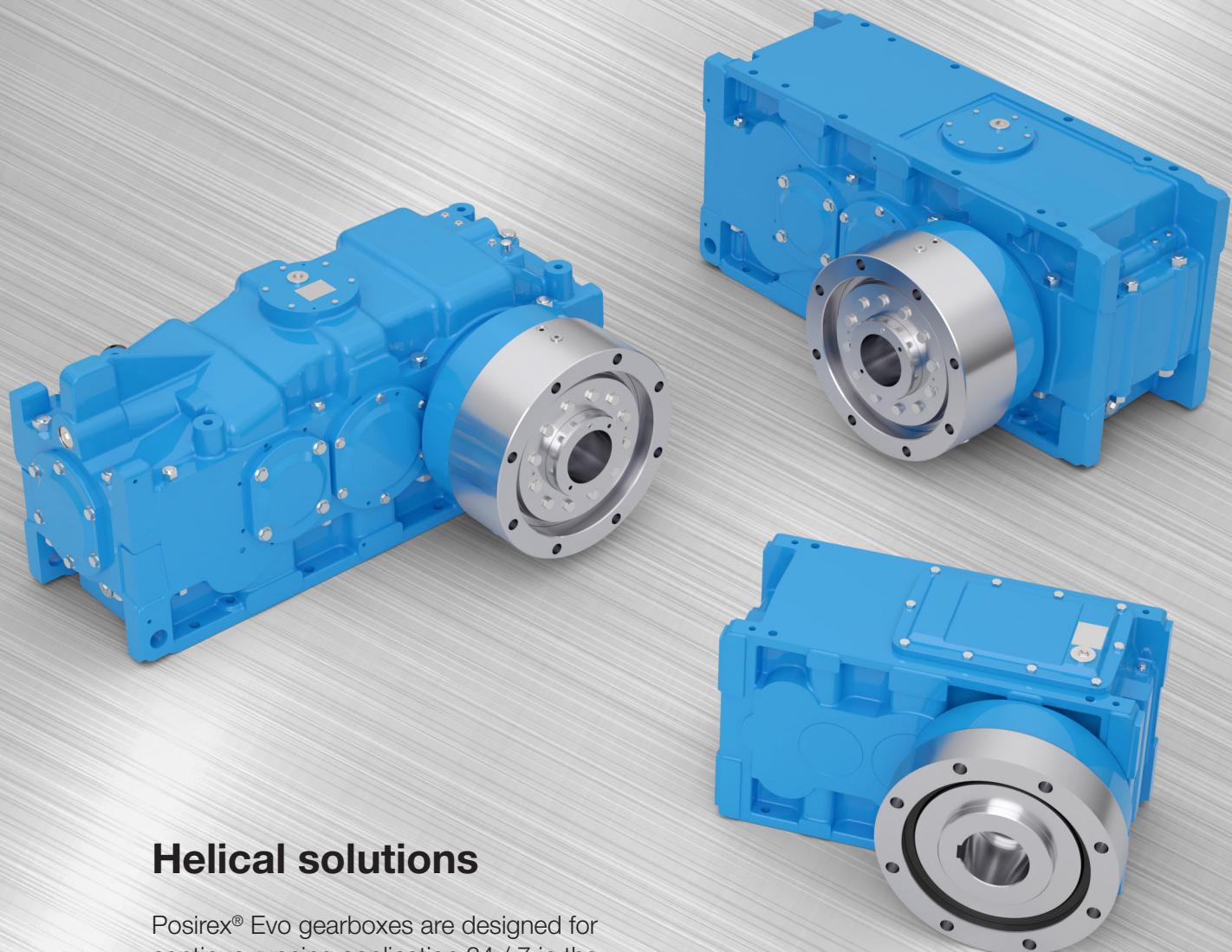


Single Screw Extruder Drives

PIV™ Posirex® Evo

Output torque up to 178.000 Nm



Helical solutions

Posirex® Evo gearboxes are designed for continuous running application 24 / 7 in the plastic & rubber industry. They ensure high performances in demanding applications based on their modularity and a wide range of combinations.







Technical description	4
Symbology	7
Gear unit conception	8
Housing surfaces	10
Shaft arrangement and sense of rotation	12
Designation for order	14
Gear unit selection	16
Thrust bearing factor f_L	22
Radial and axial loads (inquiring form)	23
Technical data summary - Monoblock housing	25
Technical data summary - Split housing	59
Combination: gear unit - thrust bearing case	88
Overview of dimension drawings - Monoblock housing	89
Overview of dimension drawings - Split housing	99
Other dimensions	110
Thrust bearing and hollow shaft with keyway	110
Thrust bearing and hollow spline shaft	112
Accessories	115
Other products	122
Conversion factors	124

Dana has introduced the introductory index and bookmarks, which allow you to arrive and print the relevant section faster.
Clicking the Dana logo at the bottom page, you'll come back to the index

PIV™ Posirex® Evo

The PIV™ Posirex® Evo gearbox series is a further development of the Brevini EvoMax™ series from DANA Motion Systems Deutschland GmbH. The development has incorporated over 90 years of application knowledge and customer feedback and the outcome is a series of highly reliable, efficient and economical products.

The development of the PIV™ Posirex® Evo gearbox series enabled the improvement in torque density, smaller physical envelope, higher efficiency, lower weight, noise and power consumption. Overall, the modular design of the PIV™ Posirex® Evo series gives sustainable and efficient transmission that minimize operating costs and maximize availability

The DANA Motion Systems Deutschland GmbH ISO 9001:2000 quality assurance system for design, development, production, assembly, and aftersales service guarantees a uniformly high World-class standard.

PIV™ Posirex® Evo

is an “intelligent” transmission concept with advantages to customers including:

- Short delivery times due to a high degree of standardization
- Cost-efficient gear selection for every application due to better torque distribution between sizes.
- High product quality resulting from a more robust construction
- Greater product flexibility enables a wide range of uses
- Custom-made production based on a modular system.

Available Options:

- 2 to 3-stage helical gear units
- 1 standard thrust bearing per size
- Other thrust bearings on demand
- 17 sizes based on the modular principle

Construction and Design:

- Horizontal, vertical and standing installation with attachment to all 3 housing surfaces

Output torques

T_2 from 8000 Nm to 178000 Nm

Ratios

$i_N = 4$ to 160 for spur gears

Housing:

The innovative housing of the PIV™ Posirex® Evo series have been developed using the latest calculation methods to ensure optimum stiffness and acoustics with minimal use of material. For the axial forces from the extrusion process we use a special bearing housing assembled on the standard gearbox housing.

The following versions are available:

- Compact block housing for sizes 18 to 31
- Split housing for sizes 35 to 47

Split housings available:

- Standard version (12)
- Reversible housing (11)

Housing Material:

- Standard is gray cast iron EN-GJL-250
- Standard nodular cast iron EN-GJS 400 (bearing housing)
- On request nodular cast iron EN-GJS-500-7



Output Shaft Designs:

- Hollow shaft with key
- Hollow shaft teeth according to DIN5480
- Shaft according to customer requirements on request

Input Shaft Designs:

- Solid shaft with key
- With spur gear units, continuous drive shaft

Keys

according to DIN 6885/1 are included in the scope of delivery.

Center holes

on the shaft ends acc. to DIN 332 form DS

Gears:

The PIV™ Posirex® Evo series uses helical spur gears. All gears are designed for optimum load-bearing behavior and to minimize noise. In our own hardening shop, the gears are case-hardened and then the profiles are ground with the necessary correction according to the design.

Bearings

The dimensioning of the rolling bearing service life takes into account the high expectations of mechanical and plant engineering. Only bearings from premium manufacturers are used.

Seals

Sealing systems available as standard for input and output shafts are:

- Radial shaft seals in various materials
- Radial shaft seals with additional dust lip
- Second radial shaft seal with grease-filled chamber in between (on request)
- Grease-lubricated labyrinth seals also with radial shaft seals (on request)
- No-contact seals (on request)
- Maintenance cover with reusable seal
- Taconite seals on request

Lubrication:

- Gears and roller bearings are splash lubricated as standard
- Standardized injection lubrication systems with shaft or motor driven pump are available as options
- Oil dipstick as standard
- Oil sight glass on demand

Cooling

Additional cooling devices available as standard are:

- Cooling coil (cartridge type)
- External oil-water cooler

Accessories:

Motors according to DIN, VDE, IEC, NEMA and other standards, speed-controlled three-phase drives with the required motor mountings are available as standard:

- Motor lanterns
- Motor consoles

Couplings

At the input, suitable for the series drive shafts and gearbox torques:

- Flexible couplings
- Other couplings on request

Other Accessories:

- Heaters mounted from the outside
- Operating monitoring systems for speed, torque
- Indicators for temperature, oil flow, oil level etc.
- Diagnostic systems for bearing monitoring

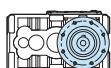
General information:

- Dimension sheets are available as CAD files for various IT systems and interfaces.
- Computer programs for drive selection.
- Gear, shaft and bearing calculation with proof of calculation.
- The degree of protection corresponds to IP 55.
- Information on the weight of the gear unit and the amount of gear oil are guide values. Exact values can be found on the gear unit nameplate or technical description.
- The standard color is RAL 5012, other colors are available
- Protection covers and air guides painted in RAL 1003 (signal yellow)

Scope of delivery, installation and commissioning:

- The delivery takes place without oil filling.
- Transport aids such as eye bolts are not included.
- Oil type and oil quantity according to the nameplate or technical description
- Recommended quality: CLP according to DIN 51517 part 3 or see technical description.
- The standard preservation under normal transport and storage conditions is sufficient for a period of 18 months.
- Installation and commissioning according to PIV™ Motion Systems operating instructions
- On request, we can supply the legally prescribed contact protection on rotating parts.



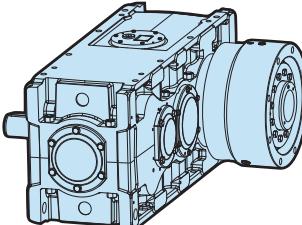
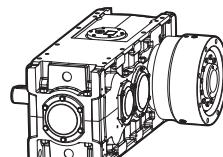
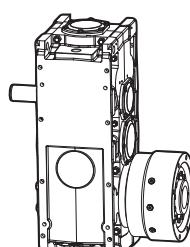
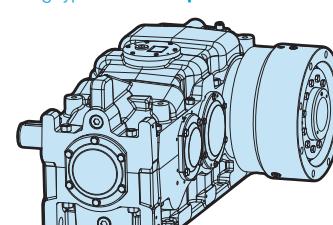
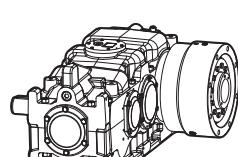
Dimensions			
	Monoblock housing	Split Housing	
Symbol referring to gear unit type X2H, X3H		Housing type 11	Housing type 12
Symbols identifying the gear unit stages (2, 3)	 		
Symbols describing kind of output shaft: H = Hollow shaft with key HS = Hollow spline shaft	 H  HS		
Gear unit weight [kg]			
Lubrification			
Oil quantity in liters [l]			
Type of oil plug on gear units			
Filling plug			
Oil level			
Oil drain			
Breather			
Reference to page			

MONOBLOCK HOUSING

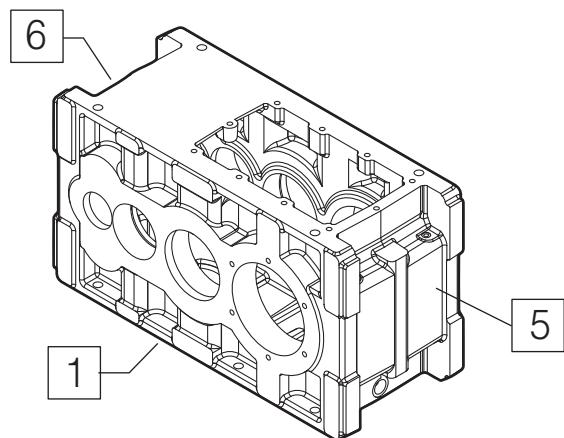
MONOBLOCK HOUSING - SIZES FROM 18 TO 31			
Construction types	Mounting positions		
	R	S	T
	Horizontal, output shaft horizontal	Vertical, output shaft below	Vertical, output shaft above
X2H - X3H	Helical gear units		

SPLIT HOUSING

SPLIT HOUSING - SIZES FROM 35 TO 47

Construction types	Mounting positions		
	R	S	T
	Horizontal, output shaft horizontal	Vertical, output shaft below	Vertical, output shaft above
X2H - X3H	Helical gear units		
Housing type 11			
Housing type 12 - <i>on request</i>			-

MONOBLOCK HOUSING

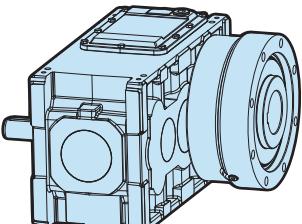


Designation of housing surfaces (1, 5, 6).

Permissible mounting positions: see dimension sheets.

Example:

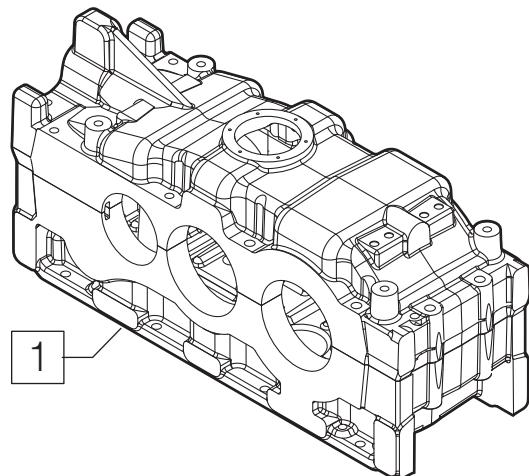
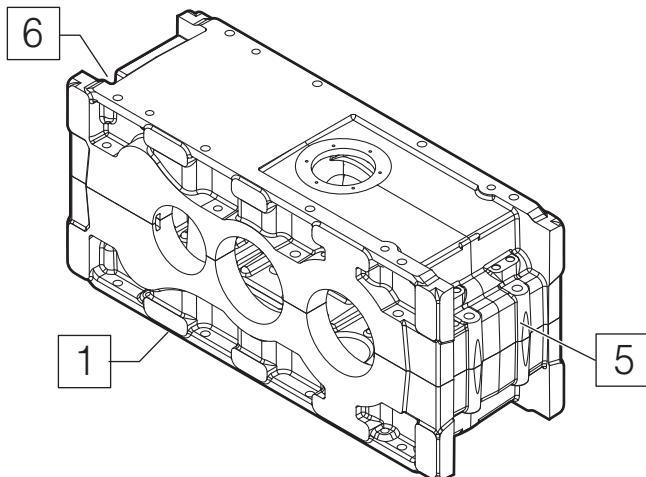
R1 = R for horizontal mounting position; 1 for surface 1 below

Type	MONOBLOCK HOUSING - SIZE FROM 18 TO 31	Mounting positions and surfaces		Page
Helical gears		X2H	R1, S5, T6	12
		X3H	R1, S5, T6	

SPLIT HOUSING

Housing type 11

Housing type 12 - on request

**Designation of housing surfaces (1, 5, 6).****Permissible mounting positions:** see dimension sheets.

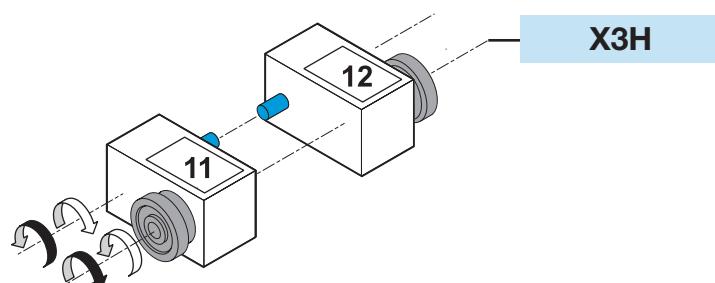
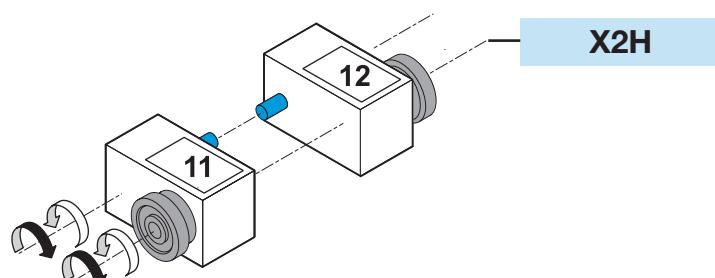
Example:

R1 = R for horizontal mounting position; 1 for surface 1 below

Type	SPLIT HOUSING- SIZE FROM 35 TO 47	Mounting positions and surfaces		Page
Helical gears	Housing type 11	X2H	R1, S5, T6	12
		X3H	R1, S5, T6	
	Housing type 12 - on request	X2H	R1	12
		X3H	R1	

SHAFT ARRANGEMENT AND SENSE OF ROTATION

X2H - X3H

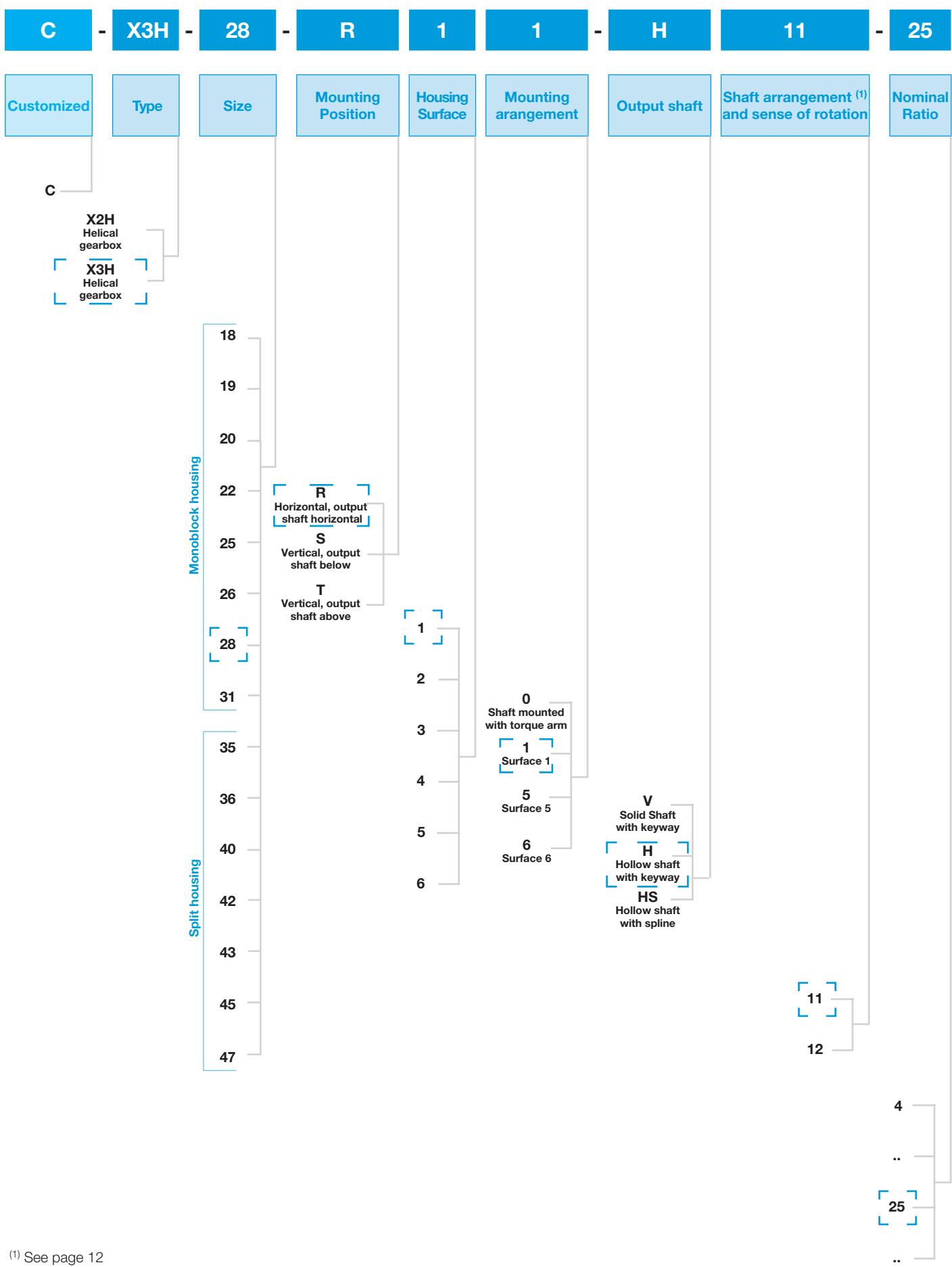


Input shafts
 Output shafts

Location of shafts on the side on request.
New arrangement of the shaft on request.



DESIGNATION FOR ORDER



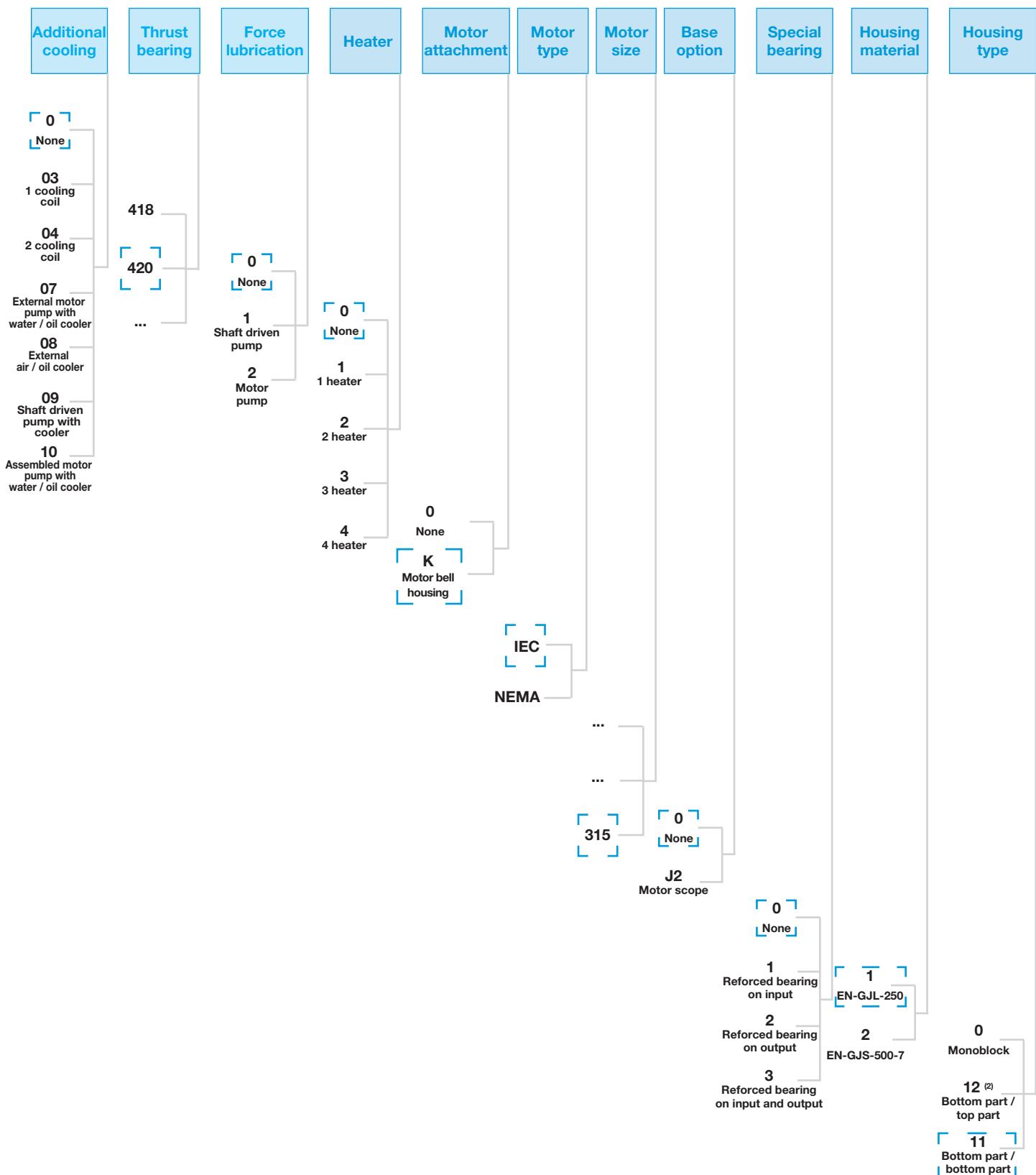
(1) See page 12



DESIGNATION FOR ORDER

15

Z 0 - 420 - FL 0 - H 0 - K IEC 315 0 - S 0 - 1 - 11

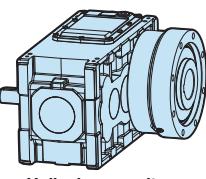


(2) On request

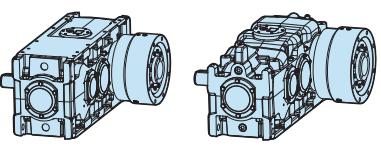
GEAR UNIT SELECTION

Description	Unit	Symbol
Required dynamic bearing capacity of the thrust bearing	[kN]	C_{erf}
Dynamic bearing capacity of the thrust bearing according to the selection table	[kN]	C_{selection table}
Input speed	[rpm]	n₁
Output speed	[rpm]	n₂
Speed of the extruder screw	[rpm]	n_s
Required ratio		i
Nominal gearbox ratio		i_N
Effective ratio		i_{eff}
Bearing life duration	[h]	L_b
Working pressure	[bar]	p_a
Motor power	[kW]	P_M
Nominal gearbox power	[kW]	P_N
Absorbed power of driven machine	[kW]	P_e
Thermal capacity	[kW]	P_t
Thermal capacity without additional cooling	[kW]	P_{t0}
Thermal capacity with cooling coil	[kW]	P_{t3} 
Demand torque	[Nm]	T₂
Nominal gearbox torque	[Nm]	T_{2N}
Start-up or maximum motor or braking torque	[Nm]	T_{MAX}
Extruder screw diameter	[mm]	D_s
Thrust pressure from the extruder screw	[kN]	F_{ax}
Factor for sense of rotation (max = 1.06)		f_d
Thermal Factor		f_w
Ambient temperature	[°C]	g_u
Duty cycle per hour	[%]	ED
Altitude factor		f_H

Step	Selection		
1	Establish the type of gear unit and mounting arrangement		
2	Define the ratio required		$i = n_1 / n_2$
3	Define the demand torque		$T_2 = (9550 \cdot P_e) / n_2$
4	Pre-selection of gearbox checking nominal torque		T_{2N}

Type	Size	i_N	T_{2N} [kNm]	Efficiency η	Page
MONOBLOCK HOUSING  Helical gear units	18	4 - 100	8 - 9	0.98	26
	19	5 - 125	10 - 12		30
	20	5.6 - 140	13 - 14		34
	22	4 - 71	16 - 19		38
	25	5.6 - 90	23 - 28	0.97	42
	26	4 - 100	30 - 36		46
	28	4 - 100	30 - 38		50
	31	5.6 - 140	40 - 49		54

25

Type	Size	i_N	T_{2N} [kNm]	Efficiency η	Page
SPLIT HOUSING  Helical gear units	35	4 - 100	59 - 63	0.98	60
	36	5 - 112	59 - 68		64
	40	5 - 125	79 - 87		68
	42	4 - 100	100 - 111		72
	43	4.5 - 112	104 - 118	0.97	76
	45	5 - 125	118 - 140		80
	47	6.3 - 160	152 - 178		84

59

5	Define application factor	K_A
---	---------------------------	-------

For single-shaft extruder gears, we recommend an application factor of $K_A = 1.5$. Depending on the application, a deviant application factor can be used between 1.4 to 1.8. Please contact DMSD

6	Determine the gearbox size	$T_{2N} \geq T_2 \cdot K_A$
7	Check the thrust bearing	$F_{ax} = \pi \cdot \frac{D_s^2}{4 \cdot 10000} \cdot p_a$ $C_{erf} = f_d \cdot F_{ax} \cdot \left(\frac{L_h \cdot 60 \cdot n_s}{10^6} \right)^{\frac{3}{10}}$

20

8	Check thermal capacity	$P_t \geq P_e$
		$P_t = P_{t_} \cdot f_w \cdot f_H \cdot f_L$

Input and output shafts are intended for torque transmission only through the application of load-free couplings. In cases of presence of external radial or axial loads contact Dana for application verification. (See Enquiry Form on page 23).

Design Example

Driven Machine: profile extruding machine

Required output power: $P_e = 60 \text{ kW}$

Speed: $n_2 = 100 \text{ rpm}$

Duty cycle: $ED = 100 \%$

Starts per hour: 10

Daily operation duration: 24 h/day

Ambient temperature: $\vartheta_U = 30^\circ\text{C}$

Installation: Indoor, at sea level

Prime mover:

Three-phase electric motor

Motor output: $P_M = 75 \text{ kW}$

Motor speed: $n_1 = 1450 \text{ rpm}$

Screw diameter: $D_s = 80 \text{ mm}$

Working pressure: $p_a = 500 \text{ bar}$

Speed of the extruder screw: $n_s = 100 \text{ min}^{-1}$

Thrust bearing life duration: $L_h = 20000 \text{ h}$

- Establish the type of gear unit and mounting arrangement

A helical gear unit for horizontal installation is required

Type		Size	i_N	T_{2N} [kNm]	Efficiency η	Page
MONOBLOCK HOUSING	Helical gear units	18	4 - 100	8 - 9	0.98	26
		19	5 - 125	10 - 12	0.98	30
		20	5.6 - 140	13 - 14	0.98	34
		22	4 - 71	16 - 19	0.98	38
		25	5.6 - 90	23 - 28	0.97	42
		26	4 - 100	30 - 36	0.97	46
		28	4 - 100	30 - 38	0.97	50
		31	5.6 - 140	40 - 49	0.97	54

Type		Size	i_N	T_{2N} [kNm]	Efficiency η	Page
SPLIT HOUSING	Helical gear units	35	4 - 100	59 - 63	0.98	60
		36	5 - 112	59 - 68	0.98	64
		40	5 - 125	79 - 87	0.98	68
		42	4 - 100	100 - 111	0.97	72
		43	4.5 - 112	104 - 118	0.97	76
		45	5 - 125	118 - 140	0.97	80
		47	6.3 - 160	152 - 178	0.97	84

- Define the ratio required

$$i = n_1 / n_2 = 1450 / 100 = 14.5$$

- Define the demand torque

$$T_2 = (9550 \cdot P_e) / n_2 = (9550 \cdot 60 \text{ kW}) / 100 \text{ rpm} = 5730 \text{ Nm}$$

- Pre-selection of gearbox checking nominal torque

25

Type		Size	i_N	T_{2N} [kNm]	Efficiency η	Page
MONOBLOCK HOUSING	Helical gear units	18	4 - 100	8 - 9	0.98	26
		19	5 - 125	10 - 12	0.98	30
		20	5.6 - 140	13 - 14	0.98	34
		22	4 - 71	16 - 19	0.98	38
		25	5.6 - 90	23 - 28	0.97	42
		26	4 - 100	30 - 36	0.97	46
		28	4 - 100	30 - 38	0.97	50
		31	5.6 - 140	40 - 49	0.97	54



5 Define Application factor

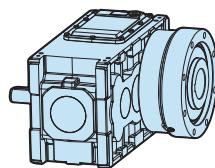
K_A = 1.6 (in case of experience)

6 Determine the gearbox size

$$T_{2N} \geq T_2 \cdot K_A = 5730 \cdot 1.6 = 9168 \text{ Nm}$$

Refer to page 25 (technical data summary)

Pre-Selection: **X2H18**

Type	Size	i _N	T _{2N} [kNm]	Efficiency η	Page							
					18	19	20	22	25	26	28	31
MONOBLOCK HOUSING  Helical gear units	X3H	18	4 - 100	8 - 9	26							
		19	5 - 125	10 - 12		30						
		20	5.6 - 140	13 - 14		34						
		22	4 - 71	16 - 19		38						
		25	5.6 - 90	23 - 28		42						
		26	4 - 100	30 - 36		46						
		28	4 - 100	30 - 38		50						
		31	5.6 - 140	40 - 49		54						

Refer to page 27 for details on pre-selected size according to the input speed of 1450 rpm use the table 1500 rpm **X2H18** with ratio i_{eff} = 14.17:1, P_N = 105 kW and T_{2N} = 9457 Nm

X2H / X3H ...18						MONOBLOCK HOUSING			50 Hz		9 kNm					
i _N	i _{eff}	n ₂ [rpm]	T _{2N} [Nm]	P _N [kW]	J [Kgm ²]	R1	S5	T6	P _{t0} [kW]	H ₂ O	P _{t0} [kW]	H ₂ O	P _{t0} [kW]	H ₂ O	Type	
i_N = 1500 rpm	4	4.00	375	8857	348	0.0313	76	50	46	88						X2H 
	4.5	4.49	334	8932	312	0.0264	80	50	46	88						
	5	5.06	296	9165	285	0.0222	88	50	46	88						
	5.6	5.72	262	9457	260	0.0195	91	50	46	88						
	6.3	6.35	236	9457	234	0.0162	92	50	46	89						
	7.1	7.26	207	9457	205	0.0134	90	55	46	100						
	8	7.94	189	9457	187	0.0123	87	56	46	100						
	9	9.00	167	9457	165	0.0099	82	58	52	100						
	10	9.90	152	9457	150	0.0094	82	60	57	101						
	11.2	11.44	131	9457	130	0.0073	80	65	59	99						
	12.5	12.71	118	9457	117	0.0068	75	65	59	95						
	14	14.17	106	9457	105	0.0057	70	63	59	89						
	16	16.08	93	9457	92	0.0043	71	67	62	93						
	18	17.79	84	9366	83	0.0039	70	63	58	88						
	16	15.88	94	9457	94	0.0079	56	44	31	63						
	18	17.71	85	9457	84	0.0072	58	49	38	63						
	20	20.10	75	9457	74	0.0063	59	53	41	68						
	22.4	22.48	67	9515	66	0.0047	51	47	40	64						

$$T_{2N} \geq 9457 \text{ Nm}$$

$$9457 \text{ Nm} \geq 9168 \text{ Nm} \text{ OK}$$

7

Check the thrust bearing

- The thrust pressure F_{ax} [kN] of the extruder screw (has to be specified by the extruder manufacturer).

For an approximative calculation, by neglecting possible supplementary forces of technological nature for specificai to extruders, it is sufficient to suppose that:

$$F_{ax} = \pi \cdot \frac{D_s^2}{4 \cdot 10000} \cdot p_a$$

- The necessary dynamical bearing capacity of the thrust bearing C_{erf} . [kN]

$$C_{erf} = f_d \cdot F_{ax} \cdot \left(\frac{L_h \cdot 60 \cdot n_s}{10^6} \right)^{\frac{3}{10}}$$

ref. Selection table

Design Example

Screw diameter: $D_s = 80$ mm

Working pressure: $p_a = 500$ bar

Speed of the extruder screw: $n_s = 100$ min⁻¹

Thrust bearing life duration: $L_h = 20000$ h

Determination of the axial force of the extruder screw:

$$F_{ax} = \pi \cdot \frac{D_s^2}{4 \cdot 10000} \cdot p_a \quad [\text{kN}]$$

$$F_{ax} = \pi \cdot \frac{80^2}{4 \cdot 10000} \cdot 500 = 251 \quad \text{kN}$$

Selection

Rating by calculation using the dynamic bearing capacity of the thrust bearing:

$$C_{erf} = f_d \cdot F_{ax} \cdot \left(\frac{L_h \cdot 60 \cdot n_s}{10^6} \right)^{\frac{3}{10}} \quad [\text{kN}]$$

$$C_{erf} = 1.06 \cdot 251 \cdot \left(\frac{20000 \cdot 60 \cdot 100}{10^6} \right)^{\frac{3}{10}} = 1119 \quad \text{kN}$$

Choice of the thrust bearing from the table (page 111): **size 422**

$C_{erf} = 1119 \text{ kN} < C_{actual} = 1180 \text{ kN}$

	Axial self-aligning roller bearing		Thrust bearing								Hollow shaft							
	dyn. capacity [kN]	bearing size	D_T \varnothing	d_T $\varnothing H7$	L_T	f	d_L	d_B	t_3	x	v	D_H \varnothing	L_H	d_i \varnothing	$d_{h\max}$ \varnothing	L_i	Keys	d_o \varnothing
X.18-420	980	29420E	298	210	140	8	260	M20	35	5	8	120	469	60	74	130	2	30
X.18-422	1180	29422E	330	230	145	8	280	M24	40	5	8	130	454	70	84	110	2	30
X.18-424	1370	29424E	355	250	150	10	310	M24	40	5	8	150	459	80	96	140	1	30
X.18-428	1630	29428E	378	280	170	10	340	M24	40	5	8	170	479	80	96	140	1	30
X.19-420	980	29420E	298	210	140	8	260	M20	35	5	8	120	469	60	74	130	2	30
X.19-422	1180	29422E	330	230	145	8	280	M24	40	5	8	130	454	70	84	110	2	30

If the required gearbox / thrust bearing combination cannot be found in the selection table

"Combination Gear Unit - Thrust Bearing" (page 88) please proceed as follows

- for a **smaller** thrust bearing use the smallest bearing housing relative to the chosen reducer size
- for a **larger** thrust bearing please contact your local engineer at the to the chosen reducer size



8

Check thermal capacity

$$P_t \geq P_e$$

with $P_t = P_{t_} \cdot f_w \cdot F_H \cdot f_L$

P_t choosing from one of the following:

P_{t0} Thermal capacity without additional cooling

P_{t3} Thermal capacity with cooling coil

With $P_{t0} = 70$ (see page. 27)

X2H / X3H ...18						MONOBLOCK HOUSING		50 Hz		9 kNm	
i_N	i_eff	n_2 [rpm]	T_2N [Nm]	P_N [kW]	J [Kgm²]	R1	S5	T6	Type		
4	4.00	375	8857	348	0.0313	76	133	46	X2H		
4.5	4.49	334	8932	312	0.0264	80	137	46			
5	5.06	296	9165	285	0.0222	88	139	46			
5.6	5.72	262	9457	260	0.0195	91	142	46			
6.3	6.35	236	9457	234	0.0162	92	141	46			
7.1	7.26	207	9457	205	0.0134	90	136	46			
8	7.94	189	9457	187	0.0123	87	133	54			
9	9.00	167	9457	165	0.0099	82	133	52			
10	9.90	152	9457	150	0.0094	82	133	57			
11.2	11.44	131	9457	130	0.0073	80	133	59			
12.5	12.71	118	9457	117	0.0068	75	133	59			
14	14.17	106	9457	105	0.0057	70	133	59			
16	16.08	93	9457	92	0.0043	71	133	62			
18	17.79	84	9366	83	0.0039	70	133	58			
16	15.88	94	9457	94	0.0079	56	89	31			
18	17.71	85	9457	84	0.0072	58	89	38			
20	20.10	75	9457	74	0.0063	59	89	41			
1500 rpm						P _{t0} [kW]	H _{2O}	P _{t0} [kW]	H _{2O}	P _{t0} [kW]	H _{2O}

With thermal factor f_w from table below:

$f_w = 0.86$ for $\vartheta_U = 30^\circ\text{C}$ and $\text{ED} = 100\%$

f _w					
$\vartheta_U [\text{ }^\circ\text{C}]$	ED %				
	100	80	60	40	20
10	1.14	1.21	1.34	1.53	2.03
20	1.00	1.06	1.17	1.34	1.78
30	0.86	0.91	1.00	1.15	1.53
40	0.71	0.76	0.84	0.96	1.27
50	0.57	0.61	0.67	0.77	1.02

With f_H from table below:

$f_H = 1.00$

	Altitude H in m above sea level				
	up to 999	1000 - 2000	2000 - 3000	3000 - 4000	4000 - 5000
f _H	1.00	0.95	0.91	0.87	0.83

With f_L from table :



$f_L = 1.00$

Gearbox without additional cooling:

$$P_t = 70 \text{ kW} \cdot 0.86 \cdot 1 \cdot 1 = 60.2 \text{ kW}$$

$P_e = 60 \text{ kW} < P_t = 60.2 \text{ kW}$: No additional cooling is necessary

Confirmed Selection:

X2H-18-R11-H11-422

THRUST BEARING FACTOR f_L

		Thrust bearing Factor f_L for P_{t0}														
		Thrust Bearing Case														
		420	422	424	428	430	434	436	440	448	452	456	460	464	468	472
X2H - X3H	18	1.01	1.00	0.98	0.94											
	19	1.01	0.99	0.98	0.94											
	20			0.98	0.96	0.93										
	22				0.96	0.94	0.89	0.86								
	25						0.91	0.88	0.81							
	26							0.91	0.83	0.77						
	28							0.90	0.84	0.79						
	31								0.87	0.82	0.76					
	35								0.94	0.90	0.85	0.78				
	36								0.95	0.91	0.86	0.80				
	40									0.92	0.88	0.82	0.82			
	42										0.90	0.84	0.84	0.81		
	43											0.91	0.85	0.85	0.82	
	45											0.87	0.87	0.84	0.80	
	47												0.88	0.85	0.82	0.85
X2H - X3H		Thrust bearing Factor f_L for P_{t3} (with cooling coil)														
		Thrust Bearing Case														
		18	0.95	0.92	0.89	0.84										
		19	0.95	0.92	0.91	0.85										
		20			0.94	0.92	0.89									
		22				0.92	0.90	0.85	0.81							
		25					0.90	0.89	0.84							
		26						0.87	0.80	0.75						
		28						0.87	0.81	0.76						
		31							0.88	0.85	0.81					
		35							0.88	0.85	0.80	0.72				
		36							0.87	0.84	0.83	0.75				
		40								0.91	0.89	0.84	0.83			
		42									0.87	0.82	0.81	0.77		
		43										0.86	0.83	0.82	0.79	
		45										0.86	0.85	0.82	0.77	
		47											0.85	0.83	0.78	0.80

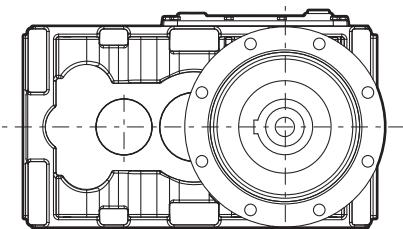


RADIAL AND AXIAL LOADS (INQUIRING FORM)

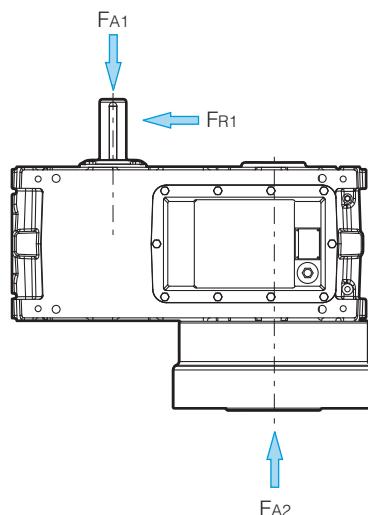
23

To be sent to the Dana area contact person

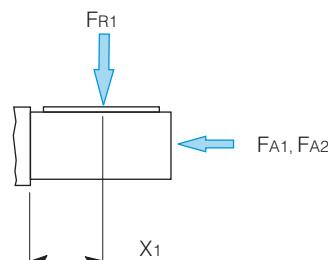
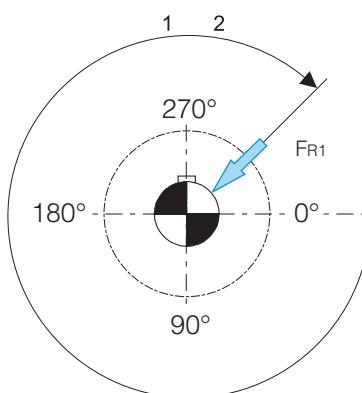
Mr. / Mrs. _____
 Company _____
 Street _____
 Postal code / Locality _____
 Country _____
 Telephone _____
 Telefax _____
 E-Mail _____



To the verification of the admissible strain of the input shaft and the output shaft due to exterior forces.



Specify please with negative sign the forces working in a direction opposite to the one represented.



F_{R1} [N] = _____ **Radial loads**
 F_{A1} [N] = _____ **Axial loads**
 X_1 [mm] = _____ **Distance of load application**
 α_1 = _____ **Direction of load**

F_{R2} [N] = _____ **Radial loads**
 F_{A2} [N] = _____ **Axial loads**
 X_2 [mm] = _____ **Distance of load application**
 α_2 = _____ **Direction of load**

TECHNICAL DATA IN INQUIRING FORM

Check-list for PIV Single Shaft Extruder Gearboxes, Series Posirex™ Evo

Client _____

Data specifications of the extruder

Type of machine _____
 Nominal power _____
 Nominal output torque _____ Maximal output torque _____
 Nominal speed _____
 Thrust pressure of the extruder screw _____ Extruder screw diameter _____
 Processing pressure _____
 Pull-back force of the extruder screw _____
 Effective duration of the pull-back force _____
 Radial force on the output shaft _____
 Junction extruder screw - hollow shaft _____
 - Eccentricity and run-out deviation of the hollow shaft _____
 - End play of the output hollow shaft _____
 Fitting dimensions of the screw guide tube _____
 - Eccentricity and run-out deviation on the thrust bearing housing _____

Client's rating specification

Application service factor _____
 Gear rating acc. to DIN 3990 _____
 Tooth flank security s_H resp. s_H^2 _____
 Root security of the gear tooth s_F _____
 Life duration of the radial bearings _____
 Life duration of the thrust bearing _____ Type of the thrust bearing _____

Technical specification of the extruder gearbox

Type of the driving motor _____
 Nominal motor power _____ Nominal torque of the motor _____
 Nominal speed of the motor _____ Gearbox ratio _____
 Disposition of the thrust bearing _____
 Type of the gearbox: - horizontal - upright input above - upright input below
 Shaft disposition: - "Z"- (input opposed to output) - "U"- (input and output on the same side)
 Drive details: flange mounted motor _____
 Coupling (type) _____
 Belt transmission: (i_R , d_{02}) _____
 Lubrication mode _____
 Cooling measures - cooling coil - separate cooling and press, lubrication device - mounted on cooling and lubrication device
 Maximal oil temperature _____ Temperature of the cooling water _____

Operating and ambient conditions

Operating time _____ Ambient temperature _____
 Special ambient conditions _____
 Sound pressure level _____

Client's requirements

Acceptance terms and specification _____
 Test certificates _____
 Proof of calculation _____
 Documentation (languages) _____

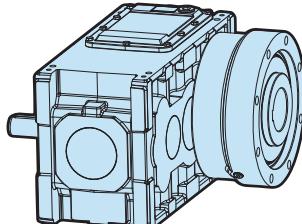
Commercial specifications

Order quantity _____ Annual requirement _____
 Outline agreement - lot size on call _____
 Delivery time (first order and former orders) _____
 Idea of the price _____



TECHNICAL DATA SUMMARY - MONOBLOCK HOUSING

25

Type	Size	i _N	T _{2N} [kNm]	Efficiency η	Page
MONOBLOCK HOUSING	 Helical gear units	18	4 - 100	8 - 9	0.98
		19	5 - 125	10 - 12	
		20	5.6 - 140	13 - 14	
		22	4 - 71	16 - 19	
		25	5.6 - 90	23 - 28	0.97
		26	4 - 100	30 - 36	
		28	4 - 100	30 - 38	
		31	5.6 - 140	40 - 49	

X2H / X3H ...18

MONOBLOCK HOUSING

50 Hz

9 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1000$ rpm	4	4.00	250	8857	232	0.0313	107	143	95	159	89	151	
	4.5	4.49	223	8932	208	0.0264	108	140	97	159	96	151	
	5	5.06	198	9165	190	0.0222	107	138	100	159	98	151	
	5.6	5.72	175	9457	173	0.0195	106	136	101	157	100	148	
	6.3	6.35	157	9457	156	0.0162	104	134	103	155	101	148	
	7.1	7.26	138	9457	136	0.0134	99	133	101	149	98	142	
	8	7.94	126	9457	125	0.0123	92	133	96	139	92	133	
	9	9.00	111	9457	110	0.0099	85	133	90	129	87	123	
	10	9.90	101	9457	100	0.0094	82	133	89	127	85	120	
	11.2	11.44	87	9457	87	0.0073	79	133	87	122	82	116	
	12.5	12.71	79	9457	78	0.0068	73	133	82	115	78	109	
	14	14.17	71	9457	70	0.0057	70	133	75	106	71	100	
	16	16.08	62	9457	62	0.0043	71	133	78	110	74	105	
	18	17.79	56	9366	55	0.0039	70	133	72	102	69	97	
	16	15.88	63	9457	62	0.0079	57	89	62	86	56	80	
	18	17.71	56	9457	56	0.0072	55	89	60	85	55	77	
	20	20.10	50	9457	49	0.0063	58	89	62	88	56	79	
	22.4	22.48	44	9515	44	0.0047	51	89	56	79	52	73	
	25	25.07	40	9366	39	0.0043	50	89	55	77	50	70	
	28	28.45	35	9366	34	0.0039	52	89	56	79	51	72	
	31.5	31.47	32	9191	31	0.0038	47	89	50	70	45	64	
	35.5	35.09	28	9366	28	0.0029	47	89	47	66	43	61	
	40	39.82	25	9366	25	0.0027	47	89	48	68	44	62	
	45	44.05	23	9191	22	0.0026	47	89	43	64	39	59	
	50	51.73	19	9366	19	0.0014	47	89	42	64	39	59	
	56	57.70	17	9366	17	0.0014	47	89	41	64	38	59	
	63	65.47	15	9366	15	0.0013	47	89	42	64	39	59	
	71	72.42	14	9016	13	0.0012	47	89	37	64	34	59	
	80	78.96	13	9191	12	0.0009	47	89	37	64	34	59	
	90	89.59	11	9191	11	0.0009	47	89	37	64	34	59	
	100	99.11	10	9016	10	0.0009	47	89	34	64	31	59	

X2H / X3H ...18

MONOBLOCK HOUSING

50 Hz

9 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
4	4.00	375	8857	348	0.0313	76		50		46		X2H
4.5	4.49	334	8932	312	0.0264	80		50		46		
5	5.06	296	9165	285	0.0222	88		50		46		
5.6	5.72	262	9457	260	0.0195	91		50		46		
6.3	6.35	236	9457	234	0.0162	92		50		46		
7.1	7.26	207	9457	205	0.0134	90		55		46		
8	7.94	189	9457	187	0.0123	87		56		54		
9	9.00	167	9457	165	0.0099	82		58		52		
10	9.90	152	9457	150	0.0094	82		60		57		
11.2	11.44	131	9457	130	0.0073	80		65		59		
12.5	12.71	118	9457	117	0.0068	75		65		59		
14	14.17	106	9457	105	0.0057	70		63		59		
16	16.08	93	9457	92	0.0043	71		67		62		
18	17.79	84	9366	83	0.0039	70		63		58		
16	15.88	94	9457	94	0.0079	56		44		31		X3H
18	17.71	85	9457	84	0.0072	58		49		38		
20	20.10	75	9457	74	0.0063	59		53		41		
22.4	22.48	67	9515	66	0.0047	51		47		40		
25	25.07	60	9366	59	0.0043	50		49		40		
28	28.45	53	9366	52	0.0039	52		51		43		
31.5	31.47	48	9191	46	0.0038	47		45		38		
35.5	35.09	43	9366	42	0.0029	47		43		38		
40	39.82	38	9366	37	0.0027	47		44		38		
45	44.05	34	9191	33	0.0026	47		39		34		
50	51.73	29	9366	28	0.0014	47		39		35		
56	57.70	26	9366	25	0.0014	47		38		34		
63	65.47	23	9366	22	0.0013	47		38		34		
71	72.42	21	9016	20	0.0012	47		34		31		
80	78.96	19	9191	18	0.0009	47		34		31		
90	89.59	17	9191	16	0.0009	47		34		31		
100	99.11	15	9016	14	0.0009	47		34		31		

X2H / X3H ...18

MONOBLOCK HOUSING

60 Hz

9 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
4	4.00	300	8857	278	0.0313	95		50		46		X2H
4.5	4.49	267	8932	250	0.0264	98		57		51		
5	5.06	237	9165	228	0.0222	100		67		59		
5.6	5.72	210	9457	208	0.0195	101		76		68		
6.3	6.35	189	9457	187	0.0162	101		81		73		
7.1	7.26	165	9457	164	0.0134	98		84		81		
8	7.94	151	9457	150	0.0123	92		82		77		
9	9.00	133	9457	132	0.0099	85		80		76		
10	9.90	121	9457	120	0.0094	82		80		74		
11.2	11.44	105	9457	104	0.0073	78		79		74		
12.5	12.71	94	9457	94	0.0068	73		76		70		
14	14.17	85	9457	84	0.0057	70		71		65		
16	16.08	75	9457	74	0.0043	71		75		69		
18	17.79	67	9366	66	0.0039	70		69		64		
16	15.88	76	9457	75	0.0079	56		56		46		X3H
18	17.71	68	9457	67	0.0072	56		56		48		
20	20.10	60	9457	59	0.0063	58		59		50		
22.4	22.48	53	9515	53	0.0047	51		54		47		
25	25.07	48	9366	47	0.0043	50		52		46		
28	28.45	42	9366	41	0.0039	52		53		47		
31.5	31.47	38	9191	37	0.0038	47		47		41		
35.5	35.09	34	9366	34	0.0029	47		45		40		
40	39.82	30	9366	30	0.0027	47		46		40		
45	44.05	27	9191	26	0.0026	47		41		36		
50	51.73	23	9366	23	0.0014	47		41		37		
56	57.70	21	9366	20	0.0014	47		40		35		
63	65.47	18	9366	18	0.0013	47		40		35		
71	72.42	17	9016	16	0.0012	47		36		32		
80	78.96	15	9191	15	0.0009	47		35		31		
90	89.59	13	9191	13	0.0009	47		35		31		
100	99.11	12	9016	11	0.0009	47		34		31		

X2H / X3H ...18

MONOBLOCK HOUSING

60 Hz

9 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
4	4.00	450	8857	417	0.0313	70		50		46		X2H
4.5	4.49	401	8932	375	0.0264	70		50		46		
5	5.06	356	9165	341	0.0222	77		50		46		
5.6	5.72	315	9457	312	0.0195	87		50		46		
6.3	6.35	283	9457	281	0.0162	87		50		46		
7.1	7.26	248	9457	246	0.0134	86		50		46		
8	7.94	227	9457	225	0.0123	83		50		46		
9	9.00	200	9457	198	0.0099	78		50		46		
10	9.90	182	9457	180	0.0094	76		50		46		
11.2	11.44	157	9457	156	0.0073	74		50		46		
12.5	12.71	142	9457	140	0.0068	71		50		46		
14	14.17	127	9457	126	0.0057	70		50		46		
16	16.08	112	9457	111	0.0043	70		51		47		
18	17.79	101	9366	99	0.0039	70		52		46		
16	15.88	113	9457	112	0.0079	53		34		31		X3H
18	17.71	102	9457	101	0.0072	58		34		31		
20	20.10	90	9457	89	0.0063	59		34		31		
22.4	22.48	80	9515	80	0.0047	51		34		31		
25	25.07	72	9366	70	0.0043	51		39		31		
28	28.45	63	9366	62	0.0039	52		41		31		
31.5	31.47	57	9191	55	0.0038	47		36		31		
35.5	35.09	51	9366	50	0.0029	47		37		31		
40	39.82	45	9366	44	0.0027	47		39		32		
45	44.05	41	9191	39	0.0026	47		35		31		
50	51.73	35	9366	34	0.0014	47		36		32		
56	57.70	31	9366	31	0.0014	47		34		31		
63	65.47	27	9366	27	0.0013	47		34		31		
71	72.42	25	9016	23	0.0012	47		34		31		
80	78.96	23	9191	22	0.0009	47		34		31		
90	89.59	20	9191	19	0.0009	47		34		31		
100	99.11	18	9016	17	0.0009	47		34		31		

X2H / X3H ...19

MONOBLOCK HOUSING

50 Hz

12 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1000$ rpm	5	4.96	202	10916	230	0.0409	114	189	107	165	106	158	X2H
	5.6	5.57	180	11106	209	0.0340	112	189	108	162	107	155	
	6.3	6.28	159	11390	190	0.0282	110	189	110	160	107	154	
	7.1	7.09	141	12245	181	0.0242	104	189	107	154	104	148	
	8	7.88	127	12174	162	0.0200	97	189	102	144	98	138	
	9	9.01	111	12316	143	0.0163	90	189	95	136	92	128	
	10	9.85	102	12316	131	0.0147	87	189	94	136	90	126	
	11.2	11.17	90	12316	115	0.0118	83	189	91	136	87	124	
	12.5	12.29	81	12316	105	0.0110	80	189	86	136	82	124	
	14	14.19	70	12316	91	0.0085	80	189	79	136	76	124	
	16	15.76	63	12316	82	0.0077	80	189	82	136	79	124	
	18	17.58	57	12301	73	0.0064	80	189	76	136	73	124	
	20	19.95	50	11889	62	0.0049	80	189	80	136	77	124	
	22.4	22.07	45	11639	55	0.0044	80	189	84	136	81	124	
	20	19.71	51	12301	65	0.0085	61	130	65	94	60	86	X3H
	22.4	21.98	45	12301	59	0.0077	54	130	59	94	55	86	
	25	24.94	40	11960	50	0.0067	53	130	57	94	53	86	
	28	27.89	36	12301	46	0.0050	55	130	59	94	54	86	
	31.5	31.11	32	12301	41	0.0046	53	130	52	94	48	86	
	35.5	35.30	28	11858	35	0.0041	53	130	49	94	46	86	
	40	39.05	26	11423	31	0.0039	53	130	50	94	46	86	
	45	43.54	23	12078	29	0.0030	53	130	45	94	41	86	
	50	49.41	20	11858	25	0.0028	53	130	44	94	41	86	
	56	54.65	18	11208	21	0.0027	53	130	43	94	41	86	
	63	64.18	16	12078	20	0.0015	53	130	44	94	41	86	
	71	71.59	14	12078	18	0.0014	53	130	39	94	36	86	
	80	81.23	12	11639	15	0.0013	53	130	38	94	36	86	
	90	89.86	11	11208	13	0.0013	53	130	39	94	36	86	
	100	97.97	10	12078	13	0.0009	53	130	38	94	35	86	
	112	111.16	9	11639	11	0.0009	53	130	39	94	37	86	
	125	122.96	8	11208	10	0.0009	53	130	40	94	37	86	

X2H / X3H ...19

MONOBLOCK HOUSING

50 Hz

12 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1500$ rpm	5	4.96	302	10916	346	0.0409	96	189	57	136	52	124	
	5.6	5.57	269	11106	313	0.0340	98	189	57	136	52	124	
	6.3	6.28	239	11390	285	0.0282	98	189	57	136	52	124	
	7.1	7.09	212	12245	271	0.0242	97	189	62	136	56	124	
	8	7.88	190	12174	243	0.0200	94	189	59	136	57	124	
	9	9.01	166	12316	215	0.0163	89	189	64	136	59	124	
	10	9.85	152	12316	196	0.0147	88	189	66	136	61	124	
	11.2	11.17	134	12316	173	0.0118	84	189	71	136	65	124	
	12.5	12.29	122	12316	157	0.0110	80	189	71	136	65	124	
	14	14.19	106	12316	136	0.0085	80	189	66	136	62	124	
	16	15.76	95	12316	123	0.0077	80	189	71	136	67	124	
	18	17.58	85	12301	110	0.0064	80	189	67	136	63	124	
	20	19.95	75	11889	94	0.0049	80	189	69	136	67	124	
	22.4	22.07	68	11639	83	0.0044	80	189	74	136	71	124	
	20	19.71	76	12301	98	0.0085	62	130	56	94	46	86	
	22.4	21.98	68	12301	88	0.0077	54	130	51	94	44	86	
	25	24.94	60	11960	75	0.0067	53	130	51	94	44	86	
	28	27.89	54	12301	69	0.0050	55	130	53	94	47	86	
	31.5	31.11	48	12301	62	0.0046	53	130	47	94	41	86	
	35.5	35.30	42	11858	53	0.0041	53	130	45	94	40	86	
	40	39.05	38	11423	46	0.0039	53	130	46	94	40	86	
	45	43.54	34	12078	44	0.0030	53	130	41	94	36	86	
	50	49.41	30	11858	38	0.0028	53	130	41	94	37	86	
	56	54.65	27	11208	32	0.0027	53	130	40	94	36	86	
	63	64.18	23	12078	30	0.0015	53	130	40	94	35	86	
	71	71.59	21	12078	27	0.0014	53	130	38	94	35	86	
	80	81.23	18	11639	23	0.0013	53	130	38	94	35	86	
	90	89.86	17	11208	20	0.0013	53	130	38	94	35	86	
	100	97.97	15	12078	19	0.0009	53	130	38	94	35	86	
	112	111.16	13	11639	16	0.0009	53	130	38	94	35	86	
	125	122.96	12	11208	14	0.0009	53	130	38	94	35	86	

X2H / X3H ...19

MONOBLOCK HOUSING

60 Hz

12 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1200$ rpm	5	4.96	242	10916	277	0.0409	107	189	76	137	69	131	
	5.6	5.57	215	11106	251	0.0340	108	189	80	138	79	134	
	6.3	6.28	191	11390	228	0.0282	108	189	89	143	88	136	
	7.1	7.09	169	12245	217	0.0242	104	189	91	141	87	134	
	8	7.88	152	12174	194	0.0200	97	189	88	138	86	128	
	9	9.01	133	12316	172	0.0163	89	189	85	136	82	124	
	10	9.85	122	12316	157	0.0147	87	189	84	136	82	124	
	11.2	11.17	107	12316	139	0.0118	83	189	84	136	80	124	
	12.5	12.29	98	12316	126	0.0110	80	189	80	136	76	124	
	14	14.19	85	12316	109	0.0085	80	189	75	136	71	124	
	16	15.76	76	12316	98	0.0077	80	189	78	136	74	124	
	18	17.58	68	12301	88	0.0064	80	189	72	136	69	124	
	20	19.95	60	11889	75	0.0049	80	189	77	136	73	124	
	22.4	22.07	54	11639	66	0.0044	80	189	80	136	77	124	
	20	19.71	61	12301	78	0.0085	61	130	62	94	55	86	
	22.4	21.98	55	12301	70	0.0077	54	130	56	94	51	86	
	25	24.94	48	11960	60	0.0067	53	130	55	94	49	86	
	28	27.89	43	12301	55	0.0050	55	130	56	94	50	86	
	31.5	31.11	39	12301	50	0.0046	53	130	50	94	44	86	
	35.5	35.30	34	11858	42	0.0041	53	130	47	94	43	86	
	40	39.05	31	11423	37	0.0039	53	130	48	94	43	86	
	45	43.54	28	12078	35	0.0030	53	130	43	94	39	86	
	50	49.41	24	11858	30	0.0028	53	130	42	94	39	86	
	56	54.65	22	11208	26	0.0027	53	130	42	94	38	86	
	63	64.18	19	12078	24	0.0015	53	130	42	94	38	86	
	71	71.59	17	12078	21	0.0014	53	130	38	94	35	86	
	80	81.23	15	11639	18	0.0013	53	130	38	94	35	86	
	90	89.86	13	11208	16	0.0013	53	130	38	94	35	86	
	100	97.97	12	12078	15	0.0009	53	130	38	94	35	86	
	112	111.16	11	11639	13	0.0009	53	130	38	94	35	86	
	125	122.96	10	11208	11	0.0009	53	130	38	94	35	86	



X2H / X3H ...19

MONOBLOCK HOUSING

60 Hz

12 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1800$ rpm	5	4.96	363	10916	415	0.0409	87	189	57	136	52	124	
	5.6	5.57	323	11106	376	0.0340	92	189	57	136	52	124	
	6.3	6.28	287	11390	342	0.0282	92	189	57	136	52	124	
	7.1	7.09	254	12245	326	0.0242	92	189	57	136	52	124	
	8	7.88	228	12174	291	0.0200	88	189	57	136	52	124	
	9	9.01	200	12316	258	0.0163	83	189	57	136	52	124	
	10	9.85	183	12316	236	0.0147	83	189	57	136	52	124	
	11.2	11.17	161	12316	208	0.0118	81	189	57	136	52	124	
	12.5	12.29	146	12316	189	0.0110	80	189	57	136	52	124	
	14	14.19	127	12316	164	0.0085	80	189	57	136	52	124	
	16	15.76	114	12316	147	0.0077	80	189	58	136	52	124	
	18	17.58	102	12301	132	0.0064	80	189	57	136	53	124	
	20	19.95	90	11889	112	0.0049	80	189	57	136	52	124	
	22.4	22.07	82	11639	99	0.0044	80	189	62	136	57	124	
	20	19.71	91	12301	118	0.0085	62	130	40	94	35	86	
	22.4	21.98	82	12301	105	0.0077	54	130	38	94	35	86	
	25	24.94	72	11960	90	0.0067	54	130	41	94	35	86	
	28	27.89	65	12301	83	0.0050	55	130	45	94	35	86	
	31.5	31.11	58	12301	75	0.0046	53	130	39	94	35	86	
	35.5	35.30	51	11858	63	0.0041	53	130	40	94	35	86	
	40	39.05	46	11423	55	0.0039	53	130	41	94	35	86	
	45	43.54	41	12078	52	0.0030	53	130	38	94	35	86	
	50	49.41	36	11858	45	0.0028	53	130	38	94	35	86	
	56	54.65	33	11208	39	0.0027	53	130	38	94	35	86	
	63	64.18	28	12078	35	0.0015	53	130	38	94	35	86	
	71	71.59	25	12078	32	0.0014	53	130	38	94	35	86	
	80	81.23	22	11639	27	0.0013	53	130	38	94	35	86	
	90	89.86	20	11208	24	0.0013	53	130	38	94	35	86	
	100	97.97	18	12078	23	0.0009	53	130	38	94	35	86	
	112	111.16	16	11639	20	0.0009	53	130	38	94	35	86	
	125	122.96	15	11208	17	0.0009	53	130	38	94	35	86	

X2H / X3H ...20

MONOBLOCK HOUSING

50 Hz

14 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1000$ rpm	5.6	5.77	173	13526	245	0.0466	138	253	103	272	140	266	X2H
	6.3	6.49	154	12968	209	0.0385	135	247	103	271	138	263	
	7.1	7.31	137	13344	191	0.0318	134	245	103	270	138	261	
	8	8.26	121	14472	183	0.0269	130	244	103	265	136	257	
	9	9.18	109	14190	162	0.0223	127	244	103	261	134	252	
	10	10.49	95	14472	144	0.0181	120	244	103	248	129	240	
	11.2	11.47	87	14472	132	0.0162	112	244	103	233	121	225	
	12.5	13.00	77	14236	115	0.0129	102	244	103	216	112	208	
	14	14.30	70	14236	104	0.0119	100	244	103	212	109	204	
	16	16.52	61	14236	90	0.0092	96	244	103	203	105	195	
	18	18.35	54	14236	81	0.0083	90	244	102	192	99	184	
	20	20.47	49	14236	73	0.0069	89	244	95	178	92	170	
	22.4	23.23	43	14002	63	0.0052	89	244	100	186	96	179	
	25	25.69	39	13689	56	0.0047	89	244	92	176	89	165	
	22.4	22.94	44	14236	65	0.0089	69	171	78	145	73	135	X3H
	25	25.59	39	13961	57	0.0080	69	171	77	144	71	133	
	28	29.03	34	13961	50	0.0069	72	171	80	149	74	137	
	31.5	32.47	31	13961	45	0.0052	63	171	71	132	66	124	
	35.5	36.22	28	13961	40	0.0047	62	171	70	130	65	120	
	40	41.10	24	13961	36	0.0042	64	171	72	134	67	124	
	45	45.46	22	13419	31	0.0040	59	171	64	123	59	113	
	50	50.69	20	13961	29	0.0031	59	171	60	123	56	113	
	56	57.52	17	13961	25	0.0028	59	171	62	123	57	113	
	63	63.62	16	13419	22	0.0027	59	171	55	123	51	113	
	71	74.72	13	13689	19	0.0015	59	171	53	123	50	113	
	80	83.34	12	13689	17	0.0014	59	171	52	123	49	113	
	90	94.57	11	13689	15	0.0013	59	171	53	123	50	113	
	100	104.61	10	13152	13	0.0013	59	171	48	123	44	113	
	112	114.05	9	13689	13	0.0010	59	171	47	123	44	113	
	125	129.41	8	13689	11	0.0009	59	171	48	123	44	113	
	140	143.15	7	13152	10	0.0009	59	171	42	123	40	113	

X2H / X3H ...20

MONOBLOCK HOUSING

50 Hz

14 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
$n_1 = 1500$ rpm	5.6	5.77	260	13526	368	0.0466	110	252	64	210	59	X2H
	6.3	6.49	231	12968	314	0.0385	118	250	64	217	59	
	7.1	7.31	205	13344	287	0.0318	121	248	72	227	71	
	8	8.26	182	14472	275	0.0269	122	245	74	235	78	
	9	9.18	163	14190	243	0.0223	126	244	74	232	87	
	10	10.49	143	14472	217	0.0181	121	244	74	225	95	
	11.2	11.47	131	14472	198	0.0162	114	244	74	212	94	
	12.5	13.00	115	14236	172	0.0129	105	244	74	199	94	
	14	14.30	105	14236	156	0.0119	102	244	74	195	92	
	16	16.52	91	14236	135	0.0092	96	244	74	188	91	
	18	18.35	82	14236	122	0.0083	90	244	74	178	87	
	20	20.47	73	14236	109	0.0069	89	244	74	176	82	
	22.4	23.23	65	14002	95	0.0052	89	244	74	176	87	
	25	25.69	58	13689	84	0.0047	89	244	74	176	81	
	22.4	22.94	65	14236	97	0.0089	69	171	67	132	58	X3H
	25	25.59	59	13961	86	0.0080	70	171	70	133	61	
	28	29.03	52	13961	76	0.0069	73	171	74	137	63	
	31.5	32.47	46	13961	68	0.0052	63	171	66	123	59	
	35.5	36.22	41	13961	61	0.0047	62	171	64	123	58	
	40	41.10	36	13961	53	0.0042	65	171	66	124	59	
	45	45.46	33	13419	46	0.0040	59	171	58	123	52	
	50	50.69	30	13961	43	0.0031	59	171	55	123	50	
	56	57.52	26	13961	38	0.0028	59	171	57	123	51	
	63	63.62	24	13419	33	0.0027	59	171	51	123	45	
	71	74.72	20	13689	29	0.0015	59	171	49	123	45	
	80	83.34	18	13689	26	0.0014	59	171	48	123	44	
	90	94.57	16	13689	23	0.0013	59	171	49	123	44	
	100	104.61	14	13152	20	0.0013	59	171	44	123	40	
	112	114.05	13	13689	19	0.0010	59	171	43	123	39	
	125	129.41	12	13689	17	0.0009	59	171	43	123	39	
	140	143.15	10	13152	14	0.0009	59	171	42	123	39	

X2H / X3H ...20

MONOBLOCK HOUSING

60 Hz

14 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1200$ rpm	5.6	5.77	208	13526	295	0.0466	127	246	87	245	100	239	X2H
	6.3	6.49	185	12968	251	0.0385	128	244	87	248	112	240	
	7.1	7.31	164	13344	229	0.0318	129	244	87	251	116	242	
	8	8.26	145	14472	220	0.0269	128	244	87	251	119	241	
	9	9.18	131	14190	194	0.0223	126	244	87	247	120	237	
	10	10.49	114	14472	173	0.0181	119	244	87	237	117	227	
	11.2	11.47	105	14472	159	0.0162	112	244	87	223	112	214	
	12.5	13.00	92	14236	138	0.0129	103	244	87	208	105	199	
	14	14.30	84	14236	125	0.0119	100	244	87	204	103	194	
	16	16.52	73	14236	108	0.0092	95	244	87	195	100	186	
	18	18.35	65	14236	97	0.0083	90	244	87	184	94	175	
	20	20.47	59	14236	87	0.0069	89	244	87	176	88	163	
	22.4	23.23	52	14002	76	0.0052	89	244	87	179	92	170	
	25	25.69	47	13689	67	0.0047	89	244	87	176	85	161	
	22.4	22.94	52	14236	78	0.0089	69	171	74	139	68	126	X3H
	25	25.59	47	13961	69	0.0080	69	171	74	138	67	125	
	28	29.03	41	13961	60	0.0069	72	171	77	143	69	128	
	31.5	32.47	37	13961	54	0.0052	63	171	68	127	63	117	
	35.5	36.22	33	13961	48	0.0047	61	171	67	125	61	113	
	40	41.10	29	13961	43	0.0042	64	171	69	129	62	116	
	45	45.46	26	13419	37	0.0040	59	171	61	123	55	113	
	50	50.69	24	13961	35	0.0031	59	171	58	123	53	113	
	56	57.52	21	13961	31	0.0028	59	171	59	123	54	113	
	63	63.62	19	13419	27	0.0027	59	171	53	123	48	113	
	71	74.72	16	13689	23	0.0015	59	171	51	123	47	113	
	80	83.34	14	13689	21	0.0014	59	171	50	123	46	113	
	90	94.57	13	13689	18	0.0013	59	171	51	123	47	113	
	100	104.61	11	13152	16	0.0013	59	171	46	123	42	113	
	112	114.05	11	13689	15	0.0010	59	171	45	123	41	113	
	125	129.41	9	13689	13	0.0009	59	171	45	123	42	113	
	140	143.15	8	13152	12	0.0009	59	171	42	123	39	113	



X2H / X3H ...20

MONOBLOCK HOUSING

60 Hz

14 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1800$ rpm	5.6	5.77	312	13526	442	0.0466	93	247	64	176	59	161	
	6.3	6.49	277	12968	377	0.0385	99	247	64	176	59	161	
	7.1	7.31	246	13344	344	0.0318	108	248	64	176	59	161	
	8	8.26	218	14472	330	0.0269	114	246	64	176	59	171	
	9	9.18	196	14190	291	0.0223	112	245	64	181	59	178	
	10	10.49	172	14472	260	0.0181	111	244	64	188	59	183	
	11.2	11.47	157	14472	238	0.0162	107	244	64	186	60	177	
	12.5	13.00	138	14236	206	0.0129	100	244	64	178	59	170	
	14	14.30	126	14236	188	0.0119	101	244	67	177	66	170	
	16	16.52	109	14236	162	0.0092	96	244	69	176	71	165	
	18	18.35	98	14236	146	0.0083	90	244	69	176	71	161	
	20	20.47	88	14236	131	0.0069	89	244	69	176	70	161	
	22.4	23.23	77	14002	114	0.0052	89	244	69	176	74	161	
	25	25.69	70	13689	100	0.0047	89	244	69	176	71	161	
	22.4	22.94	78	14236	117	0.0089	68	171	47	123	39	113	
	25	25.59	70	13961	103	0.0080	71	171	57	123	42	113	
	28	29.03	62	13961	91	0.0069	73	171	62	123	49	113	
	31.5	32.47	55	13961	81	0.0052	63	171	56	123	46	113	
	35.5	36.22	50	13961	73	0.0047	62	171	58	123	49	113	
	40	41.10	44	13961	64	0.0042	64	171	60	123	52	113	
	45	45.46	40	13419	56	0.0040	59	171	52	123	45	113	
	50	50.69	36	13961	52	0.0031	59	171	50	123	46	113	
	56	57.52	31	13961	46	0.0028	59	171	52	123	47	113	
	63	63.62	28	13419	40	0.0027	59	171	46	123	42	113	
	71	74.72	24	13689	35	0.0015	59	171	45	123	42	113	
	80	83.34	22	13689	31	0.0014	59	171	44	123	40	113	
	90	94.57	19	13689	27	0.0013	59	171	44	123	40	113	
	100	104.61	17	13152	24	0.0013	59	171	42	123	39	113	
	112	114.05	16	13689	23	0.0010	59	171	42	123	39	113	
	125	129.41	14	13689	20	0.0009	59	171	42	123	39	113	
	140	143.15	13	13152	17	0.0009	59	171	42	123	39	113	

X2H / X3H ...22

MONOBLOCK HOUSING

50 Hz

19 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	MONOBLOCK HOUSING		50 Hz		19 kNm		Type
						R1	S5	T6	H ₂ O	H ₂ O	H ₂ O	
4	3.95	253	16915	448	0.1097	147	279	81	271	80	266	X2H 
4.5	4.44	225	17427	411	0.0923	146	275	107	279	106	271	
5	5.01	200	18453	386	0.0775	148	267	115	284	114	267	
5.6	5.66	177	18709	346	0.0649	148	262	122	281	122	267	
6.3	6.29	159	17812	297	0.0560	146	262	128	281	127	266	
7.1	7.18	139	18581	271	0.0463	143	262	131	270	130	258	
8	7.86	127	20174	269	0.0436	138	262	136	255	129	243	
9	8.90	112	19606	231	0.0341	133	262	133	247	129	235	
10	9.80	102	19792	211	0.0329	124	262	128	232	123	221	
11.2	11.31	88	19792	183	0.0252	113	262	119	214	116	204	
12.5	12.57	80	19792	165	0.0230	109	262	117	207	112	197	
14	14.02	71	19792	148	0.0201	108	262	111	194	106	185	
16	15.71	64	19792	132	0.0160	108	262	112	193	107	184	
18	17.29	58	19413	118	0.0143	108	262	107	189	102	176	
20	19.61	51	19413	104	0.0184	78	154	85	147	77	136	X3H 
22.4	21.87	46	19413	93	0.0172	79	154	86	148	79	136	
25	24.51	41	19413	83	0.0156	73	154	81	139	74	127	
28	26.97	37	19413	75	0.0149	72	154	77	133	71	121	
31.5	31.43	32	19413	65	0.0104	72	154	72	123	67	115	
35.5	35.05	29	19413	58	0.0100	72	154	71	122	66	113	
40	39.29	25	19038	51	0.0093	72	154	67	116	62	107	
45	43.21	23	19038	46	0.0090	72	154	64	111	59	102	
50	49.32	20	19038	40	0.0051	72	154	63	111	58	102	
56	55.01	18	19038	36	0.0049	72	154	63	111	58	102	
63	61.65	16	19038	32	0.0046	72	154	59	111	54	102	
71	67.81	15	19038	29	0.0045	72	154	56	111	52	102	



X2H / X3H ...22

MONOBLOCK HOUSING

50 Hz

19 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
4	3.95	380	16915	673	0.1097	108		78		71		X2H
4.5	4.44	338	17427	617	0.0923	108		78		71		
5	5.01	299	18453	579	0.0775	108		78		71		
5.6	5.66	265	18709	519	0.0649	119		78		71		
6.3	6.29	238	17812	445	0.0560	126		78		71		
7.1	7.18	209	18581	407	0.0463	124		78		71		
8	7.86	191	20174	403	0.0436	118		78		71		
9	8.90	169	19606	346	0.0341	115		78		71		
10	9.80	153	19792	317	0.0329	110		78		71		
11.2	11.31	133	19792	275	0.0252	108		78		71		
12.5	12.57	119	19792	247	0.0230	108		78		71		
14	14.02	107	19792	222	0.0201	108		78		71		
16	15.71	95	19792	198	0.0160	108		80		71		
18	17.29	87	19413	176	0.0143	108		82		73		
20	19.61	76	19413	156	0.0184	73		55		48		X3H
22.4	21.87	69	19413	139	0.0172	82		64		49		
25	24.51	61	19413	124	0.0156	72		55		48		
28	26.97	56	19413	113	0.0149	72		58		48		
31.5	31.43	48	19413	97	0.0104	72		60		52		
35.5	35.05	43	19413	87	0.0100	72		61		53		
40	39.29	38	19038	76	0.0093	72		59		49		
45	43.21	35	19038	69	0.0090	72		57		48		
50	49.32	30	19038	61	0.0051	72		57		50		
56	55.01	27	19038	54	0.0049	72		56		50		
63	61.65	24	19038	49	0.0046	72		53		48		
71	67.81	22	19038	44	0.0045	72		52		48		

X2H / X3H ...22

MONOBLOCK HOUSING

60 Hz

19 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	MONOBLOCK HOUSING		60 Hz		19 kNm		Type
						R1	S5	T6	H ₂ O	H ₂ O	H ₂ O	
4	3.95	304	16915	538	0.1097	108	78	71	263	189	173	X2H 
4.5	4.44	270	17427	493	0.0923	126	78	71	262	203	174	
5	5.01	240	18453	463	0.0775	126	78	71	262	214	198	
5.6	5.66	212	18709	415	0.0649	132	78	71	262	223	215	
6.3	6.29	191	17812	356	0.0560	137	78	71	262	235	221	
7.1	7.18	167	18581	325	0.0463	133	93	90	262	239	222	
8	7.86	153	20174	323	0.0436	130	97	86	262	227	217	
9	8.90	135	19606	277	0.0341	127	102	98	262	230	215	
10	9.80	122	19792	254	0.0329	120	108	99	262	220	203	
11.2	11.31	106	19792	220	0.0252	111	103	99	262	204	192	
12.5	12.57	95	19792	198	0.0230	108	104	98	262	197	185	
14	14.02	86	19792	177	0.0201	108	98	95	262	189	175	
16	15.71	76	19792	158	0.0160	108	101	95	262	189	174	
18	17.29	69	19413	141	0.0143	108	97	92	262	189	173	
20	19.61	61	19413	124	0.0184	76	75	66	154	139	126	X3H 
22.4	21.87	55	19413	112	0.0172	78	79	69	154	140	126	
25	24.51	49	19413	100	0.0156	72	72	62	154	130	116	
28	26.97	44	19413	90	0.0149	72	71	61	154	124	111	
31.5	31.43	38	19413	78	0.0104	72	68	61	154	118	108	
35.5	35.05	34	19413	70	0.0100	72	68	61	154	116	105	
40	39.29	31	19038	61	0.0093	72	64	58	154	111	102	
45	43.21	28	19038	55	0.0090	72	61	55	154	111	102	
50	49.32	24	19038	49	0.0051	72	60	55	154	111	102	
56	55.01	22	19038	43	0.0049	72	59	54	154	111	102	
63	61.65	19	19038	39	0.0046	72	56	51	154	111	102	
71	67.81	18	19038	35	0.0045	72	53	48	154	111	102	



X2H / X3H ...22

MONOBLOCK HOUSING

60 Hz

19 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
4	3.95	456	16915	807	0.1097	108		78		71		X2H
4.5	4.44	405	17427	740	0.0923	108		78		71		
5	5.01	359	18453	694	0.0775	108		78		71		
5.6	5.66	318	18709	623	0.0649	108		78		71		
6.3	6.29	286	17812	534	0.0560	108		78		71		
7.1	7.18	251	18581	488	0.0463	108		78		71		
8	7.86	229	20174	484	0.0436	108		78		71		
9	8.90	202	19606	415	0.0341	111		78		71		
10	9.80	184	19792	381	0.0329	108		78		71		
11.2	11.31	159	19792	330	0.0252	108		78		71		
12.5	12.57	143	19792	297	0.0230	108		78		71		
14	14.02	128	19792	266	0.0201	108		78		71		
16	15.71	115	19792	237	0.0160	108		78		71		
18	17.29	104	19413	212	0.0143	108		78		71		
20	19.61	92	19413	187	0.0184	72		52		48		X3H
22.4	21.87	82	19413	167	0.0172	79		52		48		
25	24.51	73	19413	149	0.0156	72		52		48		
28	26.97	67	19413	136	0.0149	72		52		48		
31.5	31.43	57	19413	116	0.0104	72		52		48		
35.5	35.05	51	19413	104	0.0100	72		52		48		
40	39.29	46	19038	91	0.0093	72		52		48		
45	43.21	42	19038	83	0.0090	72		52		48		
50	49.32	36	19038	73	0.0051	72		52		48		
56	55.01	33	19038	65	0.0049	72		52		48		
63	61.65	29	19038	58	0.0046	72		52		48		
71	67.81	27	19038	53	0.0045	72		52		48		

X2H / X3H ...25

MONOBLOCK HOUSING

50 Hz

28 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1000$ rpm	5.6	5.39	186	23137	450	0.1513	187	445	152	467	156	453	X2H
	6.3	6.06	165	23849	412	0.1252	185	435	171	462	173	446	
	7.1	6.83	146	25095	385	0.1035	193	423	187	453	186	437	
	8	7.71	130	25451	346	0.0852	186	406	186	439	181	422	
	9	8.57	117	24383	298	0.0725	183	399	187	433	184	416	
	10	9.80	102	25273	270	0.0589	176	384	184	420	181	403	
	11.2	10.71	93	29644	290	0.0542	166	383	179	398	173	381	
	12.5	12.14	82	26696	230	0.0423	161	383	175	388	170	372	
	14	13.36	75	29644	232	0.0397	149	383	166	364	160	348	
	16	15.43	65	29098	197	0.0303	136	383	154	334	148	319	
	18	17.14	58	29098	178	0.0271	131	383	150	323	143	308	
	20	19.12	52	28556	156	0.0234	130	383	140	300	133	287	
	22.4	21.43	47	26963	132	0.0187	130	383	138	297	132	284	
	25	23.57	42	26963	120	0.0165	130	383	134	287	128	274	
	25	26.74	37	29098	114	0.0201	95	300	109	234	101	218	X3H
	28	29.83	34	28020	98	0.0186	94	300	108	233	100	215	
	31.5	33.43	30	26442	83	0.0167	89	300	102	219	94	203	
	35.5	36.77	27	26442	75	0.0158	86	300	98	216	90	198	
	40	42.86	23	28556	70	0.0111	86	300	90	216	85	198	
	45	47.80	21	28020	61	0.0105	86	300	89	216	83	198	
	50	53.57	19	26442	52	0.0097	86	300	85	216	79	198	
	56	58.93	17	25926	46	0.0094	86	300	81	216	75	198	
	63	67.25	15	28556	44	0.0053	86	300	79	216	74	198	
	71	75.01	13	27489	38	0.0051	86	300	78	216	73	198	
	80	84.07	12	25926	32	0.0048	86	300	73	216	68	198	
	90	92.47	11	25926	29	0.0047	86	300	71	216	66	198	



X2H / X3H ...25

MONOBLOCK HOUSING

50 Hz

28 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1500$ rpm	5.6	5.39	278	23137	674	0.1513	130	425	94	276	86	253	
	6.3	6.06	248	23849	618	0.1252	141	425	94	290	86	262	
	7.1	6.83	220	25095	577	0.1035	150	421	94	315	86	296	
	8	7.71	195	25451	519	0.0852	147	407	94	339	86	310	
	9	8.57	175	24383	447	0.0725	153	403	94	354	86	330	
	10	9.80	153	25273	405	0.0589	153	389	94	366	86	337	
	11.2	10.71	140	29644	435	0.0542	145	383	100	350	86	330	
	12.5	12.14	124	26696	345	0.0423	146	383	103	347	98	327	
	14	13.36	112	29644	349	0.0397	137	383	106	329	95	309	
	16	15.43	97	29098	296	0.0303	131	383	106	304	103	286	
	18	17.14	88	29098	267	0.0271	131	383	112	294	104	276	
	20	19.12	78	28556	235	0.0234	130	383	114	276	105	256	
	22.4	21.43	70	26963	198	0.0187	130	383	113	276	108	254	
	25	23.57	64	26963	180	0.0165	130	383	112	276	106	253	
	25	26.74	56	29098	171	0.0201	96	300	83	216	68	198	
	28	29.83	50	28020	148	0.0186	99	300	94	216	82	198	
	31.5	33.43	45	26442	124	0.0167	87	300	84	216	71	198	
	35.5	36.77	41	26442	113	0.0158	86	300	82	216	67	198	
	40	42.86	35	28556	105	0.0111	86	300	81	216	72	198	
	45	47.80	31	28020	92	0.0105	86	300	81	216	72	198	
	50	53.57	28	26442	78	0.0097	86	300	77	216	68	198	
	56	58.93	25	25926	69	0.0094	86	300	74	216	66	198	
	63	67.25	22	28556	67	0.0053	86	300	73	216	67	198	
	71	75.01	20	27489	58	0.0051	86	300	71	216	64	198	
	80	84.07	18	25926	48	0.0048	86	300	67	216	61	198	
	90	92.47	16	25926	44	0.0047	86	300	64	216	58	198	

X2H / X3H ...25

MONOBLOCK HOUSING

60 Hz

28 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1200$ rpm	5.6	5.39	223	23137	539	0.1513	149	425	94	401	86	384	X2H
	6.3	6.06	198	23849	495	0.1252	168	422	94	416	86	394	
	7.1	6.83	176	25095	462	0.1035	167	412	114	413	113	395	
	8	7.71	156	25451	415	0.0852	174	398	134	404	122	385	
	9	8.57	140	24383	358	0.0725	171	392	141	400	131	381	
	10	9.80	122	25273	324	0.0589	169	383	152	394	149	375	
	11.2	10.71	112	29644	348	0.0542	162	383	150	374	143	356	
	12.5	12.14	99	26696	276	0.0423	157	383	154	369	150	350	
	14	13.36	90	29644	279	0.0397	148	383	147	347	143	329	
	16	15.43	78	29098	237	0.0303	134	383	140	319	134	303	
	18	17.14	70	29098	213	0.0271	130	383	137	308	131	292	
	20	19.12	63	28556	188	0.0234	130	383	130	287	123	272	
	22.4	21.43	56	26963	158	0.0187	130	383	131	282	124	267	
	25	23.57	51	26963	144	0.0165	130	383	127	277	120	259	
	25	26.74	45	29098	137	0.0201	95	300	101	224	92	206	X3H
	28	29.83	40	28020	118	0.0186	95	300	103	223	93	203	
	31.5	33.43	36	26442	99	0.0167	87	300	97	216	86	198	
	35.5	36.77	33	26442	90	0.0158	86	300	92	216	83	198	
	40	42.86	28	28556	84	0.0111	86	300	87	216	81	198	
	45	47.80	25	28020	74	0.0105	86	300	85	216	78	198	
	50	53.57	22	26442	62	0.0097	86	300	81	216	74	198	
	56	58.93	20	25926	55	0.0094	86	300	78	216	71	198	
	63	67.25	18	28556	53	0.0053	86	300	76	216	70	198	
	71	75.01	16	27489	46	0.0051	86	300	75	216	69	198	
	80	84.07	14	25926	39	0.0048	86	300	70	216	65	198	
	90	92.47	13	25926	35	0.0047	86	300	67	216	62	198	



X2H / X3H ...25

MONOBLOCK HOUSING

60 Hz

28 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
$n_1 = 1800$ rpm	5.6	5.39	334	23137	809	0.1513	130	402	94	276	86	X2H
	6.3	6.06	297	23849	742	0.1252	130	404	94	276	86	
	7.1	6.83	264	25095	693	0.1035	130	405	94	276	86	
	8	7.71	233	25451	622	0.0852	130	397	94	276	86	
	9	8.57	210	24383	536	0.0725	139	397	94	276	86	
	10	9.80	184	25273	486	0.0589	141	388	94	276	86	
	11.2	10.71	168	29644	522	0.0542	135	383	94	276	86	
	12.5	12.14	148	26696	415	0.0423	134	383	94	284	86	
	14	13.36	135	29644	418	0.0397	132	383	94	278	86	
	16	15.43	117	29098	355	0.0303	130	383	94	276	86	
	18	17.14	105	29098	320	0.0271	130	383	94	276	86	
	20	19.12	94	28556	282	0.0234	130	383	94	276	86	
	22.4	21.43	84	26963	237	0.0187	130	383	94	276	86	
	25	23.57	76	26963	216	0.0165	130	383	94	276	86	
	25	26.74	67	29098	205	0.0201	87	300	62	216	57	X3H
	28	29.83	60	28020	177	0.0186	101	300	68	216	57	
	31.5	33.43	54	26442	149	0.0167	86	300	62	216	57	
	35.5	36.77	49	26442	136	0.0158	86	300	62	216	57	
	40	42.86	42	28556	126	0.0111	86	300	63	216	57	
	45	47.80	38	28020	110	0.0105	86	300	70	216	60	
	50	53.57	34	26442	93	0.0097	86	300	64	216	57	
	56	58.93	31	25926	83	0.0094	86	300	64	216	57	
	63	67.25	27	28556	80	0.0053	86	300	66	216	60	
	71	75.01	24	27489	69	0.0051	86	300	64	216	58	
	80	84.07	21	25926	58	0.0048	86	300	62	216	57	
	90	92.47	19	25926	53	0.0047	86	300	62	216	57	

X2H / X3H ...26

MONOBLOCK HOUSING

50 Hz

36 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kg m ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1000$ rpm	4	4.03	248	30142	783	0.3424	174	387	111	289	102	264	
	4.5	4.52	221	30968	717	0.2806	184	392	111	342	102	298	
	5	5.10	196	32207	661	0.2349	183	387	111	363	102	332	
	5.6	5.76	174	33652	612	0.1961	195	377	111	370	102	347	
	6.3	6.40	156	30968	507	0.1678	193	373	141	377	136	360	
	7.1	7.31	137	32207	461	0.1381	192	356	150	378	137	355	
	8	8.00	125	36749	481	0.1258	185	338	157	364	154	347	
	9	9.07	110	33753	390	0.1028	185	332	158	365	156	341	
	10	9.98	100	33753	354	0.0929	174	332	166	345	156	326	
	11.2	11.52	87	33753	307	0.0748	167	332	164	333	161	316	
	12.5	12.80	78	36324	297	0.0662	158	332	164	315	155	299	
	14	14.28	70	36324	266	0.0581	155	332	160	295	156	279	
	16	16.23	62	36324	234	0.0445	154	332	160	291	155	277	
	18	18.22	55	36324	209	0.0397	154	332	152	270	144	257	
	16	16.10	62	36324	236	0.0582	124	260	130	238	119	222	
	18	17.96	56	36324	212	0.0532	119	260	125	230	117	214	
	20	20.42	49	36324	186	0.0444	118	260	126	230	119	215	
	22.4	23.04	43	36324	165	0.0326	117	260	128	226	121	212	
	25	25.70	39	35672	145	0.0302	111	260	122	214	116	201	
	28	29.21	34	35672	128	0.0259	108	260	123	213	114	199	
	31.5	32.79	30	35672	114	0.0244	102	260	116	200	108	186	
	35.5	35.69	28	35672	105	0.0178	102	260	110	191	104	180	
	40	40.57	25	35672	92	0.0156	102	260	109	189	102	177	
	45	45.54	22	35672	82	0.0148	102	260	103	187	96	172	
	50	51.20	20	35672	73	0.0095	102	260	100	187	95	172	
	56	57.11	18	35027	64	0.0090	102	260	95	187	90	172	
	63	64.91	15	35027	57	0.0081	102	260	94	187	89	172	
	71	72.86	14	35027	50	0.0078	102	260	89	187	83	172	
	80	79.95	13	35027	46	0.0050	102	260	86	187	81	172	
	90	90.88	11	35027	40	0.0046	102	260	85	187	81	172	
	100	102.01	10	35027	36	0.0044	102	260	80	187	76	172	



X2H / X3H ...26

MONOBLOCK HOUSING

50 Hz

36 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
4	4.03	372	30142	1175	0.3424	154		111		102		X2H
4.5	4.52	332	30968	1076	0.2806	154		111		102		
5	5.10	294	32207	992	0.2349	154		111		102		
5.6	5.76	260	33652	918	0.1961	154		111		102		
6.3	6.40	234	30968	760	0.1678	154		111		102		
7.1	7.31	205	32207	692	0.1381	154		111		102		
8	8.00	188	36749	722	0.1258	154		111		102		
9	9.07	165	33753	585	0.1028	159		111		102		
10	9.98	150	33753	531	0.0929	155		111		102		
11.2	11.52	130	33753	460	0.0748	154		111		102		
12.5	12.80	117	36324	446	0.0662	154		111		102		
14	14.28	105	36324	400	0.0581	154		111		102		
16	16.23	92	36324	352	0.0445	154		111		102		
18	18.22	82	36324	313	0.0397	154		111		102		
16	16.10	93	36324	354	0.0582	103		73		67		X3H
18	17.96	84	36324	318	0.0532	102		73		67		
20	20.42	73	36324	279	0.0444	103		74		67		
22.4	23.04	65	36324	248	0.0326	110		84		76		
25	25.70	58	35672	218	0.0302	105		87		71		
28	29.21	51	35672	192	0.0259	105		91		75		
31.5	32.79	46	35672	171	0.0244	102		85		70		
35.5	35.69	42	35672	157	0.0178	102		93		80		
40	40.57	37	35672	138	0.0156	102		93		82		
45	45.54	33	35672	123	0.0148	102		88		80		
50	51.20	29	35672	109	0.0095	102		91		84		
56	57.11	26	35027	96	0.0090	102		88		80		
63	64.91	23	35027	85	0.0081	102		87		80		
71	72.86	21	35027	76	0.0078	102		82		75		
80	79.95	19	35027	69	0.0050	102		79		73		
90	90.88	17	35027	61	0.0046	102		78		73		
100	102.01	15	35027	54	0.0044	102		74		68		

X2H / X3H ...26

MONOBLOCK HOUSING

60 Hz

36 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kg m ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1200$ rpm	4	4.03	298	30142	940	0.3424	154	332	111	239	102	219	X2H
	4.5	4.52	265	30968	861	0.2806	154	344	111	239	102	219	
	5	5.10	235	32207	794	0.2349	154	342	111	239	102	219	
	5.6	5.76	208	33652	734	0.1961	154	351	111	239	102	219	
	6.3	6.40	188	30968	608	0.1678	165	348	111	270	102	221	
	7.1	7.31	164	32207	554	0.1381	162	338	111	293	102	254	
	8	8.00	150	36749	577	0.1258	159	332	111	289	102	263	
	9	9.07	132	33753	468	0.1028	166	332	111	306	102	277	
	10	9.98	120	33753	425	0.0929	164	332	115	292	102	276	
	11.2	11.52	104	33753	368	0.0748	159	332	119	298	112	274	
	12.5	12.80	94	36324	357	0.0662	155	332	127	286	112	268	
	14	14.28	84	36324	320	0.0581	154	332	128	274	122	254	
	16	16.23	74	36324	281	0.0445	154	332	135	275	129	258	
	18	18.22	66	36324	251	0.0397	154	332	130	256	122	240	
	16	16.10	75	36324	284	0.0582	117	260	96	223	88	200	X3H
	18	17.96	67	36324	254	0.0532	114	260	97	214	89	192	
	20	20.42	59	36324	224	0.0444	113	260	106	216	88	195	
	22.4	23.04	52	36324	198	0.0326	116	260	116	216	105	200	
	25	25.70	47	35672	174	0.0302	110	260	111	205	104	190	
	28	29.21	41	35672	153	0.0259	106	260	110	202	102	186	
	31.5	32.79	37	35672	137	0.0244	102	260	106	190	96	174	
	35.5	35.69	34	35672	126	0.0178	102	260	103	187	97	172	
	40	40.57	30	35672	110	0.0156	102	260	105	187	95	172	
	45	45.54	26	35672	98	0.0148	102	260	98	187	91	172	
	50	51.20	23	35672	88	0.0095	102	260	97	187	91	172	
	56	57.11	21	35027	77	0.0090	102	260	92	187	86	172	
	63	64.91	18	35027	68	0.0081	102	260	91	187	84	172	
	71	72.86	16	35027	60	0.0078	102	260	86	187	79	172	
	80	79.95	15	35027	55	0.0050	102	260	82	187	77	172	
	90	90.88	13	35027	48	0.0046	102	260	82	187	76	172	
	100	102.01	12	35027	43	0.0044	102	260	77	187	72	172	



X2H / X3H ...26

MONOBLOCK HOUSING

60 Hz

36 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
4	4.03	447	30142	1410	0.3424	154		111		102		X2H
4.5	4.52	398	30968	1291	0.2806	154		111		102		
5	5.10	353	32207	1190	0.2349	154		111		102		
5.6	5.76	313	33652	1101	0.1961	154		111		102		
6.3	6.40	281	30968	912	0.1678	154		111		102		
7.1	7.31	246	32207	830	0.1381	154		111		102		
8	8.00	225	36749	866	0.1258	154		111		102		
9	9.07	198	33753	701	0.1028	154		111		102		
10	9.98	180	33753	638	0.0929	154		111		102		
11.2	11.52	156	33753	552	0.0748	154		111		102		
12.5	12.80	141	36324	535	0.0662	154		111		102		
14	14.28	126	36324	479	0.0581	154		111		102		
16	16.23	111	36324	422	0.0445	154		111		102		
18	18.22	99	36324	376	0.0397	154		111		102		
16	16.10	112	36324	425	0.0582	102		73		67		X3H
18	17.96	100	36324	381	0.0532	102		73		67		
20	20.42	88	36324	335	0.0444	102		73		67		
22.4	23.04	78	36324	297	0.0326	109		73		67		
25	25.70	70	35672	262	0.0302	103		73		67		
28	29.21	62	35672	230	0.0259	102		73		67		
31.5	32.79	55	35672	205	0.0244	102		73		67		
35.5	35.69	50	35672	188	0.0178	102		73		67		
40	40.57	44	35672	166	0.0156	102		73		67		
45	45.54	40	35672	148	0.0148	102		73		67		
50	51.20	35	35672	131	0.0095	102		79		68		
56	57.11	32	35027	116	0.0090	102		75		70		
63	64.91	28	35027	102	0.0081	102		76		69		
71	72.86	25	35027	91	0.0078	102		73		67		
80	79.95	23	35027	83	0.0050	102		73		67		
90	90.88	20	35027	73	0.0046	102		73		68		
100	102.01	18	35027	65	0.0044	102		73		67		

X2H / X3H ...28

MONOBLOCK HOUSING

50 Hz

38 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kg m ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1000$ rpm	4	4.03	248	30242	786	0.3224	174	387	111	289	102	264	
	4.5	4.52	221	31011	718	0.2648	184	392	111	342	102	298	
	5	5.10	196	32292	663	0.2225	183	387	111	363	102	332	
	5.6	5.76	174	33573	610	0.1863	195	377	111	370	102	347	
	6.3	6.40	156	31011	507	0.1599	193	373	141	377	136	360	
	7.1	7.31	137	32292	463	0.1320	192	356	150	378	137	355	
	8	8.00	125	36905	483	0.1207	185	338	157	364	154	347	
	9	9.07	110	38400	443	0.0989	185	332	158	365	156	341	
	10	9.98	100	38700	406	0.0897	174	332	166	345	156	326	
	11.2	11.52	87	38826	353	0.0724	167	332	164	333	161	316	
	12.5	12.80	78	38826	318	0.0642	158	332	164	315	155	299	
	14	14.28	70	38076	279	0.0565	155	332	160	295	156	279	
	16	16.23	62	37333	241	0.0433	154	332	160	291	155	277	
	18	18.22	55	38076	219	0.0387	154	332	152	270	144	257	
	16	16.10	62	36649	238	0.0570	124	260	130	238	119	222	
	18	17.96	56	38076	222	0.0522	119	260	125	230	117	214	
	20	20.42	49	37333	191	0.0437	118	260	126	230	119	215	
	22.4	23.04	43	38076	173	0.0320	117	260	128	226	121	212	
	25	25.70	39	38076	155	0.0297	111	260	122	214	116	201	
	28	29.21	34	36598	131	0.0255	108	260	123	213	114	199	
	31.5	32.79	30	37333	119	0.0241	102	260	116	200	108	186	
	35.5	35.69	28	37333	110	0.0175	102	260	110	191	104	180	
	40	40.57	25	36598	94	0.0154	102	260	109	189	102	177	
	45	45.54	22	37333	86	0.0147	102	260	103	187	96	172	
	50	51.20	20	37333	76	0.0093	102	260	100	187	95	172	
	56	57.11	18	37333	68	0.0089	102	260	95	187	90	172	
	63	64.91	15	35869	58	0.0080	102	260	94	187	89	172	
	71	72.86	14	37333	54	0.0077	102	260	89	187	83	172	
	80	79.95	13	37333	49	0.0050	102	260	86	187	81	172	
	90	90.88	11	35869	41	0.0046	102	260	85	187	81	172	
	100	102.01	10	36598	38	0.0044	102	260	80	187	76	172	



X2H / X3H ...28

MONOBLOCK HOUSING

50 Hz

38 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
4	4.03	372	30242	1179	0.3224	154		111		102		X2H
4.5	4.52	332	31011	1078	0.2648	154		111		102		
5	5.10	294	32292	995	0.2225	154		111		102		
5.6	5.76	260	33573	916	0.1863	154		111		102		
6.3	6.40	234	31011	761	0.1599	154		111		102		
7.1	7.31	205	32292	694	0.1320	154		111		102		
8	8.00	188	36905	725	0.1207	154		111		102		
9	9.07	165	38400	665	0.0989	159		111		102		
10	9.98	150	38700	609	0.0897	155		111		102		
11.2	11.52	130	38826	529	0.0724	154		111		102		
12.5	12.80	117	38826	476	0.0642	154		111		102		
14	14.28	105	38076	419	0.0565	154		111		102		
16	16.23	92	37333	361	0.0433	154		111		102		
18	18.22	82	38076	328	0.0387	154		111		102		
16	16.10	93	36649	358	0.0570	103		73		67		X3H
18	17.96	84	38076	333	0.0522	102		73		67		
20	20.42	73	37333	287	0.0437	103		74		67		
22.4	23.04	65	38076	260	0.0320	110		84		76		
25	25.70	58	38076	233	0.0297	105		87		71		
28	29.21	51	36598	197	0.0255	105		91		75		
31.5	32.79	46	37333	179	0.0241	102		85		70		
35.5	35.69	42	37333	164	0.0175	102		93		80		
40	40.57	37	36598	142	0.0154	102		93		82		
45	45.54	33	37333	129	0.0147	102		88		80		
50	51.20	29	37333	115	0.0093	102		91		84		
56	57.11	26	37333	103	0.0089	102		88		80		
63	64.91	23	35869	87	0.0080	102		87		80		
71	72.86	21	37333	80	0.0077	102		82		75		
80	79.95	19	37333	73	0.0050	102		79		73		
90	90.88	17	35869	62	0.0046	102		78		73		
100	102.01	15	36598	56	0.0044	102		74		68		

X2H / X3H ...28

MONOBLOCK HOUSING

60 Hz

38 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kg m ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
4	4.03	298	30242	943	0.3224	154		111		102		X2H
4.5	4.52	265	31011	862	0.2648	154		111		102		
5	5.10	235	32292	796	0.2225	154		111		102		
5.6	5.76	208	33573	732	0.1863	154		111		102		
6.3	6.40	188	31011	609	0.1599	165		111		102		
7.1	7.31	164	32292	555	0.1320	162		111		102		
8	8.00	150	36905	580	0.1207	159		111		102		
9	9.07	132	38400	532	0.0989	166		111		102		
10	9.98	120	38700	487	0.0897	164		115		102		
11.2	11.52	104	38826	424	0.0724	159		119		112		
12.5	12.80	94	38826	381	0.0642	155		127		112		
14	14.28	84	38076	335	0.0565	154		128		122		
16	16.23	74	37333	289	0.0433	154		135		129		
18	18.22	66	38076	263	0.0387	154		130		122		
16	16.10	75	36649	286	0.0570	117		96		88		X3H
18	17.96	67	38076	266	0.0522	114		97		89		
20	20.42	59	37333	230	0.0437	113		106		88		
22.4	23.04	52	38076	208	0.0320	116		116		105		
25	25.70	47	38076	186	0.0297	110		111		104		
28	29.21	41	36598	157	0.0255	106		110		102		
31.5	32.79	37	37333	143	0.0241	102		106		96		
35.5	35.69	34	37333	131	0.0175	102		103		97		
40	40.57	30	36598	113	0.0154	102		105		95		
45	45.54	26	37333	103	0.0147	102		98		91		
50	51.20	23	37333	92	0.0093	102		97		91		
56	57.11	21	37333	82	0.0089	102		92		86		
63	64.91	18	35869	69	0.0080	102		91		84		
71	72.86	16	37333	64	0.0077	102		86		79		
80	79.95	15	37333	59	0.0050	102		82		77		
90	90.88	13	35869	50	0.0046	102		82		76		
100	102.01	12	36598	45	0.0044	102		77		72		



X2H / X3H ...28

MONOBLOCK HOUSING

60 Hz

38 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
4	4.03	447	30242	1415	0.3224	154		111		102		X2H
4.5	4.52	398	31011	1293	0.2648	154		111		102		
5	5.10	353	32292	1194	0.2225	154		111		102		
5.6	5.76	313	33573	1099	0.1863	154		111		102		
6.3	6.40	281	31011	913	0.1599	154		111		102		
7.1	7.31	246	32292	833	0.1320	154		111		102		
8	8.00	225	36905	870	0.1207	154		111		102		
9	9.07	198	38400	798	0.0989	154		111		102		
10	9.98	180	38700	731	0.0897	154		111		102		
11.2	11.52	156	38826	635	0.0724	154		111		102		
12.5	12.80	141	38826	572	0.0642	154		111		102		
14	14.28	126	38076	503	0.0565	154		111		102		
16	16.23	111	37333	434	0.0433	154		111		102		
18	18.22	99	38076	394	0.0387	154		111		102		
16	16.10	112	36649	429	0.0570	102		73		67		X3H
18	17.96	100	38076	400	0.0522	102		73		67		
20	20.42	88	37333	345	0.0437	102		73		67		
22.4	23.04	78	38076	312	0.0320	109		73		67		
25	25.70	70	38076	279	0.0297	103		73		67		
28	29.21	62	36598	236	0.0255	102		73		67		
31.5	32.79	55	37333	215	0.0241	102		73		67		
35.5	35.69	50	37333	197	0.0175	102		73		67		
40	40.57	44	36598	170	0.0154	102		73		67		
45	45.54	40	37333	155	0.0147	102		73		67		
50	51.20	35	37333	137	0.0093	102		79		68		
56	57.11	32	37333	123	0.0089	102		75		70		
63	64.91	28	35869	104	0.0080	102		76		69		
71	72.86	25	37333	97	0.0077	102		73		67		
80	79.95	23	37333	88	0.0050	102		73		67		
90	90.88	20	35869	74	0.0046	102		73		68		
100	102.01	18	36598	68	0.0044	102		73		67		

X2H / X3H ...31

MONOBLOCK HOUSING

50 Hz

49 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1000$ rpm	5.6	5.45	183	40821	784	0.4274	193	571	144	424	132	390	X2H
	6.3	6.13	163	41824	714	0.3479	193	592	144	440	132	404	
	7.1	6.90	145	43832	665	0.2880	193	599	144	445	132	409	
	8	7.80	128	45505	611	0.2376	193	594	144	441	132	406	
	9	8.67	115	42159	509	0.2014	193	595	144	442	132	406	
	10	9.90	101	43832	464	0.1638	199	578	148	429	136	394	
	11.2	10.83	92	49185	476	0.1473	201	554	149	412	137	379	
	12.5	12.28	81	49185	419	0.1196	196	537	146	399	134	367	
	14	13.51	74	49520	384	0.1068	193	527	144	392	132	360	
	16	15.60	64	49520	332	0.0852	193	527	144	392	132	360	
	18	17.33	58	49520	299	0.0746	193	527	144	392	132	360	
	20	19.33	52	49520	268	0.0649	193	527	144	392	132	360	
	22.4	21.98	45	49520	236	0.0498	193	527	144	392	132	360	
	25	24.67	41	49520	210	0.0438	193	527	144	392	132	360	
	22.4	21.81	46	49520	238	0.0635	130	440	97	327	89	300	X3H
	25	24.32	41	49520	213	0.0574	129	440	96	327	88	300	
	28	27.65	36	49520	188	0.0477	129	440	96	327	88	300	
	31.5	31.20	32	49520	166	0.0352	136	440	101	327	93	300	
	35.5	34.80	29	49520	149	0.0323	133	440	99	327	91	300	
	40	39.56	25	49520	131	0.0275	129	440	96	327	88	300	
	45	44.40	23	49520	117	0.0257	129	440	96	327	88	300	
	50	48.33	21	49520	107	0.0189	129	440	96	327	88	300	
	56	54.94	18	48741	93	0.0164	129	440	96	327	88	300	
	63	61.67	16	49520	84	0.0155	129	440	96	327	88	300	
	71	69.33	14	49855	75	0.0100	129	440	96	327	88	300	
	80	77.33	13	49855	68	0.0094	129	440	96	327	88	300	
	90	87.90	11	48741	58	0.0084	129	440	96	327	88	300	
	100	98.67	10	49855	53	0.0081	144	440	107	327	98	300	
	112	108.27	9	49855	48	0.0052	129	440	96	327	88	300	
	125	123.07	8	47780	41	0.0048	129	440	96	327	88	300	
	140	138.13	7	49855	38	0.0046	139	440	104	327	95	300	

X2H / X3H ...31

MONOBLOCK HOUSING

50 Hz

49 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1500$ rpm	5.6	5.45	275	40821	1177	0.4274	184	544	137	404	126	371	
	6.3	6.13	245	41824	1072	0.3479	184	564	137	419	126	385	
	7.1	6.90	217	43832	998	0.2880	184	570	137	424	126	390	
	8	7.80	192	45505	916	0.2376	184	566	137	420	126	386	
	9	8.67	173	42159	764	0.2014	184	566	137	421	126	387	
	10	9.90	152	43832	695	0.1638	190	550	141	409	130	376	
	11.2	10.83	139	49185	713	0.1473	191	528	142	392	130	361	
	12.5	12.28	122	49185	629	0.1196	187	511	139	380	128	349	
	14	13.51	111	49520	576	0.1068	184	502	137	373	126	343	
	16	15.60	96	49520	499	0.0852	184	502	137	373	126	343	
	18	17.33	87	49520	449	0.0746	184	502	137	373	126	343	
	20	19.33	78	49520	402	0.0649	184	502	137	373	126	343	
	22.4	21.98	68	49520	354	0.0498	184	502	137	373	126	343	
	25	24.67	61	49520	315	0.0438	184	502	137	373	126	343	
	22.4	21.81	69	49520	357	0.0635	124	419	92	311	85	286	
	25	24.32	62	49520	320	0.0574	123	419	91	311	84	286	
	28	27.65	54	49520	281	0.0477	123	419	91	311	84	286	
	31.5	31.20	48	49520	249	0.0352	130	419	97	311	89	286	
	35.5	34.80	43	49520	224	0.0323	127	419	94	311	87	286	
	40	39.56	38	49520	197	0.0275	123	419	91	311	84	286	
	45	44.40	34	49520	175	0.0257	123	419	91	311	84	286	
	50	48.33	31	49520	161	0.0189	123	419	91	311	84	286	
	56	54.94	27	48741	139	0.0164	123	419	91	311	84	286	
	63	61.67	24	49520	126	0.0155	123	419	91	311	84	286	
	71	69.33	22	49855	113	0.0100	123	419	91	311	84	286	
	80	77.33	19	49855	101	0.0094	123	419	91	311	84	286	
	90	87.90	17	48741	87	0.0084	123	419	91	311	84	286	
	100	98.67	15	49855	79	0.0081	137	419	102	311	94	286	
	112	108.27	14	49855	72	0.0052	123	419	91	311	84	286	
	125	123.07	12	47780	61	0.0048	123	419	91	311	84	286	
	140	138.13	11	49855	57	0.0046	133	419	99	311	91	286	

X2H / X3H ...31

MONOBLOCK HOUSING

60 Hz

49 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kg m ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1200$ rpm	5.6	5.45	220	40821	941	0.4274	190	560	141	416	129	383	
	6.3	6.13	196	41824	857	0.3479	190	581	141	431	129	397	
	7.1	6.90	174	43832	798	0.2880	190	588	141	437	129	401	
	8	7.80	154	45505	733	0.2376	190	583	141	433	129	398	
	9	8.67	138	42159	611	0.2014	190	583	141	433	129	398	
	10	9.90	121	43832	556	0.1638	196	567	145	421	134	387	
	11.2	10.83	111	49185	571	0.1473	197	544	146	404	134	371	
	12.5	12.28	98	49185	503	0.1196	192	527	143	391	131	360	
	14	13.51	89	49520	461	0.1068	190	517	141	384	129	353	
	16	15.60	77	49520	399	0.0852	190	517	141	384	129	353	
	18	17.33	69	49520	359	0.0746	190	517	141	384	129	353	
	20	19.33	62	49520	322	0.0649	190	517	141	384	129	353	
	22.4	21.98	55	49520	283	0.0498	190	517	141	384	129	353	
	25	24.67	49	49520	252	0.0438	190	517	141	384	129	353	
	22.4	21.81	55	49520	285	0.0635	128	432	95	321	87	295	
	25	24.32	49	49520	256	0.0574	127	432	94	321	87	295	
	28	27.65	43	49520	225	0.0477	127	432	94	321	87	295	
	31.5	31.20	38	49520	199	0.0352	134	432	99	321	91	295	
	35.5	34.80	34	49520	179	0.0323	131	432	97	321	89	295	
	40	39.56	30	49520	157	0.0275	127	432	94	321	87	295	
	45	44.40	27	49520	140	0.0257	127	432	94	321	87	295	
	50	48.33	25	49520	129	0.0189	127	432	94	321	87	295	
	56	54.94	22	48741	111	0.0164	127	432	94	321	87	295	
	63	61.67	19	49520	101	0.0155	127	432	94	321	87	295	
	71	69.33	17	49855	90	0.0100	127	432	94	321	87	295	
	80	77.33	16	49855	81	0.0094	127	432	94	321	87	295	
	90	87.90	14	48741	70	0.0084	127	432	94	321	87	295	
	100	98.67	12	49855	63	0.0081	141	432	105	321	97	295	
	112	108.27	11	49855	58	0.0052	127	432	94	321	87	295	
	125	123.07	10	47780	49	0.0048	127	432	94	321	87	295	
	140	138.13	9	49855	45	0.0046	137	432	102	321	93	295	



X2H / X3H ...31

MONOBLOCK HOUSING

60 Hz

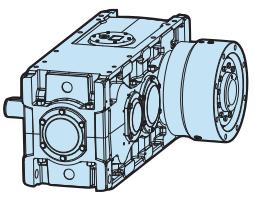
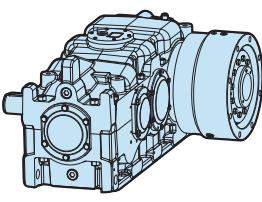
49 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1800$ rpm	5.6	5.45	330	40821	1412	0.4274	178	528	133	392	122	360	X2H
	6.3	6.13	294	41824	1286	0.3479	178	547	133	406	122	373	
	7.1	6.90	261	43832	1197	0.2880	178	553	133	411	122	378	
	8	7.80	231	45505	1100	0.2376	178	549	133	408	122	375	
	9	8.67	208	42159	917	0.2014	178	549	133	408	122	375	
	10	9.90	182	43832	835	0.1638	184	534	137	396	126	364	
	11.2	10.83	166	49185	856	0.1473	185	512	138	380	127	350	
	12.5	12.28	147	49185	755	0.1196	181	496	135	369	124	339	
	14	13.51	133	49520	691	0.1068	178	487	133	362	122	333	
	16	15.60	115	49520	598	0.0852	178	487	133	362	122	333	
	18	17.33	104	49520	539	0.0746	178	487	133	362	122	333	
	20	19.33	93	49520	483	0.0649	178	487	133	362	122	333	
	22.4	21.98	82	49520	425	0.0498	178	487	133	362	122	333	
	25	24.67	73	49520	378	0.0438	178	487	133	362	122	333	
	22.4	21.81	83	49520	428	0.0635	120	406	89	302	82	278	X3H
	25	24.32	74	49520	384	0.0574	119	406	89	302	81	278	
	28	27.65	65	49520	338	0.0477	119	406	89	302	81	278	
	31.5	31.20	58	49520	299	0.0352	126	406	94	302	86	278	
	35.5	34.80	52	49520	268	0.0323	123	406	92	302	84	278	
	40	39.56	46	49520	236	0.0275	119	406	89	302	82	278	
	45	44.40	41	49520	210	0.0257	119	406	89	302	81	278	
	50	48.33	37	49520	193	0.0189	119	406	89	302	81	278	
	56	54.94	33	48741	167	0.0164	119	406	89	302	81	278	
	63	61.67	29	49520	151	0.0155	119	406	89	302	81	278	
	71	69.33	26	49855	136	0.0100	119	406	89	302	81	278	
	80	77.33	23	49855	122	0.0094	119	406	89	302	81	278	
	90	87.90	20	48741	105	0.0084	119	406	89	302	81	278	
	100	98.67	18	49855	95	0.0081	133	406	99	302	91	278	
	112	108.27	17	49855	87	0.0052	119	406	89	302	81	278	
	125	123.07	15	47780	73	0.0048	119	406	89	302	81	278	
	140	138.13	13	49855	68	0.0046	129	406	96	302	88	278	



TECHNICAL DATA SUMMARY - SPLIT HOUSING

59

Type		Size	i_N	T_{2N} [kNm]	Efficiency η	Page	
SPLIT HOUSING	Housing type 12	X2H X3H	35	4 - 100	59 - 63	0.98	60
	Housing type 11		36	5 - 112	59 - 68		64
			40	5 - 125	79 - 87		68
			42	4 - 100	100 - 111	0.97	72
	Helical gear units		43	4.5 - 112	104 - 118		76
			45	5 - 125	118 - 140		80
			47	6.3 - 160	152 - 178		84

X2H / X3H ...35

SPLIT HOUSING

50 Hz

63 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1000$ rpm	4	3.97	252	63632	1679	0.8643	343	678	255	504	234	463	
	4.5	4.48	223	63632	1489	0.7236	332	657	247	488	227	449	
	5	5.06	198	63632	1316	0.6174	320	634	238	471	219	433	
	5.6	5.74	174	63632	1160	0.5039	305	604	227	449	208	412	
	6.3	6.27	160	63632	1063	0.4852	287	568	213	422	196	388	
	7.1	7.16	140	62403	912	0.4021	272	539	202	400	186	368	
	8	7.68	130	62403	851	0.3647	264	523	196	388	180	357	
	9	8.70	115	62403	751	0.2903	257	508	191	378	175	347	
	10	9.99	100	62403	654	0.2419	246	487	183	362	168	333	
	11.2	10.86	92	62403	602	0.2126	236	467	175	347	161	319	
	12.5	12.77	78	61185	502	0.1580	215	429	160	319	147	293	
	14	14.36	70	61185	446	0.1371	207	422	154	314	142	288	
	16	15.89	63	61185	403	0.1155	207	422	154	314	141	288	
	18	17.84	56	58786	345	0.1028	207	422	154	314	141	288	
	16	16.07	62	61185	399	0.1545	164	368	122	273	112	251	
	18	18.07	55	61185	355	0.1418	156	368	116	273	107	251	
	20	19.99	50	59979	314	0.1282	155	368	115	273	106	251	
	22.4	22.99	43	59979	273	0.0868	154	368	114	273	105	251	
	25	25.85	39	59979	243	0.0806	154	368	114	273	105	251	
	28	28.60	35	59979	220	0.0739	154	368	114	273	105	251	
	31.5	32.10	31	61458	200	0.0700	154	368	114	273	105	251	
	35.5	35.90	28	59979	175	0.0580	154	368	114	273	105	251	
	40	39.73	25	58786	155	0.0546	154	368	114	273	105	251	
	45	44.59	22	61458	144	0.0525	154	368	114	273	105	251	
	50	51.10	20	59979	123	0.0279	154	368	114	273	105	251	
	56	57.44	17	58786	107	0.0267	154	368	114	273	105	251	
	63	63.56	16	58786	97	0.0253	154	368	114	273	105	251	
	71	71.34	14	61458	90	0.0245	154	368	114	273	105	251	
	80	78.99	13	58786	78	0.0162	154	368	114	273	105	251	
	90	87.40	11	59983	72	0.0155	154	368	114	273	105	251	
	100	98.10	10	61458	66	0.0151	154	368	114	273	105	251	



X2H / X3H ...35

SPLIT HOUSING

50 Hz

63 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
4	3.97	378	63632	2518	0.8643	321		238		219		X2H
4.5	4.48	335	63632	2233	0.7236	313		233		214		
5	5.06	296	63632	1975	0.6174	304		226		208		
5.6	5.74	261	63632	1740	0.5039	291		216		199		
6.3	6.27	239	63632	1595	0.4852	275		204		188		
7.1	7.16	209	62403	1369	0.4021	262		195		179		
8	7.68	195	62403	1277	0.3647	255		190		174		
9	8.70	172	62403	1126	0.2903	249		185		170		
10	9.99	150	62403	981	0.2419	240		178		164		
11.2	10.86	138	62403	902	0.2126	230		171		157		
12.5	12.77	117	61185	752	0.1580	211		157		144		
14	14.36	104	61185	669	0.1371	207		154		141		
16	15.89	94	61185	605	0.1155	207		154		141		
18	17.84	84	58786	518	0.1028	207		154		141		
16	16.07	93	61185	598	0.1545	158		117		108		X3H
18	18.07	83	61185	532	0.1418	154		114		105		
20	19.99	75	59979	471	0.1282	154		114		105		
22.4	22.99	65	59979	410	0.0868	154		114		105		
25	25.85	58	59979	364	0.0806	154		114		105		
28	28.60	52	59979	329	0.0739	154		114		105		
31.5	32.10	47	61458	301	0.0700	154		114		105		
35.5	35.90	42	59979	262	0.0580	154		114		105		
40	39.73	38	58786	232	0.0546	154		114		105		
45	44.59	34	61458	216	0.0525	154		114		105		
50	51.10	29	59979	184	0.0279	154		114		105		
56	57.44	26	58786	161	0.0267	154		114		105		
63	63.56	24	58786	145	0.0253	154		114		105		
71	71.34	21	61458	135	0.0245	154		114		105		
80	78.99	19	58786	117	0.0162	154		114		105		
90	87.40	17	59983	108	0.0155	154		114		105		
100	98.10	15	61458	98	0.0151	154		114		105		

X2H / X3H ...35

SPLIT HOUSING

60 Hz

63 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1200$ rpm	4	3.97	302	63632	2015	0.8643	333	659	248	490	228	450	
	4.5	4.48	268	63632	1786	0.7236	324	641	241	476	221	438	
	5	5.06	237	63632	1580	0.6174	313	620	233	460	214	423	
	5.6	5.74	209	63632	1392	0.5039	299	592	222	440	204	404	
	6.3	6.27	191	63632	1276	0.4852	282	558	209	414	193	381	
	7.1	7.16	168	62403	1095	0.4021	268	530	199	394	183	362	
	8	7.68	156	62403	1021	0.3647	260	515	193	383	178	352	
	9	8.70	138	62403	901	0.2903	254	502	188	373	173	343	
	10	9.99	120	62403	785	0.2419	243	482	181	358	166	329	
	11.2	10.86	110	62403	722	0.2126	233	462	173	343	159	315	
	12.5	12.77	94	61185	602	0.1580	213	427	158	317	145	291	
	14	14.36	84	61185	535	0.1371	207	422	154	314	141	288	
	16	15.89	76	61185	484	0.1155	207	422	154	314	141	288	
	18	17.84	67	58786	414	0.1028	207	422	154	314	141	288	
	16	16.07	75	61185	478	0.1545	161	368	120	273	110	251	
	18	18.07	66	61185	426	0.1418	154	368	115	273	106	251	
	20	19.99	60	59979	377	0.1282	154	368	114	273	105	251	
	22.4	22.99	52	59979	328	0.0868	154	368	114	273	105	251	
	25	25.85	46	59979	292	0.0806	154	368	114	273	105	251	
	28	28.60	42	59979	263	0.0739	154	368	114	273	105	251	
	31.5	32.10	37	61458	241	0.0700	154	368	114	273	105	251	
	35.5	35.90	33	59979	210	0.0580	154	368	114	273	105	251	
	40	39.73	30	58786	186	0.0546	154	368	114	273	105	251	
	45	44.59	27	61458	173	0.0525	154	368	114	273	105	251	
	50	51.10	23	59979	147	0.0279	154	368	114	273	105	251	
	56	57.44	21	58786	129	0.0267	154	368	114	273	105	251	
	63	63.56	19	58786	116	0.0253	154	368	114	273	105	251	
	71	71.34	17	61458	108	0.0245	154	368	114	273	105	251	
	80	78.99	15	58786	94	0.0162	154	368	114	273	105	251	
	90	87.40	14	59983	86	0.0155	154	368	114	273	105	251	
	100	98.10	12	61458	79	0.0151	154	368	114	273	105	251	



X2H / X3H ...35

SPLIT HOUSING

60 Hz

63 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1800$ rpm	4	3.97	454	63632	3022	0.8643	309	612	230	455	211	418	
	4.5	4.48	402	63632	2679	0.7236	303	600	225	446	207	410	
	5	5.06	356	63632	2370	0.6174	296	585	220	435	202	400	
	5.6	5.74	313	63632	2088	0.5039	284	562	211	418	194	384	
	6.3	6.27	287	63632	1914	0.4852	269	532	200	396	184	364	
	7.1	7.16	251	62403	1642	0.4021	257	508	191	378	176	347	
	8	7.68	234	62403	1532	0.3647	250	495	186	368	171	338	
	9	8.70	207	62403	1351	0.2903	245	484	182	360	167	331	
	10	9.99	180	62403	1178	0.2419	236	467	175	347	161	319	
	11.2	10.86	166	62403	1083	0.2126	227	449	168	333	155	306	
	12.5	12.77	141	61185	903	0.1580	210	422	156	314	143	288	
	14	14.36	125	61185	803	0.1371	207	422	154	314	141	288	
	16	15.89	113	61185	726	0.1155	207	422	154	314	141	288	
	18	17.84	101	58786	621	0.1028	207	422	154	314	141	288	
	16	16.07	112	61185	718	0.1545	155	368	115	273	106	251	
	18	18.07	100	61185	638	0.1418	154	368	114	273	105	251	
	20	19.99	90	59979	565	0.1282	154	368	114	273	105	251	
	22.4	22.99	78	59979	492	0.0868	154	368	114	273	105	251	
	25	25.85	70	59979	437	0.0806	154	368	114	273	105	251	
	28	28.60	63	59979	395	0.0739	154	368	114	273	105	251	
	31.5	32.10	56	61458	361	0.0700	154	368	114	273	105	251	
	35.5	35.90	50	59979	315	0.0580	154	368	114	273	105	251	
	40	39.73	45	58786	279	0.0546	154	368	114	273	105	251	
	45	44.59	40	61458	260	0.0525	154	368	114	273	105	251	
	50	51.10	35	59979	221	0.0279	154	368	114	273	105	251	
	56	57.44	31	58786	193	0.0267	154	368	114	273	105	251	
	63	63.56	28	58786	174	0.0253	154	368	114	273	105	251	
	71	71.34	25	61458	162	0.0245	154	368	114	273	105	251	
	80	78.99	23	58786	140	0.0162	154	368	114	273	105	251	
	90	87.40	21	59983	129	0.0155	154	368	114	273	105	251	
	100	98.10	18	61458	118	0.0151	154	368	114	273	105	251	

X2H / X3H ...36

SPLIT HOUSING

50 Hz

68 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
5	5.05	198	59583	1236	0.7868	369		275		252		X2H
5.6	5.71	175	60667	1113	0.6489	357		265		244		
6.3	6.48	154	61750	998	0.5454	341		253		233		
7.1	7.07	142	62292	923	0.4697	321		239		219		
8	8.08	124	62833	815	0.4150	305		227		208		
9	8.66	116	63375	767	0.3803	296		220		202		
10	9.81	102	64458	688	0.3111	288		214		197		
11.2	11.26	89	65000	604	0.2408	276		205		189		
12.5	12.25	82	65542	560	0.2208	265		197		181		
14	14.41	69	66625	484	0.1683	242		179		165		
16	16.19	62	67167	434	0.1344	227		169		155		
18	17.92	56	67708	396	0.1191	223		166		153		
20	20.11	50	68250	355	0.0973	210		156		144		
18	18.12	55	66625	385	0.2033	184		137		126		X3H
20	20.37	49	67167	345	0.1804	175		130		120		
22.4	22.54	44	67708	315	0.1598	172		128		118		
25	25.93	39	66625	269	0.1106	170		126		116		
28	29.15	34	67167	241	0.0995	162		120		110		
31.5	32.25	31	67708	220	0.0894	160		119		109		
35.5	36.20	28	68250	197	0.0823	154		114		105		
40	40.49	25	67167	174	0.0678	154		114		105		
45	44.80	22	67708	158	0.0626	154		114		105		
50	50.28	20	68250	142	0.0589	154		114		105		
56	57.62	17	66625	121	0.0328	154		114		105		
63	64.78	15	67167	109	0.0305	154		114		105		
71	71.68	14	67708	99	0.0284	154		114		105		
80	80.45	12	68250	89	0.0270	154		114		105		
90	89.07	11	67167	79	0.0183	154		114		105		
100	98.55	10	67708	72	0.0172	154		114		105		
112	110.62	9	68250	65	0.0164	154		114		105		



X2H / X3H ...36

SPLIT HOUSING

50 Hz

68 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kg m ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1500$ rpm	5	5.05	297	59583	1854	0.7868	346	651	257	484	236	445	X2H
	5.6	5.71	263	60667	1669	0.6489	337	634	250	471	230	433	
	6.3	6.48	232	61750	1497	0.5454	324	609	241	453	221	416	
	7.1	7.07	212	62292	1385	0.4697	307	577	228	429	209	394	
	8	8.08	186	62833	1222	0.4150	293	551	218	409	200	376	
	9	8.66	173	63375	1150	0.3803	285	536	212	399	195	366	
	10	9.81	153	64458	1032	0.3111	279	524	207	389	190	358	
	11.2	11.26	133	65000	906	0.2408	268	505	199	375	183	345	
	12.5	12.25	122	65542	840	0.2208	257	484	191	360	176	331	
	14	14.41	104	66625	726	0.1683	235	442	175	329	161	302	
	16	16.19	93	67167	651	0.1344	221	425	164	316	151	290	
	18	17.92	84	67708	593	0.1191	217	422	161	314	148	288	
	20	20.11	75	68250	533	0.0973	207	422	154	314	142	288	
	18	18.12	83	66625	577	0.2033	177	368	131	273	121	251	X3H
	20	20.37	74	67167	518	0.1804	168	368	125	273	114	251	
	22.4	22.54	67	67708	472	0.1598	165	368	122	273	112	251	
	25	25.93	58	66625	404	0.1106	164	368	122	273	112	251	
	28	29.15	51	67167	362	0.0995	156	368	116	273	107	251	
	31.5	32.25	47	67708	330	0.0894	155	368	115	273	106	251	
	35.5	36.20	41	68250	296	0.0823	154	368	114	273	105	251	
	40	40.49	37	67167	261	0.0678	154	368	114	273	105	251	
	45	44.80	33	67708	237	0.0626	154	368	114	273	105	251	
	50	50.28	30	68250	213	0.0589	154	368	114	273	105	251	
	56	57.62	26	66625	182	0.0328	154	368	114	273	105	251	
	63	64.78	23	67167	163	0.0305	154	368	114	273	105	251	
	71	71.68	21	67708	148	0.0284	154	368	114	273	105	251	
	80	80.45	19	68250	133	0.0270	154	368	114	273	105	251	
	90	89.07	17	67167	118	0.0183	154	368	114	273	105	251	
	100	98.55	15	67708	108	0.0172	154	368	114	273	105	251	
	112	110.62	14	68250	97	0.0164	154	368	114	273	105	251	

X2H / X3H ...36

SPLIT HOUSING

60 Hz

68 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1200$ rpm	5	5.05	238	59583	1483	0.7868	359	676	267	502	245	462	X2H
	5.6	5.71	210	60667	1336	0.6489	348	656	259	487	238	448	
	6.3	6.48	185	61750	1198	0.5454	333	627	248	466	228	429	
	7.1	7.07	170	62292	1108	0.4697	315	592	234	440	215	405	
	8	8.08	149	62833	978	0.4150	300	564	223	419	205	385	
	9	8.66	139	63375	920	0.3803	291	548	216	407	199	374	
	10	9.81	122	64458	825	0.3111	284	534	211	397	194	365	
	11.2	11.26	107	65000	725	0.2408	273	513	203	381	186	351	
	12.5	12.25	98	65542	672	0.2208	261	492	194	366	179	336	
	14	14.41	83	66625	581	0.1683	239	449	177	334	163	307	
	16	16.19	74	67167	521	0.1344	224	428	167	318	153	292	
	18	17.92	67	67708	475	0.1191	220	424	164	315	151	290	
	20	20.11	60	68250	426	0.0973	209	422	155	314	143	288	
	18	18.12	66	66625	462	0.2033	181	368	134	273	124	251	X3H
	20	20.37	59	67167	414	0.1804	172	368	128	273	117	251	
	22.4	22.54	53	67708	377	0.1598	169	368	125	273	115	251	
	25	25.93	46	66625	323	0.1106	167	368	124	273	114	251	
	28	29.15	41	67167	290	0.0995	159	368	118	273	109	251	
	31.5	32.25	37	67708	264	0.0894	157	368	117	273	107	251	
	35.5	36.20	33	68250	237	0.0823	154	368	114	273	105	251	
	40	40.49	30	67167	208	0.0678	154	368	114	273	105	251	
	45	44.80	27	67708	190	0.0626	154	368	114	273	105	251	
	50	50.28	24	68250	171	0.0589	154	368	114	273	105	251	
	56	57.62	21	66625	145	0.0328	154	368	114	273	105	251	
	63	64.78	19	67167	130	0.0305	154	368	114	273	105	251	
	71	71.68	17	67708	119	0.0284	154	368	114	273	105	251	
	80	80.45	15	68250	107	0.0270	154	368	114	273	105	251	
	90	89.07	13	67167	95	0.0183	154	368	114	273	105	251	
	100	98.55	12	67708	86	0.0172	154	368	114	273	105	251	
	112	110.62	11	68250	78	0.0164	154	368	114	273	105	251	



X2H / X3H ...36

SPLIT HOUSING

60 Hz

68 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
$n_1 = 1800$ rpm	5	5.05	357	59583	2225	0.7868	334	628	248	467	228	X2H
	5.6	5.71	315	60667	2003	0.6489	327	615	243	457	223	
	6.3	6.48	278	61750	1797	0.5454	315	593	234	441	215	
	7.1	7.07	255	62292	1661	0.4697	299	563	222	418	204	
	8	8.08	223	62833	1466	0.4150	286	539	213	400	196	
	9	8.66	208	63375	1380	0.3803	279	526	208	390	191	
	10	9.81	183	64458	1238	0.3111	274	515	203	382	187	
	11.2	11.26	160	65000	1088	0.2408	264	497	196	369	180	
	12.5	12.25	147	65542	1009	0.2208	254	477	188	355	173	
	14	14.41	125	66625	872	0.1683	232	437	172	324	159	
	16	16.19	111	67167	782	0.1344	219	423	162	314	149	
	18	17.92	100	67708	712	0.1191	215	422	160	314	147	
	20	20.11	89	68250	640	0.0973	207	422	154	314	141	
	18	18.12	99	66625	693	0.2033	173	368	129	273	118	X3H
	20	20.37	88	67167	621	0.1804	164	368	122	273	112	
	22.4	22.54	80	67708	566	0.1598	161	368	120	273	110	
	25	25.93	69	66625	484	0.1106	162	368	120	273	110	
	28	29.15	62	67167	434	0.0995	154	368	115	273	106	
	31.5	32.25	56	67708	396	0.0894	154	368	114	273	105	
	35.5	36.20	50	68250	355	0.0823	154	368	114	273	105	
	40	40.49	44	67167	313	0.0678	154	368	114	273	105	
	45	44.80	40	67708	285	0.0626	154	368	114	273	105	
	50	50.28	36	68250	256	0.0589	154	368	114	273	105	
	56	57.62	31	66625	218	0.0328	154	368	114	273	105	
	63	64.78	28	67167	195	0.0305	154	368	114	273	105	
	71	71.68	25	67708	178	0.0284	154	368	114	273	105	
	80	80.45	22	68250	160	0.0270	154	368	114	273	105	
	90	89.07	20	67167	142	0.0183	154	368	114	273	105	
	100	98.55	18	67708	129	0.0172	154	368	114	273	105	
	112	110.62	16	68250	116	0.0164	154	368	114	273	105	

X2H / X3H ...40

SPLIT HOUSING

50 Hz

87 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kg m ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1000$ rpm	5	5.24	191	87173	1743	1.1442	454	1189	338	883	310	812	
	5.6	5.90	169	88543	1570	0.9437	441	1154	328	858	301	788	
	6.3	6.68	150	88543	1389	0.7895	426	1115	317	828	291	761	
	7.1	7.58	132	88543	1224	0.6375	406	1063	302	790	278	726	
	8	8.27	121	88543	1122	0.5975	382	1000	284	743	261	683	
	9	9.45	106	86865	963	0.4881	363	950	270	706	248	649	
	10	10.13	99	86865	898	0.4395	352	922	262	685	241	630	
	11.2	11.48	87	86865	792	0.3485	343	898	255	667	234	613	
	12.5	13.18	76	86865	690	0.2860	330	863	245	641	225	589	
	14	14.33	70	86865	635	0.2500	316	826	235	614	216	564	
	16	16.85	59	85202	529	0.1851	288	754	214	560	197	515	
	18	18.94	53	85202	471	0.1584	271	720	202	535	185	492	
	20	20.96	48	80311	401	0.1330	269	714	200	530	184	488	
	22.4	23.53	42	78713	350	0.1167	265	713	197	530	181	487	
	20	21.20	47	80975	400	0.1716	219	634	163	471	150	433	
	22.4	23.83	42	85202	374	0.1553	209	634	155	471	143	433	
	25	26.37	38	80311	319	0.1393	205	634	152	471	140	433	
	28	30.33	33	85202	294	0.0951	202	634	150	471	138	433	
	31.5	34.10	29	83556	257	0.0872	192	634	143	471	131	433	
	35.5	37.73	27	78713	218	0.0793	189	634	141	471	129	433	
	40	42.35	24	80975	200	0.0743	179	634	133	471	122	433	
	45	47.36	21	83556	185	0.0614	177	634	132	471	121	433	
	50	52.40	19	78713	157	0.0574	177	634	132	471	121	433	
	56	58.82	17	80975	144	0.0548	177	634	132	471	121	433	
	63	67.41	15	83556	130	0.0296	177	634	132	471	121	433	
	71	75.78	13	81926	113	0.0280	177	634	132	471	121	433	
	80	83.85	12	79000	99	0.0264	177	634	132	471	121	433	
	90	94.11	11	80975	90	0.0254	177	634	132	471	121	433	
	100	104.19	10	81926	82	0.0170	177	634	132	471	121	433	
	112	115.29	9	79000	72	0.0161	177	634	132	471	121	433	
	125	129.41	8	80975	66	0.0156	177	634	132	471	121	433	



X2H / X3H ...40

SPLIT HOUSING

50 Hz

87 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1500$ rpm	5	5.24	287	87173	2615	1.1442	426	1114	316	828	291	761	
	5.6	5.90	254	88543	2355	0.9437	416	1089	309	809	284	744	
	6.3	6.68	225	88543	2083	0.7895	404	1057	300	786	276	722	
	7.1	7.58	198	88543	1835	0.6375	387	1013	288	753	264	692	
	8	8.27	181	88543	1682	0.5975	365	956	272	711	250	653	
	9	9.45	159	86865	1444	0.4881	349	912	259	678	238	623	
	10	10.13	148	86865	1347	0.4395	339	888	252	660	232	606	
	11.2	11.49	131	86865	1188	0.3485	332	868	247	645	227	593	
	12.5	13.18	114	86865	1036	0.2860	320	837	238	622	219	572	
	14	14.33	105	86865	952	0.2500	307	804	228	597	210	549	
	16	16.85	89	85202	794	0.1851	280	733	208	545	191	501	
	18	18.94	79	85202	706	0.1584	268	713	199	530	183	487	
	20	20.96	72	80311	602	0.1330	265	713	197	530	181	487	
	22.4	23.53	64	78713	525	0.1167	265	713	197	530	181	487	
	20	21.20	71	80975	600	0.1716	210	634	156	471	143	433	
	22.4	23.83	63	85202	562	0.1553	200	634	148	471	137	433	
	25	26.37	57	80311	478	0.1393	195	634	145	471	133	433	
	28	30.33	49	85202	441	0.0951	196	634	145	471	134	433	
	31.5	34.10	44	83556	385	0.0872	186	634	138	471	127	433	
	35.5	37.73	40	78713	328	0.0793	182	634	135	471	124	433	
	40	42.35	35	80975	300	0.0743	177	634	132	471	121	433	
	45	47.36	32	83556	277	0.0614	177	634	132	471	121	433	
	50	52.40	29	78713	236	0.0574	177	634	132	471	121	433	
	56	58.82	26	80975	216	0.0548	177	634	132	471	121	433	
	63	67.41	22	83556	195	0.0296	177	634	132	471	121	433	
	71	75.78	20	81926	170	0.0280	177	634	132	471	121	433	
	80	83.85	18	79000	148	0.0264	177	634	132	471	121	433	
	90	94.11	16	80975	135	0.0254	177	634	132	471	121	433	
	100	104.19	14	81926	123	0.0170	177	634	132	471	121	433	
	112	115.29	13	79000	108	0.0161	177	634	132	471	121	433	
	125	129.41	12	80975	98	0.0156	177	634	132	471	121	433	

X2H / X3H ...40

SPLIT HOUSING

60 Hz

87 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kg m ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1200$ rpm	5	5.24	229	87173	2092	1.1442	442	1156	328	859	302	790	
	5.6	5.90	203	88543	1884	0.9437	430	1125	320	836	294	769	
	6.3	6.68	180	88543	1666	0.7895	416	1089	309	809	284	744	
	7.1	7.58	158	88543	1468	0.6375	398	1041	296	774	272	711	
	8	8.27	145	88543	1346	0.5975	375	981	278	729	256	670	
	9	9.45	127	86865	1155	0.4881	357	933	265	694	244	638	
	10	10.13	118	86865	1078	0.4395	347	907	258	674	237	620	
	11.2	11.48	105	86865	951	0.3485	338	885	251	658	231	605	
	12.5	13.18	91	86865	828	0.2860	326	852	242	633	222	582	
	14	14.33	84	86865	762	0.2500	312	816	232	607	213	558	
	16	16.85	71	85202	635	0.1851	284	744	211	553	194	508	
	18	18.94	63	85202	565	0.1584	270	715	200	532	184	489	
	20	20.96	57	80311	481	0.1330	267	713	199	530	183	487	
	22.4	23.53	51	78713	420	0.1167	265	713	197	530	181	487	
	20	21.20	57	80975	480	0.1716	215	634	160	471	147	433	
	22.4	23.83	50	85202	449	0.1553	205	634	152	471	140	433	
	25	26.37	46	80311	383	0.1393	200	634	149	471	137	433	
	28	30.33	40	85202	353	0.0951	199	634	148	471	136	433	
	31.5	34.10	35	83556	308	0.0872	189	634	141	471	129	433	
	35.5	37.73	32	78713	262	0.0793	186	634	138	471	127	433	
	40	42.35	28	80975	240	0.0743	177	634	132	471	121	433	
	45	47.36	25	83556	222	0.0614	177	634	132	471	121	433	
	50	52.40	23	78713	189	0.0574	177	634	132	471	121	433	
	56	58.82	20	80975	173	0.0548	177	634	132	471	121	433	
	63	67.41	18	83556	156	0.0296	177	634	132	471	121	433	
	71	75.78	16	81926	136	0.0280	177	634	132	471	121	433	
	80	83.85	14	79000	118	0.0264	177	634	132	471	121	433	
	90	94.11	13	80975	108	0.0254	177	634	132	471	121	433	
	100	104.19	12	81926	99	0.0170	177	634	132	471	121	433	
	112	115.29	10	79000	86	0.0161	177	634	132	471	121	433	
	125	129.41	9	80975	79	0.0156	177	634	132	471	121	433	



X2H / X3H ...40

SPLIT HOUSING

60 Hz

87 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1800$ rpm	5	5.24	344	87173	3138	1.1442	411	1075	305	799	281	734	
	5.6	5.90	305	88543	2826	0.9437	404	1056	300	785	276	722	
	6.3	6.68	270	88543	2499	0.7895	393	1029	292	765	269	703	
	7.1	7.58	238	88543	2202	0.6375	378	989	281	735	258	676	
	8	8.27	218	88543	2019	0.5975	357	935	266	695	244	639	
	9	9.45	191	86865	1733	0.4881	341	893	254	664	233	610	
	10	10.13	178	86865	1617	0.4395	333	870	247	647	227	594	
	11.2	11.48	157	86865	1426	0.3485	326	853	242	634	223	582	
	12.5	13.18	137	86865	1243	0.2860	315	824	234	612	215	563	
	14	14.33	126	86865	1143	0.2500	302	791	225	588	207	540	
	16	16.85	107	85202	953	0.1851	276	728	205	541	189	497	
	18	18.94	95	85202	848	0.1584	266	713	198	530	182	487	
	20	20.96	86	80311	722	0.1330	265	713	197	530	181	487	
	22.4	23.53	76	78713	631	0.1167	265	713	197	530	181	487	
	20	21.20	85	80975	720	0.1716	206	634	153	471	140	433	
	22.4	23.83	76	85202	674	0.1553	196	634	146	471	134	433	
	25	26.37	68	80311	574	0.1393	191	634	142	471	130	433	
	28	30.33	59	85202	529	0.0951	193	634	143	471	132	433	
	31.5	34.10	53	83556	462	0.0872	182	634	135	471	125	433	
	35.5	37.73	48	78713	393	0.0793	179	634	133	471	122	433	
	40	42.35	43	80975	360	0.0743	177	634	132	471	121	433	
	45	47.36	38	83556	333	0.0614	177	634	132	471	121	433	
	50	52.40	34	78713	283	0.0574	177	634	132	471	121	433	
	56	58.82	31	80975	259	0.0548	177	634	132	471	121	433	
	63	67.41	27	83556	234	0.0296	177	634	132	471	121	433	
	71	75.78	24	81926	204	0.0280	177	634	132	471	121	433	
	80	83.85	21	79000	178	0.0264	177	634	132	471	121	433	
	90	94.11	19	80975	162	0.0254	177	634	132	471	121	433	
	100	104.19	17	81926	148	0.0170	177	634	132	471	121	433	
	112	115.29	16	79000	129	0.0161	177	634	132	471	121	433	
	125	129.41	14	80975	118	0.0156	177	634	132	471	121	433	

X2H / X3H ...42

SPLIT HOUSING

50 Hz

111 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1000$ rpm	4	3.92	255	99944	2672	2.1663	483	1023	359	760	330	699	
	4.5	4.39	228	99944	2386	1.8296	469	992	348	737	320	678	
	5	4.92	203	104977	2232	1.5435	453	960	337	713	310	656	
	5.6	5.54	180	109292	2064	1.2982	436	922	324	685	298	630	
	6.3	6.27	160	111055	1856	1.1793	404	855	300	635	276	584	
	7.1	7.12	140	111055	1633	0.9775	395	836	294	621	270	571	
	8	7.76	129	111055	1499	0.9066	372	787	276	585	254	537	
	9	8.74	114	111055	1330	0.7040	360	761	267	566	246	520	
	10	9.95	100	108930	1146	0.6127	342	723	254	537	233	494	
	11.2	10.97	91	108930	1040	0.5344	320	678	238	503	219	463	
	12.5	12.76	78	108930	894	0.4066	300	629	223	467	205	429	
	14	14.22	70	108930	802	0.3573	300	590	223	439	205	403	
	16	15.49	65	108573	734	0.3315	300	578	223	430	205	395	
	18	17.63	57	106825	635	0.2643	300	568	223	422	205	388	
	16	16.05	62	108930	711	0.4217	246	541	183	402	168	370	
	18	17.89	56	106825	625	0.3899	232	541	173	402	159	370	
	20	19.49	51	106825	574	0.3742	228	541	169	402	156	370	
	22.4	22.96	44	106825	487	0.2348	224	541	166	402	153	370	
	25	25.60	39	106825	437	0.2193	212	541	157	402	145	370	
	28	27.89	36	106825	401	0.2116	208	541	155	402	142	370	
	31.5	31.73	32	104740	346	0.1910	201	541	149	402	137	370	
	35.5	35.55	28	104740	308	0.1378	200	541	149	402	137	370	
	40	38.73	26	104740	283	0.1338	200	541	149	402	137	370	
	45	44.06	23	102677	244	0.1232	200	541	149	402	137	370	
	50	51.03	20	104740	215	0.0748	200	541	149	402	137	370	
	56	56.88	18	104740	193	0.0717	200	541	149	402	137	370	
	63	61.97	16	104740	177	0.0701	200	541	149	402	137	370	
	71	70.50	14	102677	153	0.0660	200	541	149	402	137	370	
	80	80.95	12	104740	135	0.0421	200	541	149	402	137	370	
	90	88.19	11	102677	122	0.0413	200	541	149	402	137	370	
	100	100.33	10	100633	105	0.0393	200	541	149	402	137	370	



X2H / X3H ...42

SPLIT HOUSING

50 Hz

111 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1500$ rpm	4	3.92	383	99944	4008	2.1663	454	960	337	713	310	656	
	4.5	4.39	342	99944	3579	1.8296	444	939	330	698	303	642	
	5	4.92	305	104977	3349	1.5435	433	917	322	681	296	626	
	5.6	5.54	271	109292	3097	1.2982	419	888	312	660	286	606	
	6.3	6.27	239	111055	2783	1.1793	391	827	290	615	267	565	
	7.1	7.12	211	111055	2449	0.9775	385	815	286	605	263	556	
	8	7.76	193	111055	2248	0.9066	363	769	270	571	248	525	
	9	8.74	172	111055	1996	0.7040	353	748	262	556	241	511	
	10	9.95	151	108930	1719	0.6127	337	713	250	530	230	487	
	11.2	10.97	137	108930	1560	0.5344	316	670	235	498	216	457	
	12.5	12.76	118	108930	1341	0.4066	300	623	223	463	205	426	
	14	14.22	105	108930	1203	0.3573	300	585	223	435	205	400	
	16	15.49	97	108573	1101	0.3315	300	574	223	426	205	392	
	18	17.63	85	106825	952	0.2643	300	568	223	422	205	388	
	16	16.05	93	108930	1066	0.4217	239	541	177	402	163	370	
	18	17.89	84	106825	938	0.3899	225	541	167	402	154	370	
	20	19.49	77	106825	861	0.3742	220	541	163	402	150	370	
	22.4	22.96	65	106825	731	0.2348	217	541	162	402	148	370	
	25	25.60	59	106825	656	0.2193	205	541	153	402	140	370	
	28	27.89	54	106825	602	0.2116	201	541	150	402	138	370	
	31.5	31.73	47	104740	519	0.1910	200	541	149	402	137	370	
	35.5	35.55	42	104740	463	0.1378	200	541	149	402	137	370	
	40	38.73	39	104740	425	0.1338	200	541	149	402	137	370	
	45	44.06	34	102677	366	0.1232	200	541	149	402	137	370	
	50	51.03	29	104740	322	0.0748	200	541	149	402	137	370	
	56	56.88	26	104740	289	0.0717	200	541	149	402	137	370	
	63	61.97	24	104740	265	0.0701	200	541	149	402	137	370	
	71	70.50	21	102677	229	0.0660	200	541	149	402	137	370	
	80	80.95	19	104740	203	0.0421	200	541	149	402	137	370	
	90	88.19	17	102677	183	0.0413	200	541	149	402	137	370	
	100	100.33	15	100633	158	0.0393	200	541	149	402	137	370	

X2H / X3H ...42

SPLIT HOUSING

60 Hz

111 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
$n_1 = 1200$ rpm	4	3.92	306	99944	3206	2.1663	471	997	350	740	322	X2H
	4.5	4.39	274	99944	2863	1.8296	458	970	341	721	313	
	5	4.92	244	104977	2679	1.5435	445	942	331	700	304	
	5.6	5.54	216	109292	2477	1.2982	429	908	319	675	293	
	6.3	6.27	191	111055	2227	1.1793	398	843	296	626	272	
	7.1	7.12	169	111055	1960	0.9775	391	828	290	615	267	
	8	7.76	155	111055	1799	0.9066	368	780	274	579	252	
	9	8.74	137	111055	1597	0.7040	357	756	265	562	244	
	10	9.95	121	108930	1375	0.6127	340	719	253	535	232	
	11.2	10.97	109	108930	1248	0.5344	319	675	237	501	218	
	12.5	12.76	94	108930	1073	0.4066	300	626	223	465	205	
	14	14.22	84	108930	963	0.3573	300	588	223	437	205	
	16	15.49	77	108573	881	0.3315	300	576	223	428	205	
	18	17.63	68	106825	762	0.2643	300	568	223	422	205	
	16	16.05	75	108930	853	0.4217	243	541	180	402	166	X3H
	18	17.89	67	106825	750	0.3899	229	541	170	402	156	
	20	19.49	62	106825	689	0.3742	224	541	166	402	153	
	22.4	22.96	52	106825	585	0.2348	221	541	164	402	151	
	25	25.60	47	106825	524	0.2193	209	541	155	402	143	
	28	27.89	43	106825	481	0.2116	205	541	152	402	140	
	31.5	31.73	38	104740	415	0.1910	200	541	149	402	137	
	35.5	35.55	34	104740	370	0.1378	200	541	149	402	137	
	40	38.73	31	104740	340	0.1338	200	541	149	402	137	
	45	44.06	27	102677	293	0.1232	200	541	149	402	137	
	50	51.03	24	104740	258	0.0748	200	541	149	402	137	
	56	56.88	21	104740	231	0.0717	200	541	149	402	137	
	63	61.97	19	104740	212	0.0701	200	541	149	402	137	
	71	70.50	17	102677	183	0.0660	200	541	149	402	137	
	80	80.95	15	104740	163	0.0421	200	541	149	402	137	
	90	88.19	14	102677	146	0.0413	200	541	149	402	137	
	100	100.33	12	100633	126	0.0393	200	541	149	402	137	



X2H / X3H ...42

SPLIT HOUSING

60 Hz

111 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
$n_1 = 1800$ rpm	4	3.92	460	99944	4810	2.1663		437	925	325	688	
	4.5	4.39	410	99944	4294	1.8296		430	910	319	676	
	5	4.92	366	104977	4018	1.5435		421	892	313	663	
	5.6	5.54	325	109292	3716	1.2982		410	868	305	645	
	6.3	6.27	287	111055	3340	1.1793		383	812	285	603	
	7.1	7.12	253	111055	2939	0.9775		379	802	281	596	
	8	7.76	232	111055	2698	0.9066		358	758	266	563	
	9	8.74	206	111055	2395	0.7040		349	739	259	549	
	10	9.95	181	108930	2063	0.6127		333	706	248	524	
	11.2	10.97	164	108930	1872	0.5344		313	664	233	493	
	12.5	12.76	141	108930	1609	0.4066		300	619	223	460	
	14	14.22	127	108930	1444	0.3573		300	582	223	432	
	16	15.49	116	108573	1321	0.3315		300	571	223	425	
	18	17.63	102	106825	1142	0.2643		300	568	223	422	
	16	16.05	112	108930	1279	0.4217		235	541	174	402	
	18	17.89	101	106825	1125	0.3899		221	541	164	402	
	20	19.49	92	106825	1033	0.3742		216	541	161	402	
	22.4	22.96	78	106825	877	0.2348		215	541	160	402	
	25	25.60	70	106825	787	0.2193		203	541	151	402	
	28	27.89	65	106825	722	0.2116		200	541	149	402	
	31.5	31.73	57	104740	622	0.1910		200	541	149	402	
	35.5	35.55	51	104740	555	0.1378		200	541	149	402	
	40	38.73	46	104740	510	0.1338		200	541	149	402	
	45	44.06	41	102677	439	0.1232		200	541	149	402	
	50	51.03	35	104740	387	0.0748		200	541	149	402	
	56	56.88	32	104740	347	0.0717		200	541	149	402	
	63	61.97	29	104740	319	0.0701		200	541	149	402	
	71	70.50	26	102677	275	0.0660		200	541	149	402	
	80	80.95	22	104740	244	0.0421		200	541	149	402	
	90	88.19	20	102677	219	0.0413		200	541	149	402	
	100	100.33	18	100633	189	0.0393		200	541	149	402	

X2H / X3H ...43

SPLIT HOUSING

50 Hz

118 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kg m ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
4.5	4.42	226	105264	2496	2.4047	546		406		373		X2H
5	4.95	202	104451	2211	2.0196	530		394		362		
5.6	5.55	180	109235	2060	1.6943	513		381		351		
6.3	6.25	160	106045	1776	1.4172	493		366		337		
7.1	7.07	142	112424	1666	1.2725	458		340		313		
8	8.03	125	114816	1497	1.1266	449		334		307		
9	8.75	114	117208	1403	0.9390	423		314		289		
10	9.86	101	117208	1245	0.8182	410		304		280		
11.2	11.22	89	117208	1094	0.6740	389		289		266		
12.5	12.37	81	117208	992	0.5690	365		271		249		
14	14.39	70	117208	853	0.4605	339		252		231		
16	16.04	62	118005	771	0.4181	318		236		217		
18	17.47	57	112424	674	0.3320	312		232		213		
20	19.88	50	118005	622	0.2719	300		223		205		
18	18.10	55	118005	683	0.4359	281		209		192		X3H
20	20.17	50	118005	612	0.4009	265		197		181		
22.4	21.98	45	113221	539	0.3830	259		193		177		
25	25.89	39	118005	477	0.2409	255		190		174		
28	28.86	35	118005	428	0.2238	242		180		165		
31.5	31.45	32	113221	377	0.2151	237		176		162		
35.5	35.78	28	118005	345	0.1933	228		170		156		
40	40.09	25	118005	308	0.1395	220		163		150		
45	43.68	23	113221	271	0.1350	216		160		147		
50	49.69	20	118005	249	0.1237	208		155		142		
56	57.54	17	118803	216	0.0753	200		149		137		
63	64.14	16	118803	194	0.0718	200		149		137		
71	69.88	14	114019	171	0.0700	200		149		137		
80	79.50	13	118803	156	0.0656	200		149		137		
90	91.28	11	118803	136	0.0419	200		149		137		
100	99.45	10	114019	120	0.0410	200		149		137		
112	113.13	9	118803	110	0.0388	200		149		137		



X2H / X3H ...43

SPLIT HOUSING

50 Hz

118 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1500$ rpm	4.5	4.42	340	105264	3743	2.4047	512	1021	380	758	350	697	
	5	4.95	303	104451	3317	2.0196	501	998	372	742	342	682	
	5.6	5.55	270	109235	3090	1.6943	489	975	363	724	334	666	
	6.3	6.25	240	106045	2664	1.4172	472	941	351	699	322	643	
	7.1	7.07	212	112424	2499	1.2725	442	880	328	654	302	601	
	8	8.03	187	114816	2246	1.1266	435	868	324	645	297	593	
	9	8.75	171	117208	2104	0.9390	412	821	306	610	281	560	
	10	9.86	152	117208	1868	0.8182	400	798	298	593	274	545	
	11.2	11.22	134	117208	1640	0.6740	382	763	284	567	261	521	
	12.5	12.37	121	117208	1489	0.5690	359	716	267	532	245	489	
	14	14.39	104	117208	1280	0.4605	335	667	249	496	228	455	
	16	16.04	94	118005	1156	0.4181	314	627	234	466	215	428	
	18	17.47	86	112424	1011	0.3320	308	614	229	456	210	419	
	20	19.88	75	118005	933	0.2719	300	568	223	422	205	388	
	18	18.10	83	118005	1024	0.4359	271	543	202	403	185	371	
	20	20.17	74	118005	919	0.4009	256	541	190	402	175	370	
	22.4	21.98	68	113221	809	0.3830	250	541	185	402	170	370	
	25	25.89	58	118005	716	0.2409	248	541	184	402	169	370	
	28	28.86	52	118005	642	0.2238	234	541	174	402	160	370	
	31.5	31.45	48	113221	566	0.2151	229	541	170	402	156	370	
	35.5	35.78	42	118005	518	0.1933	220	541	163	402	150	370	
	40	40.09	37	118005	462	0.1395	213	541	158	402	145	370	
	45	43.68	34	113221	407	0.1350	209	541	155	402	143	370	
	50	49.69	30	118005	373	0.1237	201	541	149	402	137	370	
	56	57.54	26	118803	324	0.0753	200	541	149	402	137	370	
	63	64.14	23	118803	291	0.0718	200	541	149	402	137	370	
	71	69.88	21	114019	256	0.0700	200	541	149	402	137	370	
	80	79.50	19	118803	235	0.0656	200	541	149	402	137	370	
	90	91.28	16	118803	204	0.0419	200	541	149	402	137	370	
	100	99.45	15	114019	180	0.0410	200	541	149	402	137	370	
	112	113.13	13	118803	165	0.0388	200	541	149	402	137	370	

X2H / X3H ...43

SPLIT HOUSING

60 Hz

118 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kg m ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1200$ rpm	4.5	4.42	272	105264	2995	2.4047	532	1060	395	788	363	724	
	5	4.95	243	104451	2653	2.0196	518	1032	385	767	354	705	
	5.6	5.55	216	109235	2472	1.6943	503	1003	374	745	344	685	
	6.3	6.25	192	106045	2132	1.4172	484	965	360	717	331	659	
	7.1	7.07	170	112424	1999	1.2725	451	899	335	668	308	614	
	8	8.03	149	114816	1797	1.1266	443	884	329	657	303	604	
	9	8.75	137	117208	1683	0.9390	418	834	311	620	286	570	
	10	9.86	122	117208	1494	0.8182	406	809	302	601	277	553	
	11.2	11.22	107	117208	1312	0.6740	387	771	287	573	264	527	
	12.5	12.37	97	117208	1191	0.5690	363	723	269	537	248	494	
	14	14.39	83	117208	1024	0.4605	337	672	250	499	230	459	
	16	16.04	75	118005	925	0.4181	316	631	235	469	216	431	
	18	17.47	69	112424	809	0.3320	310	618	230	459	212	422	
	20	19.88	60	118005	746	0.2719	300	568	223	422	205	388	
	18	18.10	66	118005	819	0.4359	277	552	206	410	189	377	
	20	20.17	59	118005	735	0.4009	261	541	194	402	178	370	
	22.4	21.98	55	113221	647	0.3830	255	541	189	402	174	370	
	25	25.89	46	118005	573	0.2409	252	541	187	402	172	370	
	28	28.86	42	118005	514	0.2238	238	541	177	402	163	370	
	31.5	31.45	38	113221	452	0.2151	233	541	173	402	159	370	
	35.5	35.78	34	118005	414	0.1933	224	541	167	402	153	370	
	40	40.09	30	118005	370	0.1395	217	541	161	402	148	370	
	45	43.68	27	113221	326	0.1350	213	541	158	402	145	370	
	50	49.69	24	118005	298	0.1237	205	541	152	402	140	370	
	56	57.54	21	118803	259	0.0753	200	541	149	402	137	370	
	63	64.14	19	118803	233	0.0718	200	541	149	402	137	370	
	71	69.88	17	114019	205	0.0700	200	541	149	402	137	370	
	80	79.50	15	118803	188	0.0656	200	541	149	402	137	370	
	90	91.28	13	118803	164	0.0419	200	541	149	402	137	370	
	100	99.45	12	114019	144	0.0410	200	541	149	402	137	370	
	112	113.13	11	118803	132	0.0388	200	541	149	402	137	370	



X2H / X3H ...43

SPLIT HOUSING

60 Hz

118 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1800$ rpm	4.5	4.42	408	105264	4492	2.4047	493	983	366	730	337	671	
	5	4.95	364	104451	3980	2.0196	484	966	360	718	331	660	
	5.6	5.55	324	109235	3708	1.6943	476	948	353	705	325	648	
	6.3	6.25	288	106045	3197	1.4172	460	918	342	682	314	627	
	7.1	7.07	255	112424	2999	1.2725	433	863	322	641	296	589	
	8	8.03	224	114816	2695	1.1266	428	853	318	634	292	583	
	9	8.75	206	117208	2525	0.9390	405	808	301	600	277	552	
	10	9.86	183	117208	2241	0.8182	395	787	293	585	270	538	
	11.2	11.22	160	117208	1968	0.6740	378	753	281	560	258	515	
	12.5	12.37	146	117208	1786	0.5690	355	709	264	526	243	484	
	14	14.39	125	117208	1536	0.4605	332	661	246	491	226	451	
	16	16.04	112	118005	1387	0.4181	312	622	232	462	213	425	
	18	17.47	103	112424	1213	0.3320	306	609	227	453	209	416	
	20	19.88	91	118005	1119	0.2719	300	568	223	422	205	388	
	18	18.10	99	118005	1229	0.4359	266	541	198	402	182	370	
	20	20.17	89	118005	1102	0.4009	251	541	187	402	172	370	
	22.4	21.98	82	113221	971	0.3830	245	541	182	402	167	370	
	25	25.89	70	118005	859	0.2409	244	541	182	402	167	370	
	28	28.86	62	118005	771	0.2238	231	541	172	402	158	370	
	31.5	31.45	57	113221	679	0.2151	226	541	168	402	154	370	
	35.5	35.78	50	118005	622	0.1933	216	541	161	402	148	370	
	40	40.09	45	118005	555	0.1395	210	541	156	402	144	370	
	45	43.68	41	113221	489	0.1350	206	541	153	402	140	370	
	50	49.69	36	118005	448	0.1237	200	541	149	402	137	370	
	56	57.54	31	118803	389	0.0753	200	541	149	402	137	370	
	63	64.14	28	118803	349	0.0718	200	541	149	402	137	370	
	71	69.88	26	114019	308	0.0700	200	541	149	402	137	370	
	80	79.50	23	118803	282	0.0656	200	541	149	402	137	370	
	90	91.28	20	118803	245	0.0419	200	541	149	402	137	370	
	100	99.45	18	114019	216	0.0410	200	541	149	402	137	370	
	112	113.13	16	118803	198	0.0388	200	541	149	402	137	370	

X2H / X3H ...45

SPLIT HOUSING

50 Hz

140 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1000$ rpm	5	4.83	207	118673	2571	2.6743	592	1314	440	976	405	897	
	5.6	5.41	185	124014	2399	2.2346	576	1278	428	949	394	873	
	6.3	6.08	165	129567	2233	1.8650	558	1237	414	919	381	845	
	7.1	6.84	146	135120	2068	1.5519	536	1189	398	884	366	812	
	8	7.73	129	139747	1892	1.3779	497	1103	370	819	340	753	
	9	8.79	114	140206	1671	1.1312	488	1081	362	803	333	738	
	10	9.57	104	140206	1533	1.0361	459	1018	341	756	314	695	
	11.2	10.79	93	140206	1361	0.8060	445	986	330	733	304	673	
	12.5	12.28	81	137497	1172	0.6914	423	938	314	697	289	640	
	14	13.53	74	137497	1064	0.5992	396	879	294	653	271	600	
	16	15.74	64	137497	915	0.4544	368	816	273	606	251	557	
	18	17.55	57	137497	820	0.3958	361	766	268	569	247	523	
	20	19.12	52	135120	740	0.3640	361	752	268	559	247	514	
	22.4	21.75	46	134814	649	0.2894	361	732	268	544	247	500	
	20	19.81	50	137497	727	0.4520	307	698	228	519	209	477	
	22.4	22.08	45	134814	639	0.4143	289	698	215	519	198	477	
	25	24.05	42	134814	587	0.3947	284	698	211	519	194	477	
	28	28.34	35	134814	498	0.2496	278	698	207	519	190	477	
	31.5	31.59	32	134814	447	0.2312	264	698	196	519	180	477	
	35.5	34.41	29	134814	410	0.2217	259	698	193	519	177	477	
	40	39.15	26	129528	346	0.1988	249	698	185	519	170	477	
	45	43.87	23	132158	315	0.1440	241	698	179	519	165	477	
	50	47.80	21	132158	290	0.1390	241	698	179	519	165	477	
	56	54.38	18	129528	249	0.1272	241	698	179	519	165	477	
	63	62.97	16	132158	220	0.0778	241	698	179	519	165	477	
	71	70.19	14	132158	197	0.0741	241	698	179	519	165	477	
	80	76.47	13	132158	181	0.0721	241	698	179	519	165	477	
	90	87.00	11	126925	153	0.0675	241	698	179	519	165	477	
	100	99.89	10	132158	139	0.0433	241	698	179	519	165	477	
	112	108.83	9	132158	127	0.0423	241	698	179	519	165	477	
	125	123.81	8	133269	113	0.0401	241	698	179	519	165	477	



X2H / X3H ...45

SPLIT HOUSING

50 Hz

140 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1500$ rpm	5	4.83	310	118673	3857	2.6743	556	1233	413	916	380	842	
	5.6	5.41	277	124014	3598	2.2346	546	1211	406	900	373	827	
	6.3	6.08	247	129567	3349	1.8650	533	1181	396	877	364	806	
	7.1	6.84	219	135120	3102	1.5519	516	1143	383	849	352	781	
	8	7.73	194	139747	2838	1.3779	481	1066	357	792	328	728	
	9	8.79	171	140206	2506	1.1312	474	1050	352	780	324	717	
	10	9.57	157	140206	2300	1.0361	447	992	332	737	305	677	
	11.2	10.79	139	140206	2042	0.8060	435	965	323	717	297	659	
	12.5	12.28	122	137497	1758	0.6914	416	922	309	685	284	630	
	14	13.53	111	137497	1596	0.5992	391	866	290	643	267	591	
	16	15.74	95	137497	1372	0.4544	364	806	270	599	248	551	
	18	17.55	85	137497	1231	0.3958	361	758	268	563	247	517	
	20	19.12	78	135120	1110	0.3640	361	744	268	553	247	508	
	22.4	21.75	69	134814	974	0.2894	361	732	268	544	247	500	
	20	19.81	76	137497	1090	0.4520	297	698	220	519	203	477	
	22.4	22.08	68	134814	959	0.4143	280	698	208	519	191	477	
	25	24.05	62	134814	880	0.3947	274	698	203	519	187	477	
	28	28.34	53	134814	747	0.2496	270	698	201	519	185	477	
	31.5	31.59	47	134814	670	0.2312	256	698	190	519	175	477	
	35.5	34.41	44	134814	615	0.2217	251	698	186	519	171	477	
	40	39.15	38	129528	520	0.1988	241	698	179	519	165	477	
	45	43.87	34	132158	473	0.1440	241	698	179	519	165	477	
	50	47.80	31	132158	434	0.1390	241	698	179	519	165	477	
	56	54.38	28	129528	374	0.1272	241	698	179	519	165	477	
	63	62.97	24	132158	330	0.0778	241	698	179	519	165	477	
	71	70.19	21	132158	296	0.0741	241	698	179	519	165	477	
	80	76.47	20	132158	271	0.0721	241	698	179	519	165	477	
	90	87.00	17	126925	229	0.0675	241	698	179	519	165	477	
	100	99.89	15	132158	208	0.0433	241	698	179	519	165	477	
	112	108.83	14	132158	191	0.0423	241	698	179	519	165	477	
	125	123.81	12	133269	169	0.0401	241	698	179	519	165	477	

X2H / X3H ...45

SPLIT HOUSING

60 Hz

140 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1200$ rpm	5	4.83	248	118673	3085	2.6743	577	1280	429	951	394	874	
	5.6	5.41	222	124014	2879	2.2346	563	1249	419	928	385	853	
	6.3	6.08	197	129567	2679	1.8650	547	1213	406	901	373	828	
	7.1	6.84	175	135120	2482	1.5519	527	1169	392	869	360	799	
	8	7.73	155	139747	2271	1.3779	490	1087	364	808	335	742	
	9	8.79	137	140206	2005	1.1312	482	1068	358	794	329	730	
	10	9.57	125	140206	1840	1.0361	454	1007	337	748	310	688	
	11.2	10.79	111	140206	1633	0.8060	441	978	328	726	301	668	
	12.5	12.28	98	137497	1407	0.6914	420	931	312	692	287	636	
	14	13.53	89	137497	1277	0.5992	394	874	293	649	269	597	
	16	15.74	76	137497	1097	0.4544	366	812	272	603	250	555	
	18	17.55	68	137497	985	0.3958	361	762	268	566	247	521	
	20	19.12	63	135120	888	0.3640	361	748	268	556	247	511	
	22.4	21.75	55	134814	779	0.2894	361	732	268	544	247	500	
	20	19.81	61	137497	872	0.4520	302	698	224	519	206	477	
	22.4	22.08	54	134814	767	0.4143	285	698	212	519	195	477	
	25	24.05	50	134814	704	0.3947	279	698	207	519	191	477	
	28	28.34	42	134814	598	0.2496	275	698	204	519	188	477	
	31.5	31.59	38	134814	536	0.2312	260	698	193	519	178	477	
	35.5	34.41	35	134814	492	0.2217	255	698	190	519	174	477	
	40	39.15	31	129528	416	0.1988	245	698	182	519	167	477	
	45	43.87	27	132158	379	0.1440	241	698	179	519	165	477	
	50	47.80	25	132158	347	0.1390	241	698	179	519	165	477	
	56	54.38	22	129528	299	0.1272	241	698	179	519	165	477	
	63	62.97	19	132158	264	0.0778	241	698	179	519	165	477	
	71	70.19	17	132158	237	0.0741	241	698	179	519	165	477	
	80	76.47	16	132158	217	0.0721	241	698	179	519	165	477	
	90	87.00	14	126925	183	0.0675	241	698	179	519	165	477	
	100	99.89	12	132158	166	0.0433	241	698	179	519	165	477	
	112	108.83	11	132158	153	0.0423	241	698	179	519	165	477	
	125	123.81	10	133269	135	0.0401	241	698	179	519	165	477	



X2H / X3H ...45

SPLIT HOUSING

60 Hz

140 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1800$ rpm	5	4.83	372	118673	4628	2.6743	536	1188	398	883	366	811	
	5.6	5.41	333	124014	4318	2.2346	529	1173	393	872	361	801	
	6.3	6.08	296	129567	4019	1.8650	519	1150	385	855	354	786	
	7.1	6.84	263	135120	3723	1.5519	504	1118	375	831	344	764	
	8	7.73	233	139747	3406	1.3779	472	1046	351	777	322	715	
	9	8.79	205	140206	3007	1.1312	466	1034	346	768	318	706	
	10	9.57	188	140206	2760	1.0361	441	977	327	726	301	667	
	11.2	10.79	167	140206	2450	0.8060	430	953	319	708	293	651	
	12.5	12.28	147	137497	2110	0.6914	411	911	305	677	281	622	
	14	13.53	133	137497	1915	0.5992	387	857	287	637	264	585	
	16	15.74	114	137497	1646	0.4544	362	800	269	594	247	546	
	18	17.55	103	137497	1477	0.3958	361	752	268	559	247	514	
	20	19.12	94	135120	1332	0.3640	361	739	268	549	247	505	
	22.4	21.75	83	134814	1168	0.2894	361	732	268	544	247	500	
	20	19.81	91	137497	1309	0.4520	291	698	217	519	199	477	
	22.4	22.08	82	134814	1151	0.4143	275	698	204	519	188	477	
	25	24.05	75	134814	1056	0.3947	269	698	200	519	184	477	
	28	28.34	64	134814	897	0.2496	267	698	198	519	182	477	
	31.5	31.59	57	134814	804	0.2312	252	698	187	519	172	477	
	35.5	34.41	52	134814	738	0.2217	247	698	184	519	169	477	
	40	39.15	46	129528	624	0.1988	241	698	179	519	165	477	
	45	43.87	41	132158	568	0.1440	241	698	179	519	165	477	
	50	47.80	38	132158	521	0.1390	241	698	179	519	165	477	
	56	54.38	33	129528	449	0.1272	241	698	179	519	165	477	
	63	62.97	29	132158	396	0.0778	241	698	179	519	165	477	
	71	70.19	26	132158	355	0.0741	241	698	179	519	165	477	
	80	76.47	24	132158	326	0.0721	241	698	179	519	165	477	
	90	87.00	21	126925	275	0.0675	241	698	179	519	165	477	
	100	99.89	18	132158	249	0.0433	241	698	179	519	165	477	
	112	108.83	17	132158	229	0.0423	241	698	179	519	165	477	
	125	123.81	15	133269	203	0.0401	241	698	179	519	165	477	

X2H / X3H ...47

SPLIT HOUSING

50 Hz

178 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1000$ rpm	6.3	6.00	167	152148	2655	3.4750	729	1458	541	1083	498	996	
	7.1	6.72	149	153259	2388	2.8729	709	1418	526	1053	484	968	
	8	7.54	133	159922	2220	2.3715	687	1374	510	1021	469	938	
	9	8.49	118	167696	2068	1.9515	661	1323	491	983	452	904	
	10	9.60	104	173249	1890	1.6906	614	1228	456	912	419	839	
	11.2	10.91	92	178191	1710	1.3734	603	1206	448	896	412	824	
	12.5	11.89	84	178191	1570	1.2401	568	1136	422	844	388	776	
	14	13.39	75	178191	1394	0.9668	550	1101	409	818	376	752	
	16	15.25	66	178191	1224	0.8154	524	1048	389	779	358	716	
	18	16.80	60	178191	1111	0.7013	491	982	365	730	335	671	
	20	19.54	51	174845	937	0.5299	456	913	339	678	312	623	
	22.4	21.78	46	174845	840	0.4566	437	857	325	636	298	585	
	25	23.73	42	166586	735	0.4151	437	841	325	625	298	575	
	28	27.00	37	174845	678	0.3289	437	785	325	583	298	536	
	25	24.59	41	174845	745	0.4997	381	762	283	566	260	520	
	28	27.41	36	174845	668	0.4527	360	748	267	556	246	511	
	31.5	29.86	33	168807	592	0.4271	353	748	262	556	241	511	
	35.5	35.18	28	171531	511	0.2729	346	748	257	556	236	511	
	40	39.21	26	171531	458	0.2500	327	748	243	556	224	511	
	45	42.72	23	168807	414	0.2374	322	748	239	556	220	511	
	50	48.60	21	161777	349	0.2110	309	748	230	556	211	511	
	56	54.46	18	171531	330	0.1537	297	748	221	556	203	511	
	63	59.33	17	168248	297	0.1472	293	748	218	556	200	511	
	71	67.50	15	158590	246	0.1335	291	748	216	556	199	511	
	80	78.17	13	168248	225	0.0825	291	748	216	556	199	511	
	90	87.14	11	168248	202	0.0779	291	748	216	556	199	511	
	100	94.93	11	164997	182	0.0753	291	748	216	556	199	511	
	112	108.00	9	155434	151	0.0700	291	748	216	556	199	511	
	125	124.00	8	168248	142	0.0452	291	748	216	556	199	511	
	140	135.10	7	164997	128	0.0439	291	748	216	556	199	511	
	160	153.69	7	155434	106	0.0413	291	748	216	556	199	511	



X2H / X3H ...47

SPLIT HOUSING

50 Hz

178 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1500$ rpm	6.3	6.00	250	152148	3983	3.4750	684	1368	508	1016	467	934	
	7.1	6.72	223	153259	3582	2.8729	670	1340	498	996	457	915	
	8	7.54	199	159922	3330	2.3715	654	1308	486	972	446	893	
	9	8.49	177	167696	3102	1.9515	634	1268	471	942	433	866	
	10	9.60	156	173249	2835	1.6906	591	1182	439	878	404	807	
	11.2	10.91	138	178191	2566	1.3734	583	1167	433	867	398	797	
	12.5	11.89	126	178191	2355	1.2401	551	1102	409	819	376	753	
	14	13.39	112	178191	2090	0.9668	537	1074	399	798	367	734	
	16	15.25	98	178191	1836	0.8154	513	1027	381	763	351	702	
	18	16.80	89	178191	1666	0.7013	482	965	358	717	329	659	
	20	19.54	77	174845	1405	0.5299	449	899	334	668	307	614	
	22.4	21.78	69	174845	1261	0.4566	437	845	325	628	298	577	
	25	23.73	63	166586	1102	0.4151	437	830	325	617	298	567	
	28	27.00	56	174845	1017	0.3289	437	785	325	583	298	536	
	25	24.59	61	174845	1117	0.4997	368	748	273	556	251	511	
	28	27.41	55	174845	1002	0.4527	347	748	258	556	237	511	
	31.5	29.86	50	168807	888	0.4271	340	748	252	556	232	511	
	35.5	35.18	43	171531	766	0.2729	336	748	249	556	229	511	
	40	39.21	38	171531	687	0.2500	317	748	236	556	217	511	
	45	42.72	35	168807	621	0.2374	311	748	231	556	213	511	
	50	48.60	31	161777	523	0.2110	298	748	221	556	203	511	
	56	54.46	28	171531	495	0.1537	291	748	216	556	199	511	
	63	59.33	25	168248	445	0.1472	291	748	216	556	199	511	
	71	67.50	22	158590	369	0.1335	291	748	216	556	199	511	
	80	78.17	19	168248	338	0.0825	291	748	216	556	199	511	
	90	87.14	17	168248	303	0.0779	291	748	216	556	199	511	
	100	94.93	16	164997	273	0.0753	291	748	216	556	199	511	
	112	108.00	14	155434	226	0.0700	291	748	216	556	199	511	
	125	124.00	12	168248	213	0.0452	291	748	216	556	199	511	
	140	135.10	11	164997	192	0.0439	291	748	216	556	199	511	
	160	153.69	10	155434	159	0.0413	291	748	216	556	199	511	

X2H / X3H ...47

SPLIT HOUSING

60 Hz

178 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type	
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]			
$n_1 = 1200$ rpm	6.3	6.00	200	152148	3186	3.4750	709	1419	527	1054	484	969	
	7.1	6.72	179	153259	2866	2.8729	692	1384	514	1028	472	945	
	8	7.54	159	159922	2664	2.3715	672	1345	499	999	459	918	
	9	8.49	141	167696	2481	1.9515	649	1299	482	965	443	887	
	10	9.60	125	173249	2268	1.6906	604	1208	448	897	412	825	
	11.2	10.91	110	178191	2052	1.3734	594	1189	442	883	406	812	
	12.5	11.89	101	178191	1884	1.2401	560	1121	416	833	383	766	
	14	13.39	90	178191	1672	0.9668	545	1090	405	810	372	745	
	16	15.25	79	178191	1469	0.8154	520	1040	386	773	355	710	
	18	16.80	71	178191	1333	0.7013	487	975	362	725	333	666	
	20	19.54	61	174845	1124	0.5299	453	907	337	674	310	619	
	22.4	21.78	55	174845	1009	0.4566	437	851	325	633	298	582	
	25	23.73	51	166586	882	0.4151	437	836	325	621	298	571	
	28	27.00	44	174845	814	0.3289	437	785	325	583	298	536	
	25	24.59	49	174845	894	0.4997	375	752	279	559	256	514	
	28	27.41	44	174845	802	0.4527	354	748	263	556	242	511	
	31.5	29.86	40	168807	710	0.4271	347	748	258	556	237	511	
	35.5	35.18	34	171531	613	0.2729	341	748	253	556	233	511	
	40	39.21	31	171531	550	0.2500	323	748	240	556	220	511	
	45	42.72	28	168807	497	0.2374	317	748	236	556	216	511	
	50	48.60	25	161777	418	0.2110	304	748	226	556	208	511	
	56	54.46	22	171531	396	0.1537	293	748	218	556	200	511	
	63	59.33	20	168248	356	0.1472	291	748	216	556	199	511	
	71	67.50	18	158590	295	0.1335	291	748	216	556	199	511	
	80	78.17	15	168248	270	0.0825	291	748	216	556	199	511	
	90	87.14	14	168248	243	0.0779	291	748	216	556	199	511	
	100	94.93	13	164997	218	0.0753	291	748	216	556	199	511	
	112	108.00	11	155434	181	0.0700	291	748	216	556	199	511	
	125	124.00	10	168248	170	0.0452	291	748	216	556	199	511	
	140	135.10	9	164997	153	0.0439	291	748	216	556	199	511	
	160	153.69	8	155434	127	0.0413	291	748	216	556	199	511	



X2H / X3H ...47

SPLIT HOUSING

60 Hz

178 kNm

i_N	i_{eff}	n_2 [rpm]	T_{2N} [Nm]	P_N [kW]	J [Kgm ²]	R1		S5		T6		Type
						P_{t0} [kW]		P_{t0} [kW]		P_{t0} [kW]		
$n_1 = 1800$ rpm	6.3	6.00	300	152148	4780	3.4750	659	1318	489	979	450	900
	7.1	6.72	268	153259	4299	2.8729	649	1298	482	964	443	887
	8	7.54	239	159922	3996	2.3715	636	1273	473	946	435	870
	9	8.49	212	167696	3722	1.9515	619	1239	460	921	423	846
	10	9.60	188	173249	3401	1.6906	579	1159	431	861	396	792
	11.2	10.91	165	178191	3079	1.3734	573	1147	426	852	392	783
	12.5	11.89	151	178191	2826	1.2401	542	1084	403	806	370	741
	14	13.39	134	178191	2508	0.9668	529	1058	393	786	361	723
	16	15.25	118	178191	2203	0.8154	507	1014	377	753	346	693
	18	16.80	107	178191	1999	0.7013	477	954	354	709	326	651
	20	19.54	92	174845	1686	0.5299	445	890	331	662	304	608
	22.4	21.78	83	174845	1513	0.4566	437	838	325	622	298	572
	25	23.73	76	166586	1323	0.4151	437	824	325	612	298	563
	28	27.00	67	174845	1221	0.3289	437	785	325	583	298	536
	25	24.59	73	174845	1340	0.4997	361	748	268	556	247	511
	28	27.41	66	174845	1202	0.4527	341	748	253	556	233	511
	31.5	29.86	60	168807	1066	0.4271	333	748	248	556	228	511
	35.5	35.18	51	171531	919	0.2729	331	748	246	556	226	511
	40	39.21	46	171531	824	0.2500	313	748	232	556	214	511
	45	42.72	42	168807	745	0.2374	307	748	228	556	209	511
	50	48.60	37	161777	627	0.2110	293	748	218	556	200	511
	56	54.46	33	171531	594	0.1537	291	748	216	556	199	511
	63	59.33	30	168248	534	0.1472	291	748	216	556	199	511
	71	67.50	27	158590	443	0.1335	291	748	216	556	199	511
	80	78.17	23	168248	406	0.0825	291	748	216	556	199	511
	90	87.14	21	168248	364	0.0779	291	748	216	556	199	511
	100	94.93	19	164997	328	0.0753	291	748	216	556	199	511
	112	108.00	17	155434	271	0.0700	291	748	216	556	199	511
	125	124.00	15	168248	256	0.0452	291	748	216	556	199	511
	140	135.10	13	164997	230	0.0439	291	748	216	556	199	511
	160	153.69	12	155434	191	0.0413	291	748	216	556	199	511

COMBINATION: GEAR UNIT - THRUST BEARING CASE

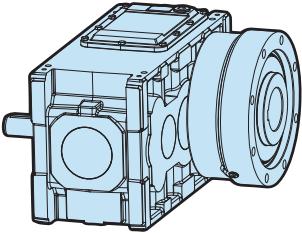
X2H, X3H

	Thrust Bearing Case														
	420	422	424	428	430	434	436	440	448	452	456	460	464	468	472
X2H / X3H 18	•	•	•	•											
X2H / X3H 19	•	•	•	•											
X2H / X3H 20			•	•	•										
X2H / X3H 22				•	•	•	•								
X2H / X3H 25						•	•	•							
X2H / X3H 26							•	•	•						
X2H / X3H 28							•	•	•						
X2H / X3H 31								•	•	•					
X2H / X3H 35								•	•	•	•				
X2H / X3H 36								•	•	•	•				
X2H / X3H 40								•	•	•	•	•			
X2H / X3H 42									•	•	•	•	•		
X2H / X3H 43									•	•	•	•	•		
X2H / X3H 45										•	•	•	•		
X2H / X3H 47											•	•	•	•	

Standard value



MONOBLOCK HOUSING - sizes from 18 to 31

Type	Mounting position	Page
	X2H	R1 91
		S5 92
		T6 93
Helical gear units	X3H	R1 95
		S5 96
		T6 97

R1 : Horizontal, output shaft horizontal

S5 : Vertical, output shaft below - on request

T6 : Vertical, output shaft above - on request

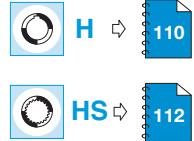
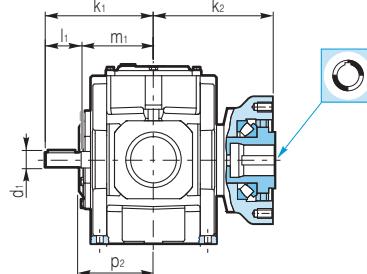
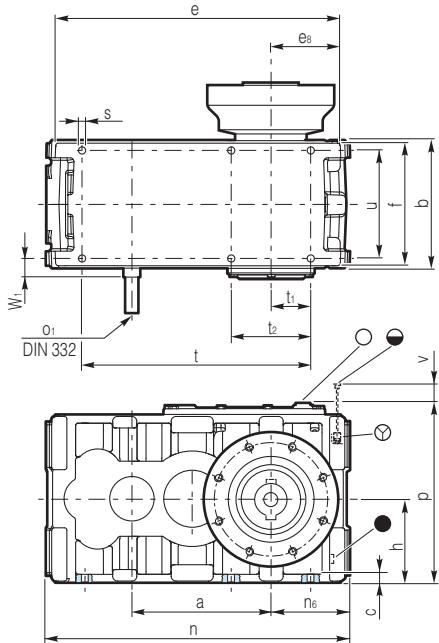
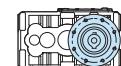


DIMENSIONS - MONOBLOCK HOUSING

91

X2H ... -R1

MONOBLOCK HOUSING



Keys to DIN 6885/1
Type of protection as per IP 55

X2H	Input shaft				
	Ø d ₁	k ₁	l ₁	m ₁	O ₁ form DS
18	45 k6	275	120	155	M16
19	45 k6	275	120	155	M16
20	45 k6	275	120	155	M16
22	60 m6	337	140	197	M20
25	60 m6	337	140	197	M20
26	70 m6	369	140	229	M20
28	70 m6	369	140	229	M20
31	70 m6	369	140	229	M20

420	422	424	428	430	434	436	Thrust bearing	
							k ₂	Standard value
287	292	297	317					
287	292	297	317					
		317	322					
		297	349	354	378	384		
					378	384	404	
						415	435	440
						415	435	440
						435	440	455

Standard value

X2H	Housing										
	a	b	c	e	e ₈	f	h	n	n ₆	p	p ₂
18	293	294	18	622	155	284	190	654	171	419	-
19	324	294	18	687	186	284	202	716	202	443	-
20	347	294	18	732	211	284	225	764	227	489	-
22	376	358	24	782	193	346	235	826	215	513	-
25	434	358	24	896	249	346	265	940	271	573	204
26	464	420	28	948	230	408	280	1000	256	610	246
28	464	420	28	948	230	408	280	1000	256	610	246
31	532	420	28	1085	299	408	315	1137	325	680	239

X2H	Fitting							v	oil * [l]	kg ¹⁾
	Ø s	d _s x l _{max}	t	t ₁	t ₂	u	w ₁			
18	14.5	M12x55	486	87	175	248	31	45	15	300
19	14.5	M12x55	548	118	237	248	31	65	17	365
20	14.5	M12x90	596	143	285	248	31	70	20	400
22	18.5	M16x65	622	113	226	306	44	60	28	530
25	18.5	M16x90	736	169	340	306	44	100	37	730
26	24	M20x80	752	132	265	360	49	80	48	920
28	24	M20x80	752	132	265	360	49	80	48	920
31	24	M20x110	889	201	402	360	49	90	66	1260

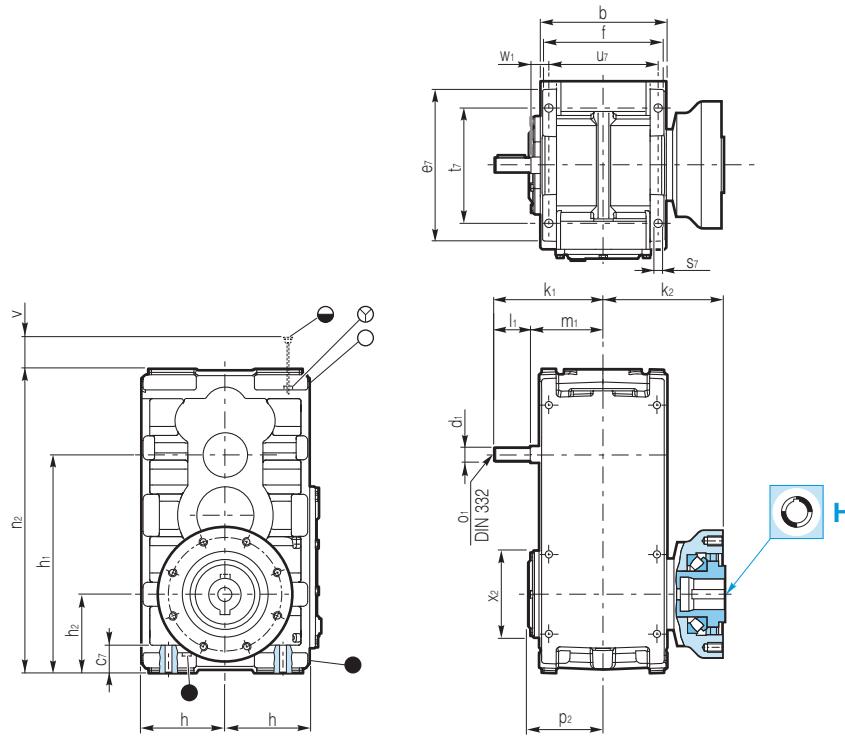
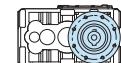
* Standard value only, oil filling acc. to dip stick or oil level glass.

1) Combination with bearing of medium size

DIMENSIONS - MONOBLOCK HOUSING

X2H ... -S5

MONOBLOCK HOUSING



H → 110
 HS → 112

Keys to DIN 6885/1
Type of protection as per IP 55

X2H	Input shaft				
	Ø d ₁	k ₁	l ₁	m ₁	o ₁ form DS
18	45 k6	275	120	155	M16
19	45 k6	275	120	155	M16
20	45 k6	275	120	155	M16
22	60 m6	337	140	197	M20
25	60 m6	337	140	197	M20
26	70 m6	369	140	229	M20
28	70 m6	369	140	229	M20
31	70 m6	369	140	229	M20

420	422	424	428	430	434	436	Thrust bearing	
							k ₂	Standard value
287	292	297	317					
287	292	297	317					
		317	322					
			349	354	378	384		
					378	384	404	
						415	435	440
						415	435	440
							435	440
								455

X2H	Housing								
	b	c ₇	e ₇	f	h -0.2	h ₁	h ₂ -0.2	n ₂	p ₂
18	294	62	348	284	190	464	171	654	–
19	294	62	373	284	202	526	202	716	–
20	294	62	414	284	225	574	227	764	–
22	358	76	426	346	235	591	215	826	–
25	358	77	486	346	265	705	271	940	204
26	420	86	504	408	280	720	256	1000	246
28	420	86	504	408	280	720	256	1000	246
31	420	95	574	408	315	857	325	1137	239

X2H	Fitting						v	oil [l]	kg ¹⁾
	Ø s ₇	d _s x l _{max}	t ₇	u ₇	w ₁	w ₂			
18	16.5	M14x100	260	258	26	51	160	26	300
19	16.5	M14x100	284	258	26	51	160	30	365
20	16.5	M14x100	330	258	26	51	160	35	400
22	24	M20x130	326	312	41	59	195	46	530
25	24	M20x130	384	312	41	64	195	63	730
26	28	M24x150	386	366	46	67	215	78	920
28	28	M24x150	386	366	46	67	215	78	920
31	28	M24x160	456	366	46	67	215	113	1260

* Standard value only, oil filling acc. to dip stick or oil level glass.

1) Combination with bearing of medium size

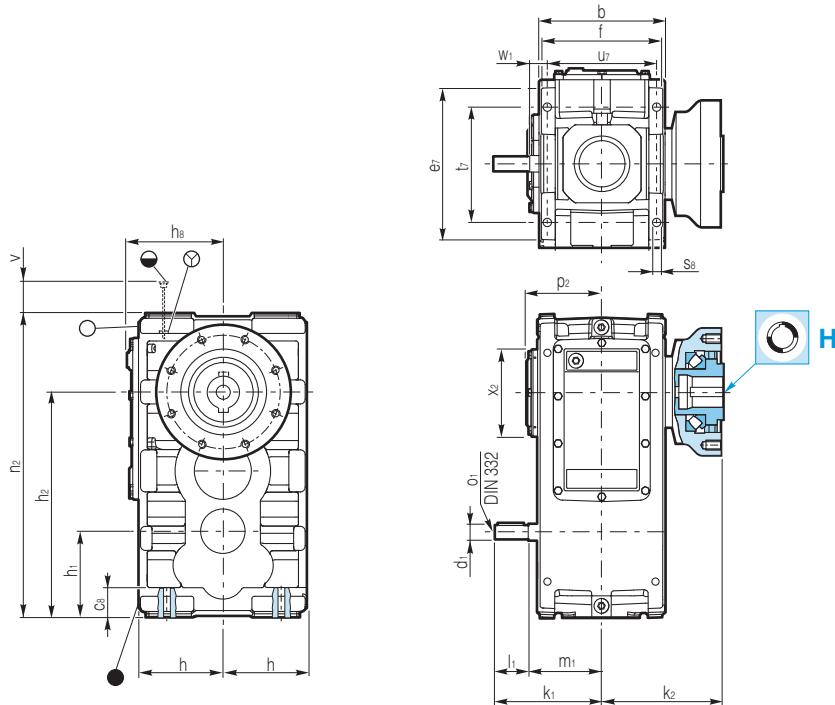
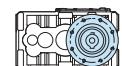


DIMENSIONS - MONOBLOCK HOUSING

93

X2H ... -T6

MONOBLOCK HOUSING



Keys to DIN 6885/1
Type of protection as per IP 55

X2H	Input shaft					Thrust bearing									
	$\emptyset d_1$	k_1	l_1	m_1	o_1 form DS	420	422	424	428	430	434	436	440	448	452
18	45 k6	275	120	155	M16	287	292	297	317						
19	45 k6	275	120	155	M16	287	292	297	317						
20	45 k6	275	120	155	M16			317	322						
22	60 m6	337	140	197	M20				349	354	378	384			
25	60 m6	337	140	197	M20					378	384	404			
26	70 m6	369	140	229	M20						415	435	440		
28	70 m6	369	140	229	M20						415	435	440		
31	70 m6	369	140	229	M20							435	440	455	

Standard value

X2H	Housing									
	b	c ₈	e ₇	f	h _{-0.2}	h ₁	h ₂ -0.2	h ₈	n ₂	p ₂
18	294	64	348	284	190	190	483	229	654	—
19	294	64	373	284	202	190	514	241	716	—
20	294	64	414	284	225	190	537	264	764	—
22	358	76	426	346	235	235	611	278	826	—
25	358	77	486	346	265	235	669	308	940	204
26	420	92	504	408	280	280	744	330	1000	246
28	420	92	504	408	280	280	744	330	1000	246
31	420	95	574	408	315	280	812	365	1137	239

X2H	Fitting						v	oil [l]	kg ¹⁾
	$\emptyset s_8$	$d_s \times l_{max}$	t ₇	u ₇	w ₁	w ₂			
18	16.5	M14x100	260	258	26	51	150	26	300
19	16.5	M14x100	284	258	26	51	200	28	365
20	16.5	M14x100	330	258	26	51	220	33	400
22	24	M20x130	326	312	41	59	190	48	530
25	24	M20x130	384	312	41	64	260	61	730
26	28	M24x150	386	366	46	67	230	83	920
28	28	M24x150	386	366	46	67	230	83	920
31	28	M24x160	456	366	46	67	290	129	1260

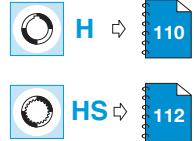
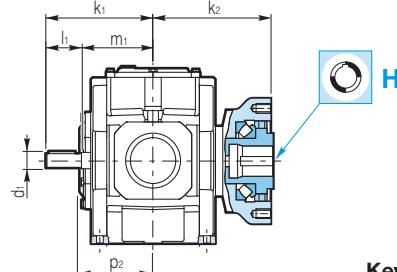
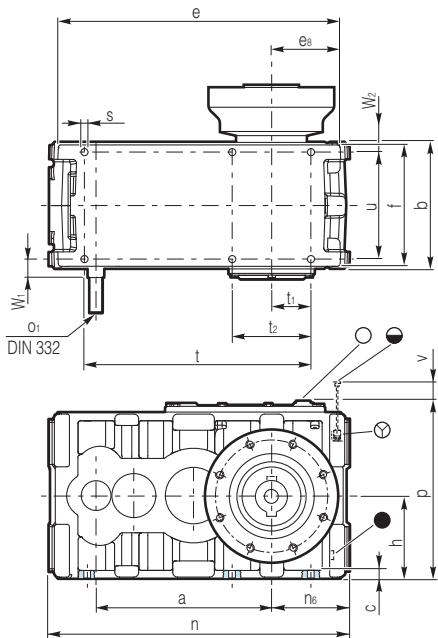
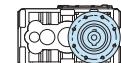
* Standard value only, oil filling acc. to dip stick or oil level glass.

1) Combination with bearing of medium size



X3H ... -R1

SIZES from 18 to 31



Keys to DIN 6885/1
Type of protection as per IP 55

X3H	Input shaft										Thrust bearing										
	i _N	Ø d ₁	k ₁	l ₁	o ₁ form DS	i _N	Ø d ₁	k ₁	l ₁	o ₁ form DS	m ₁	420	422	424	428	430	434	436	440	448	452
18	16..45	35 k6	283	100	M16	50..100	30 k6	283	100	M16	183	287	292	297	317						
19	20..56	35 k6	283	100	M16	63..125	30 k6	283	100	M16	183	287	292	297	317						
20	224..63	35 k6	283	100	M16	71..140	30 k6	283	100	M16	183			297	317	322					
22	20..45	50 k6	347	120	M20	50..71	40 k6	347	120	M20	227			349	354	378	384				
25	25..56	50 k6	347	120	M20	63..90	40 k6	347	120	M20	227				378	384	404				
26	16..45	50 k6	362	120	M20	50..100	40 k6	362	120	M20	242					415	435	440			
28	16..45	50 k6	362	120	M20	50..100	40 k6	362	120	M20	242					415	435	440			
31	224..63	50 k6	362	120	M20	71..140	40 k6	362	120	M20	242						435	440	455		

Standard value

X3H	Housing										
	a	b	c	e	e ₈	f	h	n	n ₆	p	p ₂
18	387	294	18	622	155	284	190	654	171	419	-
19	418	294	18	687	186	284	202	716	202	443	-
20	441	294	18	732	211	284	225	764	227	489	-
22	492	358	24	782	193	346	235	826	215	513	-
25	550	358	24	896	249	346	265	940	271	573	204
26	591	420	28	949	230	408	280	1000	256	610	246
28	591	420	28	949	230	408	280	1000	256	610	246
31	659	420	28	1085	299	408	315	1137	325	680	239

X3H	Fitting							v	oil [l]	kg
	Ø s	d _s x l _{max}	t	t ₁	t ₂	u	w ₁			
18	14.5	M12x55	486	87	175	248	59	40	15	300
19	14.5	M12x55	548	118	237	248	59	60	18	370
20	14.5	M12x90	596	143	285	248	59	65	21	400
22	18.5	M16x65	622	113	226	306	74	55	28	530
25	18.5	M16x90	736	169	340	306	74	95	37	730
26	24	M20x80	752	132	265	360	62	65	49	920
28	24	M20x80	752	132	265	360	62	65	49	920
31	24	M20x110	889	201	402	360	62	75	67	1260

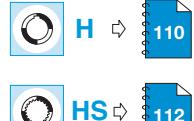
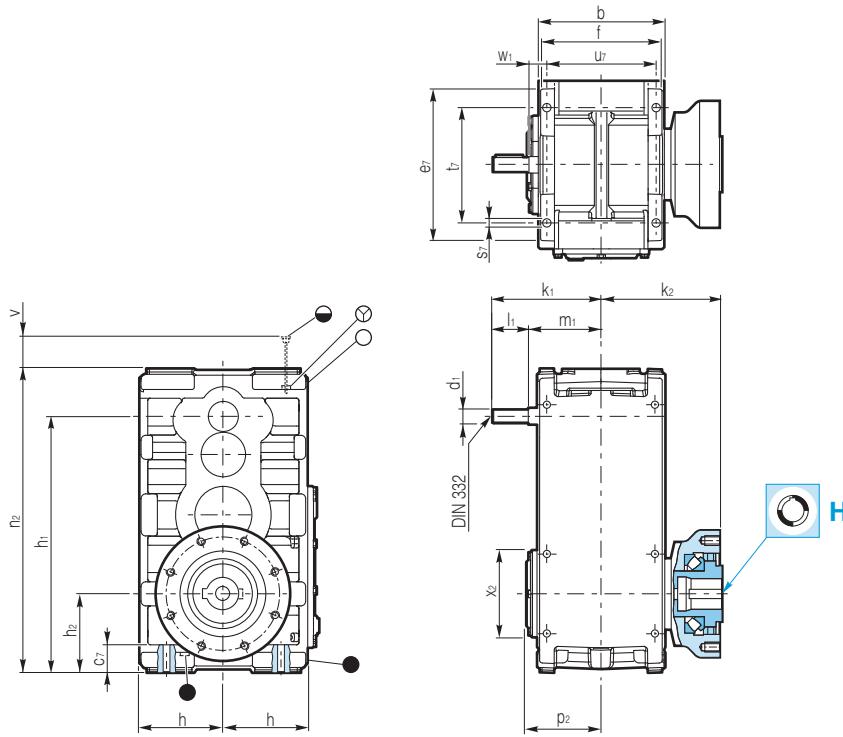
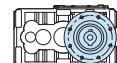
*) Standard value only, oil filling acc. to dip stick or oil level glass.

1) Combination with bearing of medium size

DIMENSIONS - MONOBLOCK HOUSING

X3H ... -S5

SIZES from 18 to 31



Keys to DIN 6885/1
Type of protection as per IP 55

X3H	Input shaft										
	i _N	Ø d ₁	k ₁	l ₁	o ₁ form DS	i _N	Ø d ₁	k ₁	l ₁	o ₁ form DS	m ₁
18	16..45	35 k6	283	100	M16	50..100	30 k6	283	100	M16	183
19	20..56	35 k6	283	100	M16	63..125	30 k6	283	100	M16	183
20	224..63	35 k6	283	100	M16	71..140	30 k6	283	100	M16	183
22	20..45	50 k6	347	120	M20	50..71	40 k6	347	120	M20	227
25	25..56	50 k6	347	120	M20	63..90	40 k6	347	120	M20	227
26	16..45	50 k6	362	120	M20	50..100	40 k6	362	120	M20	242
28	16..45	50 k6	362	120	M20	50..100	40 k6	362	120	M20	242
31	224..63	50 k6	362	120	M20	71..140	40 k6	362	120	M20	242

Thrust bearing										
420	422	424	428	430	434	436	440	448	452	k ₂
287	292	297	317							
287	292	297	317							
		297	317	322						
			349	354	378	384				
				378	384	404				
					415	435	440			
					415	435	440			
						435	440	455		

Standard value

X3H	Housing								
	b	c ₇	e ₇	f	h -0.2	h ₁	h ₂ -0.2	n ₂	p ₂
18	294	62	348	284	190	558	171	654	-
19	294	62	373	284	202	620	202	716	-
20	294	62	414	284	225	668	227	764	-
22	358	76	426	346	235	707	215	826	-
25	358	77	486	346	265	821	271	940	204
26	420	86	504	408	280	847	256	1000	246
28	420	86	504	408	280	847	256	1000	246
31	420	95	574	408	315	984	325	1137	239

X3H	Fitting					v	* [I]	kg 1)
	Ø s ₇	d _s x l _{max}	t ₇	u ₇	w ₁			
18	16.5	M14x100	260	258	54	55	31	300
19	16.5	M14x100	284	258	54	55	35	370
20	16.5	M14x100	330	258	54	55	42	400
22	24	M20x130	326	312	71	65	56	530
25	24	M20x130	384	312	71	65	77	730
26	28	M24x150	386	366	59	70	95	920
28	28	M24x150	386	366	59	70	95	920
31	28	M24x160	456	366	59	70	135	1260

*) Standard value only, oil filling acc. to dip stick or oil level glass.

1) Combination with bearing of medium size

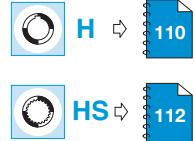
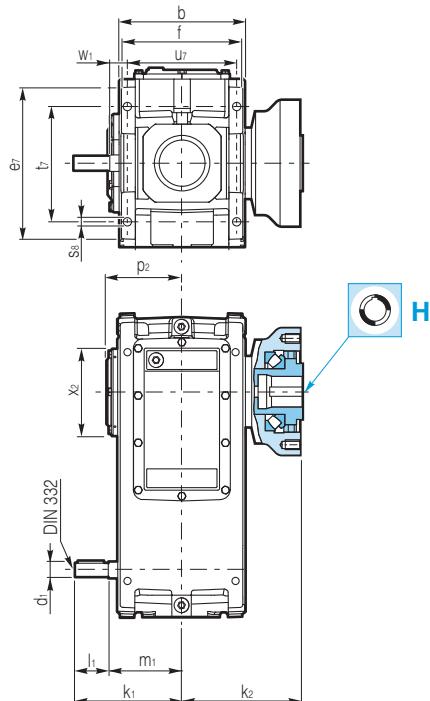
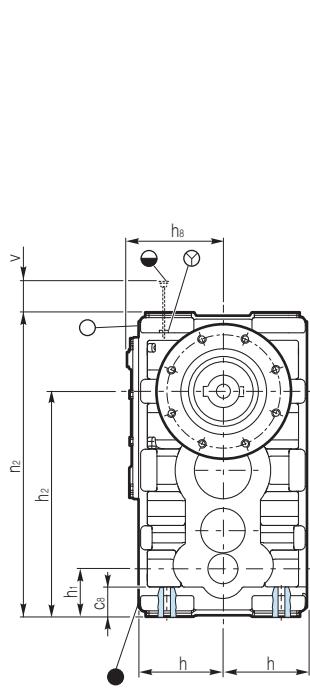
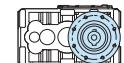


DIMENSIONS - MONOBLOCK HOUSING

97

X3H ... -T6

SIZES from 18 to 31



Keys to DIN 6885/1
Type of protection as per IP 55

X3H	Input shaft										
	i _N	Ø d ₁	k ₁	l ₁	o ₁ form DS	i _N	Ø d ₁	k ₁	l ₁	o ₁ form DS	m ₁
18	16..45	35 k6	283	100	M16	50..100	30 k6	283	100	M16	183
19	20..56	35 k6	283	100	M16	63..125	30 k6	283	100	M16	183
20	224..63	35 k6	283	100	M16	71..140	30 k6	283	100	M16	183
22	20..45	50 k6	347	120	M20	50..71	40 k6	347	120	M20	227
25	25..56	50 k6	347	120	M20	63..90	40 k6	347	120	M20	227
26	16..45	50 k6	362	120	M20	50..100	40 k6	362	120	M20	242
28	16..45	50 k6	362	120	M20	50..100	40 k6	362	120	M20	242
31	224..63	50 k6	362	120	M20	71..140	40 k6	362	120	M20	242

Thrust bearing										
420	422	424	428	430	434	436	440	448	452	k ₂
287	292	297	317							
287	292	297	317							
		297	317	322						
			349	354	378	384				
				378	384	404				
					415	435	440			
					415	435	440			
						435	440	455		

Standard value

X3H	Housing									
	b	c ₈	e ₇	f ₇	h	h ₁	h ₂	h ₈	n ₂	p ₂
18	294	64	348	284	190	96	483	229	654	-
19	294	64	373	284	202	96	514	241	716	-
20	294	64	414	284	225	96	537	264	764	-
22	358	76	426	346	235	119	611	278	826	-
25	358	77	486	346	265	119	669	308	940	204
26	420	92	504	408	280	153	744	330	1000	246
28	420	92	504	408	280	153	744	330	1000	246
31	420	94	574	408	315	153	812	365	1137	239

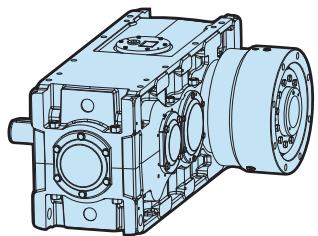
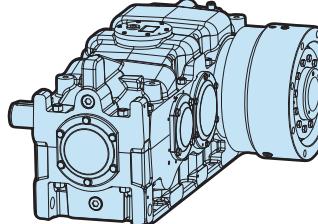
X3H	Fitting					oil [l]	kg *) 1)
	Ø s ₈	d _s x l _{max}	t ₇	u ₇	w ₁		
18	16.5	M14x100	260	258	54	150	25
19	16.5	M14x100	284	258	54	200	27
20	16.5	M14x100	330	258	54	220	32
22	24	M20x130	326	312	71	190	47
25	24	M20x130	384	312	71	260	59
26	28	M24x150	386	366	59	230	80
28	28	M24x150	386	366	59	230	80
31	28	M24x160	456	366	59	290	104
							1260

*) Standard value only, oil filling acc. to dip stick or oil level glass.

1) Combination with bearing of medium size



SPLIT HOUSING - sizes from 35 to 56

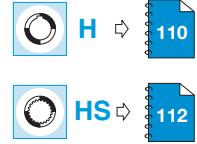
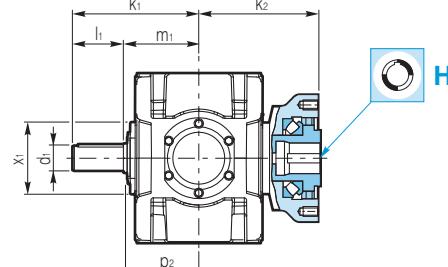
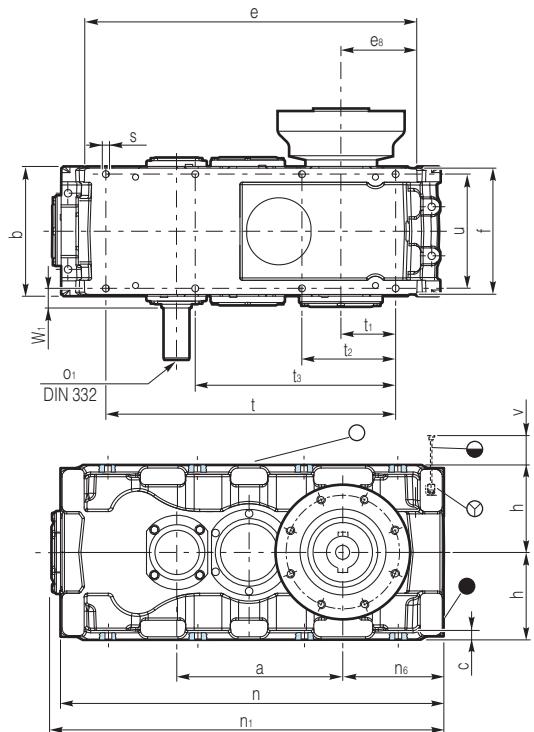
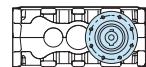
Type	Mounting positions	Page
Housing type 11  Helical gear units	X2H	R1
	X3H	R1
Housing type 12 - on request  Helical gear units	X2H	R1
	X3H	R1

1) Type 12, draws on request.

DIMENSIONS - SPLIT HOUSING

X2H ... -R1

SIZES from 35 to 47 - Housing type 11



Keys to DIN 6885/1
Type of protection as per IP 55

X2H	Input shaft					
	Ø d ₁	k ₁	l ₁	Ø O ₁ form DS	m ₁	Ø x ₁
35	90 m6	446	180	M24	266	255
36	90 m6	446	180	M24	266	255
40	90 m6	446	180	M24	266	255
42	100 m6	537	215	M24	322	328
43	100 m6	537	215	M24	322	328
45	100 m6	537	215	M24	322	328
47	100 m6	537	215	M24	322	328

Thrust bearing								
440	448	452	456	460	464	468	472	k ₂
560	565	585	620					
560	565	585	620					
	550	580	610	635				
	620	650	675	710				
	620	650	675	710				
		650	675	710	765			
			635	670	735	755		

Standard value

X2H	Housing												
	a	b	c	e	t ₁	f	h -0.2	n	n ₁	n ₆	p	p ₁	p ₂
35	570	450	32	1152	190	438	300	1315	1346	345	593	645	262
36	600	450	32	1212	220	438	330	1375	1406	375	654	675	262
40	647	450	32	1338	265	438	375	1470	1501	423	750	720	262
42	693	530	40	1416	225	514	355	1615	1652	422	704	728	303
43	730	530	40	1490	262	514	392	1689	1726	459	778	765	303
45	759	530	40	1535	285	514	425	1749	1786	490	847	798	303
47	845	530	40	1718	370	514	500	1920	1957	575	1000	873	303

X2H	Fitting							v	ONL* [I]	Kg
	Ø s	d _s x l _{max}	t	t ₂	t ₃	u	w ₁			
35	24	M20x85	1005	325	695	396	68	205	57	2150
36	24	M20x85	1065	385	755	396	68	235	66	2420
40	24	M20x120	1157	377	847	396	68	230	79	2605
42	28	M24x100	1230	390	820	460	92	260	95	3185
43	28	M24x100	1304	464	894	460	92	300	110	3425
45	28	M24x120	1356	516	946	460	92	260	135	4095
47	28	M24x250	1527	687	1117	460	92	265	190	4860

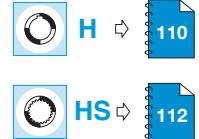
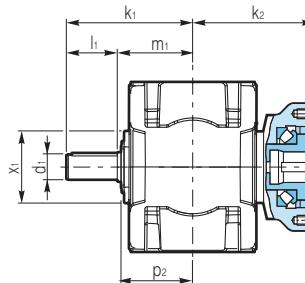
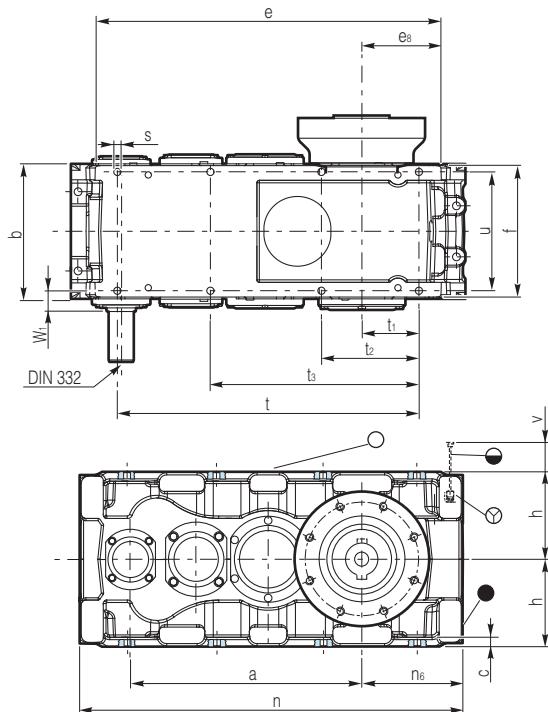
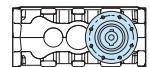
*) Standard value only, oil filling acc. to dip stick or oil level glass.

1) Combination with bearing of medium size



X3H ... -R1

SIZES from 35 to 47 - Housing type 11



Keys to DIN 6885/1
Type of protection as per IP 55

X2H	Input shaft					
	$\varnothing d_1$	k_1	l_1	o_1 form DS	m_1	$\varnothing x_1$
35	90 m6	446	180	M24	266	255
36	90 m6	446	180	M24	266	255
40	90 m6	446	180	M24	266	255
42	100 m6	537	215	M24	322	328
43	100 m6	537	215	M24	322	328
45	100 m6	537	215	M24	322	328
47	100 m6	537	215	M24	322	328

Thrust bearing								
440	448	452	456	460	464	468	472	k_2
560	565	585	620					
560	565	585	620					
	550	580	610	635				
	620	650	675	710				
	620	650	675	710				
		650	675	710	765			
			635	670	735	755		

Standard value

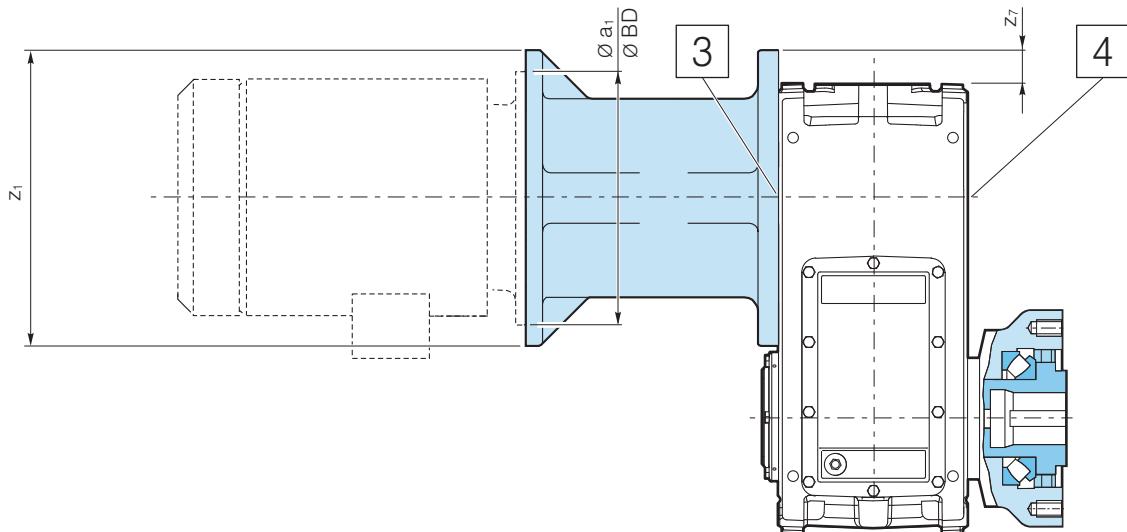
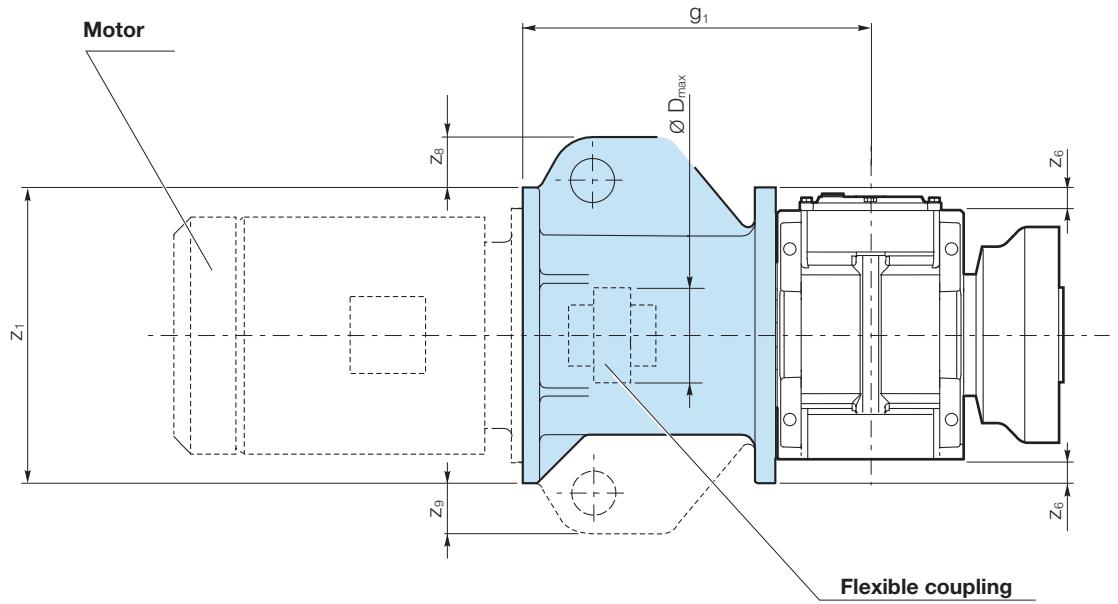
X3H	Housing											
	a	b	c	e	t_1	f	$h_{-0.2}$	n	n_6	p	p_1	p_2
35	734	450	32	1152	190	438	300	1315	345	593	645	262
36	764	450	32	1212	220	438	330	1375	375	654	675	262
40	811	450	32	1338	265	438	375	1470	423	750	720	262
42	894	530	40	1416	225	514	355	1615	422	704	728	303
43	931	530	40	1490	262	514	392	1689	459	778	765	303
45	960	530	40	1535	285	514	425	1749	490	847	798	303
47	1046	530	40	1718	370	514	500	1920	575	1000	873	303

X3H	Fitting							v		$^{(1)}$ Kg
	$\varnothing s$	$d_s \times l_{max}$	t	t_2	t_3	u	w_1			
35	24	M20x85	1005	325	695	396	68	205		62
36	24	M20x85	1065	385	755	396	68	235		71
40	24	M20x120	1157	377	847	396	68	230		85
42	28	M24x100	1230	390	820	460	92	260		105
43	28	M24x100	1304	464	894	460	92	300		120
45	28	M24x120	1356	516	946	460	92	260		145
47	28	M24x250	1527	687	1117	460	92	265		205
										4920

*) Standard value only, oil filling acc. to dip stick or oil level glass.

1) Combination with bearing of medium size

X2H...K...IEC



Motor bell housing available with or without motor.

On motor mounting side:

Output on request

Wall mounting not available

Appropriate flexible coupling is part of Dana supply.

X2H...K...IEC

X2H...K.. IEC..

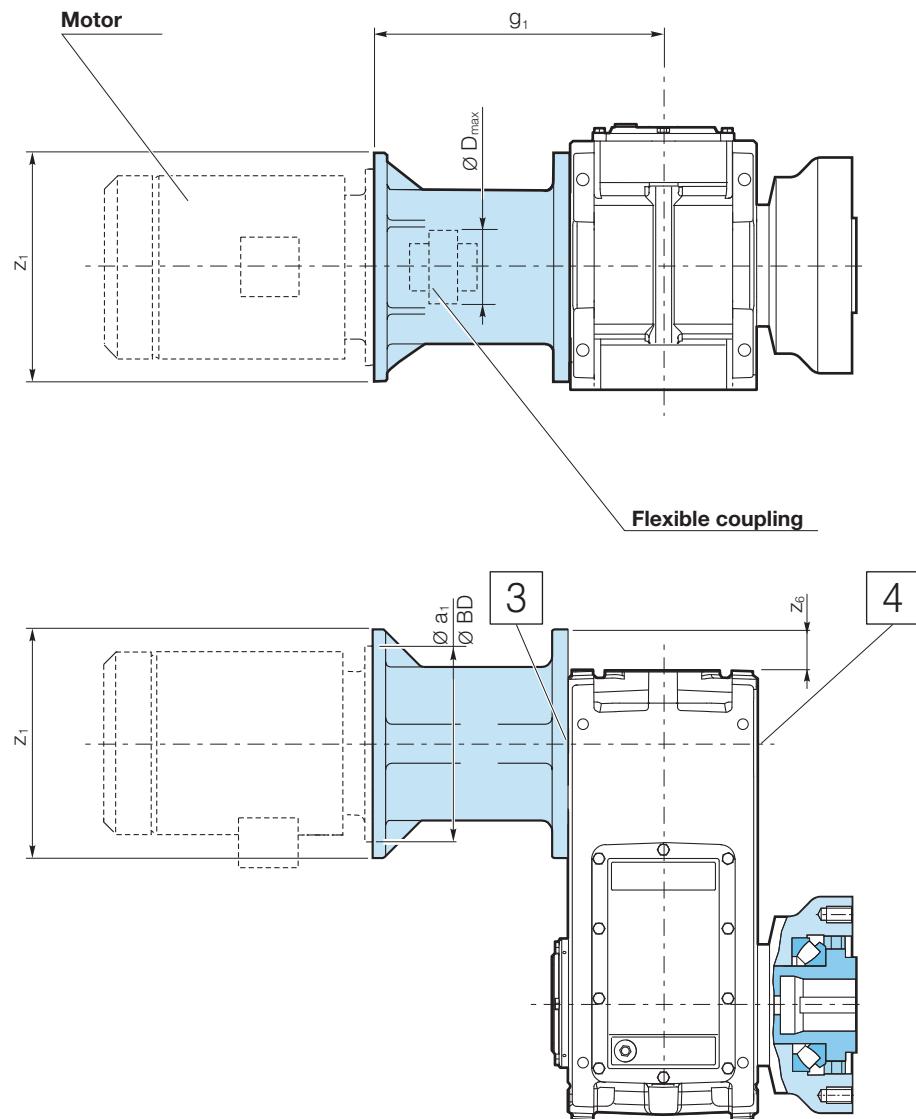
	z_6	z_7	Position of motor				$\emptyset D_{max}^{**}$	g_1	z_1	Motor							
			3		4					$\emptyset D_{max}^{**}$	g_1	z_1	IEC	$\emptyset a_1$			
			z_8	z_9	z_8	z_9											
18	—	—	—	45	—	—	45	—	320	467	$\emptyset 660$	315 M/S	660				
			—					437		437	$\emptyset 550$	280 M/S	550				
			—					—		245	419	$\emptyset 450$	250 M				
			50			50		195		195	389	$\emptyset 350$	225 M/S	450			
19			—	—	45	—	45	—	320	467	$\emptyset 660$	200 L	400				
			—					419		437	$\emptyset 550$	180 L/M	350				
			—					389		245	419	$\emptyset 450$	225 M/S	450			
			50					389		195	389	$\emptyset 350$	200 L	400			
20	—	—	—	—	45	—	45	—	320	467	$\emptyset 660$	180 L/M	350				
			—					419		437	$\emptyset 550$	280 M/S	550				
			—					389		245	419	$\emptyset 450$	250 M				
			50					389		195	389	$\emptyset 350$	225 M/S	450			
22	—	—	—	—	—	—	—	—	325	539	$\emptyset 660$	200 L	400				
			—					—		539	$\emptyset 660$	180 L/M	350				
			—					—		325	539	$\emptyset 660$	225 M/S	450			
			—					—		245	509	$\emptyset 400$	* * *	400 350			
25	—	—	—	—	—	—	—	—	325	570	$\emptyset 660$	280 M/S	550				
			—					—		540	$\emptyset 494$	$\emptyset 494$	250 M				
26 28	—	—	—	—	—	—	—	—	325	570	$\emptyset 660$	225 M	450				
			—					—		540	$\emptyset 494$	$\emptyset 494$	* *	400 350			
31	—	—	—	—	—	—	—	—	325	570	$\emptyset 660$	200 L	400				
			—					—		540	$\emptyset 494$	$\emptyset 494$	180 L/M	350			
			—					—		540	$\emptyset 494$	$\emptyset 494$	180 L/M	350			

* Other motor bell housings available

** Maximum diameter of coupling

For more information please contact the Dana area contact person.

X3H...K...IEC



Motor bell housing available with or without motor.

On motor mounting side:
Output on request
Wall mounting not available

Appropriate flexible coupling is part of Dana supply.



X3H...K...IEC

X3H...K...IEC								
			Motor					
	z_6	$\emptyset D_{max}^{**}$	g_1	z_1	IEC	$\emptyset a_1$		
18	86	325	477	$\emptyset 494$	280 S	550		
					250 M			
					225 L/M	450		
	77	195	417	$\emptyset 400$	200 L	400		
			397	$\emptyset 350$	180 L/M	350		
					160 L/M			
19			367	$\emptyset 300$	132 M/S	300		
			345	$\emptyset 250$	112 M	250		
20	63	325	539	$\emptyset 660$	315 M/S	660		
			509	$\emptyset 494$	280 M/S	550		
					250 M			
	29	245	509	$\emptyset 400$	225 M/S	450		
					200 L	400		
					180 L/M	350		
					160 L/M			
22	9	210	457	$\emptyset 256$	132 M/S	300		
	29	325	570	$\emptyset 660$	315 M/S	660		
			$\emptyset 494$		280 M/S	550		
					250 M/S			
	—	245	540	$\emptyset 400$	200 L	450		
					180 L/M	400		
					160 L/M	350		
					*			
26	29	325	210	488	315 M/S	660		
	—	245	540	$\emptyset 400$	200 L	450		
					180 L/M	400		
					160 L/M	350		

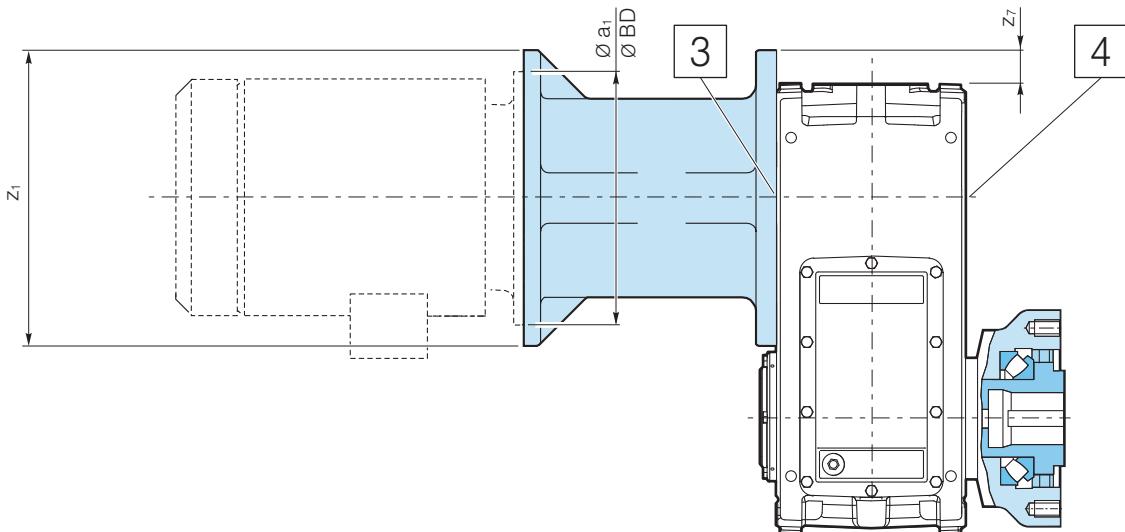
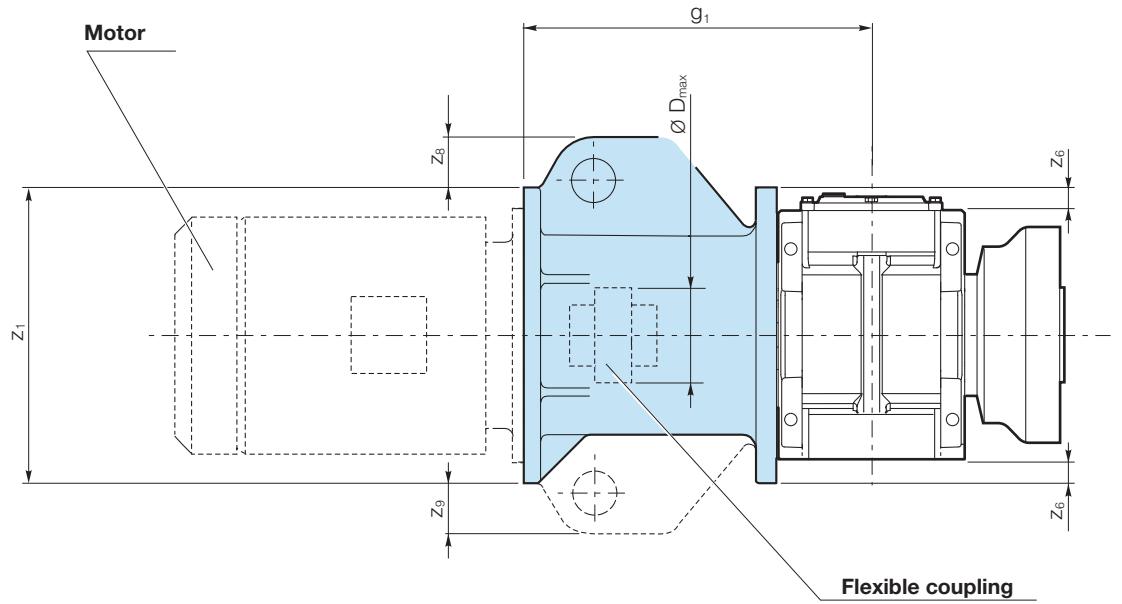
X3H...K...IEC						
			Motor			
	z_6	$\emptyset D_{max}^{**}$	g_1	z_1	IEC	$\emptyset a_1$
35	—	325	682	$\emptyset 660$	315 M/S	660
			652	$\emptyset 494$	280 M/S	
					250 M/S	550
					*	
40	—	325	682	$\emptyset 660$	315 M/S	660
			652	$\emptyset 494$	280 M/S	
					250 M/S	550
					*	450
42	—	325	682	$\emptyset 660$	315 M/S	660
			652	$\emptyset 494$	280 M/S	
					250 M/S	550
					*	450
45	—	325	682	$\emptyset 660$	315 M/S	660
			652	$\emptyset 494$	280 M/S	
					250 M/S	550
					*	450
47	—	325	682	$\emptyset 660$	315 M/S	660
			652	$\emptyset 494$	280 M/S	
					250 M/S	550
					*	450

* Other motor bell housings available

** Maximum diameter of coupling

For more information please contact the Dana area contact person.

X2H...K...NEMA



Motor bell housing available with or without motor.

On motor mounting side:

Output on request

Wall mounting not available

Appropriate flexible coupling is part of Dana supply.

X2H...K...NEMA

X2H...K.. NEMA..

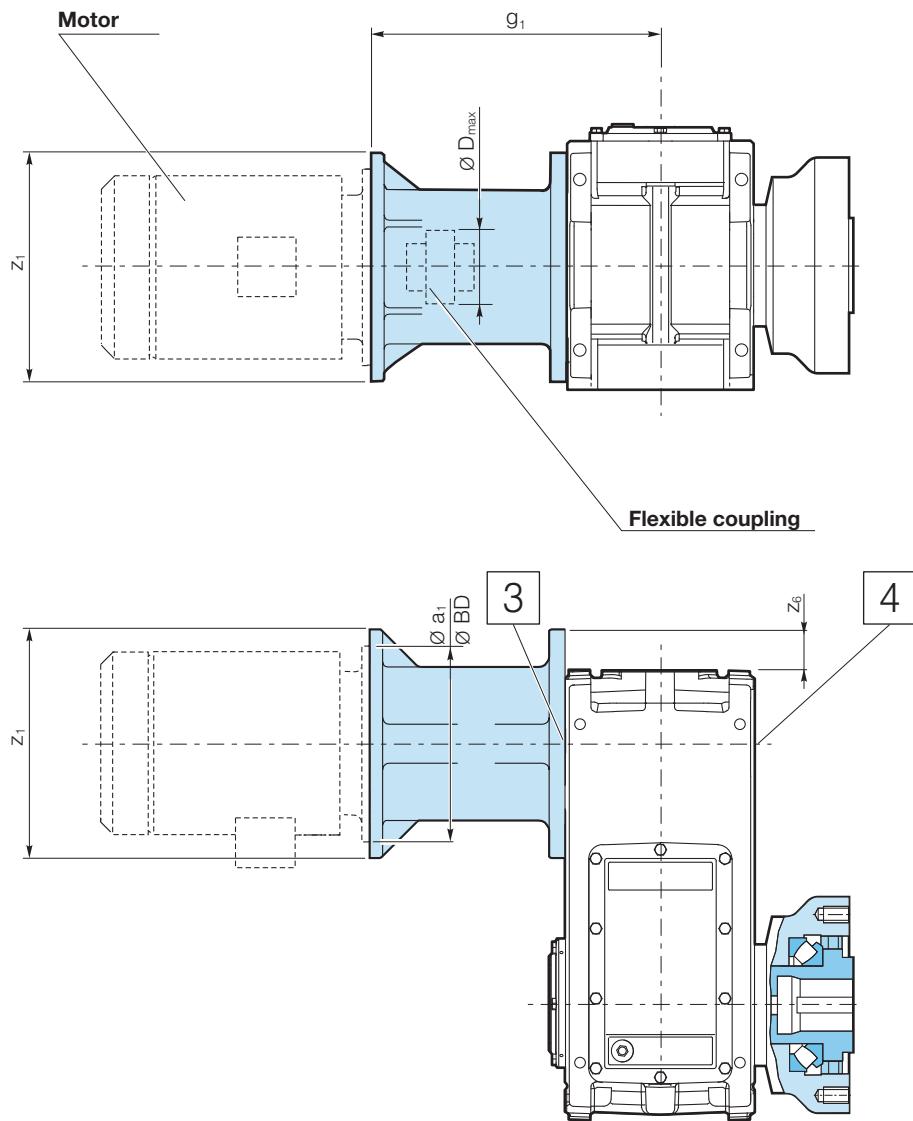
	z ₆	Position of motor				Ø D _{max} **	g ₁	z ₁	Motor	
		3	z ₈	z ₉	4				NEMA	Ø BD
18	—	—	—	—	—	320	467	Ø 660	447T	455
		45			—		437	Ø 550	445T	455
		—			50		245	Ø 450	405T	395
		50			—		195	Ø 350	326T	395
19	—	—	—	—	—	—	467	Ø 660	286T	280
		45			45		437	Ø 550	445T	455
		—			—		245	Ø 450	405T	395
		50			50		195	Ø 350	326T	395
20	—	—	—	—	—	320	467	Ø 660	447T	455
		45			45		437	Ø 550	445T	455
		—			—		245	Ø 450	405T	395
		50			50		195	Ø 350	326T	395
22	—	—	—	—	—	325	539	Ø 660	447T	455
		—			—		509	Ø 494	445T	455
		—			—		—	Ø 400	405T	395
		—			—		—	Ø 494	405T	395
25	—	—	—	—	—	245	570	Ø 660	447T	455
26	—	—	—	—	—	325	540	Ø 494	445T	455
28	—	—	—	—	—		—	—	405T	395
31	—	—	—	—	—	—	—	—	—	—

* Other motor bell housings available

** Maximum diameter of coupling

For more information please contact the Dana area contact person.

X3H...K...NEMA



Motor bell housing available with or without motor.

On motor mounting side:

Output on request

Wall mounting not available

Appropriate flexible coupling is part of Dana supply.

X3H...K...NEMA

X3H...K...NEMA					
	Motor				
	Ø D _{max} **	g ₁	j ₁	NEMA	Ø BD
18	325	477	Ø 494	445T	455
				405T	395
				326T	345
19	195	417	Ø 400	326T	345
20	195	397	Ø 350	286T	229
		367	Ø 300	215T	280
		345	Ø 250	213T	225
22	325	539	Ø 660	447T	455
		509	Ø 494	445T	455
				405T	395
22	245	509	Ø 400	326T	345
				286T	286
25	210	457	Ø 256	215T	225

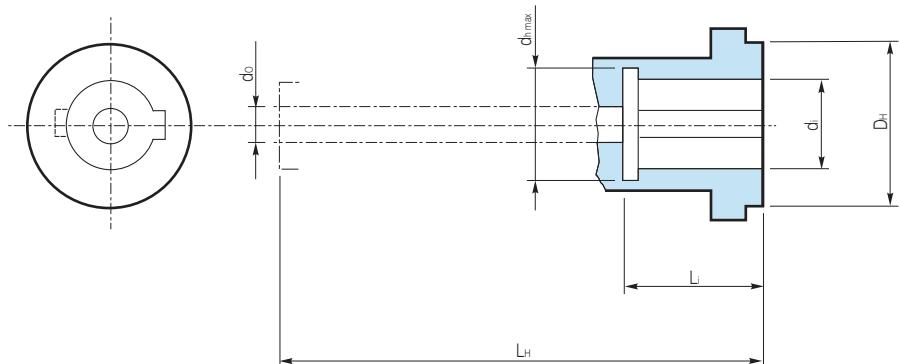
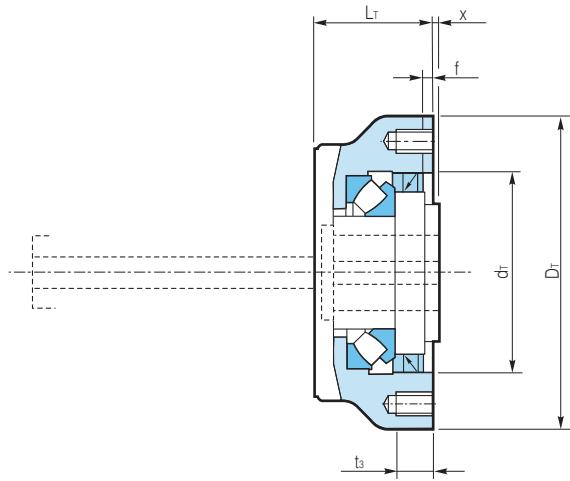
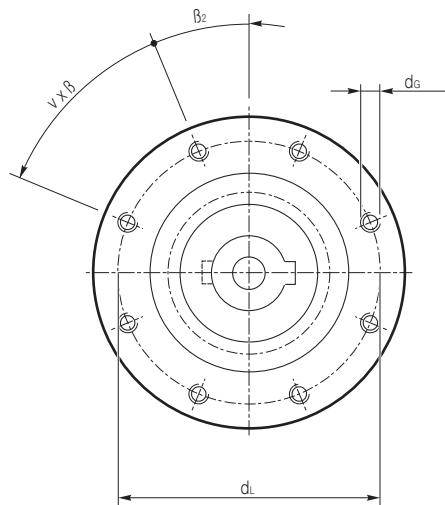
X3H...K...NEMA					
	Motor				
	Ø D _{max} **	g ₁	j ₁	NEMA	Ø BD
26	325	570	Ø 660	447T	455
		540	Ø 494	445T	455
28		405T	395		
31	245	540	Ø 400	286T	286

* Other motor bell housings available

** Maximum diameter of coupling

For more information please contact the Dana area contact person.

X2H - X3H



$v = 8$ Screws:

$\beta = 45^\circ$ $\beta_2 = 22.5^\circ$

$v = 12$ Screws:

$\beta = 30^\circ$ $\beta_2 = 15^\circ$

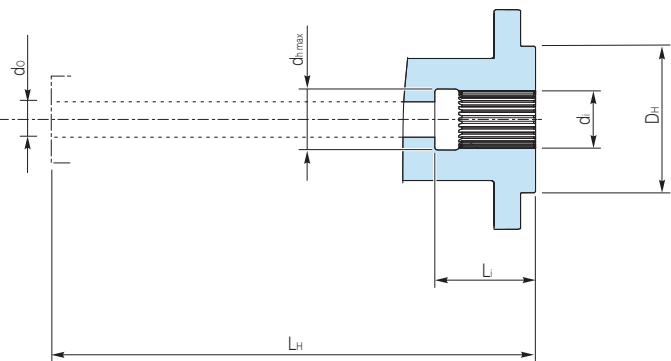
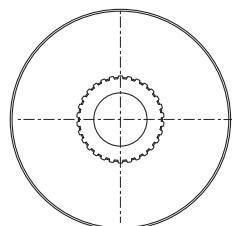
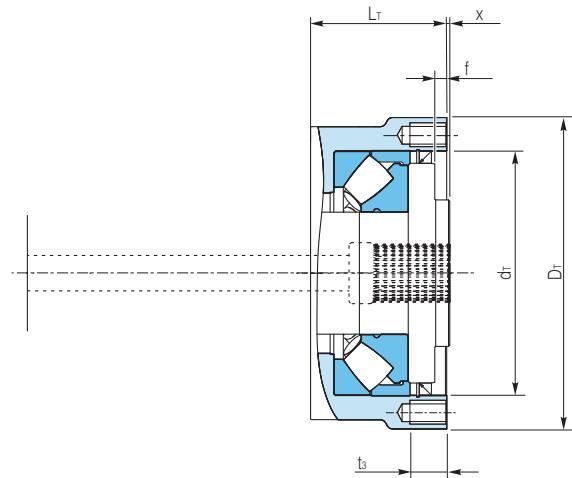
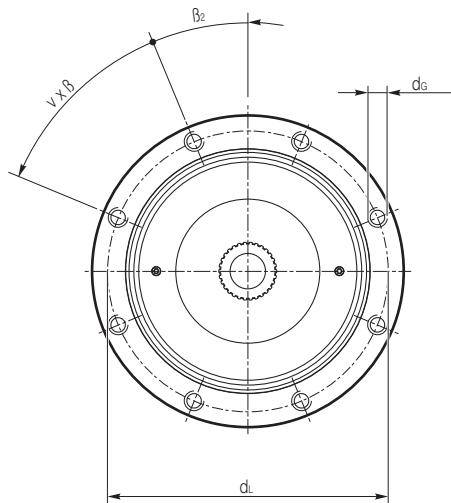
THRUST BEARING AND HOLLOW SHAFT WITH KEYWAY

111

	Axial self-aligning roller bearing		Thrust bearing									Hollow shaft							
	dyn. capacity [kN]	bearing size	D _T Ø	d _T Ø H7	L _T	f	d _L	d _G	t ₃	x	v	thread quantity	D _H Ø	L _H	d _i Ø	d _{h max} Ø	L _i	Keys	d _o Ø
X.18-420	1060	29420E	298	210	140	8	260	M20	35	5	8	120	469	60	74	130	2	30	
X.18-422	1260	29422E	330	230	145	8	280	M24	40	5	8	130	454	70	84	110	2	30	
X.18-424	1470	29424E	355	250	150	10	310	M24	40	5	8	150	459	80	96	140	1	30	
X.18-428	1720	29428E	378	280	170	10	340	M24	40	5	8	170	479	80	96	140	1	30	
X.19-420	1060	29420E	298	210	140	8	260	M20	35	5	8	120	469	60	74	130	2	30	
X.19-422	1260	29422E	330	230	145	8	280	M24	40	5	8	130	454	70	84	110	2	30	
X.19-424	1470	29424E	355	250	150	10	310	M24	40	5	8	150	459	80	96	140	1	30	
X.19-428	1720	29428E	378	280	170	10	340	M24	40	5	8	170	479	80	96	140	1	30	
X.20-424	1470	29424E	355	250	150	10	310	M24	40	5	8	150	484	80	96	110	2	40	
X.20-428	1720	29428E	378	280	170	10	340	M24	40	5	8	170	479	90	106	150	1	40	
X.20-430	2000	29430E	410	300	175	10	360	M24	40	5	8	180	484	100	118	120	1	40	
X.22-428	1720	29428E	378	280	170	10	340	M24	40	5	8	170	543	90	106	140	2	40	
X.22-430	2000	29430E	410	300	175	10	360	M24	40	5	8	180	548	100	118	160	1	40	
X.22-434	2550	29434E	468	365	205	10	400	M24	40	5	8	170	572	80	141	160	1	55	
X.22-436	2850	29436E	468	360	205	10	420	M30	50	5	8	220	578	130	151	140	1	40	
X.25-434	2550	29434E	468	365	205	10	400	M24	40	5	8	190	600	90	141	170	1	55	
X.25-436	2850	29436E	468	360	205	10	420	M30	50	5	8	220	606	130	151	170	1	50	
X.25-440	3450	29440E	510	400	225	12	460	M30	50	5	8	240	626	140	165	150	1	50	
X.26-436	2850	29436E	468	360	205	10	420	M30	50	5	8	220	670	130	151	150	2	60	
X.26-440	3450	29440E	510	400	225	12	460	M30	60	5	8	240	690	140	165	180	1	60	
X.26-448	3600	29448E	558	440	230	12	510	M36	60	5	8	290	695	170	197	180	1	60	
X.28-436	2850	29436E	468	360	205	10	420	M30	50	5	8	220	670	130	151	150	2	60	
X.28-440	3450	29440E	510	400	225	12	460	M30	60	5	8	240	690	140	165	180	1	60	
X.28-448	3600	29448E	558	440	230	12	510	M36	60	5	8	290	695	170	197	180	1	60	
X.31-440	3450	29440E	510	400	225	12	460	M30	50	5	8	240	692	140	165	160	2	60	
X.31-448	3600	29448E	558	440	230	12	510	M36	60	5	8	290	697	170	197	180	1	60	
X.31-452	4400	29452E	620	480	245	12	550	M36	60	5	8	310	712	180	210	200	1	60	
X.35-440	3450	29440E	510	400	335	23	460	M30	50	10	8	200	840	130	147	195	2	60	
X.35-448	3600	29448E	570	440	340	23	510	M36	60	10	12	240	845	170	191	255	1	60	
X.35-452	4400	29452E	620	480	360	23	550	M36	60	10	12	260	865	190	213	285	1	60	
X.35-456	5200	29456E	680	520	395	27.5	600	M36	60	10	12	280	900	200	223	300	1	70	
X.36-440	3450	29440E	510	400	335	23	460	M30	50	10	8	200	840	130	147	195	2	60	
X.36-448	3600	29448E	570	440	340	23	510	M36	60	10	12	240	845	170	191	255	1	60	
X.36-452	4400	29452E	620	480	360	23	550	M36	60	10	12	260	865	190	213	285	1	60	
X.36-456	5200	29456E	680	520	395	27.5	600	M36	60	10	12	280	900	200	223	300	1	70	
X.40-448	3600	29448E	570	440	325	23	510	M36	60	10	12	240	835	170	191	255	2	60	
X.40-452	4400	29452E	620	480	355	23	550	M36	60	10	12	260	865	190	213	285	2	60	
X.40-456	5200	29456E	680	520	385	27.5	600	M36	60	10	12	280	895	200	223	300	1	70	
X.40-460	5200	29460E	700	540	410	32.5	620	M36	60	10	12	300	920	220	245	330	1	70	
X.42-452	4400	29452E	620	480	355	23	550	M36	60	10	12	260	930	190	213	285	2	60	
X.42-456	5200	29456E	680	520	385	27.5	600	M36	60	10	12	280	960	200	223	300	2	70	
X.42-460	5200	29460E	700	540	410	32.5	620	M36	60	10	12	300	985	220	245	330	1	70	
X.42-464	6000	29464E	800	650	445	33	720	M36	60	10	12	320	1020	240	267	360	1	80	
X.43-452	4400	29452E	620	480	355	23	550	M36	60	10	12	260	930	190	213	285	2	60	
X.43-456	5200	29456E	680	520	385	27.5	600	M36	60	10	12	280	960	200	223	300	2	70	
X.43-460	5200	29460E	700	540	410	32.5	620	M36	60	10	12	300	985	220	245	330	1	70	
X.43-464	6000	29464E	800	650	445	33	720	M36	60	10	12	320	1020	240	267	360	1	80	
X.45-456	5200	29456E	680	520	385	27.5	600	M36	60	10	12	280	965	200	223	300	2	70	
X.45-460	5200	29460E	700	540	410	32.5	620	M36	60	10	12	300	1010	220	245	330	2	70	
X.45-464	6000	29464E	800	650	445	33	720	M36	60	10	12	320	1045	240	267	360	1	80	
X.45-468	7200	29468E	860	700	500	40	780	M42	70	10	12	340	1100	250	277	375	1	80	
X.47-460	5200	29460E	700	540	410	32.5	620	M36	60	10	12	300	975	220	245	330	2	70	
X.47-464	6000	29464E	800	650	405	33	720	M36	60	10	12	320	1010	240	267	360	2	80	
X.47-468	7200	29468E	860	700	470	40	780	M42	70	10	12	340	1075	250	277	375	1	80	
X.47-472	6800	29472E	900	700	490	41.5	800	M42	70	10	12	360	1095	270	297	405	1	90	

THRUST BEARING AND HOLLOW SPLINE SHAFT

X2H - X3H



v= 8 Screws:

$\beta = 45^\circ$ $\beta_2 = 22.5^\circ$

v=12 Screws:

$\beta = 30^\circ$ $\beta_2 = 15^\circ$

THRUST BEARING AND HOLLOW SPLINE SHAFT

	Axial self-aligning roller bearing		Thrust bearing									Hollow Spline shaft					
	dyn. capacity [kN]	bearing size	D _T Ø	d _T Ø H7	L _T	f	d _L	d _G	t ₃	x	v	thread quantity	D _H Ø	L _H	d _i DIN 5480	d _{h max} Ø	L _i
X.18-420	1060	29420E	298	210	140	8	260	M20	35	5	8	120	469	N60x2x28	64	68	30
X.18-422	1260	29422E	330	230	145	8	280	M24	40	5	8	130	454	N70x2x34	74	78	30
X.18-424	1470	29424E	355	250	150	10	310	M24	40	5	8	150	459	N80x2x38	84	80	30
X.18-428	1720	29428E	378	280	170	10	340	M24	40	5	8	170	479	N80x2x38	84	80	30
X.19-420	1060	29420E	298	210	140	8	260	M20	35	5	8	120	469	N60x2x28	64	68	30
X.19-422	1260	29422E	330	230	145	8	280	M24	40	5	8	130	454	N70x2x34	74	78	30
X.19-424	1470	29424E	355	250	150	10	310	M24	40	5	8	150	459	N80x2x38	84	80	30
X.19-428	1720	29428E	378	280	170	10	340	M24	40	5	8	170	479	N85x2x41	89	80	30
X.20-424	1470	29424E	355	250	150	10	310	M24	40	5	8	150	484	N80x2.5x30	84	88	40
X.20-428	1720	29428E	378	280	170	10	340	M24	40	5	8	170	479	N90x2.5x34	94	85	40
X.20-430	2000	29430E	410	300	175	10	360	M24	40	5	8	180	484	N100x2.5x38	104	73	40
X.22-428	1720	29428E	378	280	170	10	340	M24	40	5	8	170	543	N90x2.5x34	94	95	40
X.22-430	2000	29430E	410	300	175	10	360	M24	40	5	8	180	548	N100x2.5x38	105	90	40
X.22-434	2550	29434E	468	365	205	10	400	M24	40	5	8	170	572	N110x2.5x42	115	83	55
X.22-436	2850	29436E	468	360	205	10	420	M30	50	5	8	220	578	N120x2.5x46	125	73	40
X.25-434	2550	29434E	468	365	205	10	400	M24	40	5	8	190	600	N120x2.5x46	125	100	55
X.25-436	2850	29436E	468	360	205	10	420	M30	50	5	8	220	606	N130x2.5x50	135	93	50
X.25-440	3450	29440E	510	400	225	12	460	M30	50	5	8	240	626	N140x2.5x45	145	70	50
X.26-436	2850	29436E	468	360	205	10	420	M30	50	5	8	220	670	N130x2.5x50	134	110	60
X.26-440	3450	29440E	510	400	225	12	460	M30	60	5	8	240	690	N140x2.5x45	144	90	60
X.26-448	3600	29448E	558	440	230	12	510	M36	60	5	8	290	695	N160x3x52	164	83	60
X.28-436	2850	29436E	468	360	205	10	420	M30	50	5	8	220	670	N130x2.5x50	135	110	60
X.28-440	3450	29440E	510	400	225	12	460	M30	60	5	8	240	690	N140x2.5x45	145	90	60
X.28-448	3600	29448E	558	440	230	12	510	M36	60	5	8	290	695	N160x3x52	165	83	60
X.31-440	3450	29440E	510	400	225	12	460	M30	50	5	8	240	692	N140x3x45	145	120	60
X.31-448	3600	29448E	558	440	230	12	510	M36	60	5	8	290	697	N160x3x52	165	110	60
X.31-452	4400	29452E	620	480	245	12	550	M36	60	5	8	310	712	N170x3x55	175	100	60
X.35-440	3450	29440E	510	400	335	23	460	M30	50	10	8	200	840	N120x3x38	125	125	60
X.35-448	3600	29448E	570	440	340	23	510	M36	60	10	12	240	845	N160x3x52	165	110	60
X.35-452	4400	29452E	620	480	360	23	550	M36	60	10	12	260	865	N170x3x55	175	100	60
X.35-456	5200	29456E	680	520	395	27.5	600	M36	60	10	12	280	900	N190x3x62	195	93	70
X.36-440	3450	29440E	510	400	335	23	460	M30	50	10	8	200	840	N120x3x38	125	125	60
X.36-448	3600	29448E	570	440	340	23	510	M36	60	10	12	240	845	N160x3x52	165	125	60
X.36-452	4400	29452E	620	480	360	23	550	M36	60	10	12	260	865	N170x3x55	175	110	60
X.36-456	5200	29456E	680	520	395	27.5	600	M36	60	10	12	280	900	N190x3x62	195	100	70
X.40-448	3600	29448E	570	440	325	23	510	M36	60	10	12	240	835	N160x3x52	165	135	60
X.40-452	4400	29452E	620	480	355	23	550	M36	60	10	12	260	865	N170x3x55	175	135	60
X.40-456	5200	29456E	680	520	385	27.5	600	M36	60	10	12	280	895	N190x5x36	195	135	70
X.40-460	5200	29460E	700	540	410	32.5	620	M36	60	10	12	300	920	N210x5x40	215	110	70
X.42-452	4400	29452E	620	480	355	23	550	M36	60	10	12	260	930	N180x5x34	185	165	60
X.42-456	5200	29456E	680	520	385	27.5	600	M36	60	10	12	280	960	N190x5x36	195	165	70
X.42-460	5200	29460E	700	540	410	32.5	620	M36	60	10	12	300	985	N210x5x40	215	135	70
X.42-464	6000	29464E	800	650	445	33	720	M36	60	10	12	320	1020	N220x5x42	225	115	80
X.43-452	4400	29452E	620	480	355	23	550	M36	60	10	12	260	930	N180x5x34	185	165	60
X.43-456	5200	29456E	680	520	385	27.5	600	M36	60	10	12	280	960	N190x5x36	195	165	70
X.43-460	5200	29460E	700	540	410	32.5	620	M36	60	10	12	300	985	N210x5x40	215	135	70
X.43-464	6000	29464E	800	650	445	33	720	M36	60	10	12	320	1020	N220x5x42	225	115	80
X.45-456	5200	29456E	680	520	385	27.5	600	M36	60	10	12	280	965	N190x5x36	195	185	70
X.45-460	5200	29460E	700	540	410	32.5	620	M36	60	10	12	300	1010	N210x5x40	215	155	70
X.45-464	6000	29464E	800	650	445	33	720	M36	60	10	12	320	1045	N220x5x42	225	135	80
X.45-468	7200	29468E	860	700	500	40	780	M42	70	10	12	340	1100	N240x5x46	245	125	80
X.47-460	5200	29460E	700	540	370	32.5	620	M36	60	10	12	300	975	N210x5x40	215	205	70
X.47-464	6000	29464E	800	650	405	33	720	M36	60	10	12	320	1010	N220x5x42	225	165	80
X.47-468	7200	29468E	860	700	470	40	780	M42	70	10	12	340	1075	N240x5x46	245	145	80
X.47-472	6800	29472E	900	700	490	41.5	800	M42	70	10	12	360	1095	N260x5x50	265	135	90

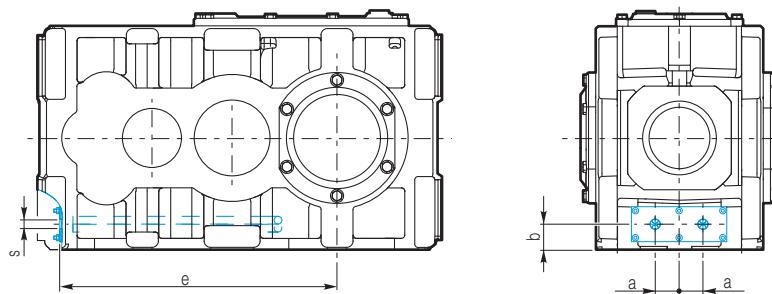




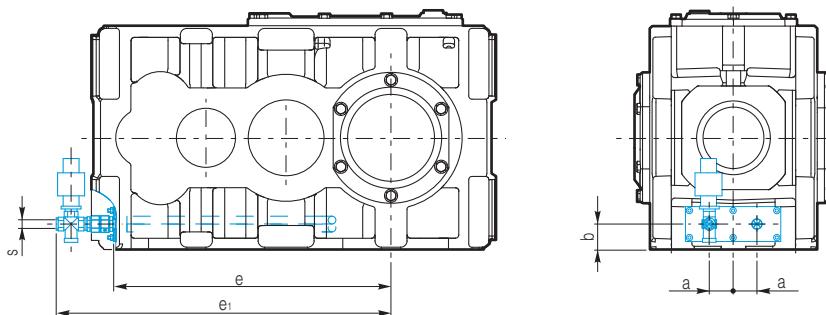
Type	Page
Cooling coil	116
Heater	117
Lubrication	118
Breather with filter	119
Breather with wet filter	119
Temperature switch	119
Pressure switch	119
PT100	120
Manometer	120
Oil level switch	120
Oil drain with ball valve	120
Oil filter, single, double	121
Regulator for quantity of cooling water	121

X2H, X3H .. -R1, S5 - T6

**Water connection for cooling coil
without cooling water controller**

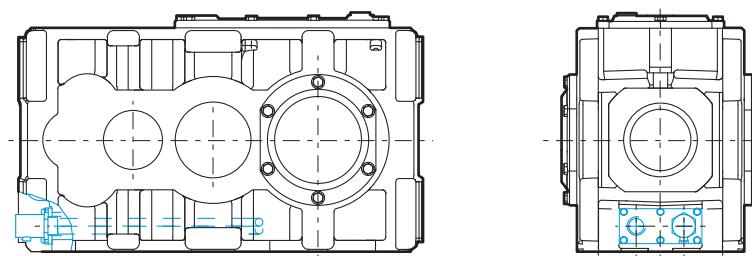


**Water connection for cooling coil
with cooling water controller**



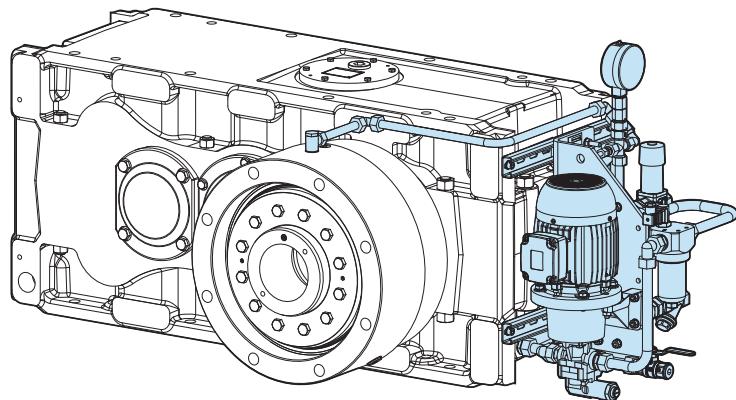
	a	b	e	e ₁	s	V Water l/min	Δ p W bar
X2H X3H	18	32,5	45	462	582	G 3/4"	8
	19	32,5	40	506	626		16
	20	32,5	50	516	636		6
	22	42,5	55	579	699		8
	25	42,5	55	649	769		16
	26	55	65	696	816		8
	28	55	65	696	816		8
	31	55	70	760	880		16
X2H X3H	35	50	52	935	1055	G 3/4"	16
	36	50	78	965	1085		16
	40	50	84	1012	1132		16
	42	50	68,5	1115	1276		16
	43	50	75	1152	1313		16
	45	50	85	1181	1342		16
	47	50	85	1267	1387		16

X2H, X3H .. -R1, S5 - T6

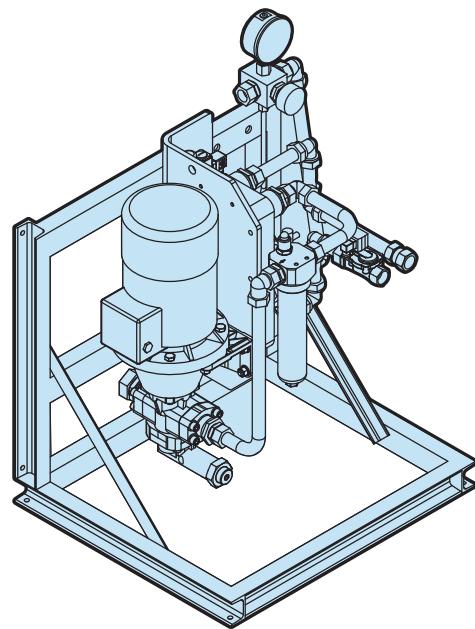


X2H-X3H ..-R1

Cooling and lubricating system fastened to the gear unit: With pressure lubrication (motor pump) and plate cooler



Separate cooling and lubrication system



Dimensions on request

X2H, X3H**Breather with filter**

A breather with a filter can be used to prevent dust from entering the gearbox while the gear unit is cooling down.

**Breather with wet filter**

If the humidity is high, we recommend a breather with wet filter to prevent water vapor from penetrating the gear oil.

**Temperature switch**

To control the max. oil temperature there is the possibility to install a Temperature switch into the oil sump and get output signal when the temperature is above certain level.

**Pressure switch**

In case of a force lubrication or cooling unit there is the possibility to control the oil pressure with a pressure switch. If the oil pressure is below certain pressure a signal will stop the main motor of the gearbox.

X2H-X3H**PT100**

To monitor the oil temperatures on the gearbox, and set up different level of attention at certain temperature, for instance start, alert and stop of the gearbox.

**Manometer**

In case of a force lubrication or cooling unit there is the possibility to have visual control the oil pressure with a manometer.

**Oil level switch**

With the oil level switch is it possible to control the min. oil level of the gearbox in case you use a heater.

**Oil drain with ball valve**

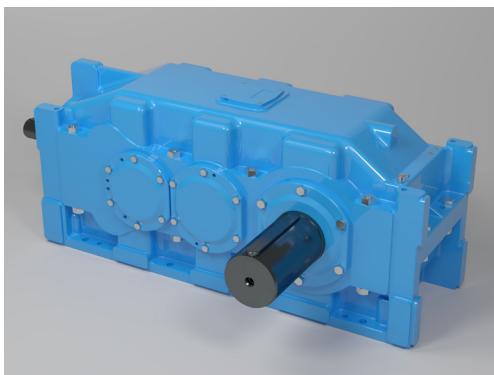
For an easy, safe and clean oil drain from the gearbox, we can deliver an oil drain with a ball valve

X2H, X3H**Oil filter, single, double**

To increase the bearing lifetime is it possible in case of force lubrication / cooling to use an oil filter. We recommend a double switching filter for 24 hours operation.

**Regulator for quantity of cooling water**

In order to have a constant gear oil temperature with water cooling, we recommend the installation of a water regulator.

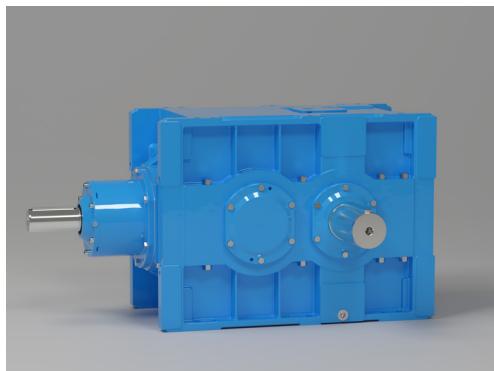
**Brevini EvoMax™**

The Brevini EvoMax™ gearbox series is a further development of the POSIRED 2 series from PIV Drives GmbH. The development has incorporated over 90 years of application knowledge and customer feedback and the outcome is a series of highly reliable, efficient and economical products.

The development of the Brevini EvoMax™ gearbox series enabled the improvement in torque density, smaller physical envelope, higher efficiency, lower weight, noise and power consumption. Overall, the modular design of the Brevini EvoMax™ series gives sustainable and efficient transmission that minimize operating costs and maximize availability.

Torque range 10 kNm up to 290kNm

Ratios from 4 up to 500

**Brevini Posired 2 PB - PLB**

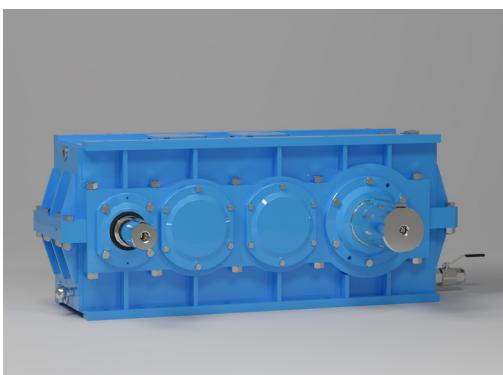
The Posired 2 is a bevel-helical gearbox series with 2, 3 and 4 helical bevel helical gear stages. The gearbox based on the modular system of Brevini EvoMax™ .

Torque range from 340 kNm up to 805 kNm.

Ratios up to 560.

**High Power**

The High Power is a compact bevel-helical gearbox with a planetary gearbox on the output.
Torque range from 90 kNm up to 2.100 kNm
Ratios up to 8.000

**POSIRED N**

The POSIRED N is a helical gearbox with an extended center distance
Torquerange 8 kNm up to 290 kNm
Ratios from 12,5 up to 500

**POSIRED TS**

The POSIRED TS is helical gearbox with two counter rotating output shafts.
Torquerange 1 kNm up to 110 kNm
Ratios from 5 up to 100

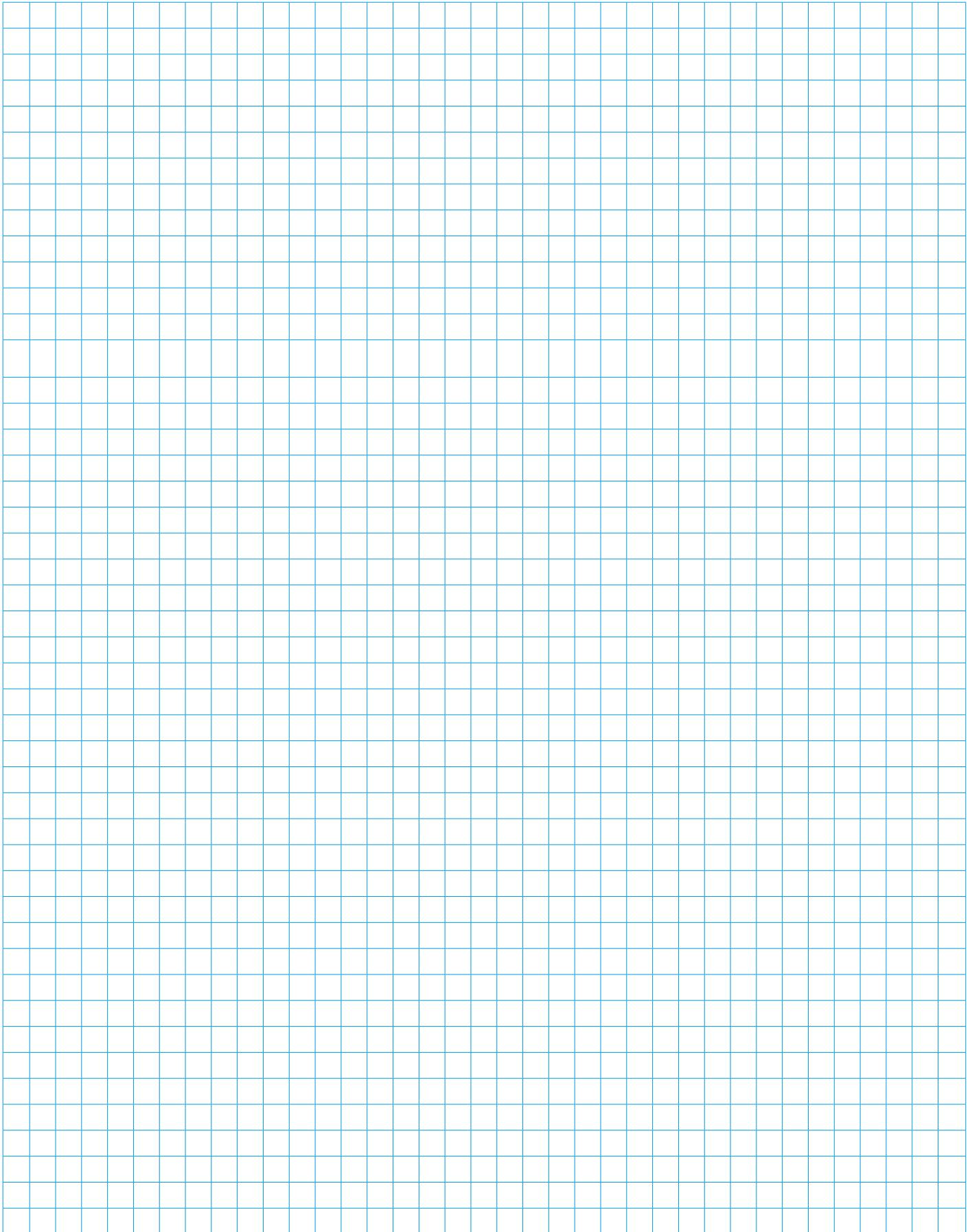
	SI system into Imperial System	Imperial System into SI System
Power rating	kW x 1.341 = HP	HP x 0.7457 = kW
Torque	Nm x 8.851 = in-lbs Nm x 0.7375 = ft-lbs	in-lbs x 0.113 = Nm ft-lbs x 1.356 = Nm
Force	N x 0.2248 = lbs	lbs x 4.4482 = N
Stress	N/mm ² x 0.00689 = lbs/in ² (psi)	lbs/in ² x 145.04 = N/mm ²
Mass moment of inertia	kgm ² x 23.73 = lb-ft ²	lb-ft ² (psi) x 0.0421 = kgm ²
Lenght	mm x 0.03937 = inches m x 39.3701 = inches m x 3.2808 = foot μm x 0.03937 = mil (0.001 in)	inches x 25.4 = mm inches x 0.0254 = m foot x 0.3048 = m mil (0.001 in) x 25.4 = μm
Weight (mass)	kg x 2.205 = lbs	lbs x 0.4536 = kg
Volume	l x 0.264 = US gal	US gal x 3.785 = l
Volume flow rate	l/min x 0.264 = gal/min (GPM) m ³ /h x 0.2271 = gal/min (GPM)	gal/min (GPM) x 3.785 = l/min gal/min (GPM) x 4.403 = m ³ /h
Velocity	m/s x 196.85 = ft/min	ft/min x 0.0051 = m/s

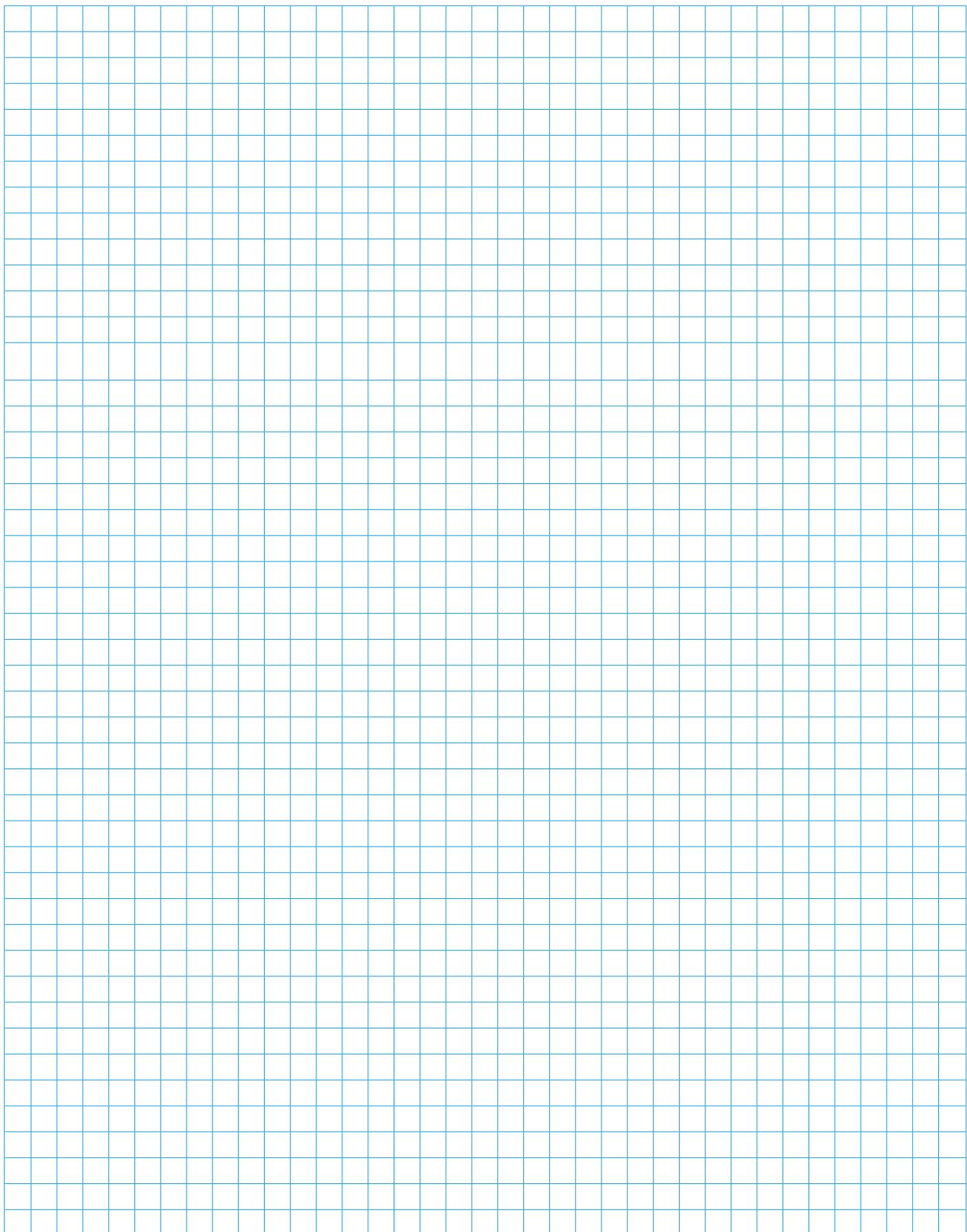
Symbol	Name	Symbol	Name	Approximate temperature	
				°C	deg F
Nm	Newton-Meter	in-lbs	inch pounds	20	68
N/mm ²	Newton/Millimeter ²	ft-lbs	foot pounds	27	80
kgm ²	Kilogramm-Meter ²	lbs/in ² (psi)	pounds/inch ²	38	100
m	Meter	in	inches	-18	0
mm	Millimeter (0.001 Meter)	ft	foot	-12	10
μm	Mikrometer (0.001 Millimeter)	mil	0.001 inch	-7	20
kg	Kilogramm	lbs	pounds	0	32
kW	Kilowatt	HP	horsepower	4	40
N	Newton			15	60
l	Liter	lb-ft ²	pound foot ²	49	120
l/min	Liter/Minute	US gal	US gallons	60	140
m ³ /h	Meter ³ /Stunde	gal/min (GPM)	gallons/minute	77	170
m/s	Meter/Sekunde	ft/min	foot/minute	93	200

Torque calculation			
SI system		Imperial System	
$T = 9550 \times \frac{P}{n}$ [Nm]	P in kW n in min ⁻¹	$T = 5252 \times \frac{P}{n}$ [ft-lbs] $T = 63025 \times \frac{P}{n}$ [in-lbs]	P in HP n in rpm
$T = 159.2 \times \frac{P}{n}$ [Nm]	P in kW n in 1/s	$T = 87.53 \times \frac{P}{n}$ [ft-lbs] $T = 1050.42 \times \frac{P}{n}$ [in-lbs]	P in HP n in rps









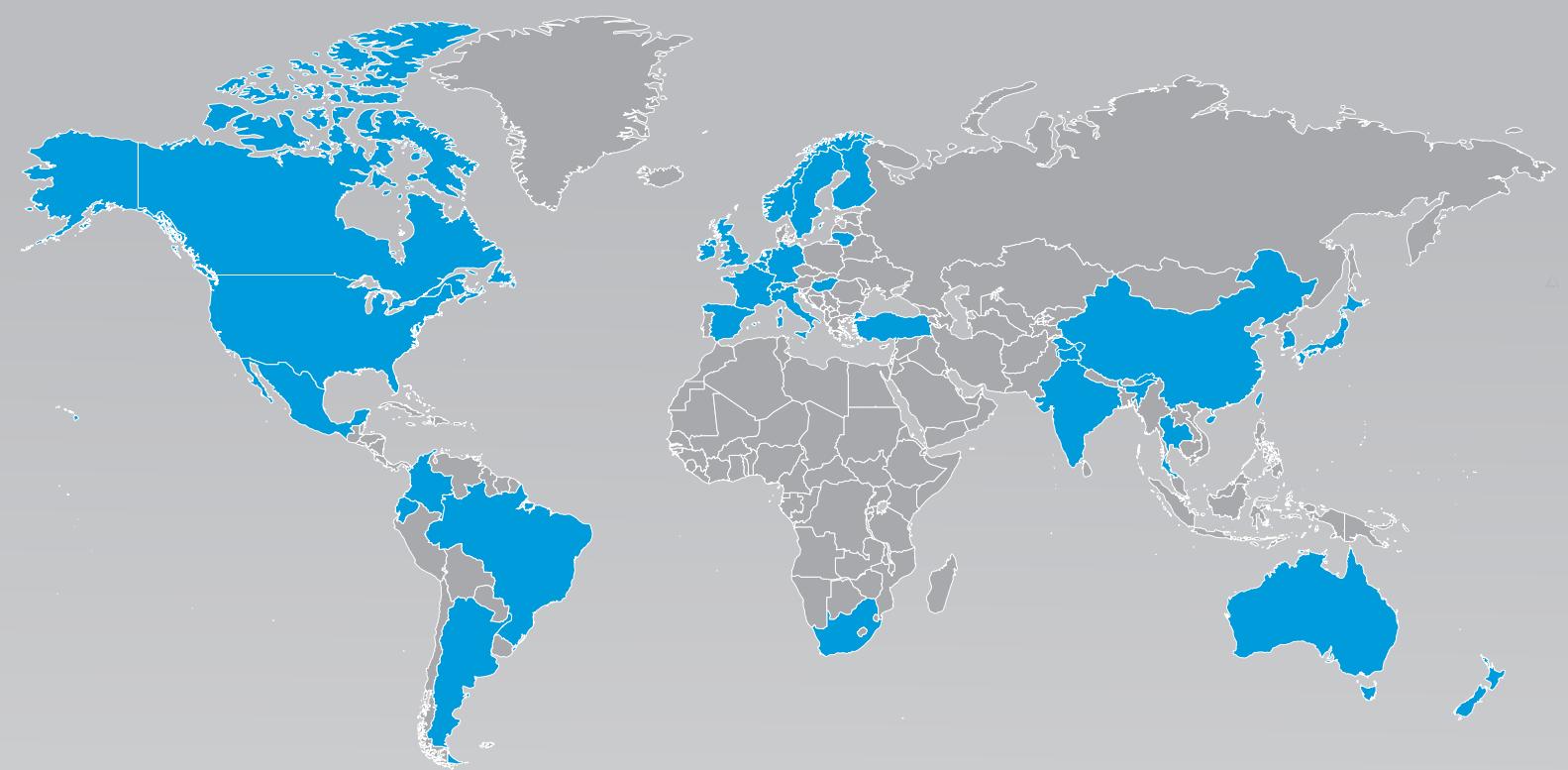
© 2024 Dana Limited. All rights reserved.

The reproduction, distribution and utilization of this document as well as the communication of its contents to others without explicit authorization is prohibited.

Offenders will be held liable for the payment of damages. All rights reserved in the event of the grant of a patent, utility model or design.

We reserve the right to change or modify our product specifications, configurations, or dimensions at any time without notice.





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.

Dana-Industrial.com

Application Policy

Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana; contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions at any time without notice.

