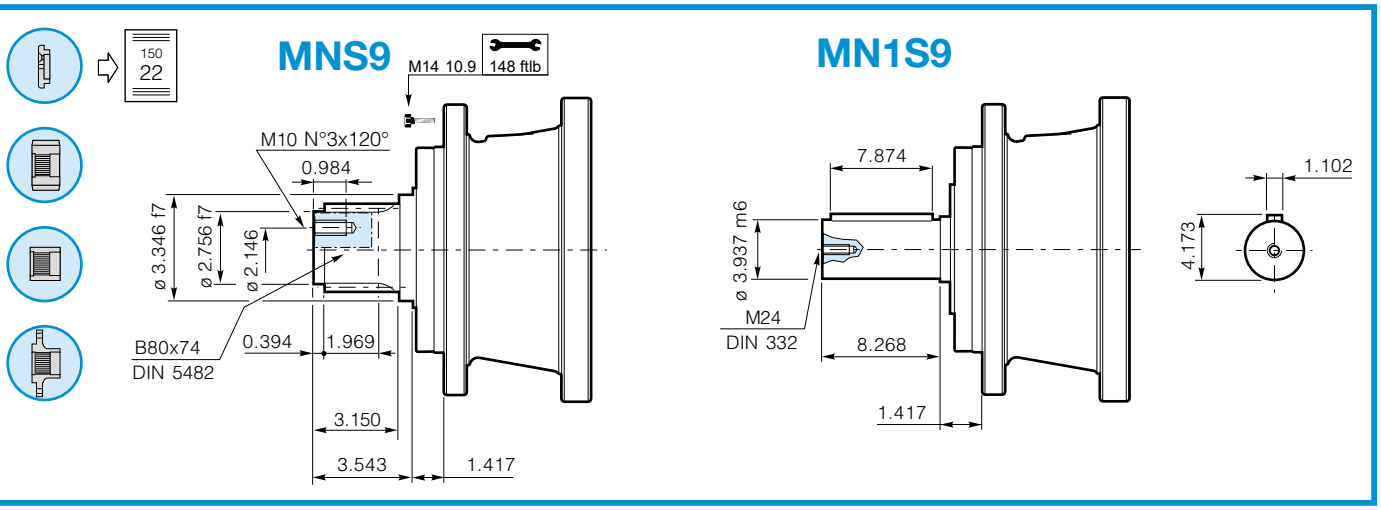


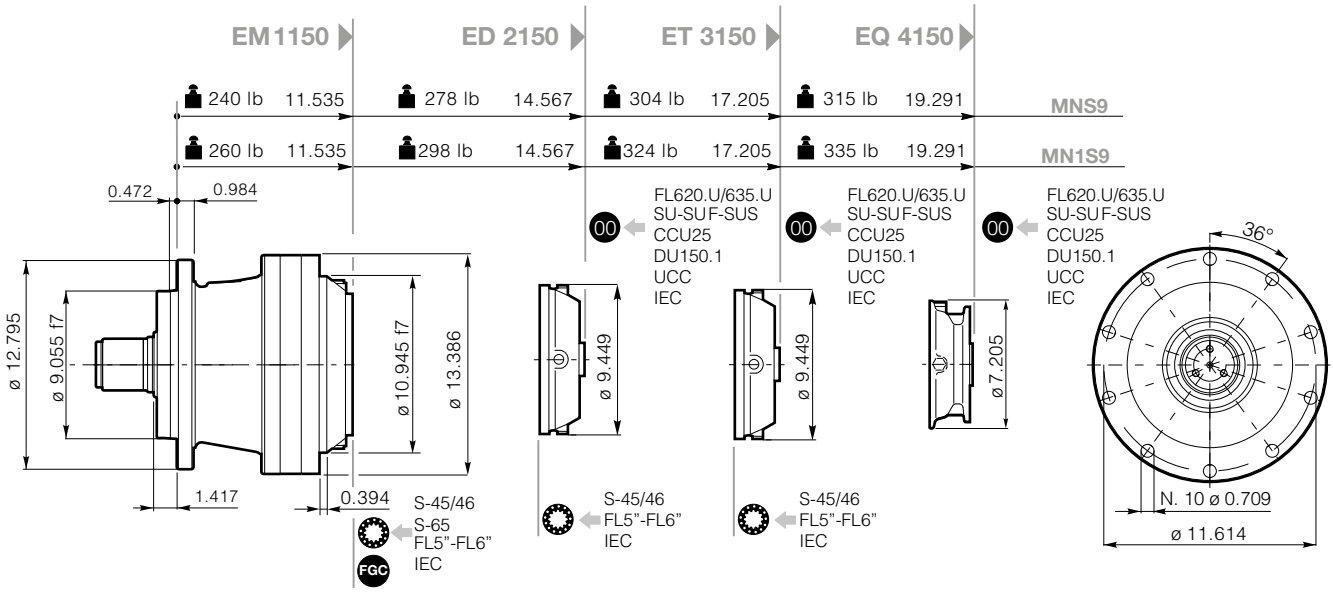


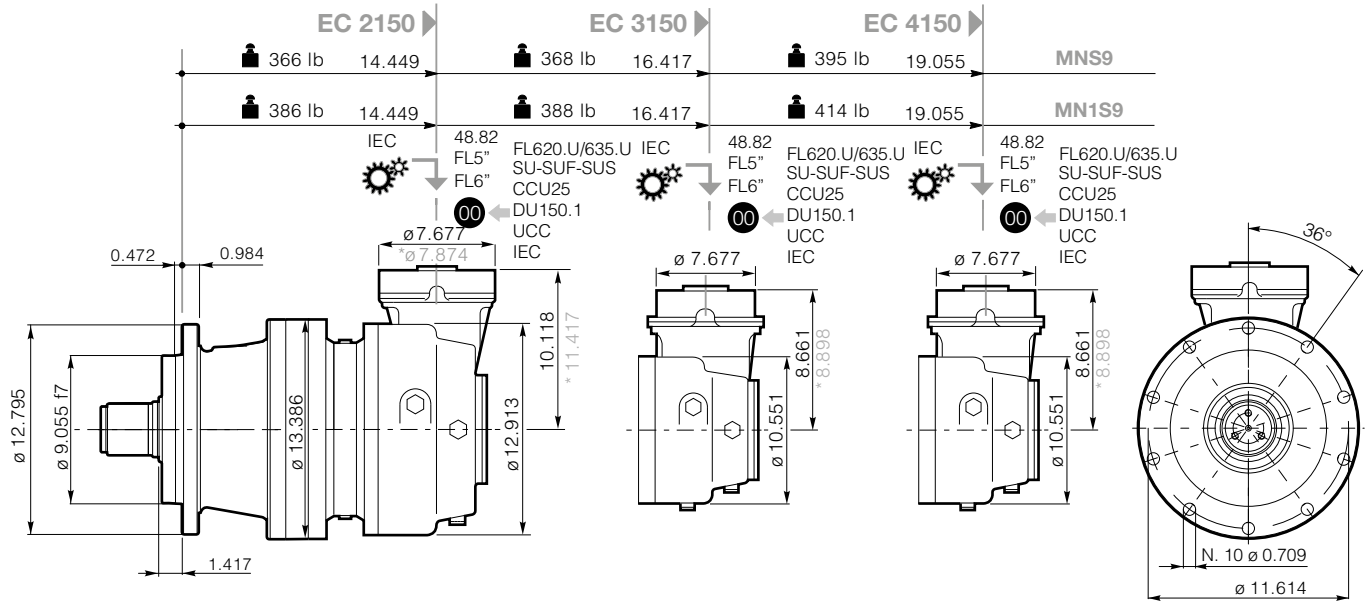
00 B 14 S-45/46 48.82 150 15 SU-SUF SUS 150 16 FL5"- FL6' FL620 FL635 150 18 IEC 150 21 150 20 CCU25 B 16 DU150.1 UCC B 17 * bg 150 3

Click **DANA** button to return to section index

Click *i* button to return to main index





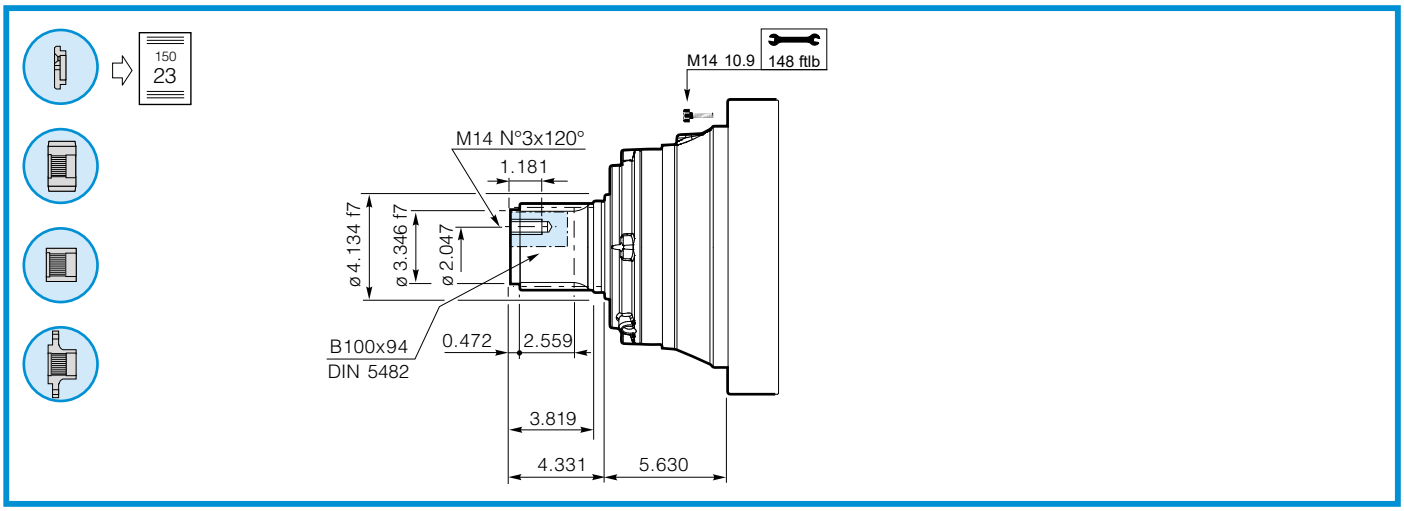


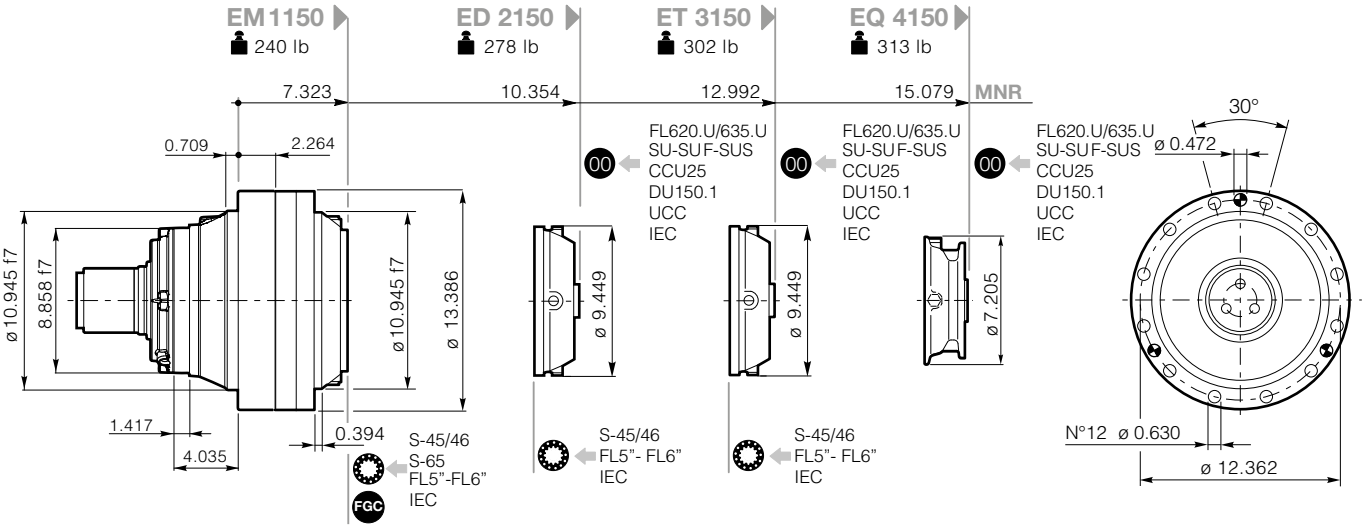
00 B 14 S-45/46 48.82 150 15 SU-SUF SUS 150 16 FL5"- FL6' FL620 FL635 150 18 IEC 150 21 150 20 CCU25 B 16 DU150.1 UCC B 17 * bg 150 3

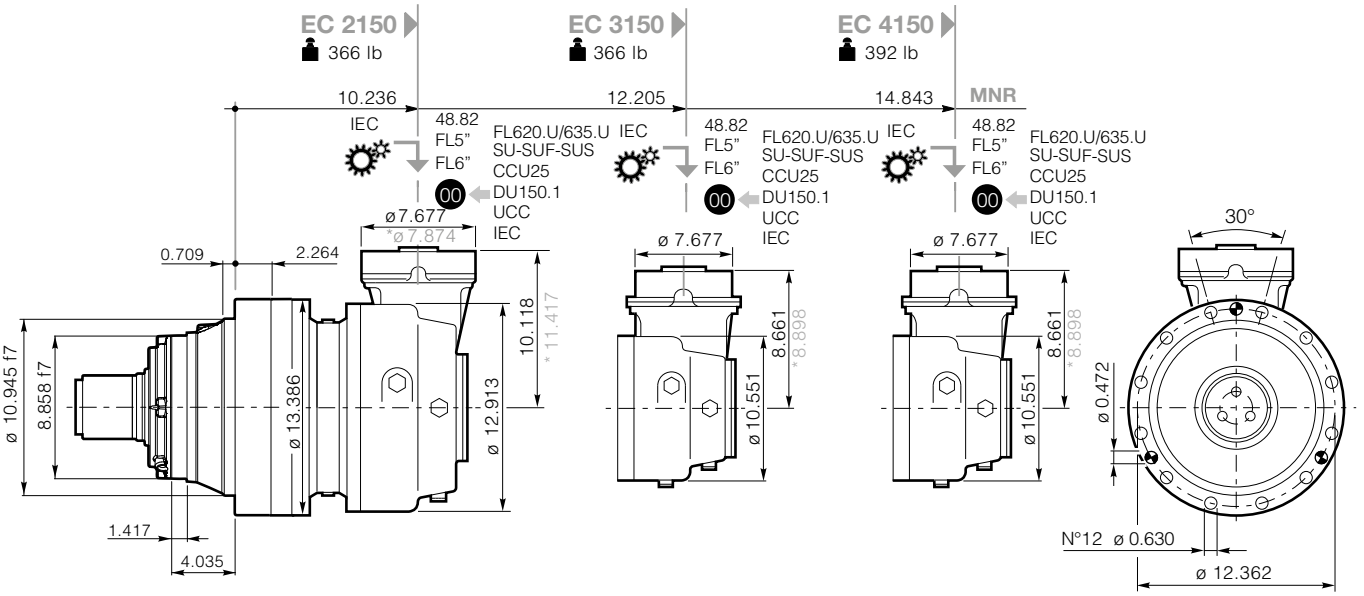
Click *i* button to return to main index

Click **DANA** button to return to section index

GEARBOX DIMENSIONS WITH OUTPUT



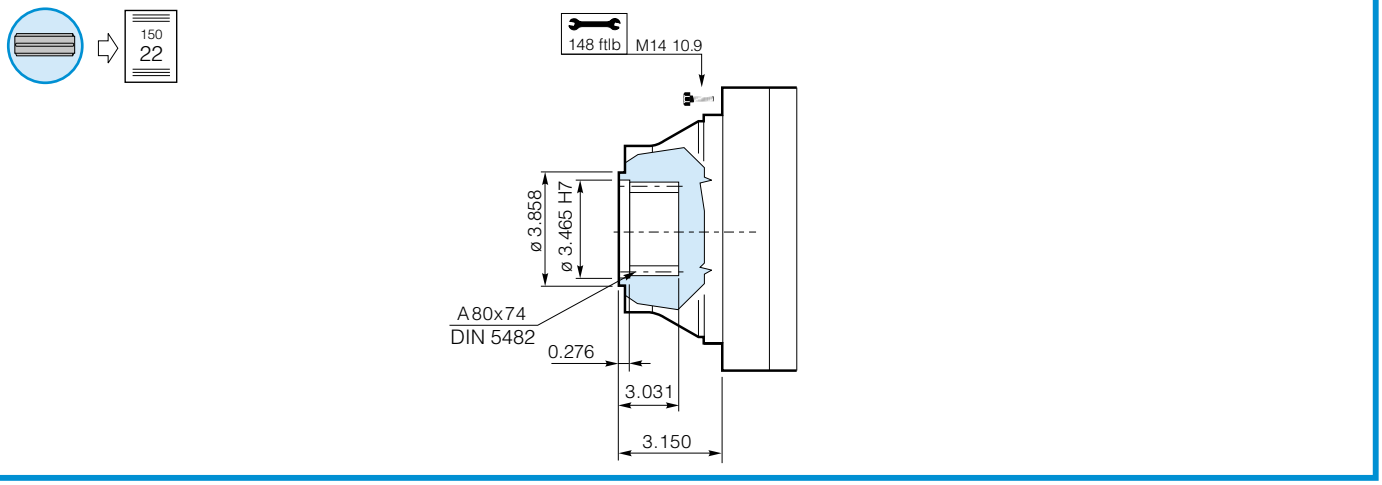


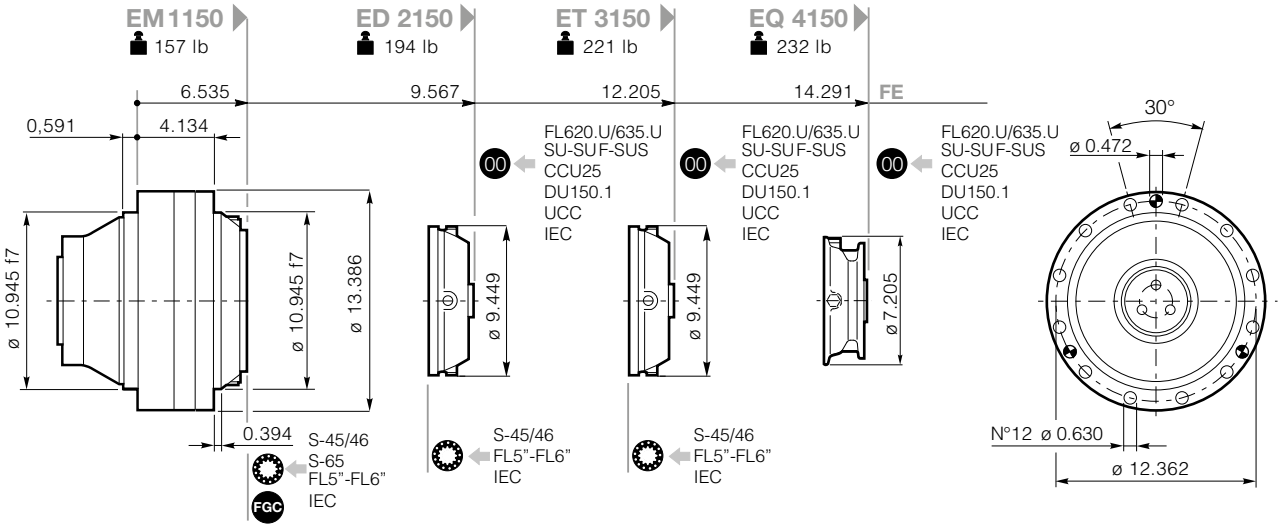


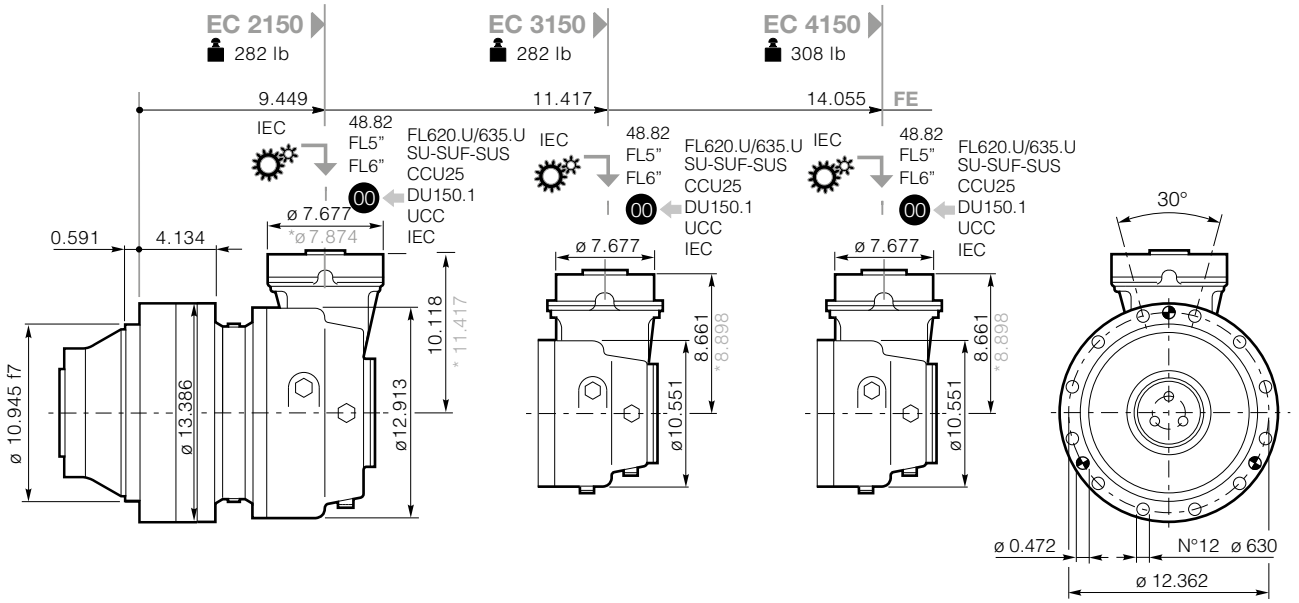
00 B 14 S-45/46 48.82 → 150 15 SU-SUF SUS → 150 16 FL5"- FL6' FL620 FL635 → 150 18 IEC → 150 21 → 150 20 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 150 3

Click **DANA** button to return to section index

Click *i* button to return to main index





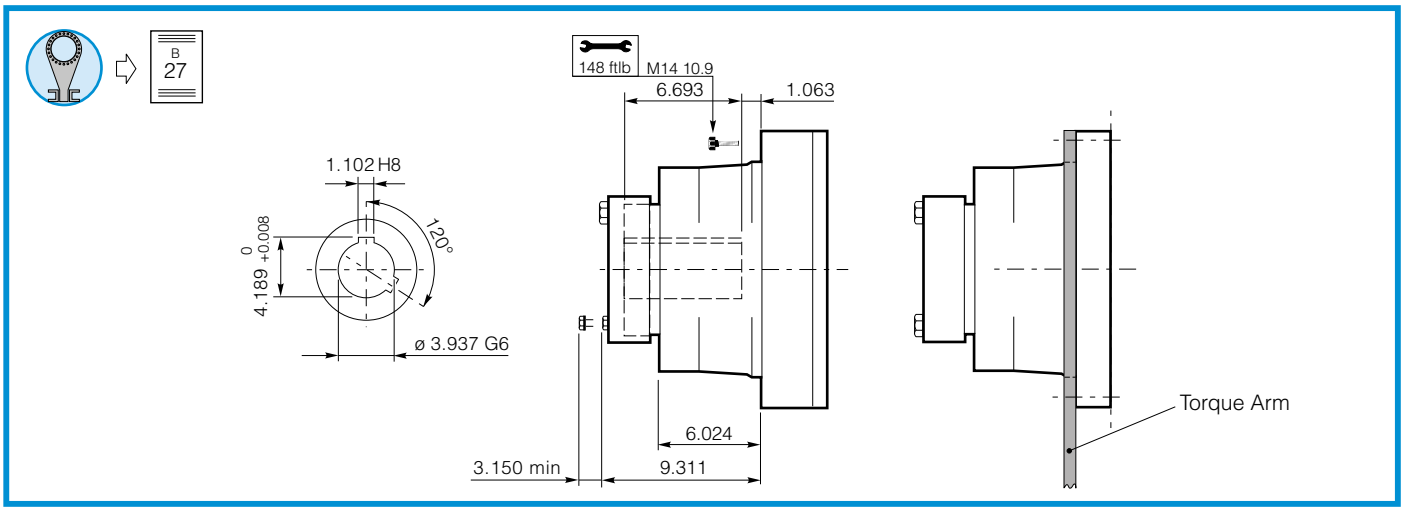


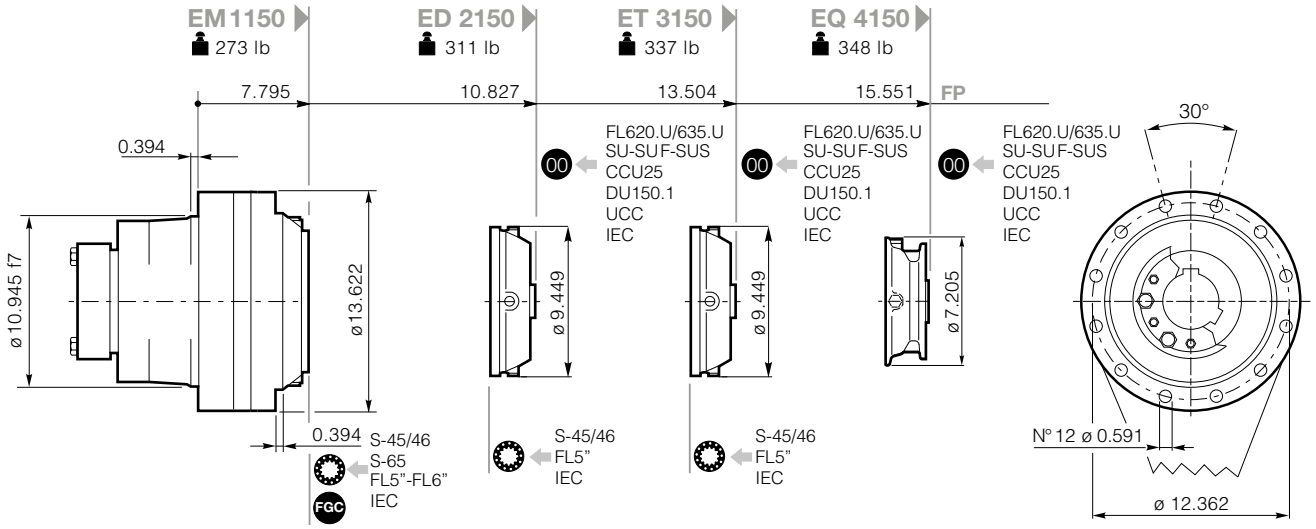
00 B 14 S-45/46 48.82 150 15 SU-SUF SUS 150 16 FL5"- FL6' FL620 FL635 150 18 IEC 150 21 150 20 CCU25 B 16 DU150.1 UCC B 17 * bg 150 3

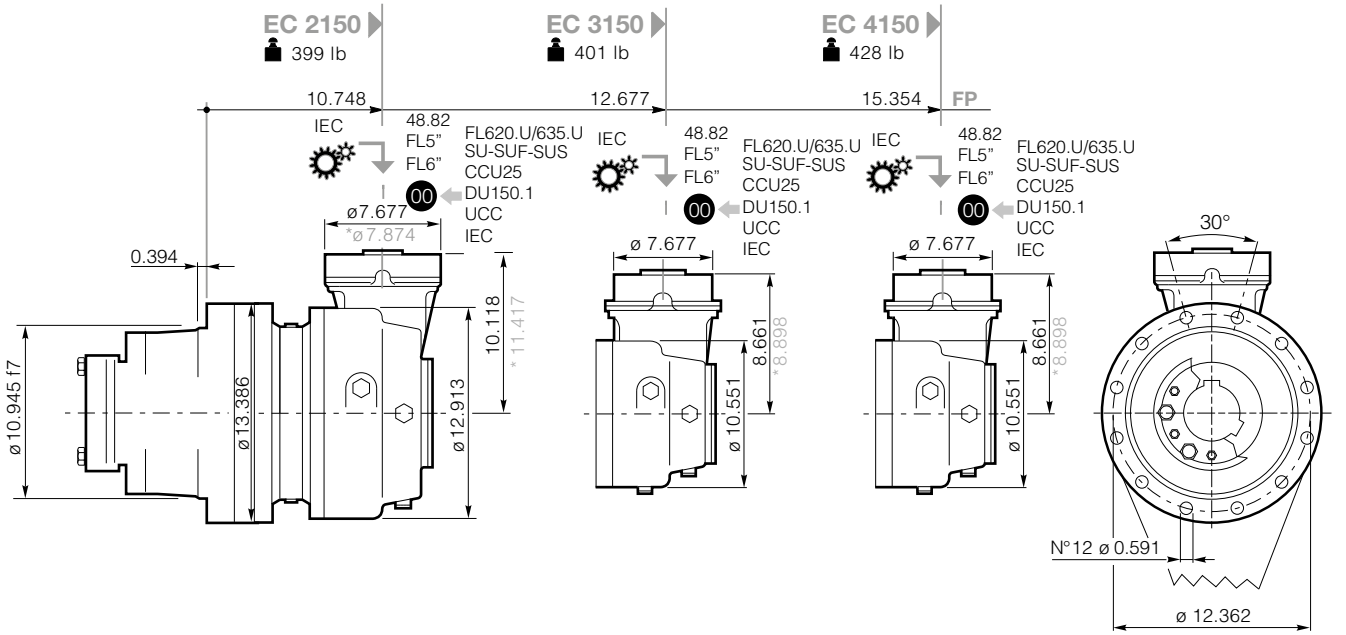
Click *i* button to return to main index

Click **DANA** button to return to section index

GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 → 150 15 SU-SUF SUS → 150 16 FL5"- FL6' FL620 FL635 → 150 18 IEC → 150 21 → 150 20 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 150 3

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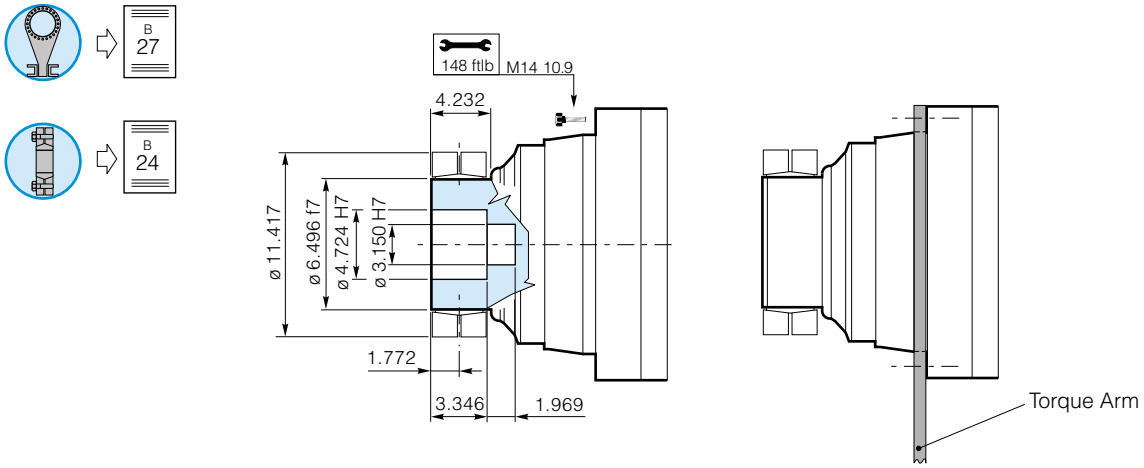
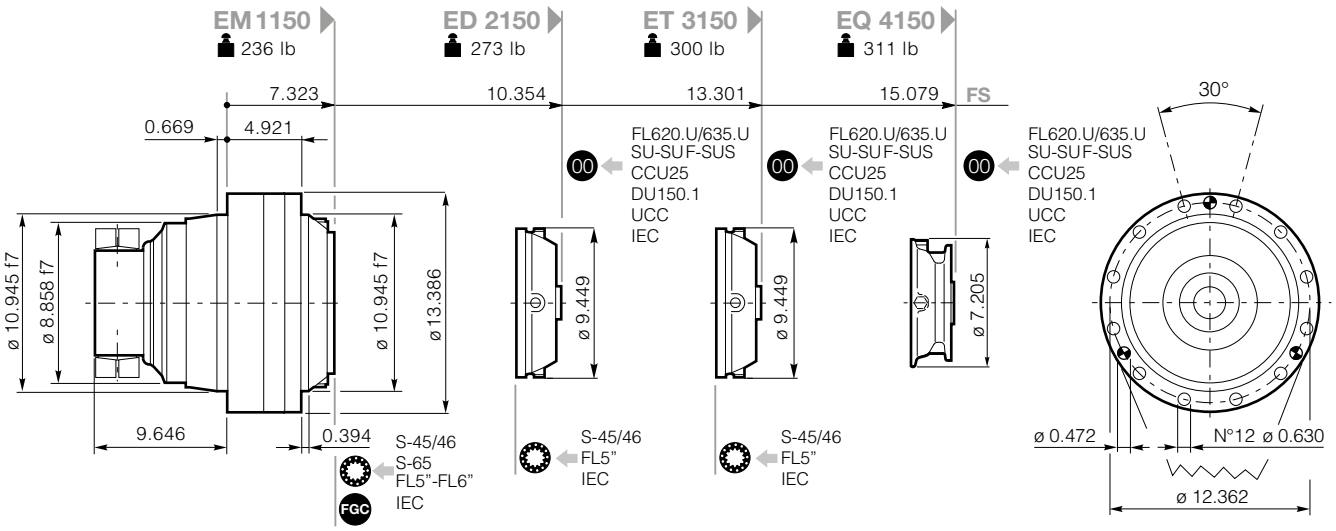
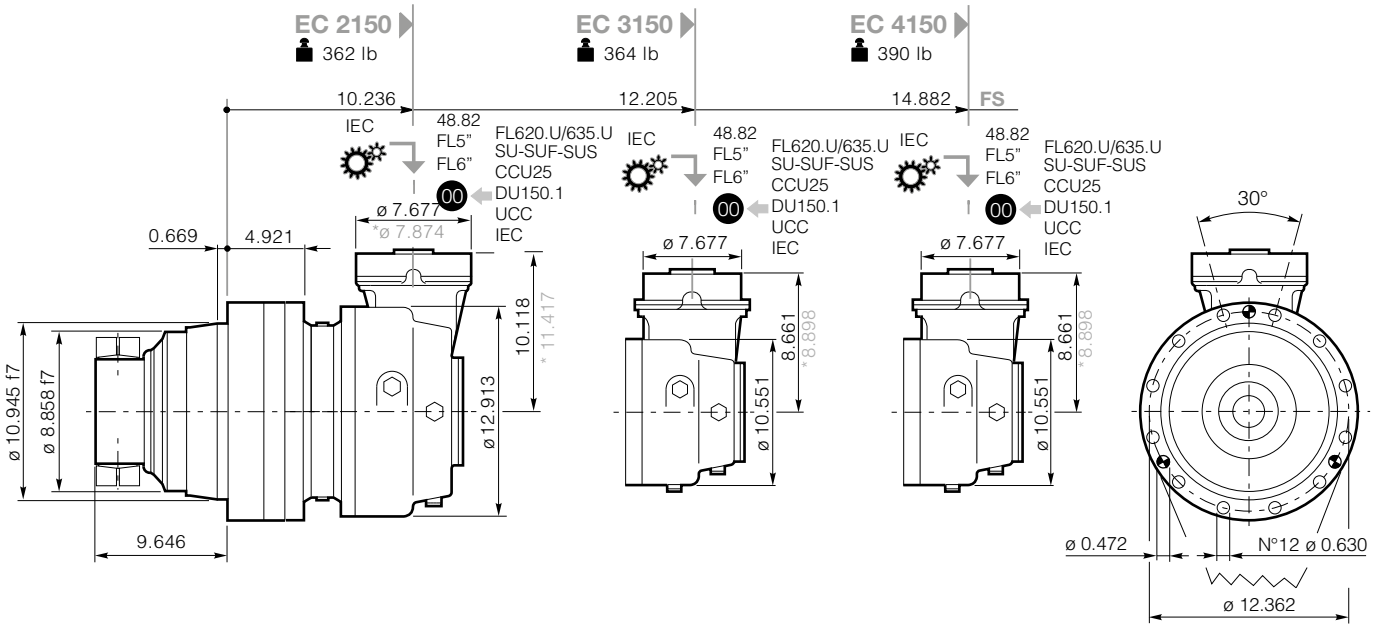




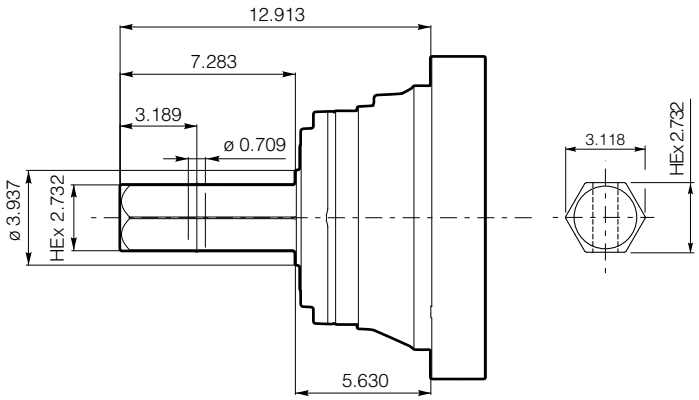


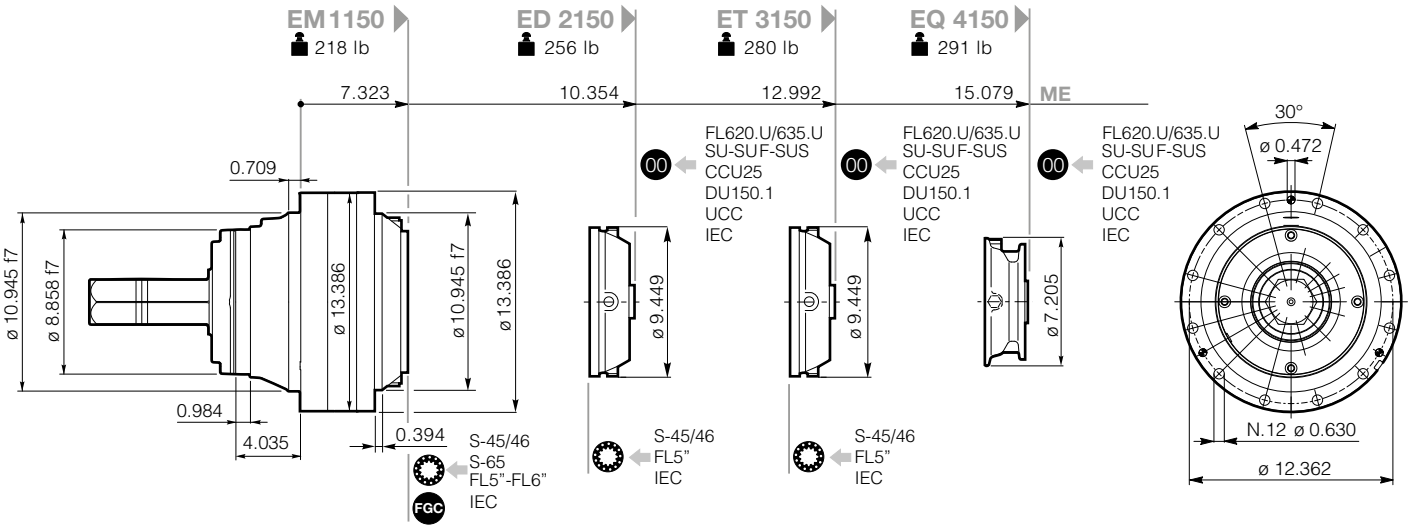
00 B 14 S-45/46 48.82 150 15 SU-SUF SUS 150 16 FL5"- FL6" FL620 FL635 150 18 IEC 150 21 150 20 CCU25 B 16 DU150.1 UCC B 17 * bg 150 3

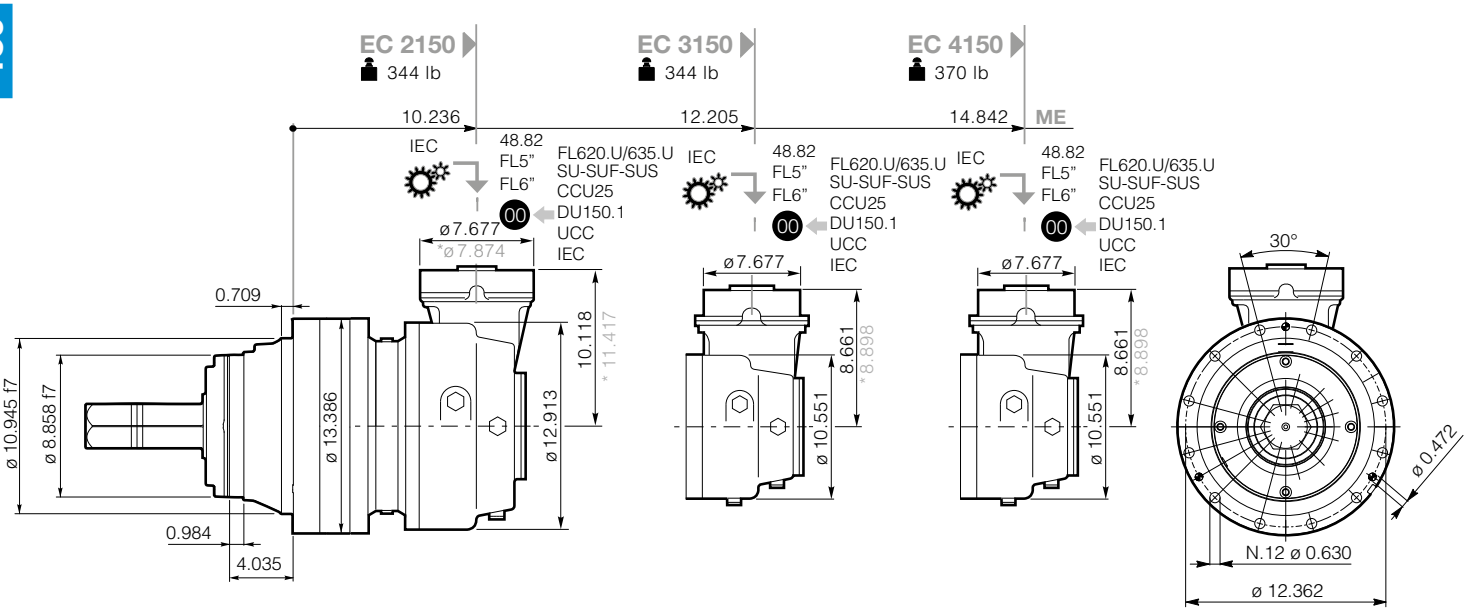
Click *i* button to return to main index

Click **DANA** button to return to section index

GEARBOX DIMENSIONS WITH OUTPUT





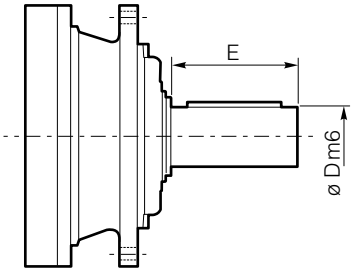


00 B 14 S-45/46 48.82 150 15 SU-SUF SUS 150 16 FL5"- FL6' FL620 FL635 150 18 IEC 150 21 150 20 CCU25 B 16 DU150.1 UCC B 17 * bg 150 3

Click **DANA** button to return to section index

Click *i* button to return to main index

S-45CR1 - S-46C1 - S-45SR - S-65CR1 - S-65SR



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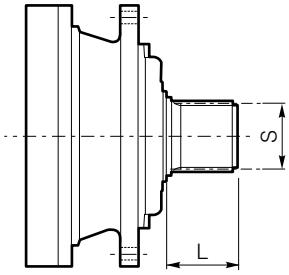
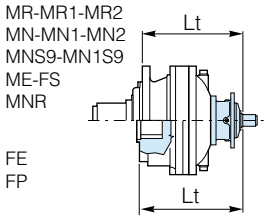
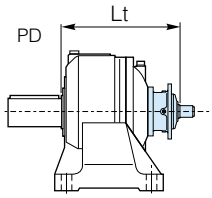


S-45SR - S-65SR

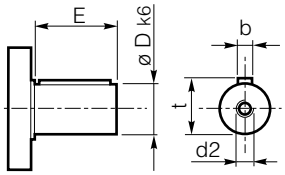


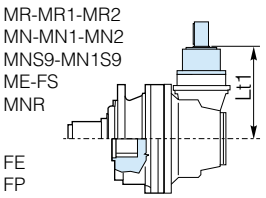


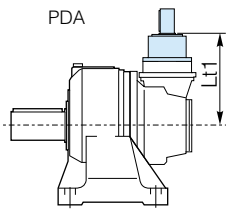
	D m6	E	L	S DIN5482		Lt					
						MN-MN1-MN2 MNR-FS-ME	MR-MR1 MR2	MNS9 MN1S9	FE	FP	PD
S-45CR1	2.559	4.134	-	-	EM/PD 1150	12.795	13.583	17.008	12.008	13.307	18.425
					ED/PD 2150	12.795	13.583	17.008	12.008	13.307	18.425
					ET/PD 3150	15.472	16.260	19.685	14.685	15.945	21.102
S-46C1	2.559	4.134	-	-	EM/PD 1150	14.449	15.236	18.661	13.661	14.921	20.079
					ED/PD 2150	14.449	15.236	18.661	13.661	14.921	20.079
					ET/PD 3150	17.087	17.874	21.299	16.299	17.598	22.716
S-45SR	-	-	2.677	B58x53	EM/PD 1150	12.795	13.583	17.008	12.008	13.307	18.425
					ED/PD 2150	12.795	13.583	17.008	12.008	13.307	18.425
					ET/PD 3150	15.472	16.260	19.685	14.685	15.945	21.102
S-65CR1	3.150	5.118	-	-	EM1150	14.409	15.197	18.622	13.622	14.882	20.039
S-65SR	-	-	3.543	B70x64	EM1150	14.409	15.197	18.622	13.622	14.882	20.039

For more informations, go to page B13

48.82



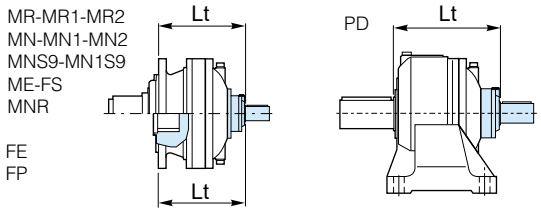


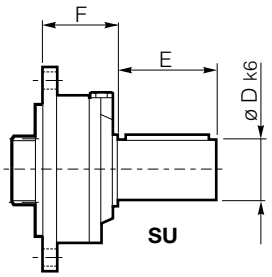


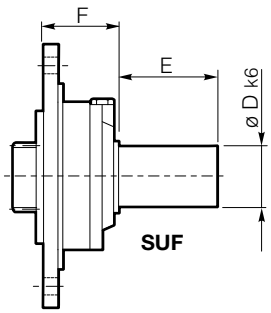
	D	E		Lt1
				MN-MN1-MN2-MR-MR1-MR2-MNS9-MN1S9-ME-FS-MNR--FE-FP-PDA
48.82	1.890	3.228	EC/PDA 2150	12.480
			EC/PDA 3150	11.024
			EC/PDA 4150	11.024

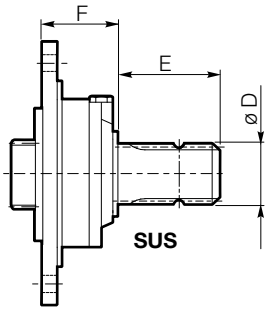
For the input configuration S46C1, S65CR1, 4882 (CC40 - CC41), FL5" can be fitted with an anti-return device.
For further information and technical data, contact Dana Sale Technical Support

SU - SUF - SUS



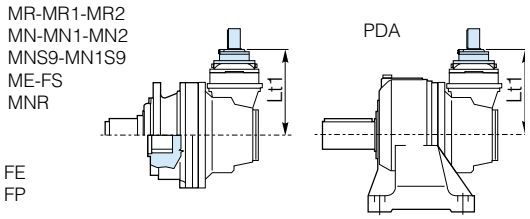


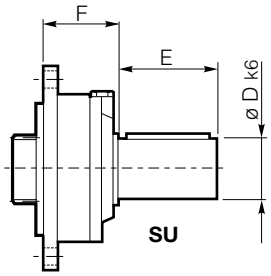


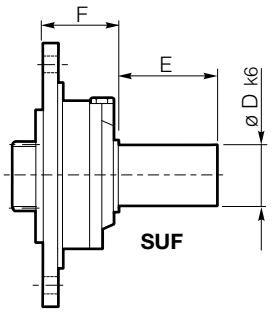


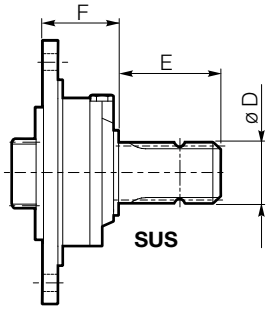
	D	E	F		Lt 00					
					MN-MN1-MN2 MNR-FS-ME	MR-MR1 MR2	MNS9 MN1S9	FE	FP	PD
SU1 28x50	1.102	1.969	2.362	ED/PD 2150	12.717	13.504	16.929	11.929	13.189	18.346
				ET/PD 3150	15.354	16.142	19.567	14.567	15.866	20.984
				EQ/PD 4150	17.441	18.228	21.654	16.654	17.913	23.071
SU2 40x58	1.575	2.283	2.362	ED/PD 2150	12.717	13.504	16.929	11.929	13.189	18.346
				ET/PD 3150	15.354	16.142	19.567	14.567	15.866	20.984
				EQ/PD 4150	17.441	18.228	21.654	16.654	17.913	23.071
SU3 48x82	1.890	3.228	2.362	ED/PD 2150	12.717	13.504	16.929	11.929	13.189	18.346
				ET/PD 3150	15.354	16.142	19.567	14.567	15.866	20.984
				EQ/PD 4150	17.441	18.228	21.654	16.654	17.913	23.071
SU 42x80	1.654	3.150	3.996	ED/PD 2150	14.331	15.118	18.543	13.543	14.842	19.961
				ET/PD 3150	17.008	17.795	21.220	16.220	17.480	22.638
				EQ/PD 4150	19.055	19.842	23.268	18.268	19.567	24.685
SUS 1 3/8”	1 3/8”	3.819	3.996	ED/PD 2150	14.331	15.118	18.543	13.543	14.842	19.961
				ET/PD 3150	17.008	17.795	21.220	16.220	17.480	22.638
				EQ/PD 4150	19.055	19.842	23.268	18.268	19.567	24.685
SU2 1.5x3.25	1.500	3.250	2.362	ED/PD 2150	12.717	13.504	16.929	11.929	13.189	18.346
				ET/PD 3150	15.354	16.142	19.567	14.567	15.866	20.984
				EQ/PD 4150	17.441	18.228	21.654	16.654	17.913	23.071
SUF1 28x50	1.102	1.969	2.362	ED/PD 2150	12.717	13.504	16.929	11.929	13.189	18.346
				ET/PD 3150	15.354	16.142	19.567	14.567	15.866	20.984
				EQ/PD 4150	17.441	18.228	21.654	16.654	17.913	23.071
SUF2 40x58	1.575	2.283	2.362	ED/PD 2150	12.717	13.504	16.929	11.929	13.189	18.346
				ET/PD 3150	15.354	16.142	19.567	14.567	15.866	20.984
				EQ/PD 4150	17.441	18.228	21.654	16.654	17.913	23.071
SUF3 48x82	1.890	3.228	2.362	ED/PD 2150	12.717	13.504	16.929	11.929	13.189	18.346
				ET/PD 3150	15.354	16.142	19.567	14.567	15.866	20.984
				EQ/PD 4150	17.441	18.228	21.654	16.654	17.913	23.071

SU - SUF - SUS









	D	E	F		Lt1					
					MN-MN1-MN2 MNR-FS-ME	MR-MR1 MR2	MNS9 MN1S9	FE	FP	PDA
SU1 28x50	1.102	1.969	2.362	EC/PDA 2150	12.480	12.480	12.480	12.480	12.480	12.480
				EC/PDA 2150*	13.780	13.780	13.780	13.780	13.780	13.780
				EC/PDA 3150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 3150*	11.260	11.260	11.260	11.260	11.260	11.260
				EC/PDA 4150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 4150*	11.260	11.260	11.260	11.260	11.260	11.260
SU2 40x58	1.575	2.283	2.362	EC/PDA 2150	12.480	12.480	12.480	12.480	12.480	12.480
				EC/PDA 2150*	13.780	13.780	13.780	13.780	13.780	13.780
				EC/PDA 3150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 3150*	11.260	11.260	11.260	11.260	11.260	11.260
				EC/PDA 4150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 4150*	11.260	11.260	11.260	11.260	11.260	11.260
SU3 48x82	1.890	3.228	2.362	EC/PDA 2150	12.480	12.480	12.480	12.480	12.480	12.480
				EC/PDA 2150*	13.780	13.780	13.780	13.780	13.780	13.780
				EC/PDA 3150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 3150*	11.260	11.260	11.260	11.260	11.260	11.260
				EC/PDA 4150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 4150*	11.260	11.260	11.260	11.260	11.260	11.260
SU 42x80	1.654	3.150	3.996	EC/PDA 2150	14.134	14.134	14.134	14.134	14.134	14.134
				EC /PDA2150*	15.433	15.433	15.433	15.433	15.433	15.433
				EC/PDA 3150	12.677	12.677	12.677	12.677	12.677	12.677
				EC/PDA 3150*	12.913	12.913	12.913	12.913	12.913	12.913
				EC/PDA 4150	12.677	12.677	12.677	12.677	12.677	12.677
				EC/PDA 4150*	12.913	12.913	12.913	12.913	12.913	12.913
SUS 1 3/8"	1 3/8" DIN9611	3.819	3.996	EC/PDA 2150	14.134	14.134	14.134	14.134	14.134	14.134
				EC/PDA 2150*	15.433	15.433	15.433	15.433	15.433	15.433
				EC/PDA 3150	12.677	12.677	12.677	12.677	12.677	12.677
				EC/PDA 3150*	12.913	12.913	12.913	12.913	12.913	12.913
				EC/PDA 4150	12.677	12.677	12.677	12.677	12.677	12.677
				EC/PDA 4150*	12.913	12.913	12.913	12.913	12.913	12.913
SU2 1.5x3.25	1.500	3.250	2.362	EC/PDA 2150	12.480	12.480	12.480	12.480	12.480	12.480
				EC/PDA 2150*	13.780	13.780	13.780	13.780	13.780	13.780
				EC/PDA 3150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 3150*	11.260	11.260	11.260	11.260	11.260	11.260
				EC/PDA 4150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 4150*	11.260	11.260	11.260	11.260	11.260	11.260
SUF1 28x50	1.102	1.969	2.362	EC/PDA 2150	12.480	12.480	12.480	12.480	12.480	12.480
				EC /PDA2150*	13.780	13.780	13.780	13.780	13.780	13.780
				EC/PDA 3150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 3150*	11.260	11.260	11.260	11.260	11.260	11.260
				EC/PDA 4150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 4150*	11.260	11.260	11.260	11.260	11.260	11.260
SUF2 40x58	1.575	2.283	2.362	EC/PDA 2150	12.480	12.480	12.480	12.480	12.480	12.480
				EC/PDA 2150*	13.780	13.780	13.780	13.780	13.780	13.780
				EC/PDA 3150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 3150*	11.260	11.260	11.260	11.260	11.260	11.260
				EC/PDA 4150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 4150*	11.260	11.260	11.260	11.260	11.260	11.260
SUF3 48x82	1.890	3.228	2.362	EC/PDA 2150	12.480	12.480	12.480	12.480	12.480	12.480
				EC/PDA 2150*	13.780	13.780	13.780	13.780	13.780	13.780
				EC/PDA 3150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 3150*	11.260	11.260	11.260	11.260	11.260	11.260
				EC/PDA 4150	11.024	11.024	11.024	11.024	11.024	11.024
				EC/PDA 4150*	11.260	11.260	11.260	11.260	11.260	11.260

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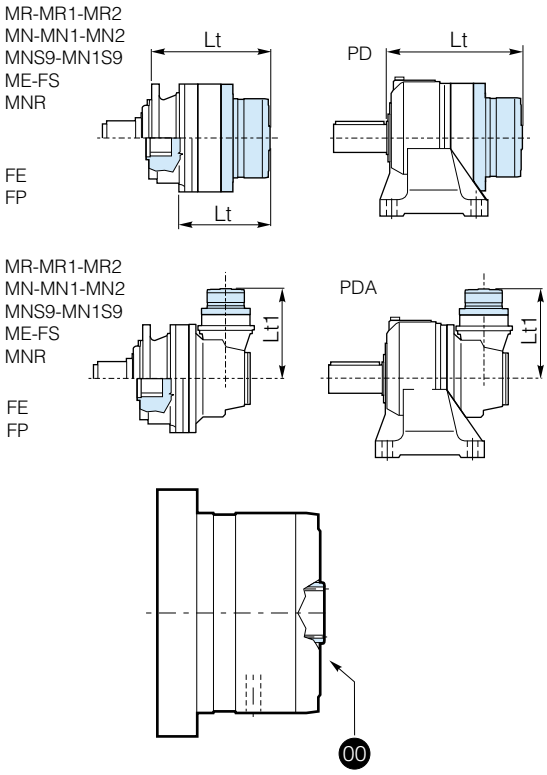
150

FL5” FL6” FL250 - FL350 - FL450 / FL650 - FL750



		Lt					
		MN-MN1-MN2 MNR-FS-ME	MR-MR1 MR2	MNS9 MN1S9	FE	FP	PD
FL250 FL350 FL450	EM/PD 1150	11.654	12.441	15.866	10.866	12.165	17.283
	ED/PD 2150	14.016	14.803	18.228	13.228	14.528	19.646
	ET/PD 3150	16.693	17.480	20.905	15.905	17.165	22.323
FL650 FL750	EM/PD 1150	12.205	12.992	16.417	11.417	12.677	17.835
	ED/PD 2150	14.567	15.354	18.779	13.780	15.039	20.197
	ET/PD 3150	17.205	17.992	21.417	16.417	17.717	22.835
FL960	EM/PD 1150	12.756	13.543	16.968	11.968	13.268	18.386
	ED/PD 2150	15.630	16.417	19.842	14.842	16.102	21.260

		Lt1					
		MN-MN1-MN2 MNR-FS-ME	MR-MR1 MR2	MNS9 MN1S9	FE	FP	PDD
FL250 FL350 FL450	EC/PDA 2150	16.102	16.102	16.102	16.102	16.102	16.102
	EC/PDA 2150*	17.402	17.402	17.402	17.402	17.402	17.402
	EC/PDA 3150	11.024	11.024	11.024	11.024	11.024	11.024
	EC/PDA 3150*	14.842	14.842	14.842	14.842	14.842	14.842
	EC/PDA 4150	11.024	11.024	11.024	11.024	11.024	11.024
	EC/PDA 4150*	14.842	14.842	14.842	14.842	14.842	14.842
FL650 FL750	EC/PDA 2150	16.614	16.614	16.614	16.614	16.614	16.614
	EC/PDA 2150*	17.913	17.913	17.913	17.913	17.913	17.913
	EC/PDA 3150	11.575	11.575	11.575	11.575	11.575	11.575
	EC/PDA 3150*	15.413	15.413	15.413	15.413	15.413	15.413
	EC/PDA 4150	11.575	11.575	11.575	11.575	11.575	11.575
	EC/PDA 4150*	15.413	15.413	15.413	15.413	15.413	15.413

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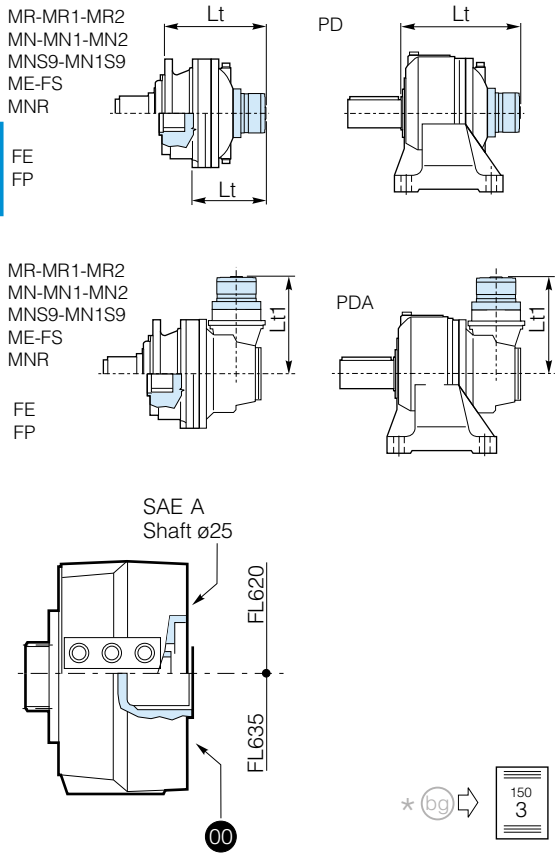
FL620.10 - FL635.10 / FL620.U - FL635.U



		Lt					00
		MN-MN1-MN2 MNR-FS-ME	MR-MR1 MR2	MNS9 MN1S9	FE	FP	PD
FL620.U	ED/PD 2150	14.449	15.236	18.661	13.661	14.961	20.079
	ET/PD 3150	17.126	17.913	21.339	16.339	17.598	22.756
	EQ/PD 4150	19.173	19.961	23.386	18.386	19.685	24.803
FL635.U	ED/PD 2150	13.937	14.724	18.150	13.150	14.409	19.567
	ET/PD 3150	16.575	17.362	20.787	15.787	17.087	22.205
	EQ/PD 4150	18.661	19.449	22.874	17.874	19.134	24.291

		Lt					
		MN-MN1-MN2 MNR-FS-ME	MR-MR1 MR2	MNS9 MN1S9	FE	FP	PD
FL620.10	EQ/PD 4150	17.559	18.346	21.772	16.772	18.071	23.189
FL635.10	EQ/PD 4150	16.850	17.638	21.063	16.063	17.362	22.480

		Lt1					00
		MN-MN1-MN2 MNR-FS-ME	MR-MR1 MR2	MNS9 MN1S9	FE	FP	PDA
FL620.U	EC/PDA 2150	14.252	14.252	14.252	14.252	14.252	14.252
	EC/PDA 2150*	15.551	15.551	15.551	15.551	15.551	15.551
	EC/PDA 3150	12.795	12.795	12.795	12.795	12.795	12.795
	EC/PDA 3150*	13.031	13.031	13.031	13.031	13.031	13.031
	EC/PDA 4150	12.795	12.795	12.795	12.795	12.795	12.795
	EC/PDA 4150*	13.031	13.031	13.031	13.031	13.031	13.031
FL635.U	EC/PDA 2150	13.701	13.701	13.701	13.701	13.701	13.701
	EC/PDA 2150*	15.000	15.000	15.000	15.000	15.000	15.000
	EC/PDA 3150	12.244	12.244	12.244	12.244	12.244	12.244
	EC/PDA 3150*	12.480	12.480	12.480	12.480	12.480	12.480
	EC/PDA 4150	12.244	12.244	12.244	12.244	12.244	12.244
	EC/PDA 4150*	12.480	12.480	12.480	12.480	12.480	12.480

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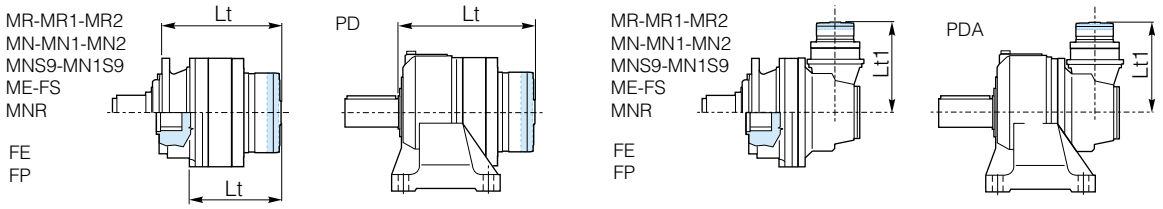
RL



				Lt					
				MN-MN1-MN2 MNR-FS-ME	MR-MR1 MR2	MNS9 MN1S9	FE	FP	PD
RL	+	FL250 FL350 FL450	EM/PD 1150	12.677	13.465	16.890	11.890	13.189	18.307
			ED/PD 2150	15.039	15.827	19.252	14.252	15.551	20.669
			ET/PD 3150	17.717	18.504	21.929	16.929	18.189	23.346
		FL650 FL750	EM/PD 1150	13.228	14.016	17.441	12.441	13.701	18.858
			ED/PD 2150	15.591	16.378	19.803	14.803	16.063	21.220
			ET/PD 3150	18.228	19.016	22.441	17.441	18.740	23.858
		FL960	EM/PD 1150	13.780	14.567	17.992	12.992	14.291	19.409
			ED/PD 2150	16.654	17.441	20.866	15.866	17.126	22.283

				Lt1
				MR-MR1-MR2-MN-MN1-MN2-MNR-MNS9-MN1S9-FS-FE-ME-FP-PDA
RL	+	FL250 FL350 FL450	EC/PDA 2150	17.126
			EC/PDA 2150*	18.425
			EC/PDA 3150	12.047
			EC/PDA 3150*	15.905
			EC/PDA 4150	12.047
			EC/PDA 4150*	15.905

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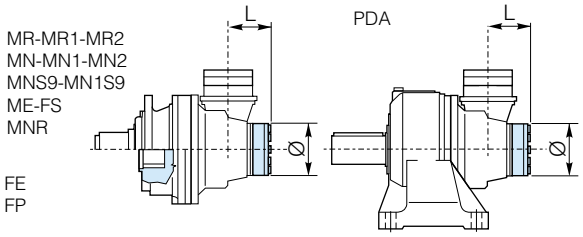
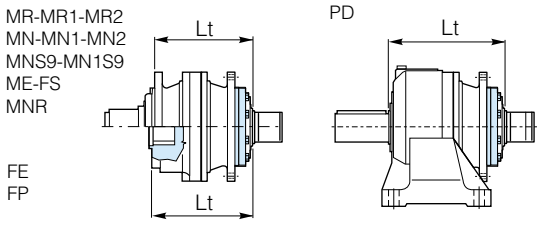


				L	Ø
RL	+	CC40	EC/PDA 3150	5.323	5.906
			EC/PDA 4150	5.323	5.906



				Lt					
				MN-MN1-MN2 MNR-FS-ME	MR-MR1 MR2	MNS9 MN1S9	FE	FP	PD
RL	+	S46C1	EM/PD 1150	14.409	16.024	18.622	14.449	15.709	20.866
			ED/PD 2150	15.236	16.024	19.449	14.449	15.709	20.866
			ET/PD 3150	17.874	18.661	22.087	17.087	18.346	23.504

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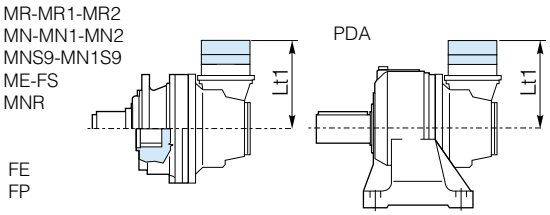
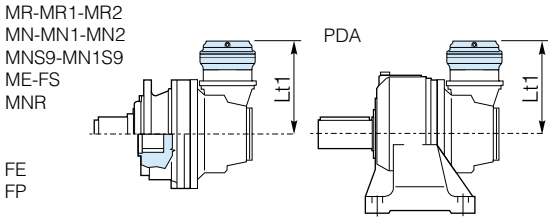
ADDITIONAL PLANETARY STAGE ON BEVEL GEAR



EM1010 - EM1020



ED2010 - ED2020 ED2021

		Lt1					
		EC2150 PDA2150	EC2150* PDA2150*	**EC3150 PDA3150**	EC3150* PDA3150*	**EC4150 PDA4150**	EC4150* PDA4150*
	EM1010	14.331	15.630	12.874	13.110	12.874	13.110
	EM1020	15.039	16.339	13.583	13.819	13.583	13.819
	ED2010	15.886	17.185	14.429	14.665	14.429	14.665
	ED2020	17.106	18.405	15.650	15.886	15.650	15.886
	ED2021	17.713	19.012	16.256	16.492	16.256	16.492

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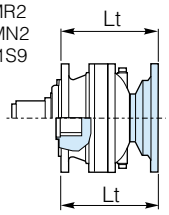
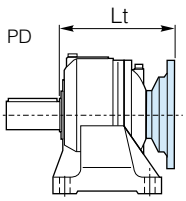
IEC Motor

MR-MR1-MR2
MN-MN1-MN2
MNS9-MN1S9
ME-FS
MNR

FE
FP

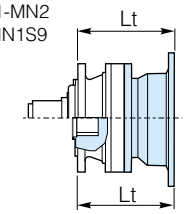


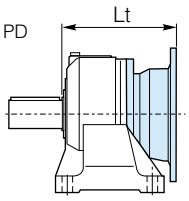


		Lt IEC 63	71	80 90	100 112	132	160 180	200	225
ED 2150	MN-MN1-MN2-MNR-FS-ME	11.142	11.220	11.417	11.457	14.094	15.315	15.748	16.929
ED 2150	MR-MR1-MR2	11.929	12.008	12.205	12.244	14.882	16.102	16.535	17.717
ED 2150	MNS9-MN1S9	15.354	15.433	15.630	15.669	18.307	19.528	19.961	21.142
ED 2150	FE	10.354	10.433	10.630	10.669	13.307	14.528	14.961	16.142
ED 2150	FP	11.614	11.693	11.890	11.929	14.567	15.787	16.220	17.402
ET 3150	MN-MN1-MN2-MNR-FS-ME	13.780	13.858	14.055	14.094	16.732	17.953	18.386	19.567
ET 3150	MR-MR1-MR2	14.567	14.646	14.842	14.882	17.520	18.740	19.173	20.354
ET 3150	MNS9-MN1S9	17.992	18.071	18.268	18.307	20.945	22.165	22.598	23.779
ET 3150	FE	12.992	13.071	13.268	13.307	15.945	17.165	17.598	18.779
ET 3150	FP	14.291	14.370	14.567	14.606	17.244	18.465	18.898	20.079
EQ 4150	MN-MN1-MN2-MNR-FS-ME	15.866	15.945	16.142	16.181	18.819	20.039	20.472	21.654
EQ 4150	MR-MR1-MR2	16.654	16.732	16.929	16.968	19.606	20.827	21.260	22.441
EQ 4150	MNS9-MN1S9	20.079	20.157	20.354	20.394	23.031	24.252	24.685	25.866
EQ 4150	FE	15.079	15.157	15.354	15.394	18.031	19.252	19.685	20.866
EQ 4150	FP	16.339	16.417	16.614	16.654	19.291	20.512	20.945	22.126
PD 2150	PD	16.772	16.850	17.047	17.047	19.724	20.945	21.378	22.559
PD 3150	PD	19.409	19.488	19.724	19.685	22.362	23.583	24.016	25.197
PD 4150	PD	21.496	21.575	21.772	21.772	24.449	25.669	26.102	27.283

MR-MR1-MR2
MN-MN1-MN2
MNS9-MN1S9
ME-FS
MNR

FE
FP

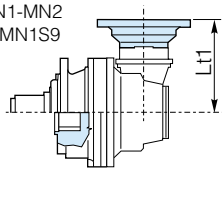


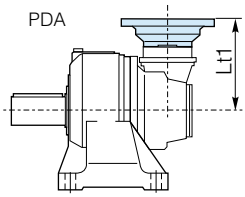


		Lt IEC 160 180	200	225
EM 1150	MN-MN1-MN2-MNR-FS-ME	11.654	11.654	12.520
EM 1150	MR-MR1-MR2	12.441	12.441	13.307
EM 1150	MNS9-MN1S9	15.866	15.866	16.732
EM 1150	FE	10.866	10.866	11.732
EM 1150	FP	12.126	12.126	13.031
ED 2150	MN-MN1-MN2-MNR-FS-ME	15.315	15.709	16.890
ED 2150	MR-MR1-MR2	16.102	16.496	17.677
ED 2150	MNS9-MN1S9	19.528	19.921	21.102
ED 2150	FE	14.528	14.921	16.102
ED 2150	FP	15.787	16.181	17.362
ET 3150	MN-MN1-MN2-MNR-FS-ME	17.953	18.346	-
ET 3150	MR-MR1-MR2	18.740	19.134	-
ET 3150	MNS9-MN1S9	22.165	22.559	-
ET 3150	FE	17.165	17.559	-
ET 3150	FP	18.465	18.858	-
PD 1150	PD	17.283	17.283	18.150
PD 2150	PD	20.945	21.339	22.520
PD 3150	PD	23.583	23.976	-

MR-MR1-MR2
MN-MN1-MN2
MNS9-MN1S9
ME-FS
MNR

FE
FP





		Lt1 IEC 63	71	80 90	100 112	132	160 180	200	225
EC/PDA 2150	MN-MR-MN1-MN2-MR1-MR2 MNR-MNS9-MN1S9 FE-FS-FP-PDA	10.905	10.984	11.181	11.220	13.858	15.079	15.512	16.693
EC/PDA 2150*		12.205	12.283	12.480	12.520	15.157	16.378	16.811	17.992
EC/PDA 3150		9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC/PDA 3150*		9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472
EC/PDA 4150		9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC/PDA 4150*		9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472

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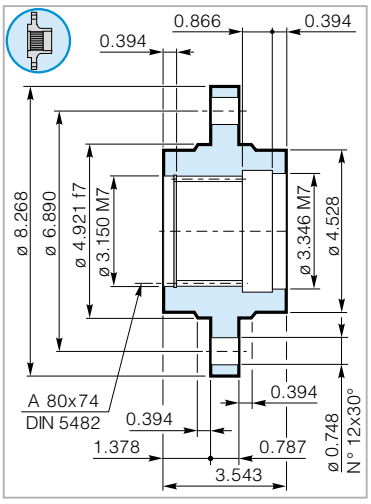
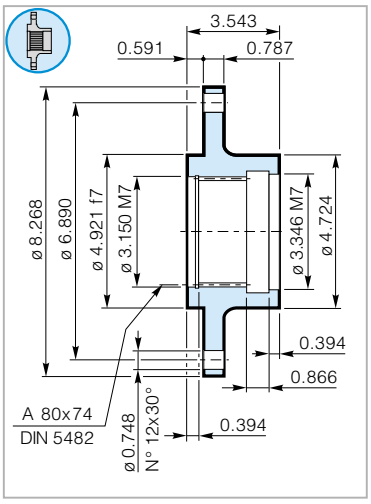
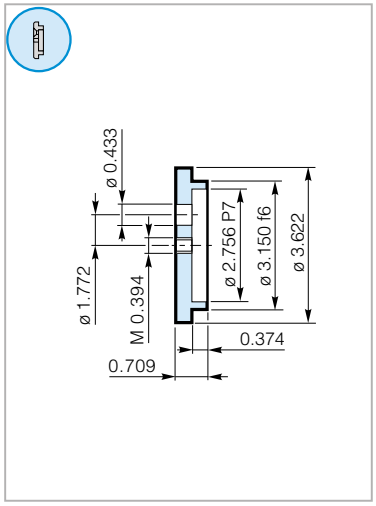
FA 150 MN-MNS9 Wheel Flange



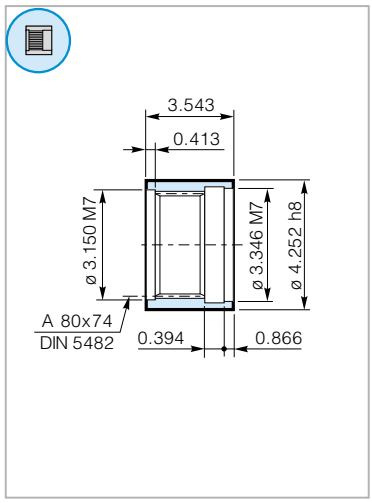
FR 150 MN-MNS9 Wheel Flange



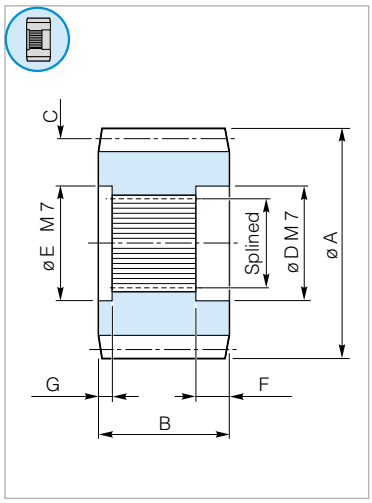
RDF 150 MN-MNS9 Lock Washer



MS 150 MN-MNS9 Splined Sleeve

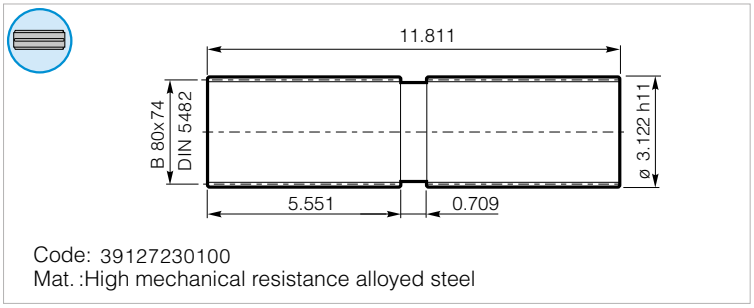


MN - MNS9 Pinions



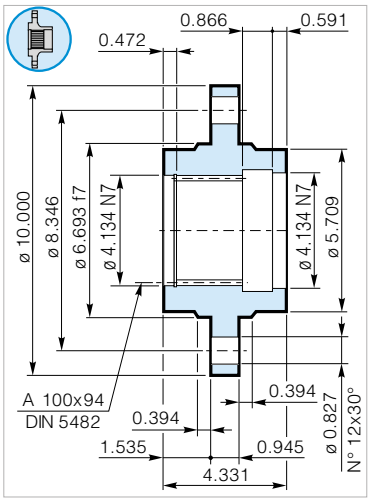
Splined	A	B	C			D	E	F	G
			m	z	x				
A80x74 DIN 5482	7.087	3.465	0.394	0.591	0.020	3.346	3.150	0.394	0.279
	6.378	3.937	0.394	0.551	0.012	3.346	3.150	0.394	0.251
	5.709	3.543	0.394	0.472	0.020	3.346	3.150	0.394	0.225

BS 150 FE Splined Bar

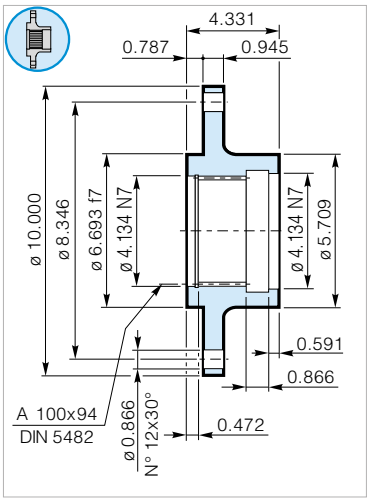


Code: 39127230100
Mat. :High mechanical resistance alloyed steel

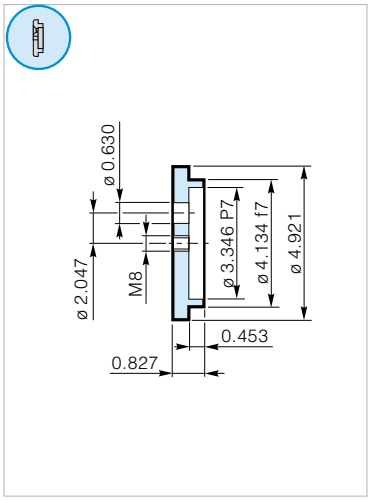
FA 150 MR-MNR — Wheel Flange



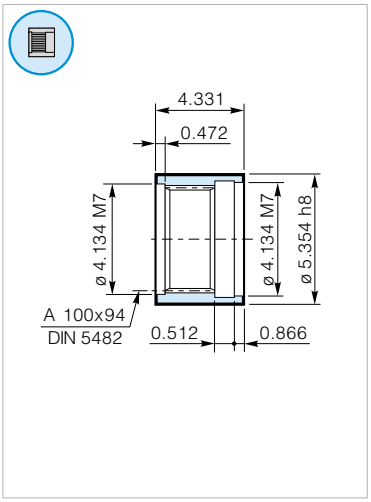
FR 150 MR-MNR — Wheel Flange



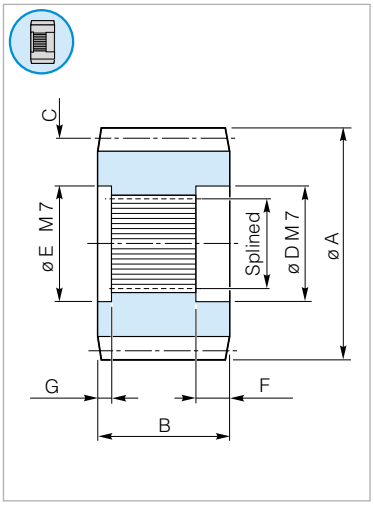
RDF 150 MR-MNR — Lock Washer



MS 150 MR-MNR — Splined Sleeve



MR - MNR — Pinions



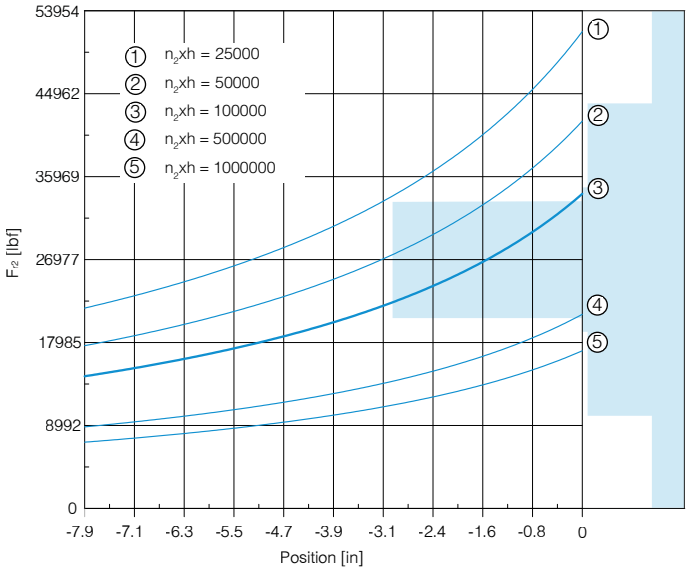
Splined	A	B	C			D	E	F	G
			m	z	x				
A100x94 DIN 5482	7.874	3.268	0.394	0.709	0.000	4.134	4.134	0.866	0.310
	8.031	3.543	0.472	0.591	0.000	4.134	4.134	0.866	0.316
	7.008	4.134	0.394	0.591	0.024	4.134	4.134	0.866	0.276
	9.921	4.724	0.551	0.591	0.020	4.134	4.134	0.866	0.391
	9.921	4.724	0.551	0.591	0.020	4.134	4.134	0.866	0.391

RADIAL AND AXIAL LOADS

Output Radial Loads

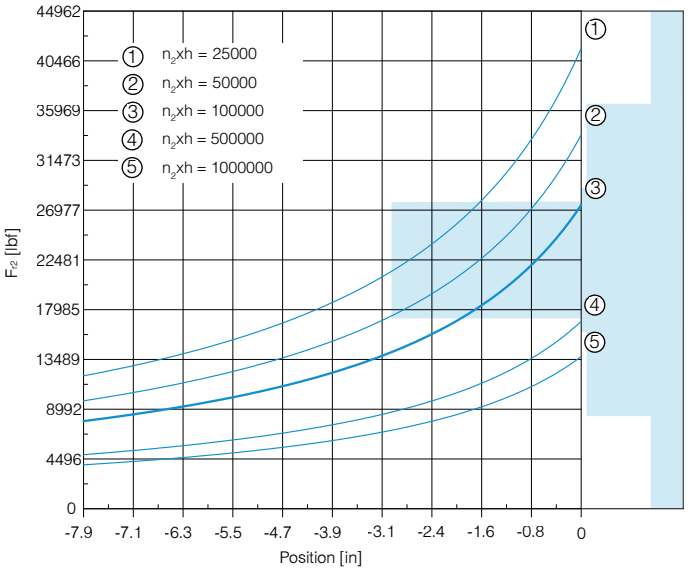
Gearbox Versions: ED, ET, EQ, EC

MR-MR1-MR2



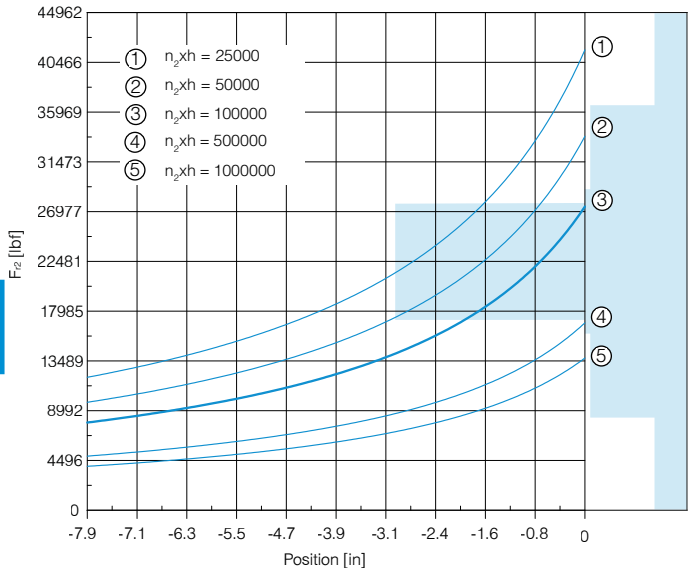
Gearbox Versions: ED, ET, EQ, EC

MN-MN1-MN2-MNS9-MN1S9



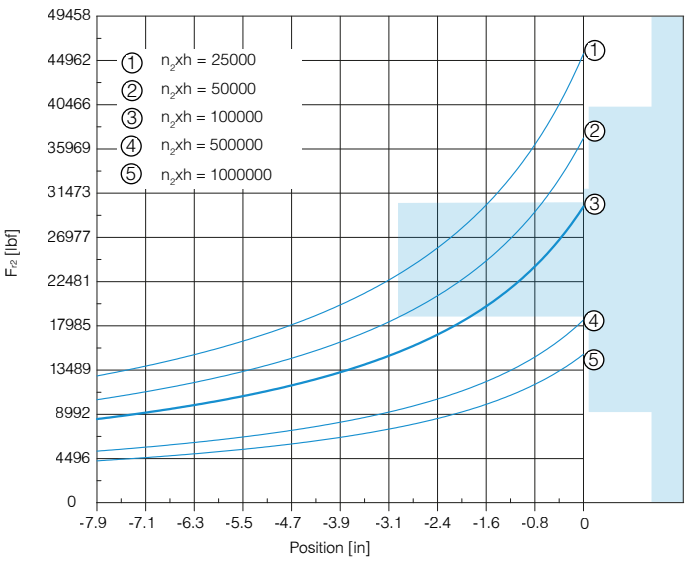
Gearbox Versions: PD, PDA

MR1-MR2

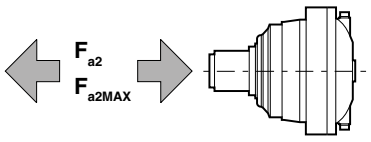


Gearbox Versions: ED, ET, EQ, EC

MNR



Output Axial Loads



		Flange mounted		PD-PDA
		MN-MN1-MN2	MR-MR1-MR2	MR1-MR2
F_{a2}	[lbf]	15286	22480	8992
F_{a2MAX}	[lbf]	15286	22480	8992

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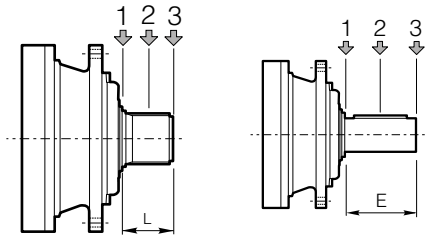
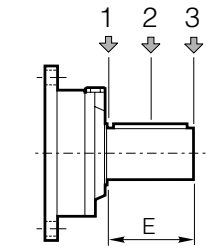
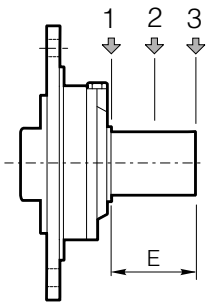
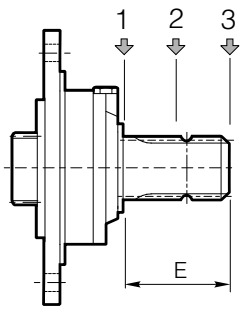
Input Radial Loads



			F_{r1} [lbf]					
			$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	L	E	1	2	3	1	2	3
S-45CR1	-	4.134	2248	1349	899	1124	674	450
S-46C1	-	4.134	3147	1978	1439	1574	989	719
S-45SR	2.677	-	2248	1349	899	1124	674	450
S-65CR1	-	5.118	5350	3484	2158	2675	1753	1079
S-65SR	3.543	-	5350	3484	2158	2675	1753	1079







		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	E	1	2	3	1	2	3
SU 42x80	3.150	674	450	337	315	225	157
SU1 28x50	1.969	674	450	337	315	225	157
SU2 40x58	2.283	674	450	337	315	225	157
SU3 48x82	3.228	674	450	337	315	225	157
SUS 1 3/8”	3.819	629	405	337	292	202	135
SU2 1 1/2”x 3 1/4”	3.250	674	450	337	315	225	157
SUF1 28x50	1.969	674	450	337	315	225	157
SUF2 40x58	2.283	674	450	337	315	225	157
SUF3 48x82	3.228	674	450	337	315	225	157

DANA
BREVINI®
Motion Systems

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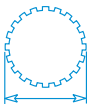
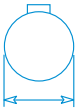
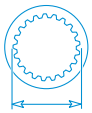
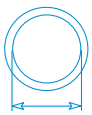
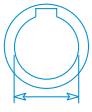
i_{eff}	19.50 - 272.7
T_{2N}	9590 ftlb
	B80X74 B100x94 DIN5482
	3.937 in
	B80X74 DIN5482
	4.764 in
	3.937 in

TECHNICAL DATA

10000
hours life

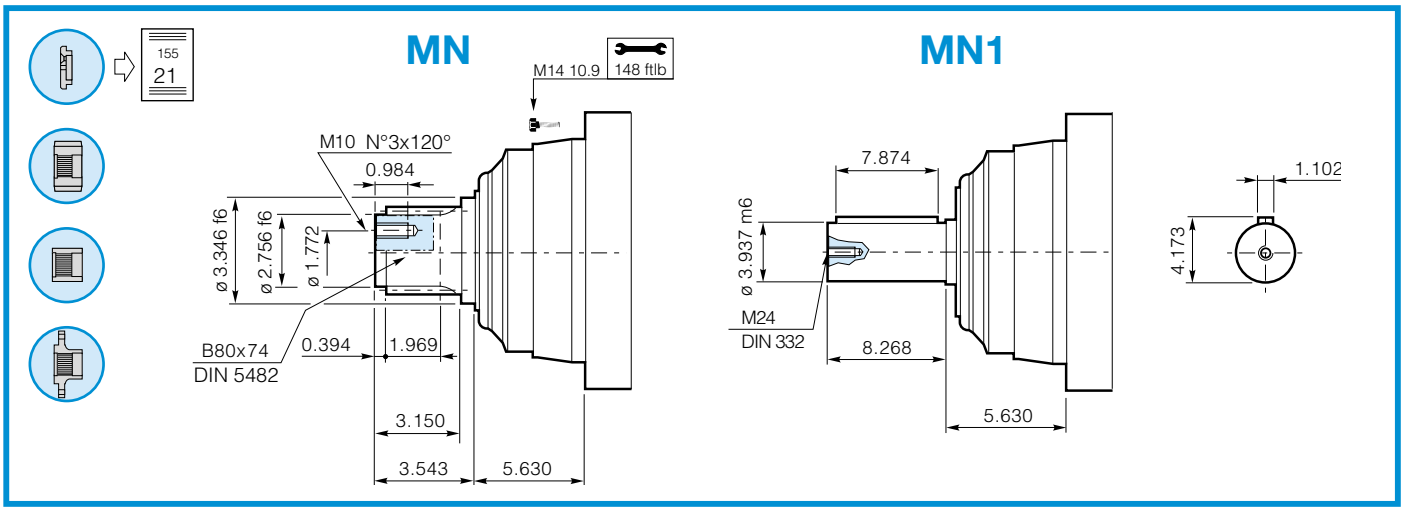
i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
ED 2155 / PD 2155												
19.50	77	5688	83.1	51	6423	62.8	25.6	7907	38.6	2500	14750	30.8
23.40	64	6007	73.8	42.7	6784	55.2	21.4	8352	33.9			
ET 3155 / PD 3155												
47.78	31.4	7441	44.5	20.9	8404	33.5	10.5	9891	19.7	3000	14750	20.1
56.37	26.6	7820	39.6	17.7	8832	29.8	8.9	10119	17.0			
62.17	24.1	8054	37.0	16.1	9096	27.9	8	10319	15.8			
70.57	21.3	8365	33.9	14.2	9447	25.5	7.1	10582	14.2			
80.54	18.6	8704	30.8	12.4	9750	23.1	6.2	10861	12.9			
87.31	17.2	8917	29.2	11.5	9816	21.5	5.7	11034	12.1			
100.8	14.9	9310	26.4	9.9	9935	18.8	5	11349	10.7			
109.1	13.7	9534	24.9	9.2	10053	17.6	4.6	11525	10.1			
122.4	12.3	9762	22.8	8.2	10287	16.0	4.1	11784	9.1			
141.4	10.6	9880	20.0	7.1	10585	14.2	3.5	12113	8.2			
161.4	9.3	7563	13.4	6.2	7899	9.4	3.1	9065	5.4			
169.7	8.8	10125	17.0	5.9	10973	12.3	2.9	12542	7.1			
185.0	8.1	7651	11.8	5.4	8120	8.3	2.7	9309	4.8			
196.8	7.6	7118	10.3	5.1	7397	7.1	2.5	8500	4.2			
223.6	6.7	7773	9.9	4.5	8433	7.2	2.2	9656	4.2			
272.7	5.5	7316	7.6	3.7	7902	5.5	1.8	9061	3.2			

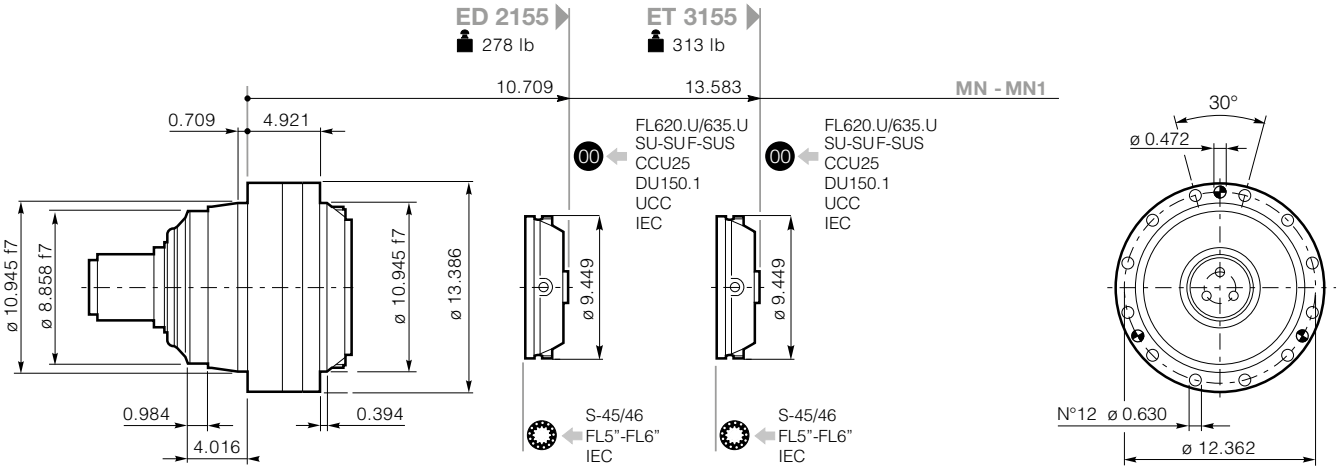
10000 hours life

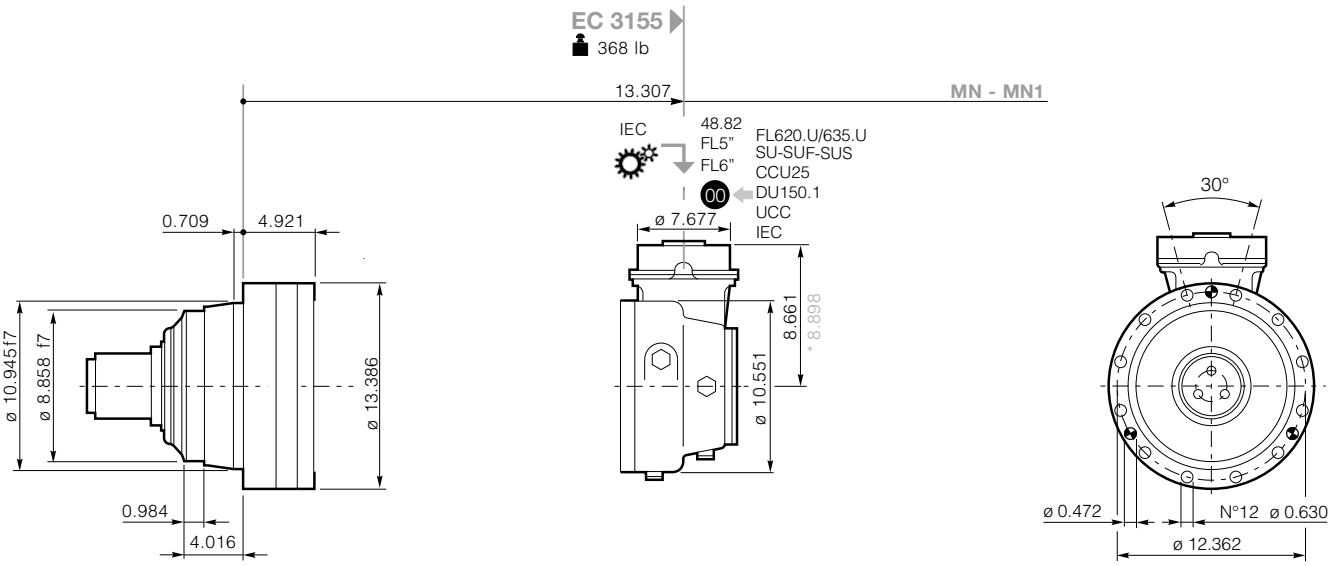
i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EC 3155 / PDA 3155												
40.95	36.6	6811	47.5	24.4	7692	35.8	12.2	9470	22.0			
45.16	33.2	7317	46.3	22.1	8264	34.9	11.1	9844	20.8			
50.66	29.6	7573	42.6	19.7	8554	32.2	9.9	9939	18.6			
58.50	25.6	7907	38.6	17.1	8930	29.1	8.5	10194	16.6			
63.06	23.8	4552	20.7	15.9	5140	15.6	7.9	6328	9.5			
70.20	21.4	8352	33.9	14.2	9433	25.6	7.1	10571	14.3			
78.02	19.2	5631	20.7	12.8	6359	15.6	6.4	7829	9.5	3000	14750	20.1
90.09	16.7	6503	20.7	11.1	7343	15.6	5.6	9041	9.5			
102.8	14.6	7276	20.2	9.7	7534	13.9	4.9	8293	7.6			
108.1	13.9	7803	20.7	9.3	8812	15.6	4.6	10849	9.5			
118.7	12.6	7368	17.7	8.4	7626	12.2	4.2	8534	6.8			
142.5	10.5	7483	15.0	7	7744	10.3	3.5	8846	5.9			
173.8	8.6	7043	11.5	5.8	7289	8.0	2.9	8294	4.6			

* (bg) All the ratios in light grey (ie. 45.16) have particular dimensions of bevel gears in some versions. See dimensional tables.

GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 | S-45/46 48.82 155 15 | SU-SUF SUS 155 16 | FL5"- FL6" FL620 FL635 155 17 | IEC 155 20 | 155 19 | CCU25 B 16 | DU150.1 UCC B 17 | * bg 155 3

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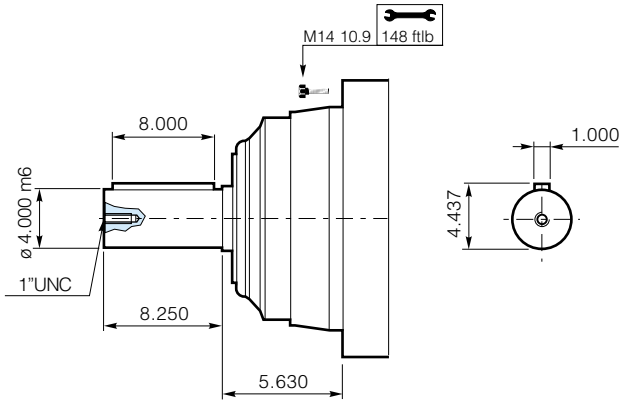

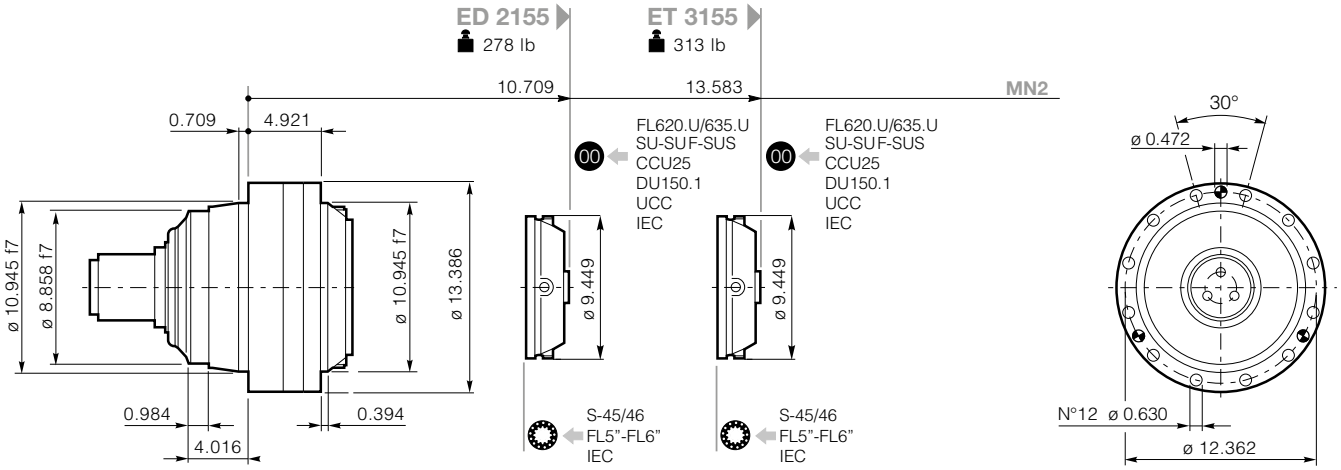

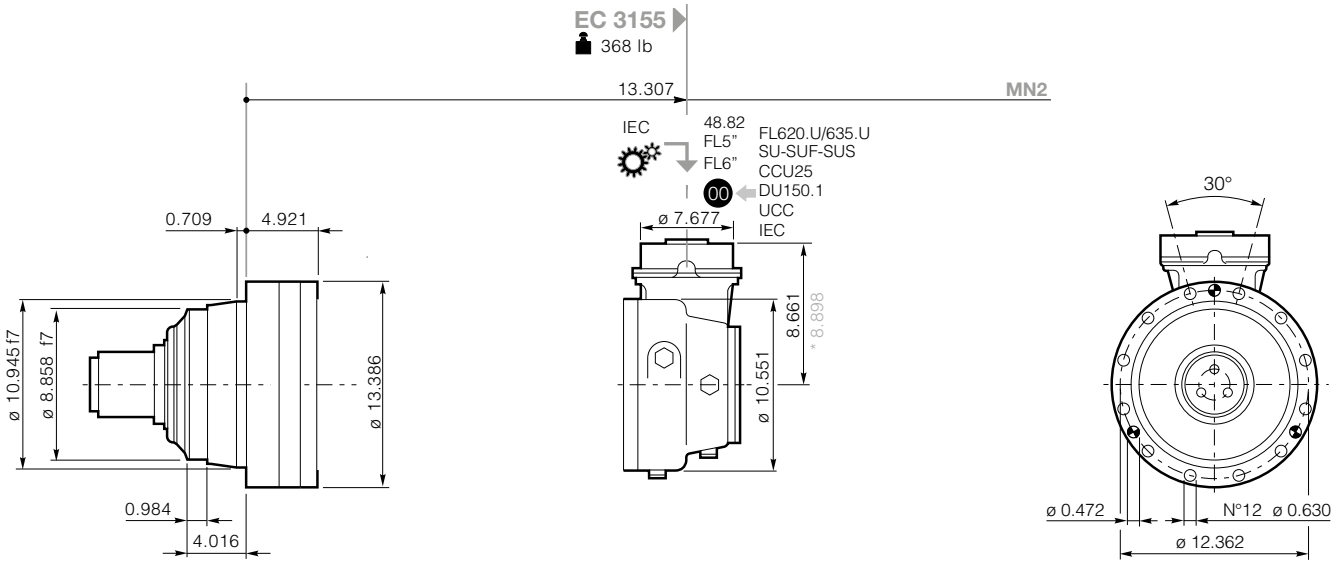

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00 B 14 S-45/46 48.82 155 15 SU-SUF SUS 155 16 FL5"- FL6' FL620 FL635 155 17 IEC 155 20 155 19 CCU25 B 16 DU150.1 UCC B 17 * bg 155 3

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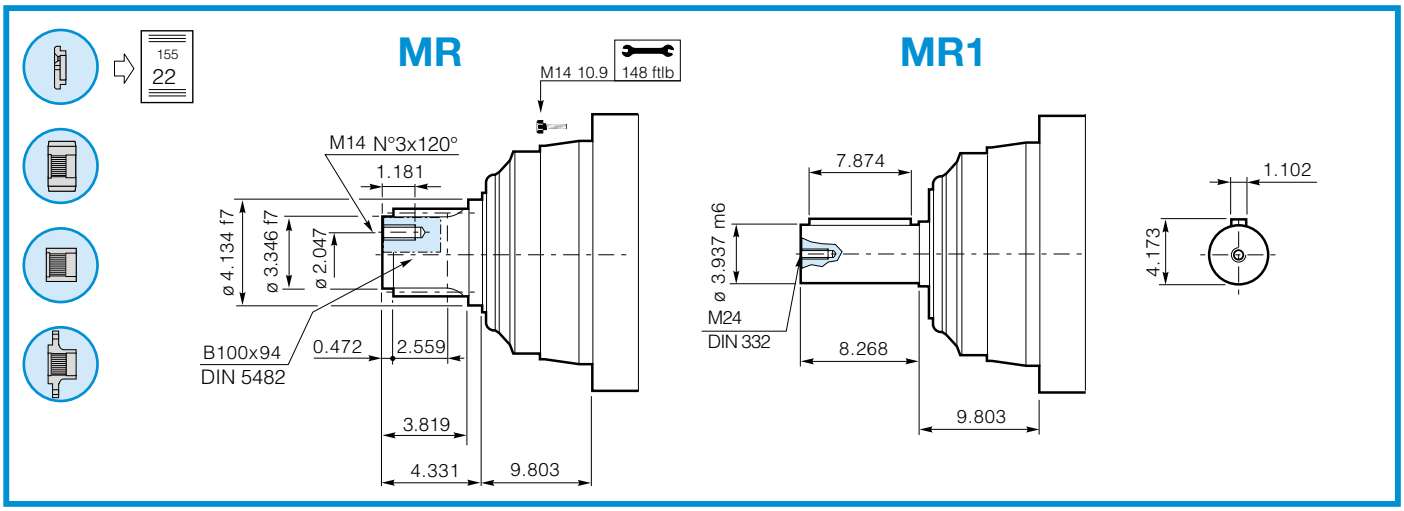
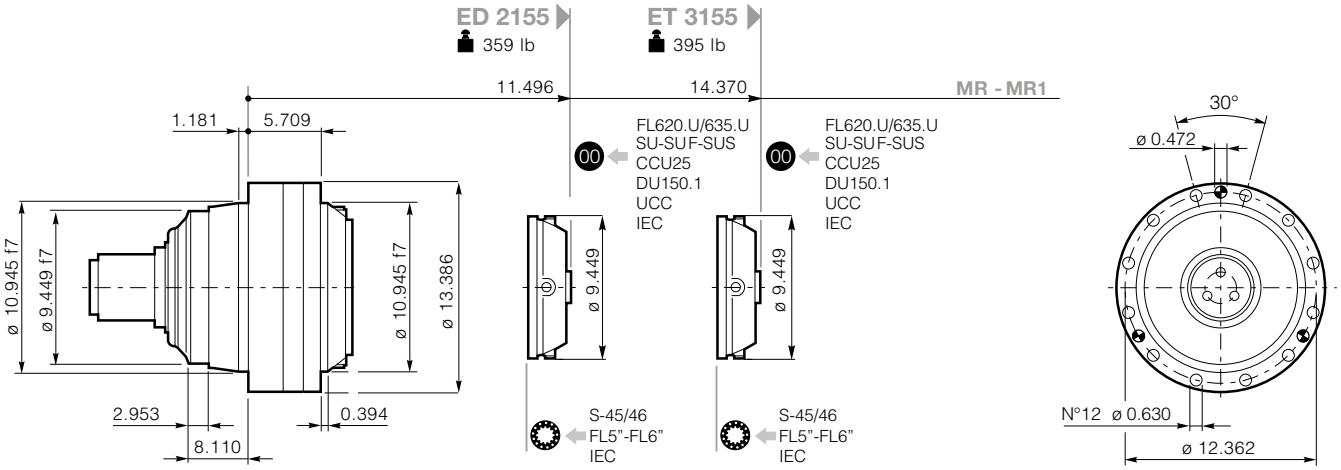
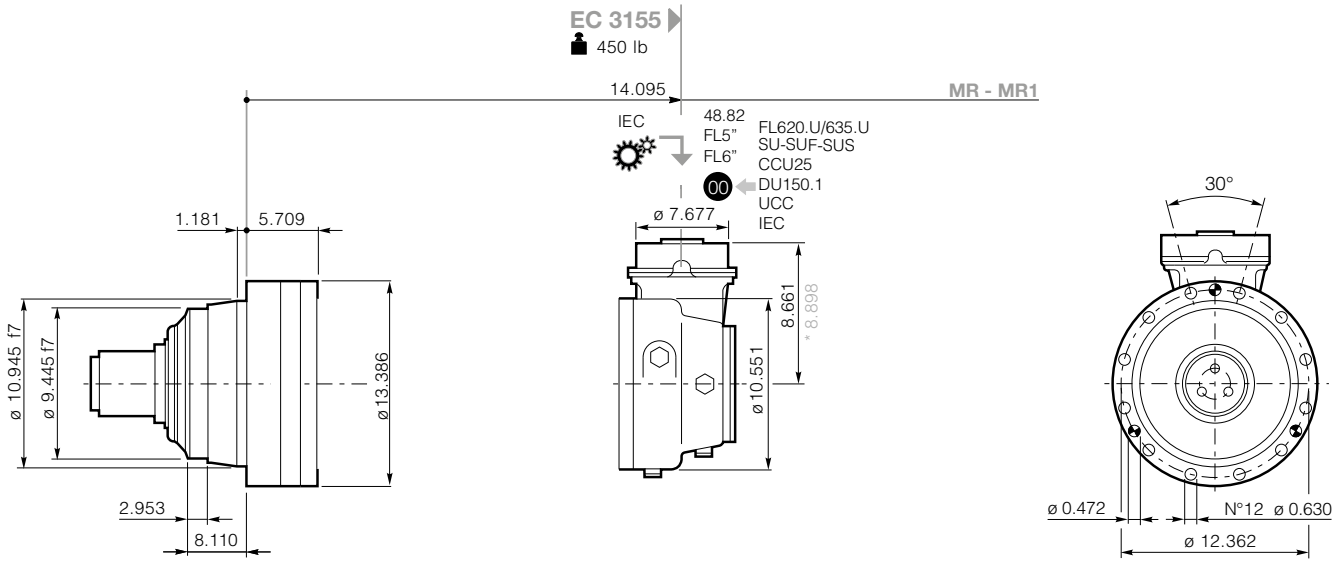
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 155 15 SU-SUF SUS 155 16 FL5"- FL6' FL620 FL635 155 17 IEC 155 20 155 19 CCU25 B 16 DU150.1 UCC B 17 * bg 155 3

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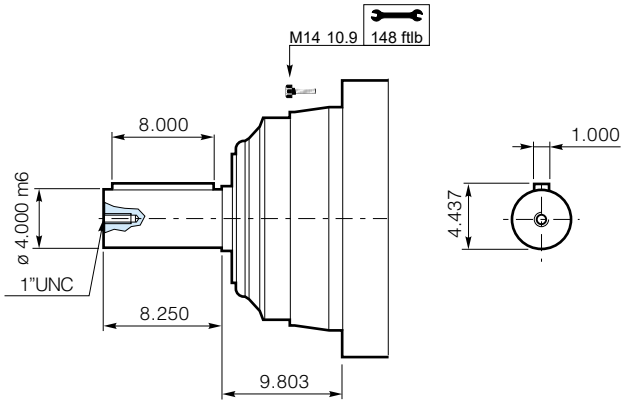

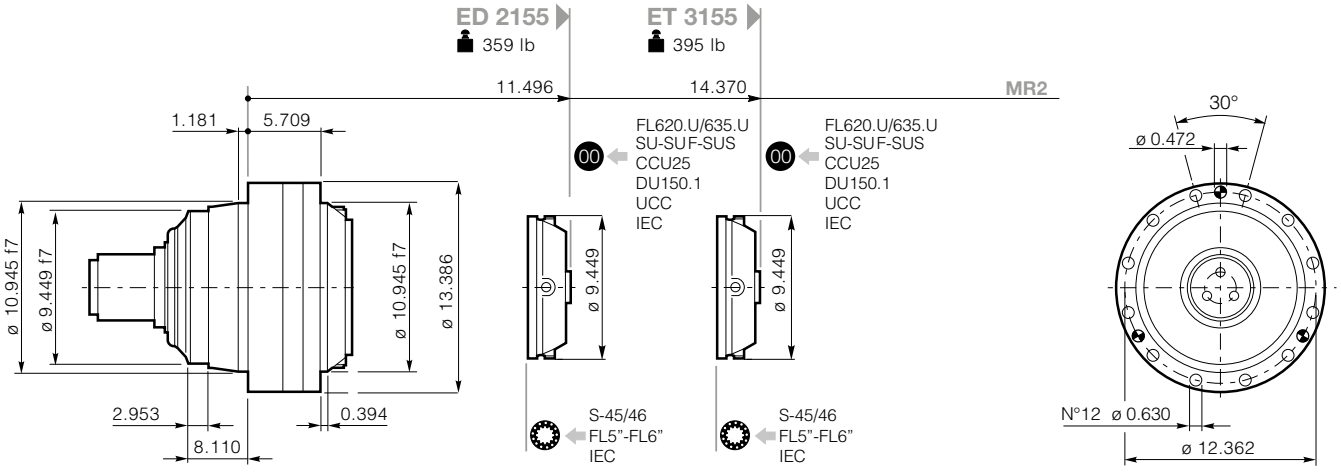

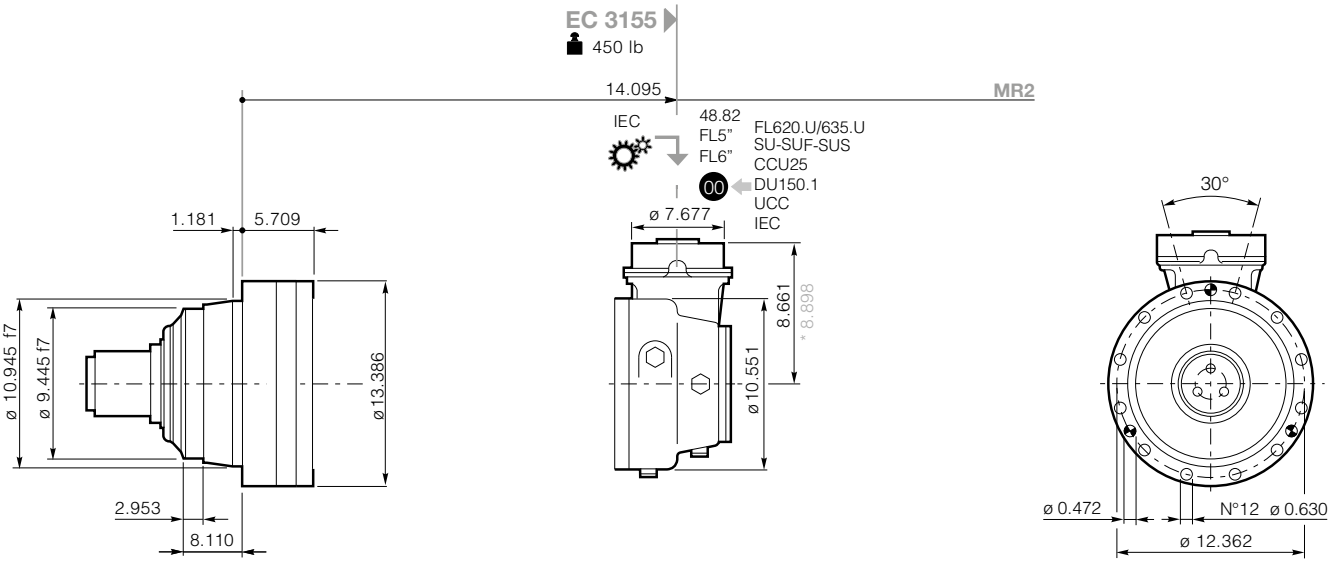

00 B 14 S-45/46 48.82 155 15 SU-SUF SUS 155 16 FL5"- FL6' FL620 FL635 155 17 IEC 155 20 155 19 CCU25 B 16 DU150.1 UCC B 17 * bg 155 3

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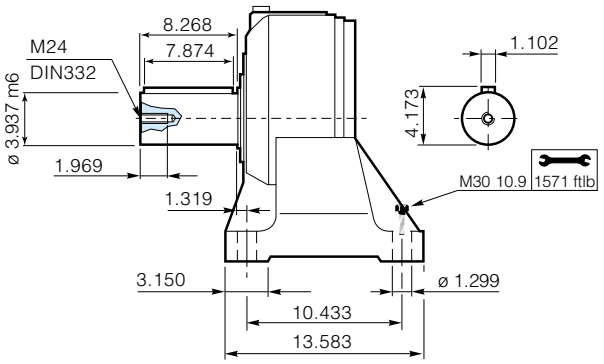
PD/PDA GEARBOX DIMENSIONS WITH OUTPUT

MR1



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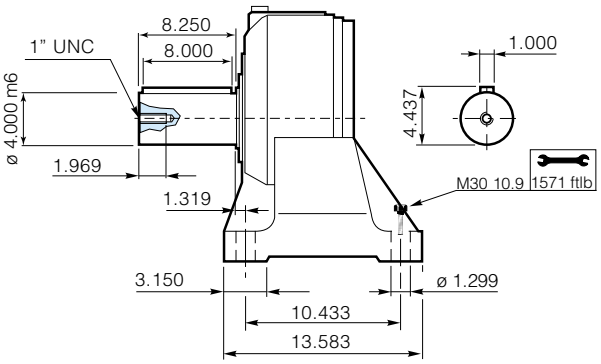
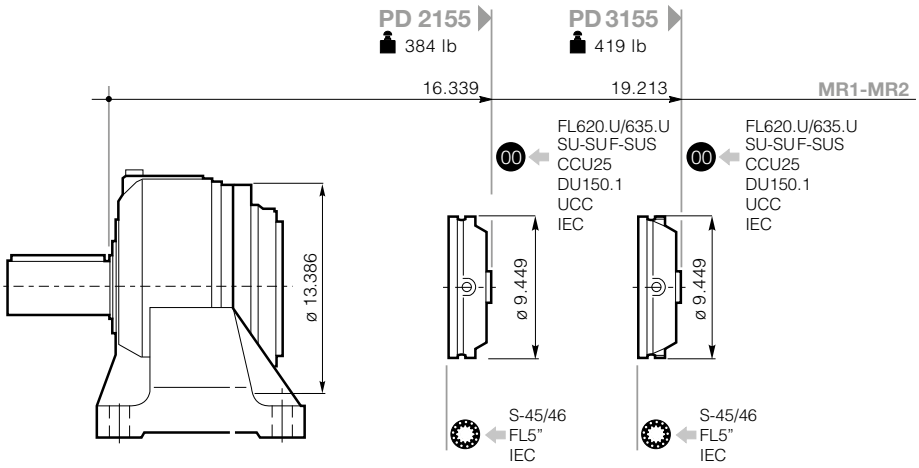
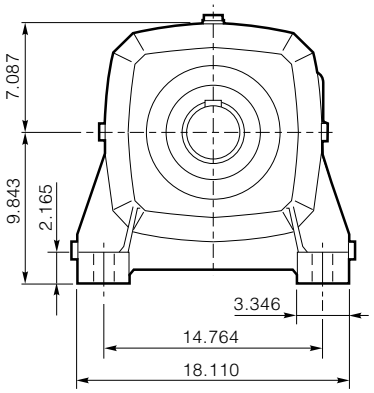
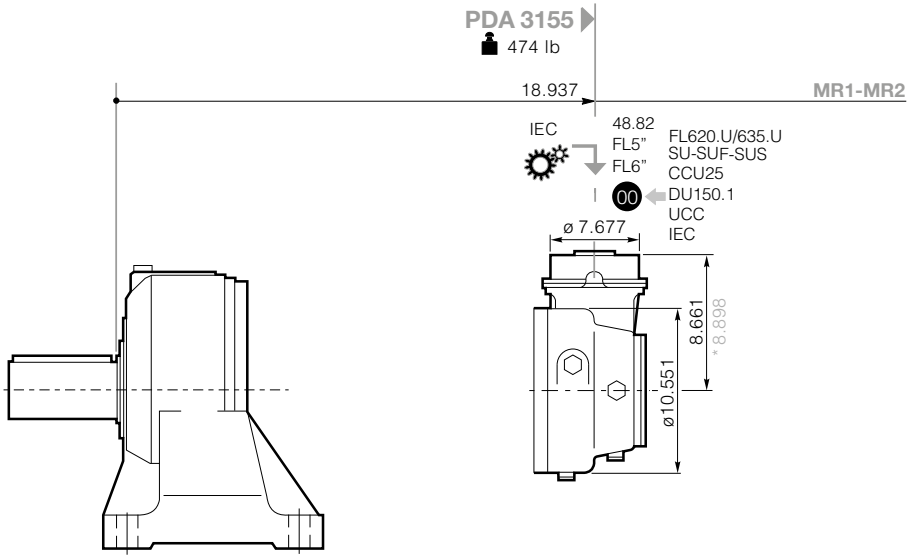
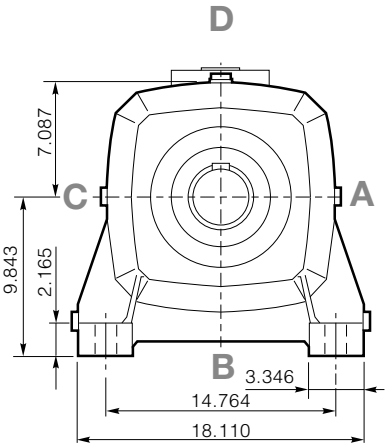






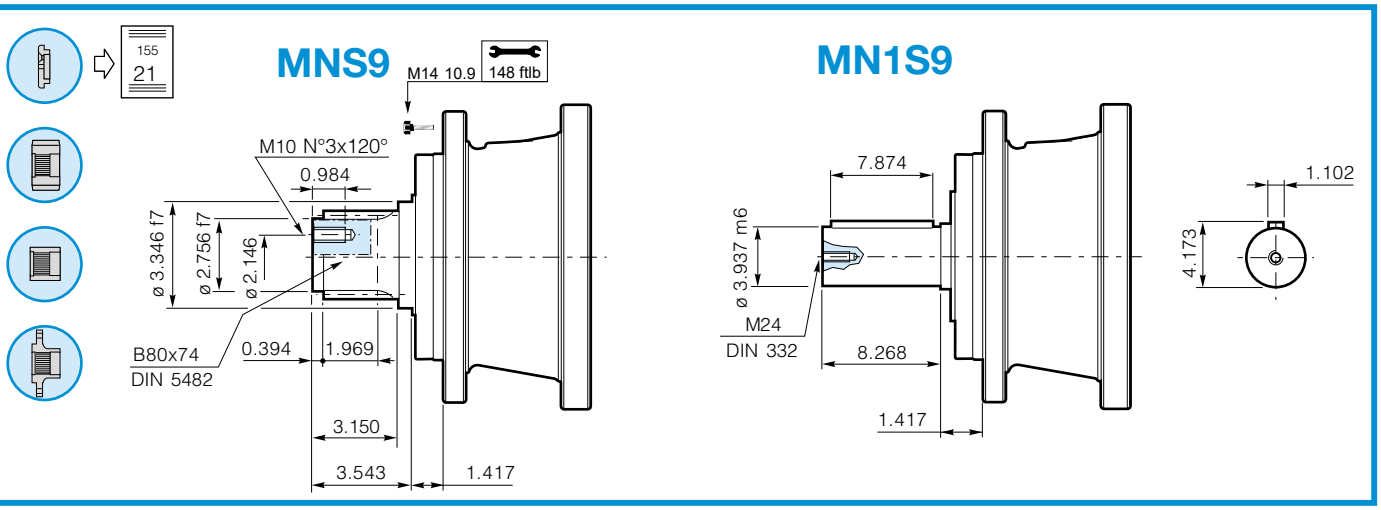


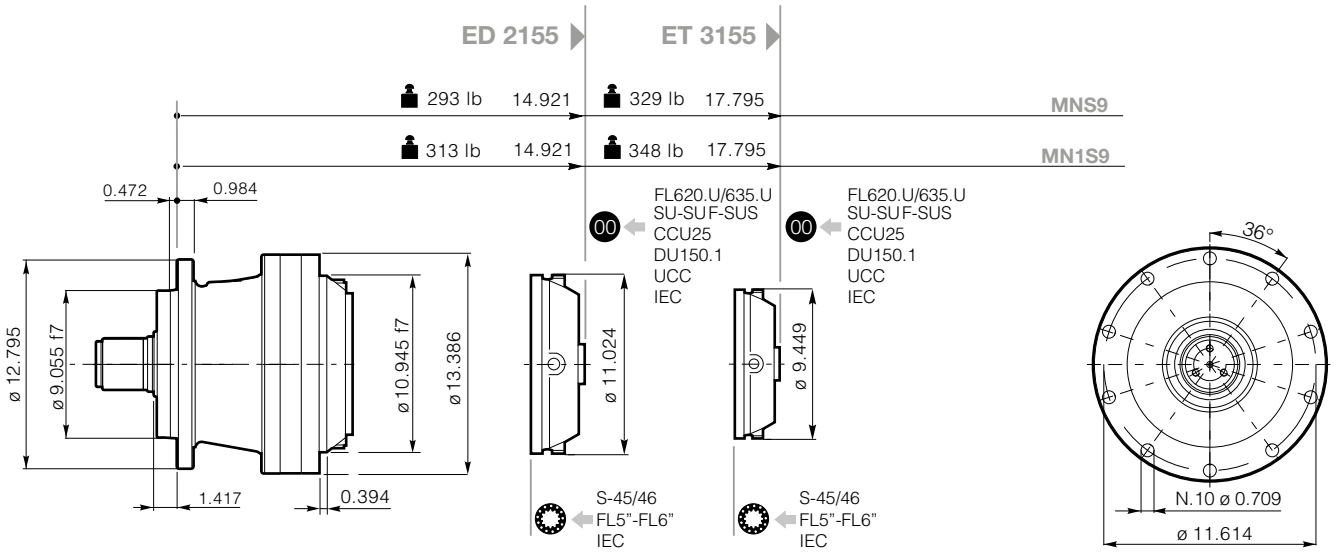


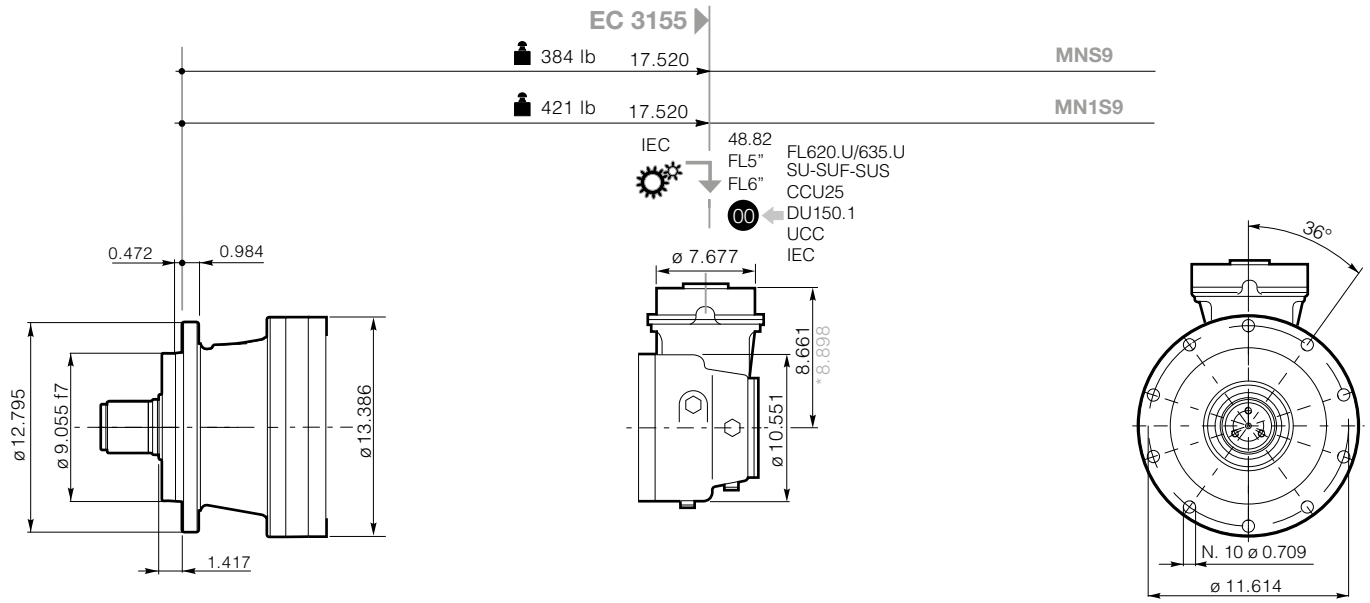
00 B 14 | S-45/46 48.82 155 15 | SU-SUF SUS 155 16 | FL5"- FL6' FL620 FL635 155 17 | IEC 155 20 | 155 19 | CCU25 B 16 | DU150.1 UCC B 17 | * bg 155 3

Click **DANA** button to return to section index

Click *i* button to return to main index







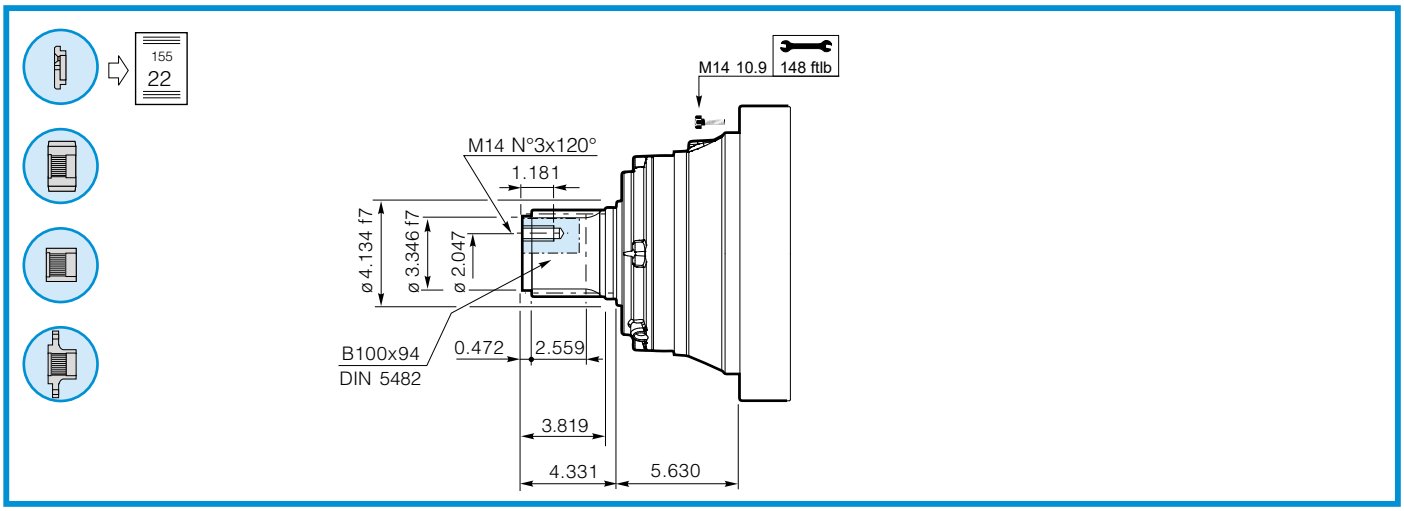
155

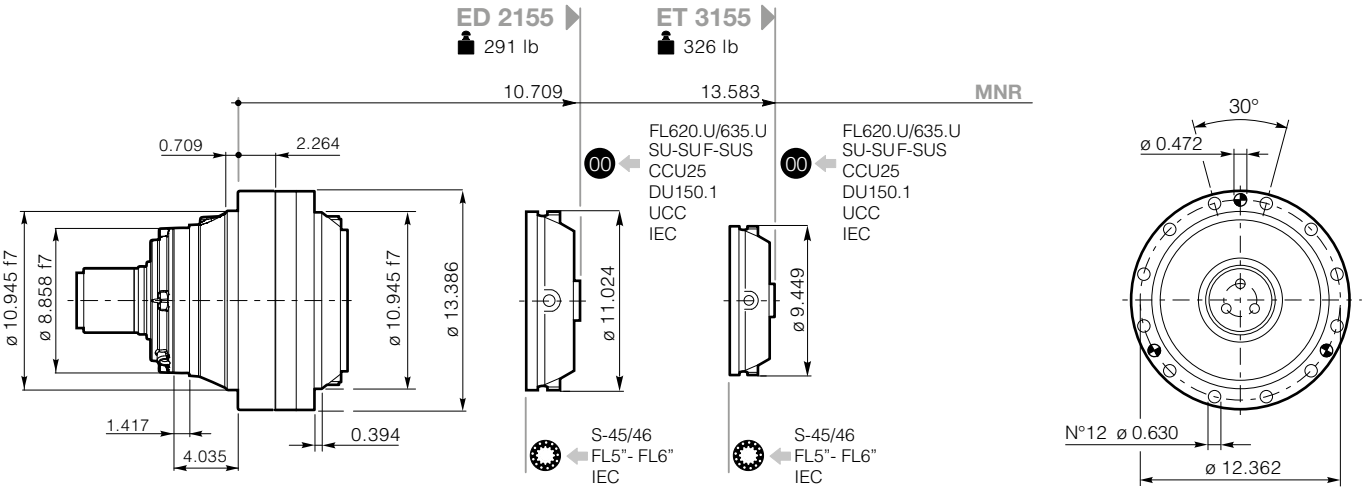
00 B 14 S-45/46 48.82 155 15 SU-SUF SUS 155 16 FL5"- FL6' FL620 FL635 155 17 IEC 155 20 155 19 CCU25 B 16 DU150.1 UCC B 17 * bg 155 3

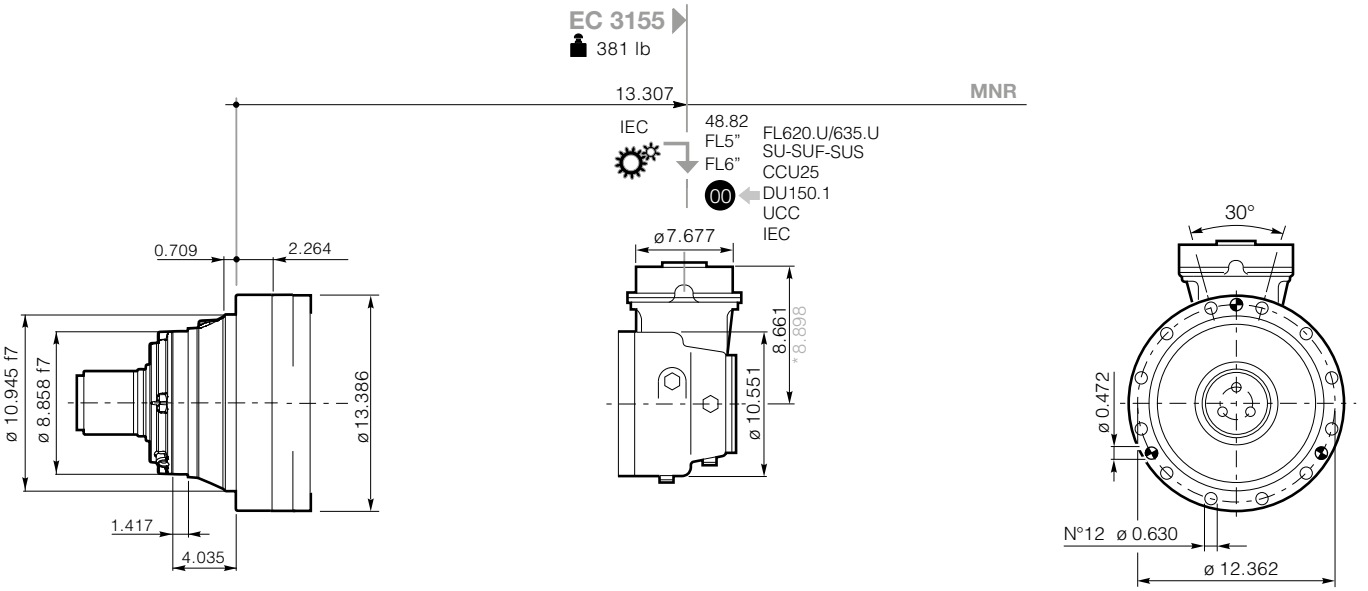
Click *i* button to return to main index

Click **DANA** button to return to section index

GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 | S-45/46 48.82 155 15 | SU-SUF SUS 155 16 | FL5"- FL6' FL620 FL635 155 17 | IEC 155 20 | 155 19 | CCU25 B 16 | DU150.1 UCC B 17 | * bg 155 3

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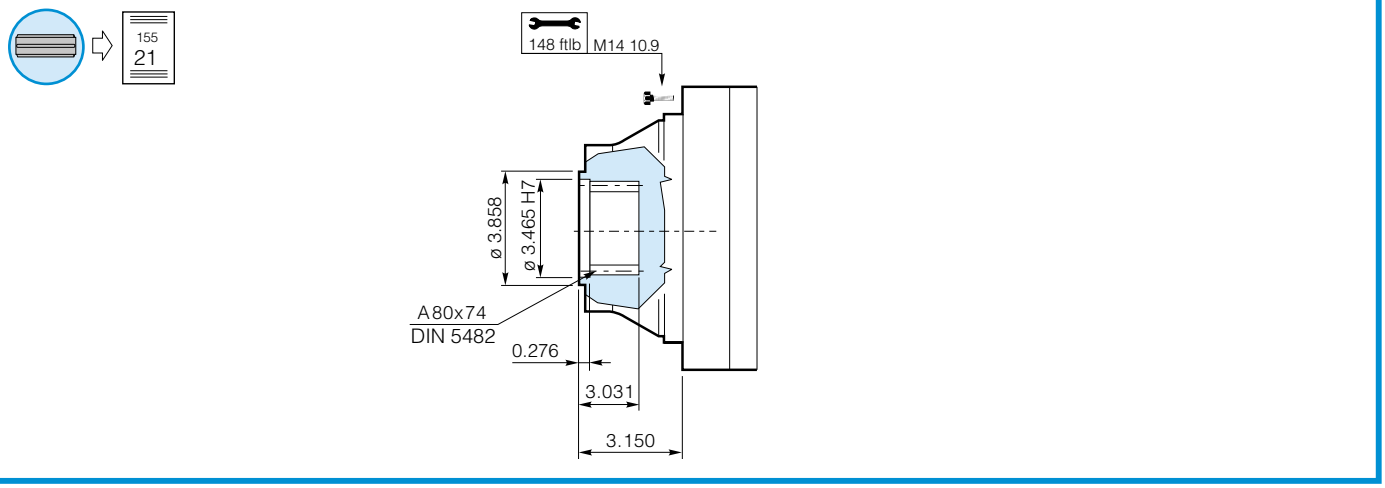
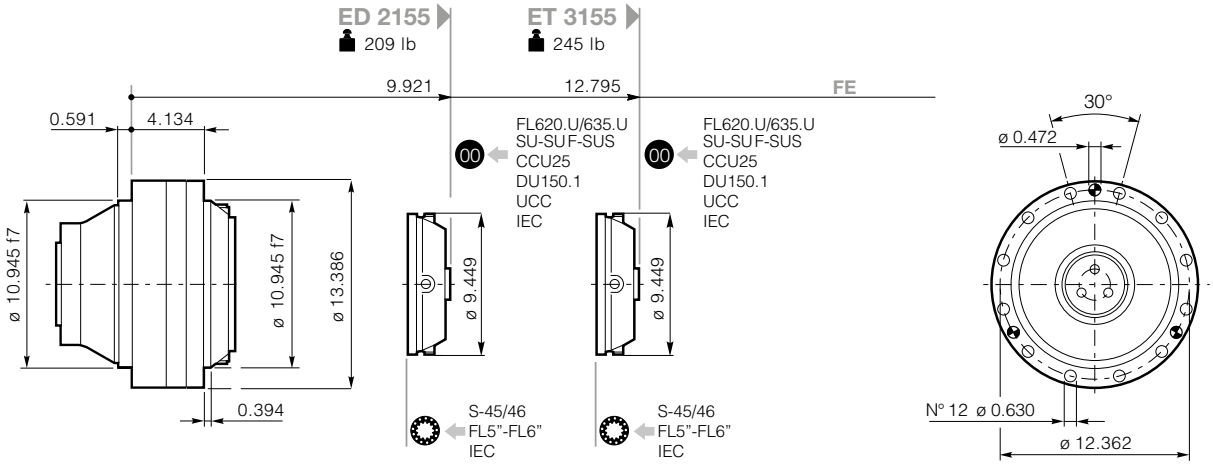
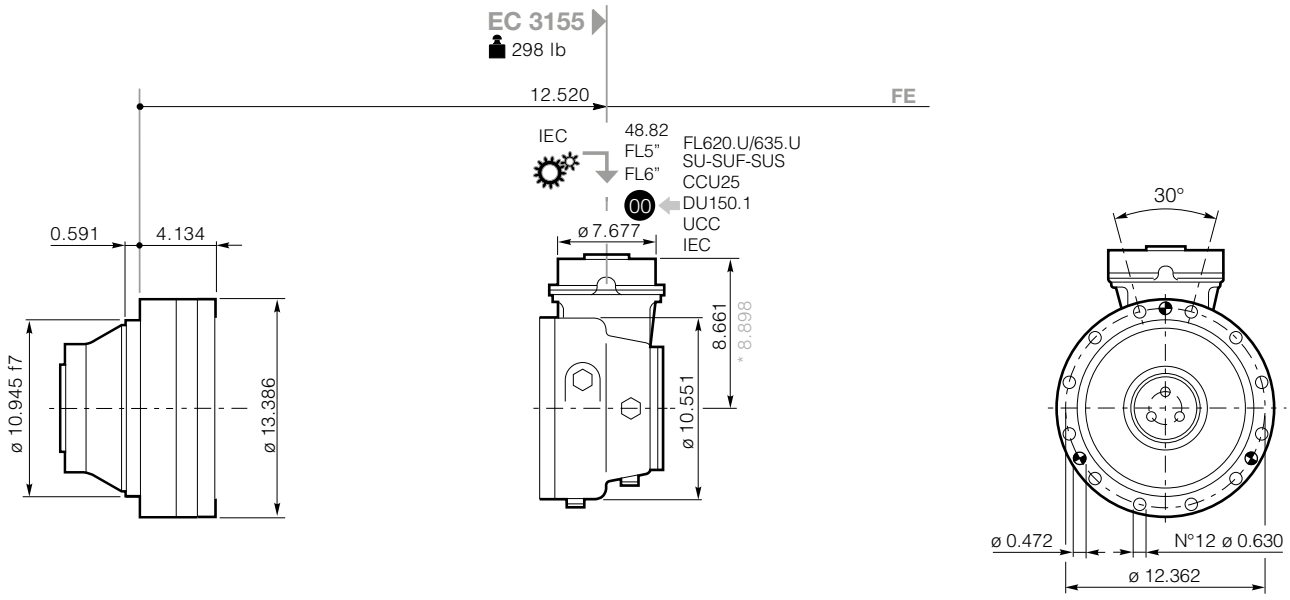
Click *i* button to return to main index





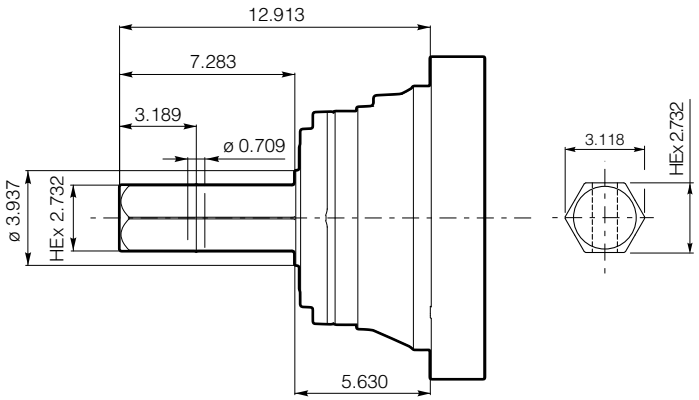


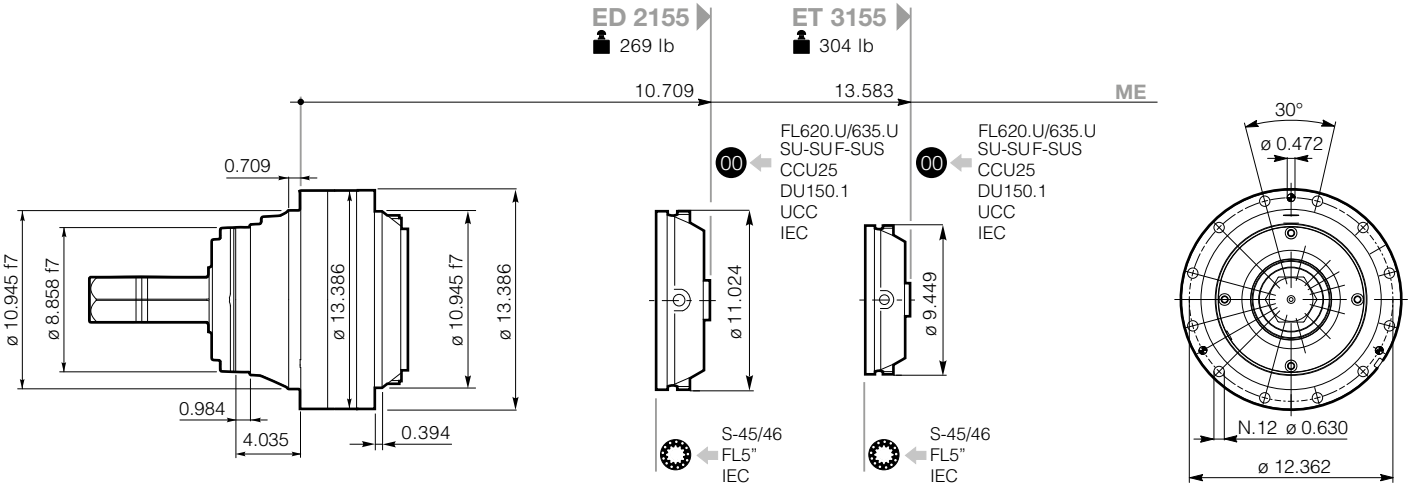
00 B 14 S-45/46 48.82 155 15 SU-SUF SUS 155 16 FL5"- FL6' FL620 FL635 155 17 IEC 155 20 155 19 CCU25 B 16 DU150.1 UCC B 17 * bg 155 3

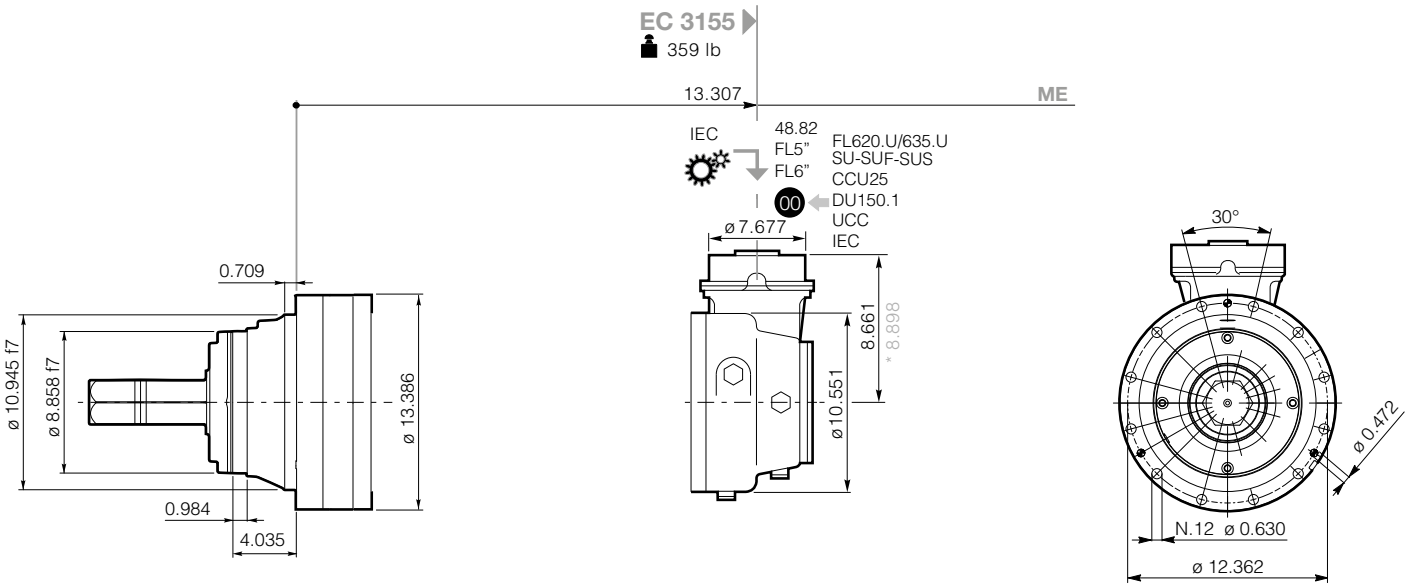
Click *i* button to return to main index

Click **DANA** button to return to section index

GEARBOX DIMENSIONS WITH OUTPUT







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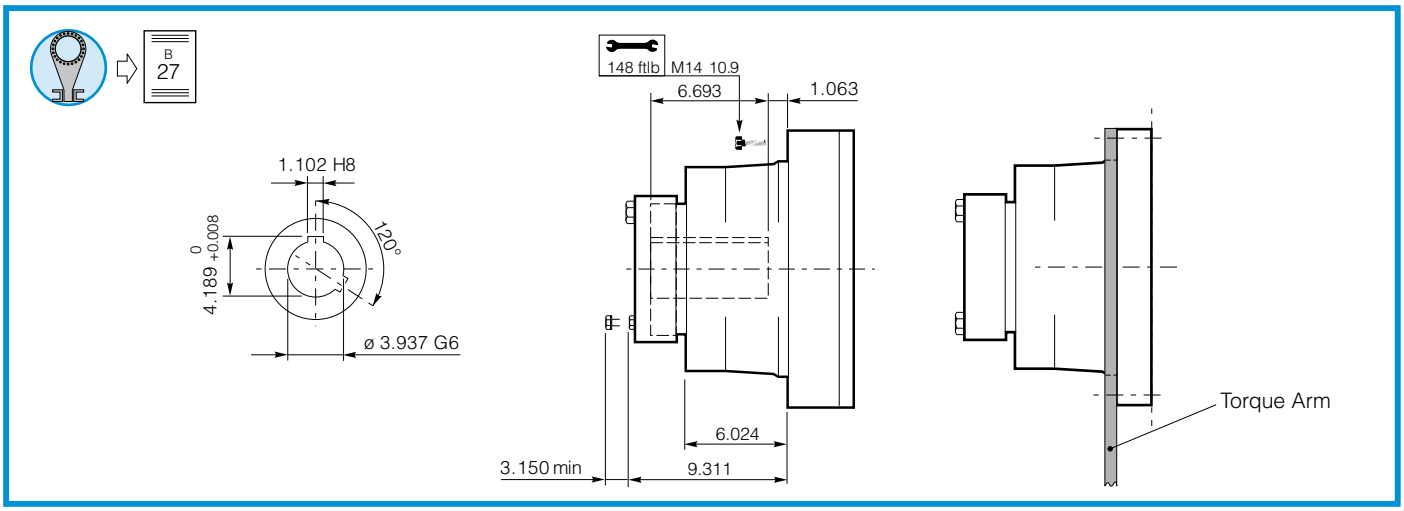
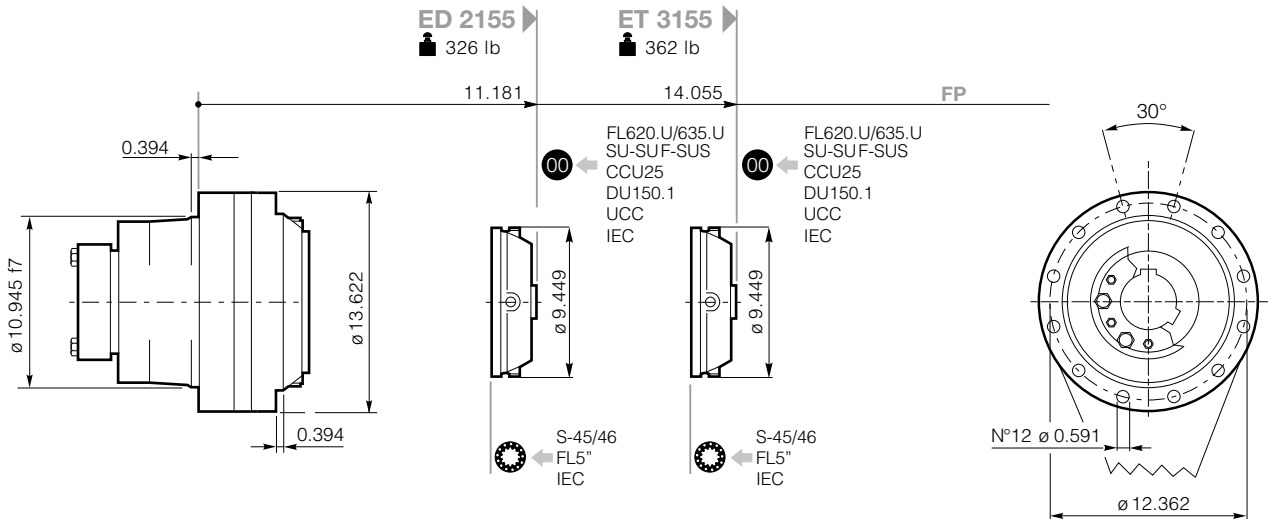
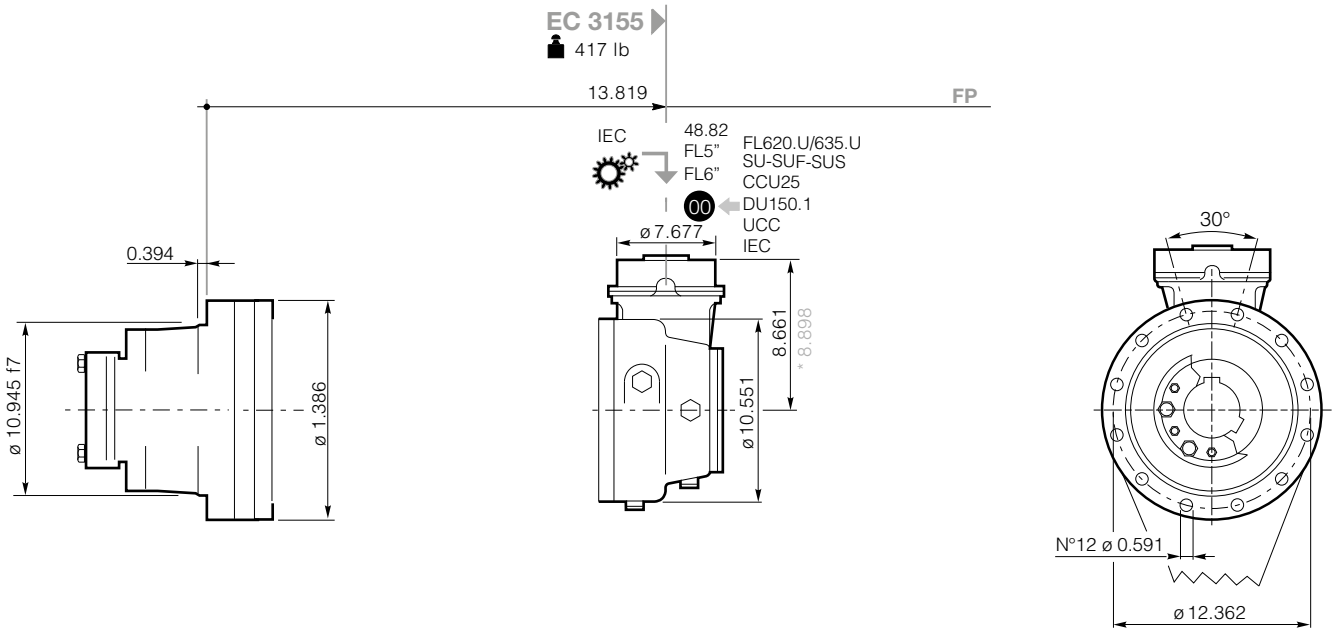






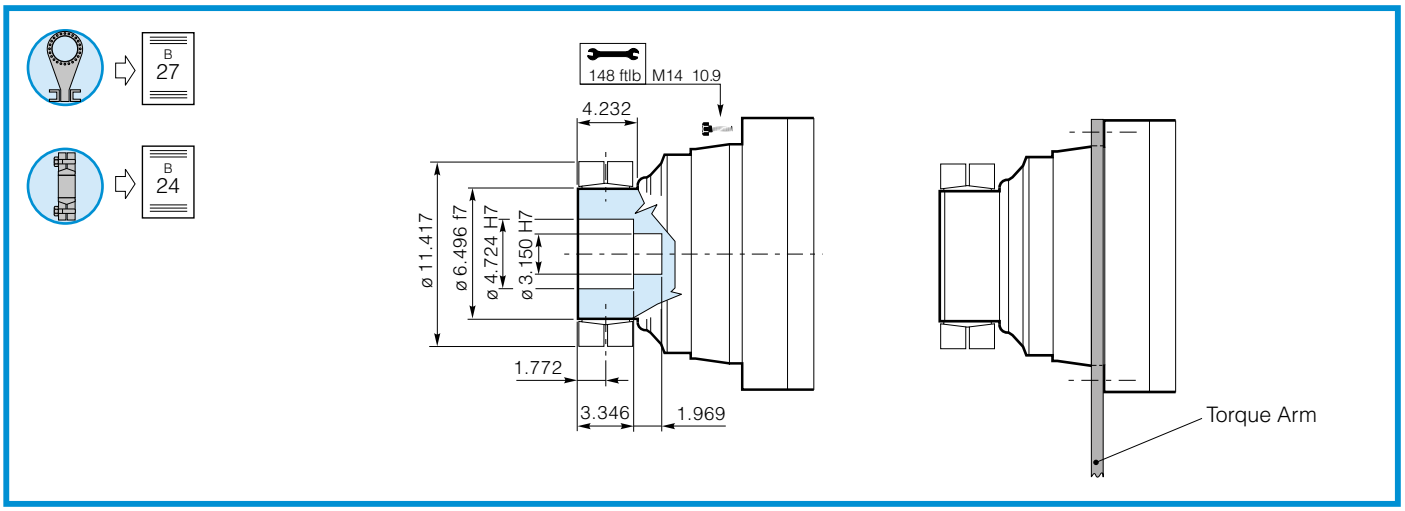
155

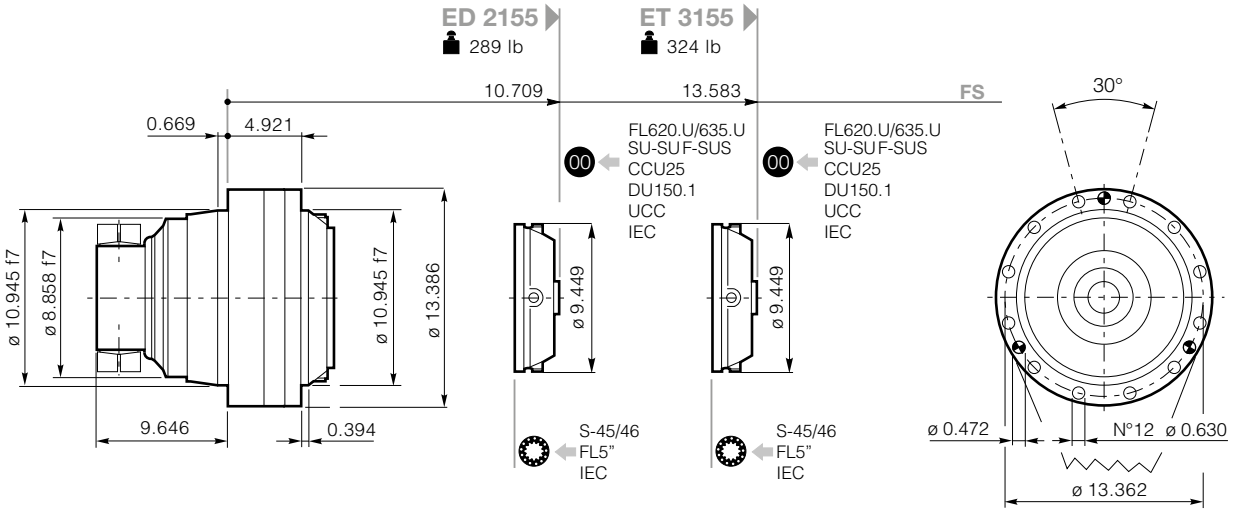
00 B 14 S-45/46 48.82 155 15 SU-SUF SUS 155 16 FL5"- FL6' FL620 FL635 155 17 IEC 155 20 155 19 CCU25 B 16 DU150.1 UCC B 17 * bg 155 3

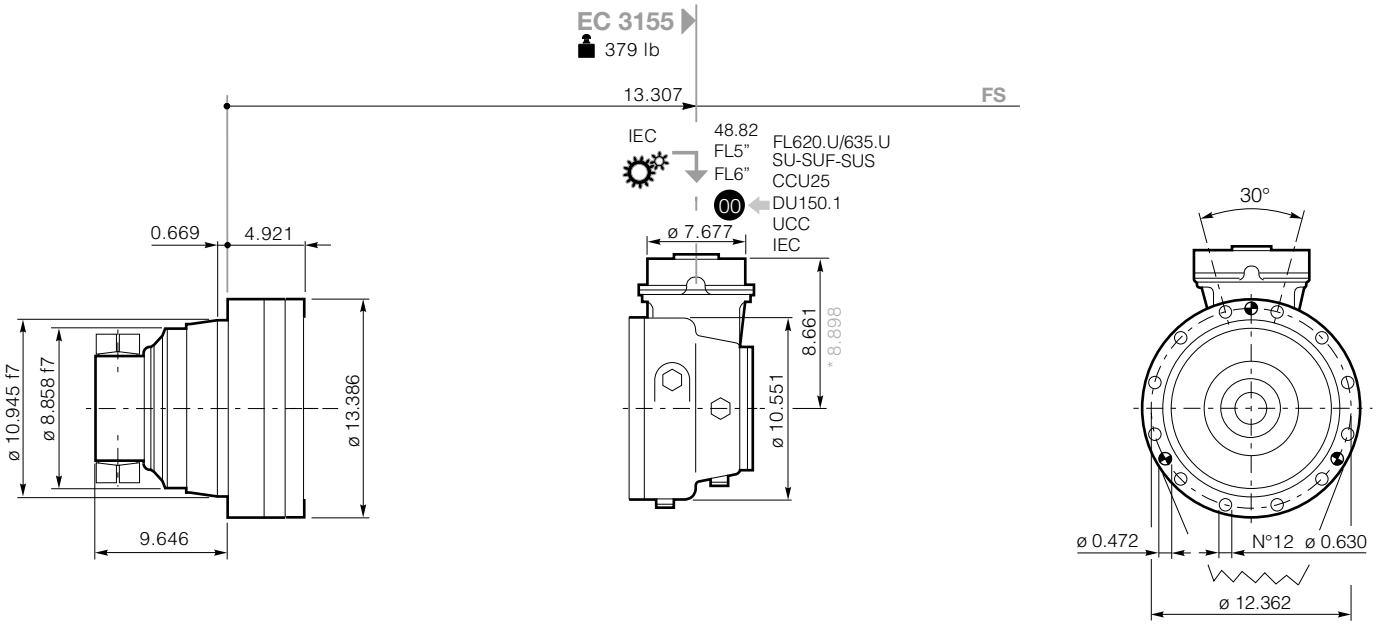
Click *i* button to return to main index

Click **DANA** button to return to section index

GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 155 15 SU-SUF SUS 155 16 FL5"- FL6' FL620 FL635 155 17 IEC 155 20 155 19 CCU25 B 16 DU150.1 UCC B 17 * bg 155 3

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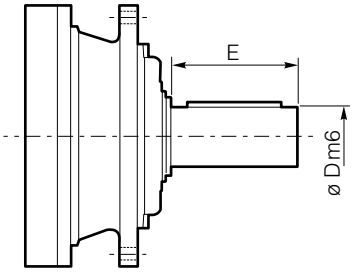
S-45CR1 - S-46C1 - S-45SR - S-65CR1 - S-65SR



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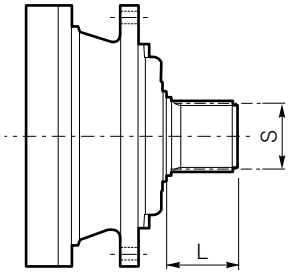
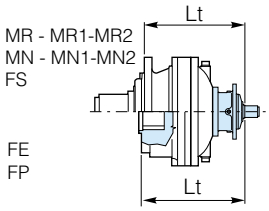
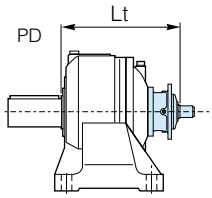


S-45SR - S-65SR

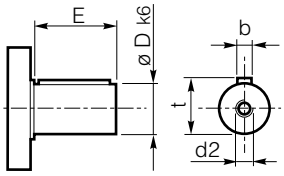


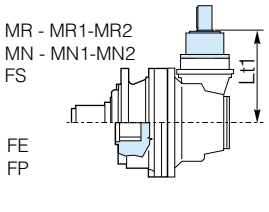


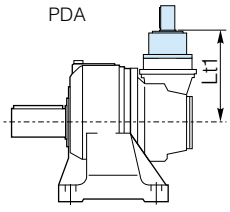
	D m6	E	L	S DIN5482		Lt					
						MN-MN1-MN2-FS ME-MNR	MR-MR1-MR2	MNS9-MN1S9	FE	FP	PD
S-45CR1	2.559	4.134	-	-	ED/PD 2155	15.709	16.496	19.921	14.921	16.220	21.339
					ET/PD 3155	16.024	16.811	20.236	15.236	16.535	21.654
S-46C1	2.559	4.134	-	-	ED/PD 2155	17.362	18.150	21.575	16.575	17.835	22.992
					ET/PD 3155	17.677	18.465	21.890	16.890	18.150	23.307
S-45SR	-	-	2.677	B58x53	ED/PD 2155	15.709	16.496	19.921	14.921	16.220	21.339
					ET/PD 3155	16.024	16.811	20.236	15.236	16.535	21.654
S-65CR1	3.150	5.118	-	-	ED/PD 2155	17.244	18.031	21.457	16.457	17.756	22.874
S-65SR	-	-	3.543	B70x64	ED/PD 2155	17.244	18.031	21.457	16.457	17.756	22.874

For more informations, go to page B13

48.82



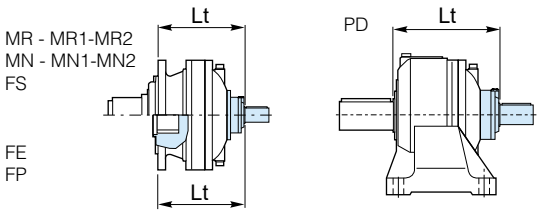


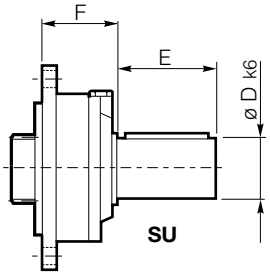


	D	E		Lt1
				MN-MN1-MN2-MR-MR1-MR2-MNR-MNS9-MN1S9-FS-FE-ME-FP-PDA
48.82	1.890	3.228	EC/PDA 3155	11.024

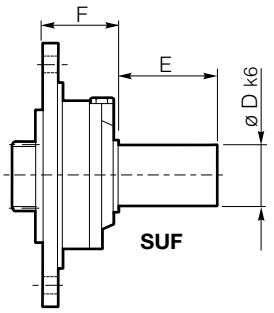
For the input configuration S46C1, S65CR1, 4882 (CC40 - CC41), FL5" can be fitted with an anti-return device.
For further information and technical data, contact Dana Sale Technical Support

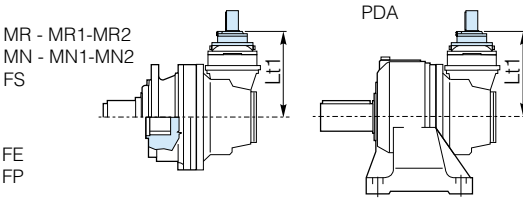
SU - SUF - SUS

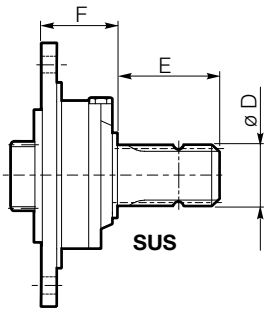




	D	E	F		Lt						00
					MN-MN1-MN2 FS-ME-MNR	MNS9 MN1S9	MR-MR1 MR2	FE	FP	PD	
SU1 28x50	1.102	1.969	2.362	ED/PD 2155	13.071	17.283	13.858	12.283	13.543	18.701	
				ET/PD 3155	15.945	20.157	16.732	15.157	16.417	21.575	
SU2 40x58	1.575	2.283	2.362	ED/PD 2155	13.071	17.283	13.858	12.283	13.543	18.701	
				ET/PD 3155	15.945	20.157	16.732	15.157	16.417	21.575	
SU3 48x82	1.890	3.228	2.362	ED/PD 2155	13.071	17.283	13.858	12.283	13.543	18.701	
				ET/PD 3155	15.945	20.157	16.732	15.157	16.417	21.575	
SU 42x80	1.654	3.150	3.996	ED/PD 2155	14.685	18.898	15.472	13.898	15.197	20.315	
				ET/PD 3155	17.559	21.772	18.346	16.772	18.071	23.189	
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	ED/PD 2155	14.685	18.898	15.472	13.898	15.197	20.315	
				ET/PD 3155	17.559	21.772	18.346	16.772	18.071	23.189	
SU2 1.5x3.25	1.500	3.250	2.362	ED/PD 2155	13.071	17.283	13.858	12.283	13.543	18.701	
				ET/PD 3155	15.945	20.157	16.732	15.157	16.417	21.575	
SUF1 28x50	1.102	1.969	2.362	ED/PD 2155	13.071	17.283	13.858	12.283	13.543	18.701	
				ET/PD 3155	15.945	20.157	16.732	15.157	16.417	21.575	
SUF2 40x58	1.575	2.283	2.362	ED/PD 2155	13.071	17.283	13.858	12.283	13.543	18.701	
				ET/PD 3155	15.945	20.157	16.732	15.157	16.417	21.575	
SUF3 48x82	1.890	3.228	2.362	ED/PD 2155	13.071	17.283	13.858	12.283	13.543	18.701	
				ET/PD 3155	15.945	20.157	16.732	15.157	16.417	21.575	



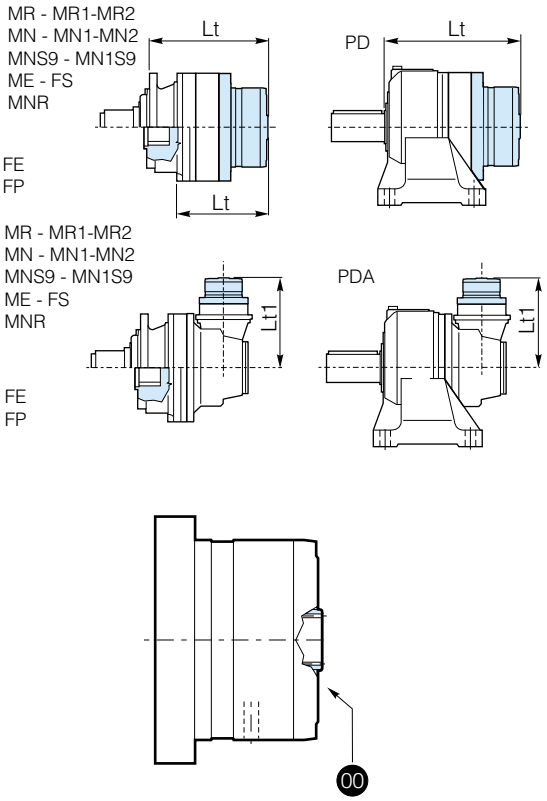




	D	E	F		Lt1						00
					MN-MN1-MN2 FS-ME-MNR	MNS9 MN1S9	MR-MR1 MR2	FE	FP	PDA	
SU1 28x50	1.102	1.969	2.362	EC/PDA 3155	11.024	11.024	11.024	11.024	11.024	11.024	
				EC/PDA 3155*	11.260	11.260	11.260	11.260	11.260	11.260	
SU2 40x58	1.575	2.283	2.362	EC/PDA 3155	11.024	11.024	11.024	11.024	11.024	11.024	
				EC/PDA 3155*	11.260	11.260	11.260	11.260	11.260	11.260	
SU3 48x82	1.890	3.228	2.362	EC/PDA 3155	11.024	11.024	11.024	11.024	11.024	11.024	
				EC/PDA 3155*	11.260	11.260	11.260	11.260	11.260	11.260	
SU 42x80	1.654	3.150	3.996	EC/PDA 3155	12.677	12.677	12.677	12.677	12.677	12.677	
				EC/PDA 3155*	12.913	12.913	12.913	12.913	12.913	12.913	
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	EC/PDA 3155	12.677	12.677	12.677	12.677	12.677	12.677	
				EC/PDA 3155*	12.913	12.913	12.913	12.913	12.913	12.913	
SU2 1.5x3.25	1.500	3.250	2.362	EC/PDA 3155	11.024	11.024	11.024	11.024	11.024	11.024	
				EC/PDA 3155*	11.260	11.260	11.260	11.260	11.260	11.260	
SUF1 28x50	1.102	1.969	2.362	EC/PDA 3155	11.024	11.024	11.024	11.024	11.024	11.024	
				EC/PDA 3155*	11.260	11.260	11.260	11.260	11.260	11.260	
SUF2 40x58	1.575	2.283	2.362	EC/PDA 3155	11.024	11.024	11.024	11.024	11.024	11.024	
				EC/PDA 3155*	11.260	11.260	11.260	11.260	11.260	11.260	
SUF3 48x82	1.890	3.228	2.362	EC/PDA 3155	11.024	11.024	11.024	11.024	11.024	11.024	
				EC/PDA 3155*	11.260	11.260	11.260	11.260	11.260	11.260	

* bg 155 3

FL5” FL6” FL250 - FL350 - FL450 / FL650 - FL750

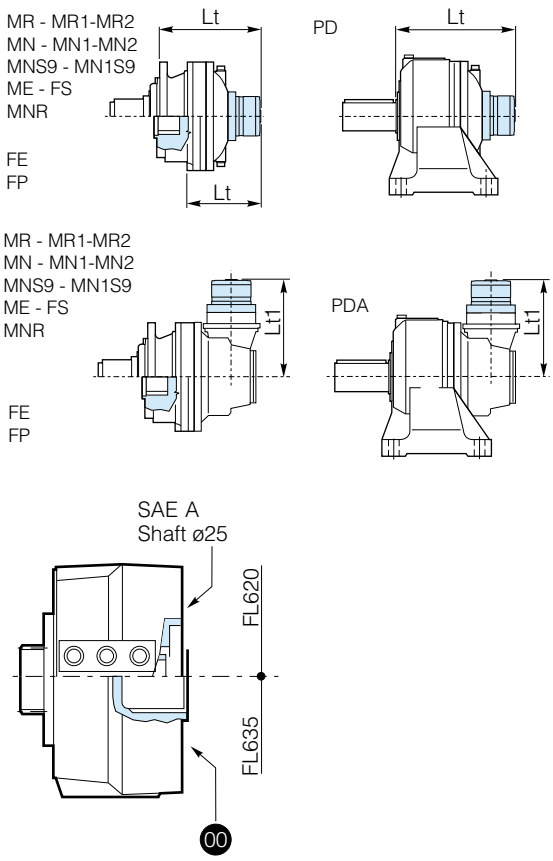


		Lt					
		MN-MN1-MN2 FS-ME-MNR	MNS9 MN1S9	MR-MR1 MR2	FE	FP	PD
FL250 FL350 FL450	ED/PD 2155	14.842	19.055	15.630	14.055	15.354	20.472
	ET/PD 3155	17.244	21.457	18.031	16.457	17.756	22.874
FL650 FL750	ED/PD 2155	15.394	19.606	16.181	14.606	15.866	21.024
	ET/PD 3155	17.795	22.008	18.583	17.008	18.268	23.425
FL960	ED/PD 2155	15.945	20.157	16.732	15.157	16.417	21.575
	ET/PD 3155	18.858	23.071	19.646	18.071	19.331	24.488

		Lt1					
		MN-MN1-MN2 FS-ME-MNR	MNS9 MN1S9	MR-MR1 MR2	FE	FP	PDD
FL250 FL350 FL450	EC/PDA 3155	11.024	11.024	11.024	11.024	11.024	11.024
	EC/PDA 3155*	14.842	14.842	14.842	14.842	14.842	14.842

* bg 155 3

FL620.10 - FL635.10 / FL620.U - FL635.U

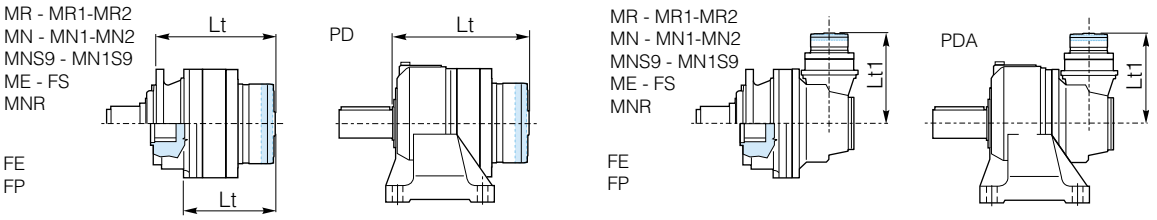


		Lt					
		MN-MN1-MN2 FS-ME-MNR	MNS9 MN1S9	MR-MR1 MR2	FE	FP	PD
FL620.U	ED/PD 2155	14.803	19.016	15.591	14.016	15.315	20.433
	ET/PD 3155	17.677	21.890	18.465	16.890	18.189	23.307
FL635.U	ED/PD 2155	14.291	18.504	15.079	13.504	14.764	19.921
	ET/PD 3155	17.165	21.378	17.953	16.378	17.638	22.795

		Lt1					
		MN-MN1-MN2 FS-ME-MNR	MNS9 MN1S9	MR-MR1 MR2	FE	FP	PDA
FL620.U	EC/PDA 3155	12.795	12.795	12.795	12.795	12.795	12.795
	EC/PDA 3155*	13.031	13.031	13.031	13.031	13.031	13.031
FL635.U	EC/PDA 3155	12.244	12.244	12.244	12.244	12.244	12.244
	EC/PDA 3155*	12.480	12.480	12.480	12.480	12.480	12.480

* bg 155 3

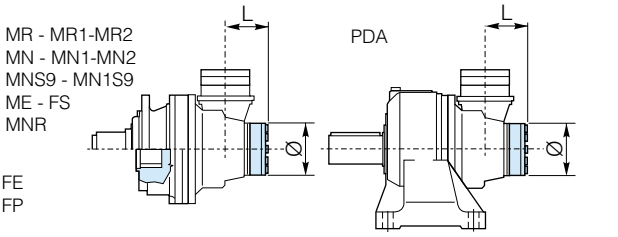
RL



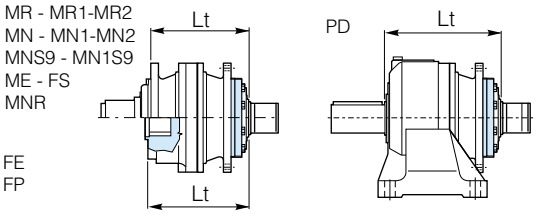
				Lt					
				MN-MN1-MN2 FS-ME-MNR	MNS9 MN1S9	MR-MR1-MR2	FE	FP	PD
RL	+	FL250 FL350 FL450	ED/PD 2155	15.866	20.079	16.654	15.079	16.378	21.496
			ET/PD 3155	18.268	22.480	19.055	17.480	18.779	23.898
		FL650 FL750	ED/PD 2155	16.417	20.630	17.205	15.630	16.890	22.047
			ET/PD 3155	18.819	23.031	19.606	18.031	19.291	24.449
		FL960	ED/PD 2155	16.968	21.181	17.756	16.181	17.441	22.598

				Lt1
				MR-MR1-MR2-MN-MN1-MN2-MNR-MNS9-MN1S9-FS-FE-ME-FP-PDA
RL	+	FL250 FL350 FL450	EC/PDA 3155	12.047
			EC/PDA 3155*	15.866

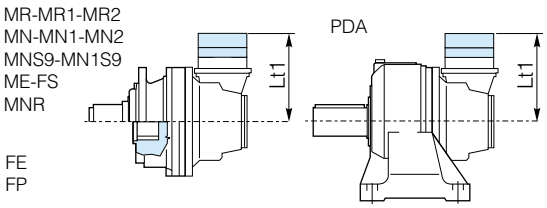
* bg 155 3



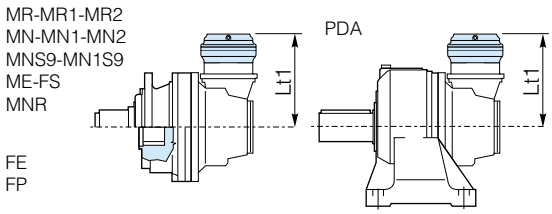
				L	Ø
RL	+	CC40	EC/PDA 3155	5.323	5.906



				Lt					
				MN-MN1-MN2 FS-ME-MNR	MNS9 MN1S9	MR-MR1-MR2	FE	FP	PD
RL	+	S46C1	ED/PD 2155	18.150	22.362	18.937	17.362	18.622	23.779
			ET/PD 3155	18.465	22.677	19.252	17.677	18.937	24.094



EM1010 - EM1020



ED2010 - ED2020 ED2021

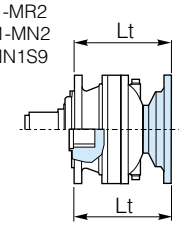
		Lt1	
		EC3155 PDA3155	EC3155* PDA3155*
	EM1010	12.874	13.110
	EM1020	13.583	13.819
	ED2010	14.409	14.646
	ED2020	15.669	15.905
	ED2021	16.260	16.496

* bg 155 3

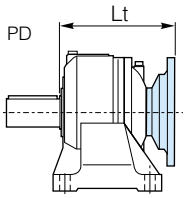
IEC Motor

MR - MR1-MR2
MN - MN1-MN2
MNS9 - MN1S9
ME - FS
MNR

FE
FP



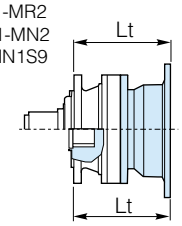
PD



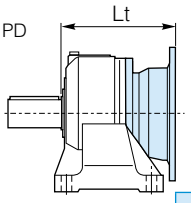
		Lt 00							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
ED 2155	MN-MN1-MN2-FS-MNR-ME	11.496	11.575	11.772	11.811	14.449	15.669	16.102	17.283
ED 2155	MNS9-MN1S9	15.709	15.787	15.984	16.024	18.661	19.882	20.315	21.496
ED 2155	MR-MR1-MR2	12.283	12.362	12.559	12.598	15.236	16.457	16.890	18.071
ED 2155	FE	10.709	10.787	10.984	11.024	13.661	14.882	15.315	16.496
ED 2155	FP	11.968	12.047	12.244	12.283	14.921	16.142	16.575	17.756
ET 3155	MN-MN1-MN2-FS-MNR-ME	14.370	14.449	14.646	14.685	17.323	18.543	18.976	20.157
ET 3155	MNS9-MN1S	18.583	18.661	18.858	18.898	21.535	22.756	23.189	24.370
ET 3155	MR-MR1-MR2	15.157	15.236	15.433	15.472	18.110	19.331	19.764	20.945
ET 3155	FE	13.583	13.661	13.858	13.898	16.535	17.756	18.189	19.370
ET 3155	FP	14.842	14.921	15.118	15.157	17.795	19.016	19.449	20.630
PD 2155	PD	17.126	17.205	17.402	17.441	20.079	21.299	21.732	22.913
PD 3155	PD	20.000	20.079	20.276	20.315	22.953	24.173	24.606	25.787

MR - MR1-MR2
MN - MN1-MN2
MNS9 - MN1S9
ME - FS
MNR

FE
FP



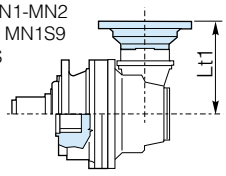
PD



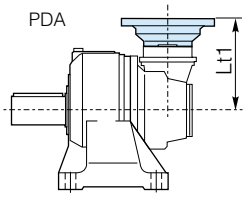
		Lt		
		IEC		
		160 180	200	225
ED 2155	MN-MN1-MN2-FS-MNR-ME	14.882	16.063	17.244
ED 2155	MNS9-MN1S9	19.094	20.276	21.457
ED 2155	MR-MR1-MR2	15.669	16.850	18.031
ED 2155	FE	14.094	15.276	16.457
ED 2155	FP	15.354	16.535	17.717
ET 3155	MN-MN1-MN2-FS-MNR-ME	18.543	18.937	20.118
ET 3155	MNS9-MN1S	22.756	23.150	24.331
ET 3155	MR-MR1-MR2	19.331	19.724	20.905
ET 3155	FE	17.756	18.150	19.331
ET 3155	FP	19.016	19.409	20.591
PD 2155	PD	20.512	21.693	22.874
PD 3155	PD	24.173	24.567	25.748

MR - MR1-MR2
MN - MN1-MN2
MNS9 - MN1S9
ME - FS
MNR

FE
FP



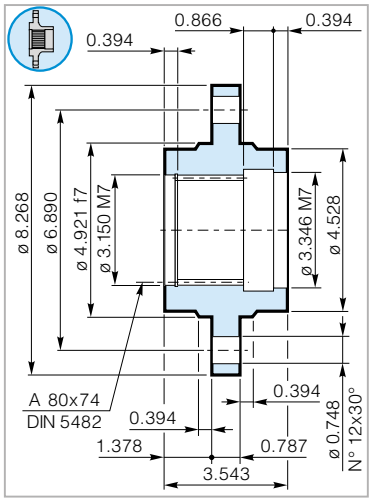
PDA



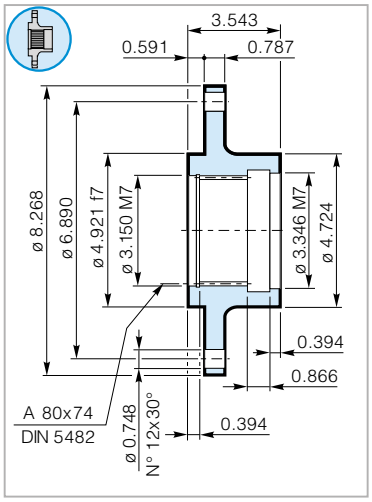
		Lt1 00							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
EC/PDA 3155	MN-MR-MN1-MN2-MR1 MR2-ME-MNR-MNS9 MN1S9- FE-FS FP-PDA	9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC/PDA 3155*		9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472

* bg 155 3

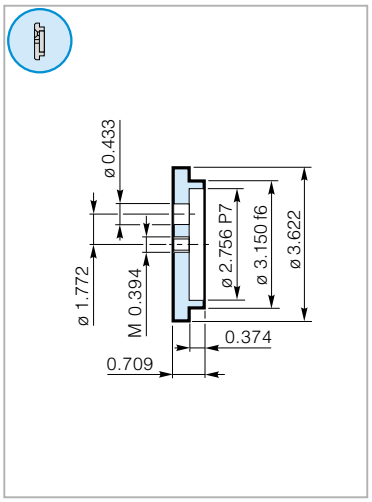
FA 155 MN-MNS9 Wheel Flange



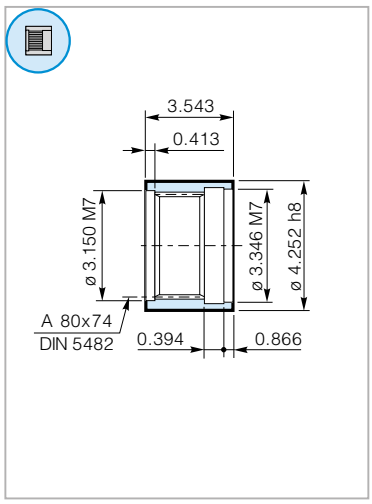
FR 155 MN-MNS9 Wheel Flange



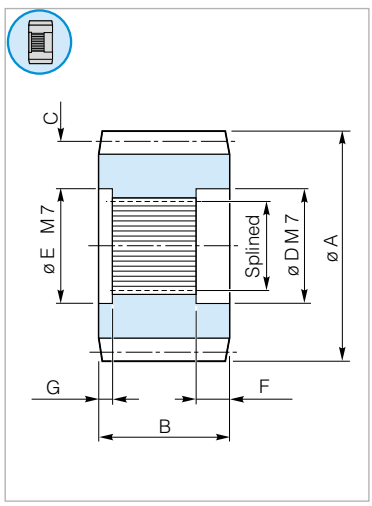
RDF 155 MN-MNS9 Lock Washer



MS 155 MN-MNS9 Splined Sleeve

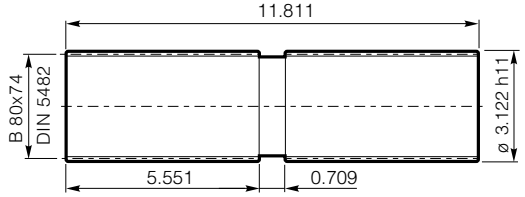


MN - MNS9 Pinions



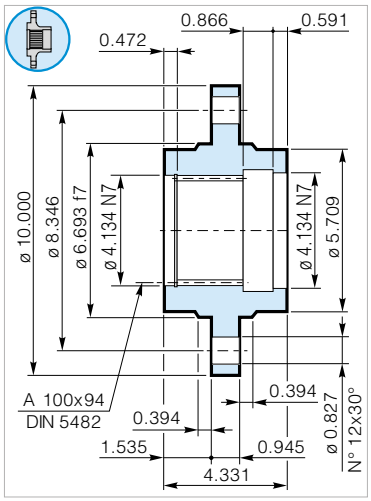
Splined	A	B	C			D	E	F	G
			m	z	x				
A80x74 DIN 5482	7.087	3.465	0.394	0.591	0.020	3.346	3.150	1.220	0.394
	6.378	3.937	0.394	0.551	0.012	3.346	3.150	1.220	0.394
	5.709	3.543	0.394	0.472	0.020	3.346	3.150	1.220	0.394

BS 155 FE Splined Bar

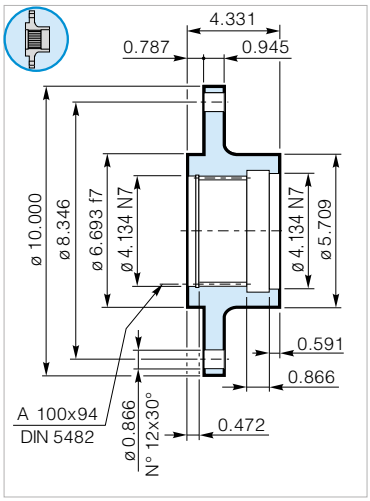


Code: 39127230100
Mat. :High mechanical resistance alloyed steel

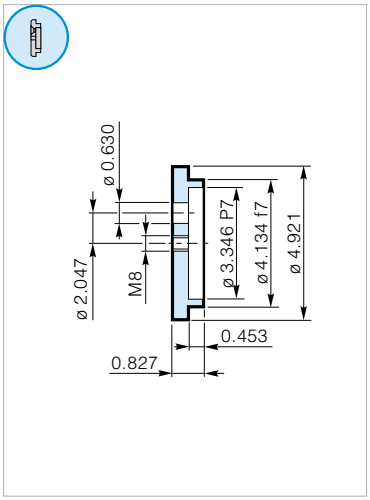
FA 150 MR-MNR — Wheel Flange



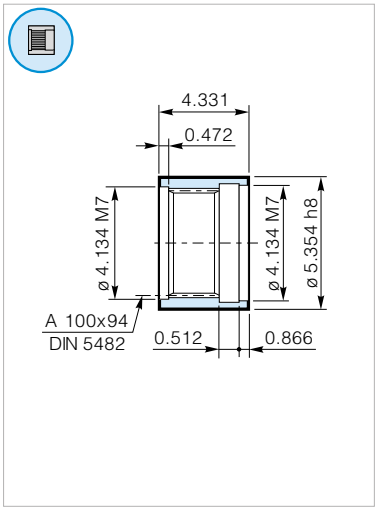
FR 150 MR-MNR — Wheel Flange



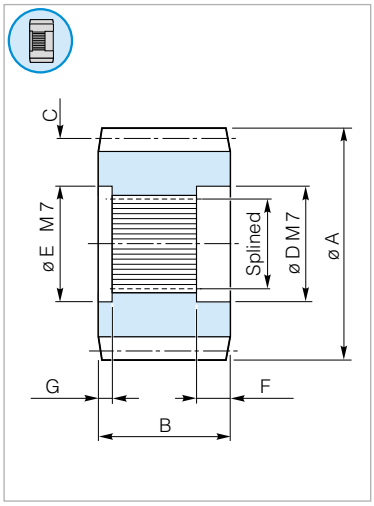
RDF 150 MR-MNR — Lock Washer



MS 150 MR-MNR — Splined Sleeve



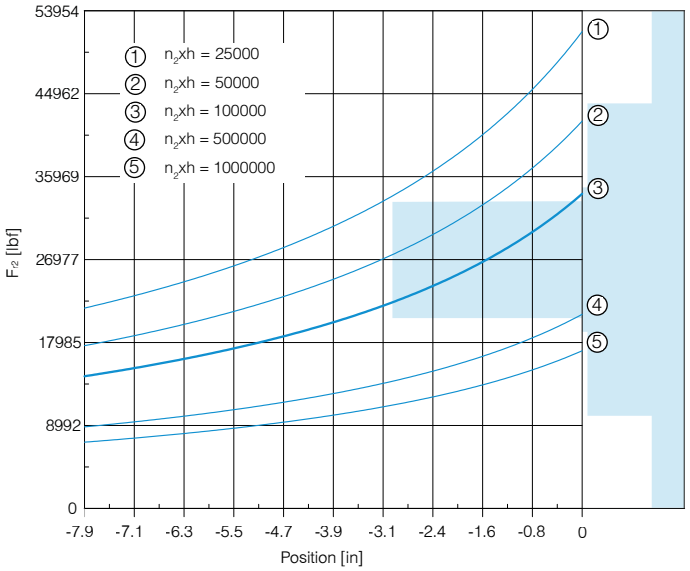
MR - MNR — Pinions



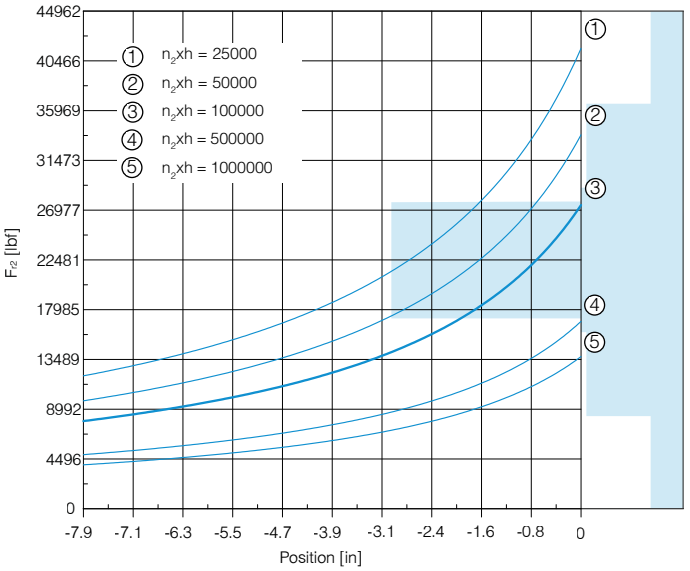
Splined	A	B	C			D	E	F	G
			m	z	x				
A100x94 DIN 5482	7.874	3.268	0.394	0.709	0.000	4.134	4.134	1.457	0.866
	8.031	3.543	0.472	0.591	0.000	4.134	4.134	1.457	0.866
	7.008	4.134	0.394	0.591	0.024	4.134	4.134	1.457	0.866
	9.921	4.724	0.551	0.591	0.020	4.134	4.134	1.457	0.866
	9.921	4.724	0.551	0.591	0.020	4.134	4.134	1.457	0.866

Output Radial Loads

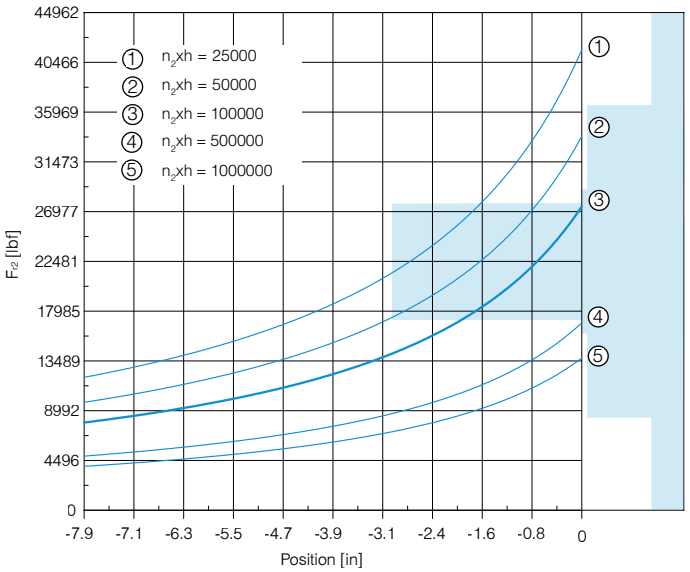
Gearbox Versions: ED, ET, EQ, EC — **MR-MR1-MR2**



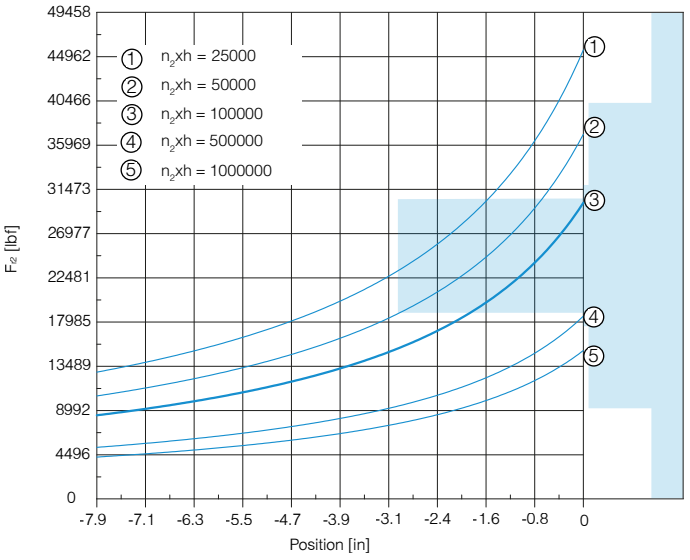
Gearbox Versions: ED, ET, EQ, EC — **MN-MN1-MN2-MNS9-MN1S9**



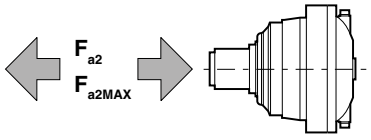
Gearbox Versions: PD, PDA — **MR1-MR2**



Gearbox Versions: ED, ET, EQ, EC — **MNR**

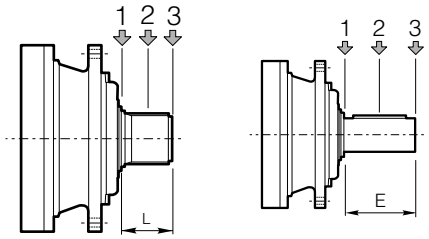


Output Axial Loads

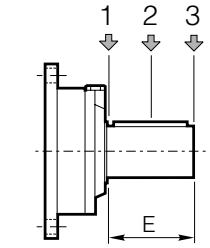


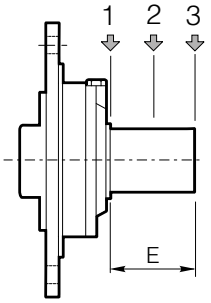
		Flange mounted		PD-PDA
		MN-MN1-MN2-MNS9-MN1S9	MR-MR1-MR2	MR1-MR2
F_{a2}	[lbf]	15286	22480	8992
F_{a2MAX}	[lbf]	15286	22480	8992

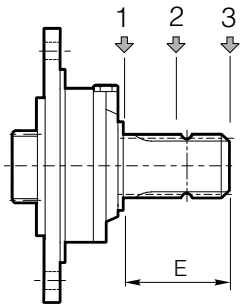
Input Radial Loads



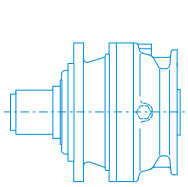
			F_{r1} [lbf]					
			$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	L	E	1	2	3	1	2	3
S-45CR1	-	4.134	2248	1348	899	1124	674	449
S-46C1	-	4.134	3147	1978	1438	1573	989	719
S-45SR	2.677	-	2248	1348	899	1124	674	449
S-65CR1	-	5.118	5350	3484	2158	2675	1753	1079
S-65SR	3.543	-	5350	3484	2158	2675	1753	1079







		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	E	1	2	3	1	2	3
SU 42x80	3.150	674	450	337	315	225	157
SU1 28x50	1.969	674	450	337	315	225	157
SU2 40x58	2.283	674	450	337	315	225	157
SU3 48x82	3.228	674	450	337	315	225	157
SUS 1 3/8”	3.819	629	405	337	292	202	135
SU2 1 1/2”x 3 1/4”	3.250	674	450	337	315	225	157
SUF1 28x50	1.969	674	450	337	315	225	157
SUF2 40x58	2.283	674	450	337	315	225	157
SUF3 48x82	3.228	674	450	337	315	225	157



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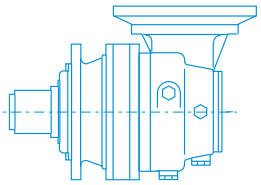
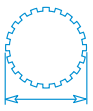
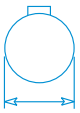
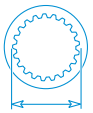
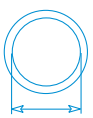
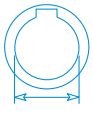


i_{eff}	4.04 - 2741
T_{2N}	14750 ftlb
	B100X94 DIN5482
	4.330 in
	B100X94 DIN5482
	5.118 in
	4.330 in

TECHNICAL DATA

10000 hours life

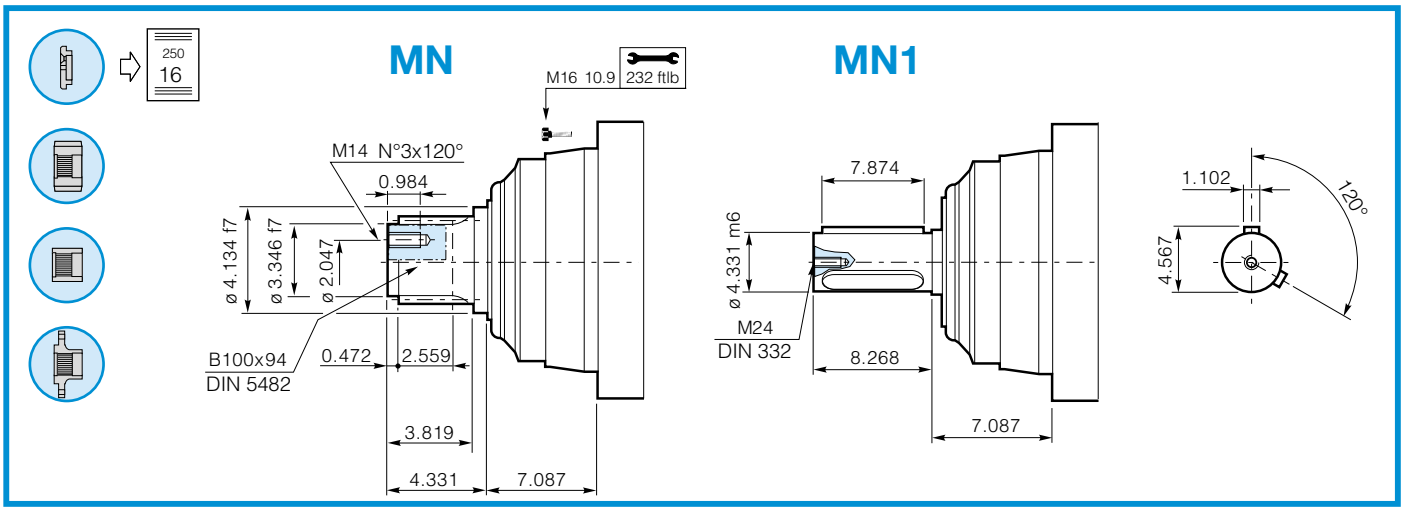
i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EM 1250												
4.04	371	4946	350.0	248	5586	262.8	124	6877	162.3			
5.12	293	5124	285.6	195	5787	215.9	98	7125	132.8	2500	25813	67.1
6.00	250	5306	252.1	167	5991	190.4	83	7376	116.7			
ED 2250												
14.14	106	6679	135.4	71	7542	101.9	35.4	9286	62.5			
15.59	96	6874	126.1	64	7763	95.2	32.1	9557	58.3			
17.49	86	6992	114.0	57	7896	85.8	28.6	9721	53.0			
20.20	74	7154	100.6	49.5	8080	76.4	24.8	9948	46.9			
22.17	68	7955	101.9	45.1	8983	77.8	22.6	11060	47.5	2500	25813	40.2
25.60	59	8305	92.5	39.1	9380	69.7	19.5	11548	42.9			
30.72	48.8	8772	81.8	32.6	9907	61.4	16.3	12197	37.8			
36.00	41.7	9082	72.4	27.8	10112	53.5	13.9	10757	28.4			
ET 3250												
43.55	34.4	9267	60.7	23	10465	45.7	11.5	12885	28.2			
49.49	30.3	9725	56.2	20.2	10984	42.2	10.1	13522	26.0			
58.40	25.7	10220	50.0	17.1	11543	37.7	8.6	14211	23.2			
61.23	24.5	10181	47.5	16.3	11498	35.8	8.2	14156	22.0			
70.70	21.2	10419	42.1	14.1	11767	31.6	7.1	14486	19.4			
83.43	18	10949	37.5	12	12366	28.2	6	15223	17.4			
90.44	16.6	11445	36.2	11.1	12925	27.2	5.5	15913	16.8			
104.4	14.4	11712	32.0	9.6	13227	24.1	4.8	16100	14.6	3000	25813	26.8
114.6	13.1	13021	32.5	8.7	13962	23.2	4.4	15524	12.9			
121.2	12.4	12248	28.8	8.3	13832	21.7	4.1	16325	12.9			
146.5	10.2	12870	25.1	6.8	13768	17.8	3.4	15123	9.8			
158.8	9.4	13872	24.9	6.3	14454	17.3	3.1	16172	9.7			
184.3	8.1	14042	21.7	5.4	14881	15.4	2.7	16403	8.4			
216.0	6.9	11408	15.0	4.6	12053	10.6	2.3	13805	6.0			
261.0	5.7	11588	12.7	3.8	12514	9.1	1.9	14316	5.2			
EQ 4250												
282.7	5.3	16395	16.6	3.5	17929	12.1	1.8	19925	6.7			
310.4	4.8	16086	14.8	3.2	16700	10.2	1.6	17915	5.5			
350.4	4.3	17296	14.1	2.9	18481	10.1	1.4	19769	5.4			
405.3	3.7	16692	11.8	2.5	17559	8.3	1.2	19716	4.7			
438.6	3.4	14573	9.5	2.3	15210	6.6	1.1	16280	3.5			
490.7	3.1	16780	9.8	2	17402	6.7	1	19737	3.9			
579.0	2.6	17033	8.4	1.7	17659	5.8	0.86	20426	3.4			
627.7	2.4	18314	8.3	1.6	19097	5.8	0.8	20419	3.1			
724.8	2.1	17378	6.8	1.4	18518	4.8	0.69	21388	2.8			
795.4	1.9	18199	6.6	1.3	19618	4.7	0.63	22250	2.7			
878.7	1.7	16373	5.4	1.1	17087	3.8	0.57	18312	2.0	3000	25813	20.1
1016	1.5	16630	4.7	0.98	17344	3.2	0.49	18572	1.7			
1102	1.4	16016	4.2	0.91	16544	2.8	0.45	17395	1.5			
1273	1.2	18495	4.2	0.79	19105	2.8	0.39	20087	1.5			
1336	1.1	17803	3.8	0.75	19372	2.8	0.37	22428	1.6			
1546	0.97	18304	3.4	0.65	19988	2.4	0.32	23111	1.5			
1845	0.81	15801	2.4	0.54	17213	1.7	0.27	19835	1.0			
1935	0.78	19225	2.8	0.52	20966	2.0	0.26	24196	1.2			
2268	0.66	17469	2.1	0.44	18810	1.6	0.22	21302	0.9			
2339	0.64	20025	2.4	0.43	21815	1.7	0.21	25138	1.0			
2741	0.55	18085	1.9	0.36	19465	1.3	0.18	22028	0.8			

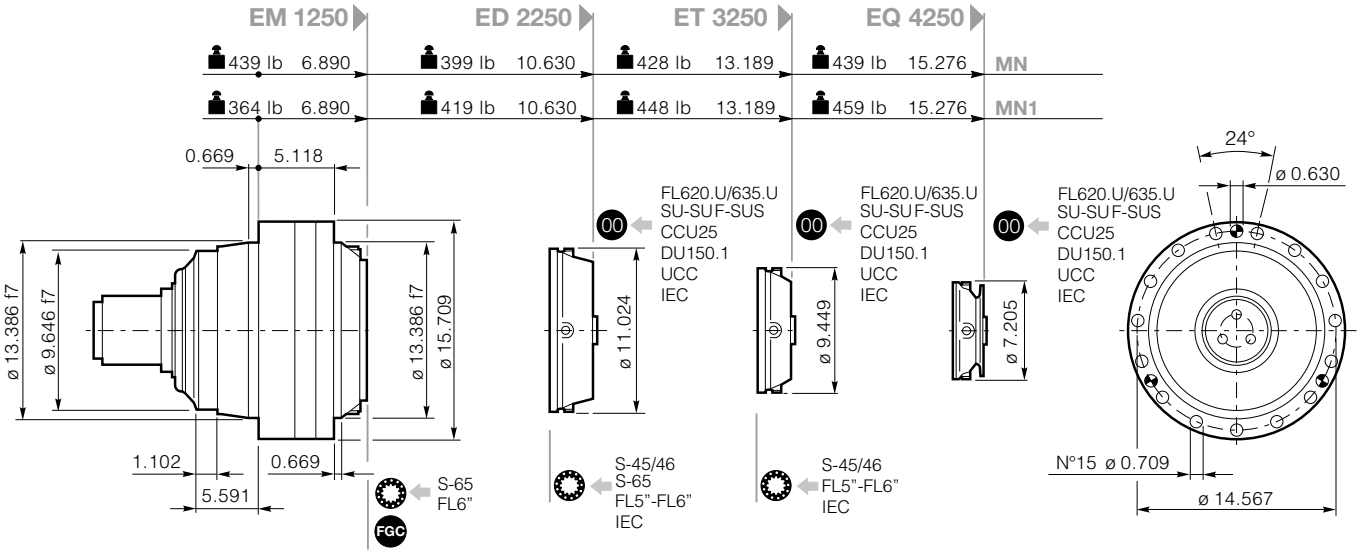
10000 hours life

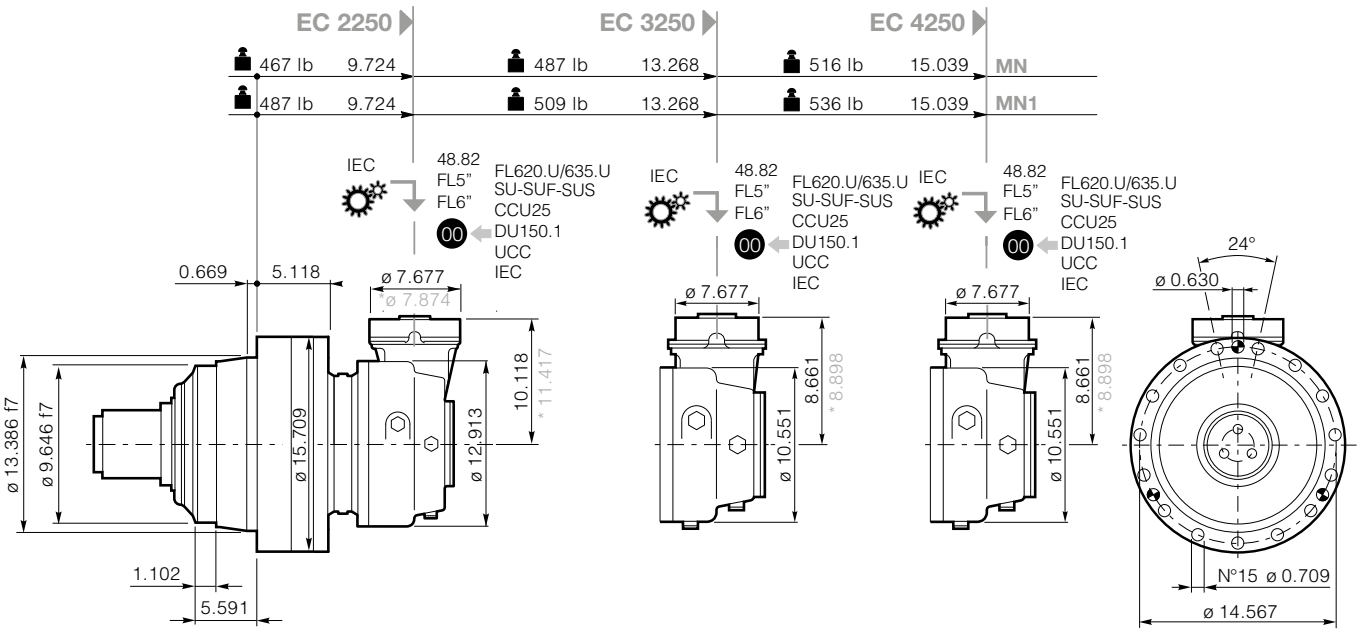
i_{eff}	1500 n_2 [rpm]	1500 T_2 [ftlb]	1500 P_2 [HP]	1000 n_2 [rpm]	1000 T_2 [ftlb]	1000 P_2 [HP]	500 n_2 [rpm]	500 T_2 [ftlb]	500 P_2 [HP]	n_{1MAX} [rpm]	T_{2MAX} [ftlb]	P_T [HP]
EC 2250												
11.11	135	3193	81.8	90	3606	61.8	45	4439	38.1			
14.08	107	4046	81.8	71	4570	61.8	35.5	5626	38.1		25813	
16.50	91	4741	81.8	61	5355	61.8	30.3	6593	38.1			
17.92	84	2968	47.3	56	3353	35.7	27.9	4128	22.0	3000	19526	24.1
21.00	71	3479	47.3	47.6	3929	35.7	23.8	4837	22.0		22882	
24.93	60	2969	34.1	40.1	3353	25.6	20.1	4129	15.8		15959	
29.22	51	3480	34.1	34.2	3930	25.6	17.1	4839	15.8		18702	
EC 3250												
46.78	32.1	7781	47.5	21.4	8787	35.8	10.7	10819	22.0			
52.48	28.6	8728	47.5	19.1	9857	35.8	9.5	12136	22.0			
53.76	27.9	8941	47.5	18.6	10098	35.8	9.3	12433	22.0			
60.60	24.8	9948	46.9	16.5	11234	35.3	8.3	13832	21.7			
72.05	20.8	5200	20.7	13.9	5873	15.6	6.9	7230	9.5			
80.82	18.6	5834	20.7	12.4	6588	15.6	6.2	8111	9.5			
93.32	16.1	6736	20.7	10.7	7607	15.6	5.4	9366	9.5	3000	25813	18.8
102.4	14.6	7393	20.7	9.8	8349	15.6	4.9	10279	9.5			
112.0	13.4	8083	20.7	8.9	9129	15.6	4.5	11239	9.5			
118.3	12.7	8537	20.7	8.5	9641	15.6	4.2	11869	9.5			
141.9	10.6	10244	20.7	7	11569	15.6	3.5	14243	9.5			
166.3	9	11161	19.2	6	11546	13.3	3	13124	7.5			
EC 4250												
212.1	7.1	14486	19.4	4.7	16123	14.5	2.4	17177	7.8			
228.6	6.6	15392	19.2	4.4	17226	14.3	2.2	19606	8.2			
252.2	5.9	15842	18.0	4	17547	13.3	2	19449	7.4			
282.9	5.3	16113	16.2	3.5	17710	11.9	1.8	19205	6.4			
314.9	4.8	15316	13.9	3.2	16067	9.7	1.6	17294	5.2			
363.6	4.1	16325	12.9	2.8	16941	8.9	1.4	18530	4.8			
392.0	3.8	13026	9.5	2.6	13609	6.6	1.3	14586	3.5			
432.3	3.5	14365	9.5	2.3	15009	6.6	1.2	16087	3.5			
484.9	3.1	16114	9.5	2.1	16836	6.6	1	18045	3.5	3000	25813	13.4
559.9	2.7	16981	8.7	1.8	17607	6.0	0.89	20286	3.5			
614.5	2.4	17341	8.0	1.6	18705	5.8	0.81	21238	3.4			
709.6	2.1	17816	7.1	1.4	19210	5.1	0.7	21798	3.0			
811.9	1.8	13716	4.8	1.2	14439	3.4	0.62	16758	2.0			
857.5	1.7	18456	6.2	1.2	19890	4.4	0.58	22552	2.5			
1029	1.5	17383	4.8	0.97	18298	3.4	0.49	21239	2.0			
1206	1.2	15535	3.6	0.83	16755	2.7	0.41	19021	1.5			

* (bg) All the ratios in light grey (ie. 11.11) have particular dimensions of bevel gears in some versions. See dimensional tables.

GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 S-45/46 48.82 250 9 SU-SUF SUS 250 10 FL5"- FL6' FL620 FL635 250 12 IEC 250 15 250 14 CCU25 B 16 DU150.1 UCC B 17 * bg 250 3

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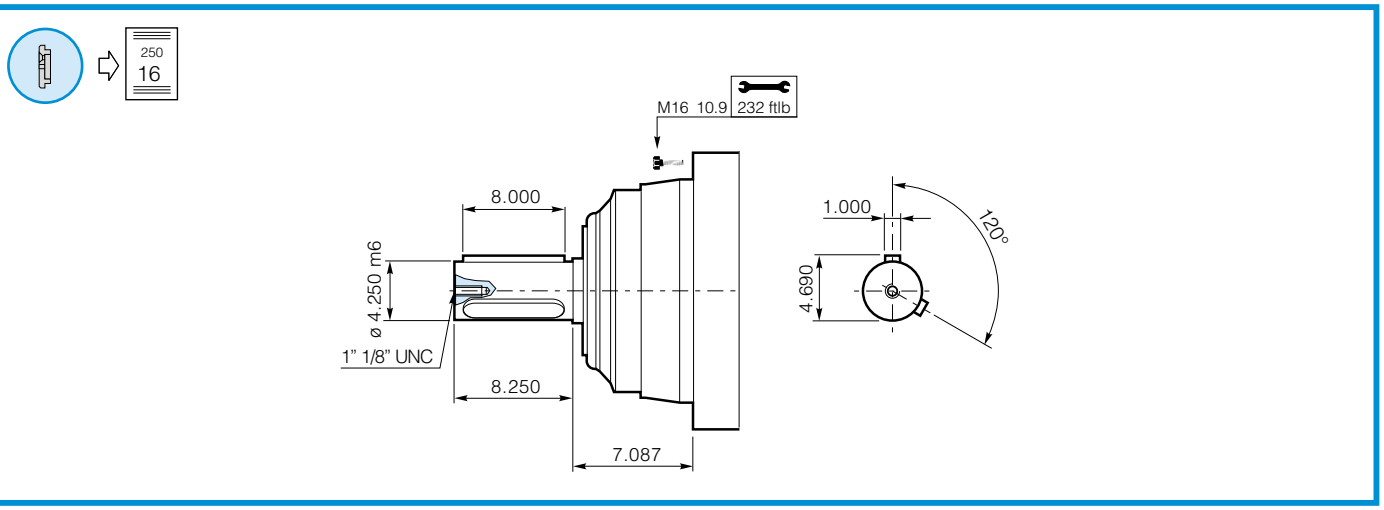

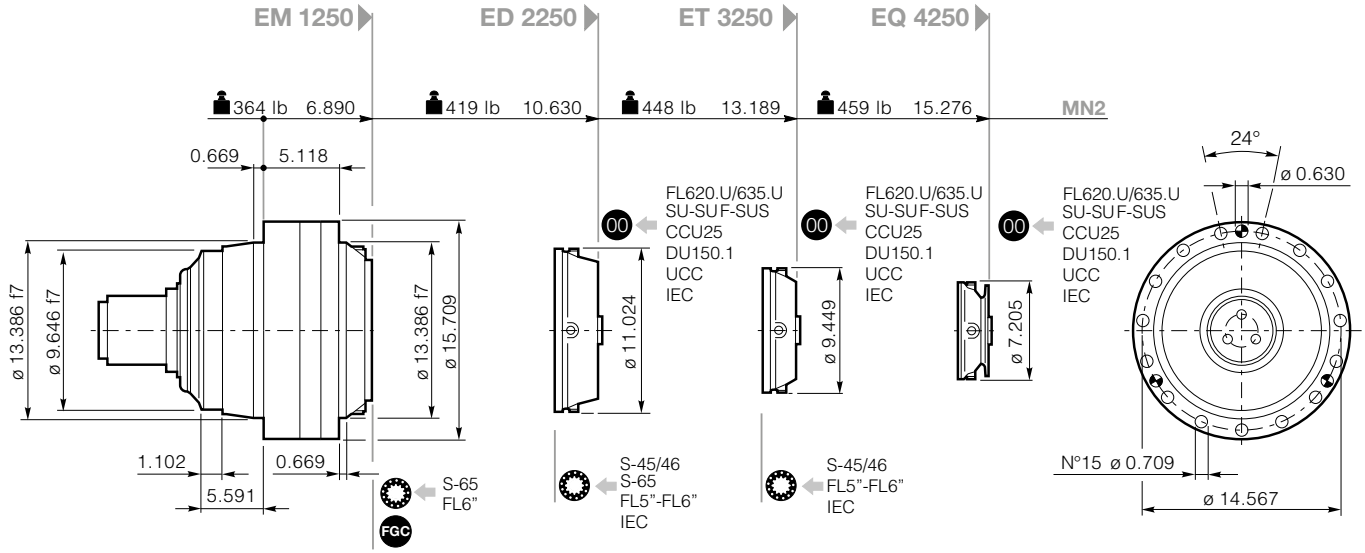

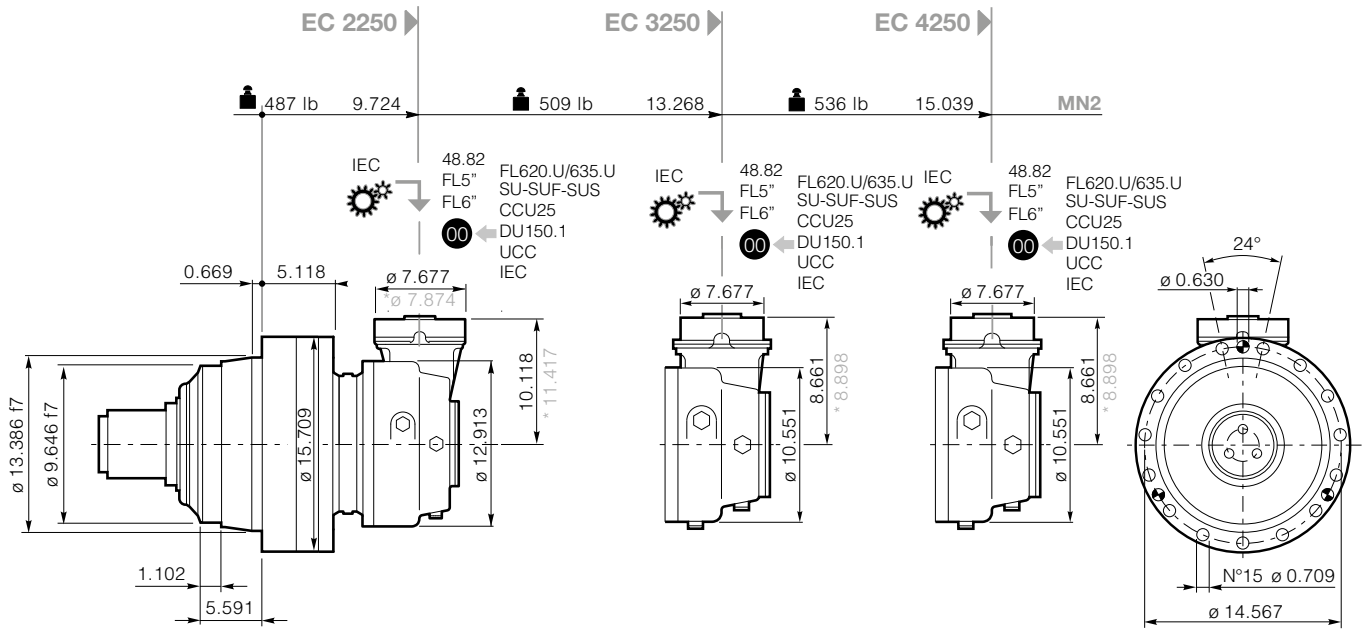

00 B 14 S-45/46 48.82 250 9 SU-SUF SUS 250 10 FL5"- FL6' FL620 FL635 250 12 IEC 250 15 250 14 CCU25 B 16 DU150.1 UCC B 17 * bg 250 3

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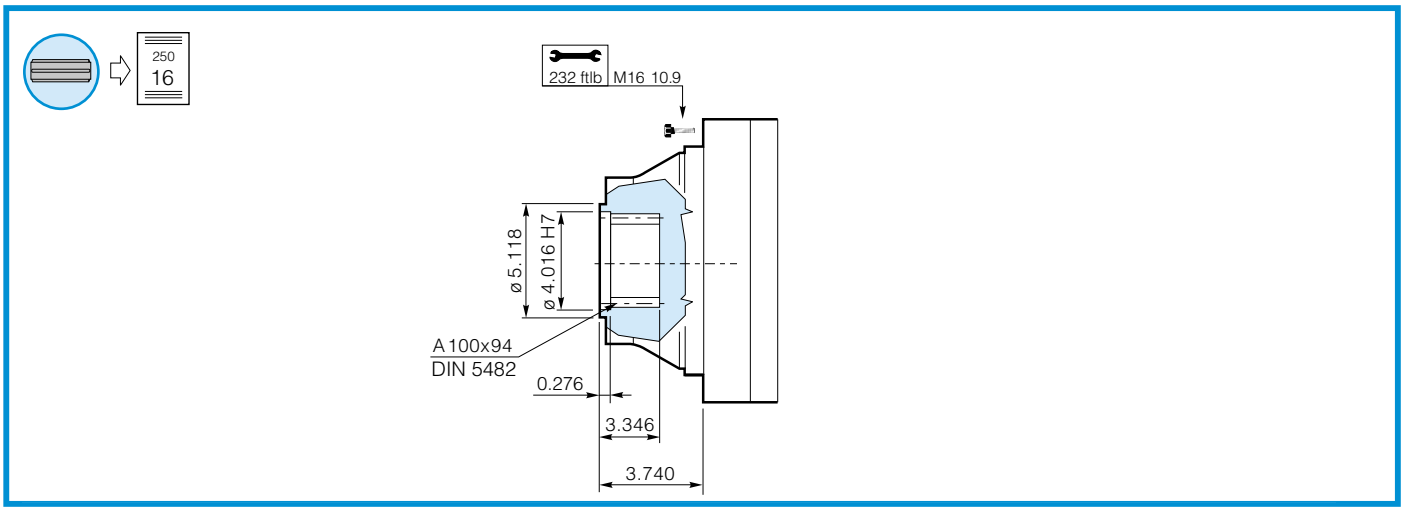
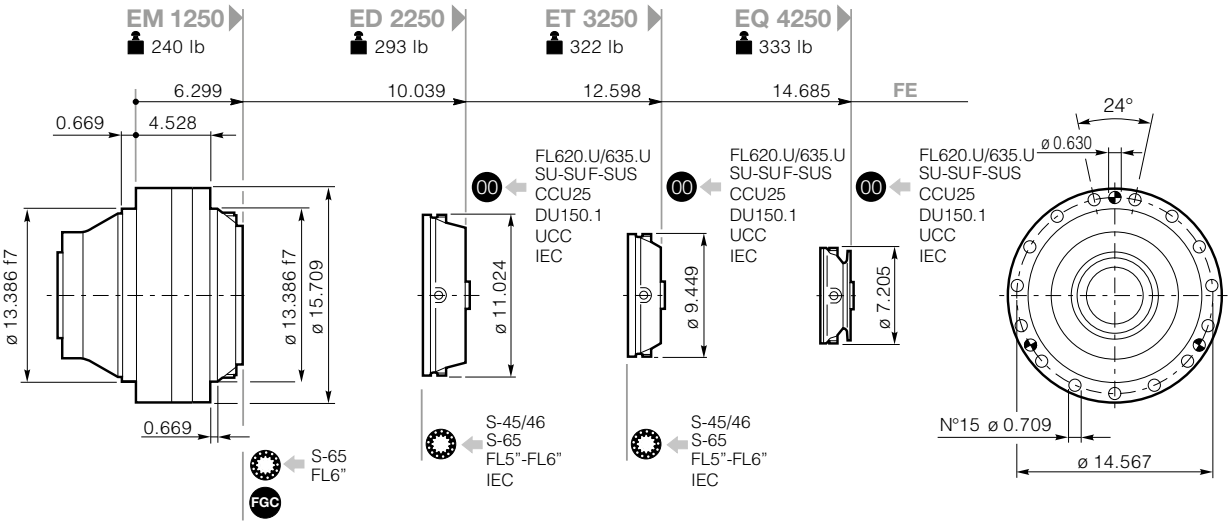
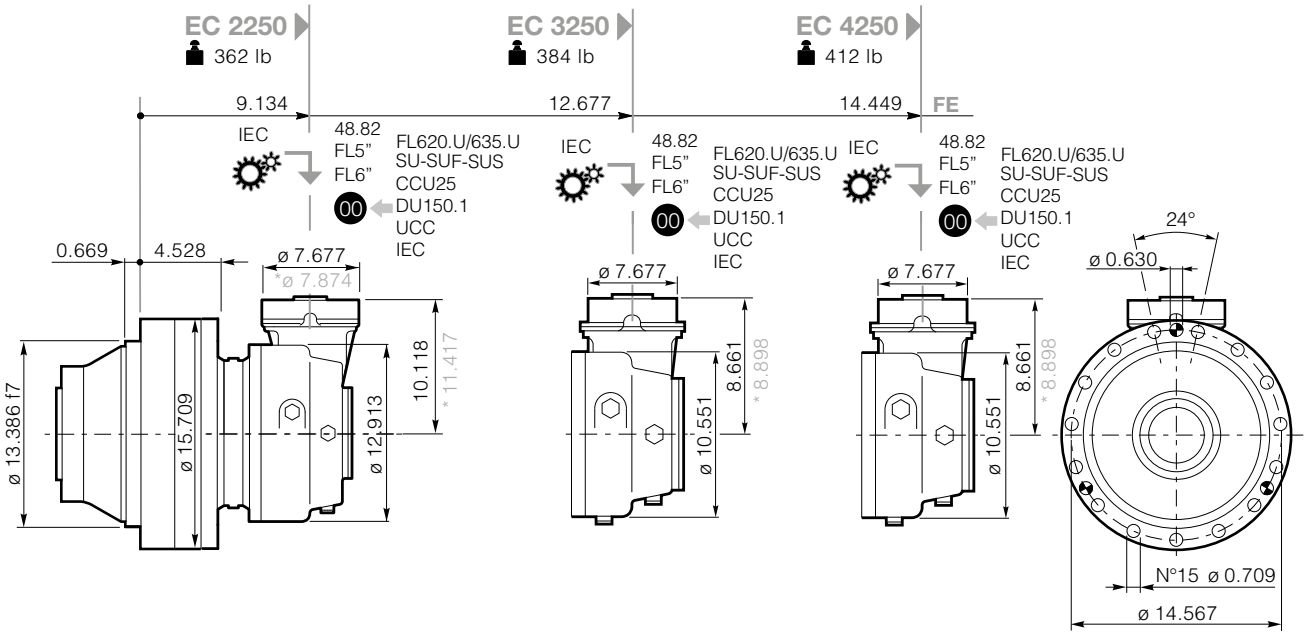
GEARBOX DIMENSIONS WITH OUTPUT







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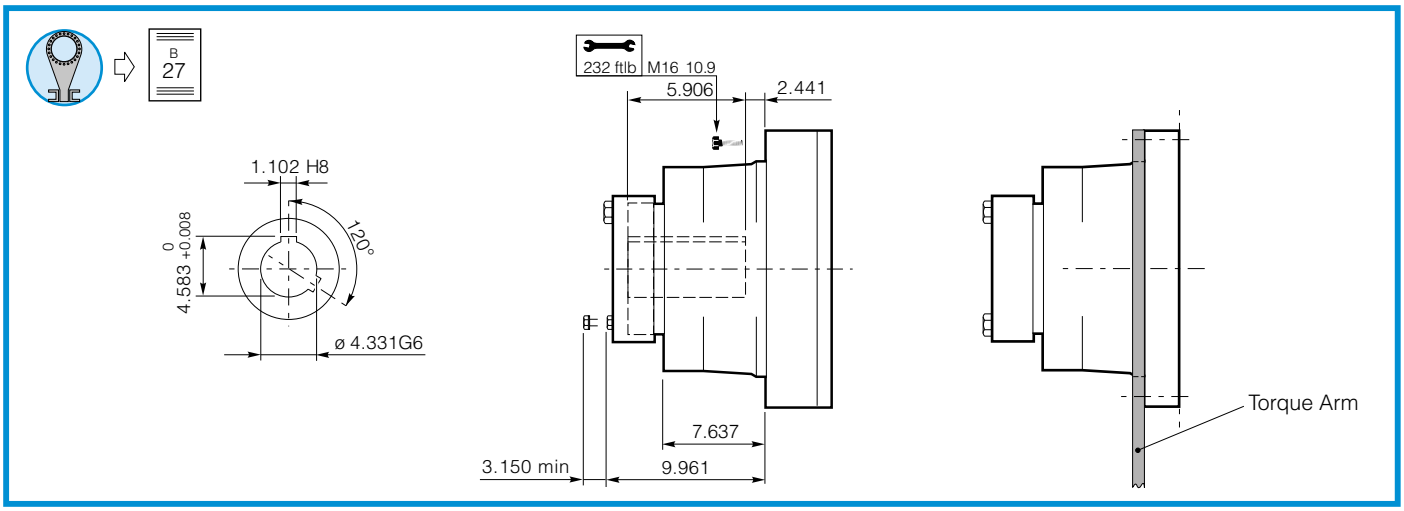

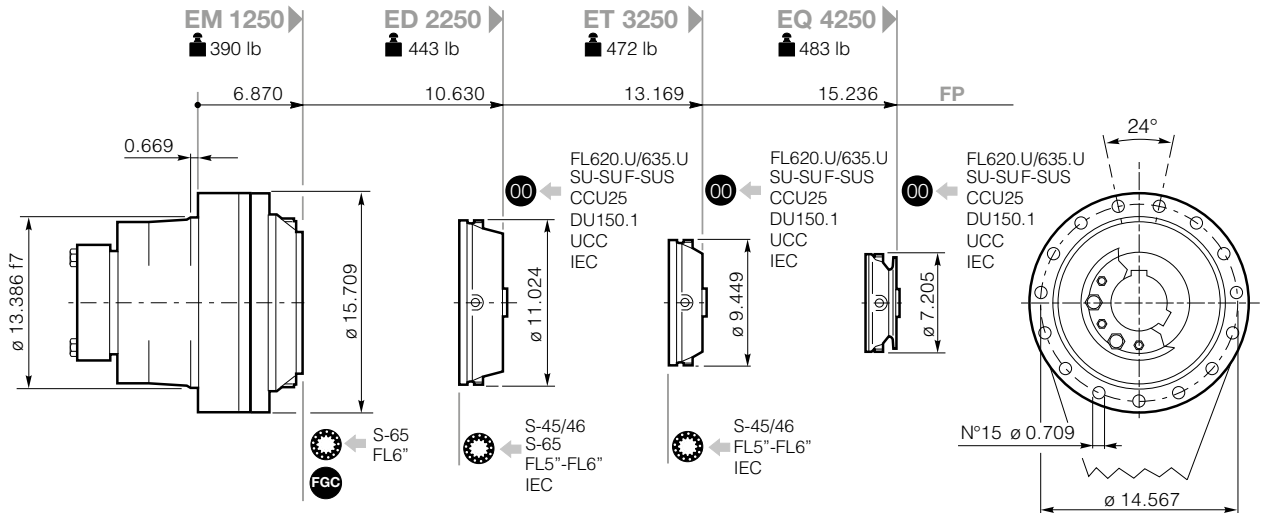

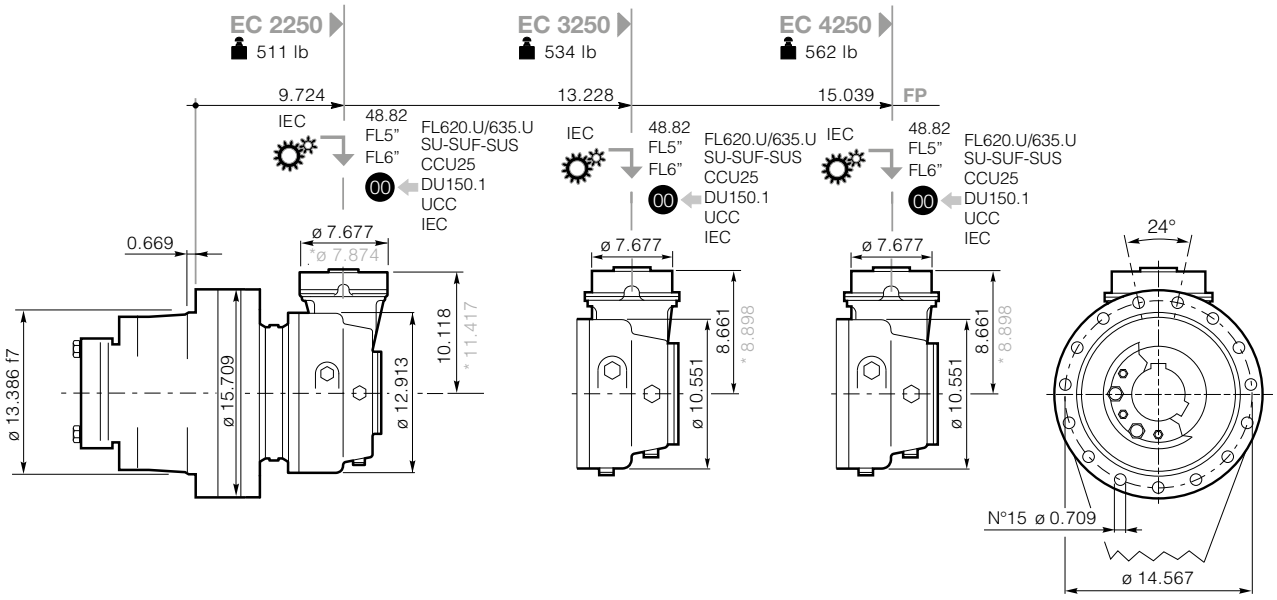

00 B 14 S-45/46 48.82 → 250 9 SU-SUF SUS → 250 10 FL5"- FL6' FL620 FL635 → 250 12 IEC → 250 15 → 250 14 CCU25 → B 16 DU150.1 UCC → B 17 * bg → 250 3

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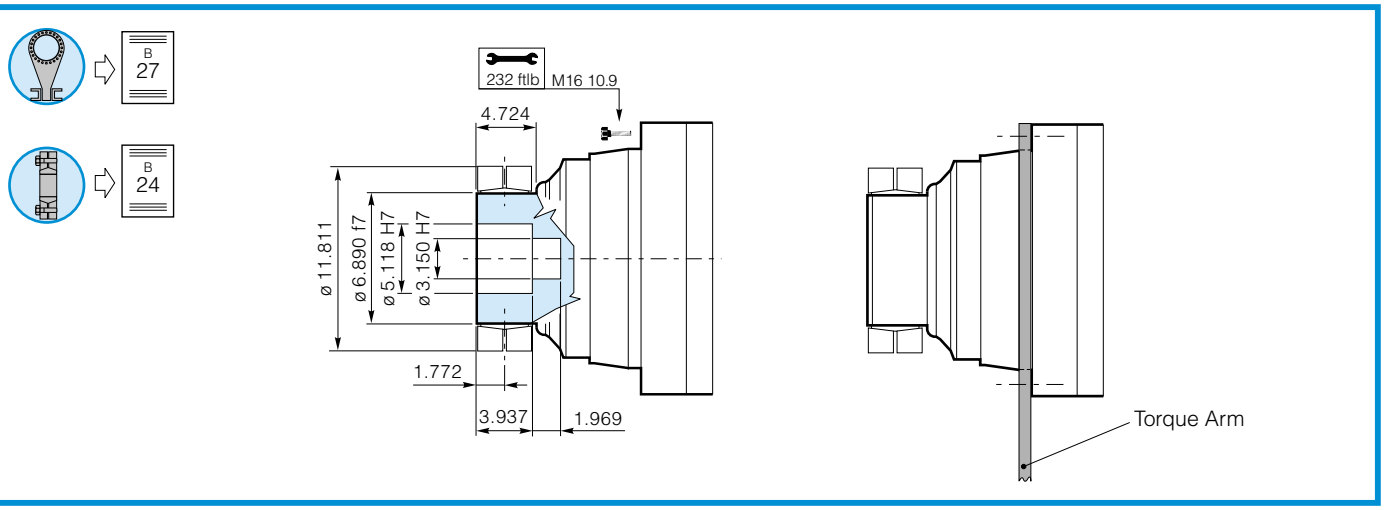
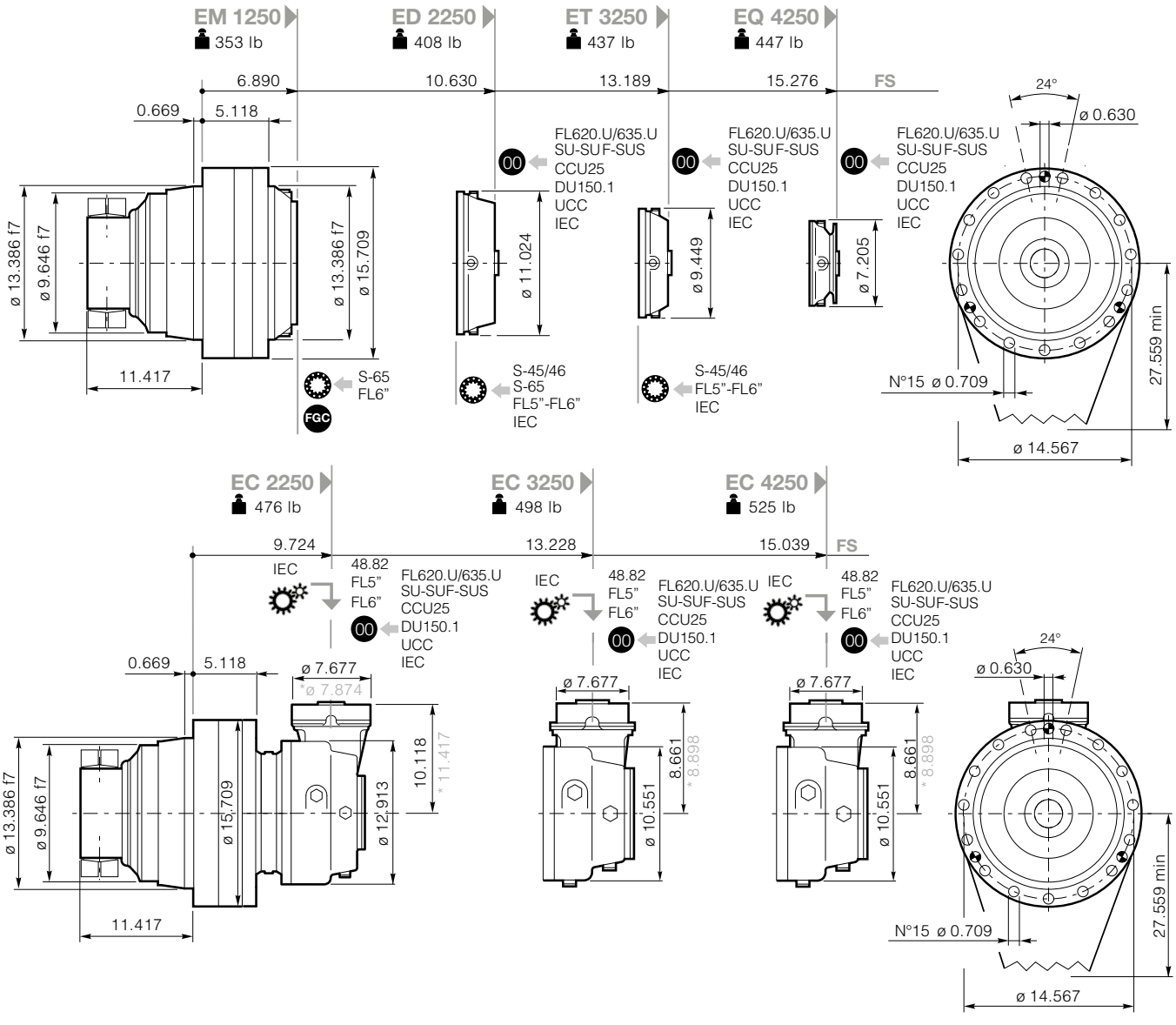
GEARBOX DIMENSIONS WITH OUTPUT





00 B 14 S-45/46 48.82 250 9 SU-SUF SUS 250 10 FL5"- FL6' FL620 FL635 250 12 IEC 250 15 250 14 CCU25 B 16 DU150.1 UCC B 17 * bg 250 3

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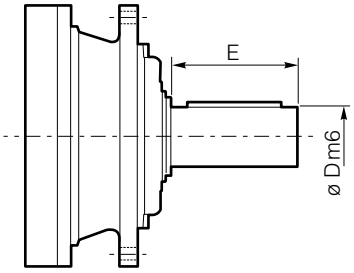
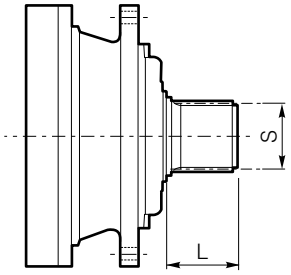
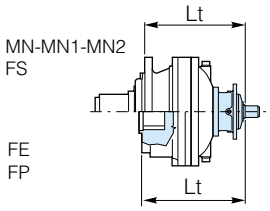
S-45CR1 - S-46C1 - S-45SR - S-65CR1 - S-65SR



S-45CR1 - S-46C1 - S-65CR1



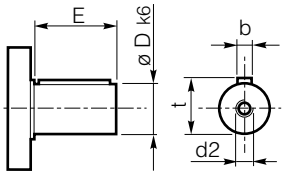
S-45SR - S-65SR

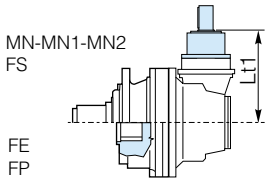


	D m6	E	L	S DIN5482		Lt	
						MN-MN1-MN2 FS-FP	FE
S-45CR1	2.559	4.134	-	-	EM 1250	12.323	11.732
					ED 2250	15.669	15.079
					ET 3250	15.669	15.079
S-46C1	2.559	4.134	-	-	EM 1250	13.937	13.346
					ED 2250	17.283	16.693
					ET 3250	17.283	16.693
S-45SR	-	-	2.677	B58x53	EM 1250	12.323	11.732
					ED 2250	15.669	15.079
					ET 3250	15.669	15.079
S-65CR1	3.150	5.118	-	-	EM 1250	15.866	15.276
					ED 2250	17.205	16.614
S-65SR	-	-	3.543	70x64	EM 1250	15.866	15.276
					ED 2250	17.205	16.614

For more informations, go to page B13

48.82





	D	E		Lt1
				MN-MN1-MN2-FS-FE-FP
48.82	1.890	3.228	EC 2250	12.480
			EC 3250	11.024
			EC 4250	11.024

For the input configuration S46C1, S65CR1, 48.82 (CC40 - CC41), FL5" can be fitted with an anti-return device.
For further information and technical data, contact Dana Sale Technical Support

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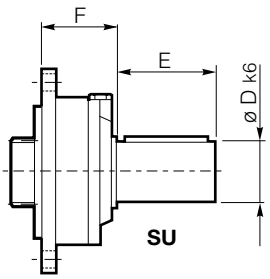
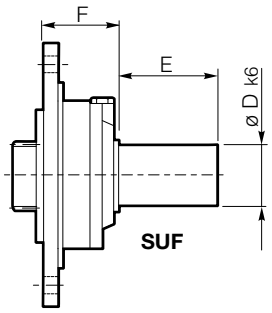
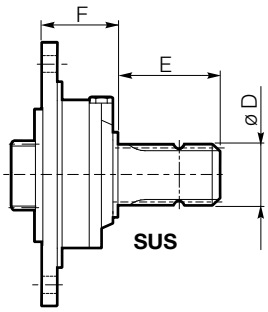
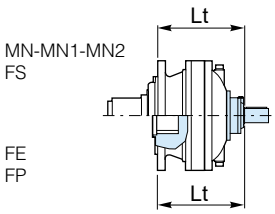
SU - SUF - SUS



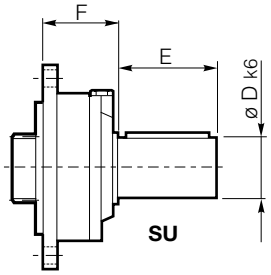


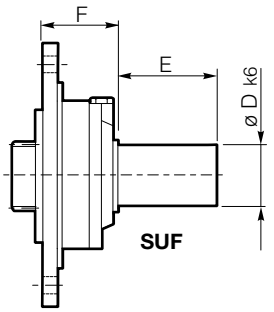


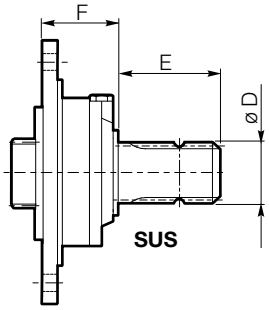


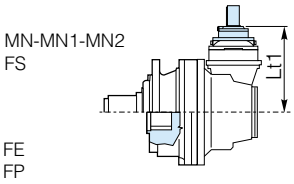
	D	E	F		Lt 00	
					MN-MN1-MN2 FS-FP	FE
SU1 28x50	1.102	1.969	2.362	ED 2250	12.992	12.402
				ET 3250	15.551	14.961
				EQ 4250	17.638	17.047
SU2 40x58	1.575	2.283	2.362	ED 2250	12.992	12.402
				ET 3250	15.551	14.961
				EQ 4250	17.638	17.047
SU3 48x82	1.890	3.228	2.362	ED 2250	12.992	12.402
				ET 3250	15.551	14.961
				EQ 4250	17.638	17.047
SU 42x80	1.654	3.150	3.996	ED 2250	14.646	14.055
				ET 3250	17.205	16.614
				EQ 4250	19.252	18.661
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	ED 2250	14.646	14.055
				ET 3250	17.205	16.614
				EQ 4250	19.252	18.661
SU2 1.5x3.25	1.500	3.250	2.362	ED 2250	12.992	12.402
				ET 3250	15.551	14.961
				EQ 4250	17.638	17.047
SUF1 28x50	1.102	1.969	2.362	ED 2250	12.992	12.402
				ET 3250	15.551	14.961
				EQ 4250	17.638	17.047
SUF2 40x58	1.575	2.283	2.362	ED 2250	12.992	12.402
				ET 3250	15.551	14.961
				EQ 4250	17.638	17.047
SUF3 48x82	1.890	3.228	2.362	ED 2250	12.992	12.402
				ET 3250	15.551	14.961
				EQ 4250	17.638	17.047

SU - SUF - SUS





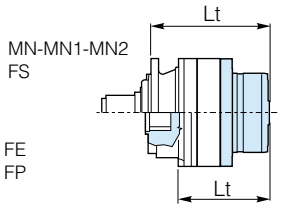


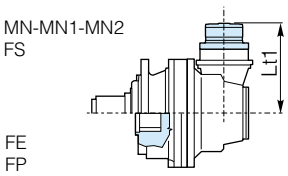


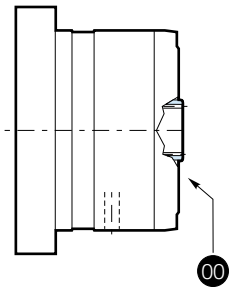
	D	E	F		Lt1 (00) MN-MN1-MN2 FS-FP	Lt1 (00) FE
SU1 28x50	1.102	1.969	2.362	**EC 2250**	12.480	12.480
				EC 2250*	13.780	13.780
				EC 3250	11.024	11.024
				EC 3250*	11.260	11.260
				EC 4250	11.024	11.024
				EC 4250*	11.260	11.260
SU2 40x58	1.575	2.283	2.362	**EC 2250**	12.480	12.480
				EC 2250*	13.780	13.780
				EC 3250	11.024	11.024
				EC 3250*	11.260	11.260
				EC 4250	11.024	11.024
				EC 4250*	11.260	11.260
SU3 48x82	1.890	3.228	2.362	**EC 2250**	12.480	12.480
				EC 2250*	13.780	13.780
				EC 3250	11.024	11.024
				EC 3250*	11.260	11.260
				EC 4250	11.024	11.024
				EC 4250*	11.260	11.260
SU 42x80	1.654	3.150	3.996	**EC 2250**	14.134	14.134
				EC 2250*	15.433	15.433
				EC 3250	12.677	12.677
				EC 3250*	12.913	12.913
				EC 4250	12.677	12.677
				EC 4250*	12.913	12.913
SUS 1 3/8"	1 3/8" DIN9611	3.819	3.996	**EC 2250**	14.134	14.134
				EC 2250*	15.433	15.433
				EC 3250	12.677	12.677
				EC 3250*	12.913	12.913
				EC 4250	12.677	12.677
				EC 4250*	12.913	12.913
SU2 1.5x3.25	1.500	3.250	2.362	**EC 2250**	12.480	12.480
				EC 2250*	13.780	13.780
				EC 3250	11.024	11.024
				EC 3250*	11.260	11.260
				EC 4250	11.024	11.024
				EC 4250*	11.260	11.260
SUF1 28x50	1.102	1.969	2.362	**EC 2250**	12.480	12.480
				EC 2250*	13.780	13.780
				EC 3250	11.024	11.024
				EC 3250*	11.260	11.260
				EC 4250	11.024	11.024
				EC 4250*	11.260	11.260
SUF2 40x58	1.575	2.283	2.362	**EC 2250**	12.480	12.480
				EC 2250*	13.780	13.780
				EC 3250	11.024	11.024
				EC 3250*	11.260	11.260
				EC 4250	11.024	11.024
				EC 4250*	11.260	11.260
SUF3 48x82	1.890	3.228	2.362	**EC 2250**	12.480	12.480
				EC 2250*	13.780	13.780
				EC 3250	11.024	11.024
				EC 3250*	11.260	11.260
				EC 4250	11.024	11.024
				EC 4250*	11.260	11.260

* (bg) 250 3

FL5” FL6” FL250 - FL350 - FL450 / FL650 - FL750





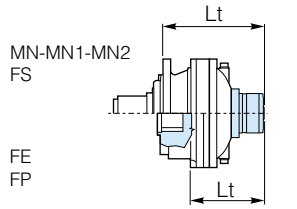


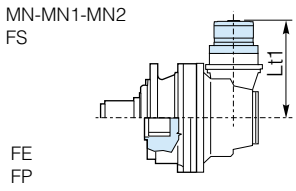
		Lt	
		MN-MN1-MN2 FS-FP	FE
FL250 FL350 FL450	ED 2250	14.803	14.213
	ET 3250	16.890	16.299
FL650 FL750	ED 2250	15.315	14.724
	ET 3250	17.402	16.811
FL960	EM 1250	12.244	11.654
	ED 2250	15.866	15.276

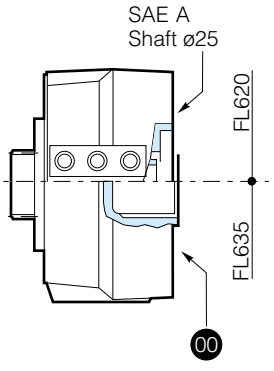
		Lt1	
		MN-MN1-MN2 FS-FP	FE
FL250 FL350 FL450	EC 2250	16.102	16.102
	EC 2250*	17.402	17.402
	EC 3250	11.024	11.024
	EC 3250*	14.842	14.842
	EC 4250	11.024	11.024
	EC 4250*	14.842	14.842
FL650 FL750	EC 2250	16.614	16.614
	EC 2250*	17.913	17.913
	EC 3250	11.575	11.575
	EC 3250*	15.394	15.394
	EC 4250	11.575	11.575
	EC 4250*	15.394	15.394

* bg ⇨ 250 3

FL620.10 - FL635.10 / FL620.U - FL635.U







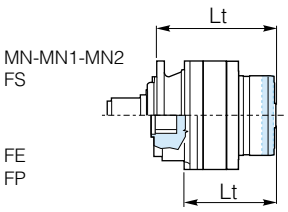
		Lt	
		MN-MN1-MN2 FS-FP	FE
FL620.U	ED 2250	14.764	14.173
	ET 3250	17.323	16.732
	EQ 4250	19.370	18.779
FL635.U	ED 2250	14.213	13.622
	ET 3250	16.772	16.181
	EQ 4250	18.858	18.268

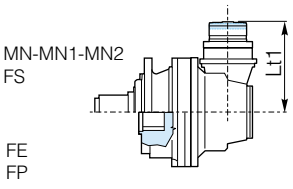
		Lt	
		MN-MN1-MN2 FS-FP	FE
FL620.10	EQ 4250	17.756	17.165
FL635.10	EQ 4250	17.047	16.457

		Lt1	
		MN-MN1-MN2 FS-FP	FE
FL620.U	EC 2250	14.252	14.252
	EC 2250*	15.551	15.551
	EC 3250	12.795	12.795
	EC 3250*	13.031	13.031
	EC 4250	12.795	12.795
	EC 4250*	13.031	13.031
FL635.U	EC 2250	13.701	13.701
	EC 2250*	15.000	15.000
	EC 3250	12.244	12.244
	EC 3250*	12.480	12.480
	EC 4250	12.244	12.244
	EC 4250*	12.480	12.480

* bg ⇨ 250 3

RL

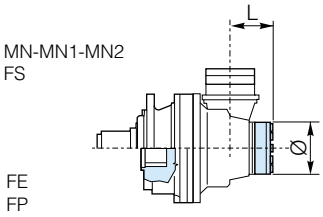




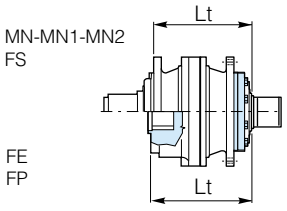
				Lt	
				MN-MN1-MN2 FS-FP	FE
RL	+	FL250 FL350 FL450	ED 2250	15.827	15.236
			ET 3250	17.913	17.323
		FL650 FL750	ED 2250	16.339	15.748
			ET 3250	18.425	17.835
		FL960	EM 1250	13.268	12.677
			ED 2250	16.890	16.299

				Lt1
				MN-MN1-MN2-FS-FP-FE
RL	+	FL250 FL350 FL450	EC 2250	17.126
			EC 2250*	18.425
			EC 3250	12.047
			EC 3250*	15.866
			EC 4250	12.047
			EC 4250*	15.866
		FL650 FL750	EC 2250	17.638
			EC 2250*	18.937
			EC 3250	12.047
			EC 3250*	15.866
			EC 4250	12.047
			EC 4250*	15.866

* bg ⇨ 250 3

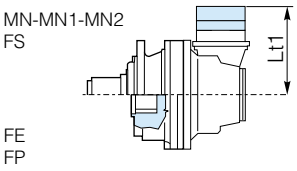


				L	Ø
RL	+	CC40	EC3250	5.323	5.906
			EC4250	5.323	5.906

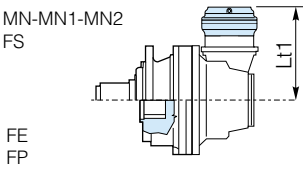


				Lt	
				MN-MN1-MN2 FS-FP	FE
RL	+	S46C1	EM 1250	14.724	14.134
			ED 2250	18.071	17.480
			ET 3250	18.071	17.480

ADDITIONAL PLANETARY STAGE ON BEVEL GEAR



EM1010 - EM1020

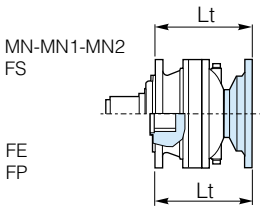


ED2010 - ED2020 - ED2021

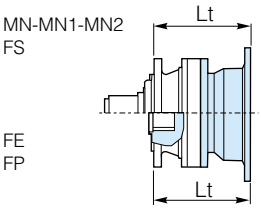
	Lt1					
	EC2250	EC2250*	**EC3250**	EC3250*	**EC4250**	EC4250*
EM1010	14.331	15.630	12.874	13.110	12.874	13.110
EM1020	15.039	16.339	13.583	13.819	13.583	13.819
ED2010	15.866	17.165	14.409	14.646	14.409	14.646
ED2020	17.126	18.425	15.669	15.905	15.669	15.905
ED2021	17.717	19.016	16.260	16.496	16.260	16.496

* bg ⇨ 250 3

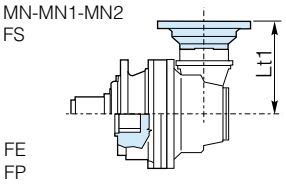
IEC Motor



		Lt 00							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
ED 2250	MN-MN1-MN2-FS	11.417	11.496	11.693	11.732	14.370	15.591	16.024	17.205
ED 2250	FE	10.827	10.905	11.102	11.142	13.780	15.000	15.433	16.614
ED 2250	FP	11.417	11.496	11.693	11.732	14.370	15.591	16.024	17.205
ET 3250	MN-MN1-MN2-FS	13.976	14.055	14.252	14.291	16.929	18.150	18.583	19.764
ET 3250	FE	13.386	13.465	13.661	13.701	16.339	17.559	17.992	19.173
ET 3250	FP	13.976	14.055	14.252	14.291	16.929	18.150	18.583	19.764
EQ 4250	MN-MN1-MN2-FS	16.063	16.142	16.339	16.378	19.016	20.236	20.669	21.850
EQ 4250	FE	15.472	15.551	15.748	15.787	18.425	19.646	20.079	21.260
EQ 4250	FP	16.024	16.102	16.299	16.339	18.976	20.197	20.630	21.811



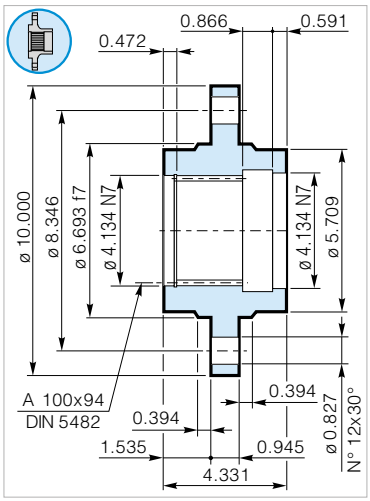
		Lt		
		IEC		
		160 180	200	225
EM 2250	MN-MN1-MN2-FS	11.142	11.142	12.047
EM 2250	FE	10.551	10.551	11.457
EM 2250	FP	11.142	11.142	12.008
ED 2250	MN-MN1-MN2-FS	14.803	15.984	17.165
ED 2250	FE	14.213	15.394	16.575
ED 2250	FP	14.803	15.984	17.165
ET 3250	MN-MN1-MN2-FS	18.150	18.543	19.724
ET 3250	FE	17.559	17.953	19.134
ET 3250	FP	18.150	18.543	19.724



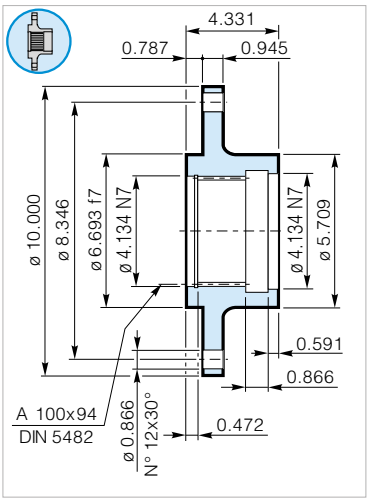
		Lt1 00							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
EC 2250	MN-MN1-MN2 FE-FS-FP	10.905	10.984	11.181	11.220	13.858	15.079	15.512	16.693
EC 2250*		12.205	12.283	12.480	12.520	15.157	16.378	16.811	17.992
EC 3250		9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC 3250*		9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472
EC 4250		9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC 4250*		9.685	9.764	9.961	10.000	12.638	13.858	14.291	15.472

* bg ⇨ 250 3

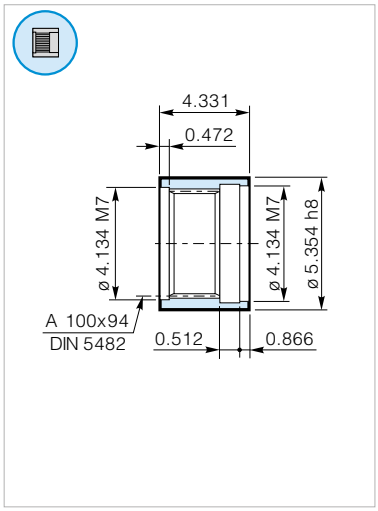
FA 250 MN — Wheel Flange



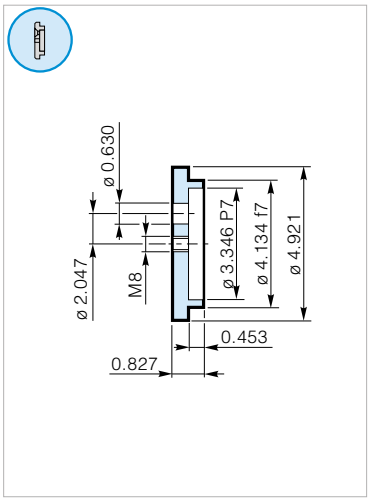
FR 250 MN — Wheel Flange



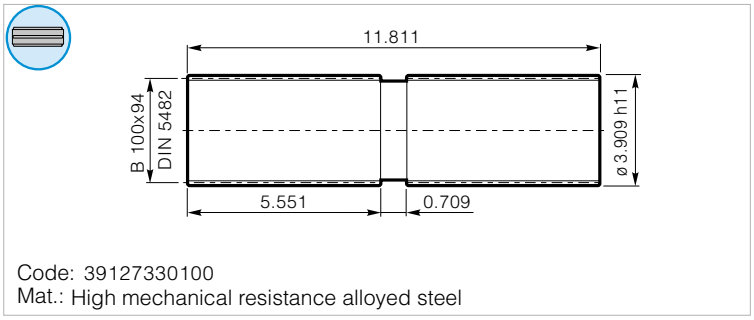
MS 250 MN — Splined Sleeve



RDF 250 MN — Lock Washer

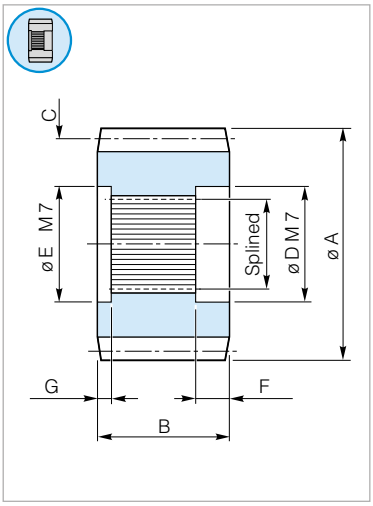


BS 250 FE — Splined Bar



Code: 39127330100
Mat.: High mechanical resistance alloyed steel

MN — Pinions

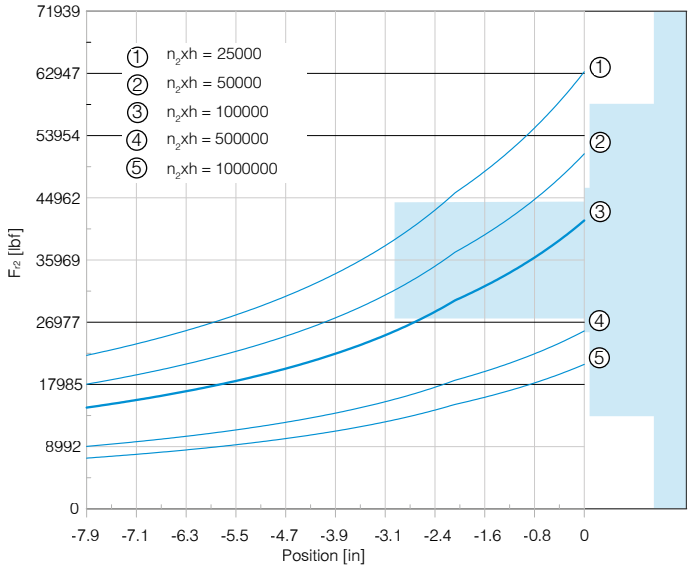


Splined	A	B	C			D	E	F	G
			m	z	x				
A100x94 DIN 5482	7.874	3.268	0.394	0.709	0.000	4.134	4.134	1.457	0.866
	8.031	3.543	0.472	0.591	0.000	4.134	4.134	1.457	0.866
	7.008	4.134	0.394	0.591	0.024	4.134	4.134	1.457	0.866
	9.921	4.724	0.551	0.591	0.020	4.134	4.134	1.457	0.866
	9.921	4.724	0.551	0.591	0.020	4.134	4.134	1.457	0.866

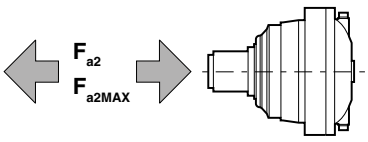
Output Radial Loads

Gearbox Versions:
ED, ET, EQ, EC

MN-MN1-MN2



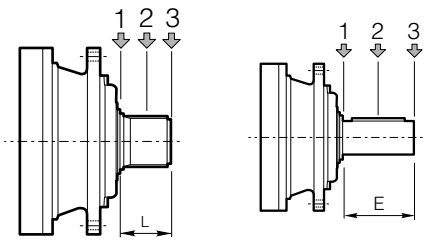
Output Axial Loads



		Flange mounted		PD-PDA
		MN-MN1-MN2	MR-MR1	MR1
F_{a2}	[lbf]	22480	–	–
F_{a2MAX}	[lbf]	22480	–	–

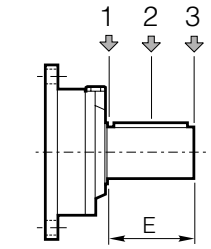
250

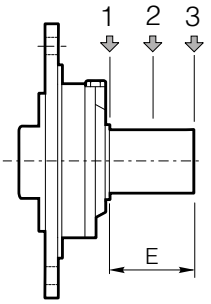
Input Radial Loads

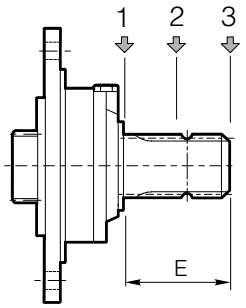


			F_{r1} [lbf]					
			$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	L	E	1	2	3	1	2	3
S-45CR1	-	4.134	2248	1349	899	1124	674	450
S-46C1	-	4.134	3147	1978	1439	1574	989	719
S-45SR	2.677	-	2248	1349	899	1124	674	450
S-65CR1	-	5.118	5350	3484	2158	2675	1753	1079
S-65SR	3.543	-	5350	3484	2158	2675	1753	1079

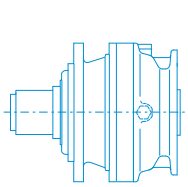
Input Radial Loads



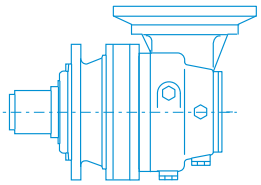


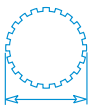
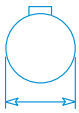
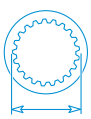
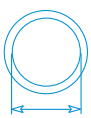
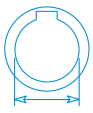


		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	**E**	**1**	**2**	**3**	**1**	**2**	**3**
SU 42x80	3.150	674	450	337	315	225	157
SU1 28x50	1.969	674	450	337	315	225	157
SU2 40x58	2.283	674	450	337	315	225	157
SU3 48x82	3.228	674	450	337	315	225	157
SUS 1 3/8”	3.819	629	405	337	292	202	135
SU2 1 1/2”x 3 1/4”	3.250	674	450	337	315	225	157
SUF1 28x50	1.969	674	450	337	315	225	157
SUF2 40x58	2.283	674	450	337	315	225	157
SUF3 48x82	3.228	674	450	337	315	225	157



255



i_{eff}	16.48 - 2744
T_{2N}	14750 ftlb
	B100X94 DIN5482
	4.330 in
	B100X94 DIN5482
	5.118 in
	4.330 in

TECHNICAL DATA

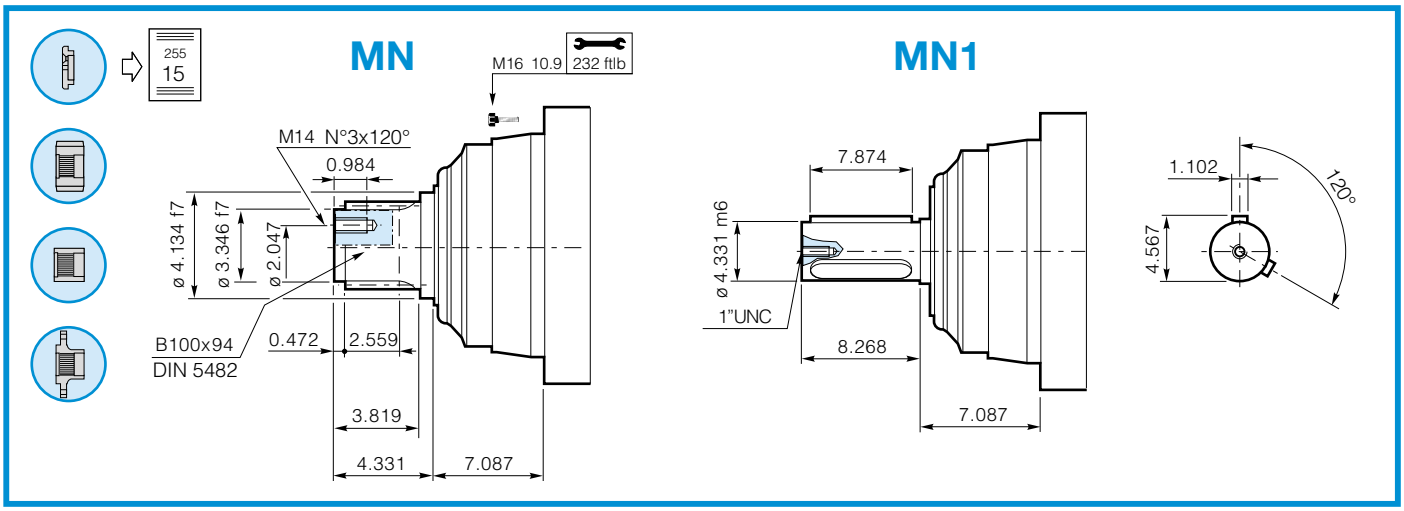
10000
hours life

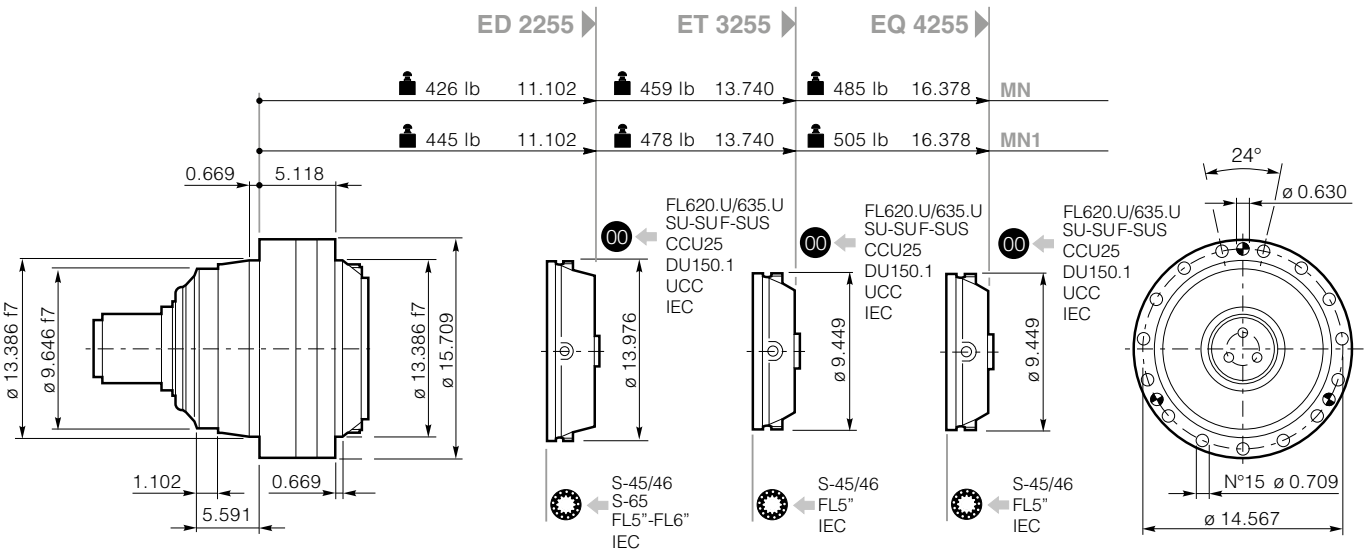
i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
ED 2255												
16.48	91	7542	130.1	61	8517	97.9	30.3	10487	60.6			
20.40	74	8040	112.6	49	9080	84.5	24.5	11179	52.2			
23.47	64	8385	101.9	42.6	9470	76.4	21.3	11659	47.3			
25.86	58	8330	92.5	38.7	9408	69.7	19.3	11582	42.6			
27.96	54	8837	89.8	35.8	9981	68.4	17.9	12287	41.8			
29.75	50	8688	83.1	33.6	9812	62.8	16.8	12080	38.6	2500	25813	40.2
30.30	49.5	8624	81.8	33	9739	61.1	16.5	10596	33.3			
35.43	42.3	9156	73.8	28.2	10340	55.5	14.1	12730	34.2			
41.52	36.1	9479	65.2	24.1	10245	46.9	12	10890	24.9			
44.54	33.7	9807	62.9	22.5	11075	47.3	11.2	12823	27.4			
52.20	28.7	10080	55.1	19.2	10458	38.1	9.6	11105	20.2			
ET 3255												
57.69	26	10983	54.3	17.3	12403	40.9	8.7	15100	24.9			
68.08	22	11542	48.4	14.7	13035	36.5	7.3	15595	21.9			
71.41	21	11709	46.8	14	13223	35.3	7	15740	21.1			
84.26	17.8	12304	41.7	11.9	13896	31.4	5.9	16252	18.4			
90.50	16.6	12130	38.4	11.1	13692	28.8	5.5	14828	15.6			
105.5	14.2	13162	35.7	9.5	14864	26.8	4.7	16965	15.3			
115.5	13	13524	33.4	8.7	14654	24.1	4.3	15696	13.0			
122.4	12.3	13763	32.0	8.2	15275	23.7	4.1	17450	13.5			
144.5	10.4	14378	28.4	6.9	14994	19.7	3.5	16033	10.6	3000	25813	26.8
155.1	9.7	13845	25.5	6.4	14386	17.7	3.2	16452	10.1			
183.2	8.2	14035	21.9	5.5	14863	15.4	2.7	16979	8.9			
202.7	7.4	14892	21.1	4.9	15501	14.6	2.5	16542	7.8			
230.3	6.5	13706	17.0	4.3	14351	11.8	2.2	15454	6.4			
256.9	5.8	14669	16.4	3.9	15868	11.8	1.9	18092	6.7			
267.3	5.6	13943	14.9	3.7	14587	10.5	1.9	15693	5.6			
322.9	4.6	14244	12.6	3.1	14887	8.7	1.5	15998	4.7			
EQ 4255												
346.1	4.3	17256	14.2	2.9	18620	10.2	1.4	21151	5.8			
404.1	3.7	15927	11.3	2.5	16538	7.8	1.2	17598	4.2			
435.6	3.4	18020	11.8	2.3	19431	8.4	1.1	22050	4.8			
505.6	3	18528	10.5	2	19971	7.5	0.99	22649	4.3			
545.3	2.8	18791	9.8	1.8	20250	7.1	0.92	22958	4.0			
632.9	2.4	19317	8.7	1.6	20809	6.3	0.79	23577	3.5			
734.5	2	19854	7.8	1.4	21379	5.5	0.68	24211	3.1			
802.1	1.9	18227	6.4	1.2	19647	4.7	0.62	22283	2.7			
887.5	1.7	20554	6.6	1.1	22124	4.7	0.56	25036	2.7			
969.1	1.5	18879	5.6	1	20340	4.0	0.52	23052	2.3	3000	25813	20.1
1125	1.3	19405	5.0	0.89	20899	3.5	0.44	23672	2.0			
1275	1.2	19859	4.4	0.78	21381	3.2	0.39	24207	1.7			
1382	1.1	16578	3.5	0.72	17251	2.4	0.36	20178	1.3			
1541	0.97	20558	3.8	0.65	22124	2.7	0.32	25031	1.6			
1862	0.81	21277	3.2	0.54	22888	2.3	0.27	25813	1.3			
1938	0.77	17138	2.5	0.52	18607	1.9	0.26	21754	1.1			
2341	0.64	17690	2.1	0.43	19435	1.6	0.21	22671	0.9			
2744	0.55	18089	1.9	0.36	19469	1.3	0.18	22034	0.8			

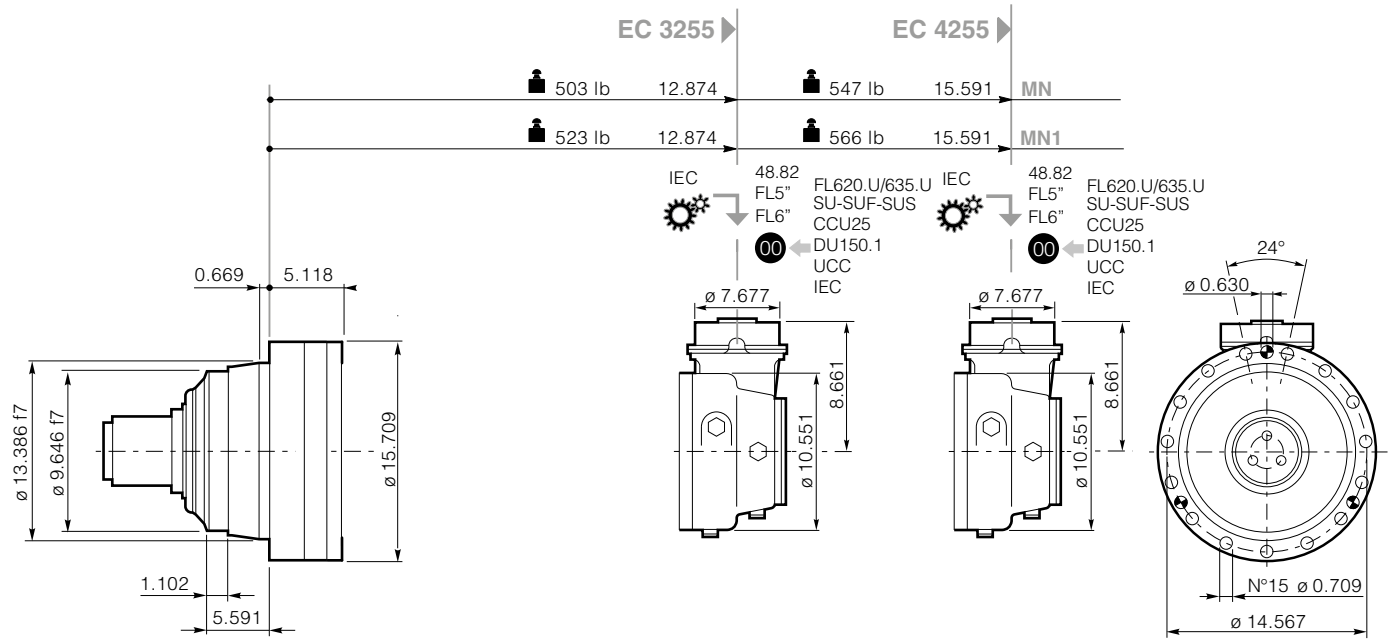
10000 hours life

i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EC 3255												
49.45	30.3	8225	47.5	20.2	9289	35.8	10.1	11436	22.0			
61.21	24.5	10180	47.5	16.3	11497	35.8	8.2	14154	22.0			
70.42	21.3	11659	47.3	14.2	13167	35.7	7.1	15698	21.2			
77.57	19.3	11582	42.6	12.9	13080	32.0	6.4	14386	17.7			
94.26	15.9	6803	20.7	10.6	7683	15.6	5.3	9459	9.5			
96.51	15.5	6966	20.7	10.4	7867	15.6	5.2	9686	9.5	3000	25813	18.8
108.4	13.8	7827	20.7	9.2	8840	15.6	4.6	10883	9.5			
129.2	11.6	9323	20.7	7.7	10529	15.6	3.9	12962	9.5			
137.4	10.9	9920	20.7	7.3	11203	15.6	3.6	13793	9.5			
163.7	9.2	11815	20.7	6.1	13344	15.6	3.1	16428	9.5			
205.8	7.3	13526	18.8	4.9	14173	13.1	2.4	15274	7.1			
EC 4255												
266.5	5.6	16417	17.6	3.8	17732	12.6	1.9	20166	7.2			
314.5	4.8	16945	15.4	3.2	18291	11.1	1.6	20785	6.3			
346.4	4.3	15696	13.0	2.9	16305	9.0	1.4	17360	4.8			
389.3	3.9	17642	13.0	2.6	19031	9.3	1.3	21606	5.2			
456.9	3.3	18182	11.4	2.2	19603	8.2	1.1	22240	4.7			
487.3	3.1	18401	10.7	2.1	19837	7.8	1	22499	4.4			
565.5	2.7	18918	9.5	1.8	20385	6.8	0.88	23108	3.9			
650.7	2.3	19416	8.6	1.5	20914	6.2	0.77	23694	3.5			
683.4	2.2	19592	8.2	1.5	21101	5.9	0.73	23902	3.4	3000	25813	13.4
786.2	1.9	20104	7.2	1.3	21644	5.2	0.64	24505	3.0			
936.4	1.6	17200	5.2	1.1	18017	3.6	0.53	20827	2.1			
982.1	1.5	18926	5.5	1	20389	3.9	0.51	23107	2.3			
1064	1.4	16150	4.3	0.94	16815	3.0	0.47	19013	1.7			
1187	1.3	19598	4.7	0.84	21104	3.4	0.42	23899	1.9			
1492	1	16704	3.2	0.67	17502	2.3	0.34	20529	1.3			
1748	0.86	16651	2.7	0.57	17940	2.0	0.29	20336	1.1			

GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 | S-45/46 48.82 255 9 | SU-SUF SUS 255 10 | FL5"- FL6' FL620 FL635 255 11 | IEC 255 14 | 255 13 | CCU25 B 16 | DU150.1 UCC B 17

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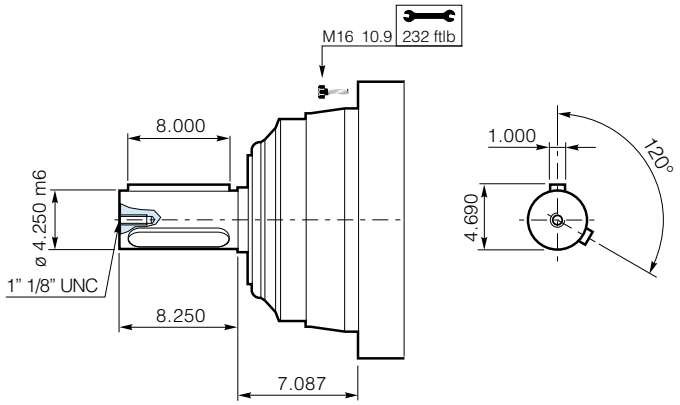
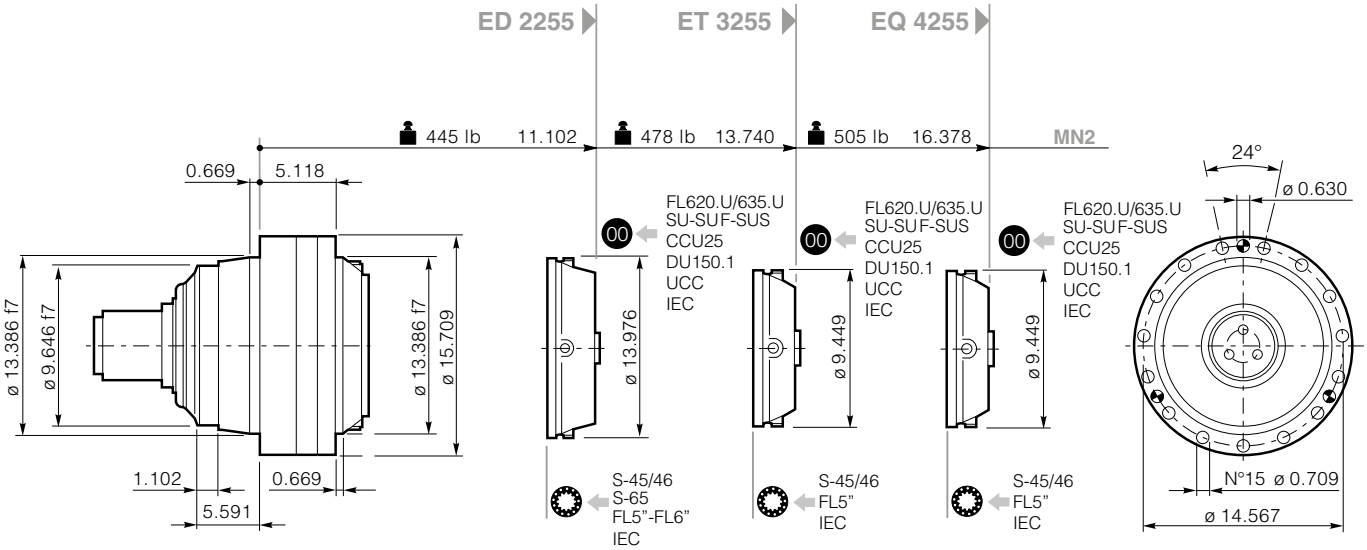
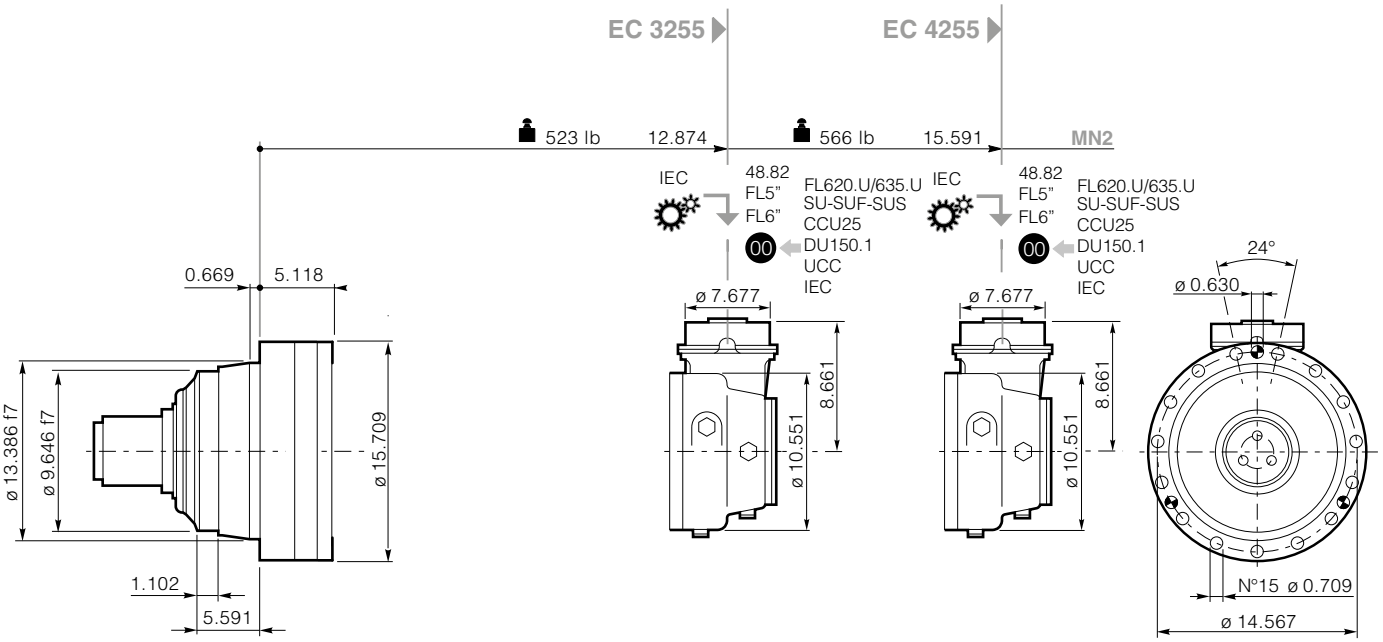
255
15







00 B 14
S-45/46 48.82 255 9
SU-SUF SUS 255 10
FL5"- FL6' FL620 FL635 255 11
IEC 255 14
255 13
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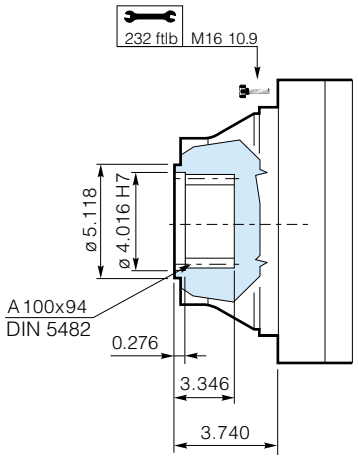
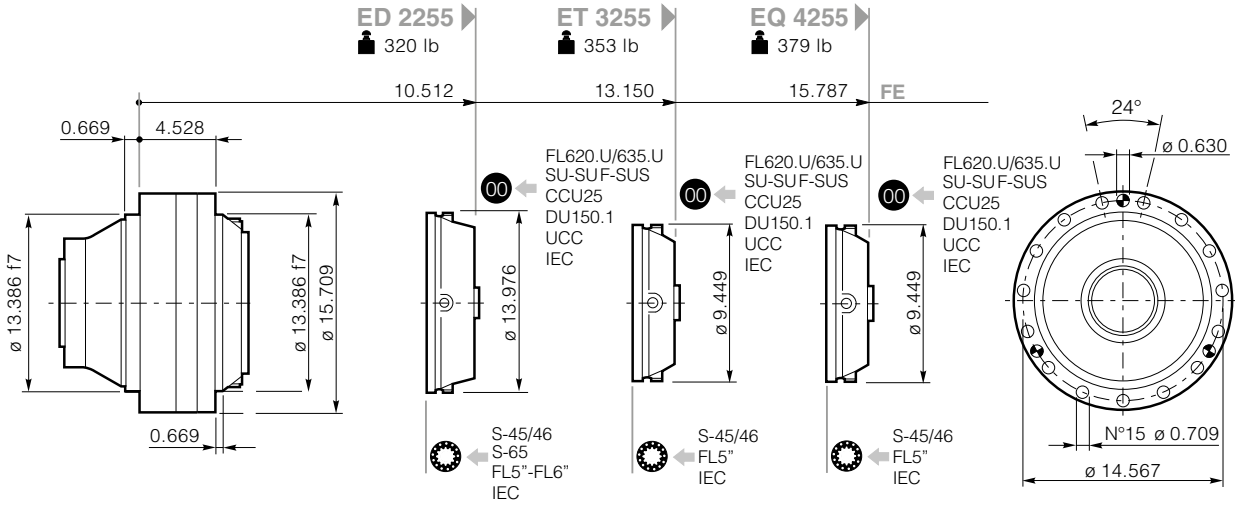
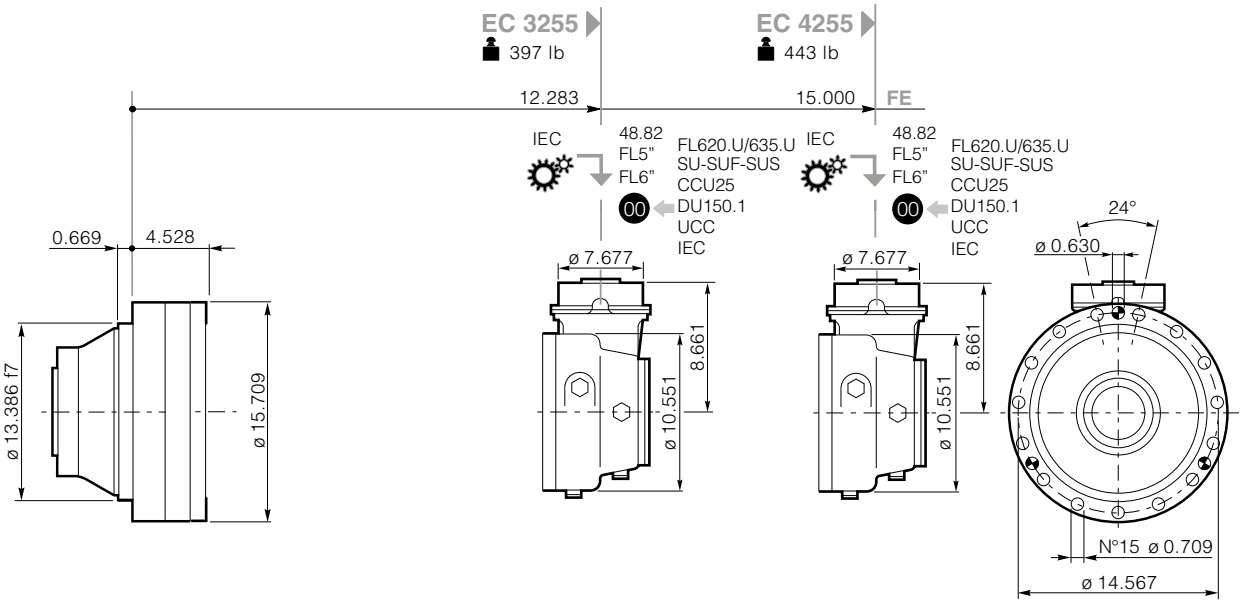
GEARBOX DIMENSIONS WITH OUTPUT

255 15







00 B 14 | S-45/46 48.82 255 9 | SU-SUF SUS 255 10 | FL5"- FL6' FL620 FL635 255 11 | IEC 255 14 | 255 13 | CCU25 B 16 | DU150.1 UCC B 17

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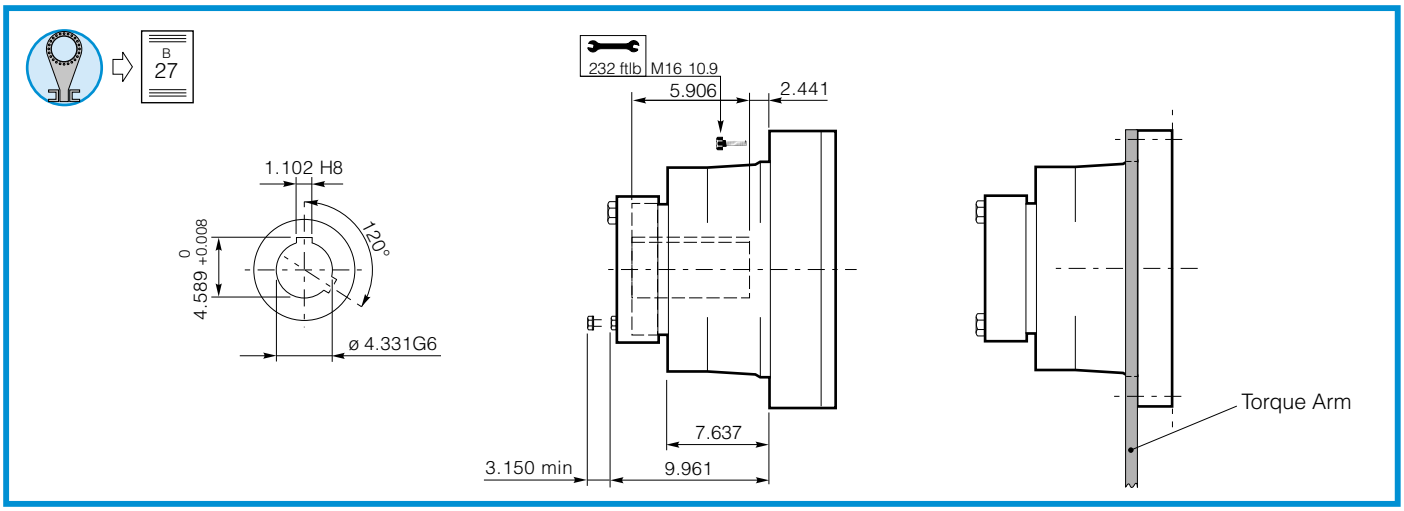

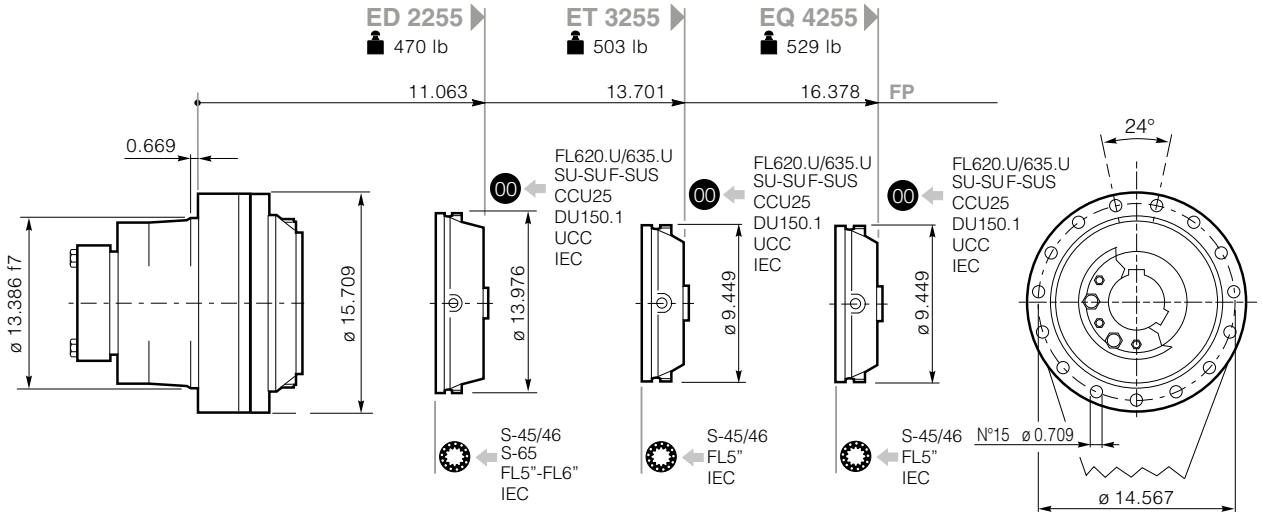

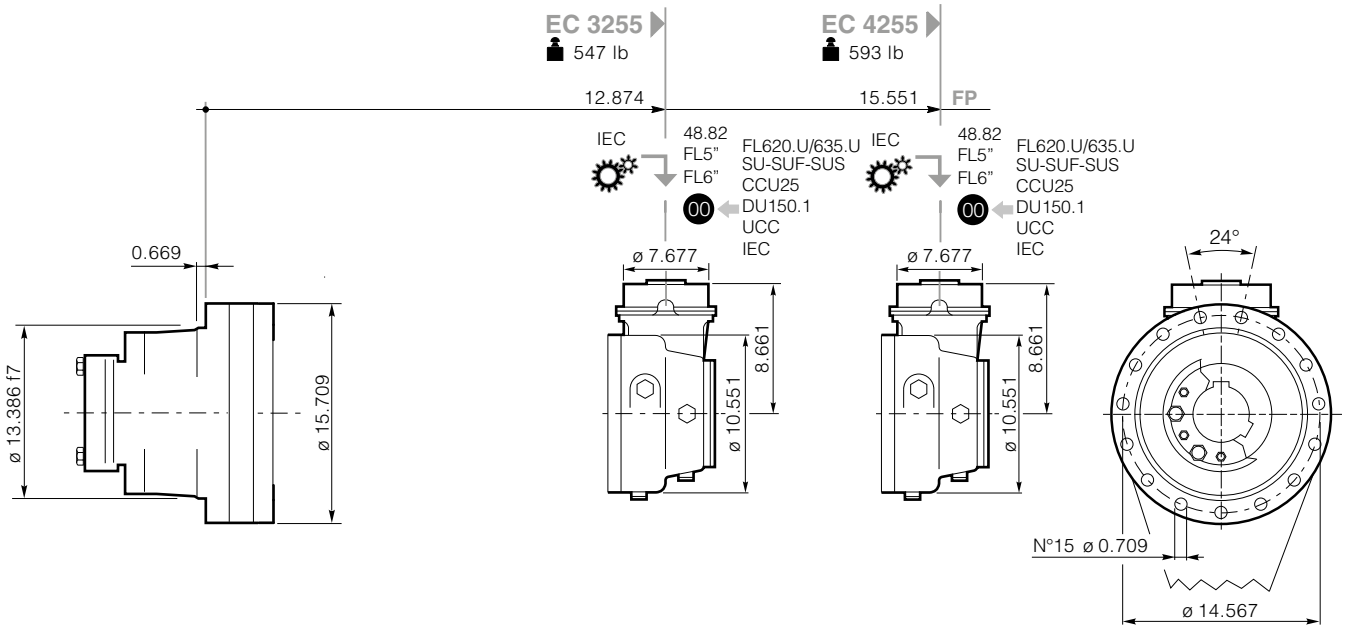

00 B 14 | S-45/46 48.82 255 9 | SU-SUF SUS 255 10 | FL5"- FL6' FL620 FL635 255 11 | IEC 255 14 | 255 13 | CCU25 B 16 | DU150.1 UCC B 17

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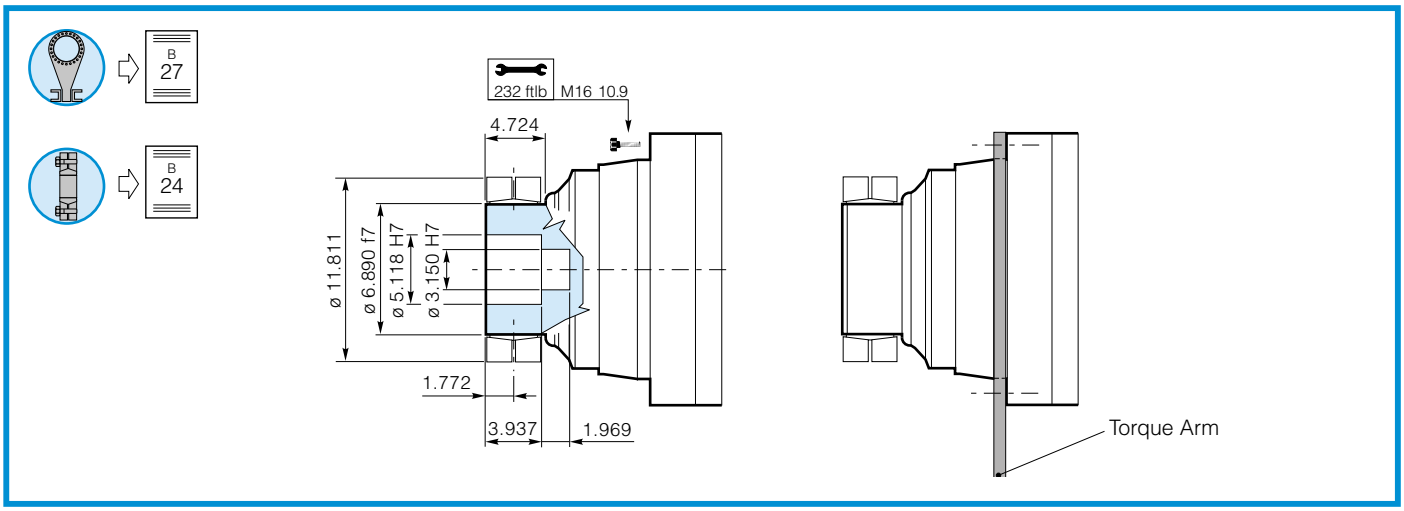
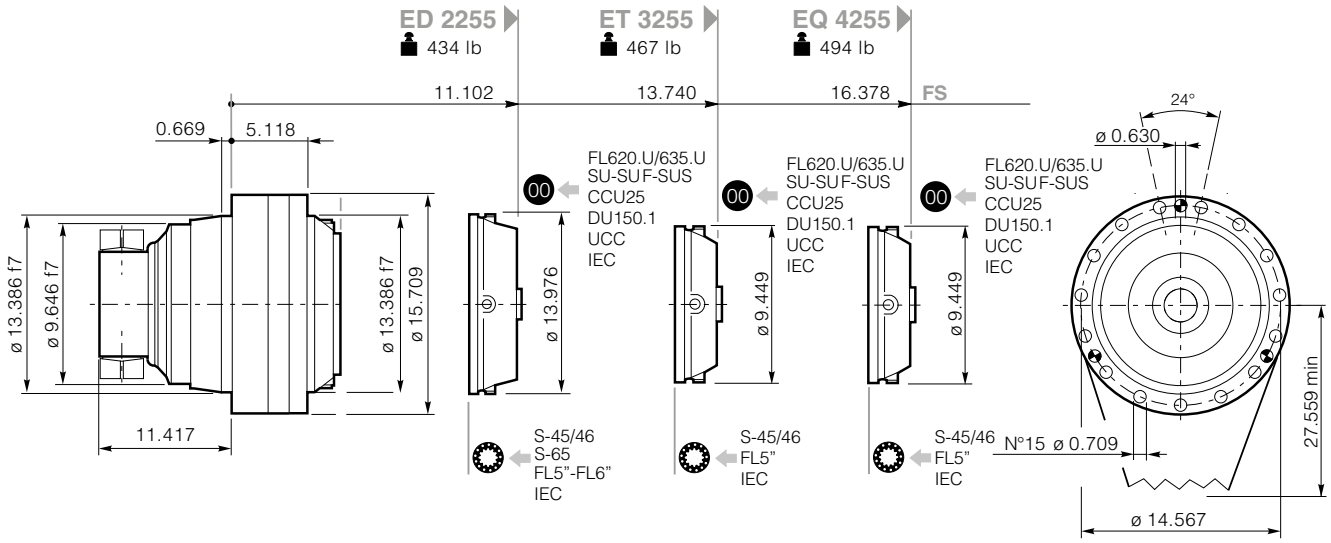
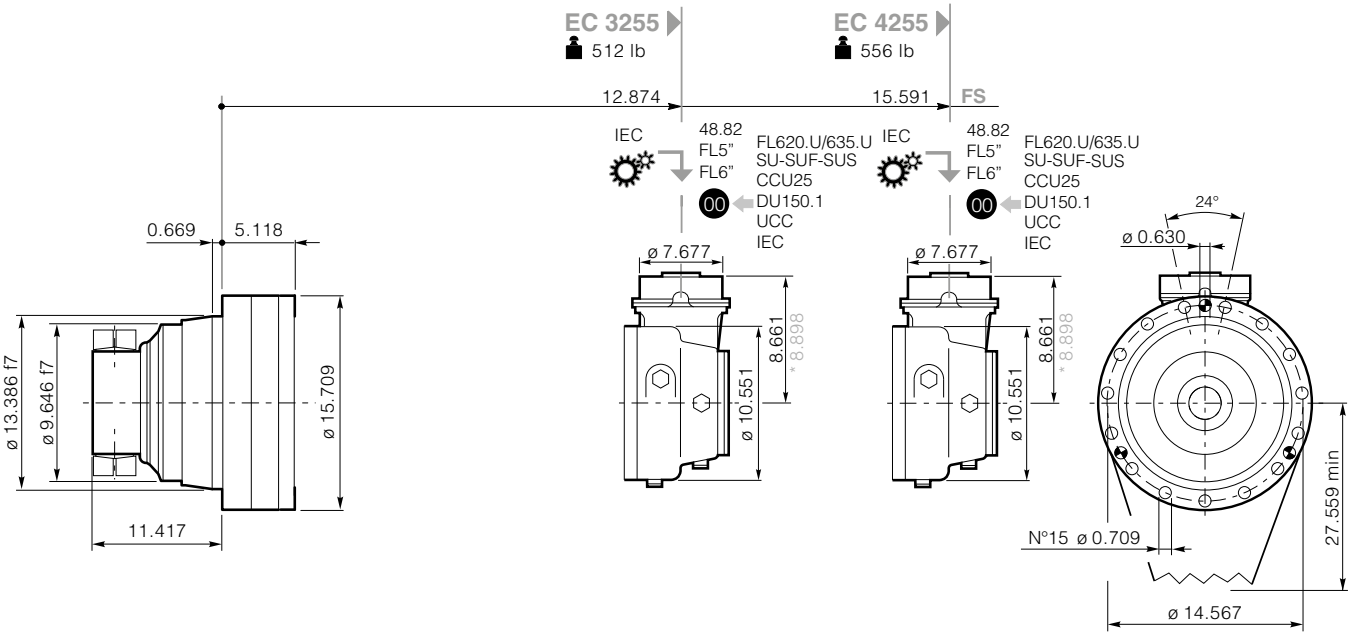
GEARBOX DIMENSIONS WITH OUTPUT







00 B 14 | S-45/46 48.82 255 9 | SU-SUF SUS 255 10 | FL5"- FL6' FL620 FL635 255 11 | IEC 255 14 | 255 13 | CCU25 B 16 | DU150.1 UCC B 17

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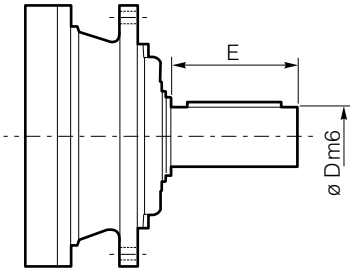
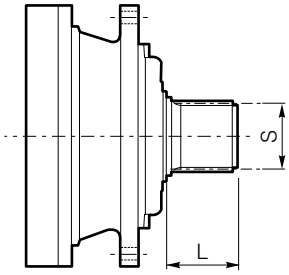
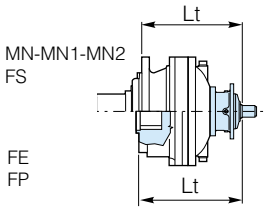
S-45CR1 - S-46C1 - S-45SR - S-65CR1 - S-65SR



S-45CR1 - S-46C1 - S-65CR1

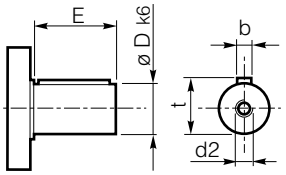


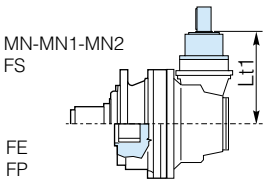
S-45SR - S-65SR



	D m6	E	L	S DIN5482		Lt		
						MN-MN1-MN2-FS	FE	FP
S-45CR1	2.559	4.134	-	-	ED 2255	16.181	15.591	16.181
					ET 3255	16.181	15.591	16.181
					EQ 4255	18.858	18.268	18.819
S-46C1	2.559	4.134	-	-	ED 2255	17.795	17.244	17.795
					ET 3255	17.795	17.244	17.795
					EQ 4255	20.472	19.882	20.472
S-45SR	-	-	2.677	B58x53	ED 2255	16.181	15.591	16.181
					ET 3255	16.181	15.591	16.181
					EQ 4255	18.858	18.268	18.819
S-65CR1	3.150	5.118	-	-	ED 2255	17.756	17.165	17.717
S-65SR	-	-	3.543	B70x64	ED 2255	17.756	17.165	17.717

48.82

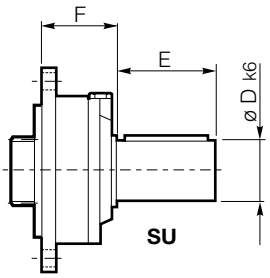


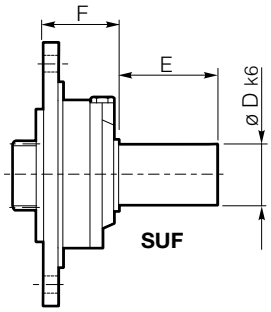


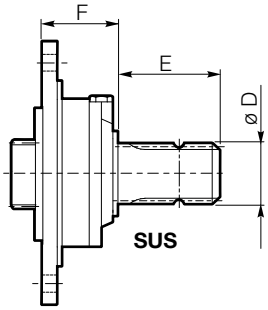
	D	E		Lt1
				MN-MN1-MN2-FS-FE-FP
48.82	1.890	3.228	EC 3255	11.024
			EC 4255	11.024

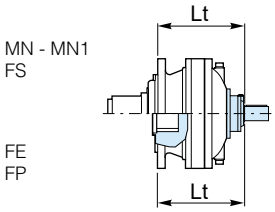
For the input configuration S46C1, S65CR1, 48.82 (CC40 - CC41), FL5" can be fitted with an anti-return device.
For further information and technical data, contact Dana Sale Technical Support

SU - SUF - SUS





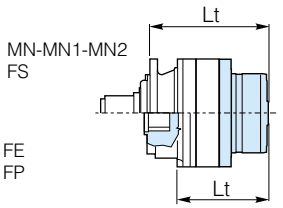


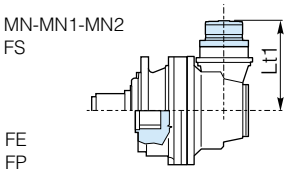


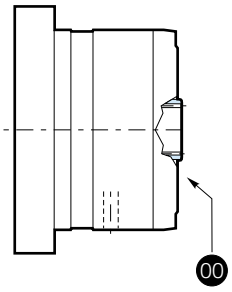
	D	E	F		Lt 00	
					MN-MN1-MN2 FS-FP	FE
SU1 28x50	1.102	1.969	2.362	ED 2255	13.465	12.874
				ET 3255	16.102	15.512
				EQ 4255	18.740	18.150
SU2 40x58	1.575	2.283	2.362	ED 2255	13.465	12.874
				ET 3255	16.102	15.512
				EQ 4255	18.740	18.150
SU3 48x82	1.890	3.228	2.362	ED 2255	13.465	12.874
				ET 3255	16.102	15.512
				EQ 4255	18.740	18.150
SU 42x80	1.654	3.150	3.996	ED 2255	15.079	14.488
				ET 3255	17.717	17.126
				EQ 4255	20.394	19.803
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	ED 2255	15.079	14.488
				ET 3255	17.717	17.126
				EQ 4255	20.394	19.803
SU2 1.5x3.25	1.500	3.250	2.362	ED 2255	15.079	14.488
				ET 3255	17.717	17.126
				EQ 4255	20.394	19.803
SUF1 28x50	1.102	1.969	2.362	ED 2255	13.465	12.874
				ET 3255	16.102	15.512
				EQ 4255	18.740	18.150
SUF2 40x58	1.575	2.283	2.362	ED 2255	13.465	12.874
				ET 3255	16.102	15.512
				EQ 4255	18.740	18.150
SUF3 48x82	1.890	3.228	2.362	ED 2255	13.465	12.874
				ET 3255	16.102	15.512
				EQ 4255	18.740	18.150

	D	E	F		Lt1 00	
					MN-MN1-MN2 FS-FP	FE
SU1 28x50	1.102	1.969	2.362	EC 3255	11.024	11.024
				EC 4255	11.024	11.024
SU2 40x58	1.575	2.283	2.362	EC 3255	11.024	11.024
				EC 4255	11.024	11.024
SU3 48x82	1.890	3.228	2.362	EC 3255	11.024	11.024
				EC 4255	11.024	11.024
SU 42x80	1.654	3.150	3.996	EC 3255	12.677	12.677
				EC 4255	12.677	12.677
SUS 1 3/8”	1 3/8” DIN9611	3.819	3.996	EC 3255	12.677	12.677
				EC 4255	12.677	12.677
SU2 1.5x3.25	1.500	3.250	2.362	EC 3255	11.024	11.024
				EC 4255	11.024	11.024
SUF1 28x50	1.102	1.969	2.362	EC 3255	11.024	11.024
				EC 4255	11.024	11.024
SUF2 40x58	1.575	2.283	2.362	EC 3255	11.024	11.024
				EC 4255	11.024	11.024
SUF3 48x82	1.890	3.228	2.362	EC 3255	11.024	11.024
				EC 4255	11.024	11.024

FL5” FL6” FL250 - FL350 - FL450 / FL650 - FL750



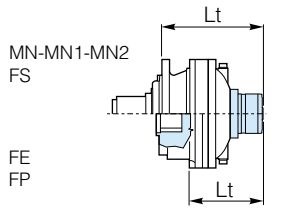


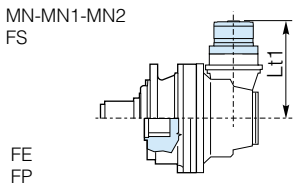


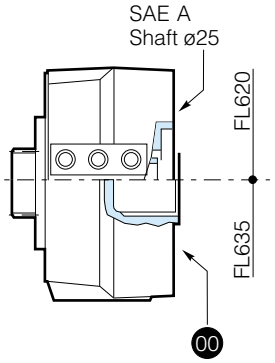
		Lt		
		MN-MN1-MN2-FS	FE	FP
FL250 FL350 FL450	ED 2255	15.000	14.409	15.000
	ET 3255	17.402	16.811	17.402
	EQ 4255	20.079	23.425	20.039
FL650 FL750	ED 2255	15.551	14.961	15.551
	ET 3255	17.953	17.362	17.913
	EQ 4255	20.591	20.000	20.591
FL960	ED 2255	16.102	15.512	16.102
	ET 3255	19.016	18.425	18.976

		Lt1		
		MN-MN1-MN2-FS	FE	FP
FL250 FL350 FL450	EC 3255	11.024	11.024	11.024
	EC 4255	11.024	11.024	11.024
FL650 FL750	EC 3255	11.575	11.575	11.575
	EC 4255	11.575	11.575	11.575

FL620.10 - FL635.10 / FL620.U - FL635.U







		Lt		
		MN-MN1-MN2-FS	FE	FP
FL620.U	ED 2255	15.197	14.606	15.197
	ET 3255	17.835	17.244	17.835
	EQ 4255	20.512	19.921	20.472
FL635.U	ED 2255	14.685	14.094	14.646
	ET 3255	17.323	16.732	17.283
	EQ 4255	19.961	19.370	19.961

		Lt1		
		MN-MN1-MN2-FS	FE	FP
FL620.U	EC 3255	12.795	12.795	12.795
	EC 4255	12.795	12.795	12.795
FL635.U	EC 3255	12.244	12.244	12.244
	EC 4255	12.244	12.244	12.244

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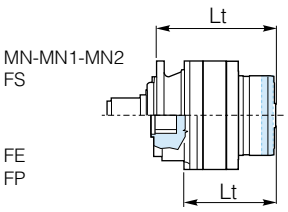
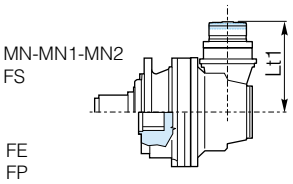
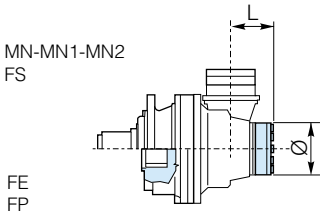
RL



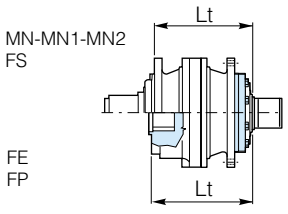


				Lt		
				MN-MN1-MN2 FS	FE	FP
RL	+	FL250 FL350 FL450	ED 2255	16.024	15.433	16.024
			ET 3255	18.425	17.835	18.425
			EQ 4255	21.102	20.512	21.063
		FL650 FL750	ED 2255	16.575	15.984	16.575
			ET 3255	18.976	18.386	18.937
			EQ 4255	21.614	21.024	21.614
		FL960	ED 2255	17.126	16.535	17.126
			ET 3255	20.039	19.449	20.000

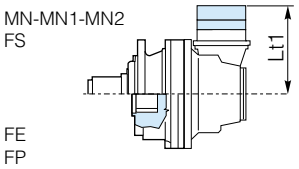
				Lt1
				MN-MN1-MN2-FS-FP-FE
RL	+	FL250 FL350 FL450	EC 3255	12.047
			EC 4255	12.047
		FL650 FL750	EC 3255	12.559



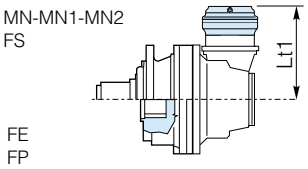
				L	Ø
RL	+	CC40	EC3255	5.323	5.906
			EC4255	5.323	5.906



				Lt		
				MN-MN1-MN2 FS	FE	FP
RL	+	S46C1	ED 2255	18.602	18.012	18.583
			ET 3255	18.602	18.012	18.583
			EQ 3255	21.220	20.630	21.201



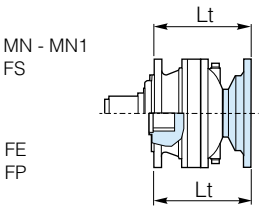
EM1010 - EM1020



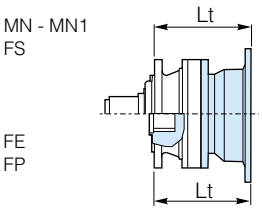
ED2010 - ED2020 ED2021

		Lt1	
		EC3255	**EC4255**
	EM1010	12.874	12.874
	EM1020	13.583	13.583
	ED2010	14.409	14.409
	ED2020	15.669	15.669
	ED2021	16.260	16.260

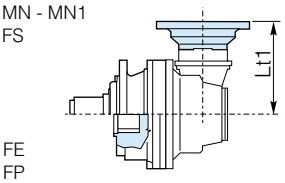
IEC Motor



		Lt 00							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
ED 2255	MN-MN1-MN2-FS-FP	11.890	11.968	12.165	12.205	14.842	16.063	16.496	17.677
ED 2255	FE	11.299	11.378	11.575	11.614	14.252	15.472	15.905	17.087
ET 3255	MN-MN1-MN2-FS-FP	14.528	14.606	14.803	14.842	17.480	18.701	19.134	20.315
ET 3255	FE	13.937	14.016	14.213	14.252	16.890	18.110	18.543	19.724
EQ 4255	MN-MN1-MN2-FS-FP	17.165	17.244	17.441	17.480	20.118	21.339	21.772	22.953
EQ 4255	FE	16.575	16.654	16.850	16.890	19.528	20.748	21.181	22.362

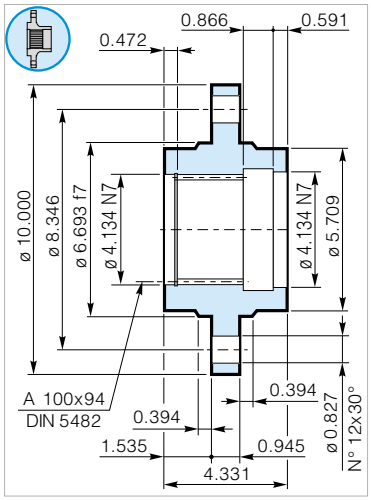


		Lt		
		IEC		
		160 180	200	225
ED 2255	MN-MN1-MN2-FS-FP	15.039	16.575	15.905
ED 2255	FE	14.449	15.984	15.315
ET 3255	MN-MN1-MN2-FS-FP	18.701	19.094	20.276
ET 3255	FE	18.110	18.504	19.685
EQ 4255	MN-MN1-MN2-FS-FP	21.339	21.732	-
EQ 4255	FE	20.748	21.142	-

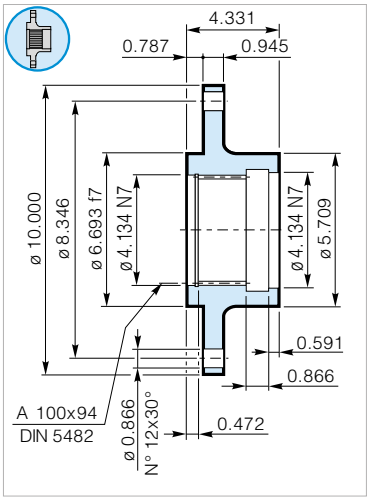


		Lt1 00							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
EC 3255	MN-MN1-MN2-FE-FS-FP	9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236
EC 4255	MN-MN1-MN2-FE-FS-FP	9.449	9.528	9.724	9.764	12.402	13.622	14.055	15.236

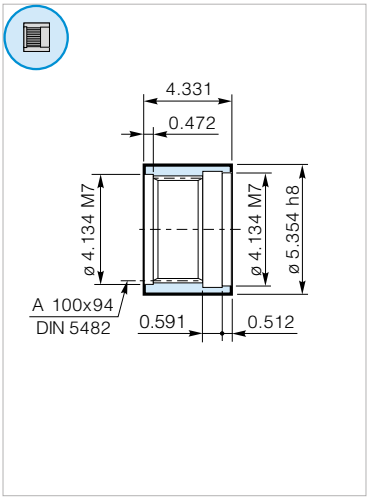
FA 255 MN — Wheel Flange



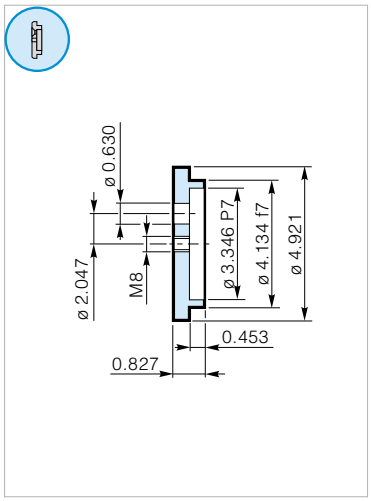
FR 255 MN — Wheel Flange



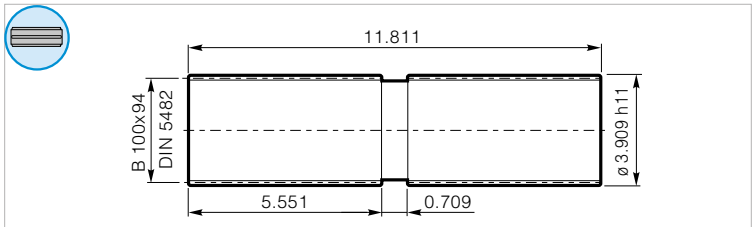
MS 255 MN — Splined Sleeve



RDF 255 MN — Lock Washer

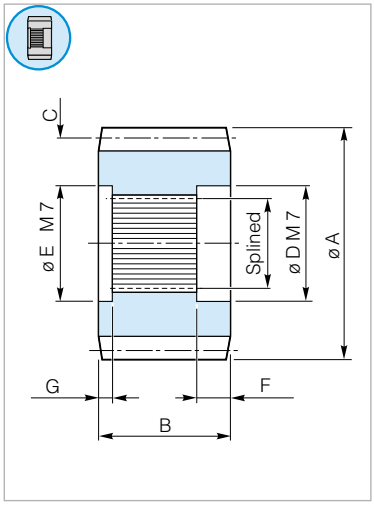


BS 255 FE — Splined Bar



Code: 39127330100
Mat.: High mechanical resistance alloyed steel

MN — Pinions



Splined	A	B	C			D	E	F	G
			m	z	x				
A100x94 DIN 5482	7.874	3.268	0.394	0.709	0.000	4.134	4.134	1.457	0.866
	8.031	3.543	0.472	0.591	0.000	4.134	4.134	1.457	0.866
	7.008	4.134	0.394	0.591	0.024	4.134	4.134	1.457	0.866
	9.921	4.724	0.551	0.591	0.020	4.134	4.134	1.457	0.866
	9.921	4.724	0.551	0.591	0.020	4.134	4.134	1.457	0.866

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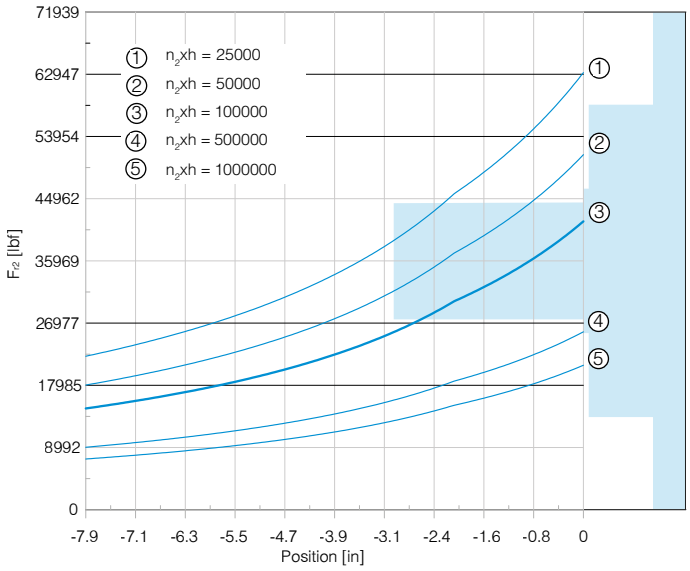
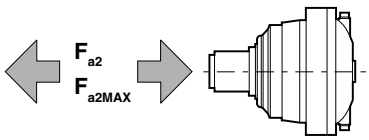
Output Radial Loads

Gearbox Versions:
ED, ET, EQ, EC

MN-MN1-MN2

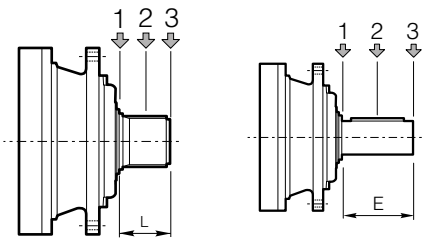


Output Axial Loads



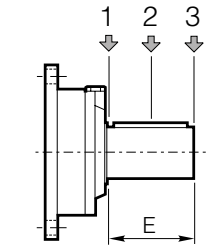
		Flange mounted		PD-PDA
		MN-MN1-MN2	MR-MR1	MR1
F_{a2}	[lbf]	22480	–	–
F_{a2MAX}	[lbf]	22480	–	–

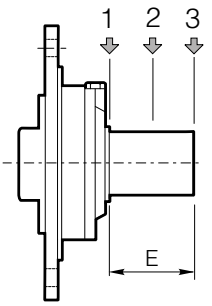
Input Radial Loads

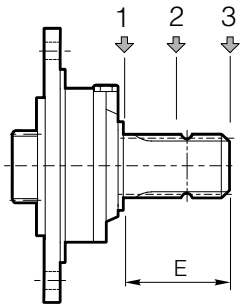


			F_{r1} [lbf]					
			$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	L	E	1	2	3	1	2	3
S-45CR1	-	4.134	2248	1349	899	1124	674	450
S-46C1	-	4.134	3147	1978	1439	1574	989	719
S-45SR	2.677	-	2248	1349	899	1124	674	450
S-65CR1	-	5.118	5350	3484	2158	2675	1753	1079
S-65SR	3.543	-	5350	3484	2158	2675	1753	1079

Input Radial Loads

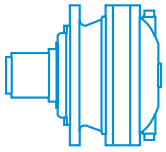




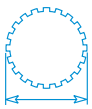
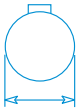
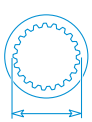
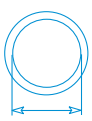


		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	**E**	**1**	**2**	**3**	**1**	**2**	**3**
SU 42x80	3.150	674	450	337	315	225	157
SU1 28x50	1.969	674	450	337	315	225	157
SU2 40x58	2.283	674	450	337	315	225	157
SU3 48x82	3.228	674	450	337	315	225	157
SUS 1 3/8”	3.819	629	405	337	292	202	135
SU2 1 1/2”x 3 1/4”	3.250	674	450	337	315	225	157
SUF1 28x50	1.969	674	450	337	315	225	157
SUF2 40x58	2.283	674	450	337	315	225	157
SUF3 48x82	3.228	674	450	337	315	225	157

DANA
BREVINI®
Motion Systems



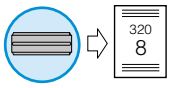
320

i_{eff}	19.95 - 245.3
T_N	18438 ftlb
	-
	-
	B100X94 DIN5482
	-

TECHNICAL DATA

10000 hours life

i_{eff}	1500			1000			500			n_{1MAX}	T_{2MAX}	P_T
	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	n_2 [rpm]	T_2 [ftlb]	P_2 [HP]	[rpm]	[ftlb]	[HP]
EM 1320												
4.89	307	6800	396.9	204	7680	299.0	102	9455	183.7	2500	30975	40.2
ED 2320												
19.95	75	10369	148.9	50	11709	111.3	25.1	14416	68.4			
24.69	61	11015	127.4	40.5	12439	96.6	20.2	15315	59.0			
28.41	53	11261	112.6	35.2	12717	85.8	17.6	15656	52.4	2500	25813	40.2
33.84	44.3	11709	99.2	29.6	13224	73.8	14.8	16281	45.9			
42.54	35.3	10345	69.7	23.5	11098	49.6	11.8	12247	27.4			
ET 3320												
69.83	21.5	15098	61.8	14.3	17052	46.5	7.2	18133	24.7			
82.40	18.2	15867	55.0	12.1	17344	40.1	6.1	18384	21.2			
86.43	17.4	16040	53.0	11.6	17415	38.4	5.8	18456	20.4			
103.2	14.5	16973	46.9	9.7	17679	32.6	4.8	18949	17.4			
117.3	12.8	17233	42.0	8.5	17871	29.0	4.3	19440	15.8			
127.7	11.8	17392	38.9	7.8	17998	26.8	3.9	19766	14.8	3000	25813	26.8
148.2	10.1	17614	33.9	6.8	18222	23.5	3.4	20354	13.1			
170.5	8.8	17823	29.9	5.9	18435	20.7	2.9	20917	11.7			
179.0	8.4	17897	28.6	5.6	18510	19.7	2.8	21118	11.3			
206.0	7.3	18108	25.1	4.9	18943	17.6	2.4	21697	10.1			
245.3	6.1	18026	21.1	4.1	18763	14.6	2	20022	7.8			
EQ 4320												
215.1	6.97	18173	24.1	4.65	19106	16.9	2.32	21879	9.7			
253.8	5.91	18424	20.8	3.94	19743	14.8	1.97	22584	8.4			
266.2	5.63	18497	19.8	3.76	19930	14.2	1.88	22791	8.2			
288.4	5.2	18684	18.5	3.47	20246	13.4	1.73	23141	7.6			
317.7	4.72	19048	17.2	3.15	20632	12.3	1.57	23569	7.1			
368.7	4.07	19619	15.2	2.71	21238	11.0	1.36	24240	6.3			
419.0	3.58	20119	13.7	2.39	21769	9.9	1.19	24829	5.6			
456.4	3.29	20458	12.7	2.19	22129	9.3	1.1	25228	5.2			
527.3	2.84	21042	11.4	1.9	22749	8.2	0.95	25916	4.7			
551.4	2.72	21226	11.0	1.81	22944	7.9	0.91	26132	4.6			
660.1	2.27	21975	9.5	1.52	23739	6.8	0.76	27015	3.9	3000	30975	20.1
747.8	2.01	22507	8.6	1.34	24304	6.2	0.67	27642	3.5			
766.0	1.96	22610	8.4	1.31	24414	6.0	0.65	27763	3.5			
925.6	1.62	23438	7.2	1.08	25294	5.2	0.54	28740	3.0			
1048.7	1.43	23998	6.6	0.95	25888	4.7	0.48	29400	2.7			
1074.2	1.4	24107	6.4	0.93	26004	4.6	0.47	29529	2.7			
1298.0	1.16	24978	5.5	0.77	26931	3.9	0.39	30556	2.3			
1493.3	1	25640	5.0	0.67	27633	3.5	0.33	31336	2.0			
1594.6	0.94	16131	3.0	0.63	17165	2.0	0.31	20105	1.2			
1778.7	0.84	22019	3.5	0.56	23980	2.5	0.28	27616	1.5			
2236.2	0.67	16895	2.1	0.45	18561	1.6	0.22	21653	0.9			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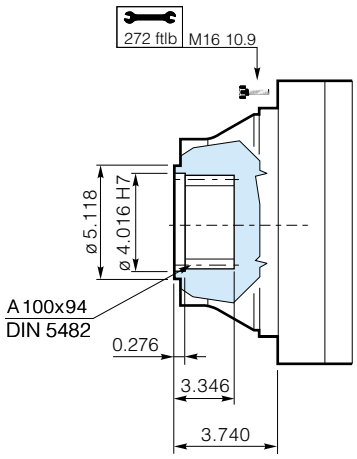
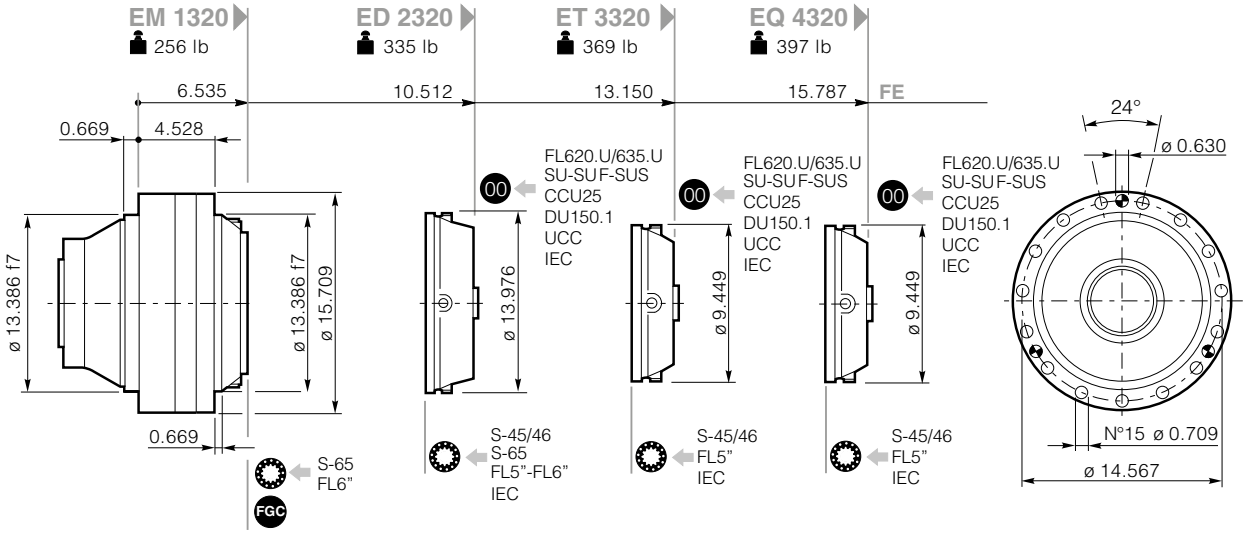
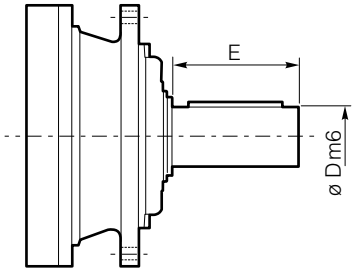
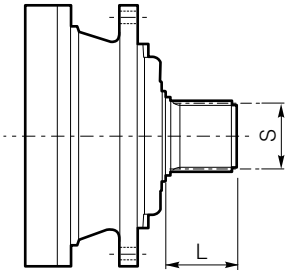

272 ftlb
M16 10.9
ø 5.118
ø 4.016 H7
A 100x94
DIN 5482
0.276
3.346
3.740


EM 1320
256 lb
ED 2320
335 lb
ET 3320
369 lb
EQ 4320
397 lb
6.535
10.512
13.150
15.787
FE
0.669
4.528
ø 13.386 f7
ø 13.386 f7
ø 15.709
0.669
S-65
FL6"
FGC
00
FL620.U/635.U
SU-SUF-SUS
CCU25
DU150.1
UCC
IEC
ø 13.976
S-45/46
S-65
FL5"-FL6"
IEC
ø 9.449
S-45/46
FL5"
IEC
ø 9.449
S-45/46
FL5"
IEC
24°
ø 0.630
N°15 ø 0.709
ø 14.567

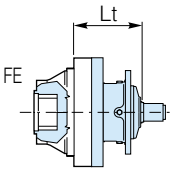
S-45CR1 - S-46C1 - S-45SR - S-65CR1 - S-65SR



S-45CR1 - S-46C1 - S-65CR1

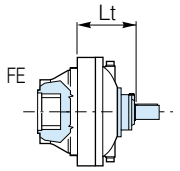


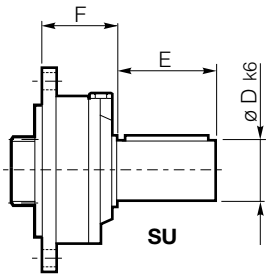
S-45SR - S-65SR



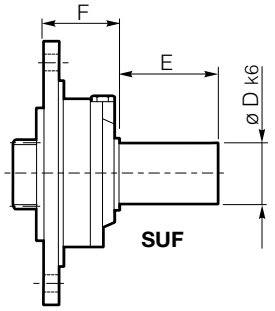
	D m6	E	L	S DIN5482		Lt FE
S-45CR1	2.559	4.134	-	-	ED 2320	15.591
					ET 3320	15.591
					EQ 4320	18.268
S-46C1	2.559	4.134	-	-	ED 2320	17.244
					ET 3320	17.244
					EQ 4320	19.882
S-45SR	-	-	2.677	B58x53	ED 2320	15.591
					ET 3320	15.591
					EQ 4320	18.268
S-65CR1	3.150	5.118	-	-	ED 2320	17.165
S-65SR	-	-	3.543	B70x64	ED 2320	17.165

SU - SUF - SUS

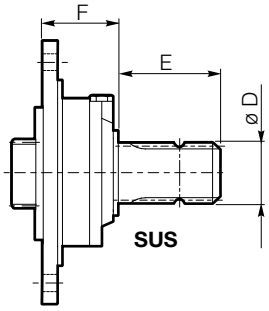




SU



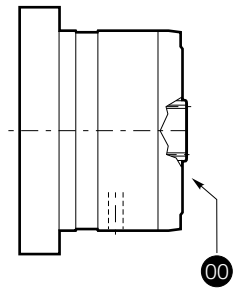
SUF

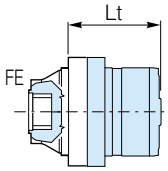


SUS

	D	E	F		Lt FE
SU1 28x50	1.102	1.969	2.362	ED 2320	12.874
				ET 3320	15.512
				EQ 4320	18.150
SU2 40x58	1.575	2.283	2.362	ED 2320	12.874
				ET 3320	15.512
				EQ 4320	18.150
SU3 48x82	1.890	3.228	2.362	ED 2320	12.874
				ET 3320	15.512
				EQ 4320	18.150
SU 42x80	1.654	3.150	3.996	ED 2320	14.488
				ET 3320	17.126
				EQ 4320	19.803
SUS 1 3/8"	1 3/8" DIN9611	3.819	3.996	ED 2320	14.488
				ET 3320	17.126
				EQ 4320	19.803
SU2 1.5x3.25	1.500	3.250	2.362	ED 2320	12.874
				ET 3320	15.512
				EQ 4320	18.150
SUF1 28x50	1.102	1.969	2.362	ED 2320	12.874
				ET 3320	15.512
				EQ 4320	18.150
SUF2 40x58	1.575	2.283	2.362	ED 2320	12.874
				ET 3320	15.512
				EQ 4320	18.150
SUF3 48x82	1.890	3.228	2.362	ED 2320	12.874
				ET 3320	15.512
				EQ 4320	18.150

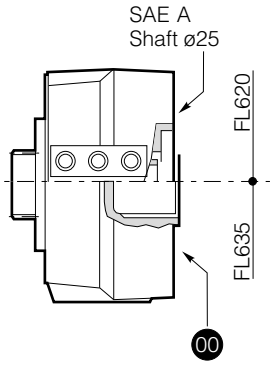
FL5” FL250 - FL350 - FL450 / FL650 - FL750 FL6”

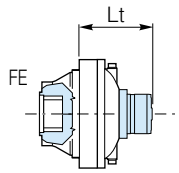




		Lt ⭘ FE
FL250 FL350 FL450	ED 2320	14.409
	ET 3320	16.811
	EQ 4320	19.488
FL650 FL750	ED 2320	14.961
	ET 3320	17.362
	EQ 4320	20.000
FL960	ED 2320	15.512
	ET 3320	18.425

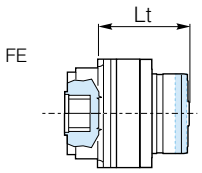
FL620.10 - FL635.10 / FL620.U - FL635.U



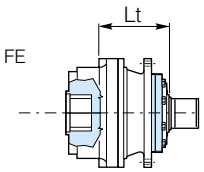


		Lt 00 FE
FL620.U	ED 2320	14.606
	ET 3320	17.244
	EQ 4320	19.921
FL635.U	ED 2320	14.094
	ET 3320	16.732
	EQ 4320	19.370

RL

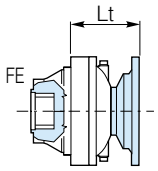


				Lt
				FE
RL	+	FL250 FL350 FL450	ED 2320	15.433
			ET 3320	17.835
			EQ 4320	20.512
		FL650 FL750	ED 2320	15.984
			ET 3320	18.386
			EQ 4320	21.024
		FL960	ED 2320	16.535
			ET 3320	19.449

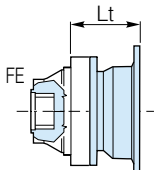


				Lt
				FE
RL	+	S46C1	ED 2320	18.031
			ET 3320	18.031
			EQ 4320	20.669

IEC Motor

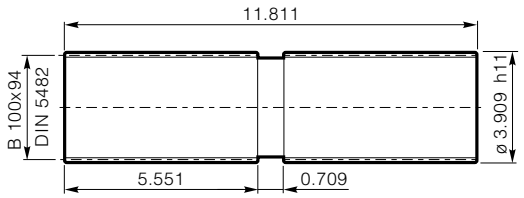


		Lt 00							
		IEC							
		63	71	80 90	100 112	132	160 180	200	225
ED 2320	FE	11.299	11.378	11.575	11.614	14.252	15.472	15.905	17.087
ET 3320	FE	13.937	14.016	14.213	14.252	16.890	18.110	18.543	19.724
EQ 4320	FE	16.575	16.654	16.850	16.890	19.528	20.748	21.181	22.362



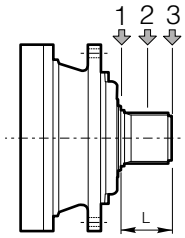
		Lt		
		IEC		
		160 180	200	225
ED 2320	FE	14.449	15.984	15.315
ET 3320	FE	18.110	18.504	19.685
EQ 4320	FE	20.748	21.142	-

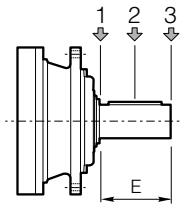
BS 320 FE — Splined Bar



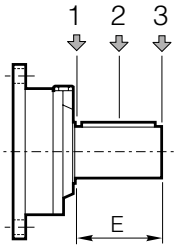
Code: 39127330100 Mat: High mechanical resistance alloyed steel

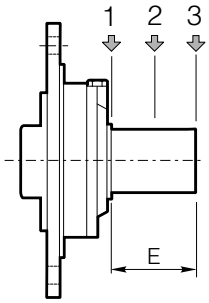
Input Radial Loads

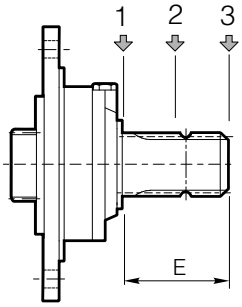




			F_{r1} [lbf]					
			$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	L	E	1	2	3	1	2	3
S-45CR1	-	4.134	2248	1349	899	1124	674	450
S-46C1	-	4.134	3147	1978	1439	1574	989	719
S-45SR	2.677	-	2248	1349	899	1124	674	450
S-65CR1	-	5.118	5350	3484	2158	2675	1753	1079
S-65SR	3.543	-	5350	3484	2158	2675	1753	1079







		F_{r1} [lbf]					
		$n_1 . h = 10^7$			$n_1 . h = 10^8$		
Type	E	1	2	3	1	2	3
SU 42x80	3.150	674	450	337	315	225	157
SU1 28x50	1.969	674	450	337	315	225	157
SU2 40x58	2.283	674	450	337	315	225	157
SU3 48x82	3.228	674	450	337	315	225	157
SUS 1 3/8”	3.819	629	405	337	292	202	135
SU2 1 1/2”x 3 1/4”	3.250	674	450	337	315	225	157
SUF1 28x50	1.969	674	450	337	315	225	157
SUF2 40x58	2.283	674	450	337	315	225	157
SUF3 48x82	3.228	674	450	337	315	225	157

DANA
BREVINI®
Motion Systems

B

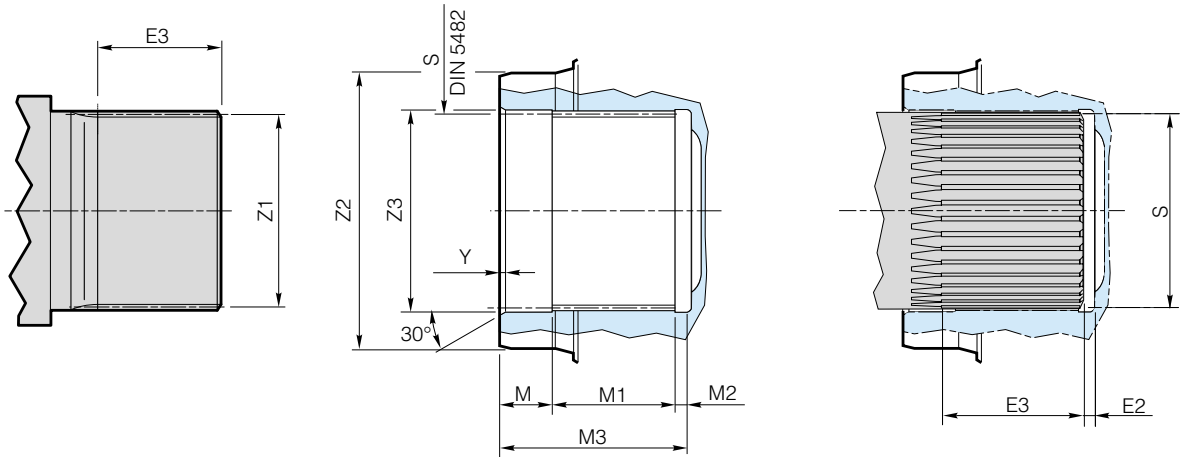
Page

Page

B

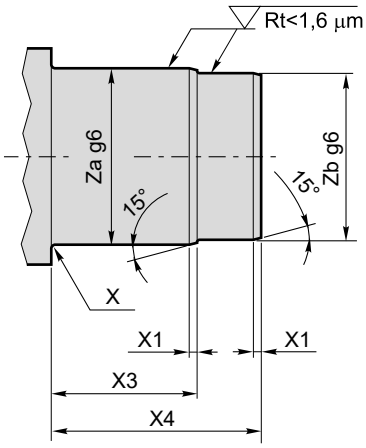
Lubrication

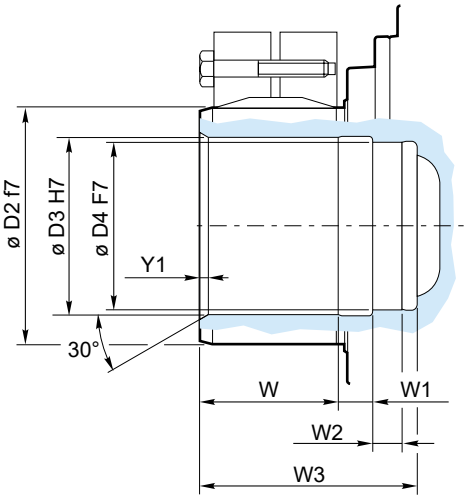
FE Female splined shaft



Type	M3	M	M1	M2	Y	S	Z2	Z3	Z1	E2	E3
010	1.366	0.197	0.972	0.197	0.020	A40x36 H10	1.969 f8	1.654 H7	B40x36 c9	0.079	> 1.181
020	2.028	0.315	1.717	-	0.039	A58x53 H10	2.953 f7	2.362 H7	B58x53 c9	0.079	> 1.732
030	1.732	0.315	1.417	-	0.059	A58x53 H10	2.953 f7	2.362 H7	B58x53 c9	0.079	> 1.417
045	1.732	0.315	1.417	-	0.059	A58x53 H10	2.953 f7	2.362 H7	B58x53 c9	0.079	> 1.417
065-067	2.638	0.354	1.969	0.315	0.039	A70x64 H10	3.543 g7	2.835 H7	B70X64 c9	0.079	> 2.283
090-091	2.953	0.197	2.441	0.315	0.039	A70X64 H10	3.543 h8	2.835 H7	B70X64 c9	0.079	> 2.756
150-155	3.031	0.276	2.756	-	0.059	A80x74 H10	3.937 f7	3.465 H7	B80x74 c9	0.079	> 2.756
250-255	3.346	0.276	3.071	-	0.059	A100x94 H10	5.118 f7	4.016 H7	B100x94 c9	0.079	> 3.071
320	3.346	0.276	3.071	-	0.059	A100x94 H10	5.118 f7	4.016 H7	B100x94 c9	0.079	> 3.071

FS Hollow shaft for shrink disc

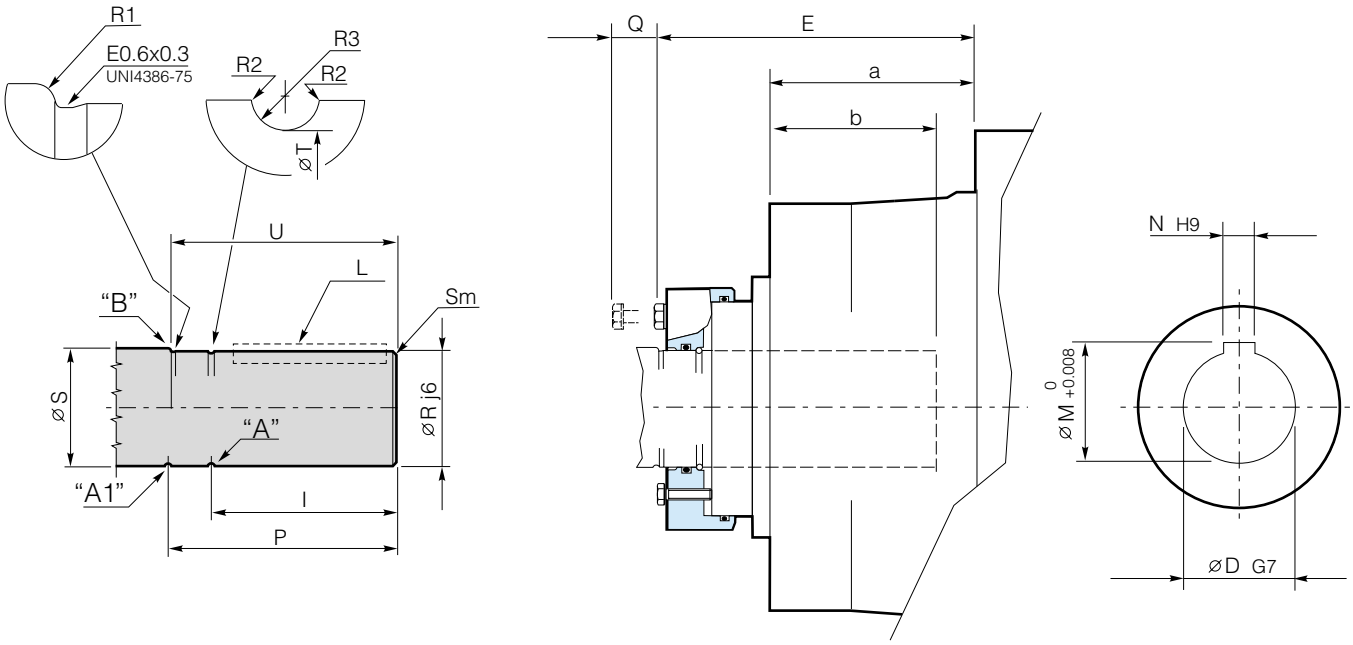




Type	W	W1	W2	W3	D2	D3	D4	Y1	R X	X1	X3	X4	Za	Zb
010	1.142	0.354	0.394	1.969	2.441	1.969	1.181	0.079	R 0.079	0.118	1.299	1.890	1.969	1.181
020	2.126	0.630	0.906	3.740	3.937	2.953	1.575	0.079	R 0.079	0.118	2.047	3.622	2.953	1.575
030	2.126	0.630	0.906	3.740	3.937	2.953	1.575	0.079	R 0.079	0.118	2.047	3.622	2.953	1.575
045	2.126	0.630	0.906	3.740	3.937	2.953	1.575	0.079	R 0.079	0.118	2.047	3.622	2.953	1.575
065-067	3.150	0.787	1.299	5.315	4.921	3.543	1.969	0.079	R 0.079	0.118	2.441	5.197	3.543	1.969
090-091	3.150	0.787	1.496	5.512	5.512	3.937	2.362	0.079	R 0.079	0.118	2.717	5.315	3.937	2.362
150-155	3.110	0.236	1.850	5.315	6.496	4.724	3.150	0.197	R 0.079	0.118	3.110	5.118	4.724	3.150
250-255	3.150	0.787	1.850	5.906	6.890	5.118	3.150	0.079	R 0.059	0.197	3.189	5.709	5.118	3.150

To check the mating with the coupling, see page B24.

FP Keyed hollow shaft with retaining ring

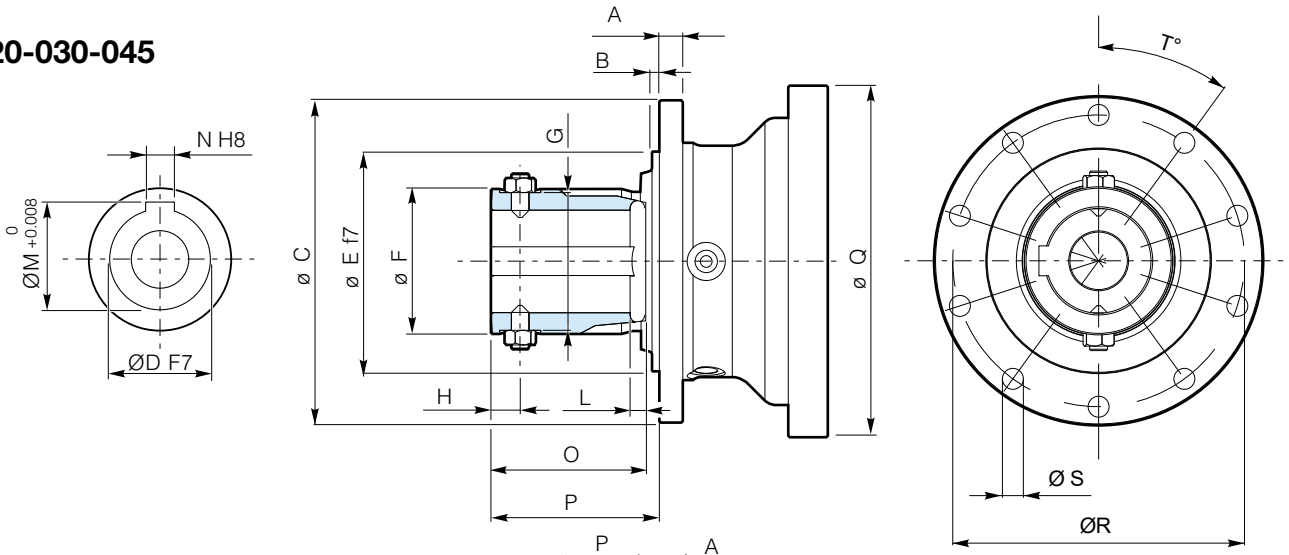


"A" mandatory groove for clamping
"A1" or "B" alternative grooves for extraction

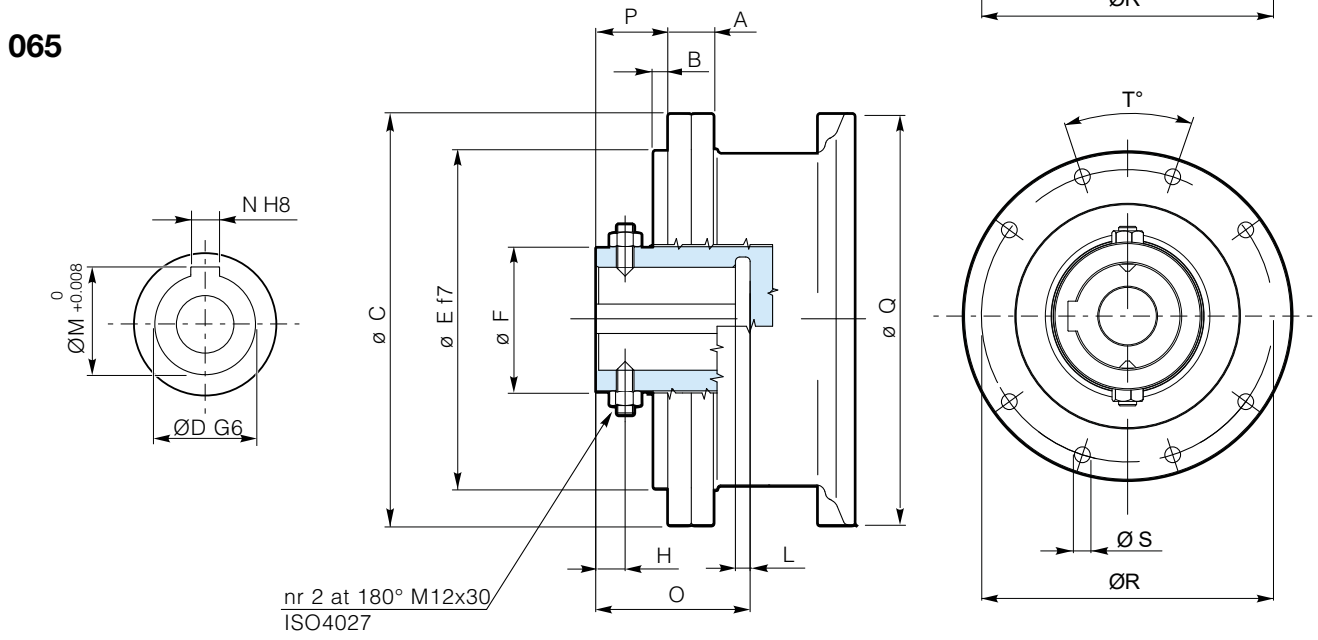
Type	D	M	N	R	R1	R2	R3	S	T	I	P	L	U	E	Q	a	b	Sm
020	1.969	2.118	0.551	1.969	0.051	0.016	0.055	2.059 $^{+0.008}_{+0.004}$	1.870	3.839	4.705	0.551x0.354x2.756	4.646	5.118	2.756	3.425	2.835	0.059÷0.079
030	2.559	2.732	0.709	2.559	0.063	0.016	0.071	2.677 $^{+0.008}_{+0.004}$	2.433	4.232	5.177	0.709x0.433x3.543	5.118	5.630	2.756	3.543	3.150	0.059÷0.079
045	2.559	2.732	0.709	2.559	0.063	0.016	0.071	2.677 $^{+0.008}_{+0.004}$	2.433	4.232	5.177	0.709x0.433x3.583	5.118	5.630	2.756	3.543	3.150	0.059÷0.118
065-067	3.150	3.362	0.866	3.150	0.063	0.016	0.071	3.268 $^{+0.008}_{+0.004}$	3.024	5.433	6.398	0.866x0.551x4.331	6.339	6.811	2.756	3.976	3.701	0.079
090-091	3.543	3.756	0.984	3.543	0.063	0.016	0.071	3.661 $^{+0.008}_{+0.004}$	3.417	6.220	7.224	0.984x0.551x4.921	7.165	7.717	2.756	4.783	4.488	0.079
150-155	3.937	4.189	1.102	3.937	0.063	0.016	0.071	4.055 $^{+0.008}_{+0.004}$	3.811	7.087	8.110	1.102x0.630x5.512	8.031	9.311	3.150	5.866	4.803	0.079
250-255	4.331	4.583	1.102	4.331	0.118	0.012	0.134	4.559 $^{+0.008}_{+0.004}$	4.094	6.260	7.323	1.102x0.630x4.921	7.205	9.961	3.150	7.559	5.118	0.079

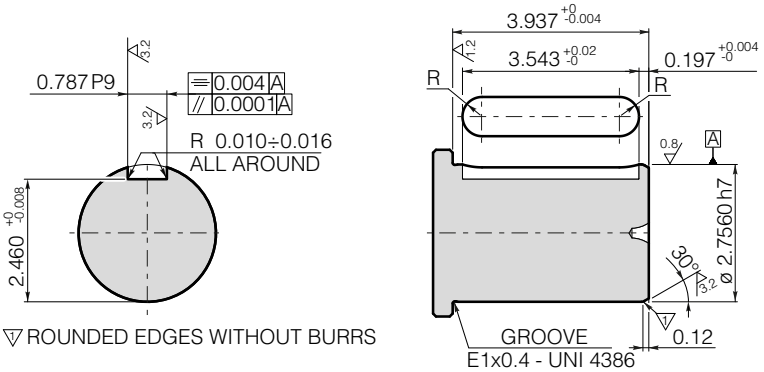
FP1 Keyed hollow shaft with retaining grub screws

020-030-045



065





Type	A	B	C	D	E	F	G	H	L	M	N	O	P	Q	R	S	T
020	0.630	0.197	8.661	2.756	5.906	3.898	3.701	0.787	0.394	2.949	0.787	4.134	4.528	9.449	7.677	0.551 nr10	36°
030	0.630	0.197	8.661	2.756	5.906	3.898	3.701	0.787	0.394	2.949	0.787	4.134	4.528	9.449	7.677	0.551 nr10	36°
045	0.630	0.197	8.661	2.756	5.906	3.898	3.701	0.787	0.394	2.949	0.787	4.134	4.528	9.449	7.677	0.551 nr10	36°
065	1.220	0.394	11.024	2.756	9.055	3.858	-	0.787	0.394	2.949	0.787	4.134	1.929	11.024	10.236	0.551 nr8	36°

Click **DANA** button to return to section index

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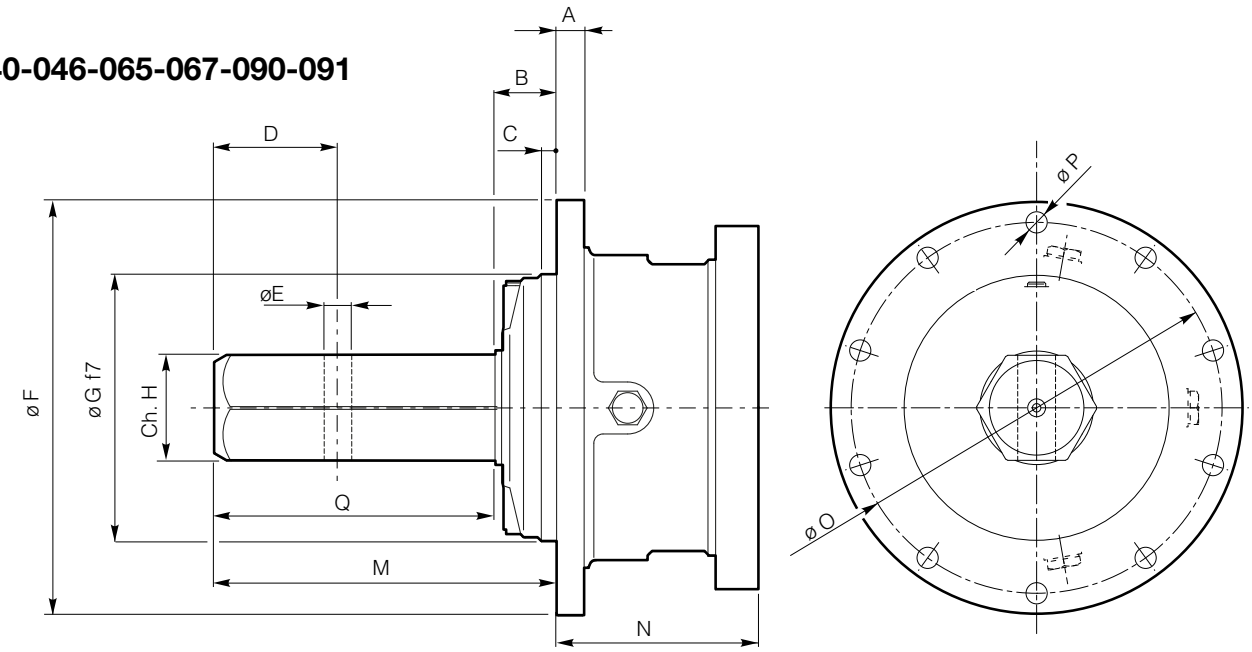
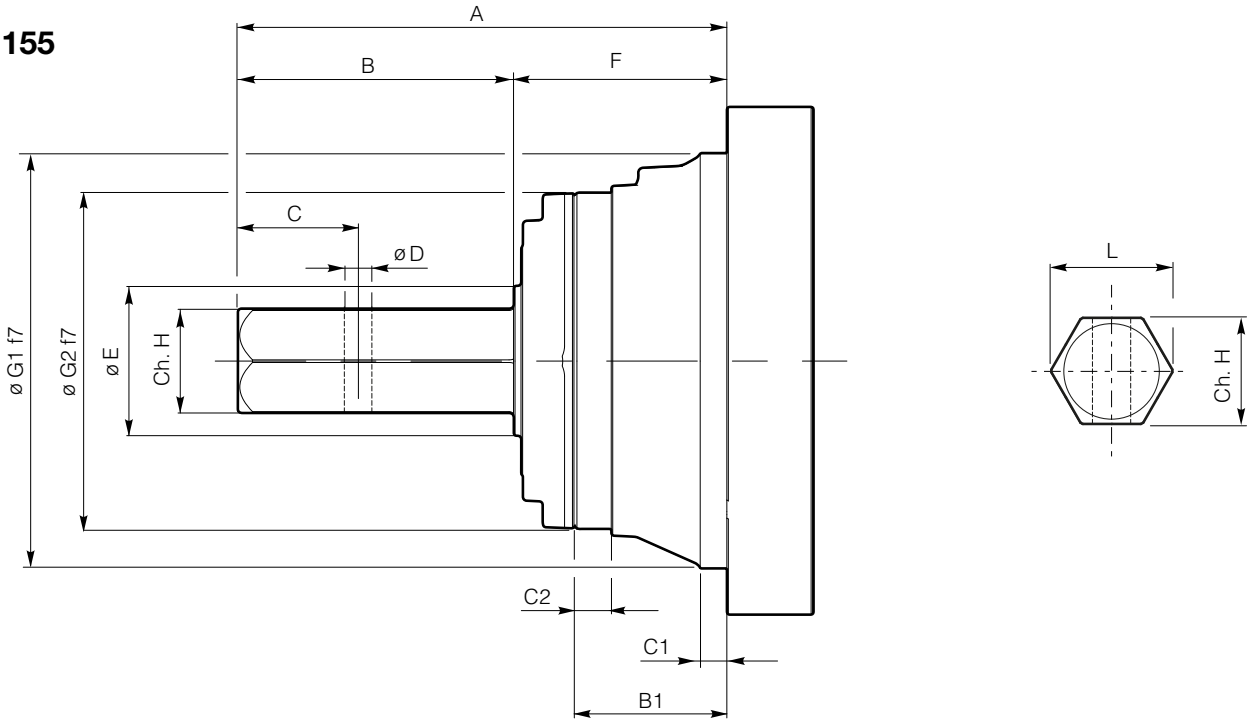
ME Hexagonal shaft

020-040-046-065-067-090-091



150-155



Type	A	B	C	D	E	F	G	H	L	M	N	O	P	Q
020	0.709	1.535	0.492	3.189	0.709	10.709	6.890	2.732	3.118	8.819	5.197	9.646	0.551 nr.10	7.283
040-046	0.709	1.535	0.492	3.189	0.709	10.709	6.890	2.732	3.118	8.819	5.197	9.646	0.551 nr.10	7.283
065-067	0.787	1.575	0.787	2.559	0.866	11.024	7.874	2.756	3.110	7.087	6.398	9.843	0.472 nr.16	5.512
090-091	0.984	1.378	0.197	3.189	0.709	12.795	9.055	2.732	3.118	8.681	5.512	11.614	0.689 nr.10	7.283

Type	A	B	B1	C	C1	C2	D	E	F	G1	G2	H	L	O	P
150-155	12.913	7.283	4.035	3.189	0.709	0.984	0.709	3.937	5.630	10.945	8.858	2.732	3.118	12.362	0.630 nr.12

Click *i* button to return to main index
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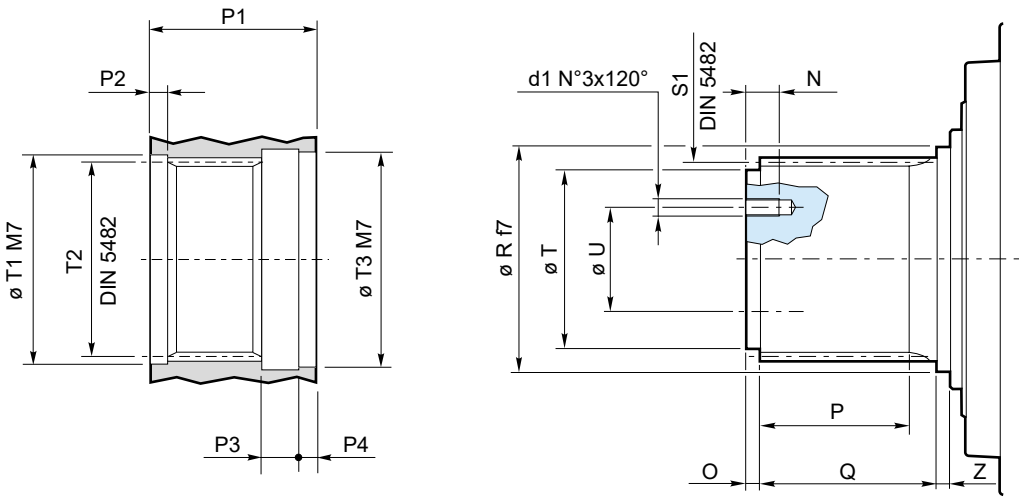
Details & Installation

MN Splined shaft

MR Reinforced splined shaft



Type		d1	N	O	P	P1	P2	P3	P4	Q	R	S1	T	T1	T2	T3	U	Z
010	**MN-MR**	M6	0.787	0.197	1.181	2.165	0.197	0.551	0.276	1.693	1.654	B40x36 c9	1.378 f7	1.654	A40x36	1.654	0.945	0.276
020	**MR**	M10	0.787	0.315	1.496	2.677	0.315	0.512	0.394	2.283	2.362	B58x53 c9	1.969 f7	2.362	A58x53	2.362	1.260	0.315
030	**MR**	M10	0.787	0.315	1.496	2.677	0.315	0.512	0.394	2.283	2.362	B58x53 c9	1.969 f7	2.362	A58x53	2.362	1.260	0.315
040	**MN**	M10	0.787	0.315	1.969	2.677	0.315	0.512	0.394	2.283	2.362	B58x53 c9	1.969 f7	2.362	A58x53	2.362	1.260	0.315
045	**MR**	M10	0.787	0.315	1.496	2.677	0.315	0.512	0.394	2.283	2.362	B58x53 c9	1.969 f7	2.362	A58x53	2.362	1.260	0.315
046	**MN**	M10	0.787	0.315	1.969	3.150	0.315	0.630	0.276	2.874	2.362	B58x53 c9	1.969 f7	2.362	A58x53	2.362	1.260	0.276
065-067	**MR**	M10	0.787	0.394	1.969	3.543	0.413	0.827	0.394	3.150	2.835	B70x64 c9	2.441 f7	2.835	A70x64	2.835	1.575	0.394
090-091	**MN-MR**	M10	0.984	0.394	1.969	3.543	0.413	0.866	0.394	3.150	3.346	B80x74 c9	2.756 f7	3.150	A80x74	3.346	1.772	0.394
150-155	**MN**	M10	0.984	0.394	1.969	3.543	0.413	0.866	0.394	3.150	3.346	B80x74 c9	2.756 h7	3.150	A80x74	3.346	1.772	0.394
	MR	M14	1.181	0.472	2.559	4.331	0.472	0.866	0.591	3.858	4.134	B100x94 c9	3.346 h7	4.134	A100x94	4.134	2.047	0.472
250-255	**MN**	M14	0.984	0.472	2.559	4.331	0.472	0.866	0.591	3.819	4.134	B100x94 c9	3.346 f7	4.134	A100x94	4.134	2.047	0.512

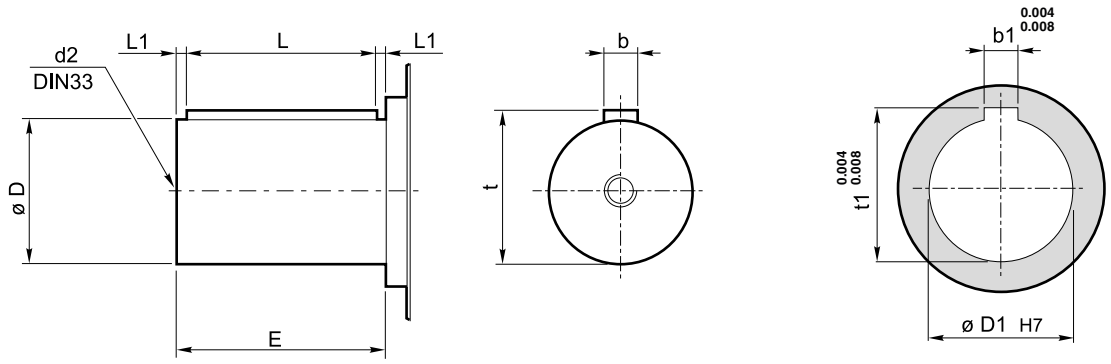
Click **DANA** button to return to section index

Click *i* button to return to main index

MN1 Keyed cylindrical shaft

MR1 Reinforced keyed cylindrical shaft

010-020-030-040-045-065-067-090-091-150-155



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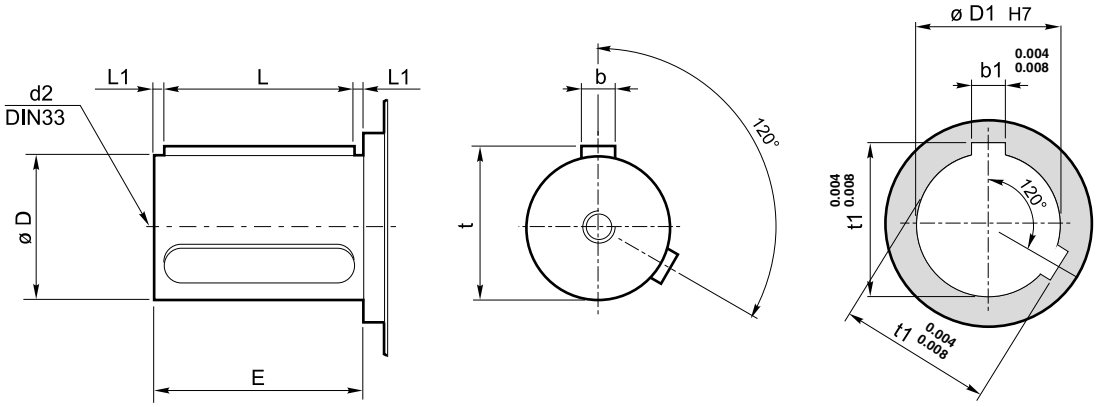
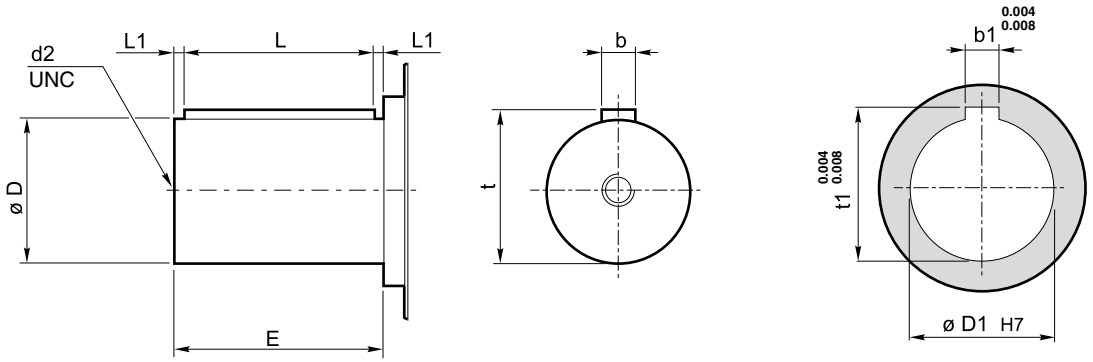


Type		D	E	L	L1	t	b	d2	D1	t1	b1
010	MN1-MR1	1.654 k6	3.228	2.756	0.236	1.772	0.472	M16	1.654	1.772	0.472
020	MR1	2.559 m6	4.134	3.543	0.295	2.717	0.709	M20	2.559	2.717	0.709
030	MR1	2.559 m6	4.134	3.543	0.295	2.717	0.709	M20	2.559	2.717	0.709
040	MN1	2.559 m6	4.134	3.543	0.295	2.717	0.709	M20	2.559	2.717	0.709
045	MR1	2.559 m6	4.134	3.543	0.295	2.717	0.709	M20	2.559	2.717	0.709
046	MN1	2.559 m6	4.134	3.543	0.295	2.717	0.709	M20	2.559	2.717	0.709
065-067	MR1	3.150 m6	5.118	4.331	0.394	3.346	0.866	M20	3.150	3.346	0.866
090-091	MN1-MR1	3.543 m6	6.693	6.299	0.197	3.740	0.984	M24	3.543	3.740	0.984
150-155	MN1-MR1	3.937 m6	8.268	7.874	0.197	4.173	1.102	M24	3.937	4.173	1.102
250-255	MN1	4.331 m6	8.268	7.874	0.197	4.567	1.102	M24	4.331	4.567	1.102

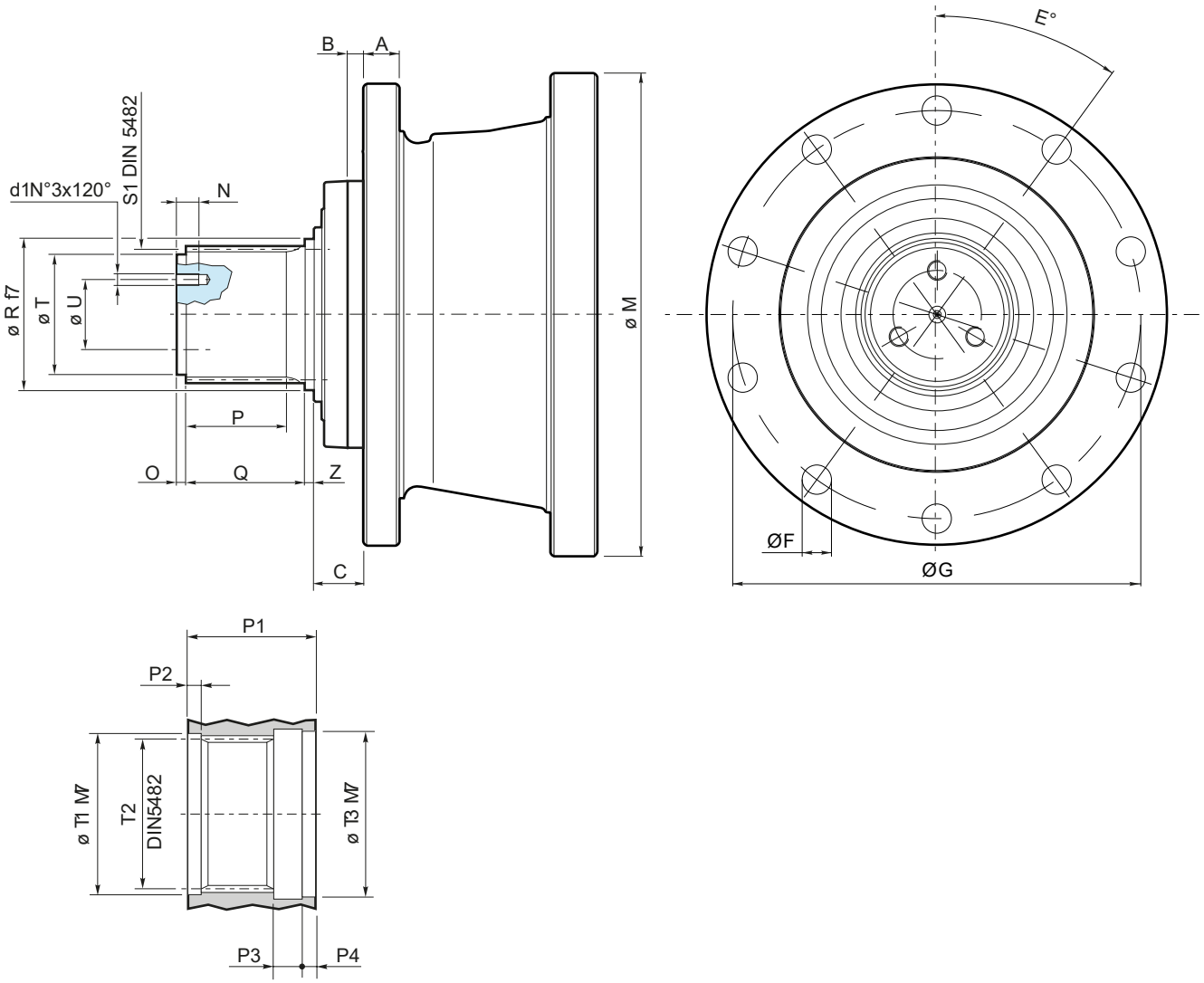
MN2 Keyed cylindrical shaft

MR2 Reinforced keyed cylindrical shaft



Type		D	E	L	L1	t	b	d2	D1	t1	b1
010	**MN2-MR2**	1.500 k6	3.250	3.000	0.125	1.663	0.375	5/8"	1.500	1.663	0.375
020	**MR2**	2.500 m6	4.250	4.000	0.125	2.774	0.625	3/4"	2.500	2.774	0.625
030	**MR2**	2.500 m6	4.250	4.000	0.125	2.774	0.625	3/4"	2.500	2.774	0.625
040	**MN2**	2.500 m6	4.250	4.000	0.125	2.774	0.625	3/4"	2.500	2.774	0.625
045	**MR2**	2.500 m6	4.250	4.000	0.125	2.774	0.625	3/4"	2.500	2.774	0.625
046	**MN2**	2.500 m6	4.250	4.000	0.125	2.774	0.625	3/4"	2.500	2.774	0.625
065-067	**MR2**	3.000 m6	5.500	5.250	0.125	3.327	0.750	3/4"	3.000	3.327	0.750
090-091	**MN2-MR2**	3.500 m6	6.750	6.500	0.125	3.882	0.875	1"	3.500	3.882	0.875
150-155	**MN2-MR2**	4.000 m6	8.250	8.000	0.125	4.437	1.000	1"	4.000	4.437	1.000
250-255	**MN2**	4.250 m6	8.250	8.000	0.125	4.690	1.000	1"1/8	4.250	4.690	1.000

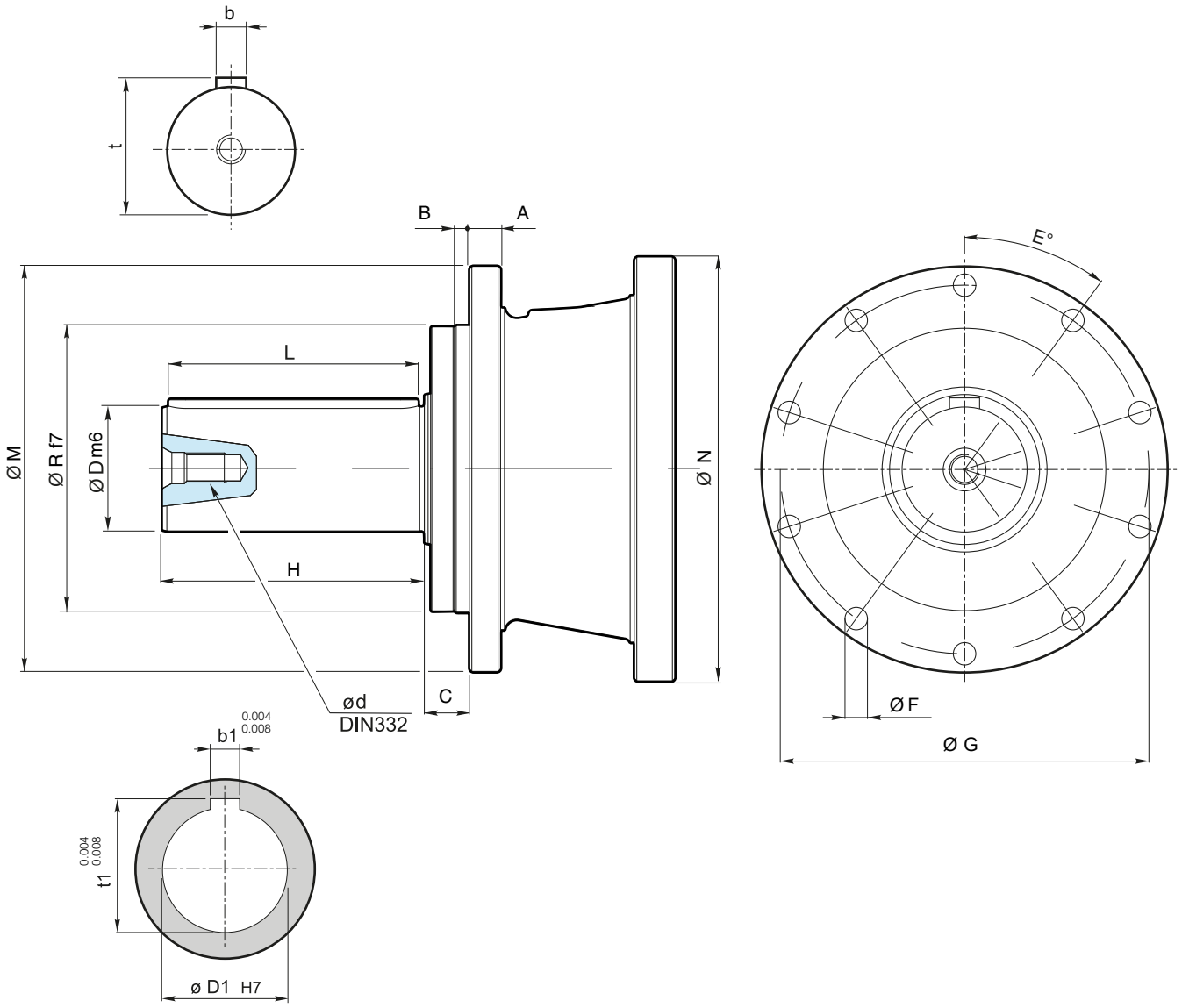
MNS9 Splined shaft and advanced flange



Type		A	B	C	E	F	G	d1	M	N	O	P	P1
150-155	MNS9	0.984	0.472	1.417	36°	0.709	11.614	M10	13.386	0.984	0.394	1.969	3.543

Type		P2	P3	P4	Q	R	S1	T	T1	T2	T3	U	Z
150-155	MNS9	0.413	0.866	0.394	2.756	3.346	B80x74 c9	2.756	3.150	A80x74	3.346	1.772	0.394

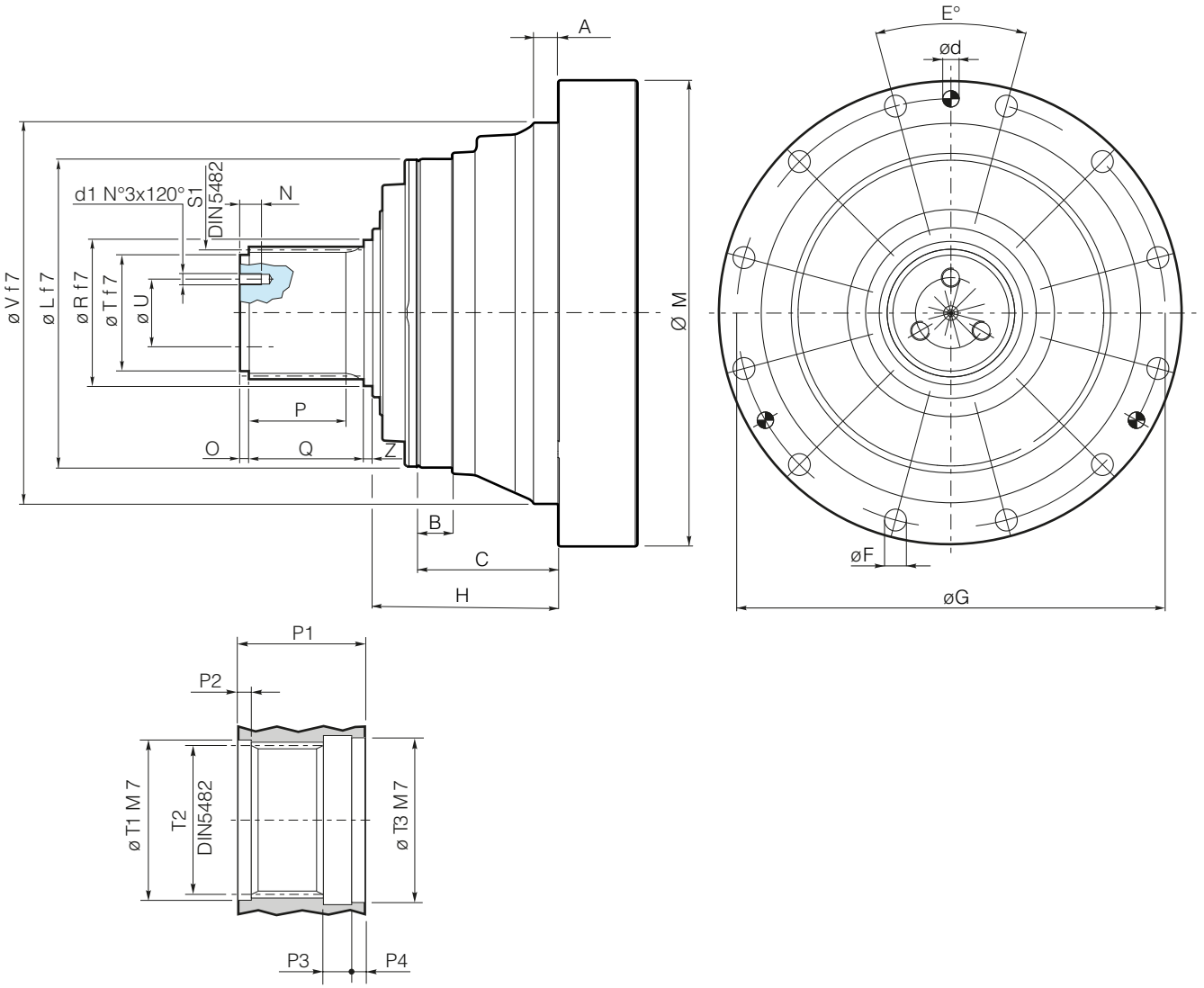
MN1S9 Keyed cylindrical shaft and advanced flange



Type	A	B	b	C	D	d	E	F	G
150-155 MN1S9	0.984	0.472	1.102	1.417	3.937	M24	36°	0.709	11.614

Type	H	L	M	N	R	t	b1	D1	t1
150-155 MN1S9	8.268	7.874	12.795	13.386	9.055	4.173	0.984	3.543	3.740

MNR Reinforced splined shaft



Type		A	B	C	E	d	d1	F	G	H	L	M	N	O	P	P1
150-155	MNR	0.709	0.984	4.035	30°	0.472	M14	0.630	12.362	5.630	8.858	13.386	1.181	0.472	2.559	4.331

Type		P2	P3	P4	Q	R	S1	T	T1	T2	T3	U	V	Z
150-155	MNR	0.472	0.866	0.591	3.346	4.134	B100x94 c9	3.346	4.134	A100x94	4.134	2.047	10.945	0.512

Click *i* button to return to main index
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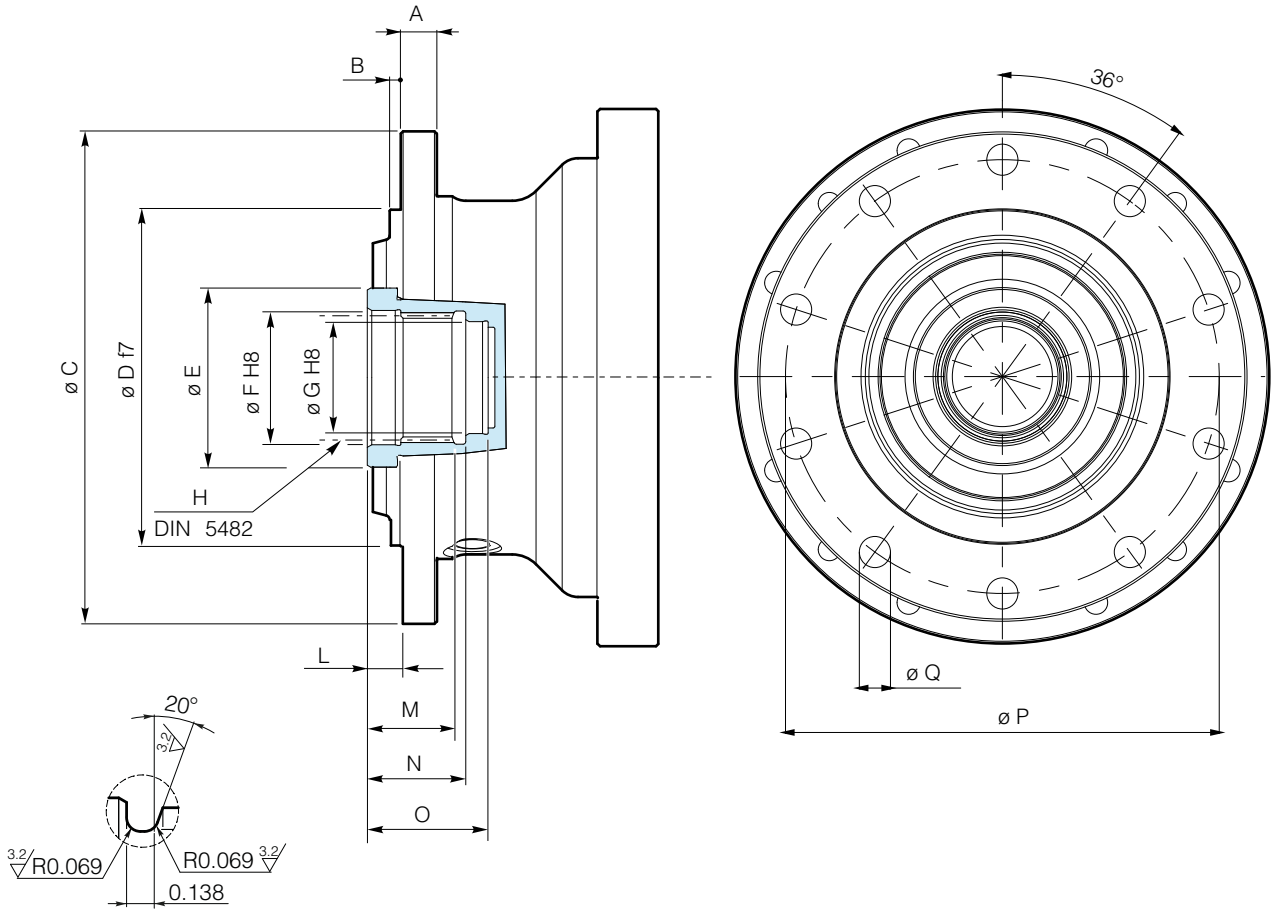
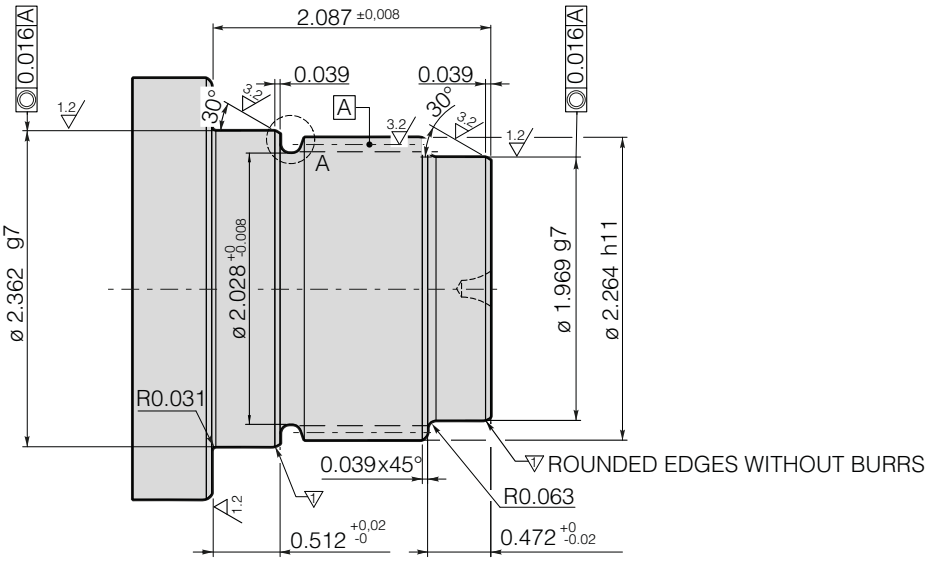
FET Female splined shaft and advanced flange





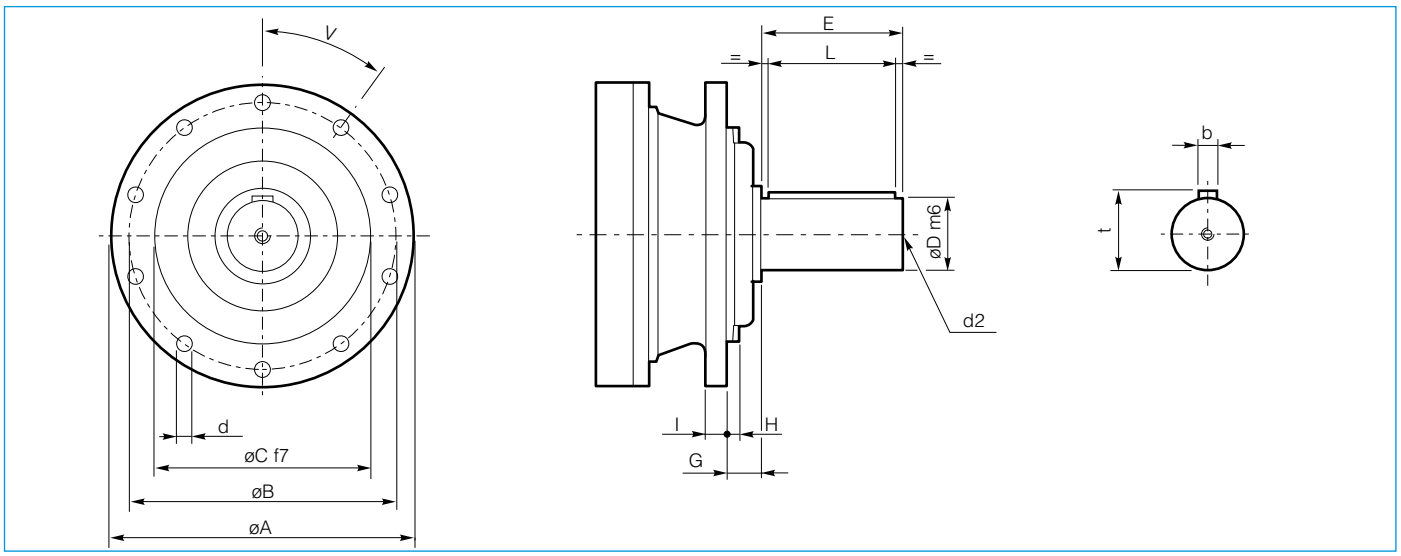
Type	A	B	C	D	E	F	G	H	L	M	N	O	P	Q
020	0.630	0.197	8.661	5.906	3.150	2.362	1.969	A58x53	0.591	1.535	1.732	2.126	7.677	0.551 nr.10
030	0.630	0.197	8.661	5.906	3.150	2.362	1.969	A58x53	0.591	1.535	1.732	2.126	7.677	0.551 nr.10
045	0.630	0.197	8.661	5.906	3.150	2.362	1.969	A58x53	0.591	1.535	1.732	2.126	7.677	0.551 nr.10

Click **DANA** button to return to section index

Click *i* button to return to main index

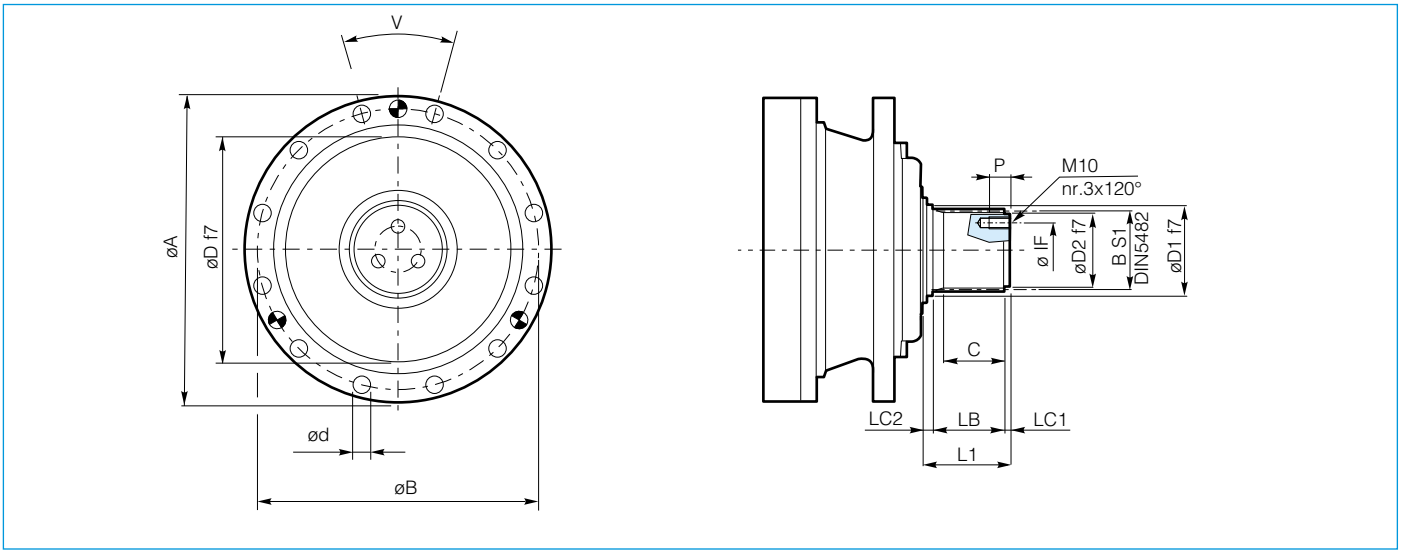
Male input supports

The input shafts described below are used when the drive motor, which is usually electric, is coupled to the input shaft by a flexible coupling, cardan shaft or belt. The normal mounting position is with the axis horizontal; the lubrication must be adapted for other mounting positions. Please contact your local DANA representative for more details.
The maximum working speed is typically 1800 rpm. For the permissible loads, refer to the dedicated section for the size concerned.
ILS shafts are specifically for use with a flexible coupling.
These types are suitable for use on specific sizes of gearbox, as indicated in the corresponding dimension tables



Type	A	B	C	D	E	G	H	I	L	b	d	d2 DIN332	t	V
S-45CR1	8.661	7.677	5.906	2.559	4.134	0.591	0.197	0.630	3.543	0.709	0.551	M20x42	2.717	10x36°
S-46C1	10.709	9.646	6.890	2.559	4.134	1.535	0.394	0.709	3.543	0.709	0.551	M20x42	2.717	10x36°
S-46C1.RL*	10.709	9.646	6.890	2.559	3.346	1.535	0.394	0.709	3.543	0.709	0.551	M20x42	2.717	10x36°
S-65CR1	11.024	9.843	7.874	3.150	5.118	1.575	0.571	0.787	4.331	0.866	0.630	M20x42	3.346	10x36°
S-65CR1.RL*	11.024	9.843	7.874	3.150	5.118	1.575	0.571	0.787	4.331	0.866	0.630	M20x42	3.346	10x36°

* Presence of Backstop. Direction of backstop deviceing rotation:
- OR clockwise
- AO counterclockwise



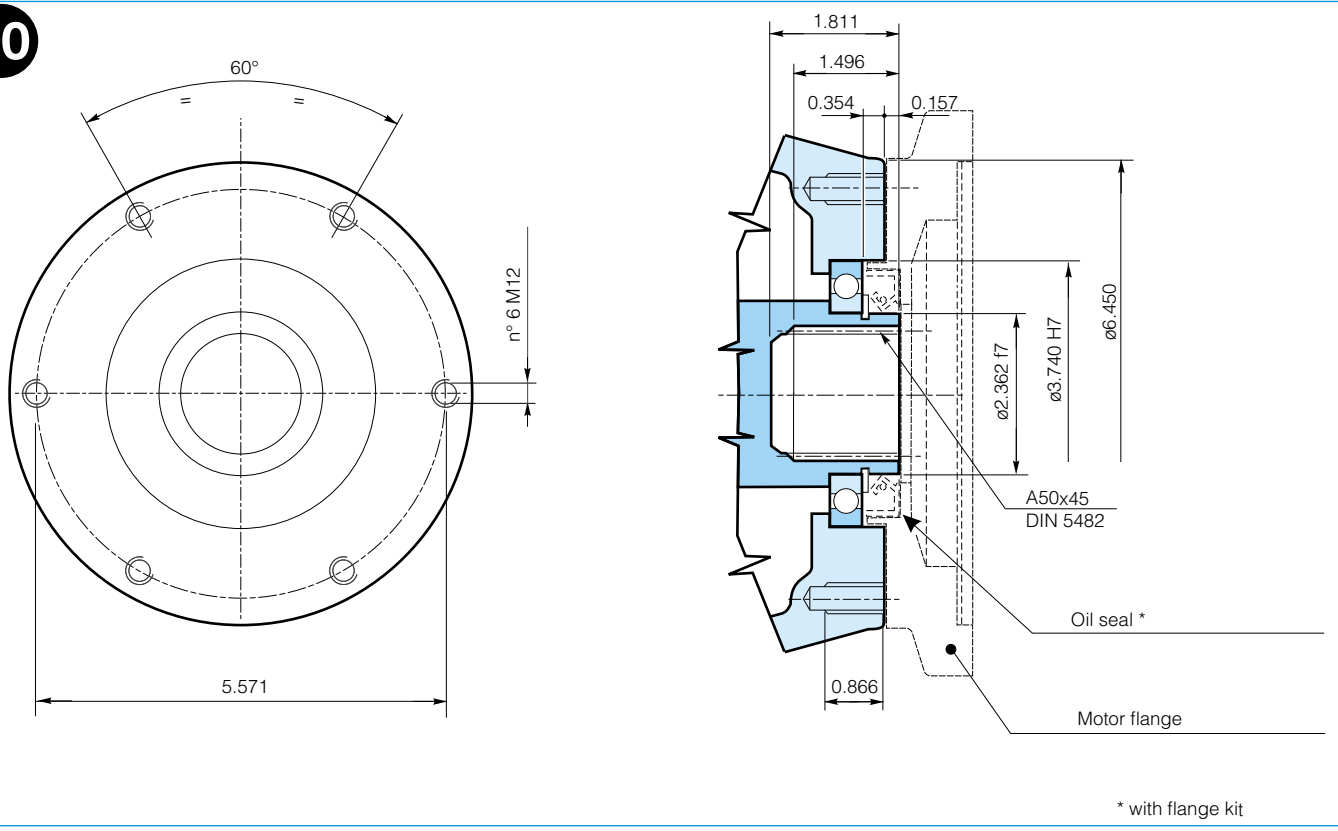
Type	A	B	D	d	V	D1	D2	S1 DIN5482	IF	M	P	L1	LC1	LC2	C	LB
S-45SR	9.449	7.677	5.906	0.551	10x36°	2.362	1.969	B58x53	1.260	M10	0.787	2.677	0.315	0.394	1.496	1.969
S-65SR	11.024	9.843	7.874	0.630	12x30°	2.835	2.441	B70x64	1.575	M10	0.787	3.543	0.394	0.413	1.969	2.736

Universal inputs

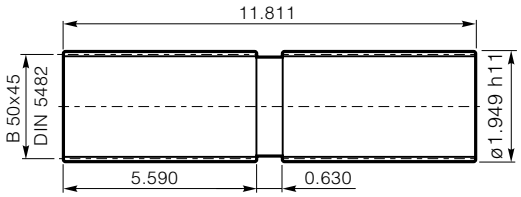
The universal input is a configuration mounted on the gearbox input so that various types of drives can be coupled by means of a special flange and adapter sleeve.
There are two different universal input sizes, depending on the size mounted as the gearbox input stage.
The dimension tables for the various sizes give the applicability.

CAUTION!
Size 00 is normally used for motors weighing up to approximately 220.5 lb and 737.5 ftlb of maximum torque.

00



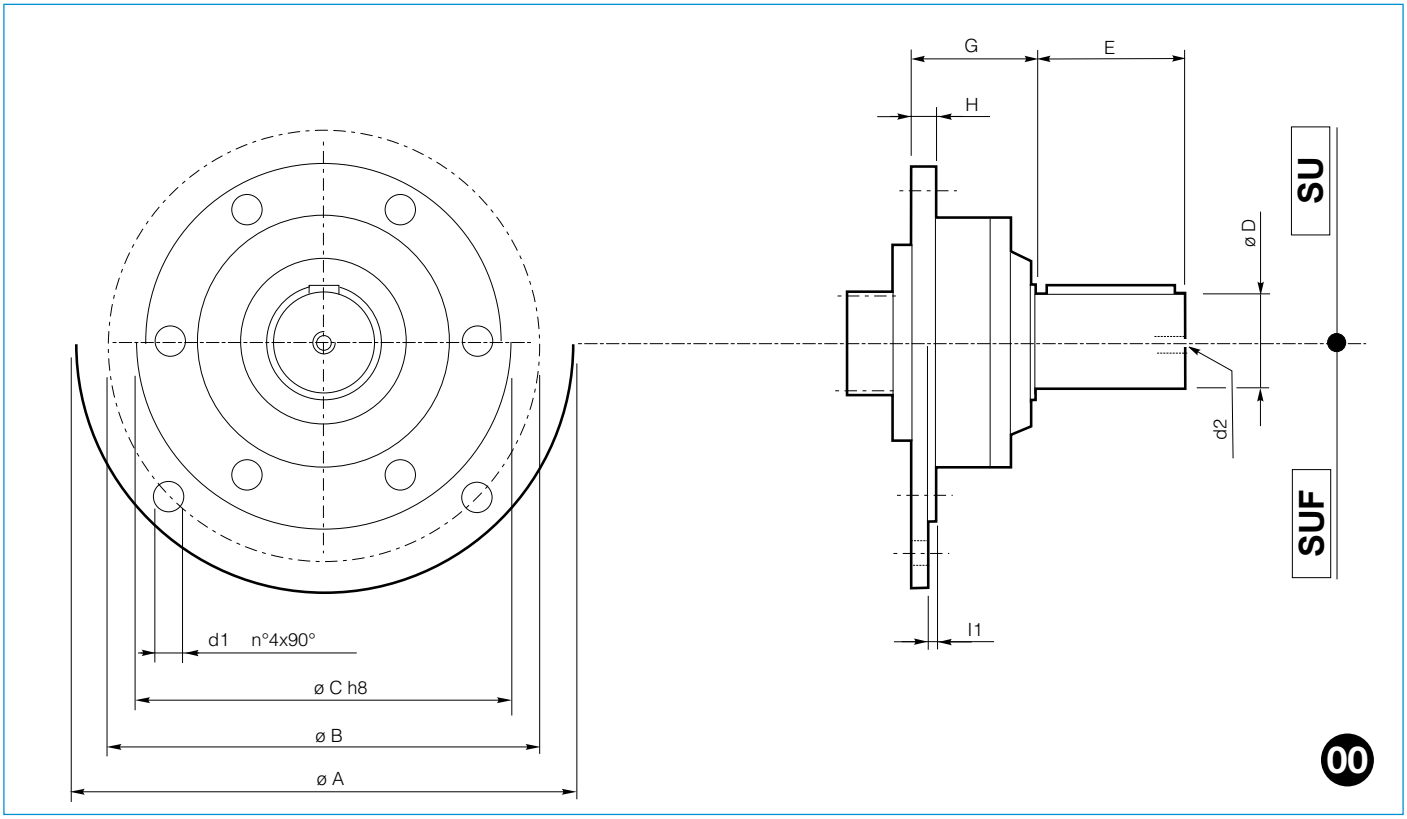
BS 00 Universal Splined Bar



Code: 39126930100
Mat: **High mechanical resistance alloyed steel**

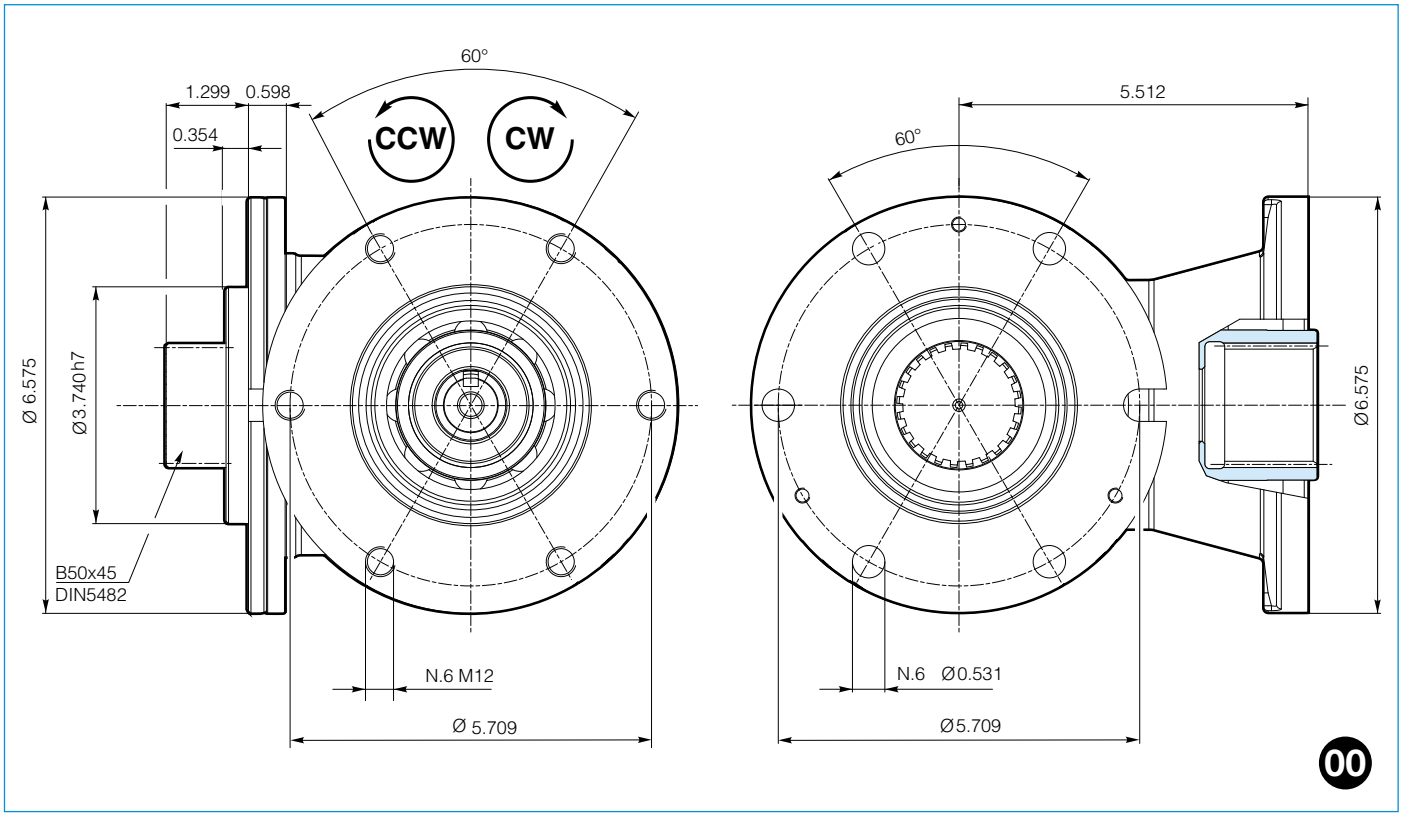
Male supports for universal inputs

SU/SUF types are generally used with a flexible coupling. They can be mounted directly to any type of gearbox with universal input 00, and can be supplied separately. See the gearbox section for the dimensions and radial loads.



Type	A	B	C	D	E	d1	d2	G	H	l1
SU1 28x50	-	-	-	1.102	1.969	-	M10x22	2.362	0.472	-
SU2 40x58	-	-	-	1.575	2.283	-	M10x22	2.362	0.472	-
SU3 48x82	-	-	-	1.890	3.228	-	M10x25	2.362	0.472	-
SU 42x80	-	-	-	1.654	3.150	-	M10x22	3.996	0.551	-
SUS 1 3/8"	-	-	-	1 3/8" DIN 9611	3.819	-	-	3.996	0.551	-
SU2 1.5x3.25	-	-	-	1.500	3.250	-	5/8" -11 UNC	2.362	0.551	-
SUF1 28x50	9.843	8.465	7.087	1.102	1.969	0.512	M10x22	2.362	0.472	0.118
SUF2 40x58	9.843	8.465	7.087	1.575	2.283	0.512	M10x22	2.362	0.472	0.118
SUF3 48x82	9.843	8.465	7.087	1.890	3.228	0.512	M10x25	2.362	0.472	0.118

CCU25 - Universal bevel gears

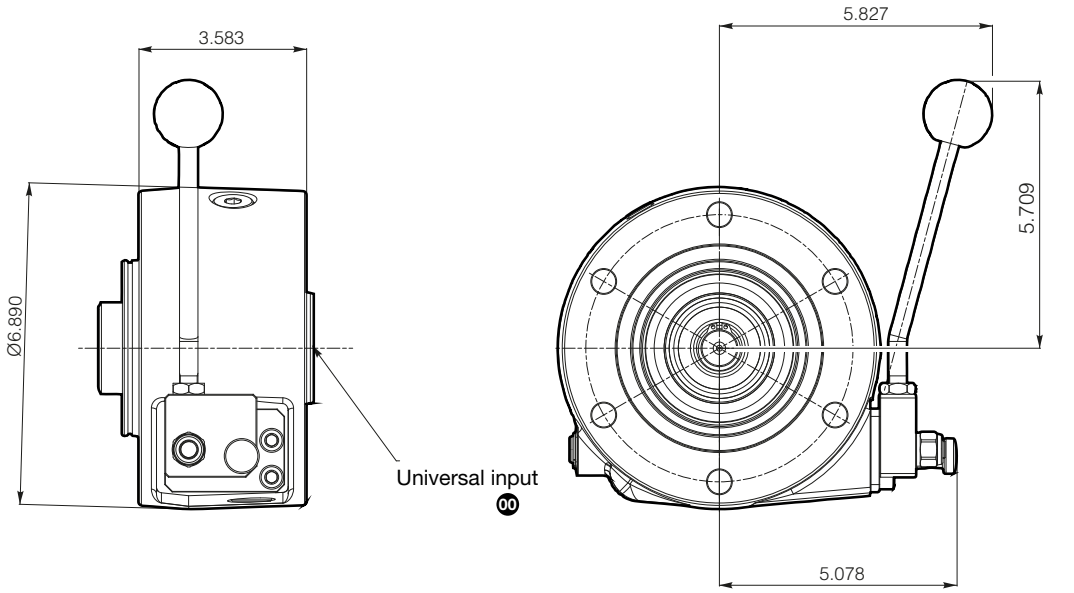


				n_1 1500 [rpm]			n_1 1000 [rpm]			n_1 500 [rpm]		
				n_2	T_1	P_1	n_2	T_1	P_1	n_2	T_1	P_1
				[rpm]	[ftlb]	[HP]	[rpm]	[ftlb]	[HP]	[rpm]	[ftlb]	[HP]
Type	**Rotation ***	i_{eff}	n_{1max}									
CCU25-2.23	CW	2.23	3500	672.6	45	12.9	448.4	51	9.7	224.2	63	6.0
CCU25-2.23	CCW	2.23	3500	672.6	31	8.9	448.4	35	6.7	224.2	43	4.1

* Direction of rotation as viewed from the gearbox input (CW = clockwise, CCW = counter-clockwise).

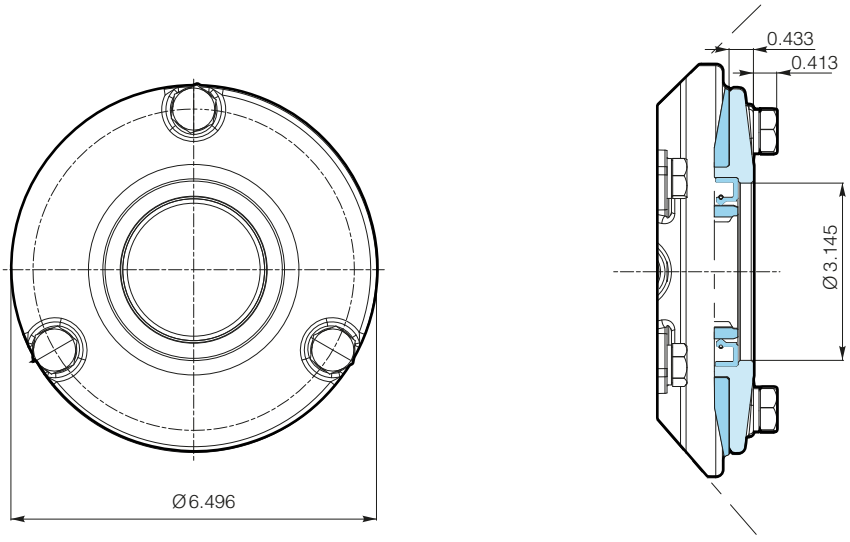
DU150.1 - Universal decoupling

The **DU150.1** is a manual decoupling device, which can be used to temporarily interrupt the transmission of torque and speed between the gearbox input and output.
Both when decoupling and when coupling again, it can only be operated with the gearbox stationary and without any load applied to it.



Type	n_{max} [rpm]	T_{max} [lb]	P [HP]
DU150.1	1500	1106	40.2

UCC - Universal protection cover



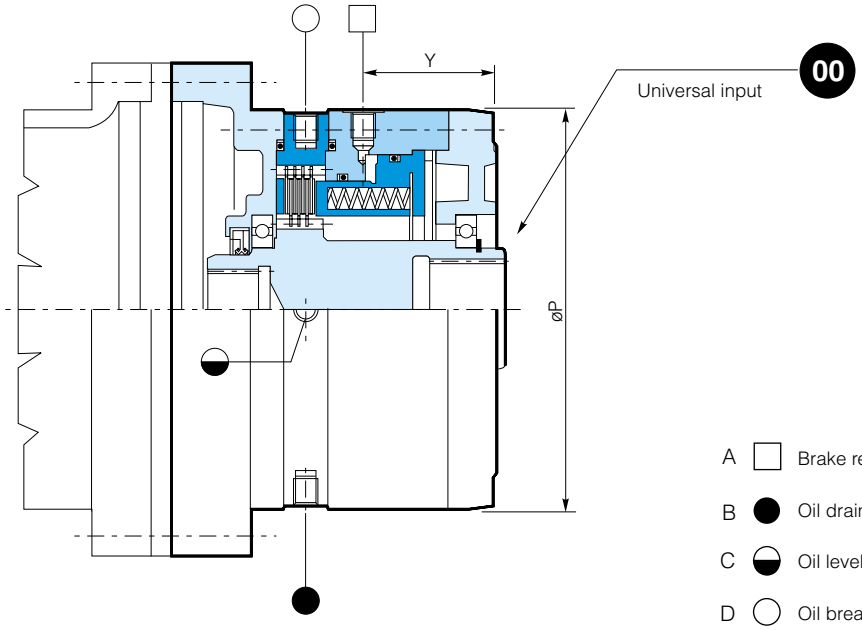
Details & Installation

Oil-bath multi-disc brakes

The gearbox inputs can be equipped with hydraulically released oil-bath multi-disc brakes.

	T_B [ftlb]	P [psi]	P_{max} [bar]	Vo [US Gal]		Va [US Gal]
				horizontal	vertical	new plates
FL250.4C	133	203	4568	0.0792	0.1584	3.96
FL250.6C	205	203	4568	0.0792	0.1584	3.96
FL350.6C	308	290	4568	0.0792	0.1584	3.96
FL350.8C	421	290	4568	0.0792	0.1584	3.96
FL450.6C	398	377	4568	0.0792	0.1584	3.96
FL450.8C	544	377	4568	0.0792	0.1584	3.96
FL620.14C	201	377	3046	0.0528	0.1056	3.96
FL635.4C	92	218	4351	0.0528	0.1056	3.96
FL.635.6C	139	218	4351	0.0528	0.1056	3.96
FL635.10C	232	218	4351	0.0528	0.1056	3.96
FL635.12C	278	218	4351	0.0528	0.1056	3.96
FL650.10C	473	290	4568	0.132	0.264	3.96
FL650.12C	584	290	4568	0.132	0.264	3.96
FL650.14C	700	290	4568	0.132	0.264	3.96
FL750.10C	615	377	4568	0.132	0.264	3.96
FL750.12C	757	377	4568	0	0.264	3.96
FL750.14C	906	377	4568	0.132	0.264	3.96
FL960.12C	1127	319	4568	0.3168	0.6336	5.808
FL960.14C	1315	319	4568	0.3168	0.6336	5.808
FL960.16C	1503	319	4568	0.3168	0.6336	5.808
FL960.18C	1691	319	4568	0.3168	0.6336	5.808

T_B: Average static brake torque
P: Brake release pressure
Pmax: Max. pressure
Vo: Oil volume
Va: Oil volume for brake release control



	P [in]	Y [in]	Fitting				lb
			A	B	C	D	
FL250	7.677	2.638	M12X1.5	R 1/4”	R 1/4”	R 1/4”	53
FL350	7.677	2.638	M12X1.5	R 1/4”	R 1/4”	R 1/4”	53
FL450	7.677	2.638	M12X1.5	R 1/4”	R 1/4”	R 1/4”	57
FL650	7.677	2.638	M12X1.5	R 1/4”	R 1/4”	R 1/4”	79
FL750	7.677	2.638	M12X1.5	R 1/4”	R 1/4”	R 1/4”	82
FL960	8.858	2.854	M12X1.5	R 1/4”	R 1/4”	R 1/4”	93

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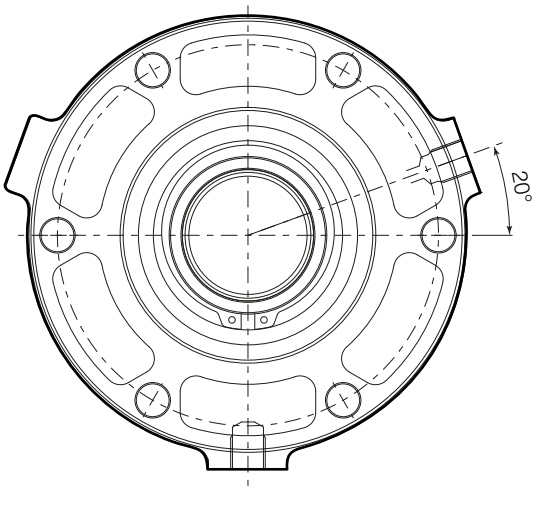
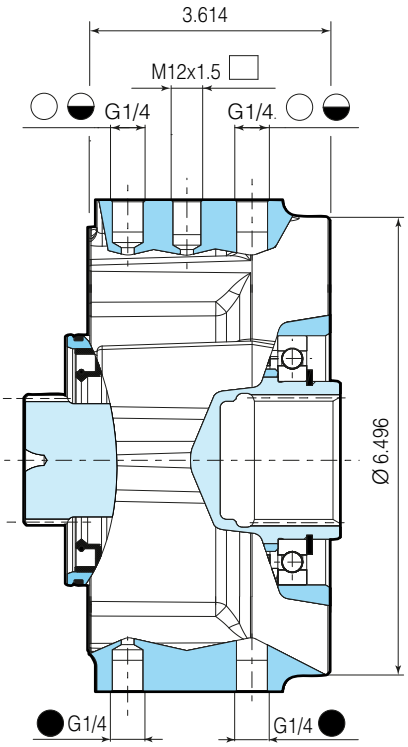
Universal multi-disc brakes

	T_B [ftlb]	P [psi]	P_{max} [psi]	Vo [US Gal]		Va [US Gal]	Weight [lb]	Code
				horizontal	vertical	new discs		
FL635.U	278	197	4568	0.0264	0.0528	2.64	20	C1109200160
FL620.U	200	361	3046	0.0264	0.0528	2.64	18	C1103704120 (shaft FE φ 0.984)

T_B: Average static torque
P: Brake release pressure
Pmax: Max. pressure
Vo: Oil volume
Va: Oil volume for brake release control

FL635_U

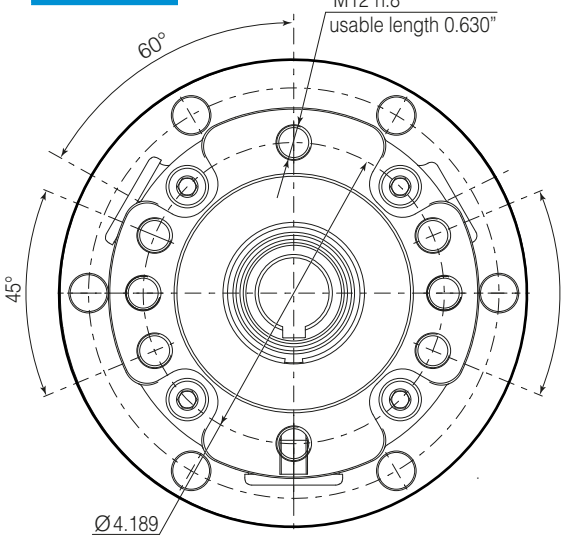


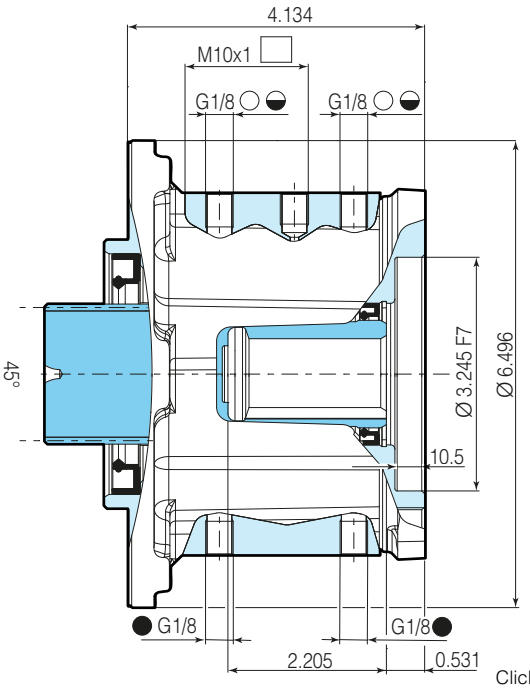


00 **Universal Input**

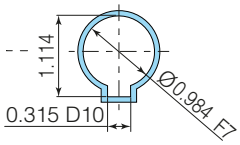
A Brake release fitting
B Oil drain plug
C Oil level plug
D Oil breather and filler plug

FL620_U



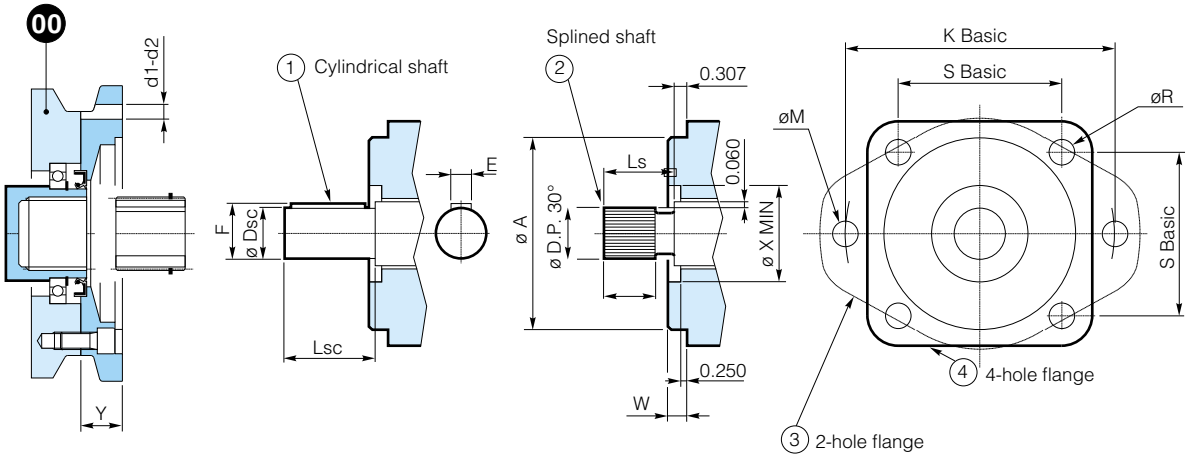


Direct coupling
SAE A shaft ø 0.984



Details & Installation

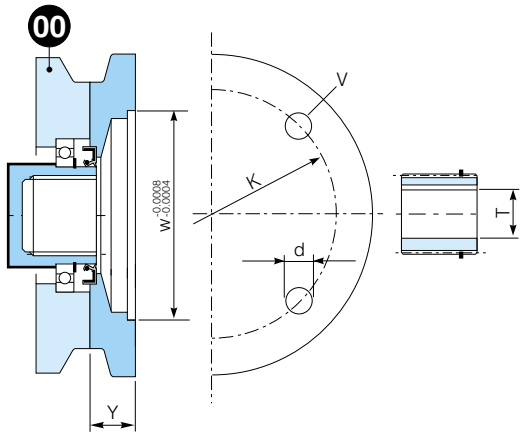
SAE J 744C motor flanges



SAE	Ø A [in]	W [in]	Ø X MIN. [in]	K basic [in]	Ø M [in]	S basic [in]	Ø R [in]	Splined shaft				Cylindrical shaft			
								No. of teeth	30° D.P.	LS [in]	LA MIN. [in]	Ø DSC [in]	LSC [in]	F [in]	E [in]
A	3.250	0.250	-	4.189	0.512	2.961	-	9	16/32	0.945	0.299	0.625	0.945	0.693	0.157
B	4.000	0.380	2.000	5.748	0.563	3.535	0.563	13	16/32	1.311	0.402	0.875	1.311	0.982	0.250
B-B	4.000	0.380	2.000	5.748	0.563	3.535	0.563	15	16/32	1.500	0.500	1.000	1.500	1.106	0.250
C	5.000	0.500	2.500	7.126	0.689	4.508	0.563	14	12/24	1.874	0.598	1.250	1.874	1.386	0.307
C-C	5.000	0.500	2.500	7.126	0.689	4.508	0.563	17	12/24	2.126	0.701	1.500	2.126	1.663	0.375
D	6.000	0.500	2.756	9.000	0.811	6.362	0.811	13	8/16	2.625	0.799	1.750	2.625	1.941	0.437
E	6.500	0.625	2.756	12.500	1.063	8.839	0.811	13	8/16	2.625	0.799	1.750	2.625	1.941	0.437

SAE	Y [in]	No. of Bolts	Order code					
			Flange with d1			Flange with d2		
			d1 Metric	Splined shaft	Cylindrical shaft	d2 [in]	Splined shaft	Cylindrical shaft
A	0.984	2 – 4	M10 T.U. 15	61125502680	61125500900	3/8 0.59 Min	61147702680	61147700900
B	0.984	2 – 4	M12 T.U. 25	61125700580	61125700460	1/2 - 13 1.00 Min	61143900580	61143900460
B-B	0.984	2 – 4	M12 T.U. 25	61125701940	61125700500	1/2 - 13 1.00 Min	61143901940	61143900460
C	1.102	2	M16 T.U. 20	61101801480	61101800510	5/8-11 0.78 Min	61145301480	61145300510
		4	M14 T.U. 20			1/2-13 0.78 Min		
C-C	3.110	2	M16 T.U. 20	61101802540	61101801750	5/8-11 0.78 Min	61145302540	61145301750
		4	M14 T.U. 20			1/2-13 0.78 Min		
D	3.661	2 – 4	M18 T.U. 20	61103501930	61103501720	3/4 - 10 1.00 Min	61147801930	61147801720
E	3.661	2 – 4	M 22 T.U. 30	61118201930	61118201720	Ø 0.875 1.11 Min	61118201930	61118201720

NEMA motor flanges



NEMA Motor size	Motor coupling flange					Sleeve		Order code
						T		
	W [in]	V [in]	d [in]	K [in]	Y [in]	Diameter [in]	Key [in]	
143/145 TD	9	4	0.550	10	1.180	0,875	0,187	61135501060
182/184 TC	8.500	4	0.550	7.250	1.180	1,125	0.250	61130800070
182/184 TD	9	4	0.550	10	1.180	1.250	0.250	61135502200
210 TD	9	4	0.550	10	1.180	1,375	0,312	61135502500
213/215 TC	8.500	4	0.550	7.25	1.810	1,375	0,312	61130802500

Dimensions in inches
In addition to the flanges given in the table, other models are available on request.

SUPPLY AND STORAGE

Supply status

Unless otherwise specified in the contract, the gearboxes are painted externally with an anticorrosive 2-component water-soluble epoxy resin based primer, blue RAL 5012.
The protection is suitable for withstanding normal industrial environments (also outdoors) and can be finished with synthetic, nitro-synthetic or 2-component enamel paints.

In case of particularly aggressive ambient conditions, it is necessary to use special painting cycles, which can be carried out on request. The machined external parts of the gearbox, such as the shaft ends, support surfaces, spigots, etc., must be protected with antioxidant oil (Tectyl).
The inside walls of the gearbox casings are painted with oil-proof paint and the kinematic mechanisms are protected with antioxidant oil. Unless otherwise specified in the contract, all gearboxes are supplied without lubricant, as shown by a special sticker applied to the gearbox to indicate its condition.

The gearboxes are packed and shipped in crates or on pallets able to withstand normal industrial environments.
Each gearbox comes with an "Installation and Maintenance Manual", "Manufacturer's Declaration" and "Certificate of Conformity" 2.1 according to EN10204.

Storage conditions

If the product is to be stored for more than 2 months:

- protect shafts and spigots with a film of grease or corrosion protection products
- fill the gearbox completely with the lubricant required for the application
- store in a dry place with a temperature from 23 °F to +86 °F
- protect the gearbox from dirt, dust and damp
- always place a wooden support or other material between the gearbox and the ground to prevent direct contact with the ground.

When storing for more than 1 year, the rotary seals will lose efficiency. In this case, it is advisable to carry out a periodic check by turning the input shaft by hand to rotate the gears.
If there is a negative multi-disc brake, release the brake with a hydraulic pump or similar (see the "Oil bath multi-disc brakes" section for the brake release pressure).
At start-up, it is advisable to replace the seals.

General

The gearboxes must be carefully installed by suitably trained technical personnel.
Preparation for operation must occur in compliance with all the technical specifications given on the reference Dimensional Drawing.
All installation operations must ensure:

1. safety of operators and third parties
2. correct gearbox operation
3. safe operation

In this respect:

- any arbitrary tampering with the gearbox and with any accessories originally provided is strictly prohibited
- when lifting and transporting, do not knock the shaft ends and use specific lifting straps or the eye-bolts provided for this purpose, and make sure that the lifting equipment has adequate lifting capacity
- never carry out welding work on gearboxes.
- only carry out installation or maintenance work with the gearbox stationary. It is therefore advisable to ensure that the driving force cannot be activated unintentionally.
- regarding the gearbox input, electric or hydraulic motors are often mounted with the DANA 00 universal flange system (see the "Universal Input" section). Note that the 00 flange is normally used for motors weighing up to approximately 220.5 lb and 737.5 ftlb of maximum torque. Specific adapters can be used with heavier motors: in this case, please contact you local DANA representative.
- with connections involving the use of rotating parts such as shafts, couplings or pulleys with belts, always provide adequate accident-prevention protection.

For flange-mounted gearboxes, we recommend observing the following requirements:

- the structures to which the gearboxes are secured must be rigid, with flat machined support surfaces that are free of paint, perpendicular to the driven shaft, and centred with a tolerance of H8.
- the mating surfaces must be perfectly degreased in advance.
- take care to align the gearbox with the driven shaft, especially with gearboxes that have splined female outputs, which cannot take external radial or axial loads.
- use at least class 10.9 screws with 75% tightening yield strength for fastening
- during assembly, take care to avoid violent axial impacts that could damage the inner bearings.
- the drive parts to be keyed to the output must be machined as specified in the “Outputs” section.

Note:
For right-angle gearboxes with male input shafts, the input shaft may not be in its ideal position during installation. To remedy this situation, we recommend:

- when connecting with couplings that are able to recover misalignments, measure the existing misalignment and check that it is acceptable for the coupling; if the misalignment is too big, shim the motor to bring it within the permissible play
- when connecting with mechanical parts that do not allow an play adjustment, align the motor using shims.

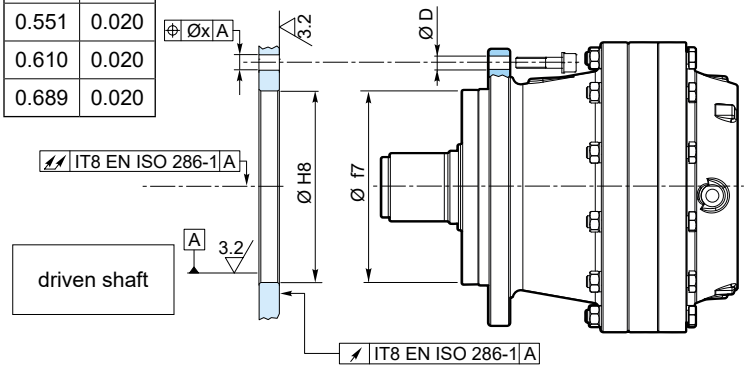
Shaft mounting

Before mounting, carefully clean the mating surfaces and lubricate them with suitable anti-seizure products (except for versions with FS hollow shafts - see the "Shrink disc" section).
Installation and removal must be carried out with suitable equipment, such as pullers and puller screws, using the threaded holes provided on the shafts; in any case, avoid any impacts or shocks that could cause permanent damage to the internal parts of the gearbox.
For the sizes of the driven shaft, refer to the section "Outputs".

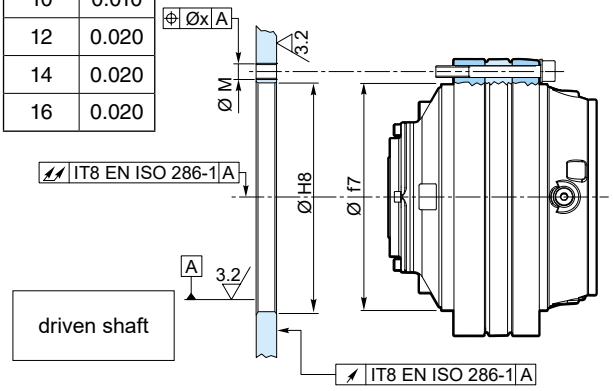
Flange and foot support mounting

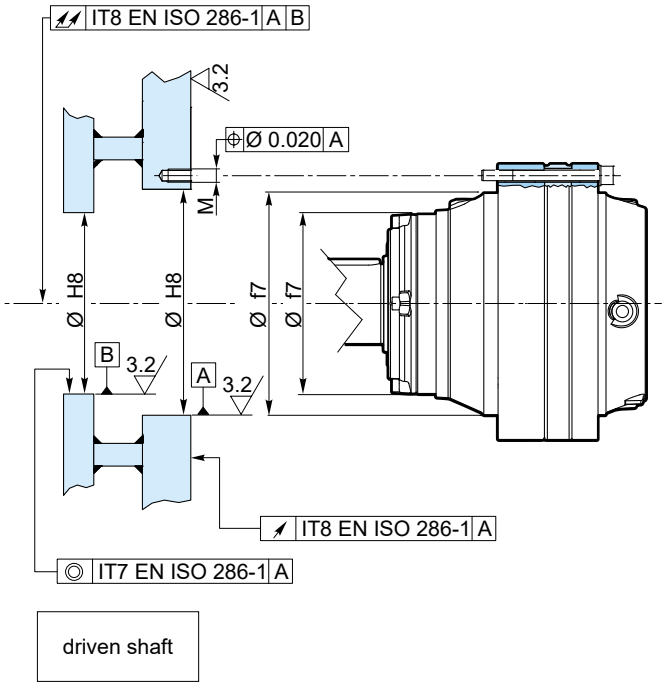
The mating surfaces must be machined with a degree of finish that ensures the required coefficient of friction (approx. Ra 3.2 µm). To ensure alignment between the gearbox, motor and driven machine, observe the tolerances given in the diagrams below.
Before installation, clean and degrease the mating surfaces thoroughly, removing any traces of paint.
If the maximum torque to be transmitted is higher than $0.7xT_{2MAX}$, or if frequent reversals are foreseen, apply a suitable adhesive product for clamping on the coupling surfaces.
Installation must ensure the alignment of the gearbox and the shaft to be driven, or the gearbox and the motor whenever the motor is not directly flange-mounted to the gearbox.

D	x
0.433	0.010
0.531	0.020
0.551	0.020
0.610	0.020
0.689	0.020

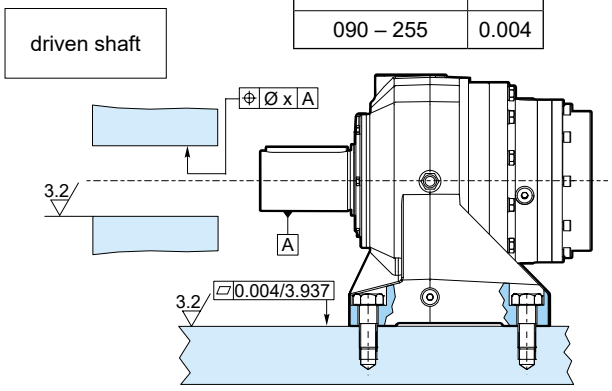


M	x
10	0.010
12	0.020
14	0.020
16	0.020





Size	x
010 – 067	0.002
090 – 255	0.004



A particularly important measure to prevent stress on the gearbox support flanges even during mounting, is to ensure that the mounting counter-flange adheres perfectly to the gearbox flange before tightening the fastening screws.

Fastening screws

Secure the gearboxes with class 10.9 screws with ISO 7089 washers (300 HV min.)
The screws must be tightened (depending on their size) according to the torque values given in the dimension table for the specific size; the tightening torque values refer to screws in the conditions of supply, or with phosphate coating.

Do not lubricate the screws before tightening, as the consequent variation in surface friction coefficient of could overload the screws during tightening
Always check the tightening torque of the screws after the first few hours of machine operation.

The shrink discs are fitted on FS output shafts.
Given below are the characteristics and measures to be considered for correct assembly and disassembly of these parts used for the transmission of motion.

Mounting

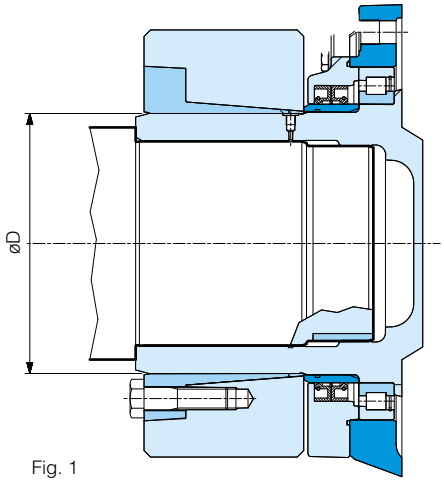


Fig. 1

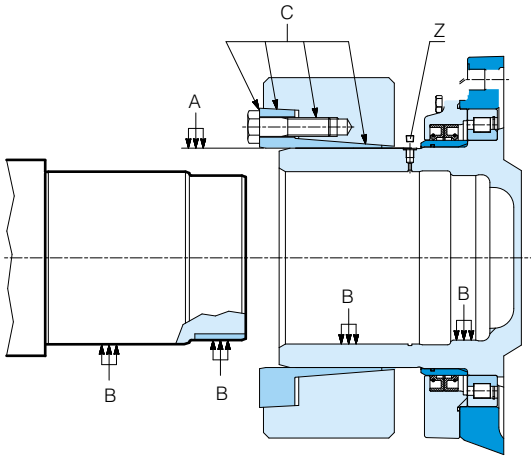


Fig. 2

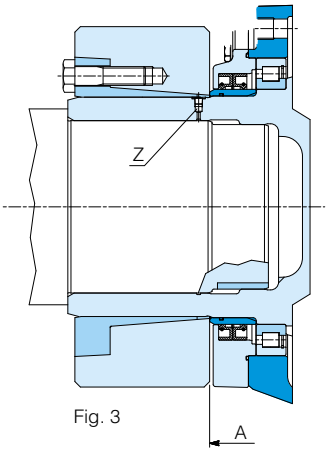


Fig. 3

	T_N [ftlb]	D [in]	T_{GN} [ftlb]	Commercial description [mm]
010	738	2.441	1623	62x110
020	1549	3.937	5531	100x170
045	2803	3.937	5531	100x170
065 – 067	4720	4.921	9588	125x215
090 – 091	6785	5.512	12980	140x230
150 – 155	9588	6.496	25813	165x290
250 – 255	14750	6.890	30238	175x300

1. Thoroughly clean and degrease the shaft and its seat (see point B). To facilitate subsequent removal, it is advisable to make the small spigot for the shaft from a suitably machined bushing.

2. Lubricate the coupling seat (see point A) with molybdenum disulfide grease (MoS_2). When new, the coupling does not have to be disassembled for greasing. Greasing of the areas C is advisable only when reinstalling a used coupling.

3. Fit the coupling on the gearbox without tightening the screws. If the mounting position is vertical and the respective shaft is facing downward, make sure the coupling cannot slip off and fall. In all cases, never tighten the screws before fitting the shaft in its seat.

4. Fit the shaft in its seat. Mounting must take place without any interference, and this is only possible with precise gearbox/shaft alignment using suitable lifting equipment.

CAUTION!
Assembly must be carried out without applying axial forces, blows or impacts that could damage the gearbox bearings.

5. Fit the coupling up against the shoulder on the shaft before tightening the screws.

6. Tighten the screws gradually in a circular order, using a suitable torque wrench set to the tightening torque specified in the table below. Carry out final tightening, setting the wrench to a torque of 3-5% higher than that indicated.

Set the wrench to the torque specified in the table and make sure that no screws can be tightened further, otherwise repeat the procedure from point 5.
Mounting is complete and correct if the front surfaces of the inner and outer ring are at the same level.

The tightening torque does not have to be rechecked after the coupling is put into service.

7. Protect the coupling area with suitable sheet metal casing (point P) if there is risk of stones, sand or other material damaging the coupling or the gearbox seals.

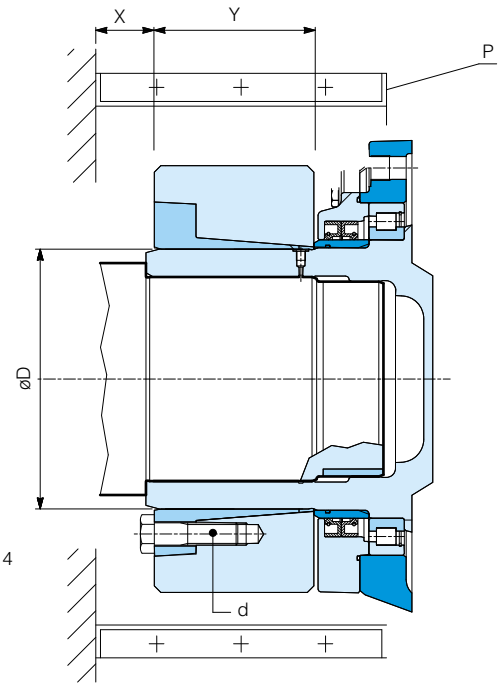
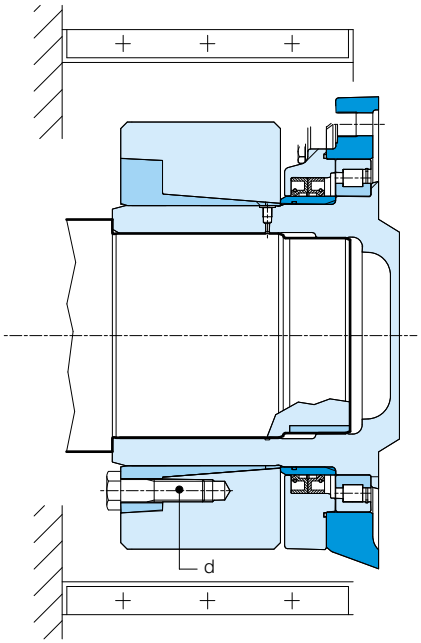


Fig. 4

	Commercial description [mm]	**Y** [in]		
			d [mm]	**T** [ftlb]
010	62x110	1.142	M8	22
020	100x170	1.693	M10	44
045	100x170	1.732	M8	22
065 – 067	125x215	2.126	M10	44
090 – 091	140x230	2.382	M12	74
150 – 155	165x290	2.795	M16	184
250 – 255	175x300	2.795	M16	184

Disassembly



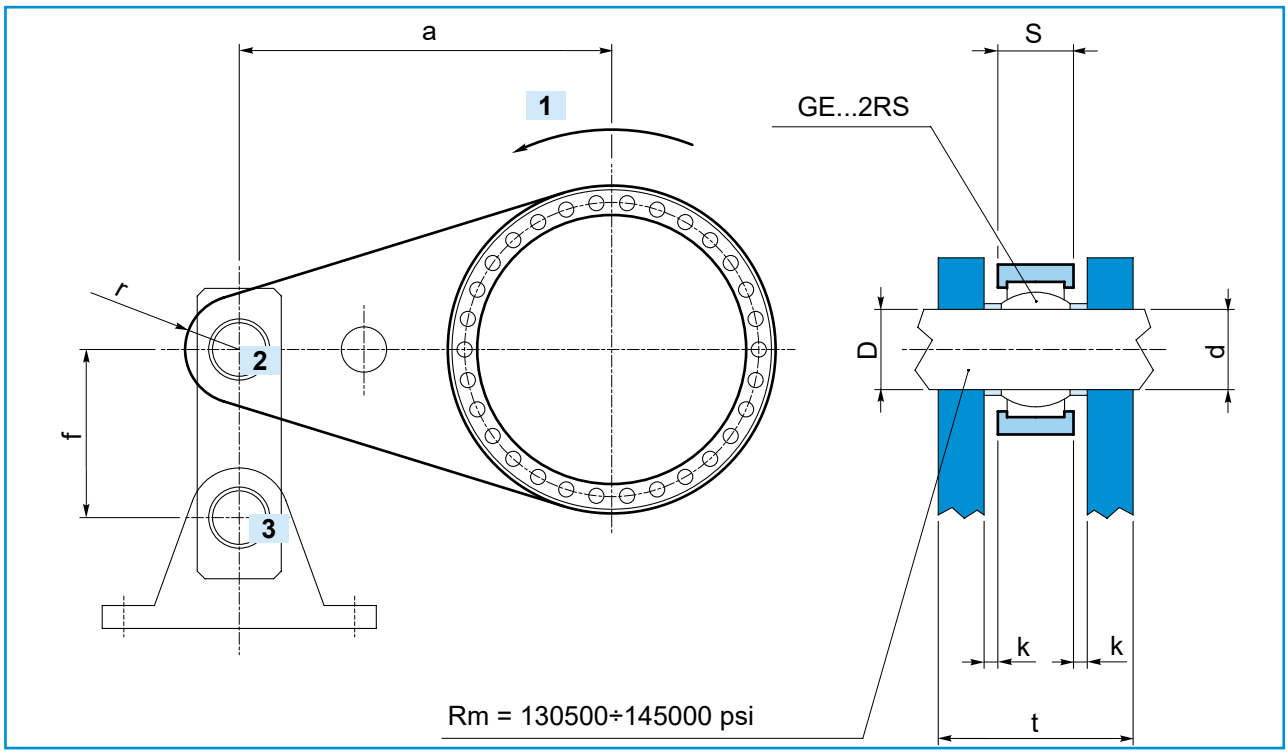
1) Loosen the screws “d” in several passes and in sequence so that the coupling can move on the hub.

CAUTION! Do not undo the screws completely so that the rings can separate on their own.
High axial forces could cause violent removal, resulting in a hazard to operators.

2) This normally releases the clamping unit. Use suitable equipment to support the gearbox and separate the gearbox from the machine shaft.

CAUTION!
Refer to the maintenance manual to check the permissible axial loads.

Indications for torque arm construction and anchoring



1
Preferential direction of rotation output shaft side

2 – **3**
GE...2RS in positions 2 and 3

	a min [in]	s [in]	r min [in]	f min [in]	GE...2RS	D [in]	d [in]	k [in]	t min [in]
010	7.874	0.591	1.181	3.150	**0.787**	0.787	0.787	0.079	1.378
020	11.811	0.591	1.181	3.150	**0.787**	0.787	0.787	0.079	1.378
030-045	11.811	0.787	1.378	3.937	**0.984**	0.984	0.984	0.118	1.811
065-067	15.748	0.787	1.378	3.937	**0.984**	0.984	0.984	0.118	1.811
090-091	19.685	0.984	1.575	5.906	**1.181**	1.181	1.181	0.118	2.165
150-155	23.622	0.984	1.575	5.906	**1.181**	1.181	1.181	0.118	2.165
250-255	27.559	1.181	1.772	5.906	**1.378**	1.378	1.378	0.157	2.598

Mounting the arm

1. The torque arm must be free to move axially and have enough play in the couplings to allow small gearbox oscillations (always present) without overloading the gearbox. Therefore ball joints must be used in all connections.

2. It is advisable to use long-life ball joints in which the rubbing surfaces are protected with PTFE. Alternatively, “steel to steel” joints can be used, provided they are greased periodically.
3. The anchoring connecting rod must be parallel to the torque arm in order to ensure the side clearance “k” (unloaded), which ensures free movement of the structure in case of deformation.
4. The fixed support to which the second end of the connecting rod is connected must ensure adequate anchorage for the load.
5. The torque arm and corresponding connecting rod may have different design solutions from those proposed, but the following measures must be taken:

   CAUTION!
   Do not carry out any welding work involving the gearbox, not even earthing.

6. Always use a torque wrench to tighten the coupling screws.

LUBRICATION

DANA gearboxes are supplied without lubricant; therefore the user must fill them correctly before starting the machine.

Essential oil specifications

The important parameters to consider when choosing the oil type are:

- viscosity under nominal operating conditions
- additives

The same oil must lubricate the bearings and the gears and all these components work inside the same box, in different operating conditions.

Viscosity

Nominal viscosity refers to a temperature of 104 °F, but decreases rapidly as the temperature increases. If the gearbox operating temperature is from 122 °F to 158 °C, a nominal viscosity can be chosen from the following guide table; choose the highest viscosity if a higher operating temperature is expected.

Output speed n_2 [rpm]	**Working temperature**	
	122 °F	**158 °F**
$n_2 \geq 20$	VG 150	VG 220
$5 < n_2 < 20$	VG 220	VG 320
$n_2 \leq 5$	VG 320	VG 460

Special attention must be paid to highly loaded output stages and those with very low speeds (<1 rpm). In such cases, always use high viscosity oils and with a good amount of Extreme Pressure (EP) additive.

Additives

In addition to the normal anti-foam and antioxidant additives, it is important to use oils with additives offering EP (extreme-pressure) and anti-wear properties, according to ISO 67436 L-CKC or DIN 515173 CLP. The lower the gearbox output speed, the more marked the EP characteristics of the products have to be. It should be remembered that the chemical compounds replacing hydrodynamic lubrication are formed to the detriment of the original EP load.

Therefore in case of very low speeds and high loads, it is important to observe the maintenance intervals so as not to lower the lubricating properties of the oil excessively.

Oil types

Oil types

The oils available generally belong to three large families.

- Mineral oils
- Polyalphaolefin (PAO) synthetic oils
- Polyalkylene glycol (PAG) synthetic oils

The most suitable choice is generally tied to the conditions of use.

Gearboxes that are not particularly loaded and with an intermittent operating cycle but without considerable temperature ranges can be lubricated with mineral oil.
In cases of heavy use, when the gearboxes are highly and continuously loaded resulting in a temperature increase, it is best to use polyalphaolefin synthetic lubricants.
The use of polyalkylene glycol oils is not allowed as they are not compatible with other oils and are often completely mixable with water:;this phenomenon is particularly dangerous because it can go unnoticed, but rapidly diminishes the lubricating properties of the oil. Moreover, these lubricants may chemically attack the oil seals and paint inside the gearbox.

In addition to the above, there are also hydraulic oils and oils for the food industry.
The former are used for negative brakes.
The latter are used specifically in the food industry as they are special products that are not harmful to health.
The tables below contain lubricants offered by the best-known manufacturers, with specifications suitable for lubricating DANA gearboxes.

Contamination

During normal operation, due to run-in of the surfaces, metallic microparticles will inevitably form in the oil.
This contamination can shorten the life of the bearings, resulting in premature gearbox failure.
To limit and control this phenomenon, without resorting to frequent and costly oil changes, a suitable auxiliary oil circulation system with filtering and cooling of the oil must be provided.
This system offers the dual advantage of controlling the level of contamination through the use of special filters and stabilising the operating temperature at a level more suitable for ensuring the required viscosity.

For lubrication problems with gearboxes intended for special uses, it is advisable to contact your local DANA representative regarding the construction type and operating parameters.

Lubricant oils for general use

Manufacturer	Mineral Oil			Polyalphaolefin Synthetic Oils (PAO)		
	ISO VG 150	ISO VG 220	ISO VG 320	ISO VG 150	ISO VG 220	ISO VG 320
ADDINOL	Eco Gear 150 M	Eco Gear 220 M	Eco Gear 320 M	Eco Gear 150 S	Eco Gear 220 S	Eco Gear 320 S
ARAL	Degol BG 50 Plus	Degol BG 220 Plus	Degol BG 320 Plus	Degol PAS 150	Degol PAS 220	Degol PAS 320
BP	Energol GR-XP 150	Energol GR-XP 220	Energol GR-XP 320	Enersyn EPX 150	Enersyn EPX 220	Enersyn EPX 320
CASTROL	Alpha SP 150	Alpha SP 220	Alpha SP 320	Alphasyn EP 150	Alphasyn EP 220	Alphasyn EP 320
CEPSA	Engranajes XMP 150	Engranajes XMP 220	Engranajes XMP 320	-	Aerogear Synt 220	Aerogear Synt 320
CHEVRON	-	-	-	Tegra Synthetic Gear 150	Tegra Synthetic Gear 220	Tegra Synthetic Gear 320
ENI	Blasia 150	Blasia 220	Blasia 320	Blasia SX 150	Blasia SX 220	Blasia SX 320
FUCHS	Renolin CLP Gear Oil 150	Renolin CLP Gear Oil 220	Renolin CLP Gear Oil 320	Renolin Unisyn CLP 150	Renolin Unisyn CLP 220	Renolin Unisyn CLP 320
KLÜBER	Klüberoil GEM 1-150 N	Klüberoil GEM 1-220 N	Klüberoil GEM 1-320 N	Klübersynth GEM 4-150 N	Klübersynth GEM 4-220 N	Klübersynth GEM 4-320 N
LUBRITECH	Gearmaster CLP 150	Gearmaster CLP 220	Gearmaster CLP 320	Gearmaster SYN 150	Gearmaster SYN 220	Gearmaster SYN 320
MOBIL	Mobilgear XMP 150	Mobilgear XMP 220	Mobilgear XMP 320	Mobil SHC Gear 150	Mobil SHC Gear 220	Mobil SHC Gear 320
MOLIKOTE	L-0115	L-0122	L-0132	L-2115	L-2122	L-2132
NILS	Ripress EP 150	Ripress EP 220	Ripress EP 320	Atoil Synth PAO 150	-	Atol Synth PAO 320
Q8	Goya NT 150	Goya NT 220	Goya NT 320	El Greco 150	El Greco 220	El Greco 320
REPSOL	Super Tauro 150	Super Tauro 220	Super Tauro 320	Super Tauro Sintetico 150	Super Tauro Sintetico 220	Super Tauro Sintetico 320
SHELL	Omala S2 G 150	Omala S2 G 220	Omala S2 320	Omala S4 GX 150	Omala S4 GX 220	Omala S4 GX 320
SUNOCO	Sun EP 150	Sun EP 220	Sun EP 320	-	-	-
TEXACO	Meropa 150	Meropa 220	Meropa 320	Pinnacle EP 150	Pinnacle EP 220	Pinnacle EP 320
TOTAL	Carter EP 150	Carter EP 220	Carter EP 320	Carter SH 150	Carter SH 220	Carter SH 320
TRIBOL	1100/150	1100/220	1100/320	-	-	1510/320

Lubricant oils for use in the food industry

(USDA-H1 and NSF-H1 approved)

Manufacturer	Hydraulic Oil			Gear Oil		
	ISO VG 32	**ISO VG 46**	**ISO VG 68**	**ISO VG 150**	**ISO VG 220**	**ISO VG 320**
ARAL	Eural Hyd 32	Eural Hyd 46	Eural Hyd 68	Eural Gear 150	Eural Gear 220	-
CASTROL	Optileb HY 32	Optileb HY 46	Optileb HY 68	Optileb GT 150	Optileb GT 220	Optileb GT 320
CHEVRON	Lubricating Oil FM 32	Lubricating Oil FM 46	Lubricating Oil FM 68	-	Lubricating Oil FM 220	-
ENI	Rocol Foodlube Hi-Power 32	Rocol Foodlube Hi-Power 46	Rocol Foodlube Hi-Power 68	Rocol Foodlube Hi-Torque 150	Rocol Foodlube Hi-Torque 220	Rocol Foodlube Hi-Torque 320
FUCHS	Cassida Fluid HF 32	Cassida Fluid HF 46	Cassida Fluid HF 68	Cassida Fluid GL 150	Cassida Fluid GL 220	Cassida Fluid GL 320
KLÜBER	Klüberfood 4 NH1-32	Klüberfood 4 NH1-46	Klüberfood 4 NH1-68	Klüberoil 4 UH1-150N	Klüberoil 4 UH1-220N	Klüberoil 4 UH1-320N
MOBIL	Mobil SHC Cibus 32	Mobil SHC Cibus 46	Mobil SHC CIbus 68	Mobil SHC Cibus 150	Mobil SHC CIbus 220	Mobil SHC Cibus 320
NILS	Mizar 32	Mizar 46	Mizar 68	Ripress Synt Food 150	Ripress Synt Food 220	Ripress Synt Food 320
TEXACO	Cygnus Hydraulic Oil 32	Cygnus Hydraulic Oil 32	Cygnus Hydraulic Oil 32	Cygnus Gear PAO 150	Cygnus Gear PAO 220	-
TRIBOL	Foodproof 1840/32	Foodproof 1840/46	Foodproof 1840/68	-	Foodproof 1810/220	Foodproof 1810/320

Oil checking with unforced lubrication

Horizontal mounting
Levels
When the gearbox is mounted horizontally, the normal level to ensure correct lubrication is at the centre line, Fig. (A). For applications with very low output rotation speeds (n2 ≤ 5 rpm), it is advisable to fix the level at a value above 1.969–3.937 in, Fig. (B).
The correct level can be easily checked using a transparent tube positioned as shown in figure (B).
If the output speed is extremely low (n2 ≤ 1 rpm), or if long idle periods are expected, it is advisable to fill the entire box. In this case a special auxiliary tank must be provided.
To fit an instrument for visually checking the level (or by means of an electrical signal), mount it as shown in the diagram in Fig. (C).
Mount the breather plug above the sight glass with a tube that is long enough. Connect the top part (empty) of the gearbox just below the breather. This will prevent the leakage of oil.

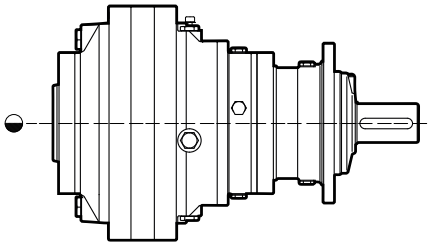


Fig. A

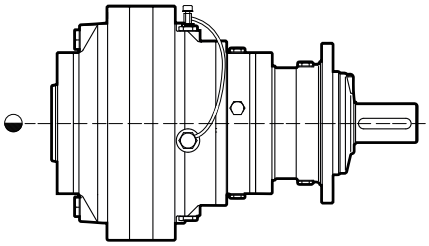


Fig. B

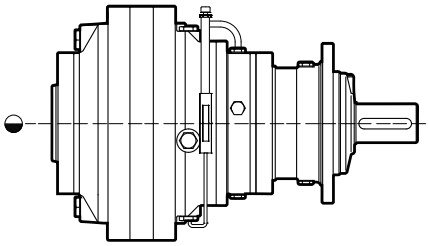
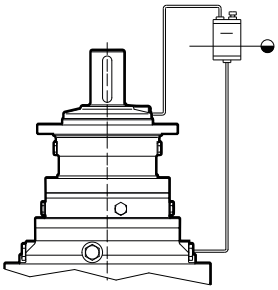


Fig. C

Expansion vessel
Several rules must be followed with vertical mounting, and in any case whenever the gearbox has to be filled completely.
During filling, an air bubble can form at the top, at the output shaft rotary seal, which must be eliminated to ensure that the seal is lubricated properly. Also, since the oil volume increases with the temperature, an auxiliary tank must be provided to allow it to expand without creating hazardous pressures inside the gearbox.



For dimensioning, the oil expansion volume (Ve) must be determined at the operating temperature:

$$V_e = V_t \times \Delta T / 1800 \quad [in^3]$$

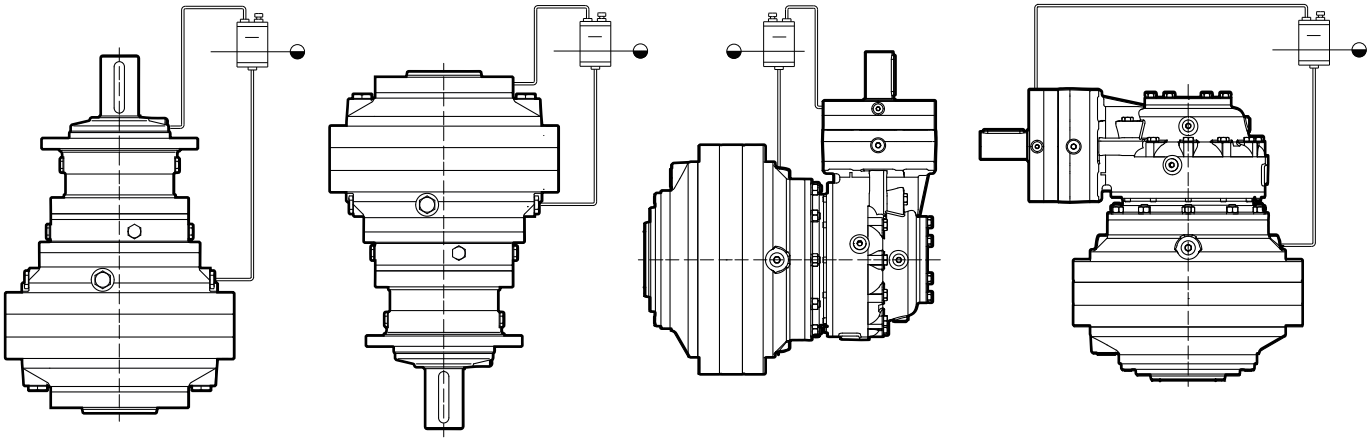
$\mathbf{V_t}$ = total oil volume [in³]
$\mathbf{\Delta T}$ = difference between operating temperature and ambient temperature [°F]

The capacity (Vs) of the expansion vessel is:

$$V_S = 2 \times V_e \quad [in^3]$$

To remove any residual air, the holes at the top of the gearbox and the top of the expansion tank must be connected; the latter must be located at a height that allows the gearbox to be filled up to the minimum level. It is advisable to make the bleed pipe or the expansion vessel with transparent material in order to easily check the exact position of the lubricant level.

Vertical in-line mounting and right-angle versions
The gearboxes must be completely full, so an expansion vessel must be fitted. As already mentioned, it is very important to connect the top gearbox breather to the expansion vessel to allow the oil to rise up to the rotary seal ring on the upper gearbox shaft.
When fitting an instrument for visual checking (or by means of a special electric signal), the instrument must be placed on the side of the tank.



Auxiliary cooling and filtering systems

If the power applied is greater than the thermal power that can be dissipated by the gearbox, an auxiliary cooling system (air-oil) must be used to dissipate the excess thermal power and keep the lubricating oil clean by means of constant filtering.

To fulfil this function, DANA offers a range of cooling units: contact your local DANA representative for details. The control units consist of an air-oil heat exchanger, a filter, an electric motor, a hydraulic pump with safety valve and a coaxial fan integral with the pump. If a different type of auxiliary system is to be fitted, make sure not to use systems with an external tank.

If an auxiliary tank is required (e.g. for cooling several gearboxes with a single system), we recommend contacting your local DANA representative. When designing an oil circulation circuit, it is advisable for the suction to be at the lowest point, so that this branch of the circuit can also be used to drain the gearbox.

In any case, the oil suction and delivery points must be far enough apart to ensure that fresh oil passes through the gearbox. The diameter of the oil holes is very important, especially in suction. In fact, the pump tends to cavitate if the holes are too small. Not being able to change the pump delivery, which is a function of the power to be dissipated, the capacity of the holes must be verified.

When sucking oil from the input supports or flanges of fast gearboxes, the use of one hole may be insufficient for the entire flow; therefore 2 or 3 holes must be connected by means of a manifold connected to the suction pipe.
Delivery is usually less problematic since, if the natural flow rate is too low, a small pressure is generated which ensures the flow.

For correct dimensioning of the circuit, it is advisable to follow these rules.

Suction:

- suck from several holes when the oil speed v_o is higher than 4.30 ft/s with just one hole;

Delivery:

- deliver to several holes when the oil velocity v_o is higher than 6.89 ft/s with just one hole.

The speed can be obtained from the table below, or calculated with the following equation:

$$v = (Q \times 0.405) / d^2 \quad [ft/s]$$

where:

v = oil speed [ft/s]
Q = flow rate [US Gal/min]
d = inside diameter of the union [in]

The calculation takes the kinematic oil viscosity of 60 cSt into account.

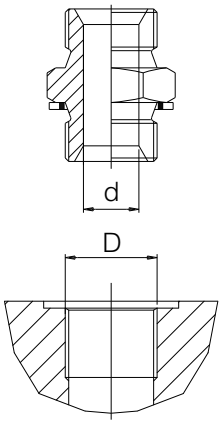


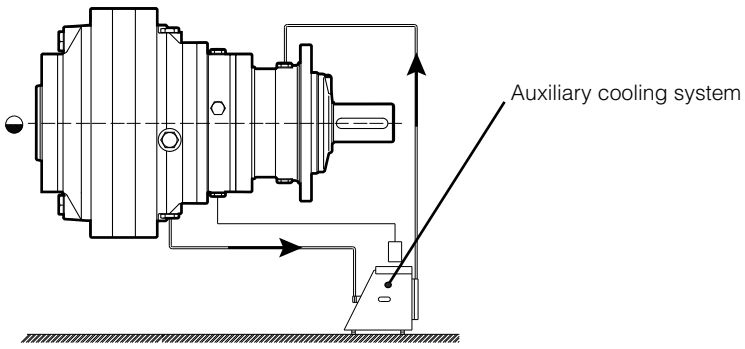
Fig. 15

Oil speed table **v** [m/s]				
Hole diameter [in]		**Pump flow** **Q** [US Gal/min]		
D (nom.)	**d**	**1.58**	**3.17**	**5.28**
G 1/4”	0.276	8.495	17.023	28.208
G 3/8”	0.394	4.166	8.331	13.907
G 1/2”	0.472	2.952	5.773	9.643
G 3/4”	0.630	1.640	3.280	5.412
G 1”	0.866	0.853	1.706	2.854
G 1 1/4”	1.181	0.459	0.918	1.542

Oil checking with auxiliary cooling system

In-line horizontal gearbox

Refer to the figure below to check the oil level and the position of the cooling circuit fittings.



In-line and right-angle vertical gearbox
Refer to Fig. (D), (E) and (F) to check the oil level and the position of the cooling circuit fittings.

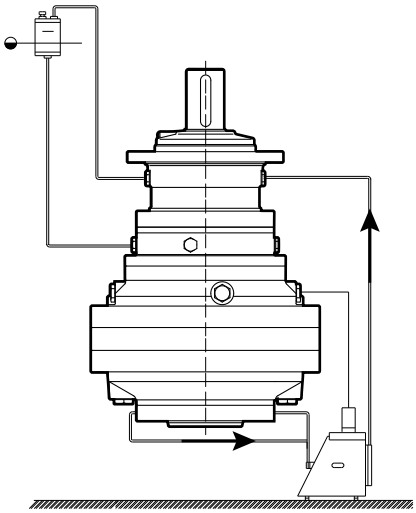


Fig. D

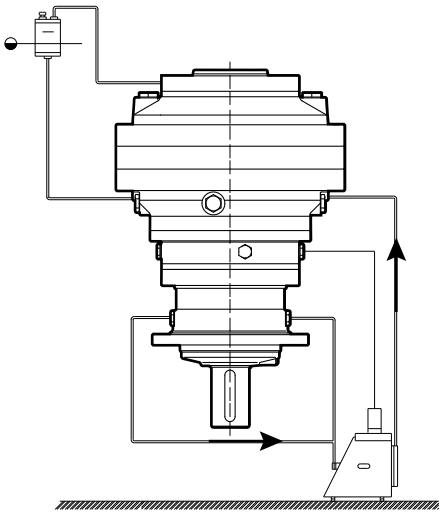


Fig. E

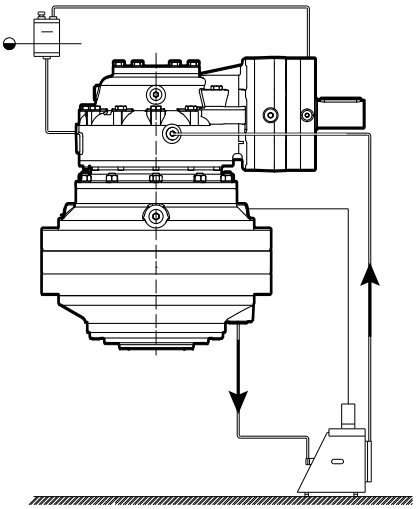


Fig. F

Caution
The auxiliary oil cooling and filtration systems described above are the minimum condition required to control the gearbox lubrication. The end-user can always extend the system by adding auxiliary safety checks on the flow, temperature and level.
The system may also be fitted with valves to facilitate oil changes with the aid of the service pump and auxiliary suction filter to protect the pump from unwanted debris from inside the gearbox.

Oil change

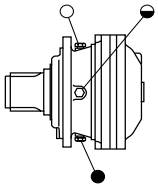
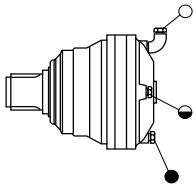
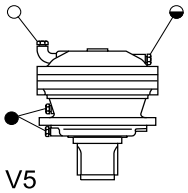
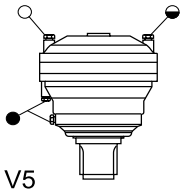
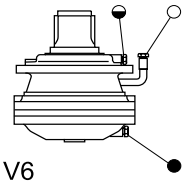
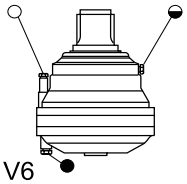
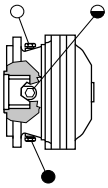
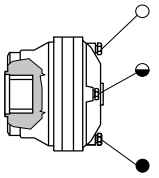
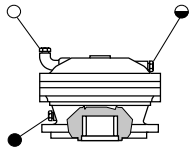
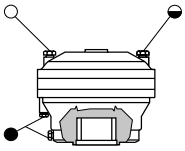
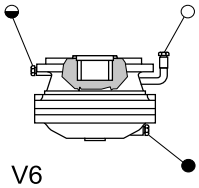
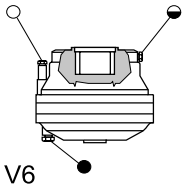
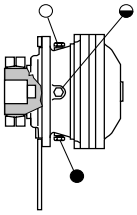
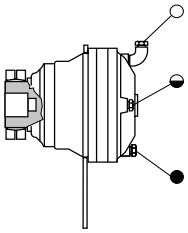
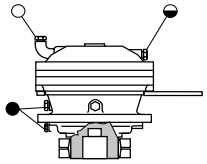
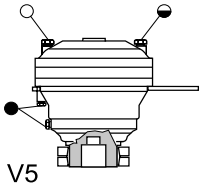
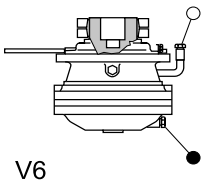
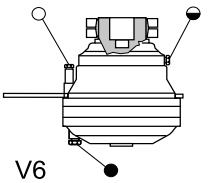
If there is no filtering and cooling circuit, the first oil change must be done after 500–600 hours of operation.
Subsequently, the following oil change frequencies are recommended:

Oil temperature [°F]	**Oil change interval** [h]	
	Synthetic Oil	**Mineral Oil**
≤ 149	10'000	4'000
149 ÷ 176	8'000	3'000

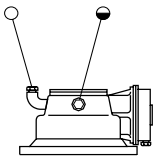
In case of heavy duty applications, the above values must be halved. The values given in the table refer to a work environments free from external contamination.
It is advisable to carry out the oil change with the gearbox hot, (approximately 104 °F) to prevent sludge from forming and to help it drain completely.

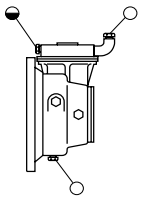
For the correct procedure, follow the rules given in the installation and maintenance manual supplied with each gearbox.
It is advisable to check the oil level periodically.
Check for leaks if more than 10% the total volume has to be added.

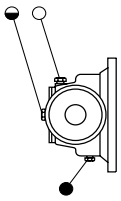
Mounting positions and plugs

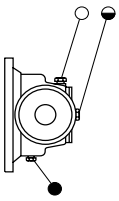
		Horizontal position		Vertical position	
		010-091	150-320	010-091	150-320
AXIAL	MN-MR-MN1-MN2-MR1-MR2	 B3	 B3	 V5	 V5
				 V6	 V6
	FE	 B3	 B3	 V5	 V5
				 V6	 V6
	FS	 B3	 B3	 V5	 V5
				 V6	 V6

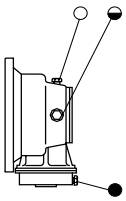
RIGHT-ANGLE

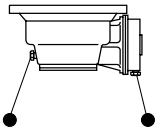
 V5B

 B3D

 B3C

 B3A

 B3B

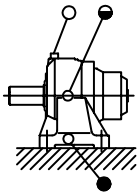
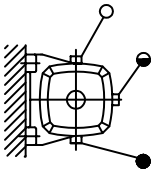
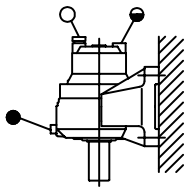
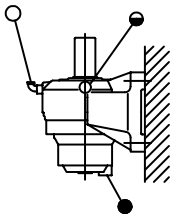
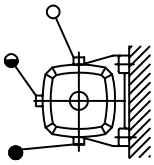
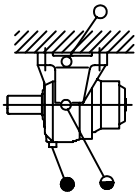
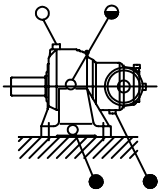
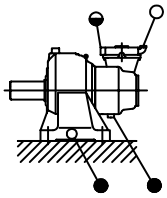
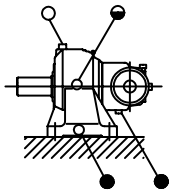
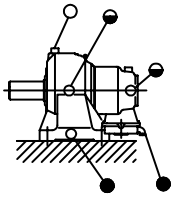
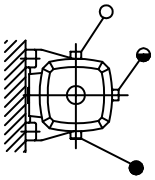
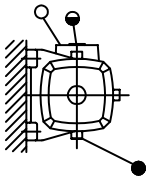
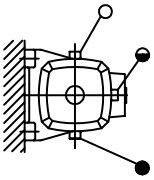
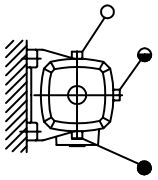
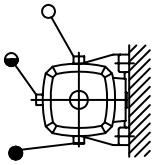
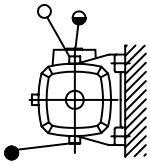
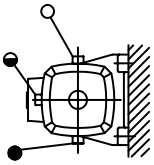
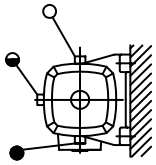
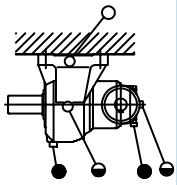
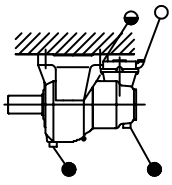
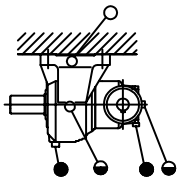
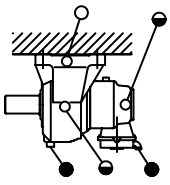
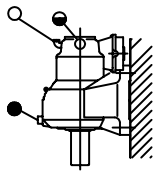
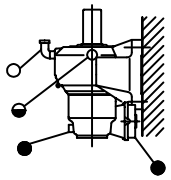
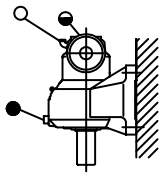
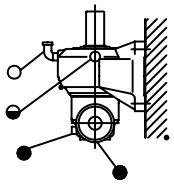
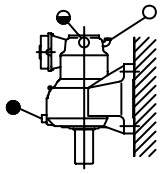
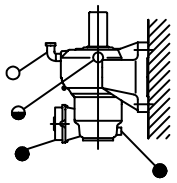
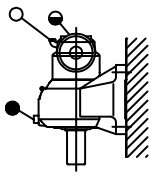
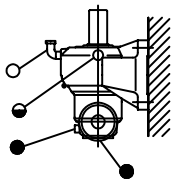
 V6B

● Oil drain plug

◒ Oil level plug

○ Oil breather and filler plug

Mounting positions and plugs

	Horizontal position		Vertical position	
AXIAL	B3 	B6 		
	B7 	B8 	V5	V6
RIGHT-ANGLE	B3C 	B3D 	B3A 	B3B 
	B6B 	B6C 	B6D 	B6A 
	B7B 	B7A 	B7D 	B7C 
	B8A 	B8B 	B8C 	B8D 
	V5B 	V6B 		
	V5A 	V6A 		
	V5D 	V6D 		
	V5C 	V6C 		

Lubricant quantity [US Gal]

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010		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
EM 1010	MN/MN1/MN2	0.13	0.26	-
	MR/MR1/MR2	0.13	0.26	-
	FE	0.13	0.26	-
	FS	0.13	0.26	-
ED 2010	MN/MN1/MN2	0.21	0.42	-
	MR/MR1/MR2	0.21	0.42	-
	FE	0.21	0.42	-
	FS	0.21	0.42	-
EC 2010	MN/MN1/MN2	0.26	-	0.53
	MR/MR1/MR2	0.26	-	0.53
	FE	0.26	-	0.53
	FS	0.26	-	0.53
ET 3010	MN/MN1/MN2	0.24	0.48	-
	MR/MR1/MR2	0.24	0.48	-
	FE	0.24	0.48	-
	FS	0.24	0.48	-
EC 3010	MN/MN1/MN2	0.29	-	0.58
	MR/MR1/MR2	0.29	-	0.58
	FE	0.29	-	0.58
	FS	0.29	-	0.58
EQ4010	MN/MN1/MN2	0.26	0.50	-
	MR/MR1/MR2	0.26	0.50	-
	FE	0.26	0.50	-
	FS	0.26	0.50	-
EC 4010	MN/MN1/MN2	0.32	-	0.69
	MR/MR1/MR2	0.32	-	0.69
	FE	0.32	-	0.69
	FS	0.32	-	0.69
PD 1010	MR1/MR2	0.29	0.53	-
PD 2010	MR1/MR2	0.34	0.61	-
PD 3010	MR1/MR2	0.37	0.66	-
PDA 2010	MR1/MR2	0.34	-	0.63
PDA 3010	MR1/MR2	0.40	-	0.71
PDA 4010	MR1/MR2	0.42	-	0.77

020		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
EM 1020	MR/MR1/MR2	0.26	0.53	-
	FE	0.26	0.53	-
	FS	0.26	0.53	-
	ME	0.26	0.53	-
	FET	0.26	0.53	-
	FP1	0.26	0.53	-
	FP	0.26	0.53	-
ED 2020	MR/MR1/MR2	0.32	0.63	-
	FE	0.32	0.63	-
	FS	0.32	0.63	-
	ME	0.32	0.63	-
	FET	0.32	0.63	-
	FP1	0.32	0.63	-
	FP	0.32	0.63	-
EC 2020	MR/MR1/MR2	0.58	-	1.16
	FE	0.58	-	1.16
	FS	0.58	-	1.16
	ME	0.58	-	1.16
	FET	0.58	-	1.16
	FP1	0.58	-	1.16
	FP	0.58	-	1.16
ET 3020	MR/MR1/MR2	0.42	0.84	-
	FE	0.42	0.84	-
	FS	0.42	0.84	-
	ME	0.42	0.84	-
	FET	0.42	0.84	-
	FP1	0.42	0.84	-
	FP	0.42	0.84	-
EC 3020	MR/MR1/MR2	0.69	-	1.37
	FE	0.69	-	1.37
	FS	0.69	-	1.37
	ME	0.69	-	1.37
	FET	0.69	-	1.37
	FP1	0.69	-	1.37
	FP	0.69	-	1.37
EQ 4020	MR/MR1/MR2	0.45	0.90	-
	FE	0.45	0.90	-
	FS	0.45	0.90	-
	ME	0.45	0.90	-
	FET	0.45	0.90	-
	FP1	0.45	0.90	-
	FP	0.45	0.90	-
EC 4020	MR/MR1/MR2	0.71	-	1.43
	FE	0.71	-	1.43
	FS	0.71	-	1.43
	ME	0.71	-	1.43
	FET	0.71	-	1.43
	FP1	0.71	-	1.43
	FP	0.71	-	1.43
PD 1020	MR1/MR2	0.90	1.72	-
PD 2020	MR1/MR2	1.06	2.01	-
PD 3020	MR1/MR2	1.11	2.11	-
PD 4020	MR1/MR2	1.19	2.16	-
PDA 2020	MR1/MR2	1.16	-	2.32
PDA 3020	MR1/MR2	1.27	-	2.64
PDA 4020	MR1/MR2	1.35	-	2.69

030		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
ED 2030	MR/MR1/MR2	0.34	0.69	-
	FE	0.34	0.69	-
	FP	0.34	0.69	-
	FP1	0.34	0.69	-
	FET	0.34	0.69	-
	FS	0.34	0.69	-
ET 3030	MR/MR1/MR2	0.45	0.90	-
	FE	0.45	0.90	-
	FP	0.45	0.90	-
	FP1	0.45	0.90	-
	FET	0.45	0.90	-
	FS	0.45	0.90	-
EC 3030	MR/MR1/MR2	0.71	-	1.43
	FE	0.71	-	1.43
	FP	0.71	-	1.43
	FP1	0.71	-	1.43
	FET	0.71	-	1.43
	FS	0.71	-	1.43
EQ 4030	MR/MR1/MR2	0.48	0.95	-
	FE	0.45	0.90	-
	FP	0.45	0.90	-
	FP1	0.45	0.90	-
	FET	0.45	0.90	-
	FS	0.45	0.90	-
EC 4030	MR/MR1/MR2	0.74	-	1.48
	FE	0.74	-	1.48
	FP	0.74	-	1.48
	FP1	0.74	-	1.48
	FET	0.74	-	1.48
	FS	0.74	-	1.48
PD 2030	MR1/MR2	1.03	2.06	-
PD 3030	MR1/MR2	1.08	2.16	-
PD 4030	MR1/MR2	1.16	2.32	-
PDA 3030	MR1/MR2	1.35	-	2.69
PDA 4030	MR1/MR2	1.43	-	2.85

Lubricant quantity [US Gal]

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040		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
ED 2040	MN/MN1/MN2	0.45	0.90	-
	ME	0.45	0.90	-
ET 3040	MN/MN1/MN2	0.45	0.90	-
	ME	0.45	0.90	
EC 3040	MN/MN1/MN2	0.71	-	1.43
	ME	0.71	-	1.43
EQ 4040	MN/MN1/MN2	0.48	0.95	-
	ME	0.48	0.95	-
EC 4040	MN/MN1/MN2	0.74	-	1.48
	ME	0.74	-	1.48

045		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
EM 1045	MR/MR1/MR2	0.26	0.58	-
	FE	0.26	0.58	-
	FS	0.26	0.58	-
	FET	0.26	0.58	-
	FP1	0.26	0.58	-
	FP	0.26	0.58	-
ED 2045	MR/MR1/MR2	0.42	0.84	-
	FE	0.42	0.84	-
	FS	0.42	0.84	-
	FET	0.42	0.84	-
	FP1	0.42	0.84	-
	FP	0.42	0.84	-
EC 2045	MR/MR1/MR2	0.53	1.06	-
	FE	0.53	1.06	-
	FS	0.53	1.06	-
	FET	0.53	1.06	-
	FP1	0.53	1.06	-
	FP	0.53	1.06	-
ET 3045	MR/MR1/MR2	0.45	0.90	-
	FE	0.45	0.90	-
	FS	0.45	0.90	-
	FET	0.45	0.90	-
	FP1	0.45	0.90	-
	FP	0.45	0.90	-
EC 3045	MR/MR1/MR2	0.69	-	1.37
	FE	0.69	-	1.37
	FS	0.69	-	1.37
	FET	0.69	-	1.37
	FP1	0.69	-	1.37
	FP	0.69	-	1.37
EQ 4045	MR/MR1/MR2	0.53	1.06	-
	FE	0.53	1.06	-
	FS	0.53	1.06	-
	FET	0.53	1.06	-
	FP1	0.53	1.06	-
	FP	0.53	1.06	-
EC 4045	MR/MR1/MR2	0.71	-	1.43
	FE	0.71	-	1.43
	FS	0.71	-	1.43
	FET	0.71	-	1.43
	FP1	0.71	-	1.43
	FP	0.71	-	1.43
PD 1045	MR1/MR2	0.90	1.72	-
PD 2045	MR1/MR2	1.06	2.01	-
PD 3045	MR1/MR2	1.11	2.11	-
PD 4045	MR1/MR2	1.19	2.16	-
PDA 2045	MR1/MR2	1.16	-	2.32
PDA 3045	MR1/MR2	1.27	-	2.64
PDA 4045	MR1/MR2	1.35	-	2.69

046		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
EM 1046	MN/MN1/MN2	0.32	0.63	-
	ME	0.32	0.63	-
ED 2046	MN/MN1/MN2	0.53	1.06	-
	ME	0.53	1.06	-
EC 2046	MN/MN1/MN2	0.66	-	1.32
	ME	0.66	-	1.32
ET 3046	MN/MN1/MN2	0.48	0.95	-
	ME	0.48	0.95	-
EC 3046	MN/MN1/MN2	0.87	-	1.74
	ME	0.87	-	1.74
EQ 4046	MN/MN1/MN2	0.58	1.16	-
	ME	0.58	1.16	-
EC 4046	MN/MN1/MN2	0.90	-	1.80
	ME	0.90	-	1.80

Lubricant quantity [US Gal]

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065		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
EM 1065	MR/MR1/MR2	0.42	0.84	-
	FE	0.48	0.95	-
	FS	0.42	0.84	-
	ME	0.42	0.84	-
	FP1	0.48	0.95	-
	FP	0.48	0.95	-
ED 2065	MR/MR1/MR2	0.63	1.27	-
	FE	0.69	1.37	-
	FS	0.63	1.27	-
	ME	0.63	1.27	-
	FP1	0.69	1.37	-
	FP	0.69	1.37	-
EC 2065	MR/MR1/MR2	0.71	-	1.43
	FE	0.77	-	1.53
	FS	0.71	-	1.43
	ME	0.71	-	1.43
	FP1	0.77	-	1.53
	FP	0.77	-	1.53
ET 3065	MR/MR1/MR2	0.61	1.21	-
	FE	0.66	1.32	-
	FS	0.61	1.21	-
	ME	0.61	1.21	
	FP1	0.66	1.32	
	FP	0.66	1.32	-
EC 3065	MR/MR1/MR2	0.98	-	1.95
	FE	1.00	-	2.01
	FS	0.98	-	1.95
	ME	0.98	-	1.95
	FP1	1.00	-	2.01
	FP	1.00	-	2.01
EQ 4065	MR/MR1/MR2	0.66	1.32	-
	FE	0.74	1.48	-
	FS	0.66	1.32	-
	ME	0.66	1.32	
	FP1	0.74	1.48	
	FP	0.74	1.48	-
EC 4065	MR/MR1/MR2	0.84	-	1.69
	FE	0.92	-	1.85
	FS	0.84	-	1.69
	ME	0.84	-	1.69
	FP1	0.92	-	1.85
	FP	0.92	-	1.85
PD 1065	MR1/MR2	1.32	2.38	-
PD 2065	MR1/MR2	1.53	2.77	-
PD 3065	MR1/MR2	1.58	2.90	-
PD 4065	MR1/MR2	1.69	3.12	-
PDA 2065	MR1/MR2	1.58	-	3.17
PDA 2065	MR1/MR2	1.85	-	3.70
PDA 3065	MR1/MR2	1.87	-	3.75

067		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
ED 2067	MR/MR1/MR2	0.63	1.27	-
	FE	0.69	1.37	-
	FS	0.63	1.27	-
	ME	0.63	1.27	
	FP	0.69	1.37	-
EC 2067	MR/MR1/MR2	0.71	-	1.43
	FE	0.77	-	1.53
	FS	0.71	-	1.43
	ME	0.71	-	1.43
	FP	0.77	-	1.53
ET 3067	MR/MR1/MR2	0.61	1.21	-
	FE	0.66	1.32	-
	FS	0.61	1.21	-
	ME	0.66	1.32	-
	FP	0.61	1.21	-
EC 3067	MR/MR1/MR2	0.98	-	1.95
	FE	1.00	-	2.01
	FS	0.98	-	1.95
	ME	1.00	-	2.01
	FP	0.98	-	1.95
PD 2067	MR1/MR2	1.53	2.77	-
PD 3067	MR1/MR2	1.58	2.90	-
PDA 3067	MR1/MR2	1.85	-	3.70

090		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
EM 1090	MN/MN1/MN2	0.58	1.16	-
	MR/MR1/MR2	0.79	1.58	-
	ME	0.58	1.16	-
	FE	0.58	1.16	-
	FS	0.58	1.16	-
	FP	0.79	1.58	-
ED 2090	MN/MN1/MN2	0.58	1.16	-
	MR/MR1/MR2	0.92	1.85	-
	ME	0.58	1.16	-
	FE	0.84	1.69	-
	FS	0.58	1.16	-
	FP	0.92	1.85	-
EC 2090	MN/MN1/MN2	1.32	-	2.64
	MR/MR1/MR2	1.58	-	3.17
	ME	1.32	-	2.64
	FE	1.37	-	2.75
	FS	1.32	-	2.64
	FP	1.58	-	3.17
ET 3090	MN/MN1/MN2	0.87	1.74	-
	MR/MR1/MR2	0.84	1.69	-
	ME	0.87	1.74	-
	FE	0.84	1.69	-
	FS	0.87	1.74	-
	FP	0.84	1.69	-
EC 3090	MN/MN1/MN2	1.37	-	2.75
	MR/MR1/MR2	1.64	-	3.27
	ME	1.37	-	2.75
	FE	1.45	-	2.90
	FS	1.37	-	2.75
	FP	1.64	-	3.27
EQ 4090	MN/MN1/MN2	1.06	2.11	-
	MR/MR1/MR2	1.32	2.64	-
	ME	1.06	2.11	-
	FE	1.00	2.01	-
	FS	1.06	2.11	-
	FP	1.32	2.64	-
EC 4090	MN/MN1/MN2	1.45	-	2.90
	MR/MR1/MR2	1.72	-	3.43
	ME	1.45	-	2.90
	FE	1.53	-	3.06
	FS	1.45	-	2.90
	FP	1.72	-	3.43
PD 1090	MR1/MR2	1.37	2.51	-
PD 2090	MR1/MR2	1.58	2.90	-
PD 3090	MR1/MR2	1.66	3.06	-
PD 4090	MR1/MR2	1.85	3.43	-
PDA 2090	MR1/MR2	2.24	3.91	3.96
PDA 3090	MR1/MR2	2.38	4.07	4.09
PDA 4090	MR1/MR2	2.51	4.22	4.22

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091		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
EC 2091	MN/MN1/MN2	1.32	-	2.64
	MR/MR1/MR2	1.58	-	3.17
	ME	1.32	-	2.64
	FE	1.37	-	2.75
	FS	1.32	-	2.64
	FP	1.58	-	3.17
PDA 2091	MR1/MR2	2.24	-	3.96

150		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
EM 1150	MN/MN1/MN2	0.66	1.32	-
	MR/MR1/MR2	1.19	2.38	-
	MNS9	0.66	1.32	-
	MN1S9	0.66	1.32	-
	MNR	1.19	2.38	-
	ME	0.66	1.32	-
	FE	0.48	0.95	-
	FS	0.66	1.32	-
	FP	1.19	2.38	-
ED 2150	MN/MN1/MN2	0.84	1.69	-
	MR/MR1/MR2	1.32	2.64	-
	MNS9	0.84	1.69	-
	MN1S9	0.84	1.69	-
	MNR	1.32	2.64	-
	ME	0.84	1.69	-
	FE	0.66	1.32	-
	FS	0.84	1.69	-
	FP	1.32	2.64	-
EC 2150	MN/MN1/MN2	1.32	-	2.64
	MR/MR1/MR2	1.85	-	3.70
	MNS9	1.32	-	2.64
	MN1S9	1.32	-	2.64
	MNR	1.85	-	3.70
	ME	1.32	-	2.64
	FE	0.79	-	3.17
	FS	1.32	-	2.64
	FP	1.85	-	3.70
ET 3150	MN/MN1/MN2	0.92	1.85	-
	MR/MR1/MR2	1.40	2.80	-
	MNS9	0.92	1.85	-
	MN1S9	0.92	1.85	-
	MNR	1.40	2.80	-
	ME	0.92	1.85	
	FE	0.79	1.58	-
	FS	0.92	1.85	-
	FP	1.40	2.80	-
EC 3150	MN/MN1/MN2	1.16	-	2.32
	MR/MR1/MR2	1.58	-	3.17
	MNS9	1.16	-	2.32
	MN1S9	1.16	-	2.32
	MNR	1.58	-	3.17
	ME	1.16	-	2.32
	FE	0.98	-	1.95
	FS	1.16	-	2.32
	FP	1.58	-	3.17
EQ 4150	MN/MN1/MN2	0.98	1.95	-
	MR/MR1/MR2	1.45	2.90	-
	MNS9	0.98	1.95	-
	MN1S9	0.98	1.95	-
	MNR	1.45	2.90	-
	ME	0.98	1.95	
	FE	0.92	1.85	-
	FS	0.98	1.95	-
	FP	1.45	2.90	-
EC 4150	MN/MN1/MN2	1.45	-	2.90
	MR/MR1/MR2	1.58	-	3.17
	MNS9	1.45	-	2.90
	MN1S9	1.45	-	2.90
	MNR	1.58	-	3.17
	ME	1.45	-	2.90
	FE	0.92	-	1.85
	FS	1.45	-	2.90
	FP	1.58	-	3.17

150		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
PD 1150	MR1/MR2	5.5	10.2	-
PD 2150	MR1/MR2	6.3	11.6	-
PD 3150	MR1/MR2	6.5	12.0	-
PD 4150	MR1/MR2	11.0	13.4	-
PDA 2150	MR1/MR2	10.0	-	15.5
PDA 3150	MR1/MR2	9.0	-	16.0
PDA 4150	MR1/MR2	9.0	-	16.5

Lubricant quantity [US Gal]

The quantities of oil indicated are approximate and to be used for supply purposes.
The exact quantity of oil to be introduced into the reducer is defined by its level.

155		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
ED 2155	MN/MN1/MN2	0.84	1.69	-
	MR/MR1/MR2	1.32	2.64	-
	MNS9	0.84	1.69	-
	MN1S9	0.84	1.69	-
	MNR	1.32	2.64	-
	ME	0.84	1.69	-
	FE	0.66	1.32	-
	FS	0.84	1.69	-
	FP	1.32	2.64	-
EC 2155	MN/MN1/MN2	1.32	2.64	-
	MR/MR1/MR2	1.85	3.70	-
	MNS9	1.32	2.64	-
	MN1S9	1.32	2.64	-
	MNR	1.85	3.70	-
	ME	1.32	2.64	-
	FE	0.79	3.17	-
	FS	1.32	2.64	-
	FP	1.85	3.70	-
ET 3155	MN/MN1/MN2	0.92	1.85	-
	MR/MR1/MR2	1.40	2.80	-
	MNS9	0.92	1.85	-
	MN1S9	0.92	1.85	-
	MNR	1.40	2.80	-
	ME	0.92	1.85	-
	FE	0.79	1.58	-
	FS	0.92	1.85	-
	FP	1.40	2.80	-
EC 3155	MN/MN1/MN2	1.16	2.32	-
	MR/MR1/MR2	1.58	3.17	-
	MNS9	1.16	2.32	-
	MN1S9	1.16	2.32	-
	MNR	1.58	3.17	-
	ME	1.16	2.32	-
	FE	0.98	1.95	-
	FS	1.16	2.32	-
	FP	1.58	3.17	-
PD 2155	MR1/MR2	1.66	3.06	-
PD 3155	MR1/MR2	1.72	3.17	-
PDA 3155	MR1/MR2	2.38	-	4.22

250		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
EM 1250	MN/MN1/MN2	1.00	1.85	-
	FE	0.66	1.32	-
	FS	1.00	1.85	-
	FP	1.00	1.85	-
ED 2250	MN/MN1/MN2	1.19	2.38	-
	FE	0.92	1.85	-
	FS	1.19	2.38	-
	FP	1.19	2.38	-
EC 2250	MN/MN1/MN2	1.72	3.43	-
	FE	1.32	2.64	-
	FS	1.72	3.43	-
	FP	1.72	3.43	-
ET 3250	MN/MN1/MN2	1.32	2.64	-
	FE	1.19	2.38	-
	FS	1.32	2.64	-
	FP	1.32	2.64	-
EC 3250	MN/MN1/MN2	1.50	3.01	-
	FE	1.58	3.17	-
	FS	1.50	3.01	-
	FP	1.50	3.01	-
EQ 4250	MN/MN1/MN2	1.37	2.75	-
	FE	1.27	2.53	-
	FS	1.37	2.75	-
	FP	1.37	2.75	-
EC 4250	MN/MN1/MN2	1.85	3.70	-
	FE	1.50	3.01	-
	FS	1.85	3.70	-
	FP	1.85	3.70	-

255		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
ED 2255	MN/MN1/MN2	1.19	2.38	-
	FE	0.92	1.85	-
	FS	1.19	2.38	-
	FP	1.19	2.38	-
ET 3255	MN/MN1/MN2	1.32	2.64	-
	FE	1.19	2.38	-
	FS	1.32	2.64	-
	FP	1.32	2.64	-
EC 3255	MN/MN1/MN2	1.50	-	3.01
	FE	1.58	-	3.17
	FS	1.50	-	3.01
	FP	1.50	-	3.01
EQ 4255	MN/MN1/MN2	1.37	2.75	-
	FE	1.27	2.53	-
	FS	1.37	2.75	-
	FP	1.37	2.75	-
EC 4255	MN/MN1/MN2	1.85	-	3.70
	FE	1.50	-	3.01
	FS	1.85	-	3.70
	FP	1.85	-	3.70

320		Mounting position B3 B6 B7 B8 B3C B3A B3B	V5 V6	V5A V6A V5B V6B V5C V6C V5D V6D B3D B6C B7A B8B
EM 1320	FE	-	-	-
ED 2320	FE	0.92	1.85	-
ET 3320	FE	1.19	2.38	-
EQ 2320	FE	1.27	2.64	-

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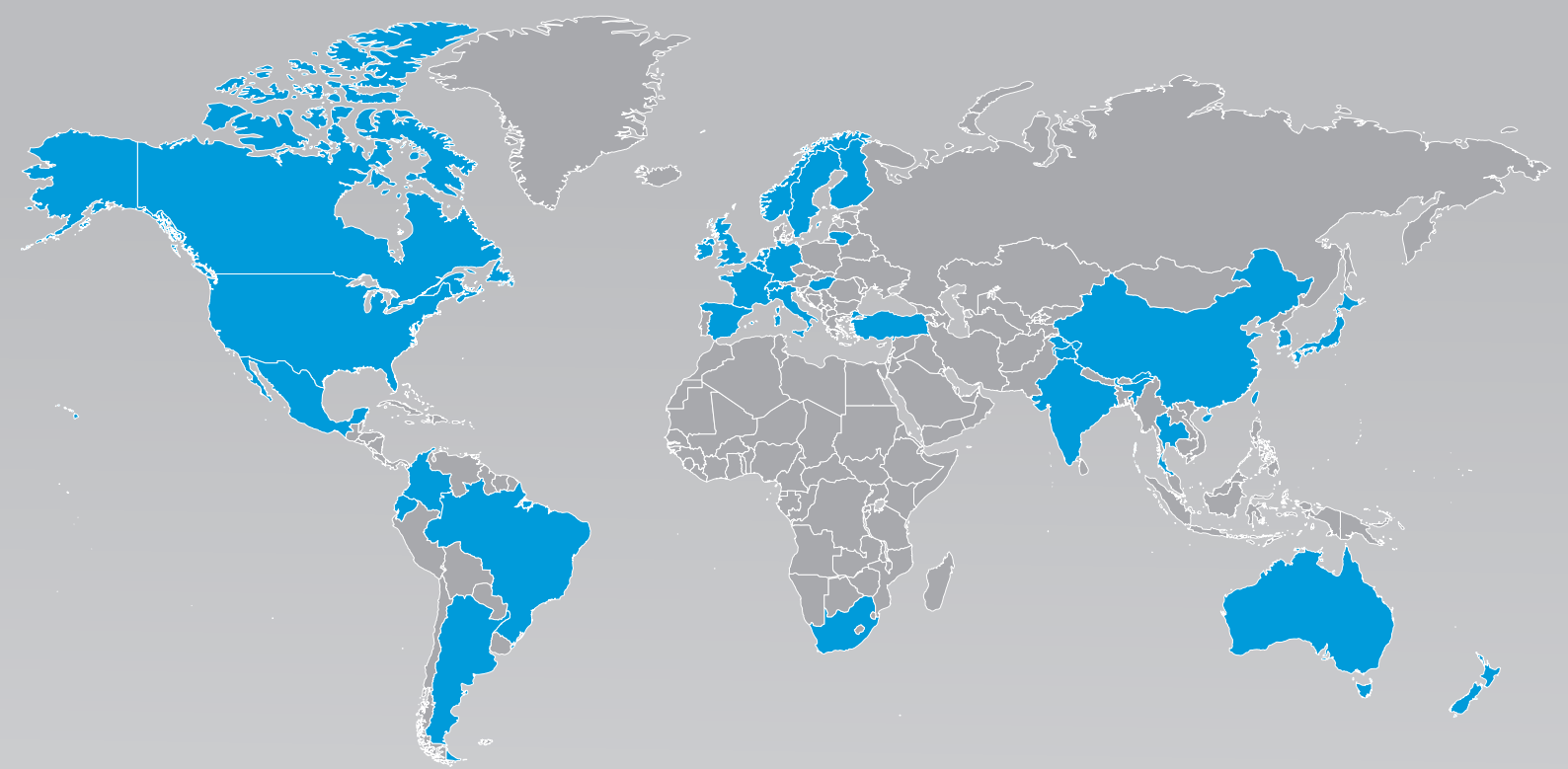
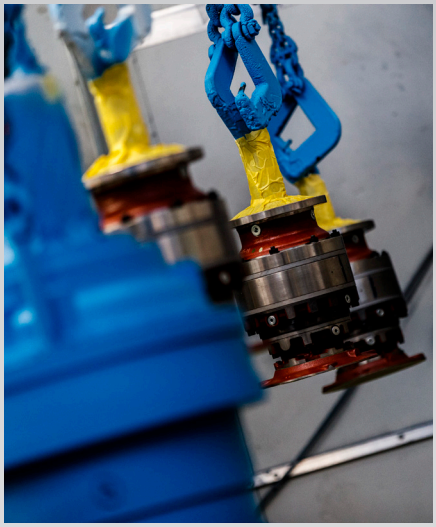


Technologies Customized to **Every Part of the Globe**

With a presence in 31 countries, Dana Incorporated boasts more than 150 engineering, manufacturing, and distribution facilities. Our worldwide network of local service centers provides assurance that each customer will benefit from the local proximity and responsiveness.



About Dana Incorporated

Dana is a leader in the design and manufacture of highly efficient propulsion and energy-management solutions that power vehicles and machines in all mobility markets across the globe. The company is shaping sustainable progress through its conventional and clean-energy solutions that support nearly every vehicle manufacturer with drive and motion systems; electrodynamic technologies, including software and controls; and thermal, sealing, and digital solutions. Founded in 1904, we employ thousands of people across six continents.

About Dana Off-Highway Drive and Motion Systems

Dana delivers fully optimized Spicer® drivetrain and Brevini® motion systems to customers in construction, agriculture, material-handling, mining, and industrial markets. We bring our global expertise to the local level with technologies customized to individual requirements through a network of strategically located technology centers, manufacturing locations, and distribution facilities.

Learn more about Dana's drivetrain and motion systems at **dana.com/offhighway**.

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BREVINI® Motion Systems