

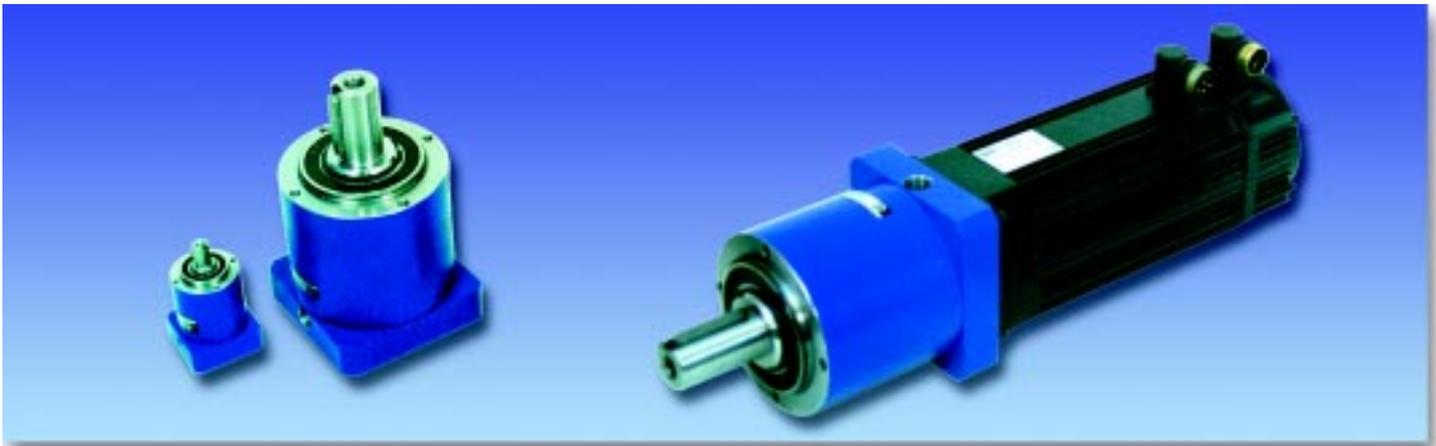
Panetary Gearboxes

For the adaption of speed and torque different gearbox solutions are available in the classical design of inline helical gear, spur worm gear, shaftmounted helical gear and helical bevel gear.

With the low backlash planetary gearboxes of the series Alpha, available in two performance variants

- **LP = 12/15'**
- **SP = 6/8'**, you get an optimal combination for dynamic tasks.

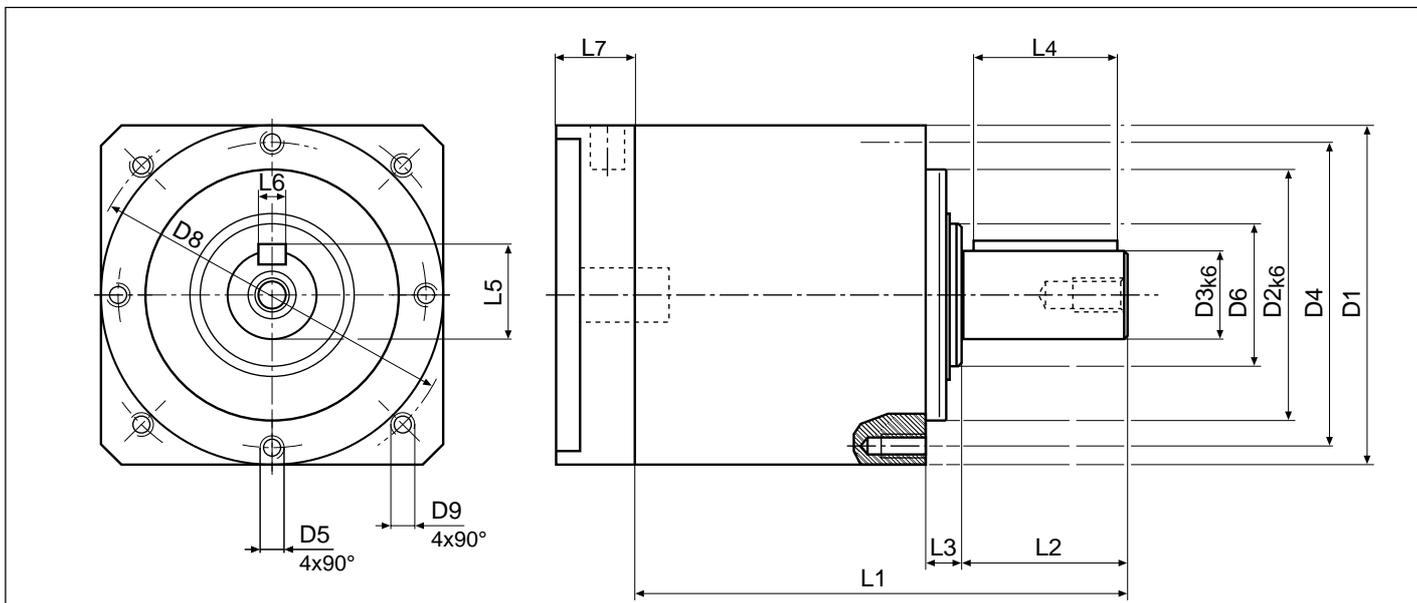
- **high reliability**
- **high efficiency > 95%**
- **maximum accuracy**
- **thermal length compensation**



Assignment Motor Size / Gear Ratio

Motor Size	n_N rpm	M_N Nm	LP 050	LP 070	LP 090	LP 120	LP 155	SP 060	SP 075	SP 100	SP 140	SP 180	SP 210
A1.SM.	6000	0.34	5...10	5...25				4...40	4...100				
A2.SM.	6000	0.5	5	5...10				4...28	4...50				
A3.SM.	6000	0.65	5	5...10				4...20	4...16				
A4.SM.	6000	1.0		5...10				4...16	4...40				
B1.SM.	6000	0.65	5	5...10	5...25			4...40	4...100				
B2.SM.	6000	1.5		5...10	5...25	5...50		4...10	4...40	4...100			
B3.SM.	6000	2.3		5	5...10	5...25		4...7	4...20	4...50			
C1.SM.	3000	1.0		5...10	5...25	5...50		4...10	4...40	4...100			
C2.SM.	3000	1.8		5	5...10	5...25		4...7	4...20	4...50			
C3.SM.	3000	2.8			5...10	5...25		4...5	4...10	4...28			
C4.SM.	3000	4.8				5...10			4...7	4...20			
D1.SM.	3000	3.4			5	5...10	5...25		4...7	4...20	28...50	70...100	
D2.SM.	3000	5.6			5	5...10	5...25		4...7	7...16	20...28	40...70	
D3.SM.	3000	7.5			5	5...10	5...25		4...5	7...10	16...28	40...50	
D4.SM.	3000	9.6				5...10	5...10		4...5	7...10	16...20	28...50	
E1.SM.	3000	8.4				5...10	5...10			4...10	16...20	28...40	50...70
E2.SM.	3000	12.0				5	5...10			4...7	10...16	20...28	40...50
E3.SM.	3000	15.5				5	5...10			4...7	4...10	16...28	40
E4.SM.	3000	20.5				5	5...10			4...5	7...10	16...28	28...40

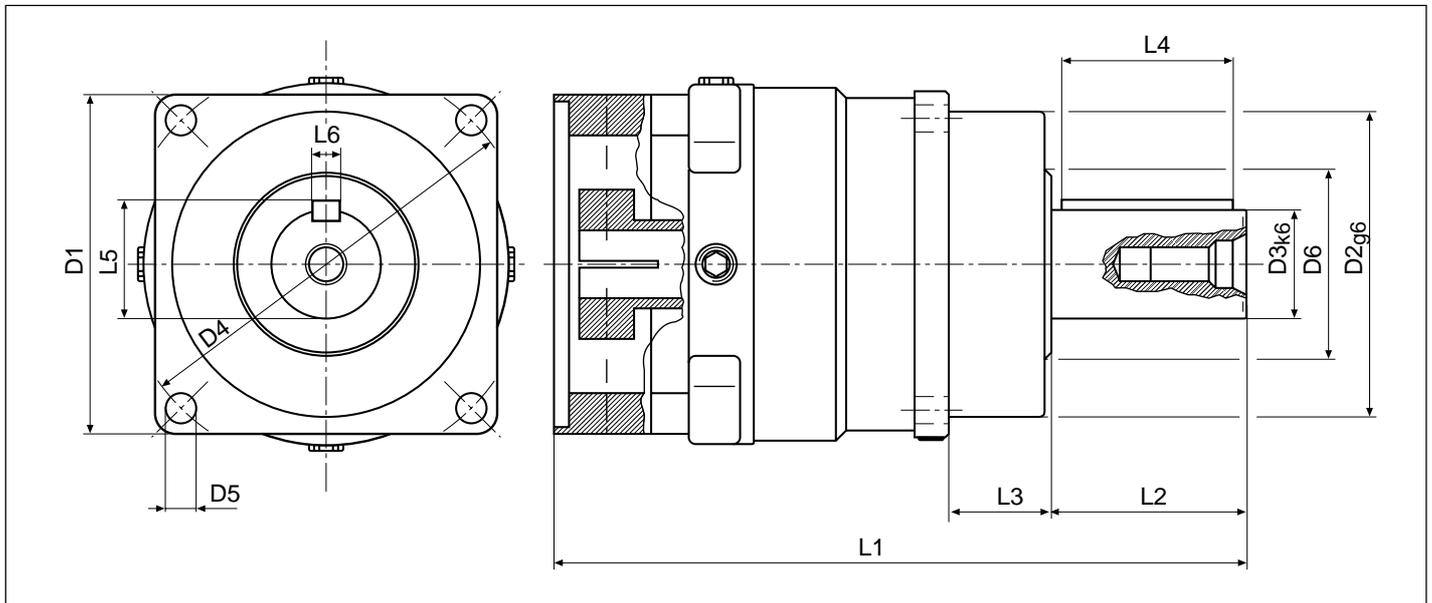
Technical Data LP Gearbox



Size [mm]	D1	D2 _{h6}	D3 _{k6}	D4	D5	D6	L1		L2	L3	L4	L5	L6	L7
	Ø						1-stage	2-stage						
LP 050	50	35	12	44	M4	17	75	91	18	6,5	14	13,5	4	20
LP 070	70	52	16	62	M5	25	104	124	28	8	25	18	5	22
LP 090	90	68	22	80	M6	40	126	152,5	36	10	32	24,5	6	28
LP 120	120	90	32	108	M8	50	172	204,5	58	12	50	35	10	38
LP 155	155	120	40	140	M10	62	219,5	250	82	15	70	43	12	45

Technical Data Gearbox		LP 050	LP 070	LP 090	LP 120	LP 155
Max. acceleration torque	T_{2B} [Nm]	11.5	32	80	200	400
Nominal torque	T_{2N} [Nm]	5.2	15	35	90	170
Max. radial load	F_{rmax} [N]	650	1450	2400	4600	7500
Max. axial load	F_{amax} [N]	700	1550	1900	4000	6000
Torsional backlash	jt [arcmin]	12-15	12 - 15	12 - 15	12 - 15	12 - 15
Torsional rigidity	Ct.21 [Nm/arcmin]	0.9	3.3	9	24	55
Max. input speed	m_{max} [min ⁻¹]	8000	6000	6000	4800	3600
Nominal input speed	m_{nom} [min ⁻¹]	4000	3000	3000	2400	1800
Output shaft	$d_{shaft} * l_{shaft}$ [mm]	12 x 18	16 x 28	22 x 36	32 x 58	40 x 82

Technical Data SP Gearbox



Size [mm]	D1	D2 _{h6}	D3 _{k6}	D4	D5	D6	L1		L2	L3	L4	L5	L6
	Ø						1st.	2st.					
SP 060	62	60	16	68	5.5	30	129	149	28	20	25	18	5
SP 075	76	70	22	85	6.6	38	156	182.5	36	20	32	24.5	6
SP 100	101	90	32	120	9	55	202	234.5	58	30	50	35	10
SP 140	141	130	40	165	11	70	256.5	296.5	82	30	70	43	12
SP 180	182	160	55	215	13	90	297	315.5	82	30	70	59	16
SP 210	212	180	75	250	17	120	350	397	105	38	90	79.5	20

Technical Data Gearbox		SP 060	SP 075	SP 100	SP 140	SP 180	SP 210
Max. acceleration torque	T_{2B} [Nm]	40	100	250	500	1100	1900
Nominal torque	T_{2N} [Nm]	25	70	170	360	1050	1500
Max. radial load	F_{rmax} [N]	2600	3800	6000	9000	14000	18000
Max. axial load	F_{amax} [N]	1300	1900	3000	4500	7000	9000
Torsional backlash	jt [arcmin]	< 6	< 6	< 4	< 4	< 4	< 4
Torsional rigidity	Ct.21 [Nm/arcmin]	3	8	24	45	144	400
Max. input speed	m_{max} [min ⁻¹]	6000	6000	4500	4000	3500	3000
Nominal input speed	m_{nom} [min ⁻¹]	4000	3000	2500	2000	2000	1500
Output shaft	$d_{shaft} * l_{shaft}$ [mm]	16 x 28	22 x 36	32 x 58	40 x 82	55 x 82	75 x 105