DANA BREVINI® Motion Systems

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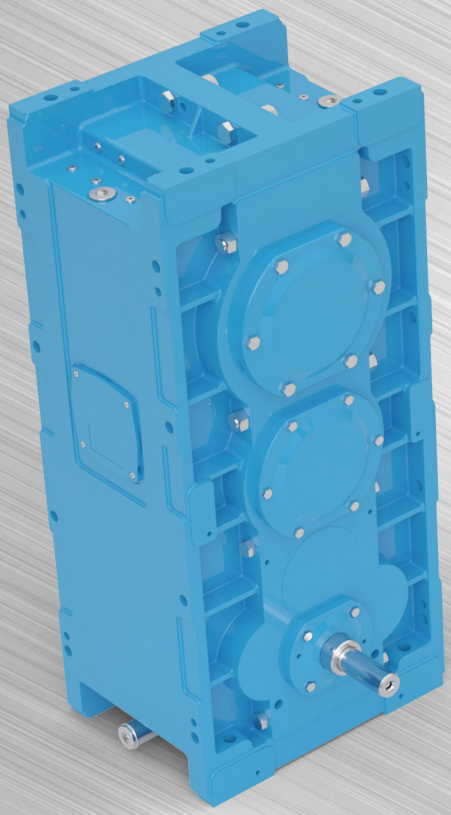
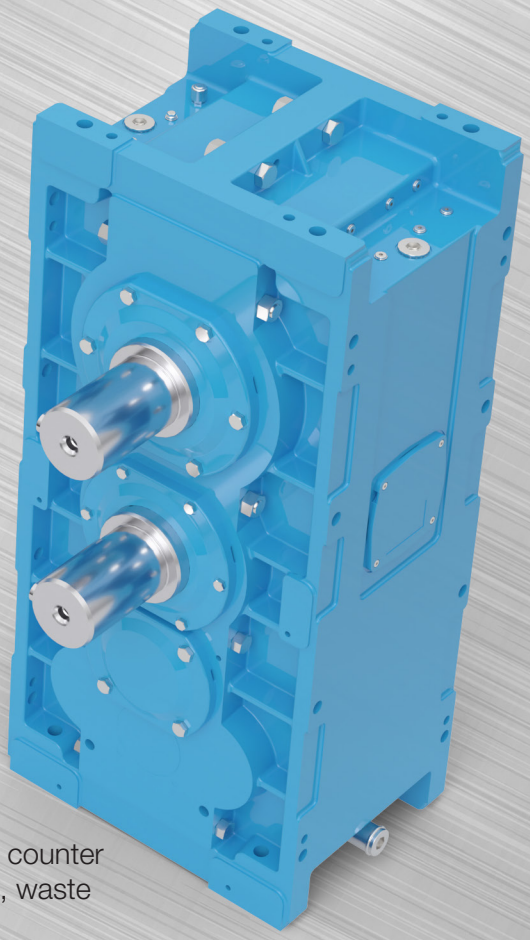
10 2024

Product Catalog

Brevini® Helical Gearboxes
Posired TS Series

Helical gear units with 2 counter rotating output shafts





Helical solutions

The Brevini® Posired TS gearboxes are designed with 2 counter rotating output shafts for heavy duty application in steel, waste management industry application.
They ensure high performaces in demanding applictions based on their modularity and wide range of combinations.


DANA
BREVINI®
Motion Systems

Brevini® POSIRED TS

Overview

The Brevini® Posired TS 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 Brevini® Posired TS 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® Posired TS 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.

Brevini® Posired TS
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

Technical features

Designs

- 9 sizes based on a modular concept
- 2 output shaft, counter rotating, ratio 1:1, (other ratios on request)
- Centre distance of the output shafts between 166 mm and 656 mm

Versions

- For horizontal vertical and standing installations

Gears

- Helical gears for reduced noise case hardened (in our own hardened bay) and ground
- Profile correction for optimum load-bearing capacity
- Proofs of calculation as per DIN 3990 AGMA and classification company standards are possible

Casings

- Up to size 28 monobloc housing
- Size 35 up to 63 with centre line split on shaft centres
- Ease of assembly and dismantling
- Design in accordance with the latest trend in acoustics

Material

- Housings as standard. grey cast iron or spheroidal graphite housings, fabricated steel on request

Shafts
available as standard on the output shaft:

- Solid shaft with key
- Solid shaft with spline on request

Input Shaft Design

- Solid shaft with key
- With helical gearboxes, double extended input shaft
- Keys according to DIN 6885/1 are included in the scope of delivery
- Centering bores on the shaft ends are designed according to DIN 332 Form DS

Couplings
adapted to the output shaft and standard driven shaft. Rated to suit output torque:
- Elastic couplings
- Other coupling types on request

Adapted to the input shaft and standard driving shaft to suit input torque:
- Elastic couplings
- Drum - and disk brakes
- Other coupling types on request

Seals
Seal systems available as standard for both input and output shafts:
- Radial shaft seals in various material
- Radial shaft seals with additional dust lip
- Second radial shaft seal with intermediate grease filled chamber maintenance covers for replacement split seals

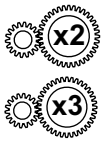
Lubrication
- Gears and rolling element bearings are splash lubricated as standard
- Force fed lubrication systems via shaft or motor driven pump are available as options
- Oil dipstick is standard

Cooling
Additional cooling devices available as standard:
- Shaft driven fan cooling
- Cooling coil
- External oil coolers (oil/water or oil/air coolers)

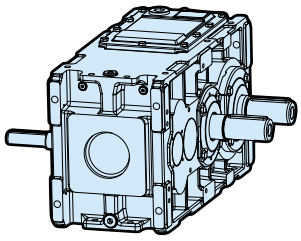
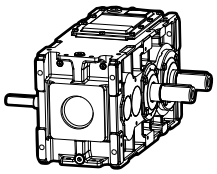
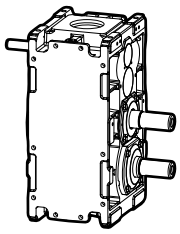
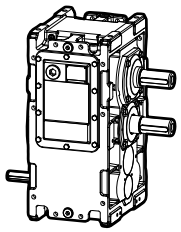
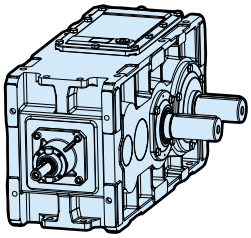
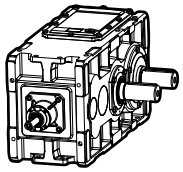
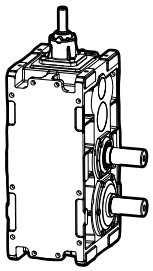
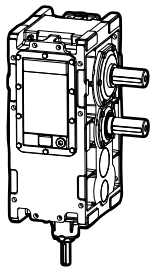
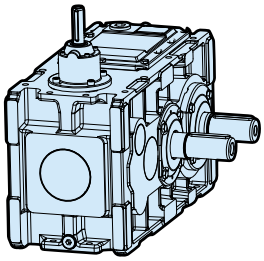
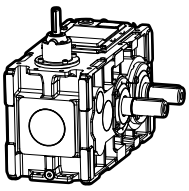
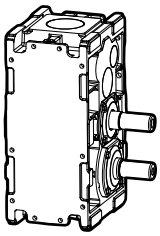
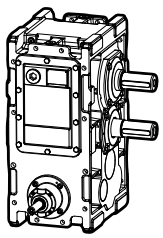
Accessories
- Heating elements
- Operational monitoring systems (among others for speed and torque)
- Diagnostic systems

General Points
- Dimension prints available as CAD files for various DV systems and interfaces
- Computer programmes for drive selection
- Extent of supply – putting into operation
- The units are supplied without oil fill; Oil type and quantity as per units data plate
- Standard conservation for normal transport conditions and storage for a 6 months period
- Installation and setting up in accordance with PIV operating manuals: 999-9999-DOK001 and 430-0000-DOK001
- Protection against accidental contact with moving parts as required by law is not included in the supply (exception: hollow shaft gears are supplied with a protective cover for the shrink disc)
- The standard color is RAL 5012, other colors are available
- Protection covers and air guides painted in RAL 1003 (signal yellow)

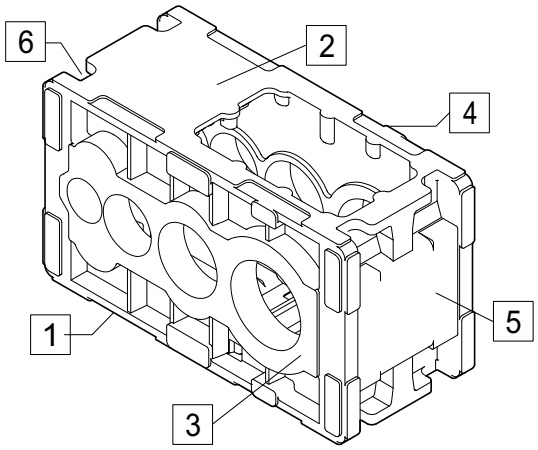
Referenced standards
- Gearing performance calculated according ISO 6336-96
- Bearing life calculated according ISO 281-95
- Motor couplings according IEC 722
- Keyhole and keyway as for UNI 6604
- Splined shafts as for DIN 5480 / 5482
- Male input shafts as for DIN 332

Symbology	
Symbols identifying the gear unit stages (2, 3)	
Symbol describing kind of output shaft: **V** = Solid shaft	
Gear unit weight [kg]	
Oil quantity in liters [l]	
Oil breather and filling plug	
Oil level	
Oil drain	

Reference to page	

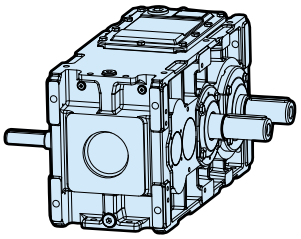
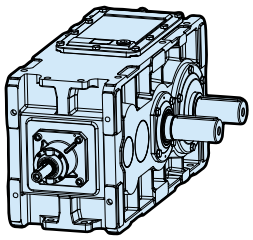
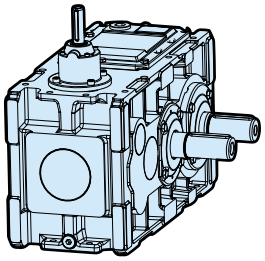
Construction types	Mounting positions		
	R	**S**	**T**
	Horizontal, output shaft horizontal	Vertical, output shaft below	Vertical, output shaft above
P2C, P2D	**Helical gear units**		
			
P2LC	**Bevel-helical gear units**		
			
P2WC	**Bevel-helical gear units**		
			

HOUSING SURFACES

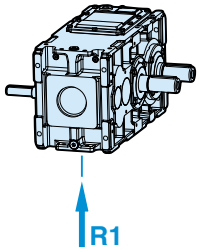


Designation of housing surfaces (1, 2, 3, 4, 5, 6).
Permissible mounting positions: see dimension sheets.

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

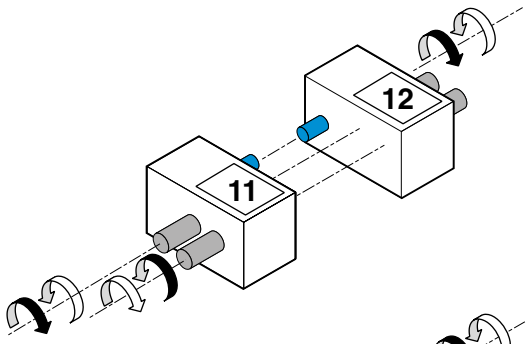
Type		Mounting positions and surfaces		Page
Helical gears		**P2C** **P2D**	**R1** **S5** **T6**	26 28
Bevel-helical gears		**P2LC**	**R1** **S5** **T6**	30
Bevel-helical gears		**P2WC**	**R1** **S5** **T6**	32

P2C, P2D

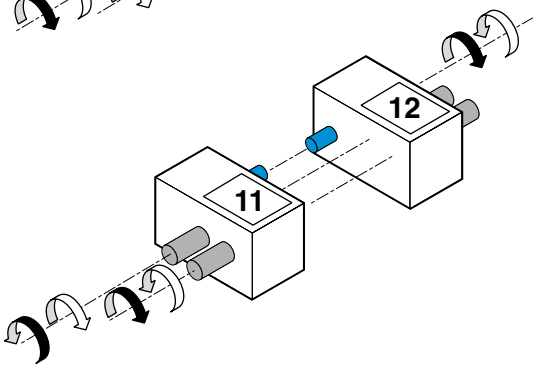


R1 : Mounting positions and surface below

P2C

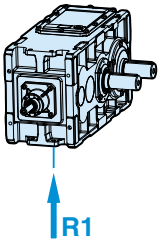


P2D

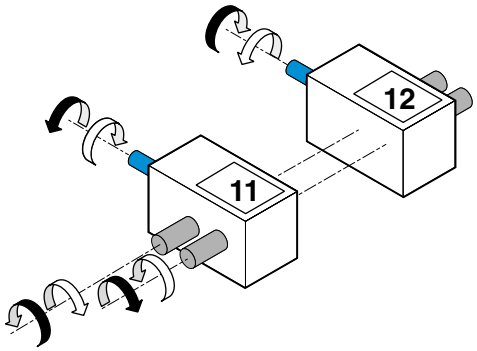


SHAFT ARRANGEMENT AND SENSE OF ROTATION

P2LC

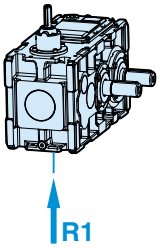


R1: Mounting positions and surface below

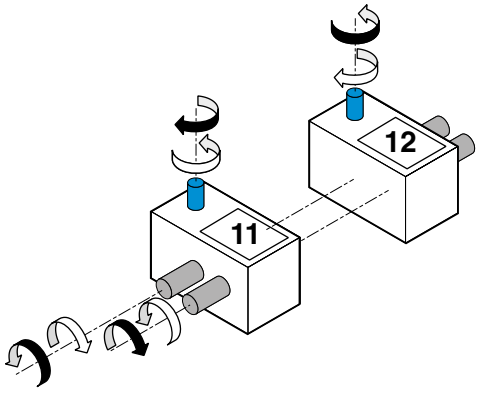


P2LC

P2WC

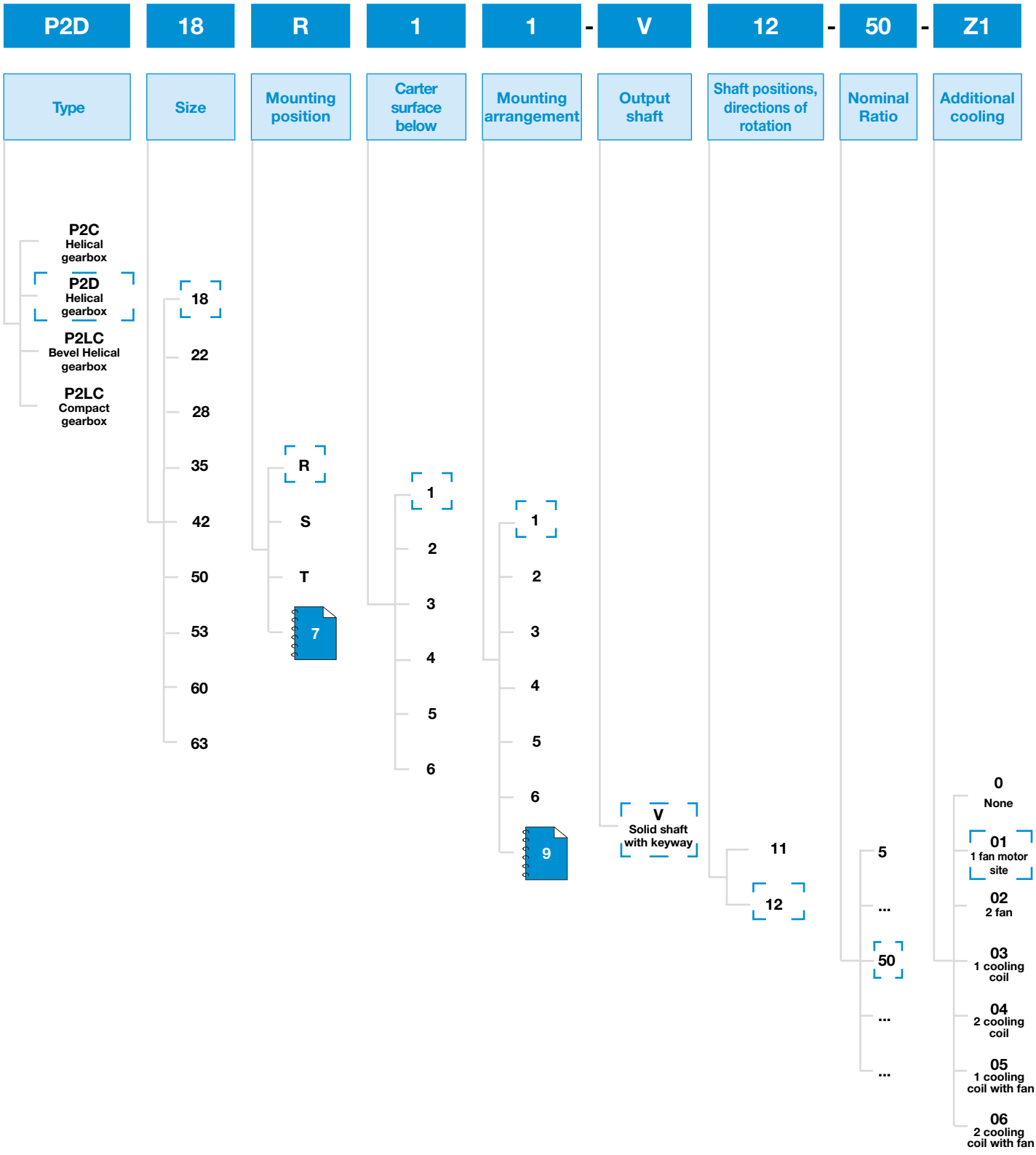


R1: Mounting positions and surface below



P2WC

DESIGNATION FOR ORDER



Description	Unit	Symbol
Output speed	[rpm]	n_2
Speed of the extruder screw	[rpm]	n_s
Required ratio		i_{soli}
Nominal gearbox ratio		i_N
Actual ratio		i_W
Motor power	[kW]	P_M
Nominal gearbox power output	[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 air cooling	[kW]	P_{t1}
Thermal capacity with cooling coil	[kW]	P_{t3}
Thermal capacity with air cooling and cooling coil	[kW]	P_{t4}
Demand torque	[Nm]	T_2
Nominal gearbox torque	[Nm]	T_{2N}
Start-up or maximum motor or braking torque	[Nm]	T_{MAX}
Load factor		f_A
Gear unit application factor		k_A
Operating frequency factor		f_E
Reversal factor		f_R
Thermal Factor		f_W
Ambient temperature	[°C]	ϑ_U
Average air speed	[m/s]	v_W
Duty cycle per hour	[%]	ED

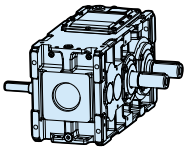
Design Example

Driven Machine: 2 roller calender
Required output power: $\mathbf{P_e}$ = 50 kW
Speed: $\mathbf{n_2}$ = 28 rpm
Duty cycle: **ED** = 100 %
Starts per hour: 1
Daily operation duration: 24 h/day
Ambient temperature: ϑ_U = 30 °C
Installation: Indoor, at sea level

Prime mover:
Three-phase electric motor
Motor output: $\mathbf{P_M}$ = 55 kW
Motor speed: $\mathbf{n_1}$ = 1500 rpm
Max. motor torque: $\mathbf{T_{max}}$ = 560 Nm

1 Establish the type of gear unit and mounting arrangement

A helical gear unit for horizotal installation is required

Type		Size	i_N	T_{2N} [kNm]	Efficiency η	Page
 Helical gear units	P2C	18	5 - 31.5	8.6 - 87	0.96	18
		22	6.3 - 22.4	24 - 132		
		28	5 - 31.5	33 - 300		
		35	5 - 31.5	60 -582		
		42	5 - 31.5	105 - 1.031		
		50	5 - 31.5	203 - 1.900		
		53	5 - 31.5	203 - 1.900		
		60	5 - 31.5	356 - 3.370		
		63	5 - 31.5	356 - 3.370		
	P2D	18	28 - 100	2.7 - 15	0.97	19
		22	22.4 - 140	3.9 - 37		
		28	22.4 - 140	7.3 - 68		
		35	22.4 - 140	13 - 131		
		42	22.4 - 140	23 - 232		
		50	22.4 - 140	45 - 429		
		53	22.4 - 140	45 - 429		
		60	22.4 - 140	80 - 760		

2 Define the ratio required

$i = n_1 / n_2 = 1500 / 100 = 53.6$

The power data page 17 comes up with a type P2D

P2D Power

i_N	n_1 [min^{-1}]	n_2 [min^{-1}]	P2D 18	22	28	35	42	50	53	60	63	Size
22.4	1500	67		37	68	131	232	429	429	760	760	
	1000	44.5		25	45	87	155	286	286	507	507	
25	1500	60		33	65	119	206	381	381	674	674	
	1000	40		22	43	79	137	254	254	450	450	
28	1500	54	15	29	56	100	182	338	338	600	600	
	1000	35.5	10	19	37	66	121	225	225	400	400	
31.5	1500	47.5	13	26	48	93	165	304	304	540	540	
	1000	31.5	8.7	17	32	62	110	203	203	360	360	
35.5	1500	42.5	11.5	24	47	85	147	272	272	482	482	
	1000	28	7.6	16	31	57	98	181	181	321	321	
40	1500	37.5	10.3	21	40	72	131	244	244	432	432	
	1000	25	6.6	14	27	48	87	163	163	288	288	
45	1500	33.5	9.9	19	36	64	113	217	217	384	384	
	1000	22.2	6.6	13	24	43	75	145	145	256	256	
50	1500	30	8.2	17	33	59	103	190	190	337	337	
	1000	20	5.5	11	22	39	69	127	127	225	225	
56	1500	27	7.1	14	28	50	91	169	169	300	300	P_N [kW]
	1000	17.9	4.7	9.6	19	33	61	113	113	200	200	
63	1500	23.8	6.4	13	25	45	79	152	152	269	269	
	1000	16	4.3	8.7	17	30	53	101	101	182	182	
71	1500	21	6.2	12	22	42	74	136	136	241	241	
	1000	14	4.1	8.0	14	28	49	91	91	161	161	

3 Define Application factor

K_A = 1.5 (in case of experience, calender drives, from tabel 1)

Table 1: Possible applications	Ger unit application factor **K_A**
Pinion stand plants	1.6 - 1.8
Straiteners	1.6
Profile roller mills	1.6 - 1.6
Double shaft kneaders	1.5 - 1.8
Calender drives	1.5
Roller moulding machine	1.6
Double sceen head extruders	1.8 - 2.0

4 Define the nominal power of the gear box

$P_N \geq P_e \cdot K_A = 50 \cdot 1.5 = 75$ kW

5 Determine the gearbox size

Selection: **P2D 42** with **P_N = 91 kW**

P2D Power

i_N	n_1 [min^{-1}]	n_2 [min^{-1}]	18	22	28	35	**P2D 42**	50	53	60	63	Size
22.4	1500	67		37	68	131	232	429	429	760	760	
	1000	44.5		25	45	87	155	286	286	507	507	
25	1500	60		33	65	119	206	381	381	674	674	
	1000	40		22	43	79	137	254	254	450	450	
28	1500	54	15	29	56	100	182	338	338	600	600	
	1000	35.5	10	19	37	66	121	225	225	400	400	
31.5	1500	47.5	13	26	48	93	165	304	304	540	540	
	1000	31.5	8.7	17	32	62	110	203	203	360	360	
35.5	1500	42.5	11.5	24	47	85	147	272	272	482	482	
	1000	28	7.6	16	31	57	98	181	181	321	321	
40	1500	37.5	10.3	21	40	72	131	244	244	432	432	
	1000	25	6.6	14	27	48	87	163	163	288	288	
45	1500	33.5	9.9	19	36	64	113	217	217	384	384	
	1000	22.2	6.6	13	24	43	75	145	145	256	256	
50	1500	30	8.2	17	33	59	103	190	190	337	337	
	1000	20	5.5	11	22	39	69	127	127	225	225	
56	1500	27	7.1	14	28	50	91	169	169	300	300	**P_N** [kW]
	1000	17.9	4.7	9.6	19	33	61	113	113	200	200	
63	1500	23.8	6.4	13	25	45	79	152	152	269	269	
	1000	16	4.3	8.7	17	30	53	101	101	182	182	
71	1500	21	6.2	12	22	42	74	136	136	241	241	
	1000	14	4.1	8.0	14	28	49	91	91	161	161	

6 Checking the peak torque

$T_{MAX} \geq (9550 \cdot P_N) / (n_1 \cdot f_E \cdot f_R) = (9550 \cdot 91\text{ kW}) / (1500\text{ rpm} \cdot 2 \cdot 1) = 1159$ Nm

where:
f_E = 1.5 (from tabel 2)
f_R = 1.0 (from tabel 3)

Table 2: Operating frequency factor **f_E**					
2	**1.6**	**1.4**	**1.2**	**1.1**	**1**
with ... load peaks per hour					
1	2-10	11-20	21-50	51-100	>100

Table 3: Reversal factor **f_R**		
1.0	0.85	0.7
Steady direction of load	Alternating direction of load	Reversing operations

T_{MAX} = 560 < 1159 Nm

7	Checking the thermal capacity:

$P_e \geq P_t$

with:
$P_t = P_t \cdot f_A \cdot f_w$

where P_t:
P_{t0} Thermal capacity without addition cooling
P_{t1} Thermal capacity with fan
P_{t3} Thermal capacity with cooling coil
P_{t4} Thermal capacity with fan and cooling coil

f_A = 0.915 (from tabel 5) for P_e / P_N = (50 / 91) · 100 % = 55 %
f_w = 0.86 (from tabel 4) for ϑ_U = 30°C and ED = 100 %

Table 4: thermal factor **f_w**

ϑ_U [°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

Table 5: thermal factor **f_A**

Charge P_e / P_N [%]									
20	30	40	50	60	70	80	90	100
0.7	0.8	0.86	0.9	0.93	0.96	0.98	0.99	1

Utilisation < 20%: question required

Gear units without additional cooling with P_{t0} = 108 kW:

P_t = 108 · 0.915 · 0.86 = 85 kW

P_e = 50 kW < 85 kW

No additional cooling is necessary.

P2D .. -R1

v_w [m/s]	n_1 [min^{-1}]	Size 18	22	28	35 [4]	42 [4]	50 [4]	53 [4]	60 [4]	63 [4]
		P_{t0} [kW]								
0.5 [1]	–	25	39	55	84	108	157	186	235	268
1.2 [2]	–	35	54	77	116	150	218	258	326	372
4.0 [3]	–	45	69	99	148	192	279	330	417	746
		P_{t3} [kW]								
0.5 [1]	–	57	101	173	244	384	585	740	789	822
1.2 [2]	–	67	116	185	276	406	646	812	880	926
4.0 [3]	–	77	131	217	308	448	707	884	971	1030

Selected gearbox is:

P2D	42	R	1	1	-	V	12	-	56	-	Z0
Type	Size	Mounting position	Carter surface below	Mounting arrangement		Output shaft	Shaft positions, directions of rotation		Nominal Ratio		OPT

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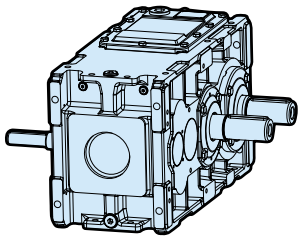
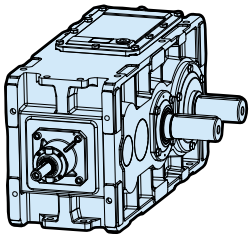
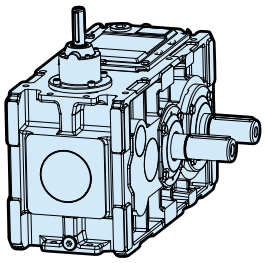
Type		Size	i_N	T_{2N} [kNm]	Efficiency η	Page
 Helical gear units	P2C	18	5 - 31.5	8.6 - 87	0.96	18
		22	6.3 - 22.4	24 - 132		
		28	5 - 31.5	33 - 300		
		35	5 - 31.5	60 -582		
		42	5 - 31.5	105 - 1.031		
		50	5 - 31.5	203 - 1.900		
		53	5 - 31.5	203 - 1.900		
		60	5 - 31.5	356 - 3.370		
		63	5 - 31.5	356 - 3.370		
	P2D	18	28 - 100	2.7 - 15	0.97	19
		22	22.4 - 140	3.9 - 37		
		28	22.4 - 140	7.3 - 68		
		35	22.4 - 140	13 - 131		
		42	22.4 - 140	23 - 232		
		50	22.4 - 140	45 - 429		
		53	22.4 - 140	45 - 429		
		60	22.4 - 140	80 - 760		
		63	22.4 - 140	80 - 760		
 Bevel-helical gear units	P2LC	18	25 - 100	2.7 - 17	0.95	20
		22	25 - 100	5.5 - 33		
		28	25 - 100	11 - 67		
		35	25 - 100	19 - 116		
		42	25 - 100	33 - 206		
		50	25 - 100	65 - 381		
		53	25 - 100	65 - 381		
		60	25 - 100	114 - 674		
		63	25 - 100	114 - 674		
 Compact drives	P2WC	18	25 - 100	2.7 - 17	0.96	21
		22	25 - 100	5.5 - 33		
		28	25 - 100	11 - 67		
		35	25 - 100	19 - 116		
		42	25 - 100	33 - 206		
		50	25 - 100	65 - 381		
		53	25 - 100	65 - 381		
		60	25 - 100	114 - 674		
		63	25 - 100	114 - 674		

P2C Power

i_N	n_1 [min^{-1}]	n_2 [min^{-1}]	P2C 18	22	28	35	42	50	53	60	63	Size
5	1500	300	87		300	582	1031	1900	1900	3370	3370	P_N [kW]
	1000	200	58		200	388	687	1270	1270	2250	2250	
5.6	1500	270	73		267	527	917	1690	1690	3000	3000	
	1000	180	49		178	351	611	1127	1127	2000	2000	
6.3	1500	240	64	132	252	447	817	1522	1522	2700	2700	
	1000	160	43	88	168	298	545	1015	1015	1800	1800	
7.1	1500	211	62	118	238	416	737	1360	1360	2410	2410	
	1000	141	41	79	159	277	491	906	906	1605	1605	
8	1500	188	53	103	213	380	660	1220	1220	2160	2160	
	1000	125	35	69	142	253	440	812	812	1440	1440	
9	1500	167	46	93	180	322	584	1090	1090	1930	1930	
	1000	111	29	62	120	209	389	725	725	1285	1285	
10	1500	150	41	84	160	284	502	966	966	1700	1700	
	1000	100	27	56	107	189	333	644	644	1130	1130	
11.2	1500	134	37	74	150	267	465	858	858	1520	1520	
	1000	89	25	49	100	178	310	572	572	1013	1013	
12.5	1500	120	32	65	126	224	409	761	761	1350	1350	
	1000	80	21	43	84	149	273	507	507	900	900	
14	1500	107	29	58	112	200	354	677	677	1190	1190	
	1000	71	19	39	75	133	235	451	451	791	791	
16	1500	94	28	53	106	186	330	609	609	1080	1080	
	1000	63	19	35	71	124	220	406	406	720	720	
18	1500	83	23	47	95	169	295	544	544	963	963	
	1000	56	15	31	63	113	197	363	363	642	642	
20	1500	75	20	41	80	142	259	483	483	856	856	
	1000	50	13	27	53	95	173	322	322	571	571	
22.4	1500	67	18	37	71	126	222	429	429	752	752	
	1000	44.5	12	24	47	84	148	286	286	501	501	
25	1500	60	16		60	119	206	381	381	674	674	
	1000	40	11		40	79	137	254	254	449	449	
28	1500	54	14.3		56	99	182	338	338	600	600	
	1000	35.5	9.5		37	66	121	225	225	400	400	
31.5	1500	47.5	12.9		50	90	158	304	304	534	534	
	1000	31.5	8.6		33	60	105	203	203	356	356	

P2C Thermal capacities

P2C .. -R1											
v_w [m/s]	n_1 [min^{-1}]	Size 18	22	28	35 [4]	42 [4]	50 [4]	53 [4]	60 [4]	63 [4]
		P_{to} [kW]								
0.5 [1]	–	34	52	73	111	144	210	248	312	357
1.2 [2]	–	47	72	102	154	200	291	344	434	496
4.0 [3]	–	60	92	131	197	256	372	440	556	635
		P_{t1} [kW]								
–	1500	91	140	199	300	389	566	669		
–	1000	68	104	148	223	289	421	497		
		P_{t3} [kW]								
0.5 [1]	–	76	134	231	325	485	780	986	1050	1095
1.2 [2]	–	89	154	260	368	541	861	1082	1172	1234
4.0 [3]	–	102	174	289	411	597	942	1178	1294	1373
		P_{t4} [kW]								
–	1500	133	222	357	514	730	1136	1407		
–	1000	110	186	306	437	630	991	1235		
[4] P_{to}, P_{t3}	Values for ratios starting with following values i_N (for lower ratios please contact us)									
0.5 [1]					6.3	7.1	9	9	10	10
1.2 [2]					5	5	6.3	6.3	7.1	7.1
4.0 [3]					5	5	5	5	5	5

[1] Small closed room, little air movement
[2] Large hall with free air movement
[3] Constantly strong air movement
[4] Is P_{t0}, P_{t3} starting with the ratios

P2D Power

i_N	n_1 [min^{-1}]	n_2 [min^{-1}]	P2D 18	22	28	35	42	50	53	60	63	Size
22.4	1500	67		37	68	131	232	429	429	760	760	P_N [kW]
	1000	44.5		25	45	87	155	286	286	507	507	
25	1500	60		33	65	119	206	381	381	674	674	
	1000	40		22	43	79	137	254	254	450	450	
28	1500	54	15	29	56	100	182	338	338	600	600	
	1000	35.5	10	19	37	66	121	225	225	400	400	
31.5	1500	47.5	13	26	48	93	165	304	304	540	540	
	1000	31.5	8.7	17	32	62	110	203	203	360	360	
35.5	1500	42.5	11.5	24	47	85	147	272	272	482	482	
	1000	28	7.6	16	31	57	98	181	181	321	321	
40	1500	37.5	10.3	21	40	72	131	244	244	432	432	
	1000	25	6.6	14	27	48	87	163	163	288	288	
45	1500	33.5	9.9	19	36	64	113	217	217	384	384	
	1000	22.2	6.6	13	24	43	75	145	145	256	256	
50	1500	30	8.2	17	33	59	103	190	190	337	337	
	1000	20	5.5	11	22	39	69	127	127	225	225	
56	1500	27	7.1	14	28	50	91	169	169	300	300	
	1000	17.9	4.7	9.6	19	33	61	113	113	200	200	
63	1500	23.8	6.4	13	25	45	79	152	152	269	269	
	1000	16	4.3	8.7	17	30	53	101	101	182	182	
71	1500	21	6.2	12	22	42	74	136	136	241	241	
	1000	14	4.1	8.0	14	28	49	91	91	161	161	
80	1500	18.8	5.3	11	21	38	66	122	122	216	216	
	1000	12.5	3.5	7.3	14	25	44	81	81	144	144	
90	1500	16.7	5.1	9.3	18	32	58	109	109	193	193	
	1000	11.1	3.0	6.2	12	21	39	73	73	129	129	
100	1500	15	4.1	8.2	16	28	50	97	97	171	171	
	1000	10	2.7	5.5	11	19	34	65	65	114	114	
112	1500	13.4		7.5	15	27	46	86	86	152	152	
	1000	8.9		5.0	10	18	31	57	57	101	101	
125	1500	12		6.5	13	22	41	76	76	135	135	
	1000	8		4.3	8.7	15	27	51	51	90	90	
140	1500	10.7		5.8	11	20	35	68	68	120	120	
	1000	7.1		3.9	7.3	13	23	45	45	80	80	

P2D Thermal capacities

P2D .. -R1											
v_w [m/s]	n_1 [min^{-1}]	Size 18	22	28	35 [4]	42 [4]	50 [4]	53 [4]	60 [4]	63 [4]
		P_{to} [kW]								
0.5 [1]	–	25	39	55	84	108	157	186	235	268
1.2 [2]	–	35	54	77	116	150	218	258	326	372
4.0 [3]	–	45	69	99	148	192	279	330	417	746
		P_{t3} [kW]								
0.5 [1]	–	57	101	173	244	384	585	740	789	822
1.2 [2]	–	67	116	185	276	406	646	812	880	926
4.0 [3]	–	77	131	217	308	448	707	884	971	1030

[1] Small closed room, little air movement
[2] Large hall with free air movement
[3] Constantly strong air movement
[4] Is P_{t0}, P_{t3} starting with the ratios

P2LC Power

i_N	n_1 [min^{-1}]	n_2 [min^{-1}]	P2LC 18	22	28	35	42	50	53	60	63	Size
25	1500	60	17	33	67	116	206	381	381	674	674	P_N [kW]
	1000	40	11	22	45	77	137	254	254	450	450	
28	1500	54	15	29	59	105	183	338	338	600	600	
	1000	35.5	10	19	39	70	122	225	225	400	400	
31.5	1500	47.5	12.9	26	50	90	163	304	304	539	539	
	1000	31.5	8.6	17.3	33	60	109	203	203	360	360	
35.5	1500	42.5	12	24	48	83	147	272	272	482	482	
	1000	28	8.0	16	32	55	98	181	181	321	321	
40	1500	37.5	11	21	43	76	132	244	244	432	432	
	1000	25	7.3	14	29	51	88	163	163	288	288	
45	1500	33.5	9.5	18.5	36	64	117	217	217	385	385	
	1000	22.2	6.1	12.3	24	42	78	145	145	257	257	
50	1500	30	8.7	17	33	58	103	190	190	337	337	
	1000	20	5.8	11	22	39	69	127	127	225	225	
56	1500	27	7.3	15	30	53	92	169	169	300	300	
	1000	17.9	4.9	10	20	35	61	113	113	200	200	
63	1500	23.8	6.4	13	25	45	82	152	152	270	270	
	1000	16	4.3	5.6	17	30	55	101	101	180	180	
71	1500	21	6.2	12	24	42	74	136	136	241	241	
	1000	14	4.1	8.0	16	28	49	91	91	161	161	
80	1500	18.8	5.3	11	21	38	66	122	122	216	216	
	1000	12.5	3.5	7.3	14	25	44	81	81	144	144	
90	1500	16.7	4.6	9.2	18	32	58	109	109	193	193	
	1000	11.1	3.0	6.1	12	21	39	73	73	129	129	
100	1500	15	4.1	8.2	16	28	50	97	97	171	171	
	1000	10	2.7	5.5	11	19	33	65	65	114	114	

P2LC Thermal capacities

P2LC .. -R1											
v_w [m/s]	n_1 [min^{-1}]	Size 18	22	28	35 [4]	42 [4]	50 [4]	53 [4]	60 [4]	63 [4]
		P_{to} [kW]								
0.5 [1]	–	20	31	44	67	86	126	165	209	238
1.2 [2]	–	28	43	61	93	120	175	229	290	331
4.0 [3]	–	36	55	79	119	154	224	293	371	424
		P_{t3} [kW]								
0.5 [1]	–	45	80	139	195	291	506	657	701	730
1.2 [2]	–	53	92	156	221	325	555	721	782	823
4.0 [3]	–	61	104	173	247	359	604	785	863	916

[1] Small closed room, little air movement
[2] Large hall with free air movement
[3] Constantly strong air movement
[4] Is P_{t0}, P_{t3} starting with the ratios

P2WC Power

i_N	n_1 [min^{-1}]	n_2 [min^{-1}]	P2WC 18	22	28	35	42	50	53	60	63	Size
25	1500	60	17	33	67	116	206	381	381	674	674	P_N [kW]
	1000	40	11	22	45	77	137	254	254	450	450	
28	1500	54	15	29	59	105	183	338	338	600	600	
	1000	35.5	10	19	39	70	122	225	225	400	400	
31.5	1500	47.5	12.9	26	50	90	163	304	304	539	539	
	1000	31.5	8.6	17.3	33	60	109	203	203	360	360	
35.5	1500	42.5	12	24	48	83	147	272	272	482	482	
	1000	28	8.0	16	32	55	98	181	181	321	321	
40	1500	37.5	11	21	43	76	132	244	244	432	432	
	1000	25	7.3	14	29	51	88	163	163	288	288	
45	1500	33.5	9.5	18.5	36	64	117	217	217	385	385	
	1000	22.2	6.1	12.3	24	42	78	145	145	257	257	
50	1500	30	8.7	17	33	58	103	190	190	337	337	
	1000	20	5.8	11	22	39	69	127	127	225	225	
56	1500	27	7.3	15	30	53	92	169	169	300	300	
	1000	17.9	4.9	10	20	35	61	113	113	200	200	
63	1500	23.8	6.4	13	25	45	82	152	152	270	270	
	1000	16	4.3	5.6	17	30	55	101	101	180	180	
71	1500	21	6.2	12	24	42	74	136	136	241	241	
	1000	14	4.1	8.0	16	28	49	91	91	161	161	
80	1500	18.8	5.3	11	21	38	66	122	122	216	216	
	1000	12.5	3.5	7.3	14	25	44	81	81	144	144	
90	1500	16.7	4.6	9.2	18	32	58	109	109	193	193	
	1000	11.1	3.0	6.1	12	21	39	73	73	129	129	
100	1500	15	4.1	8.2	16	28	50	97	97	171	171	
	1000	10	2.7	5.5	11	19	33	65	65	114	114	

P2WC Thermal capacities

P2WC .. -R1											
v_w [m/s]	n_1 [min^{-1}]	Size 18	22	28	35 [4]	42 [4]	50 [4]	53 [4]	60 [4]	63 [4]
		P_{to} [kW]								
0.5 [1]	–	20	31	44	67	86	126	165	209	238
1.2 [2]	–	28	43	61	93	120	175	229	290	331
4.0 [3]	–	36	55	79	119	154	224	293	371	424
		P_{t3} [kW]								
0.5 [1]	–	45	80	139	195	291	506	657	701	730
1.2 [2]	–	53	92	156	221	325	555	721	782	823
4.0 [3]	–	61	104	173	247	359	604	785	863	916

[1] Small closed room, little air movement
[2] Large hall with free air movement
[3] Constantly strong air movement
[4] Is P_{t0}, P_{t3} starting with the ratios

EXACT RATIOS

P2C

i_N	P2C								
	18	22	28	35	42	50	53	60	63
5	5.00	–	5.03	5.13	5.12	5.16	5.16	5.09	5.09
5.6	5.58	–	5.61	5.77	5.71	5.75	5.75	5.67	5.67
6.3	6.33	6.24	6.38	6.38	6.22	6.33	6.33	6.34	6.34
7.1	7.08	6.96	7.20	7.34	7.33	7.47	7.47	7.20	7.20
8	7.89	7.80	8.03	8.25	8.17	8.32	8.32	8.03	8.03
9	8.96	8.58	9.13	9.13	8.90	9.17	9.17	8.97	8.97
10	9.91	10.0	10.2	10.2	10.1	10.1	10.1	10.1	10.1
11.2	11.0	11.2	11.2	11.5	11.3	11.2	11.1	11.2	11.2
12.5	12.5	12.5	12.7	12.7	12.4	12.2	12.2	12.6	12.6
14	13.9	13.7	14.2	14.2	14.1	13.5	13.5	14.1	14.1
16	16.3	15.7	16.0	16.3	16.3	16.6	16.6	16.6	16.6
18	18.2	17.5	17.8	18.3	18.2	18.5	18.5	18.5	18.5
20	20.6	19.6	20.3	20.3	19.8	20.4	20.4	20.6	20.6
22.4	22.8	21.6	22.8	22.8	22.5	22.4	22.4	23.2	23.2
25	24.9	–	25.0	25.2	25.8	25.8	25.8	25.5	25.5
28	28.2	–	28.4	27.9	28.1	28.5	28.5	28.5	28.5
31.5	31.2	–	31.9	31.3	32.0	31.3	31.3	32.0	32.0

P2D

i_N	P2D								
	18	22	28	35	42	50	53	60	63
22.4	–	21.5	22.7	23.2	22.9	23.5	23.5	23.2	23.2
25	–	24.0	25.3	26.1	25.5	26.2	26.2	25.9	25.9
28	29.4	26.9	28.8	28.9	27.8	28.8	28.8	29.0	29.0
31.5	32.7	30.5	32.1	33.2	32.7	33.6	33.6	33.3	33.3
35.5	37.2	34.0	35.8	37.4	36.4	37.4	37.4	37.1	37.1
40	41.1	38.1	40.7	41.4	39.7	41.2	41.2	41.4	41.4
45	45.4	41.9	45.7	46.4	45.2	45.4	45.4	46.5	46.5
50	50.6	47.6	50.1	51.9	50.5	52.0	52.0	51.5	51.5
56	57.5	53.3	57.0	57.4	55.1	57.3	57.3	57.5	57.5
63	63.6	58.6	64.0	64.5	62.7	63.0	63.0	64.6	64.6
71	73.4	70.1	73.9	73.9	72.7	74.7	74.7	73.9	73.9
80	81.9	78.2	82.4	83.0	81.0	83.2	83.2	82.4	82.4
90	92.9	87.6	93.7	91.9	88.2	91.6	91.6	92.0	92.0
100	103	96.4	105	103	100	101	101	103	103
112	–	107	113	116	113	114	114	117	117
125	–	120	128	129	124	126	126	131	131
140	–	132	144	144	141	139	139	147	147

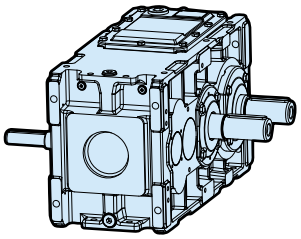
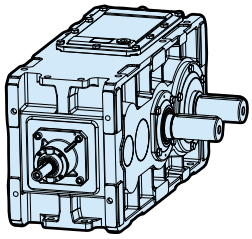
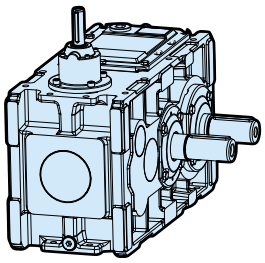
P2LC

i_N	P2LC								
	18	22	28	35	42	50	53	60	63
22.4	–	–	–	–	–	–	–	–	–
25	25.6	24.0	25.3	25.7	25.3	26.0	26.0	25.7	25.7
28	28.5	26.8	28.2	28.9	28.2	29.0	29.0	28.7	28.7
31.5	32.4	30.0	32.0	32.0	30.7	31.9	31.9	32.0	32.0
35.5	36.7	34.5	36.3	36.9	36.3	37.3	37.3	37.0	37.0
40	40.9	38.4	40.4	41.5	40.5	41.6	41.6	41.2	41.2
45	46.5	43.1	46.0	45.9	44.1	45.8	45.8	46.0	46.0
50	51.1	48.0	50.5	51.4	50.6	52.0	52.0	51.5	51.5
56	57.0	53.6	56.3	57.8	56.4	58.0	58.0	57.4	57.4
63	64.7	60.0	64.0	64.0	61.5	63.8	63.8	64.1	64.1
71	73.4	68.9	72.5	73.9	72.7	74.7	74.7	73.9	73.9
80	81.9	76.9	80.9	83.0	81.0	83.2	83.2	82.4	82.4
90	92.9	86.2	92.0	91.9	88.2	91.6	91.6	92.0	82.0
100	103	94.8	103	103	100	101	101	103	103

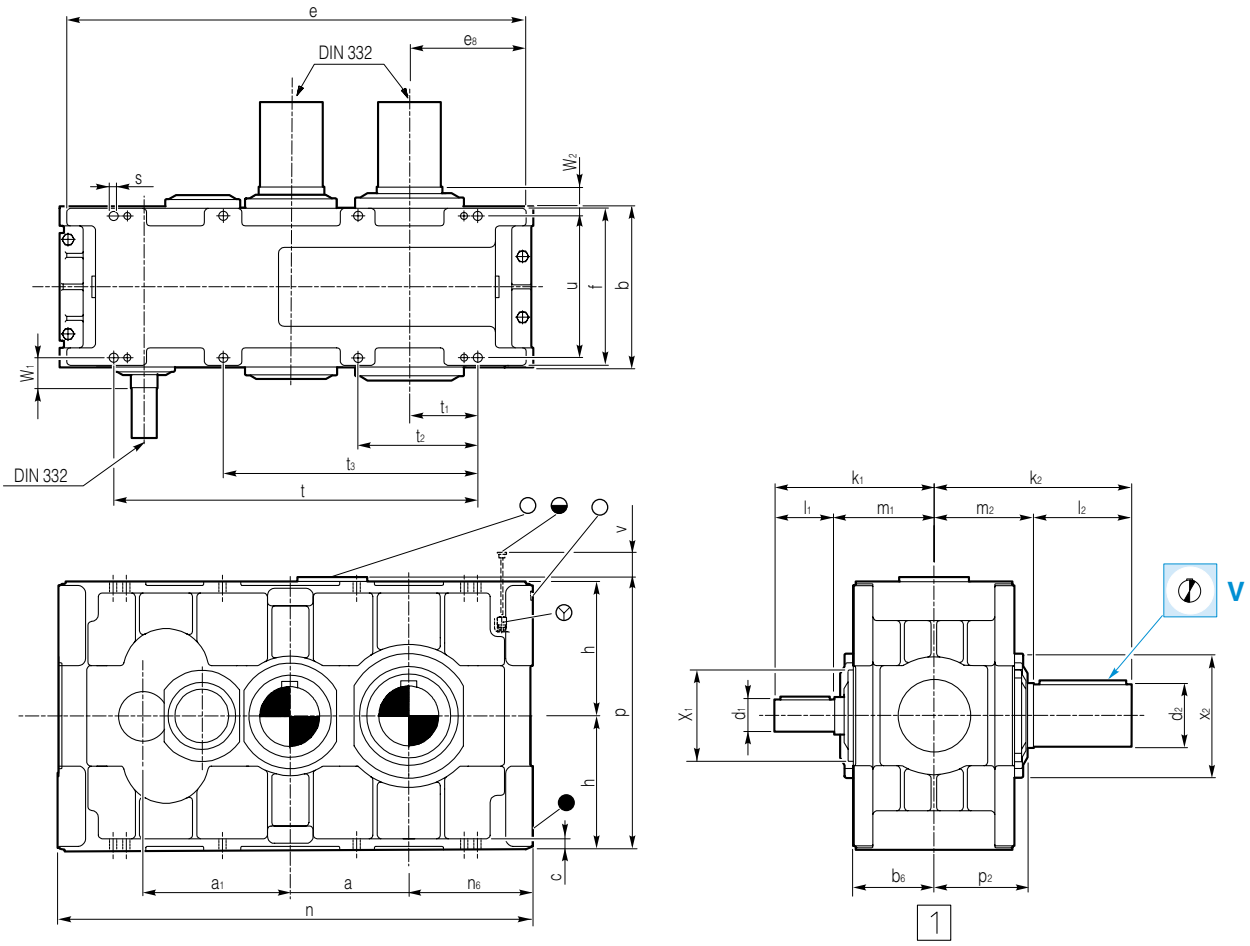
P2WC

i_N	P2WC								
	18	22	28	35	42	50	53	60	63
22.4	–	–	–	–	–	–	–	–	–
25	25.6	24.0	25.3	25.7	25.3	26.0	26.0	25.7	25.7
28	28.5	26.8	28.2	28.9	28.2	29.0	29.0	28.7	28.7
31.5	32.4	30.0	32.0	32.0	30.7	31.9	31.9	32.0	32.0
35.5	36.7	34.5	36.3	36.9	36.3	37.3	37.3	37.0	37.0
40	40.9	38.4	40.4	41.5	40.5	41.6	41.6	41.2	41.2
45	46.5	43.1	46.0	45.9	44.1	45.8	45.8	46.0	46.0
50	51.1	48.0	50.5	51.4	50.6	52.0	52.0	51.5	51.5
56	57.0	53.6	56.3	57.8	56.4	58.0	58.0	57.4	57.4
63	64.7	60.0	64.0	64.0	61.5	63.8	63.8	64.1	64.1
71	73.4	68.9	72.5	73.9	72.7	74.7	74.7	73.9	73.9
80	81.9	76.9	80.9	83.0	81.0	83.2	83.2	82.4	82.4
90	92.9	86.2	92.0	91.9	88.2	91.6	91.6	92.0	82.0
100	103	94.8	103	103	100	101	101	103	103

DANA
BREVINI®
Motion Systems

Type		Mounting position	Page
 Helical gear units	**P2C**	R1	26
	P2D	R1	28
 Bevel-helical gear units	**P2LC**	R1	30
 Compact drives	**P2WC**	R1	32

P2C - R1



Keys to DIN 6885/1

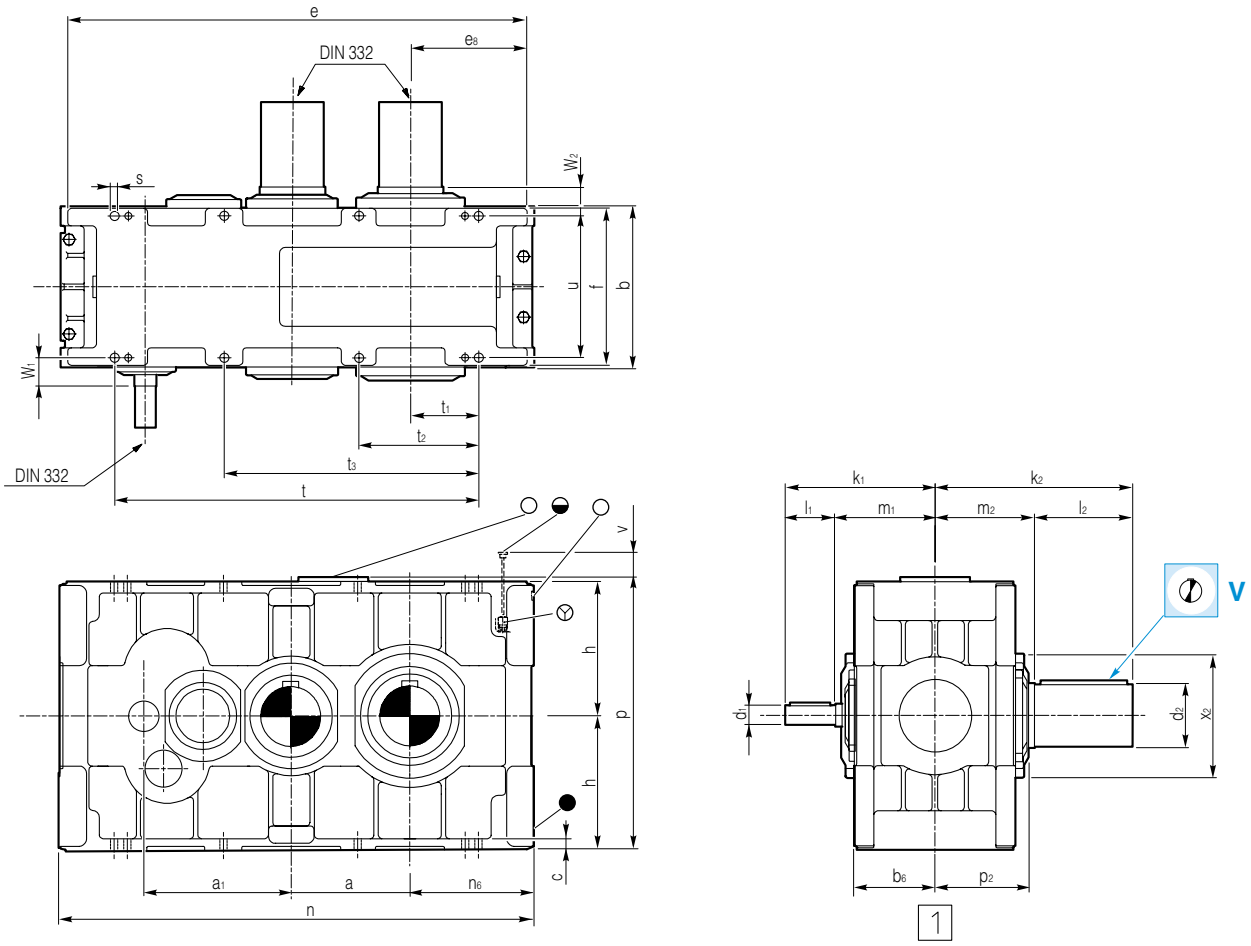
	Input shaft										Output shaft				
	i_N	Ø d_1	k_1	l_1	i_N	Ø d_1	k_1	l_1	m_1	Ø x_1	Ø d_2	k_2	l_2	m_2	Ø x_2
P2C 18	5...14	35 k6	283	100	16...31.5	30 k6	283	100	183	–	55 m6	305	110	195	205
P2C 22	6.3...14	50 k6	347	120	16...22.4	40 k6	347	120	227	130	70 m6	370	140	230	255
P2C 28	5...14	50 k6	362	120	16...31.5	40 k6	362	120	242	–	85 m6	435	170	265	328
P2C 35	5...14	70 m6	435	145	16...31.5	50 k6	415	125	290	205	120 m6	475	190	285	328
P2C 42	5...14	80 m6	508	170	16...31.5	65 m6	483	145	338	245	130 m6	515	190	325	400
P2C 50	5...31.5	100 m6	595	215	–	–	–	–	380	290	170 m6	610	230	380	480
P2C 53	5...31.5	100 m6	595	215	–	–	–	–	380	290	170 m6	610	230	380	480
P2C 60	5...31.5	130 m6	715	250	–	–	–	–	465	390	200 m6	760	290	470	540
P2C 63	5...31.5	130 m6	715	250	–	–	–	–	465	390	200 m6	760	290	470	580

	Casing												
	a	a_1	b	b_6 -0.2	c	e	e_8	f	h -0.2	n	n_6	p	p_2
P2C 18	166	221	294	147	18	622	155	284	190	654	171	419	–
P2C 22	212	280	358	179	24	782	193	346	235	826	215	513	–
P2C 28	263	328	420	210	28	948	230	408	280	1000	256	610	246
P2C 35	323	411	450	225	32	1275	325	438	300	1315	345	610	262
P2C 42	391	503	530	265	40	1555	392	514	355	1615	422	720	303
P2C 50	483	621	640	320	50	1892	470	620	425	1962	505	860	358
P2C 53	554	621	640	320	50	2038	545	620	500	2108	580	1010	358
P2C 60	583	751	790	395	60	2272	565	770	530	2342	600	1070	440
P2C 63	656	751	790	395	60	2420	640	770	600	2490	675	1210	440

	Fitting											
	Ø s	d_s x l_{max}	t	t_1	t_2	t_3	u	w_1	w_2	v	OIL [l]	*
P2C 18	14,5	M12x55	486	87	175	–	248	59	71	40	14	230
P2C 22	18,5	M16x65	622	113	226	–	306	74	77	55	27	440
P2C 28	24	M20x80	752	132	265	–	360	62	85	65	47	725
P2C 35	24	M20x85	1005	190	325	695	396	92	87	190	60	1470
P2C 42	28	M24x100	1230	225	390	820	460	108	95	250	100	2200
P2C 50	35	M30x120	1524	280	504	1014	560	100	100	250	200	4100
P2C 53	35	M30x180	1670	355	650	1160	560	100	100	250	260	4750
P2C 60	42	M36x150	1840	345	630	1200	690	120	125	350	380	6800
P2C 63	42	M36x200	1988	420	778	1348	690	120	125	350	480	7800

***Provided weight values are without oil filling and may differ slightly according to specific product configuration.**

P2D - R1



Keys to DIN 6885/1

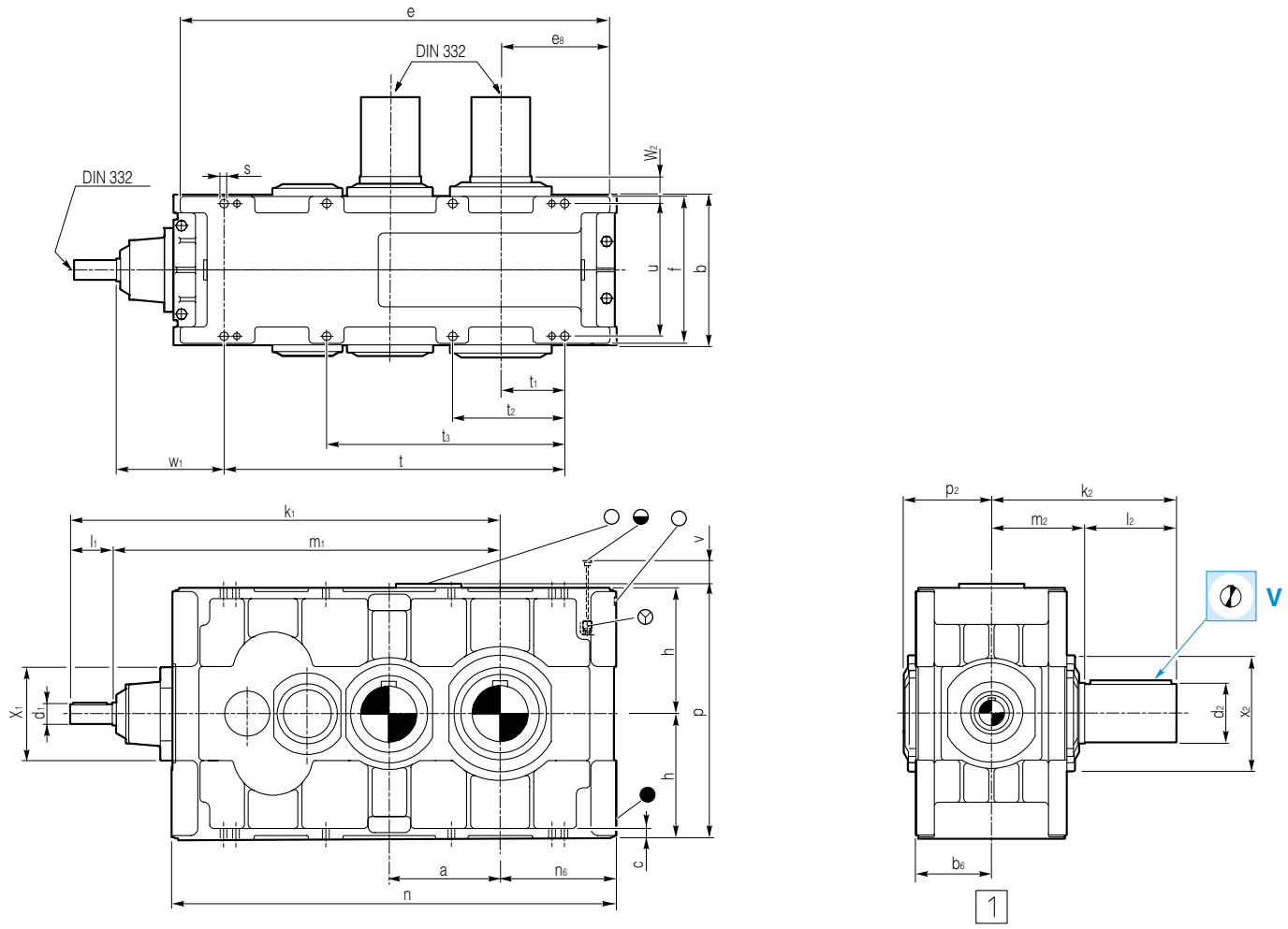
	Input shaft									Output shaft				
	i_N	Ø d_1	k_1	l_1	i_N	Ø d_1	k_1	l_1	m_1	Ø d_2	k_2	l_2	m_2	Ø x_2
P2D 18	28...100	25 k6	227	72	–	–	–	–	155	55 m6	305	110	195	205
P2D 22	22.4...63	35 k6	307	100	71...140	30 k6	307	100	207	70 m6	370	140	230	255
P2D 28	22.4...140	35 k6	319	100	–	–	–	–	219	85 m6	435	170	265	328
P2D 35	22.4...63	50 k6	380	120	71...140	40 k6	380	120	260	120 m6	475	190	285	328
P2D 42	22.4...140	45 k6	412	107	–	–	–	–	305	130 m6	515	190	325	400
P2D 50	22.4...140	70 m6	510	145	–	–	–	–	365	170 m6	610	230	380	480
P2D 53	22.4...140	70 m6	510	145	–	–	–	–	365	170 m6	610	230	380	480
P2D 60	22.4...140	80 m6	610	170	–	–	–	–	440	200 m6	760	290	470	540
P2D 63	22.4...140	80 m6	610	170	–	–	–	–	440	200 m6	760	290	470	580

	Casing												
	a	a_1	b	b_6 -0.2	c	e	e_8	f	h -0.2	n	n_6	p	p_2
P2D 18	166	221	294	147	18	622	155	284	190	654	171	419	–
P2D 22	212	280	358	179	24	782	193	346	235	826	215	513	–
P2D 28	263	328	420	210	28	948	230	408	280	1000	256	610	246
P2D 35	323	411	450	225	32	1275	325	438	300	1315	345	610	262
P2D 42	391	503	530	265	40	1555	392	514	355	1615	422	720	303
P2D 50	483	621	640	320	50	1892	470	620	425	1962	505	860	358
P2D 53	554	621	640	320	50	2038	545	620	500	2108	580	1010	358
P2D 60	583	751	790	395	60	2272	565	770	530	2342	600	1070	440
P2D 63	656	751	790	395	60	2420	640	770	600	2490	675	1210	440

	Fitting											
	Ø s	d_s x l_{max}	t	t_1	t_2	t_3	u	w_1	w_2	v	OIL [l]	*
P2D 18	14,5	M12x55	486	87	175	—	248	31	71	30	15	235
P2D 22	18,5	M16x65	622	113	226	—	306	54	77	45	28	445
P2D 28	24	M20x80	752	132	265	—	360	39	85	50	48	740
P2D 35	24	M 20x85	1005	190	325	695	396	62	87	190	65	1490
P2D 42	28	M 24x100	1230	225	390	820	460	42	95	250	110	2200
P2D 50	35	M30x120	1524	280	504	1014	560	85	100	250	200	4100
P2D 53	35	M30x180	1670	355	650	1160	560	85	100	250	260	4750
P2D 60	42	M36x150	1840	345	630	1200	690	95	125	350	390	6800
P2D 63	42	M36x200	1988	420	778	1348	690	95	125	350	480	7800

***Provided weight values are without oil filling and may differ slightly according to specific product configuration.**

P2LC - R1



Keys to DIN 6885/1

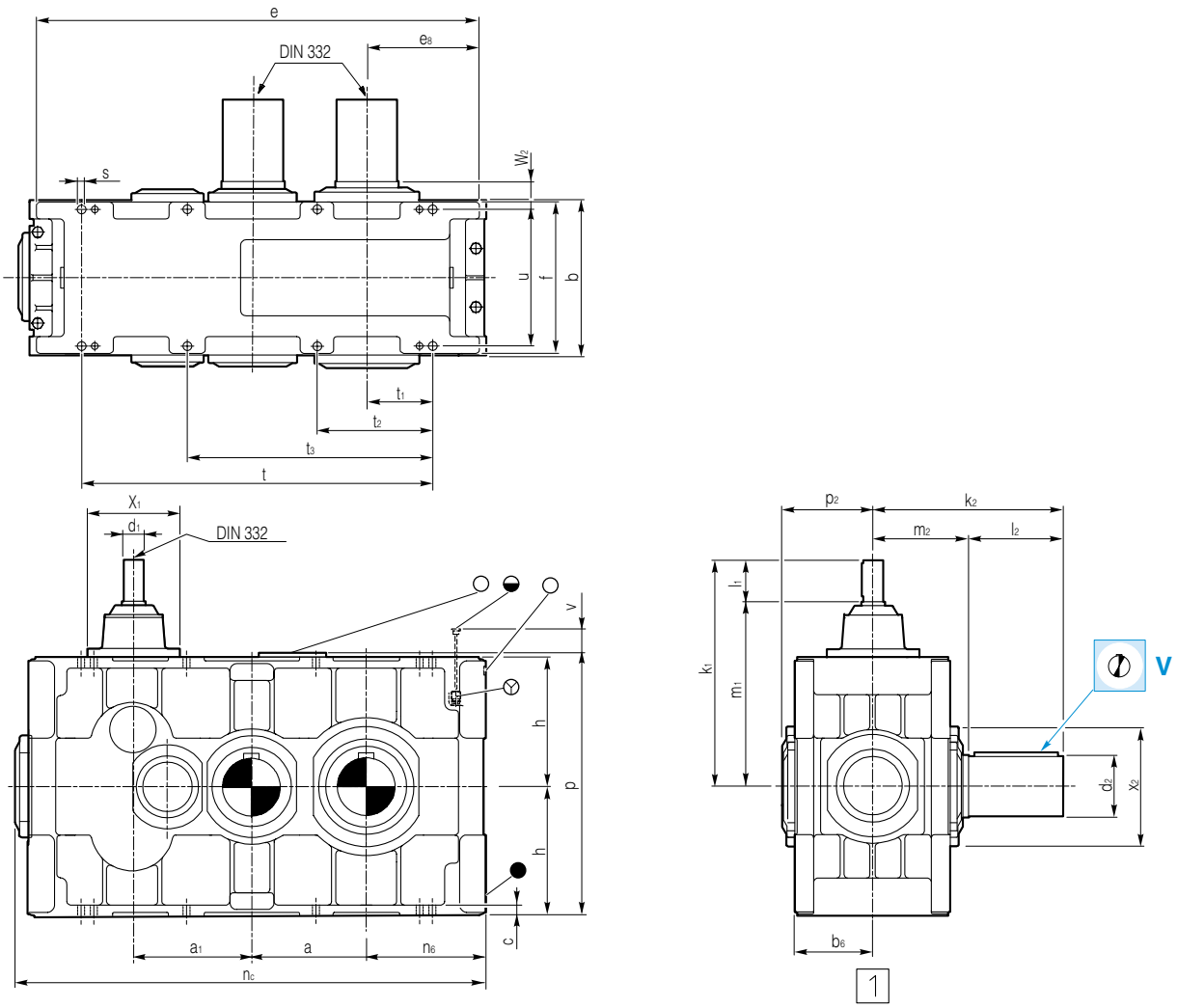
	Input shaft					Output shaft				
	Ø d_1	k_1	l_1	m_1	Ø x_1	Ø d_2	k_2	l_2	m_2	Ø x_2
P2LC 18	25 k6	703	85	618	190	55 m6	305	110	195	205
P2LC 22	40 k6	908	120	788	225	70 m6	370	140	230	255
P2LC 28	40 k6	1021	120	901	255	85 m6	435	170	265	328
P2LC 35	50 k6	1188	120	1068	285	120 m6	475	190	285	328
P2LC 42	60 m6	1416	145	1271	350	130 m6	515	190	325	400
P2LC 50	75 m6	1748	160	1588	440	170 m6	610	230	380	480
P2LC 53	75 m6	1819	160	1659	440	170 m6	610	230	380	480
P2LC 60	85 m6	2096	180	1916	540	200 m6	760	290	470	540
P2LC 63	85 m6	2169	180	1989	540	200 m6	760	290	470	580

	Casing											
	a	b	b_6 -0.2	c	e	e_8	f	h -0.2	n	n_6	p	p_2
P2LC 18	166	294	147	18	622	155	284	190	654	171	419	–
P2LC 22	212	358	179	24	782	193	346	235	826	215	513	–
P2LC 28	263	420	210	28	948	230	408	280	1000	256	610	246
P2LC 35	323	450	225	32	1275	325	438	300	1315	345	610	262
P2LC 42	391	530	265	40	1555	392	514	355	1615	422	720	303
P2LC 50	483	640	320	50	1892	470	620	425	1962	505	860	358
P2LC 53	554	640	320	50	2038	545	620	500	2108	580	1010	358
P2LC 60	583	790	395	60	2272	565	770	530	2342	600	1070	440
P2LC 63	656	790	395	60	2420	640	770	600	2490	675	1210	440

	Fitting											
	Ø s	d_s x l_{max}	t	t_1	t_2	t_3	u	w_1	w_2	v	[l]	*
P2LC 18	14,5	M12x55	486	87	175	—	248	219	71	35	15	245
P2LC 22	18,5	M16x65	622	113	226	—	306	279	77	50	28	465
P2LC 28	24	M20x80	752	132	265	—	360	281	85	60	48	770
P2LC 35	24	M20x85	1005	190	325	695	396	253	87	190	60	1500
P2LC 42	28	M24x100	1230	225	390	820	460	266	95	250	100	2200
P2LC 50	35	M30x120	1524	280	504	1014	560	344	100	250	200	4200
P2LC 53	35	M30x180	1670	355	650	1160	560	344	100	250	260	4800
P2LC 60	42	M36x150	1840	345	630	1200	690	421	125	350	380	7350
P2LC 63	42	M36x200	1988	420	778	1348	690	421	125	350	480	8350

***Provided weight values are without oil filling and may differ slightly according to specific product configuration.**

P2WC - R1



Keys to DIN 6885/1

	Input shaft					Output shaft				
	Ø d_1	k_1	l_1	m_1	Ø x_1	Ø d_2	k_2	l_2	m_2	Ø x_2
P2WC 18	25 k6	378	85	293	148	55 m6	305	110	195	205
P2WC 22	40 k6	497	120	377	190	70 m6	370	140	230	255
P2WC 28	40 k6	497	120	377	190	85 m6	435	170	265	328
P2WC 35	50 k6	517	120	397	285	120 m6	475	190	285	328
P2WC 42	60 m6	662	145	517	265	130 m6	515	190	325	400
P2WC 50	75 m6	769	160	609	285	170 m6	610	230	380	480
P2WC 53	75 m6	769	160	609	285	170 m6	610	230	380	480
P2WC 60	85 m6	937	180	757	350	200 m6	760	290	470	540
P2WC 63	85 m6	937	180	757	350	200 m6	760	290	470	580

	Casing												
	a	a_1	b	b_6 -0.2	c	e	e_8	f	h -0.2	n_c	n_6	p	p_2
P2WC 18	166	200	294	147	18	622	155	284	190	654	171	419	–
P2WC 22	212	252	358	179	24	782	193	346	235	826	215	513	–
P2WC 28	263	322	420	210	28	948	230	408	280	1000	256	610	246
P2WC 35	323	403	450	225	32	1275	325	438	300	1346	345	610	262
P2WC 42	391	446	530	265	40	1555	392	514	355	1652	422	720	303
P2WC 50	483	587	640	320	50	1892	470	620	425	1962	505	860	358
P2WC 53	554	587	640	320	50	2038	545	620	500	2108	580	1010	358
P2WC 60	583	695	790	395	60	2272	565	770	530	2342	600	1070	440
P2WC 63	656	695	790	395	60	2420	640	770	600	2490	675	1210	440

	Fitting											
	Ø s	d_s x l_{max}	t	t_1	t_2	t_3	u	w_1	w_2	v	OIL [l]	*
P2WC 18	14,5	M12x55	486	87	175	–	248	71	–	22	245	245
P2WC 22	18,5	M16x65	622	113	226	–	306	77	–	41	465	465
P2WC 28	24	M20x80	752	132	265	–	360	85	–	71	770	770
P2WC 35	24	M20x85	1005	190	325	695	396	87	190	60	1500	1500
P2WC 42	28	M24x100	1230	225	390	820	460	95	250	100	2200	2200
P2WC 50	35	M30x120	1524	280	504	1014	560	100	250	200	4200	4200
P2WC 53	35	M30x180	1670	355	650	1160	560	100	250	260	4800	4800
P2WC 60	42	M36x150	1840	345	630	1200	560	125	350	380	7350	7350
P2WC 63	42	M36x200	1988	420	778	1348	690	125	350	480	8350	8350

***Provided weight values are without oil filling and may differ slightly according to specific product configuration.**

DANA
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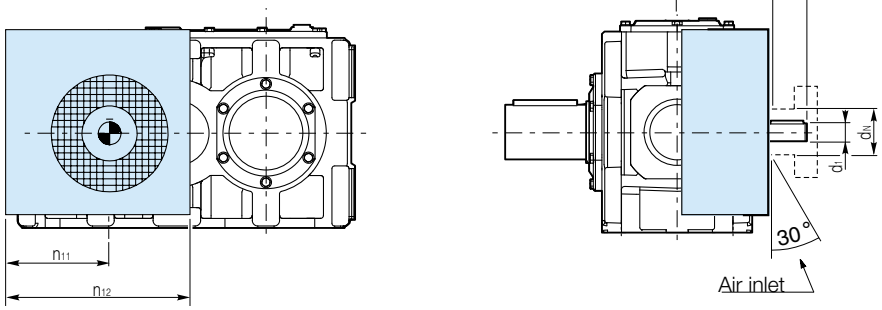
Motion Systems

P2C, P2D.. - R11

Permissible location of shafts .1 and .2 see p. 9-10

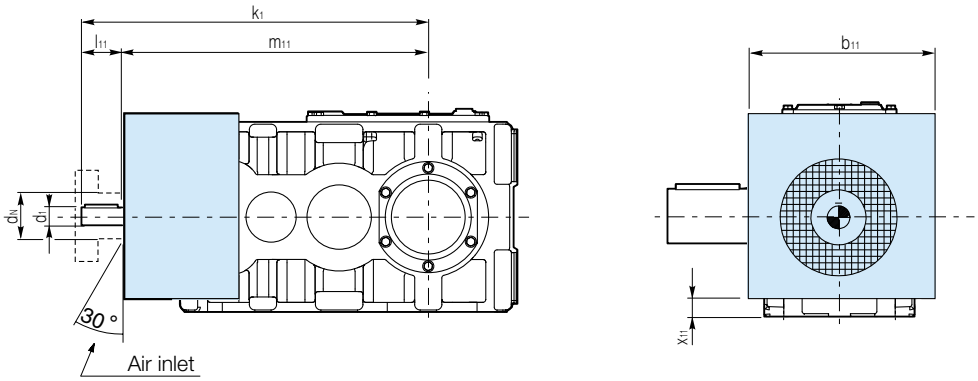
Type P2C..-R11
P2D ..-R11



Attention:
To mount the feet- fitting screws, demount the fan cover.
Mounting of the input hub only after mounting of the feet-fitting screws.

Dimensions on demand

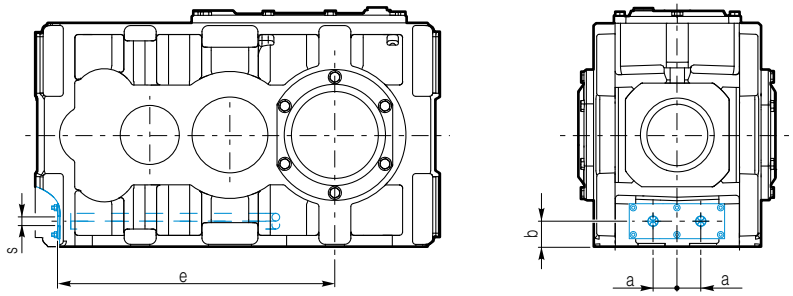
P2LC..-R11



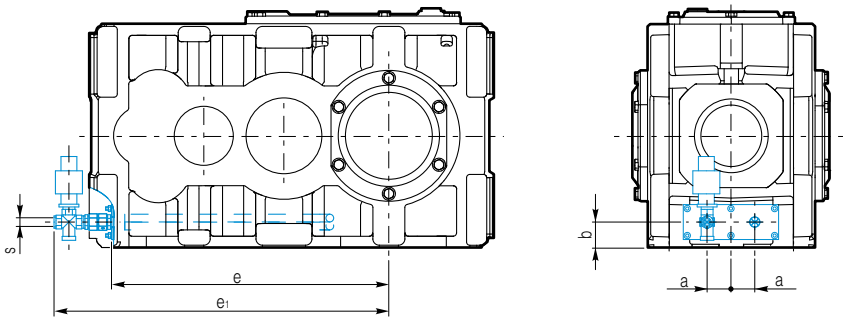
Dimensions on demand

P2C, P2D, P2LC, P2WC.. -R11

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



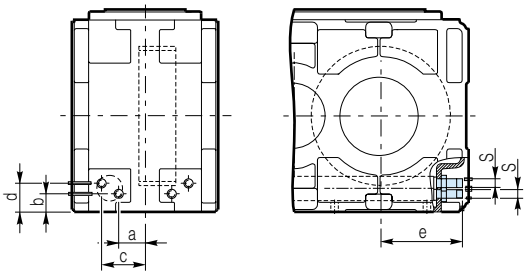
Water connection for cooling coil **with** cooling water controller



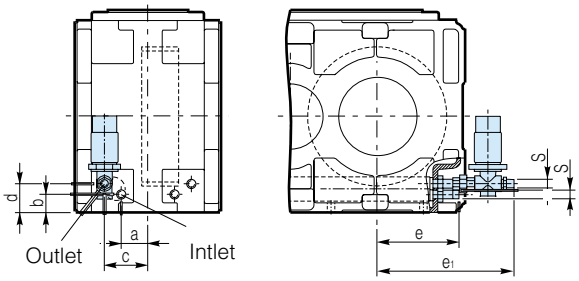
		a	b	e	e_1	s	V Water l/min	Δ p W bar
P2C, P2D P2LC P2WC	**18**	32,5	45	462	582	G 3/4"	8	0.6
	22	42,5	55	579	699		8	
	28	55	65	696	816		8	
	35	50	52	935	1055	G 3/4"	16	0.6
	42	50	68,5	1115	1276		16	
	50	60	90	1379	1540		16	
	53	70	100	1450	1570	G 1"	20	
	56	70	105	1543	1663		20	

P2C, P2D, P2LC, P2WC.. -R11

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

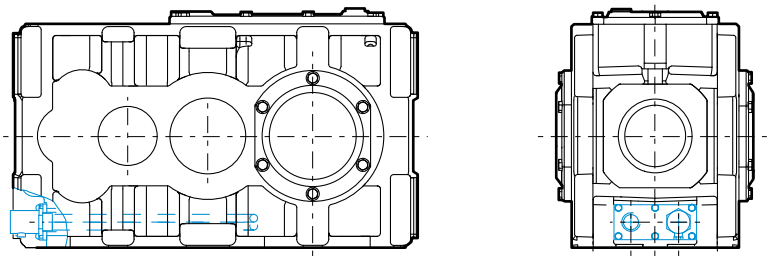


Water connection for cooling coil **with** cooling water controller



		a	b	c	d	e	e_1	s	V Water l/min	Δ p W bar
P2C P2D P2LC P2WC	60	80	125	190	125	495	634	G 3/4"	18	0.6
	63	80	125	190	125	570	709			0.6

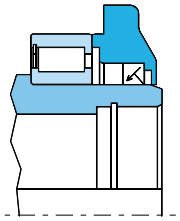
P2C, P2D, P2LC, P2WC.. -R11



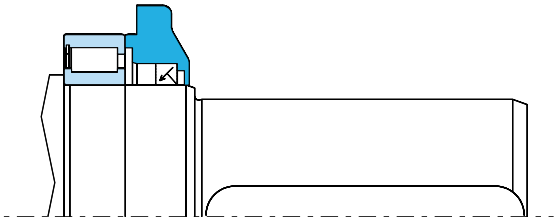
P2C, P2D, P2LC, P2WC

Standard sealing

Single seal with dust lip



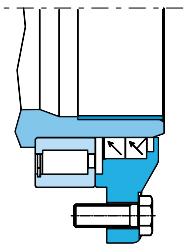
Hollow shaft



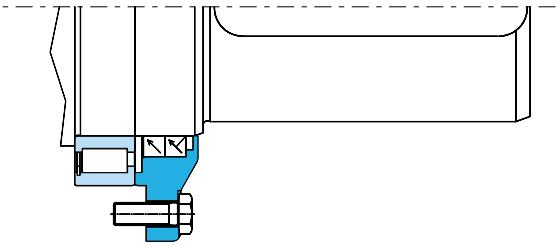
Solid shaft

Special seals according to the operating conditions

Two shaft seals outer with dust lip



Hollow shaft

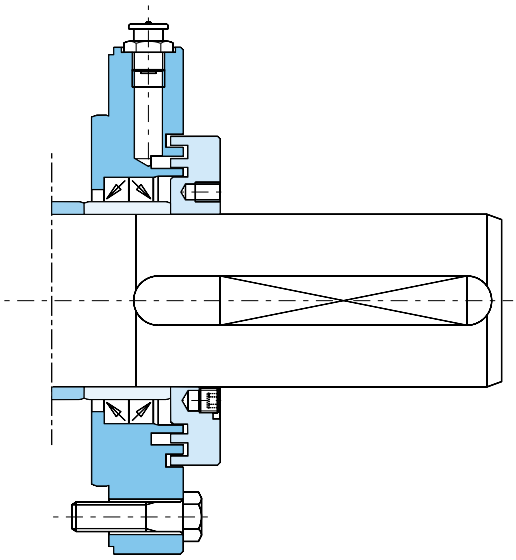


Solid shaft

P2C, P2D, P2LC, P2WC

Special seals according to the operating conditions

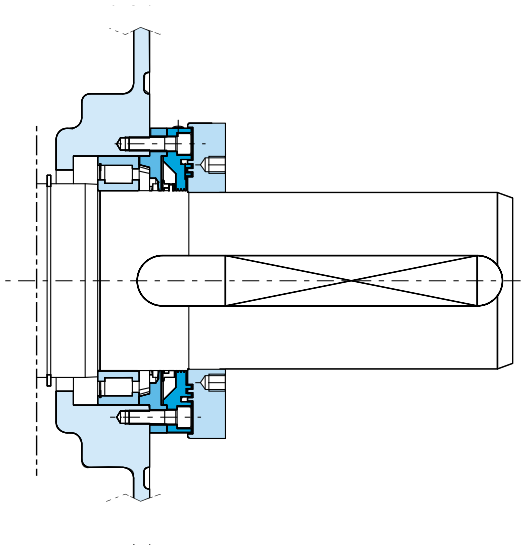
Two shaft seals with additional refillable grased labyrinth seals (Taconite sealing)



Solid shaft

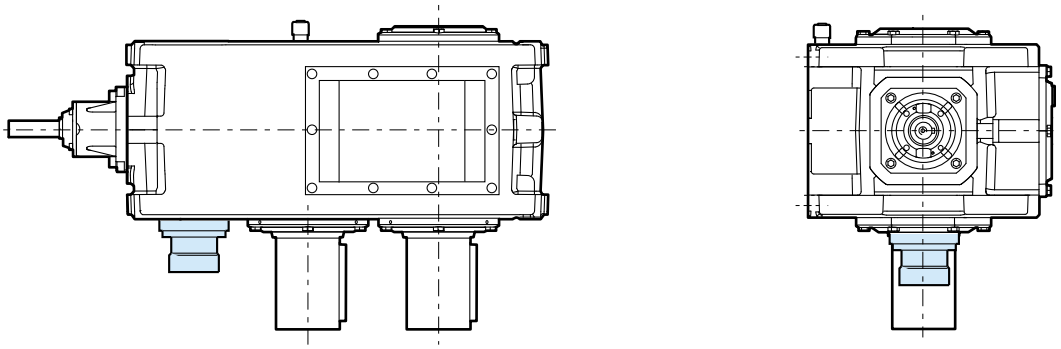
Contact less seals

Special seals according to the operating conditions
Contactless shaft seals with additional refillable greased labyrinth seals (Taconite sealing).
Available for all type of input- and output shafts.



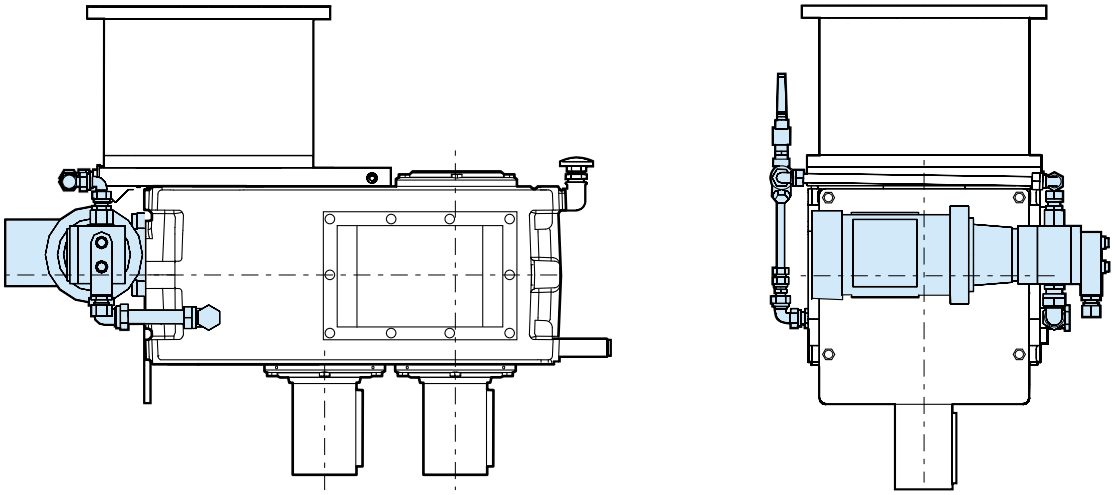
P2C, P2D, P2LC, P2WC..-R1

Flange pump

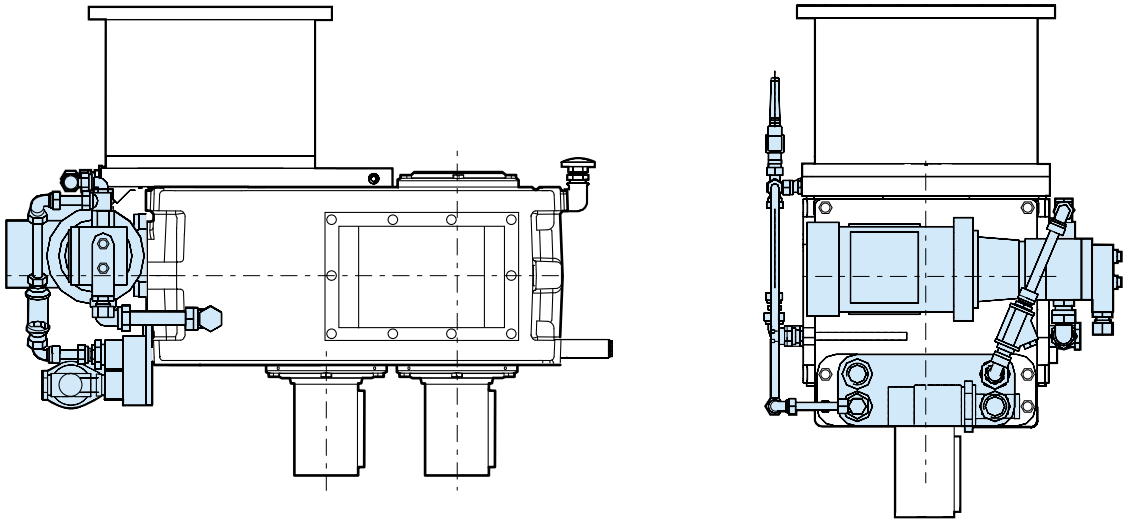


Motor pump

a) With pressure lubrication (motor pump)

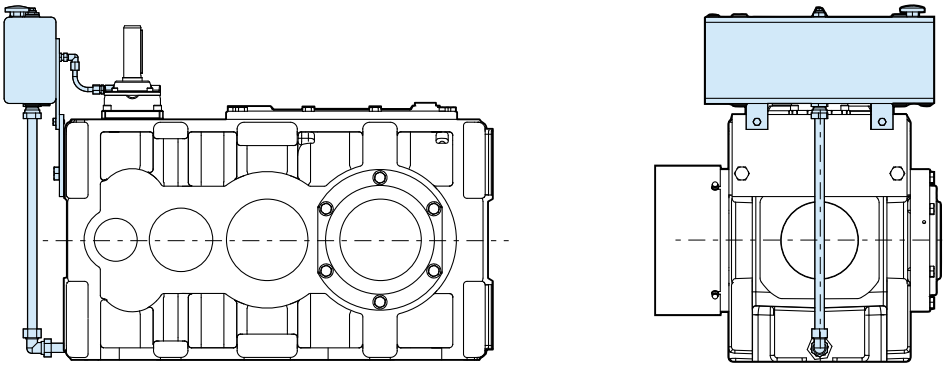


b) With pressure lubrication (motor pump) and plate cooler

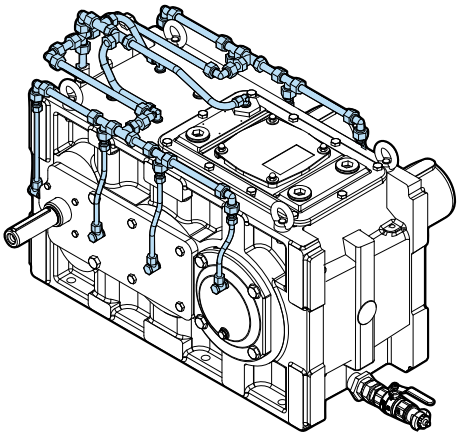


P2C, P2D, P2LC, P2WC..-R1

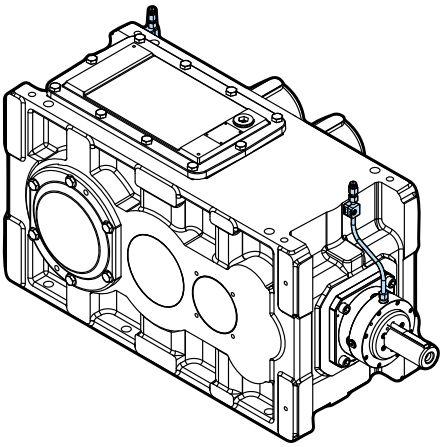
Oil expansion tank



Piping system for forced lubrication



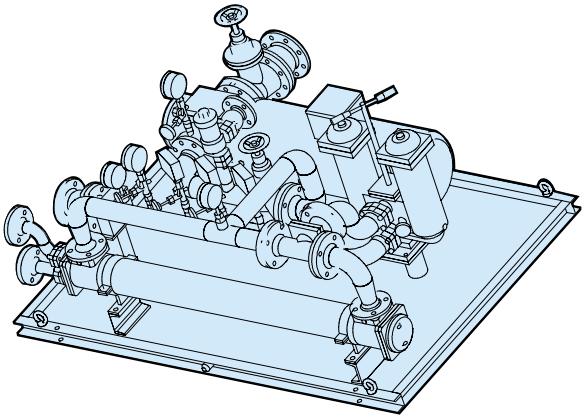
Greasing pipe system



P2C, P2D, P2LC, P2WC..-R1

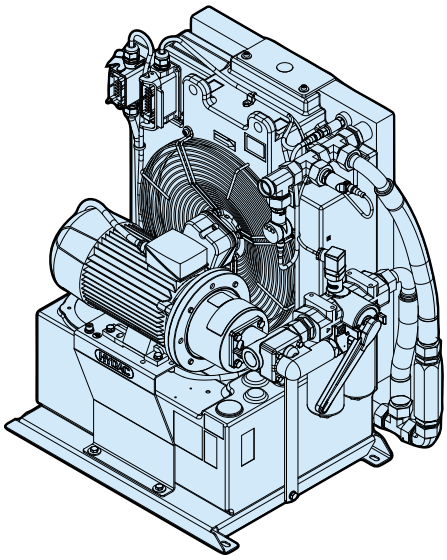
Separate cooling and lubrication system

Dimensions on request



External air cooling system

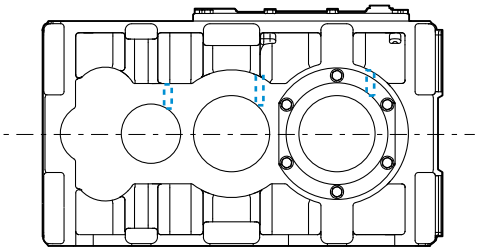
Dimensions on request



P2C, P2D, P2LC, P2WC..-R1

Attachment of sensors for control of rolling bearing

In order to avoid unplanned machine downtimes, we can offer the gearbox ready for gears and bearings condition monitoring. Starting with the oil temperature monitoring up to the monitoring of the rolling bearings.
We supply the threaded holes for the sensors as standard feature, and we can supply the sensor on request only.



P2C, P2D, P2LC, P2WC

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.

P2C, P2D, P2LC, P2WC

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

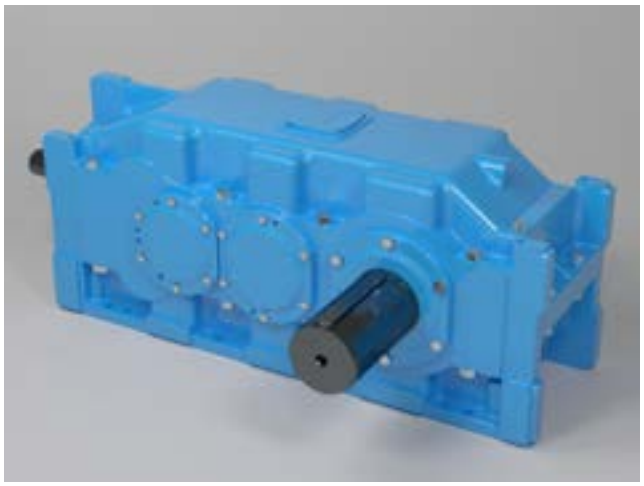
P2C, P2D, P2LC, P2WC

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.

OTHER PRODUCTS

The Brevini® EvoMax™ gearbox is designed for rough Heavy Duty, Material Handling and Marine application.
They ensure high performances in demanding applications based on their modularity and a wide range of combinations.
Based of the Brevini® EvoMax™ gearbox Series we deliver dedicated developed product series for special application for example steel or crane industry.



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 290 kNm.
Ratios from 4 up to 500.

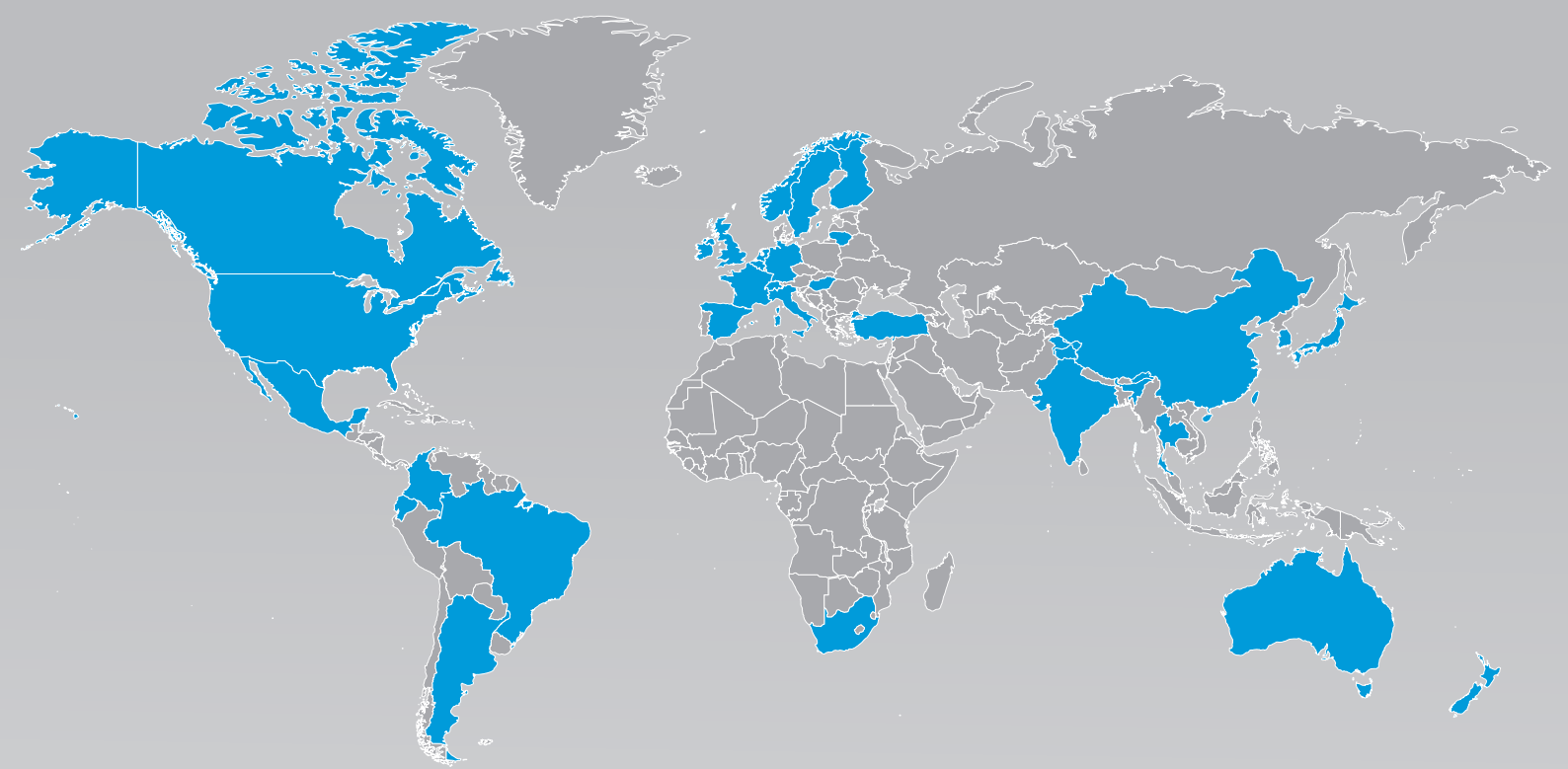
High Power
The High Power is a compact bevel-helical gearbox with a planetary gearbox on the output.
Torque range from 90 kNm up to 2.100 kNm
Ratios up to 8.000

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

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

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



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.

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BREVINI®
Motion Systems

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