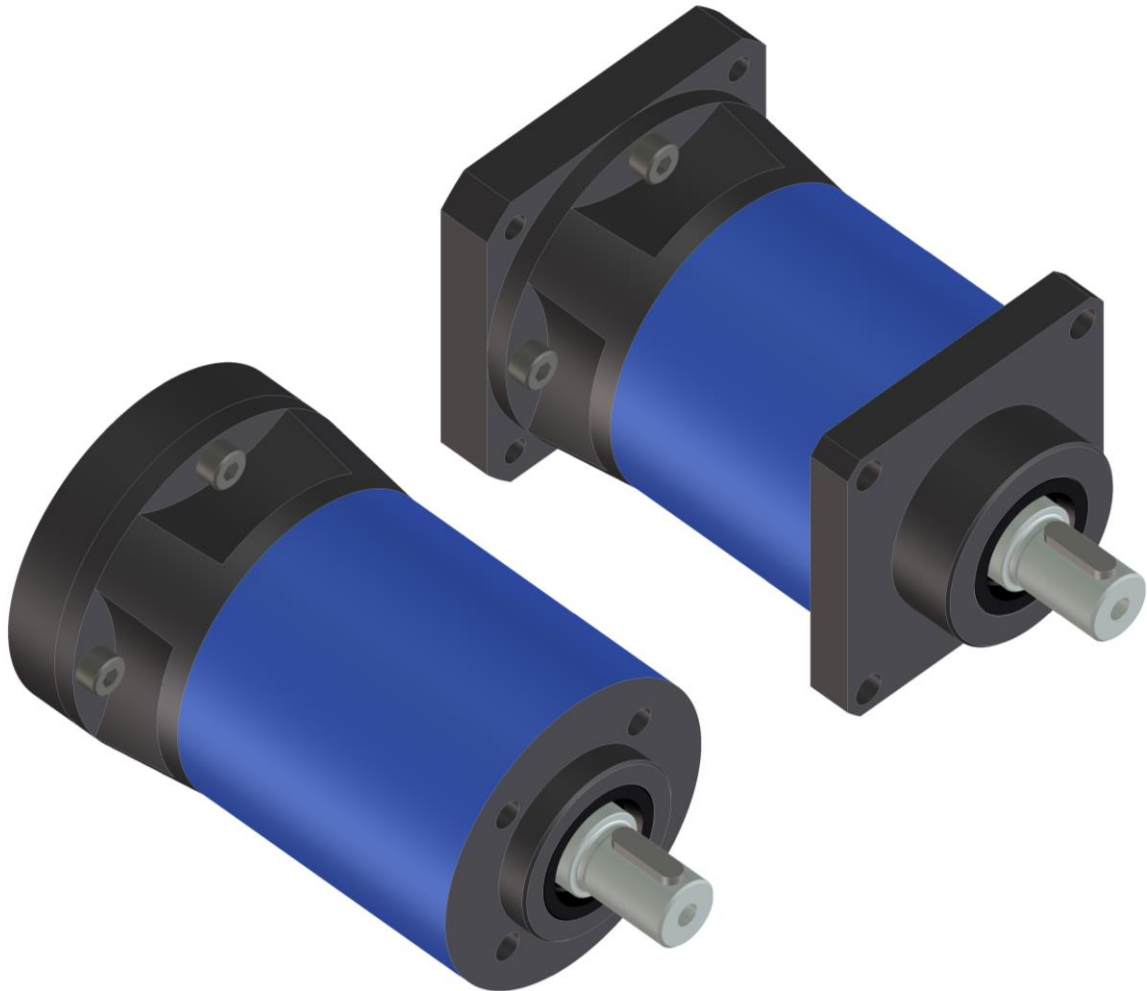


# GPR Planetary Gears

Precision series with high torque and reduced circumferential backlash



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This catalogue contains product specifications,  
but no assurance of properties.  
We reserve the right for technical changes and changes of availability.

## 1. Description

**GPR series** planetary gears offer a combination of economy and dynamic, compact coaxial design.

They are ideally suited for applications where no reduced circumferential backlash is required at the output shaft.

Load distribution to 3 planetary wheels within the planetary gear results in high power density combined with compact design.

- Reduced circumferential backlash
- High dynamics
- Low inertia torque
- High torsional stiffness
- High overload capacity
- High efficiency > 96%
- Service life = 20,000 h
- Lubrication and sealing for entire service life
- Coaxial drive and output

The **GPR series** consists of 5 sizes: GPR75, GPR100, GPR125 and GPR150

- Torque ranges from 35 Nm to 600 Nm
- Transmission between  $i = 3$  and  $i = 343$

At the output side of the gears, the engineer has the choice between 2 types

- B14T
- B5T

Motor attachment is easy, safe and fast via clamp coupling. Motors of a variety of brands can be mounted due to drive-side adaptation via "flange and clamping shaft".

**GPR series** planetary gears are ideally suited for dynamic positioning and continuous operation, such as for:

- The casing is made of rugged special nitrided steel
- The shafts are made of tempered steel
- The cogs are made of steel with ground tooth flanks
- The drive and output flanges are made of aluminium
- The bearing is high quality and generously dimensioned
- Packaging machinery
- Automation technology
- Machine tools
- Robots
- Printing machines
- Linear guides
- Woodworking equipment
- and many more.

## 2. Order information

Dimensions	Trans- mission	Output shaft...	Output flange Design type	Hollow drive shaft Ø D32	Drive flange Code P	Installatio n Position
GPR 75 100 125 150	- 3 - 343	- 12 - 40	B14 B5	- 6 - 38	- P1 - P40	H VO VU H90

For example:

GPR 75 - 5 - 16 - B14 - 9 - P15 - H

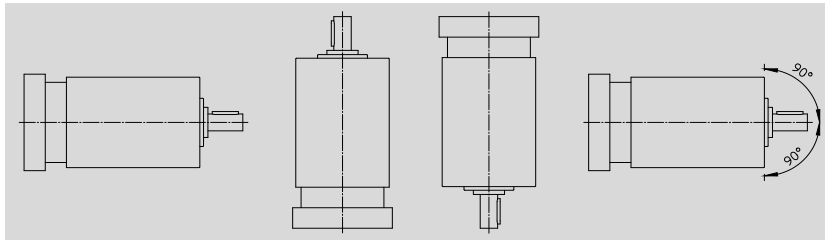
If the motor to be attached has different flange and shaft dimensions, please request the following dimensions from Heytraction:

Motor flange: Centering Ø, pitch circle Ø, hole Ø / thread

Motor shaft: Shaft Ø, shaft length

### Installation Position

H	VO	VU	H90
Horizontal	Vertical Output top	Vertical Output bottom	Horizontal 90 ° swivel-type



### Lubrication

Planetary gears are supplied with permanent lubrication and are therefore maintenance-free.

### 3D models

Models in neutral step format can be found on our website:  
[www.heytraction.de](http://www.heytraction.de)

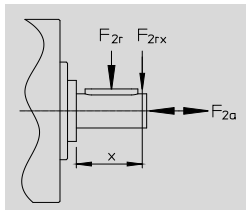
For example: GPR75\_ig-3-4-5-6\_16\_B14\_D32-all\_P-all\_3D\_STEP.zip  
This zip-file contains planetary gear model GPR75 with transmission ig=5, output shaft ø16, output flange B14, all drive flanges with Code P and all hollow shafts øD32.

### 3. Gear selection

These conditions should be checked		Calculation of the required transmission torque			
		Intermittent periodic operation S3 mode		Continuous operation S1 mode	
1.	Torque: Application to gear	$T_{App} \leq T_{2N}$	$T_{App} = T_M * i * v * fz \leq T_{2N}$	$T_{App} = \frac{T_M * i * v * fz}{0,65} \leq T_{2N}$	
			Cycles per hour		
			≤ 1000	≥ 1000	≥ 2000
			1	1.2	1.5
					≥ 3000
					2
2.	Torque: Application to gear	$T_{App} \leq T_{2B}$	Only possible for short cycle times, please contact Heytraction		
3.	Speed: Motor to gear	$n_M \leq n_{1n}$			
4.	Radial force at output shaft: Application to gear	$F_{rApp} \leq F_{2r}$			
5.	Axial force at output shaft: Application to gear	$F_{aApp} \leq F_{2a}$			
6.	Motor attachment: Motor to gear	Flange and shaft			

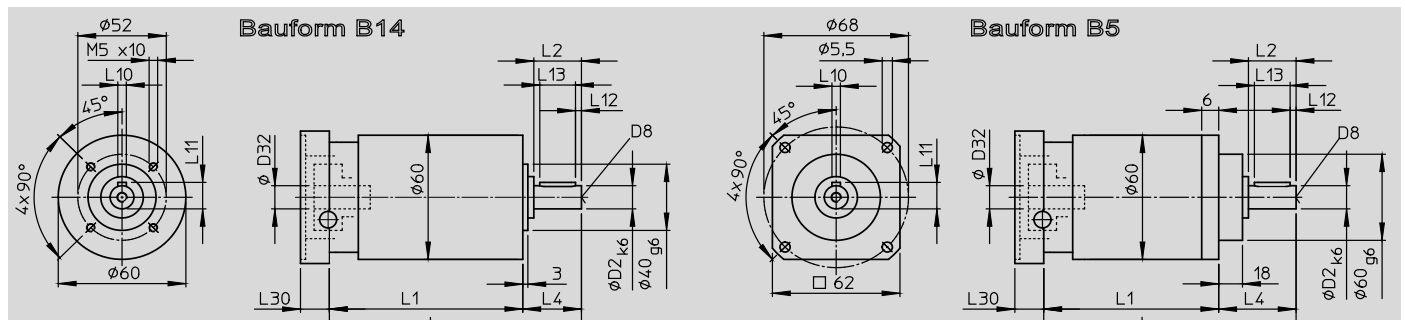
#### Radial force, not at the centre of gear output shaft

$F_{2rx} = \frac{F_{2r} * a}{b + a}$		GPR75	GPR100	GPR125	GPR150
a		46	55	85	102
b		30	37	51	61

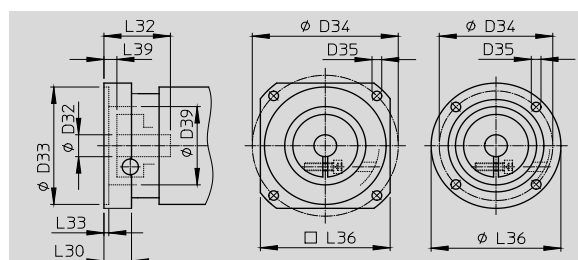


#### 4. GPR75 Technical Data and Dimensions, $T_{2N} = 30 - 55 \text{ Nm}$

i		3	4	5	6	9	12	16	20	24	30	36	48	64	80	100	120	144	180	216					
Number of steps		1				2						3													
$T_{2N}$	[Nm]	35	45	35	30	40	50	50	50	50	30	35	55	55	55	55	55	55	40	35					
$T_{2B}$	[Nm]	55	65	55	50	60	70	70	70	70	60	55	80	80	80	80	80	80	60	55					
$T_{2NOT}$	[Nm]	100	130	110	110	120	140	140	140	140	120	110	150	150	150	150	150	150	120	110					
$n^{1N}$	[min-1]	min-1	4000				4500						5000												
$n^{1max}$	[min-1]	-	At $n_2=100 \text{ min}^{-1}$ and $L_h=20000 \text{ h}$ ; $F_{2r}$ = centre of output shaft; for conversion to other working point, see page						6000																
$F_{2r}$	[N]	N	At $n_2=100 \text{ min}^{-1}$ and $L_h=20000 \text{ h}$ ; $F_{2r}$ = centre of output shaft; for conversion to other working point, see page						1400																
$F_{2a}$	[N]	N	At $n_2=100 \text{ min}^{-1}$ and $L_h=20000 \text{ h}$ ; $F_{2r}$ = centre of output shaft; for conversion to other working point, see page						700																
G	[kg]	arcmin	1.3						1.6						1.9										
$\alpha^{2max}$	[arcmin]	Nm/arcmin	4'						6'						8'										
V	-	arcmin	0.96						0.93						0.91										
$c^1$	[Nm/arcmin]	h	Bearing service life						4																
$L^h$	[h]	$\text{dB(A)}$	At $n_1=3000 \text{ min}^{-1}$						-20000																
Lubrication		kgcm <sup>2</sup>	Service life																						
$L^{pA}$		$\text{dB(A)}$	kgcm <sup>2</sup>																						
$f_z$	Cyclo factor																								
B14-B5	$\phi D_2=12$	L	107.2						124.9						142.6										
	$\phi D_2=14-16$	L	114.2						131.9						149.6										
B14	$\phi D_2=12-14-16$	L1	Nm	77.7						95.4						113.1									
B5	$\phi D_2=12-14-16$	L1	Nm/min-1	80.7						98.4						116.1									
B14-B5	$\phi D_2=12$	L2	min-1	21						28															
	$\phi D_2=14-16$	L2																							
B14	$\phi D_2=12$	L4	Nm	26.5						33.5															
	$\phi D_2=14-16$	L4																							
B5	$\phi D_2=12$	L4		41						48															
	$\phi D_2=14-16$	L4																							
B14-B5	$\phi D_2=12$	L10		A4x4						13.5						3									
		L11		15						M4x10															
		L12		A5x5						18						2									
		L13		25						M5x13															
		D8																							
B14-B5	$\phi D_2=14-16$	L10		A5x5						18						2									
		L11		25						M5x13															
		L12																							
		L13																							
		D8																							
		$\phi D_{32}$	6-6.35-7-8-9-9.52 11-12-12.7-14																						

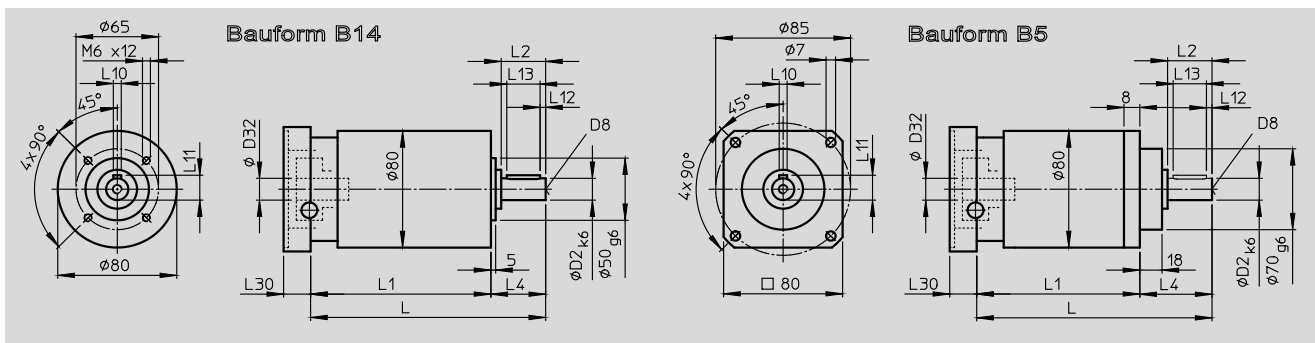


GPR75 Drive side, flange and hollow shaft																														
Code	Motor mounting Page 14 Section 6-7	Drive flange												Hollow drive shaft																
														øD32																
		ø	D33 H7	ø	D34	ø	D35	ø	D39	L30	L33	□	ø	L36	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39		
P01	x	ø	22	ø	43.82	ø	4.5	ø	22	10	3	□	ø	60	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P02	x	ø	38.1	ø	66.67	ø	5.5	ø	32	10	3	□	ø	60	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P03	x	ø	40	ø	63	ø	5.5	ø	32	10	3.5	□	ø	60	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P04		ø	60	ø	75	ø	6.5	ø	32	10.5	3.5	□	ø	70	37.5	7	37.5	7	37.5	7	28.5	9	28.5	9	37.5	9	28.5	9	37.5	9
P05		ø	70	ø	85	ø	6.5	ø	32	10.5	3.5	□	ø	105	37.5	7	37.5	7	37.5	7	28.5	9	28.5	9	37.5	9	28.5	9	37.5	9
P06		ø	73.02	ø	98.42	ø	6	ø	35	11	3.5	□	ø	80	38	7.5	38	7.5	38	7.5	29	9.5	29	9.5	38	9.5	29	9.5	38	9.5
P07		ø	80	ø	100	ø	6.5	ø	32	11.5	4	□	ø	95	38.5	8	38.5	8	38.5	8	29.5	10	29.5	10	38.5	10	29.5	10	38.5	10
P08		ø	95	ø	115	ø	9	ø	32	11.5	4	□	ø	98	38.5	8	38.5	8	38.5	8	29.5	10	29.5	10	38.5	10	29.5	10	38.5	10
P09		ø	110	ø	130	ø	9	ø	32	12	4.5	□	ø	116	39	8.5	39	8.5	39	8.5	30	10.5	30	10.5	39	10.5	30	10.5	39	10.5
P10	x	ø	26	ø	39	ø	4.5	ø	26	10	3	□	ø	60	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P11	x	ø	32	ø	42	ø	4.5	ø	32	10	3	□	ø	60	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P12	x	ø	32	ø	46	ø	4.5	ø	32	10	3.5	□	ø	65	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P13	x	ø	50	ø	65	ø	5.5	ø	32	10	3.5	□	ø	80	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P14	x	ø	20	ø	39	ø	4.5	ø	20	10	2.5	□	ø	60	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P15		ø	60	ø	90	ø	5.8	ø	32	12	3.5	□	ø	75	39	8.5	39	8.5	39	8.5	30	10.5	30	10.5	39	10.5	30	10.5	39	10.5
P16	x	ø	30	ø	45	ø	3.5	ø	30	14	7	□	ø	60	41	10.5	41	10.5	41	10.5	32	12.5	32	12.5	41	12.5	32	12.5	41	12.5
P17		ø	50	ø	70	ø	4.5	ø	32	16.5	8	□	ø	60	43.5	13	43.5	13	43.5	13	34.5	15	34.5	15	43.5	15	34.5	15	43.5	15
P18		ø	50	ø	60	M	4	ø	32	10.5	3.5	□	ø	60	37.5	7	37.5	7	37.5	7	28.5	9	28.5	9	37.5	9	28.5	9	37.5	9
P19	x	ø	25	ø	36	ø	4.5	ø	25	10	3	□	ø	60	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P20		ø	50	ø	70	ø	5.5	ø	32	10.5	3.5	□	ø	60	37.5	7	37.5	7	37.5	7	28.5	9	28.5	9	37.5	9	28.5	9	37.5	9
P21		ø	30	ø	46	ø	4.5	ø	30	10	3	□	ø	60	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P22		ø	36	ø	70.71	ø	4.5	ø	32	10	2	□	ø	60	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P23		ø	50	ø	70	ø	5.5	ø	32	15.5	3.5	□	ø	62	42.5	12	42.5	12	42.5	12	33.5	14	33.5	14	42.5	14	33.5	14	42.5	14
P24		ø	70	ø	90	ø	5.8	ø	32	12	3.5	□	ø	75	39	8.5	39	8.5	39	8.5	30	10.5	30	10.5	39	10.5	30	10.5	39	10.5
P25		ø	55	ø	85	ø	5.8	ø	32	12	3.5	□	ø	70	39	8.5	39	8.5	39	8.5	30	10.5	30	10.5	39	10.5	30	10.5	39	10.5
P26		ø	34	ø	65.5	ø	5.5	ø	33	10	3.5	□	ø	60	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P27		ø	50	ø	95	ø	6.5	ø	32	12	3.5	□	ø	80	39	8.5	39	8.5	39	8.5	30	10.5	30	10.5	39	10.5	30	10.5	39	10.5
P28		ø	38.1	ø	66.67	M	4	ø	32	9	2.5	□	ø	60	36	5.5	36	5.5	36	5.5	27	7.5	27	7.5	36	7.5	27	7.5	36	7.5
P29		ø	30	ø	45	M	3	ø	32	11	4	□	ø	60	38	7.5	38	7.5	38	7.5	29	9.5	29	9.5	38	9.5	29	9.5	38	9.5
P30		ø	60	ø	85	ø	5.8	ø	32	12	3.5	□	ø	70	39	8.5	39	8.5	39	8.5	30	10.5	30	10.5	39	10.5	30	10.5	39	10.5
P31		ø	50	ø	70	M	4	ø	32	11	3.5	□	ø	62	38	7.5	38	7.5	38	7.5	29	9.5	29	9.5	38	9.5	29	9.5	38	9.5
P32		ø	40	ø	65	M	5	ø	32	10	3.5	□	ø	60	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P33		ø	60	ø	99	ø	5.5	ø	32	11	3.5	□	ø	85	38	7.5	38	7.5	38	7.5	29	9.5	29	9.5	38	9.5	29	9.5	38	9.5
P34		ø	40	ø	73.54	M	4	ø	32	10	3.5	□	ø	65	37	6.5	37	6.5	37	6.5	28	8.5	28	8.5	37	8.5	28	8.5	37	8.5
P35		ø	36	ø	70.71	M	4	ø	32	14	2	□	ø	60	41	10.5	41	10.5	41	10.5	32	12.5	32	12.5	41	12.5	32	12.5	41	12.5
P36		ø	73.02	ø	98.42	ø	6	ø	35	15	3.5	□	ø	85	42	11.5	42	11.5	42	11.5	33	13.5	33	13.5	42	13.5	33	13.5	42	13.5
P37		ø	80	ø	100	ø	6.5	ø	32	16.5	5	□	ø	95	43.5	13	43.5	13	43.5	13	34.5	15	34.5	15	43.5	15	34.5	15	43.5	15



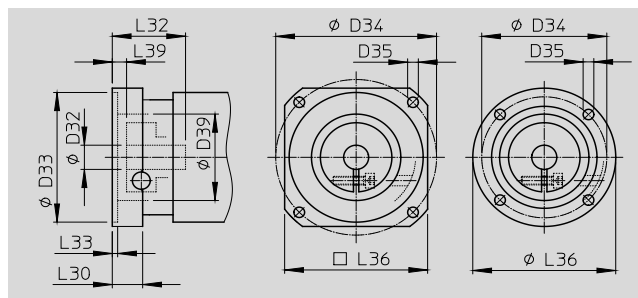
### 5. GPR100 Technical Data and Dimensions, $T_{2N} = 75 - 120 \text{ Nm}$

i		3	4	5	6	9	12	16	20	24	30	36	48	64	80	100	120	144	180	216		
Number of steps		1				2						3										
$T^{2N}$	[Nm]	90	110	90	75	100	115	115	115	115	85	75	120	120	120	120	120	120	95	80		
$T^{2B}$	[Nm]	145	170	130	120	160	180	180	180	180	140	130	190	190	190	190	190	190	150	130		
$T^{2NOT}$	[Nm]	290	340	260	240	320	360	360	360	360	280	260	380	380	380	380	380	380	300	260		
$n^{1N}$	[min <sup>-1</sup> ]	4000				4500						5000										
$n^{1max}$	[min <sup>-1</sup> ]	6000																				
$F^{2r}$	[N]	2100																				
$F^{2a}$	[N]	1050																				
G	[kg]	2.7				3.5						4.3										
$\alpha^{2max}$	[arcmin]	4'				6'						8'										
v	-	0.96				0.93						0.91										
$c^t$	[Nm/arcmin]	11																				
$L^h$	[h]	~20,000																				
Lubrication		Service life																				
$L^{pA}$	[dB(A)]	<70																				
B14-B5	$\phi D2=19-22$	L	138				163						188.5									
B14	$\phi D2=19-22$	L1	95				120						145.5									
B5	$\phi D2=19-22$	L1	82				107						132.5									
B14-B5	$\phi D2=19-22$	L2	36																			
B14	$\phi D2=19-22$	L4	43																			
B5	$\phi D2=19-22$	L4	56																			
B14-B5	$\phi D2=19$	L10	A6x6																			
		L11	21.5																			
		L12	3																			
		L13	30																			
		D8	M6x16																			
	$\phi D2=22$	L10	A6x6																			
		L11	24.5																			
		L12	3																			
		L13	30																			
		D8	M6x16																			
$\phi D32$		9-9.52-11-12-12.7-14-15.87-16-19																				



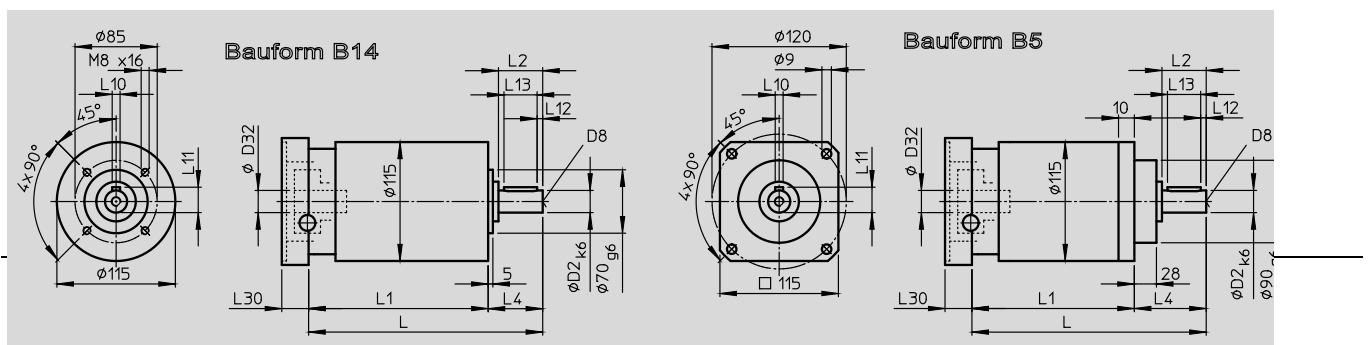


GPR100 Drive side, flange and hollow shaft																																
Code	Motor mounting Page 14 Section 6-7	Drive flange											Hollow drive shaft																			
		Ø	D33 H7	Ø	D34	Ø	D35	Ø	D39	L30	L33	□	L36	ØD32																		
														L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39			
P01	x	Ø	38.1	Ø	66.67	Ø	5.5	Ø	38.1	12	3	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P02		Ø	55.52	Ø	125.72	Ø	7	Ø	45	11	3	□	Ø	106	40	2.5	40	5	25	5	40	5	40	5	40	5	40	5	40	5	40	5
P03	x	Ø	60	Ø	75	Ø	5.5	Ø	45	12	3.5	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P04	x	Ø	70	Ø	85	Ø	6.5	Ø	45	12	3.5	□	Ø	105	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P05		Ø	73.02	Ø	98.425	Ø	6.5	Ø	45	12	3	□	Ø	82.5	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P06		Ø	80	Ø	100	Ø	6.5	Ø	45	13	4	□	Ø	90	42	4.5	42	7	27	7	42	7	42	7	42	7	42	7	42	7	42	7
P07		Ø	95	Ø	115	Ø	8.5	Ø	45	13	4.5	□	Ø	100	42	4.5	42	7	27	7	42	7	42	7	42	7	42	7	42	7	42	7
P08		Ø	110	Ø	130	Ø	9	Ø	45	13	4.5	□	Ø	116	42	4.5	42	7	27	7	42	7	42	7	42	7	42	7	42	7	42	7
P09	x	Ø	26	Ø	39	Ø	4.5	Ø	26	12	4	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P10	x	Ø	50	Ø	65	Ø	5.5	Ø	45	12	3.5	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P11		Ø	115	Ø	166	Ø	9	Ø	50	32	11	□	Ø	150	61	23.5	61	26	46	26	61	26	61	26	61	26	61	26	61	26	61	26
P12	x	Ø	70	Ø	90	Ø	6.5	Ø	32	12	3.5	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P14	x	Ø	70	Ø	90	Ø	6	Ø	32	19	9	□	Ø	105	48	10.5	48	13	33	13	48	13	48	13	48	13	48	13	48	13	48	13
P15	x	Ø	50	Ø	70	Ø	4.5	Ø	45	17	8	□	Ø	80	46	8.5	46	11	31	11	46	11	46	11	46	11	46	11	46	11	46	11
P16		Ø	130	Ø	165	Ø	11	Ø	45	13	4.5	□	Ø	142	42	4.5	42	7	27	7	42	7	42	7	42	7	42	7	42	7	42	7
P17	x	Ø	40	Ø	63	Ø	5.5	Ø	40	12	3.5	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P18		Ø	110	Ø	145	M	8	Ø	32	31	7	□	Ø	130	60	22.5	60	25	45	25	60	25	60	25	60	25	60	25	60	25	60	25
P19	x	Ø	60	Ø	90	Ø	6.5	Ø	32	12	3.5	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P20	x	Ø	55	Ø	85	Ø	5.5	Ø	36	12	3.5	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P21		Ø	50	Ø	95	M	6	Ø	45	12	3.5	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P22		Ø	50	Ø	70	M	4	Ø	45	12	4	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P23		Ø	60	Ø	75	M	5	Ø	45	12	3.5	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P24		Ø	30	Ø	46	M	4	Ø	30	12	4	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P26		Ø	40	Ø	65	M	5	Ø	40	12	3.5	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	3.5
P27		Ø	36.8	Ø	82.02	M	6	Ø	36.8	14	10	□	Ø	80	43	5.5	43	8	28	8	43	8	43	8	43	8	43	8	43	8	43	5.5
P28		Ø	80	Ø	100	Ø	6.5	Ø	45	28	4	□	Ø	90	57	19.5	57	22	42	22	57	22	57	22	57	22	57	22	57	22	57	22
P29	x	Ø	50	Ø	66.67	Ø	5.5	Ø	45	12	3	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P30		Ø	80	Ø	130	Ø	9	Ø	45	13	4	□	Ø	115	42	4.5	42	7	27	7	42	7	42	7	42	7	42	7	42	7	42	7
P31	x	Ø	44	Ø	56	M	6	Ø	36.8	14	10	□	Ø	80	43	5.5	43	8	28	8	43	8	43	8	43	8	43	8	43	8	43	8
P32		Ø	70	Ø	90	M	6	Ø	32	12	3.5	□	Ø	80	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6
P33		Ø	110	Ø	145	Ø	9	Ø	45	13	4.5	□	Ø	130	42	4.5	42	7	27	7	42	7	42	7	42	7	42	7	42	7	42	7
P34		Ø	80	Ø	100	M	6	Ø	45	19	5	□	Ø	90	48	10.5	48	13	33	13	48	13	48	13	48	13	48	13	48	13	48	13
P36		Ø	95	Ø	115	M	8	Ø	45	25	4.5	□	Ø	100	54	16.5	54	19	39	19	54	19	54	19	54	19	54	19	54	19	54	19
P37		Ø	60	Ø	98.99	M	6	Ø	32	12	3.5	□	Ø	85	41	3.5	41	6	26	6	41	6	41	6	41	6	41	6	41	6	41	6

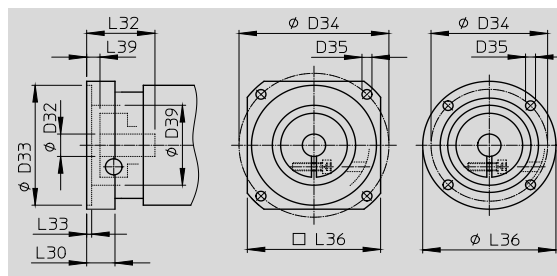


**6. GPR125 Technical Data and Dimensions,  $T_{2N} = 160-280 \text{ Nm}$**

i		3	4	5	7	9	12	16	20	28	35	48	64	80	100	140	196	245	343	
Number of steps		1				2						3								
$T_{2N}$	[Nm]	220	230	200	160	250	260	260	260	260	230	280	280	280	280	280	280	250	200	
$T_{2B}$	[Nm]	350	370	320	300	400	420	420	420	420	370	450	450	450	450	450	450	400	370	
$T_{2NOT}$	[Nm]	700	750	650	600	800	850	850	850	850	750	900	900	900	900	900	900	800	750	
$n^{1N}$	[min <sup>-1</sup> ]	3000				3500						4000								
$n^{1max}$	[min <sup>-1</sup> ]	5000																		
$F^{2r}$	[N]	3700																		
$F^{2a}$	[N]	1850																		
G	[kg]	7.2				9.3						11.4								
$\alpha^{2max}$	[arcmin]	4'				6'						8'								
V	-	0.96				0.93						0.91								
$C^t$	[Nm/arcmin]	32																		
$L^h$	[h]	~20,000																		
Lubrication		Service life																		
$L^{pA}$	[dB(A)]	<70																		
B14-B5	$\phi D2=25$	L	176	---	---	208.4	---	---	---	---	---	241	---	---	---	---	---	---	---	---
B14-B5	$\phi D2=32$	L	---	203	---	---	---	235	---	---	---	---	---	---	---	---	---	---	268	---
B14	$\phi D2=25$	L1	119	---	---	151.4	---	---	---	---	---	---	---	184	---	---	---	---	---	---
B14	$\phi D2=32$	L1	---	138	---	---	---	170	---	---	---	---	---	---	---	---	---	---	---	203
B5	$\phi D2=25$	L1	96	---	---	128.4	---	---	---	---	---	---	---	161	---	---	---	---	---	---
B5	$\phi D2=32$	L1	---	115	---	---	---	147	---	---	---	---	---	---	---	---	---	---	---	1180
B14-B5	$\phi D2=25$	L2	50																	
B14-B5	$\phi D2=32$	L2	58																	
B14	$\phi D2=25$	L4	57	---	---	57	---	---	---	---	---	---	---	57	---	---	---	---	---	---
B14	$\phi D2=32$	L4	---	65	---	---	---	65	---	---	---	---	---	---	---	---	---	---	---	65
B5	$\phi D2=25$	L4	80	---	---	80	---	---	---	---	---	---	---	80	---	---	---	---	---	---
B5	$\phi D2=32$	L4	---	88	---	---	---	88	---	---	---	---	---	---	---	---	---	---	---	88
B14-B5	$\phi D2=25$	L10	A8x7																	
		L11	28																	
		L12	5																	
		L13	40																	
		D8	M8x20																	
	$\phi D2=32$	L10	A10x8																	
		L11	35																	
		L12	4																	
		L13	50																	
		D8	M10x25																	
$\phi D32$		12.7-14- 15.87- 16-19	22-24- 25-28	12.7-14- 15.87- 16-19	22-24- 25-28	12.7-14- 15.87- 16-19	22-24- 25-28	12.7-14- 15.87- 16-19	22-24- 25-28											

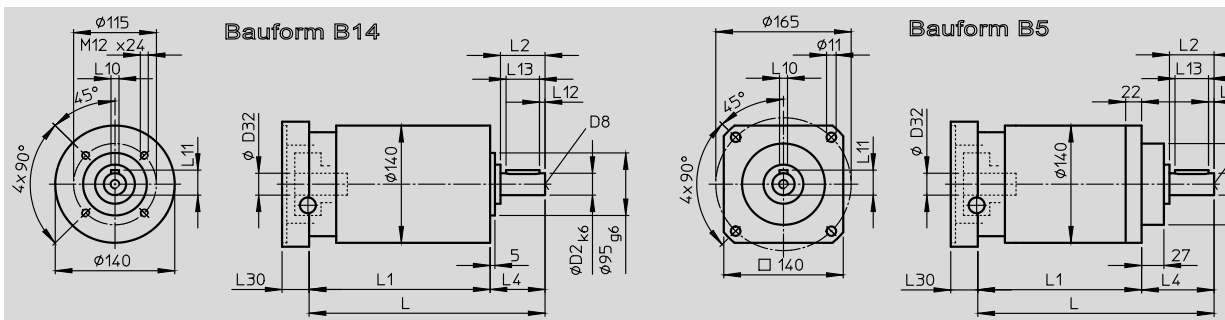


GPR125 Drive side. flange and hollow shaft																										
Code	Motor mounting Page 14 Section 6-7	Drive flange										Hollow drive shaft														
		D33 H7	D34	D35	D39	L30	L33	□ L36	ØD32																	
									Ø12.7	Ø14	Ø15.8	Ø16	Ø19	Ø22	Ø24	Ø25	Ø28									
L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39			
P01	x	55.52	125.72	6.5	55.5	13	3	□	115	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P02	x	60	75	5.5	60	13	3.5	□	115	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P03	x	70	85	6.5	60	13	3.5	□	115	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P04	x	73.02	98.42	6.5	60	13	3	□	115	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P05	x	80	100	6.5	60	13	4	□	120	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P06	x	95	115	9	60	13	4.5	□	115	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P07		110	130	8.5	60	13	4.5	□	115	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P08		130	165	11	60	13	4.5	□	142	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P09		180	215	13	60	14	4.5	□	192	44	7	36	7	44	7	44	7	44	7	63	7	63	7	63	7	
P10	x	50	65	6.5	50	13	3.5	□	115	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P11		110	145	M 8	60	31	7	□	130	61	24	53	24	61	24	61	24	61	24	80	24	80	24	80	24	
P12		110	145	M 8	60	17	7	□	130	47	10	39	10	47	10	47	10	47	10	66	10	66	10	66	10	
P13		110	130	M 8	60	13	4.5	□	115	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P14	x	50	70	6.5	50	13	3.5	□	115	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P15		70	90	M 5	60	11	3.5	□	115	41	4	33	4	41	4	41	4	41	4	60	4	60	4	60	4	
P17	x	70	90	6.5	60	13	3.5	□	115	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P18		95	130	M 8.5	60	13	4.5	□	115	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P19		50	95	6.5	50	13	3.5	□	115	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P20		60	99	M 6	60	13	4	□	115	43	6	35	6	43	6	43	6	43	6	62	6	62	6	62	6	
P21	x	82.5	106	12.5	60	26	15	□	130	56.5	19.5	48.5	17.5	56.5	19.5	56.5	19.5	56.5	19.5	75.5	19.5	75.5	19.5	75.5	19.5	
P22		110	165	11	60	15	4.5	□	144	45	8	37	8	45	8	45	8	45	8	64	8	64	8	64	8	
P23	x	40	63	5.5	40	11	3.5	□	115	41	4	33	4	41	4	41	4	41	4	60	4	60	4	60	4	
P24		80	100	M 6	60	18	7	□	120	48	11	40	11	48	11	48	11	48	11	67	11	67	11	67	11	



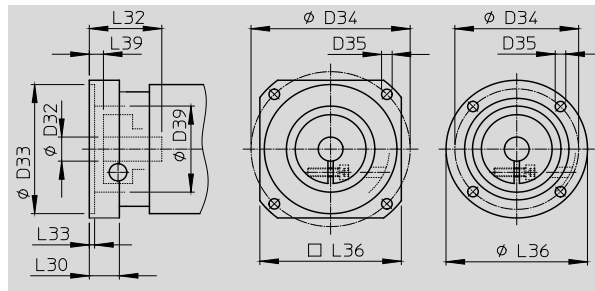
### 7. GPR150 Technical Data and Dimensions, $T_{2N} = 340-600 \text{ Nm}$

i		3	4	5	7	9	12	16	20	28	35	48	64	80	100	140	196	245	343	
Number of steps		1			2						3									
$T^{2N}$	[Nm]	430	470	410	340	500	560	560	560	560	470	600	600	600	600	600	600	600	500	450
$T^{2B}$	[Nm]	700	750	650	600	800	900	900	900	900	750	950	950	950	950	950	950	950	800	750
$T^{2NOT}$	[Nm]	1400	1500	1300	1200	1600	1800	1800	1800	1800	1500	1900	1900	1900	1900	1900	1900	1900	1600	1500
$n^{1N}$	[min <sup>-1</sup> ]	3000			3500						4000									
$n^{1max}$	[min <sup>-1</sup> ]	5000																		
$F^{2r}$	[N]	6600																		
$F^{2a}$	[N]	3300																		
G	[kg]	13			17						21									
$\alpha^{2max}$	[arcmin]	4'			6'						8'									
v	-	0.96			0.93						0.91									
$c^1$	[Nm <sup>2</sup> arcmin]	60																		
$L^h$	[h]	~20,000																		
Lubrication		Service life																		
$L^{pA}$	[dB(A)]	<70																		
B14-B5	$\phi D32=38$	L	240	---	281	---	322	---												
B14-B5	$\phi D32=40$	L	---	265	---	306	---	347												
B14	$\phi D32=38$	L1	152	---	193	---	234	---												
B14	$\phi D32=40$	L1	---	177	---	218	---	259												
B5	$\phi D32=38$	L1	130	---	171	---	212	---												
B5	$\phi D32=40$	L1	---	155	---	196	---	237												
B14-B5	$\phi D32=38-40$	L2	80																	
B14	$\phi D32=38-40$	L4	88																	
B5	$\phi D32=38-40$	L4	110																	
B14-B5	$\phi D32=38$	L10	A10x8																	
		L11	41																	
		L12	5																	
		L13	70																	
	$\phi D32=40$	D8	M10x25																	
		L10	A12x8																	
		L11	43																	
		L12	5																	
		L13	70																	
		D8	M10x25																	
	$\phi D32$		15.87-16-19-22-24	28-32-35-38	15.87-16-19-22-24	28-32-35-38	15.87-16-19-22-24	28-32-35-38												



**GPR150 Drive side. flange and hollow shaft**

Code	Motor mounting Page 14 Section 6-7	Drive flange										Hollow drive shaft																	
		Ø	D33 H7	Ø	D34	Ø	D35	Ø	D39	L30	L33	□	L36	ØD32															
														L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39	L32 max	L39
P01	x	Ø 55.52	Ø 125.72	Ø 6.5	Ø 55.52	15	4	Ø 140	57.8	6.8	57.8	6.8	42.8	6.8	57.8	6.8	57.8	6.8	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	
P02	x	Ø 80	Ø 100	Ø 6.5	Ø 70	15	4	Ø 140	57.8	6.8	57.8	6.8	42.8	6.8	57.8	6.8	57.8	6.8	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	
P03	x	Ø 95	Ø 115	Ø 8.5	Ø 70	15	4.5	Ø 140	57.8	6.8	57.8	6.8	42.8	6.8	57.8	6.8	57.8	6.8	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	
P04	x	Ø 110	Ø 130	Ø 8.5	Ø 70	15	4.5	Ø 140	57.8	6.8	57.8	6.8	42.8	6.8	57.8	6.8	57.8	6.8	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	
P05		Ø 130	Ø 165	Ø 11	Ø 70	15	4.5	Ø 142	57.8	6.8	57.8	6.8	42.8	6.8	57.8	6.8	57.8	6.8	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	
P06		Ø 180	Ø 215	Ø 13	Ø 70	15	4.5	Ø 190	57.8	6.8	57.8	6.8	42.8	6.8	57.8	6.8	57.8	6.8	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	
P07		Ø 230	Ø 265	Ø 13	Ø 70	15	4.5	Ø 250	57.8	6.8	57.8	6.8	42.8	6.8	57.8	6.8	57.8	6.8	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	
P08		Ø 110	Ø 145	M 8	Ø 70	18	7	Ø 130	60.8	9.8	60.8	9.8	45.8	9.8	60.8	9.8	60.8	9.8	85.8	10.3	85.8	10.3	85.8	10.3	85.8	10.3	85.8	10.3	
P09		Ø 114.3	Ø 200	Ø 13.5	Ø 70	22	11	Ø 180	64.8	13.8	64.8	13.8	49.8	13.8	64.8	13.8	64.8	13.8	89.8	14.3	89.8	14.3	89.8	14.3	89.8	14.3	89.8	14.3	
P10		Ø 95	Ø 130	M 8	Ø 70	15	4.5	Ø 115	57.8	6.8	57.8	6.8	42.8	6.8	57.8	6.8	57.8	6.8	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	
P11		Ø 155	Ø 198	Ø 13.5	Ø 120	22	7	Ø 180	64.8	13.8	64.8	13.8	49.8	13.8	64.8	13.8	64.8	13.8	89.8	14.3	89.8	14.3	89.8	14.3	89.8	14.3	89.8	14.3	
P12		Ø 200	Ø 235	Ø 13.5	Ø 70	15	5	Ø 220	57.8	6.8	57.8	6.8	42.8	6.8	57.8	6.8	57.8	6.8	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	
P13		Ø 130	Ø 215	Ø 13	Ø 70	15	4.5	Ø 190	57.8	6.8	57.8	6.8	42.8	6.8	57.8	6.8	57.8	6.8	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	
P14		Ø 110	Ø 165	Ø 11	Ø 70	15	4.5	Ø 142	57.8	6.8	57.8	6.8	42.8	6.8	57.8	6.8	57.8	6.8	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	
P15	x	Ø 70	Ø 90	Ø 6.5	Ø 70	15	4	Ø 150	57.8	6.8	57.8	6.8	42.8	6.8	57.8	6.8	57.8	6.8	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	
P16		Ø 114.3	Ø 177.8	Ø 10.5	Ø 70	15	3.5	Ø 146	57.8	6.8	57.8	6.8	42.8	6.8	57.8	6.8	57.8	6.8	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	82.8	7.3	



## 8. Motor mounting

### For motor with 4x hole in the motor flange

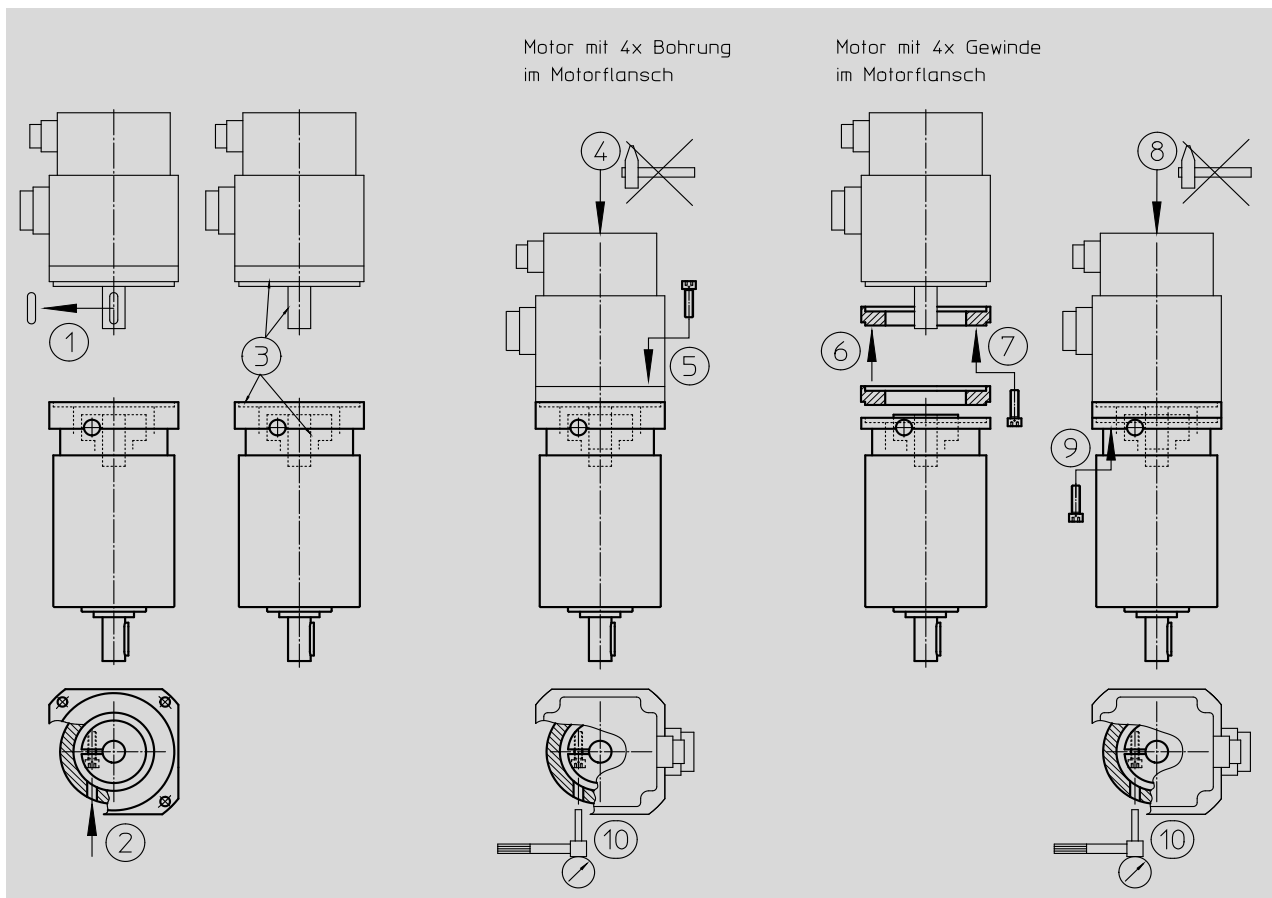
- ① Remove feather key from motor shaft.
- ② Loosen fastening screws of hollow shaft.
- ③ Clean contact surfaces on the engine and transmission and free from grease, i.e. hollow shaft bore, motor shaft and flange surfaces.
- ④+⑧ Slide motor onto gear without hitting.
- ⑤+⑨ Screw motor and gear together.
- ⑩ Tighten the fastening screws of the hollow shaft with torque wrench to the torque specified in the table.

### For motor with 4x thread in the motor flange

- ⑥+⑦ Remove adapter flange from gear; mount motor flange.
- Tighten fastening screws at hollow shaft with torque wrench to the torque specified in the table.

### Fastening screws at hollow shaft

			GPR75	GPR100		GPR125			GPR150		
ØD32	Hollow shaft diameter	[mm]	6-6.35-7-8-9-9.52-11-12-12.7-14	9-9.52-11-12-12.7-14	15.87-16-19	12.7-14	15.87-16-19	22-24-25-28	15.87-16-19	22-24-28	32-35-38
S	Schraube	DIN912 Festigkeit 12.9	M4x16	M4x16	M5x20	M4x16	M5x20	M6x20	M6x20	M6x20	M6x20
SZ	Number of screws	---	1	1	1	1	1	2	1	2	3
SW	Wrench width	[mm]	3	3	4	3	4	5	5	5	5
M <sup>An</sup>	Tightening torque	[Nm]	<b>4.8</b>	<b>4.8</b>	<b>9.4</b>	<b>4.8</b>	<b>9.4</b>	<b>16.2</b>	<b>16.2</b>	<b>16.2</b>	<b>16.2</b>



### 9. Moment of inertia at drive shaft J<sub>1</sub> [kgcm<sup>2</sup>]

		i	3	4	5	6	9	12	16	20	24	30	36	48	64	80	100	120	144	180	216	
		Number of steps	1				2						3									
GPR75	øD32	6	0.16	0.14	0.12	0.11	0.16	0.16	0.14	0.12	0.11	0.11	0.11	0.11	0.16	0.16	0.16	0.14	0.12	0.11	0.11	0.11
		6.35	0.16	0.14	0.12	0.11	0.16	0.16	0.14	0.12	0.11	0.11	0.11	0.11	0.16	0.16	0.16	0.14	0.12	0.11	0.11	0.11
		7	0.16	0.14	0.12	0.11	0.16	0.16	0.14	0.12	0.11	0.11	0.11	0.11	0.16	0.16	0.16	0.14	0.11	0.11	0.11	0.11
		8	0.19	0.16	0.14	0.13	0.19	0.19	0.16	0.14	0.13	0.13	0.13	0.13	0.19	0.19	0.19	0.16	0.14	0.14	0.13	0.13
		9	0.19	0.16	0.14	0.13	0.19	0.19	0.16	0.14	0.13	0.13	0.13	0.13	0.19	0.19	0.19	0.16	0.14	0.14	0.13	0.13
		9.52	0.19	0.16	0.14	0.13	0.19	0.18	0.16	0.14	0.13	0.13	0.13	0.13	0.19	0.19	0.18	0.16	0.14	0.14	0.13	0.13
		11	0.21	0.18	0.16	0.15	0.21	0.21	0.18	0.16	0.15	0.15	0.15	0.21	0.21	0.21	0.21	0.18	0.16	0.16	0.15	0.15
		12	0.21	0.19	0.16	0.16	0.21	0.21	0.18	0.16	0.16	0.16	0.16	0.21	0.21	0.21	0.21	0.18	0.16	0.16	0.16	0.16
		12.7	0.21	0.18	0.16	0.16	0.21	0.21	0.18	0.16	0.15	0.15	0.15	0.21	0.21	0.21	0.21	0.18	0.16	0.16	0.15	0.15
		14	0.25	0.22	0.2	0.19	0.25	0.25	0.22	0.2	0.19	0.19	0.19	0.25	0.25	0.25	0.22	0.2	0.19	0.19	0.19	0.19
GPR100	øD32	9	0.47	0.35	0.28	0.26	0.48	0.47	0.34	0.28	0.26	0.25	0.25	0.49	0.48	0.47	0.34	0.28	0.28	0.25	0.25	
		9.52	0.47	0.35	0.28	0.26	0.48	0.47	0.34	0.28	0.26	0.25	0.25	0.49	0.48	0.47	0.34	0.28	0.27	0.25	0.25	
		11	0.49	0.37	0.3	0.28	0.5	0.49	0.36	0.3	0.28	0.27	0.27	0.51	0.5	0.49	0.36	0.3	0.3	0.27	0.27	
		12.7	0.49	0.37	0.3	0.28	0.51	0.49	0.36	0.3	0.28	0.28	0.28	0.51	0.51	0.49	0.36	0.3	0.3	0.28	0.28	
		14	0.53	0.41	0.34	0.32	0.55	0.53	0.41	0.34	0.32	0.32	0.32	0.55	0.55	0.53	0.41	0.34	0.34	0.32	0.32	
		15.87	0.82	0.7	0.63	0.61	0.83	0.82	0.69	0.63	0.61	0.61	0.6	0.84	0.84	0.82	0.69	0.63	0.63	0.61	0.6	
		16	0.82	0.7	0.63	0.61	0.83	0.82	0.69	0.63	0.61	0.6	0.6	0.84	0.83	0.82	0.69	0.63	0.63	0.6	0.6	
		19	0.8	0.69	0.62	0.6	0.82	0.81	0.68	0.62	0.59	0.59	0.59	0.82	0.82	0.81	0.68	0.62	0.61	0.59	0.59	
		i	3	4	5	7	9	12	16	20	28	35	48	64	80	100	140	196	245	343		
		Number of steps	1				2						3									
GPR125	øD32	12.7	1.91	1.18	0.84	0.64	1.93	1.85	1.14	0.82	0.62	0.63	0.62	1.92	1.84	1.14	0.81	0.8	0.62	0.61		
		14	1.98	1.25	0.91	0.7	1.99	1.91	1.21	0.88	0.69	0.69	0.69	1.99	1.91	1.21	0.88	0.87	0.68	0.68		
		15.87	2.26	1.53	1.19	0.99	2.28	2.2	1.49	1.17	0.97	0.98	0.97	2.27	2.19	1.49	1.16	1.15	0.97	0.96		
		16	2.26	1.53	1.19	0.99	2.28	2.2	1.49	1.16	0.97	0.98	0.97	2.27	2.19	1.49	1.16	1.15	0.97	0.96		
		19	2.24	1.5	1.16	0.96	2.25	2.17	1.47	1.14	0.95	0.95	0.95	2.24	2.17	1.46	1.14	1.12	0.94	0.94		
		22	4.95	4.22	3.88	3.67	4.97	4.88	4.18	3.85	3.66	3.66	3.66	4.96	4.88	4.18	3.85	3.84	3.65	3.65		
		24	4.91	4.18	3.84	3.63	4.92	4.84	4.14	3.81	3.62	3.62	3.62	4.92	4.84	4.14	3.81	3.8	3.61	3.61		
		28	5.1	4.36	4.02	3.82	5.11	5.03	4.33	4	3.81	3.81	3.81	5.11	5.03	4.32	4	3.98	3.8	3.8		
GPR150	øD32	15.87	6.58	4.64	3.64	3.05	6.54	6.32	4.49	3.55	3.01	2.99	2.97	6.51	6.31	4.49	3.55	3.51	2.98	2.97		
		16	6.58	4.64	3.64	3.05	6.54	6.32	4.49	3.55	3.01	2.99	2.97	6.51	6.31	4.48	3.54	3.51	2.98	2.97		
		19	6.62	4.68	3.68	3.09	6.58	6.36	4.53	3.59	3.05	3.03	3.01	6.55	6.35	4.52	3.59	3.55	3.02	3.01		
		22	7.57	5.63	4.63	4.04	7.53	7.31	5.48	4.54	4	3.97	3.96	7.5	7.29	5.47	4.53	4.5	3.97	3.96		
		24	7.53	5.59	4.59	4	7.49	7.27	5.44	4.5	3.96	3.94	3.92	7.46	7.26	5.44	4.5	4.46	3.93	3.92		
		28	11.55	9.62	8.62	8.03	11.51	11.3	9.47	8.53	7.98	7.96	7.95	11.49	11.28	9.46	8.52	8.48	7.96	7.95		
		32	13.38	11.44	10.45	9.86	13.34	13.13	11.3	10.36	9.81	9.79	9.78	13.31	13.11	11.29	10.35	10.31	9.79	9.78		
		35	13.28	11.34	10.35	9.76	13.24	13.03	11.2	10.26	9.71	9.69	9.68	13.21	13.01	11.19	10.25	10.21	9.69	9.68		
		38	12.94	11	10.01	9.42	12.9	12.69	10.86	9.92	9.37	9.35	9.34	12.87	12.67	10.85	9.91	9.87	9.35	9.34		

## 10. Dimensional drawings: Designations

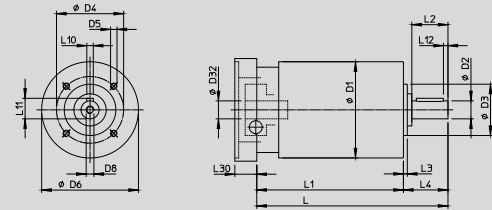
### Planetary gear

∅D1	Housing diameter	
L ±2	Gear length	[mm]
L1 ±2	Housing length	

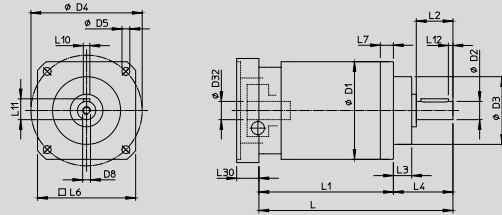
### Planetary gear output

∅D2	Shaft diameter	
∅D3	Centering of flange diameter	
∅D4	Flange bolt circle diameter	
D5	Flange thread depth 4xMx	
∅D6	Flange diameter	
D8	Shaft thread depth max	
L2	Shaft length	[mm]
L3	Centering of flange length	
L4	Flange bolt circle distance	
L10	Feather key shape x width x height DIN6885 T1	
L11	Feather key height	
L12	Feather key at shaft front side	

Type B14



Type B5



### Planetary gear drive

∅ D32	Hollow shaft diameter	[mm]
∅ D33H7	Centering of flange diameter	
∅ D34	Flange bolt circle diameter	
∅ D35	Flange drilling diameter	
∅ D39	Flange inside diameter	
L30	Flange length	
L32max	Hollow shaft length	
L33	Centering of flange length	
L36	Flange section	
L39	Hollow shaft distance	

Drive side

