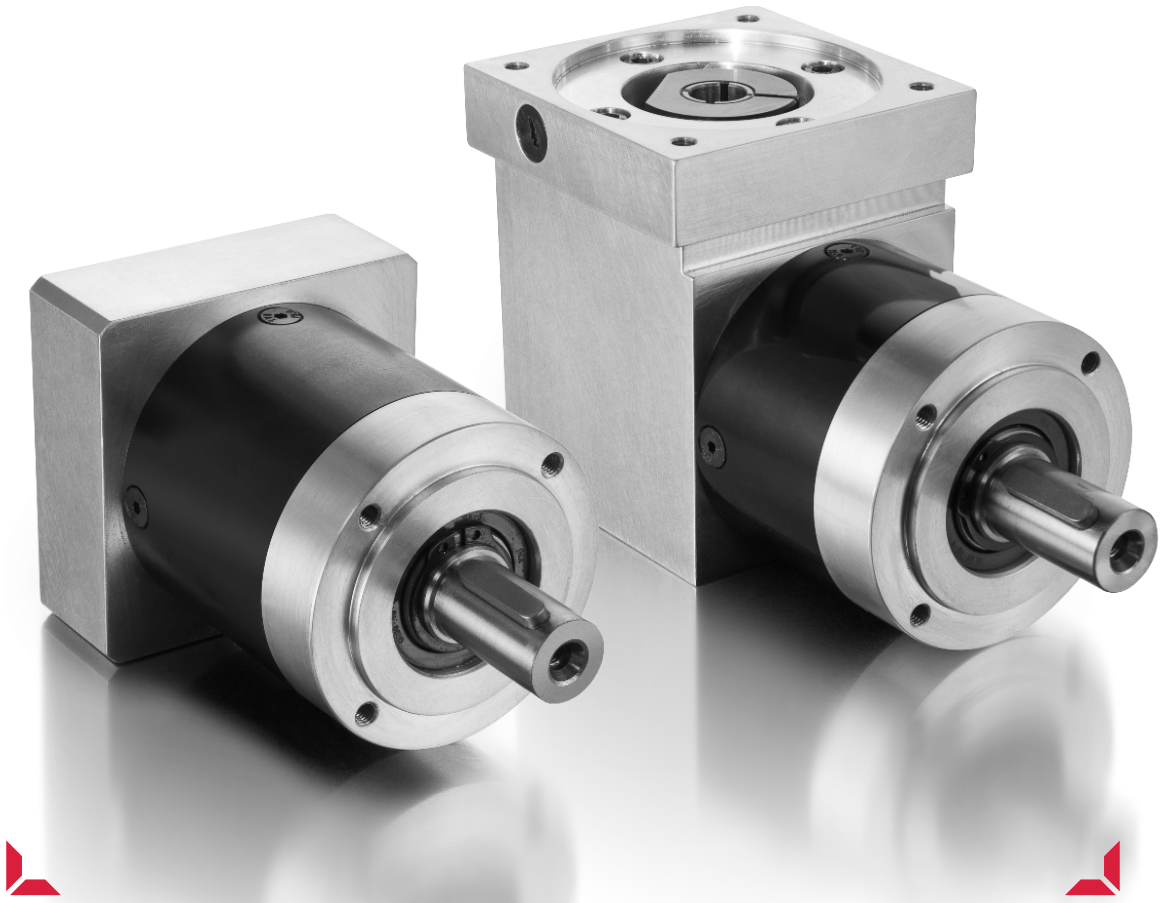
Planetary Gearboxes
PE / PBE – Series




Zykloidgetriebe
Cycloid Gearboxes


Planetengetriebe
Planetary Gearboxes


Kegelrad-Planetengetriebe
Bevel Planetary Gearboxes


Kegelradgetriebe
Bevel Gearboxes


Hypoidgetriebe
Hypoid Gearboxes


Hypoid-Stirnradgetriebe
Hypoid Helical Gearboxes

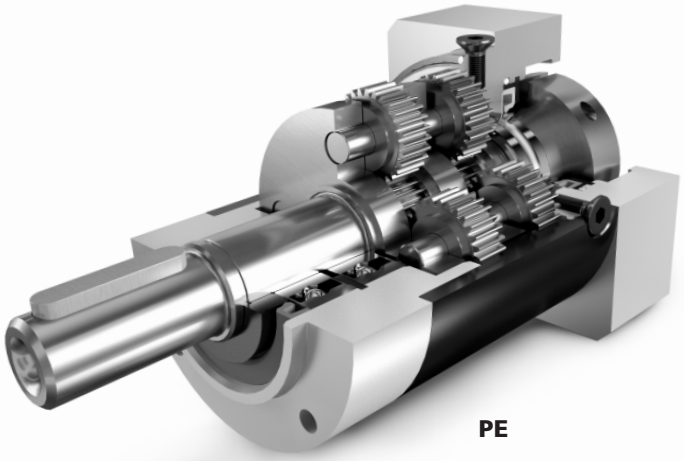

Getriebemotoren
Gear Motors


Verzahnungsentwicklung
Gear Development

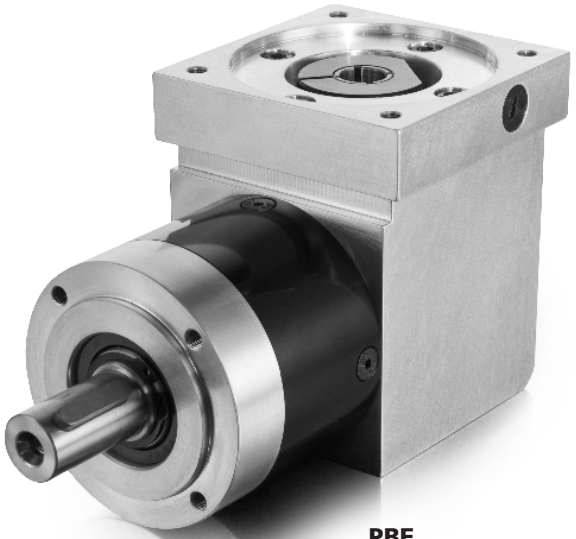
EPPINGER
PRECISION GEAR SOLUTIONS

EPPINGER Planetary Gearboxes

The planetary gearboxes PE complete the whole range of our automation gearbox series consisting of high-end planetary gearboxes, right angle gearboxes, hypoid gearboxes, cycloid gearboxes as well as various combinations thereof. The right angle gearbox PBE rounds off this series with its pre-stage bevel gearbox. Smooth running is achieved through the use of Gleason type spiral bevel gears in the pre-stage of the gearbox.



PE



PBE

FEATURES AND BENEFITS OF PE / PBE PLANETARY GEARBOX SERIES

PE

- Case - hardenend and ground ring gears
- Case - hardenend and ground planet gears and sun pinions guarantee high transmission quality and long lifetime
- Low Backlash
- Easiest mounting of motor through flexible flange system
- High flexibility with proven hollow drive shaft system
- Integrated axial length compensation to compensate for thermal expansion of the motor shaft
- High efficiency and smooth running through high tooth flank quality, planet gears with needle roller bearings and high quality lubricant
- High torsional stiffness and high emergency off torque through robust design and optimized gear geometry
- Four sizes of gearboxes for output torques between 4-270Nm
- Available ratios from i=3 to i=512
- Lifetime lubrication
- Universal mounting positions
- Protection class IP64

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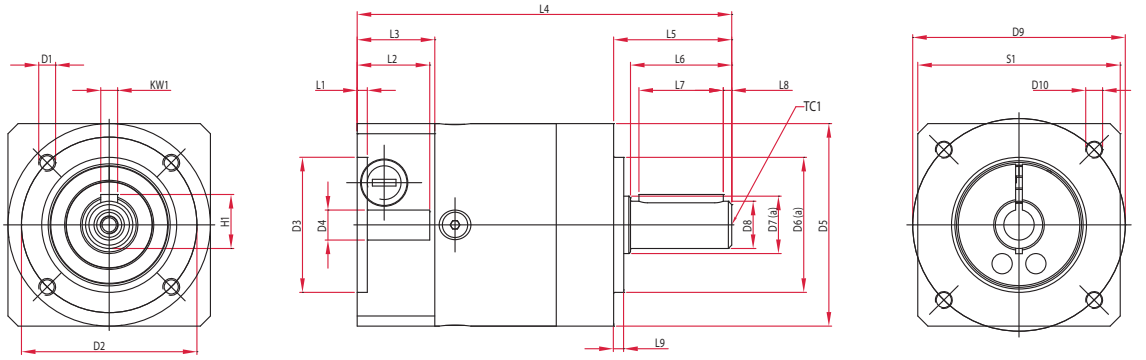
- Smooth running achieved through the use of spiral bevel gears (Gleason type)

Performance data

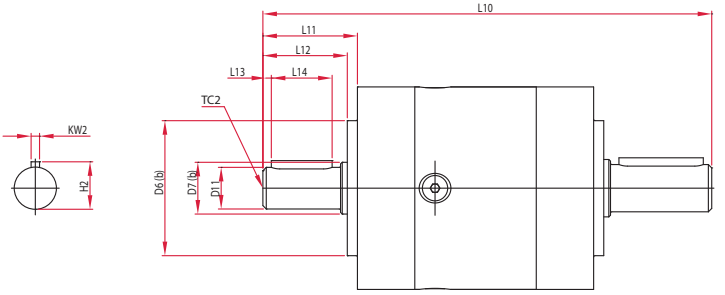
	Abbre-viation	Unit	Ratio	PE040 PBE040	PE060 PBE060	PE080 PBE080	PE120 PBE120	Number of stages
Rated output torque **[for 100 rpm speed of output shaft, electrical motor drive, continuous duty loading-S1 and ambient temperature of 30°C]**	T_{2N}	Nm	i = 3 : 1	11	30	95	160	1
			i = 4 : 1	16	40	125	160	
			i = 5 : 1	16	40	115	200	
			i = 7 : 1	9	30	70	140	
			i = 8 : 1	7	20	55	120	
			i = 10 : 1	6	16	45	95	
			i = 9 : 1	18	46	125	230	2
			i = 12 : 1	18	46	125	270	
			i = 15 : 1	18	46	115	270	
			i = 16 : 1	21	46	125	270	
			i = 20 : 1	21	46	125	270	
			i = 25 : 1	21	46	115	270	
			i = 32 : 1	21	46	125	270	
			i = 40 : 1	21	46	115	270	
			i = 64 : 1	8	20	55	120	
			i = 60 : 1	21	46	115	270	3
			i = 80 : 1	21	46	125	270	
			i = 100 : 1	21	46	125	270	
			i = 120 : 1	21	46	125	270	
			i = 160 : 1	21	46	125	270	
			i = 200 : 1	21	46	115	270	
			i = 256 : 1	21	46	125	270	
			i = 320 : 1	21	46	115	270	
			i = 512 : 1	8	20	55	120/140	
Max. acceleration torque **[allowable for 30000 revolutions with conditions same as given for nominal torque]**	T_{2B}	Nm	all ratios	1,6 x T2N				all stages
Emergency stop torque **[allowable for 1000 times in service life]**	T_{2Not}	Nm		2 x T2N				
Rated input speed	n_{1N}	rpm		5000	4500	4000	3500	
Maximum input speed	n_{1max}	rpm		6500	6500	6500	6500	
Torsional backlash - standard (PE)		arcmin		≤ 14	≤ 9	≤ 7	≤ 6	1
				≤ 18	≤ 11	≤ 9	≤ 8	2
				≤ 21	≤ 14	≤ 11	≤ 10	3
Torsional backlash - standard (PBE)		arcmin		≤ 20	≤ 15	≤ 12	≤ 10	1
				≤ 24	≤ 17	≤ 14	≤ 12	2
				≤ 28	≤ 20	≤ 16	≤ 14	3
Max. permissible radial load [1]	F_{Rmax}	N		165	350	750	1600	all stages
Max. permissible axial load [1]	F_{Amax}	N		165	450	900	2200	
Max. permissible radial load [2]	F_{Rmax}	N		210	415	800	1820	all stages
Max. permissible axial load [2]	F_{Amax}	N		210	525	1050	2650	
Torsional stiffness		Nm/ arcmin		1,02	2,35	6,12	12,20	1
				1,09	2,52	6,52	12,55	2
				1,02	2,50	6,35	12,22	3
Efficiency at full load	η	%		PE 96% / PBE 94% PE 94% / PBE 92% PE 91% / PBE 90%				1 2 3
Operating noise measured at 1m distance **(on idle running with 3000 rpm input speed and i=5)**	L_{pa}	dB(A)		PE ≤ 60 PBE ≤ 70	PE ≤ 60 PBE ≤ 72	PE ≤ 65 PBE ≤ 75	PE ≤ 68 PBE ≤ 76	all stages
Weight PE	m	kg		0,4	1,0	2,3	7	1
				0,5	1,2	2,8	10	2
				0,6	1,5	3,4	12	3
Weight PBE	m	kg		upon request				
Service life	L_h	h		> 30000				all stages
Lubrication				grease packed				
Minimum operating temperature		°C		-25				
Maximum operating temperature		°C		90				
Degree of protection				IP 64				
Mounting position				any				
Motor flange				optional				

[1] on output shaft middle for 30000 hrs bearing life and conditions in T2N

[2] on output shaft middle for 20000 hrs bearing life and conditions in T2N



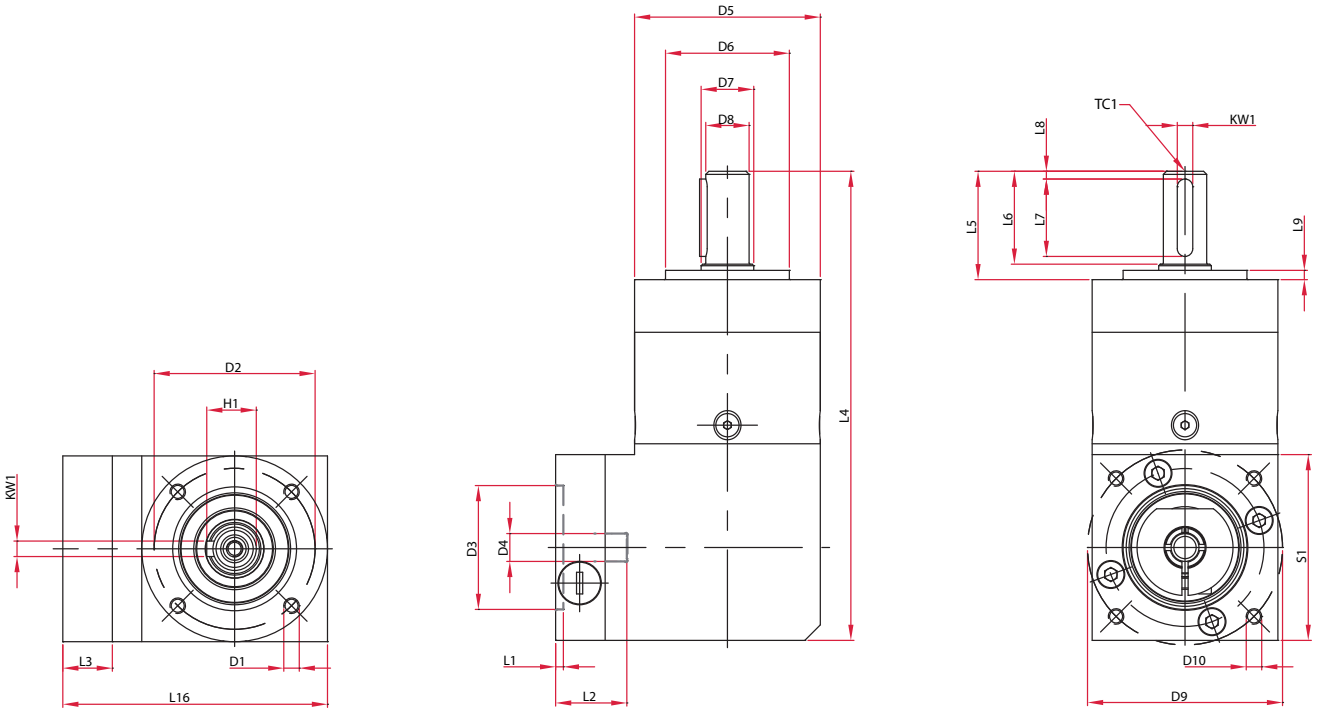
Option: Free input shaft



PE dimensions (in mm)

			PE040	PE060	PE080	PE120	Stages
D1	Mounting thread- output side		M4x6	M5x8	M6x10	M10x16	all stages
D2	Pitch circle diameter - output side		34	52	70	100	
D3	Centering diameter - drive side	H7	to suit motor				
D4	Bore diameter- drive shaft (maximum)	(max.) G7	11	14	19	35	
D5	Outer diameter		42	60	80	120	
D6(a)	Centering diameter - output side	h6	26	40	60	80	
D6(b)	Centering diameter - input side	h6	26	40	60	80	
D7(a)	Shaft shoulder diameter - output shaft		12	17	25	35	
D7(b)	Shaft shoulder diameter - input shaft		12	17	25	35	
D8	Shaft diameter- output shaft	h7	10	14	20	25	
D9	Pitch circle diameter- drive side		to suit motor				
D10	Mounting thread - drive side						
D11	Shaft diameter - drive shaft	j6	8	10	16	20	
H1	Key height- output shaft		11,2	16	22,5	28	
H2	Key height- drive shaft		8,8	11,2	18	22,5	
KW1	Key width- output shaft		3	5	6	8	
KW2	Key width- drive shaft		2	3	5	6	
L1	Depth of centering bore - drive side		to suit motor				
L2	Bore depth- drive side						
L3	Flange length - drive side						
L4	Overall length (for IP64)						
L5	Shaft length from housing face - output side		26	35	40	56	all stages
L6	Shaft length from spigot - output side		23	30	36	50	
L7	Key length - output shaft		18	25	28	40	
L8	Key position from shaft end - output side		2,5	3	4	5	
L9	Spigot length - output side		2	3	3	5	
L10	Overall length (IP64)		upon request				
L11	Shaft length from housing face - drive side		20	28	30	45	all stages
L12	Shaft length from spigot - drive side		17	23	26	40	
L13	Key position from shaft end - drive side		2,5	2,5	3	4	
L14	Key length - drive shaft		12	18	20	32	
S1	Flange size - drive side		to suit motor				
TC1	Centre hole to DIN332 - output side		M3x9	M5x12	M6x16	M10x22	
TC2	Centre hole to DIN332 - drive side		M3x9	M3x9	M5x12	M6x16	

We recommend technical clarification prior to ordering.

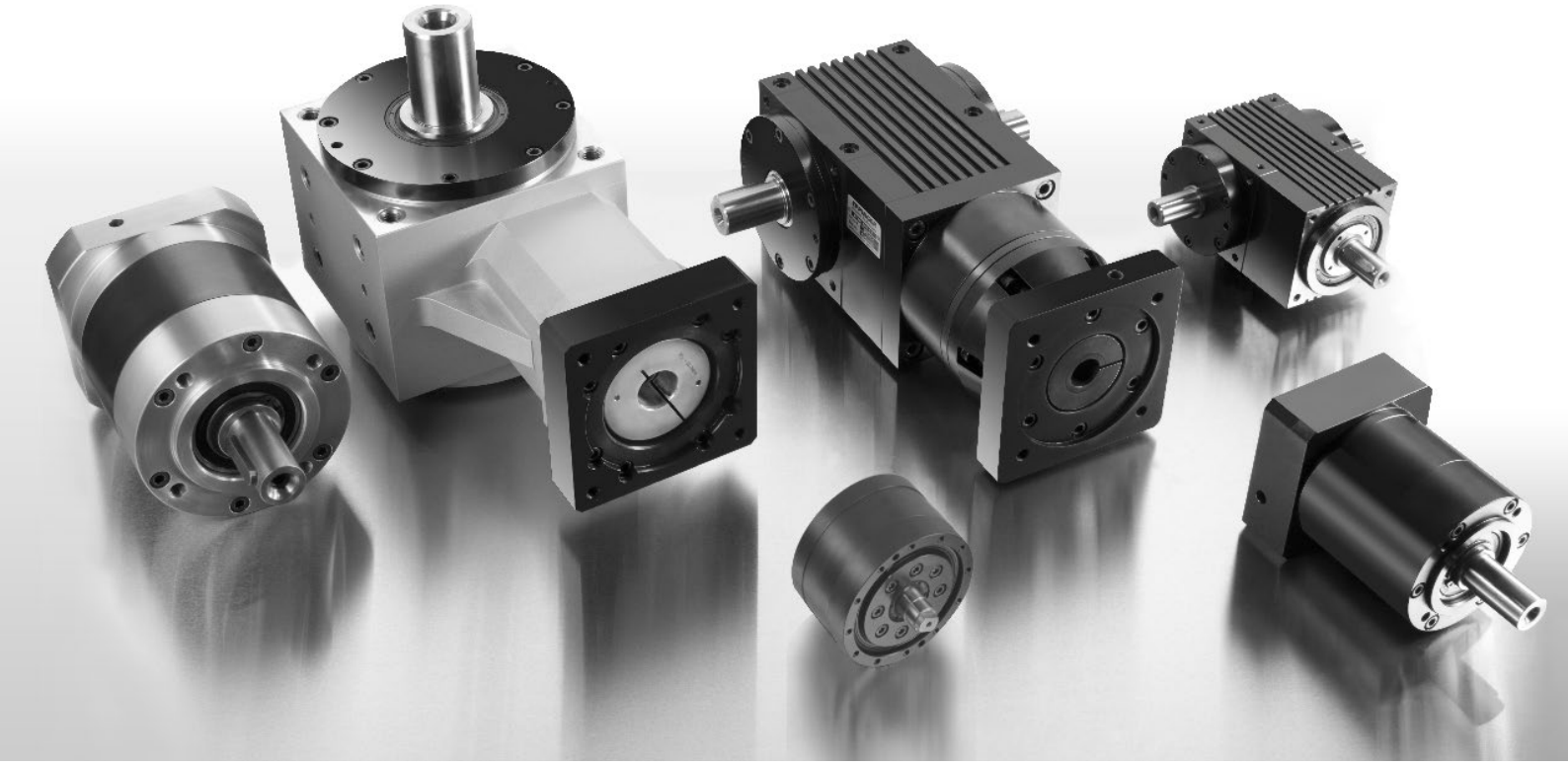


PBE dimensions (in mm)

			PBE040	PBE060	PBE080	PBE120	Stages
D1	Mounting thread- output side		M4x6	M5x8	M6x10	M10x16	all stages
D2	Pitch circle diameter - output side		34	52	70	100	
D3	Centering diameter - drive side	H7	to suit motor				
D4	Bore diameter- drive shaft (maximum)	(max.) G7	11	14	19	35	
D5	Outer diameter		42	60	80	120	
D6	Centering diameter - output side	h6	26	40	60	80	
D7	Shaft shoulder diameter		12	17	25	35	
D8	Shaft diameter - output side	h7	10	14	20	25	
D9	Pitch circle diameter - drive side		to suit motor				
D10	Mounting thread - drive side						
H1	Key height - output shaft		11,2	16	22,5	28	
KW1	Key width-output shaft		3	5	6	8	
L1	Depth of centering bore - drive side		to suit motor				
L2	Bore depth- drive side						
L3	Flange length - drive side						
L4	Overall length (for IP64)		135	154	192	298	1
			150	169	207	321	2
			164	184	222	343	3
L5	Shaft length from housing face - output side		26	35	40	56	all stages
L6	Shaft length from spigot - output side		23	30	36	50	
L7	Key length - output shaft		18	25	28	40	
L8	Key position from shaft end - output side		2,5	3	4	5	
L9	Spigot length - output side		2	3	3	4	
L16	Height of gearbox - drive side		to suit motor				
S1	Flange size - drive side						
TC1	Centre hole to DIN332 - output side		M3x9	M5x12	M6x16	M10x22	

We recommend technical clarification prior to ordering.

EPPINGER precision gear boxes at a glance



Our product range includes **bevel-, hypoid-, planetary-, cycloid-, special customized gearboxes and high precision gear technology.** The **compact mono-bloc design** makes our solutions **unique**.

EPPINGER
PRECISION GEAR SOLUTIONS

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