

# LOW-BACKLASH PLANETARY GEARS



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Type: RPS060	Ratio: i=4
Serial-No.: 000001	
Lubricated for Life	



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# RPL PLANETARY GEAR

- High torsional stiffness
- Robust output bearing, high radial and axial forces permitted
- Long service life
- Short construction type



## RPL PLANETARY GEAR

Diameter of the gear housing (mm)		50	70	90	120	155
Nominal output torque (Nm)		7	23 - 24	37 - 60	75 - 130	220 - 340
Acceleration torque (Nm)		14	46 - 48	74 - 120	150 - 260	440 - 680
Emergency stop torque (Nm)		21	69 - 72	111 - 180	225 - 390	660 - 1020
Transmission ratio	1-st.	5, 7, 10	3, 5, 7, 10	3, 5, 7, 10	3, 5, 7, 10	3, 4, 5, 7, 10
	2-st.	25, 30, 35, 50, 70, 100	15, 25, 30, 35, 50, 70, 100	15, 25, 30, 35, 50, 70, 100	15, 25, 30, 35, 50, 70, 100	15, 20, 25, 30, 35, 40, 50, 70, 100
Circumferential backlash (arcmin)	1-st.	<=10	<=8	<=8	<=8	<=8
	2-st.	<=14	<=12	<=11	<=10	<=10

## A SUMMARY OF THE ADVANTAGES TO YOU:

### Minimal circumferential backlash

enables the greatest positioning accuracy

### Simple assembly

fast and uncomplicated assembly keeps installation and maintenance times to a minimum

### Any installation position

reliably ready for use in all situations

### Lifetime lubrication

maintenance-free over the entire service life

### Customer-specific configuration

with regard to torque, rotational speed and adaptation to interfaces

### Flanges & adapter sleeves

for all common motors

### High output torques

permanently high load-bearing capacity over the entire service life

### High efficiency levels

efficient use of energy is becoming increasingly important

# RPL PLANETARY GEAR

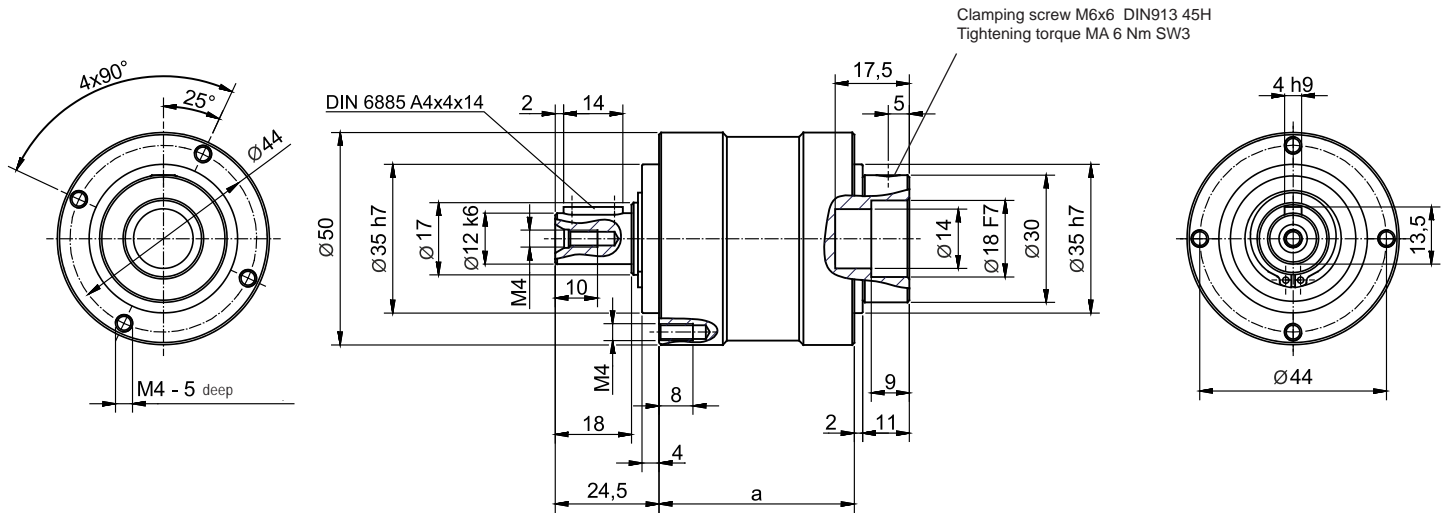


## STRENGTHS OF THE RPL RANGE:

The RPL range is characterised by a very robust design. The hollow gears and output shafts used are designed in such a way that high torsional stiffness levels are possible. Planetary gears are also ideal for use in applications with large radial or axial loads.

Due to the gear ratio of  $i=10$  in the first planetary gear stage, ratios of up to  $i=100$  can be achieved in the 2-stage version.





## RPL050 Planetary Gear

Dimensions with gear stages	a	Weight
1-stage	48 mm	0,6 kg
2-stage	64 mm	0,8 kg

### RPL050 Performance Data

i tot.	Stages	Nominal drive speed $n_1$ [rpm]	Max. drive speed $n_1$ max. [rpm]	Nominal torque $T_{2N}^{-1}$ [Nm]	Max. acceleration torque $T_{2B}^{-2}$ [Nm]	Emergency stop torque $T_{2EMG}^{-3}$ [Nm]	Circumferential backlash jt [arcmin]	Efficiency level $\eta$ [%]	Torsional stiffness $c_t$ [Nm/arcmin]	Mass moment of inertia $J_1^{-4}$ [kg cm <sup>2</sup> ]
5	1	4000	8000	7	14	21	$\leq 10$	$> 97$	0,9	0,06
7	1	4000	8000	7	14	21	$\leq 10$	$> 97$	0,9	0,06
10	1	4000	8000	7	14	21	$\leq 10$	$> 97$	0,75	0,06
25	2	4000	8000	7	14	21	$\leq 14$	$> 95$	0,9	0,052
35	2	4000	8000	7	14	21	$\leq 14$	$> 95$	0,9	0,052
50	2	4000	8000	7	14	21	$\leq 14$	$> 95$	0,9	0,052
70	2	4000	8000	7	14	21	$\leq 14$	$> 95$	0,9	0,052
100	2	4000	8000	7	14	21	$\leq 14$	$> 95$	0,75	0,052

\*1 Service life 20,000 h,  $n_2 = 100$  rpm

\*2 ( max. 1000 cycles an hour. T2B share <5% of the total running time)

\*3 ( max. 1000 cycles during the lifetime of the gears)

\*4 relative to the drive shaft

Fluid grease lubrication (lifetime-lubricated)

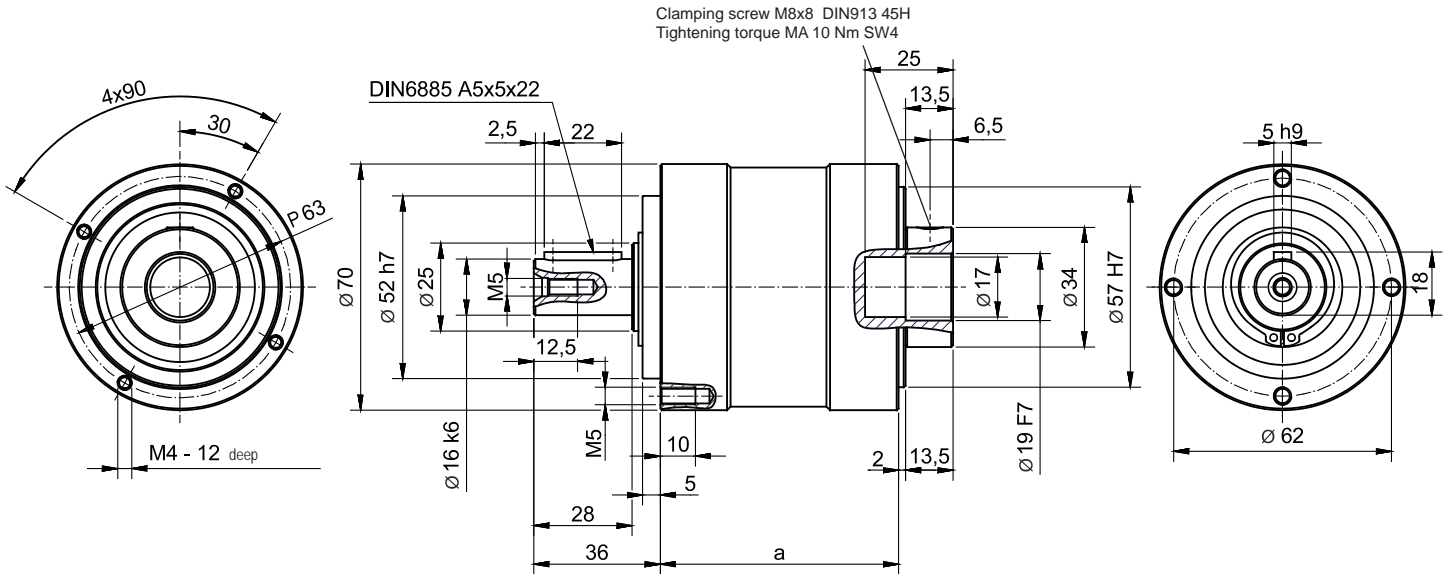
Any installation position

Sound pressure level at a distance of 1 m, measured at a drive speed of 3000 rpm < 68 db(A)

Max. axial force relative to the centre of the output shaft: 700 N,  $n_2 = 100$  rpm

Max. radial force relative to the centre of the output shaft: 650 N,  $n_2 = 100$  rpm

Temperature range: -25 °C to +90 °C



## RPL070 Planetary Gear

Dimensions with gear stages	a	Weight
1-stage	70 mm	1,8 kg
2-stage	91.5 mm	2,3 kg

### RPL070 Performance Data

i tot.	Stages	Nominal drive speed $n_1$ [rpm]	Max. drive speed $n_1$ max. [rpm]	Nominal torque $T_{2N}^{-1}$ [Nm]	Max. acceleration torque $T_{2B}^{-2}$ [Nm]	Emergency stop torque $T_{2EMG}^{-2}$ [Nm]	Circumferential backlash jt [arcmin]	Efficiency level $\eta$ [%]	Torsional stiffness $c_t$ [Nm/arcmin]	Mass moment of inertia $J_1^{-4}$ [kg cm <sup>2</sup> ]
3	1	3700	6000	23	46	69	<= 8	> 97	3,30	0,029
5	1	3700	6000	24	48	72	<= 8	> 97	3,30	0,029
7	1	3700	6000	23	46	69	<= 8	> 97	3,30	0,029
10	1	3700	6000	23	46	69	<= 8	> 97	2,80	0,029
15	2	3700	6000	24	48	72	<= 12	> 95	3,30	0,026
25	2	3700	6000	24	48	72	<= 12	> 95	3,30	0,026
30	2	3700	6000	23	46	69	<= 12	> 95	3,30	0,026
35	2	3700	6000	24	48	72	<= 12	> 95	3,30	0,026
50	2	3700	6000	24	48	72	<= 12	> 95	3,30	0,026
70	2	3700	6000	23	46	69	<= 12	> 95	3,30	0,026
100	2	3700	6000	23	46	69	<= 12	> 95	2,80	0,026

\*1 Service life 20,000 h,  $n_2 = 100$  rpm

\*2 ( max. 1000 cycles an hour. T2B share <5% of the total running time)

\*3 ( max. 1000 cycles during the lifetime of the gears)

\*4 relative to the drive shaft

Fluid grease lubrication (lifetime-lubricated)

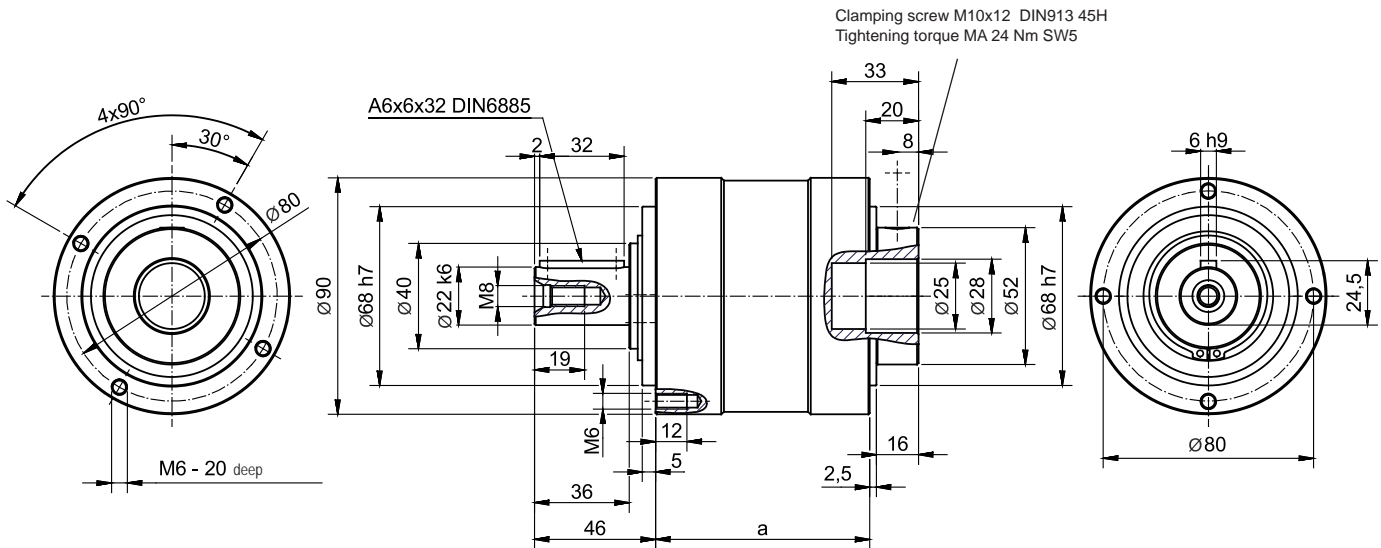
Any installation position

Sound pressure level at a distance of 1 m, measured at a drive speed of 3000 rpm < 70 db(A)

Max. axial force relative to the centre of the output shaft: 1550 N,  $n_2 = 100$  rpm

Max. radial force relative to the centre of the output shaft: 1450 N,  $n_2 = 100$  rpm

Temperature range: -25 °C to +90 °C



## RPL090 Planetary Gear

Dimensions with gear stages	a	Weight
1-stage	84 mm	3,7 kg
2-stage	110 mm	4,6 kg

### RPL090 Performance Data

i tot.	Stages	Nominal drive speed $n_1$ [rpm]	Max. drive speed $n_1$ max. [rpm]	Nominal torque $T_{2N}^{-1}$ [Nm]	Max. acceleration torque $T_{2B}^{-2}$ [Nm]	Emergency stop torque $T_{2EMG}^{-3}$ [Nm]	Circumferential backlash jt [arcmin]	Efficiency level $\eta$ [%]	Torsional stiffness $c_t$ [Nm/arcmin]	Mass moment of inertia $J_1^{-4}$ [kg cm <sup>2</sup> ]
3	1	3400	6000	60	120	180	$\leq 8$	$> 97$	9,00	1,73
5	1	3400	6000	50	100	150	$\leq 8$	$> 97$	9,00	1,73
7	1	3400	6000	50	100	150	$\leq 8$	$> 97$	9,00	1,73
10	1	3400	6000	37	74	111	$\leq 8$	$> 97$	7,50	1,73
15	2	3400	6000	60	120	180	$\leq 11$	$> 95$	9,00	1,48
25	2	3400	6000	50	100	150	$\leq 11$	$> 95$	9,00	1,48
30	2	3400	6000	60	120	180	$\leq 11$	$> 95$	9,00	1,48
35	2	3400	6000	50	100	150	$\leq 11$	$> 95$	9,00	1,48
50	2	3400	6000	50	100	150	$\leq 11$	$> 95$	9,00	1,48
70	2	3400	6000	50	100	150	$\leq 11$	$> 95$	9,00	1,48
100	2	3400	6000	37	74	111	$\leq 11$	$> 95$	7,50	1,48

\*1 Service life 20,000 h,  $n_2 = 100$  rpm

\*2 ( max 1000 cycles an hour. T2B share <5% of the total running time)

\*3 ( max. 1000 cycles during the lifetime of the gears)

\*4 relative to the drive shaft

Fluid grease lubrication (lifetime-lubricated)

Any installation position

Sound pressure level at a distance of 1 m, measured at a drive speed of 3000 rpm < 72 db(A)

Max. axial force relative to the centre of the output shaft: 1900 N,  $n_2 = 100$  rpm

Max. radial force relative to the centre of the output shaft: 2400 N,  $n_2 = 100$  rpm

Temperature range: -25 °C to +90 °C



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