Planetroll®
the driving power

speed variators


Planet Jupiter

planomaster®

...by far the greatest one

The unique variable-speed ATEX drive

ATmosphere EXplosive ATEX

The Jupiter

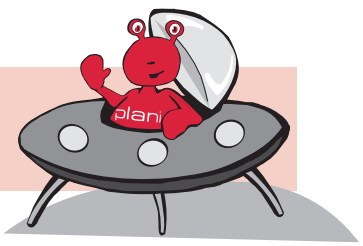
Jupiter is the king of gods in mythology. It is the largest planet of our solar system and regarded from the sun it is the fifth of it. Jupiter is a so-called gas giant – an enormous "drop" consisting of compressed hydrogen and helium. Jupiter is surrounded by 39 satellites and also a ring system, which is not to be recognized from the earth.

Jupiter is an immense giant. Its mass is 318 times as large as of our earth. Also its equatorial diameter is enormous. The diameter of the planet is about 143,000 km. This corresponds to 11 earth diameters.

Interesting facts:
Equator diameter: 142,984 km; mass: 318 times earth's mass; 1 Saturn year: 4,332.71 days
density: 1.33 g/ccm; orbit speed: 13.1 km/s; average temperature of cloud: -121 °C

page

My name is plani. It's a great honour to welcome you here and I'm pleased to accompany you through the planomaster® catalog. I am a lucky charm and also your mascot.
See how many times we will meet.



The leading speed variator – not only regarding explosion protection.

ATmosphere EXplosive ATEX

The deciding advantages

- highest output torque from speed zero
- speed variator cannot slip through
- the ATEX variable-speed drive most interesting in price for explosion-proof zones 1 and 21, as combination with motor "explosion-proof" is sufficient – motor with flameproof enclosure not necessary
- expensive and complex external ATEX control for zones 1 and 21 not necessary
- execution conform to GMP, FDA and USDA-H1 standards
- can also be supplied as silicone-free drive unit
- applicable for low temperatures (special execution)
- manual or electric remote control
- microprocessor operated speed control plarotronic®
- compatible for field bus systems
- torque meter plaroTorque®

The outstanding technology

Torque-proportional power transmission – through that high service life and reliability. No friction at all inside the gear, torque transmission thanks to the "elastohydrodynamic effect".

The special capabilities

Speed variator with speed adjustment to speed zero, i.e. adjustable from output speed n_2 = zero as well as down to output speed n_2 = zero speed, adjustable at rest, linear setting characteristic, low-noise and low-vibration running of the speed variators.

planomaster®

- 7 sizes: MRV, MR1, MR3, MR5, MR7, MR9, MR11
- power range: 0.027 up to 7.5 kW
- high service life
- conform to ATEX for zones 1 and 21 according to Directive 94/9/EC (ATEX 95)
- expensive and complex external ATEX control for zones 1 and 21 not necessary
- zero speed variator, i.e. n_1 = motor → n_2 = 0
- highest starting and break-away torques can be realized
- conform to GMP, FDA and USDA-H1
- silicone-free execution available
- applicable for low temperature ranges
- precise speed setting – exactly reproducible
- linear setting characteristic
- no slippage of speed variator transmission parts
- mechanical and electrical control elements
- low-noise and low-vibration running
- speed setting is possible during standstill of speed variator
- in and output shaft are coaxial and have the same direction of rotation
- anti-clockwise as well as clockwise running of speed variator is possible
- internal and external speed limitation can be realized
- configured for all mounting positions
- with reduction gearboxes up to 50,000 Nm output torque
- electronic speed control plarotronic®
- electronic torque meter plaroTorque®

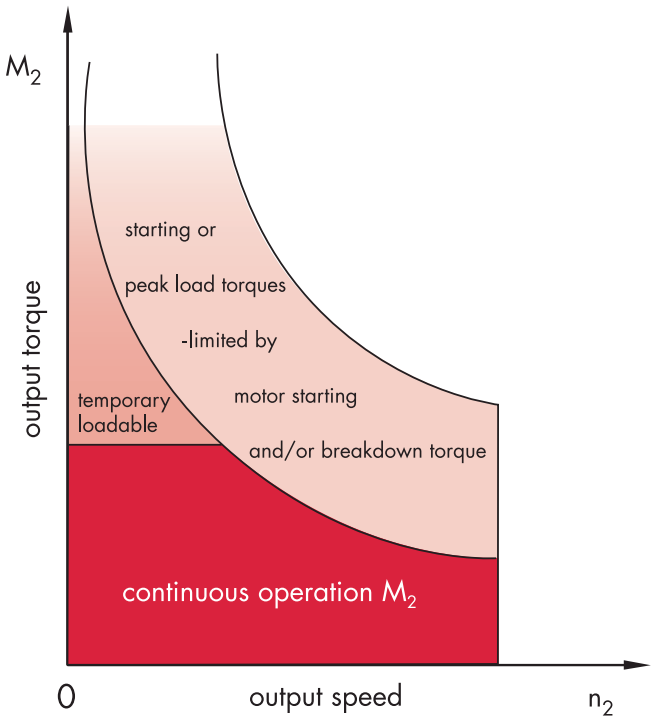


diagram 1

The special characteristic of the planomaster® speed variators is the capability to transmit highest torques even with lowest output speeds. Many applications need hihgest output torque from speed zero.

Contrary to the complete range of common friction gears, the extremely dangerous "slippage" of transmission parts respectively of speed variator is exluded by using the planetroll® speed variator planomaster®. This is extremely important for a perfect technical application. Particularly, the planetroll® speed variator is an essential partner in case of applications with continually increasing or swelling and often not defined torque. This is exactly the advantage of the planomaster® to be qualified as the perfect ATEX speed variator.

The power range of the planomaster® speed variators is from 0.027 up to 7.5 kW with a total of 7 sizes.

Ball transmission systems rotate within a fluid-bath inside the planetroll® speed variator and produce output torque by means of a traction fluid in connection with the conditions of the elastohydrodynamic power transmission.

planomaster®

particularly suitable areas of application/ branches of industry

- fabrication of agitators and mixers
- fabrication of laboratory apparatus
- pump industry
- chemical industry
- petrochemical industry
- food industry
- general engineering
- conveying machinery
- pharmaceutical industry
- plastics industry
- agricultural machinery industry
- packaging equipment industry
- extruder construction

particularly suitable processes

- agitating
- mixing
- dosing
- driving of pumps
- transporting
- dispersing
- winding/stranding
- crushing
- grinding
- feeding
- cutting
- packing
- centrifugating

comparison speed variators – previous and NEW product range

The new speed variator product range planomaster® has been strictly developed according to the regulations of the European explosion-proof Directive 94/9/EC (ATEX 95).

The replaceability of the previous speed variator product range (system AR and A) against the NEW product range planomaster® is guaranteed to the full extent regarding all main and connecting dimensions.

table 1 ◂

	previous product range	NEW product range acc. to ATEX 95 effective from July 1st, 2003
product name	no	planomaster®
outer differentiating factor	speed variator with cooling ribs	speed variator with smooth surface
system	AR	**MR**
	A	**MA***
	speed range	
input speed [rpm]	**output speed range [rpm]**	
n_1 = 900	0 - 360	**n_2 = 0 - 390**
n_1 = 1.400	0 - 550	**n_2 = 0 - 600**
n_1 = 2.800	0 - 1.150	**n_2 = 0 - 1.200**
	comparison of sizes	
description	AR0/A0	**MRV/MAV**
	AR1/A1	**MR1/MA1**
	AR2/A2	**MR3/MA3**
	AR3/A3	
	AR4/A4	**MR5/MA5**
	AR5/A5	
	AR6/A6	**MR7/MA7**
	AR7/A7	
	AR8/A8	**MR9/MA9**
	AR9/A9	
	AR10/A10	**MR11/MA11**
	AR11/A11	
number of sizes	12	**7**

* The speed variator system MA is a special execution (non-standard series to system MR), especially used for suitable applications.

See page 70 – speed variator technology

planomaster® with motor 2-pole (n_1 = 2,800 rpm)

table 2 ◂

power – speed – torque							
P_1 [kW]	n_1 [rpm]	n_2 [rpm]	$M_{2\ max.}$ with n_2 [Nm]	[rpm]	M_2 with $n_{2\ max.}$ [Nm]	[rpm]	planomaster® with motor
0,067	2.600	0 - 1.100	**0,8**	1 - 300	0,4	1.100	0,067 D2 MRV
0,09	2.800	0 - 1.200	**3**	1 - 180	0,53	1.200	0,09 D2 MR
0,12	2.800	0 - 1.200	**3**	1 - 275	0,7	1.200	0,12 D2 MR1
0,18	2.800	0 - 1.200	**3**	1 - 400	1,05	1.200	0,18 D2 MR1
0,18	2.800	0 - 1.200	**6**	1 - 180	1,5	1.200	0,18 D2 MR3
0,25	2.800	0 - 1.200	**3**	1 - 600	1,55	1.200	0,25 D2 MR1
0,25	2.800	0 - 1.200	**6**	1 - 280	1,5	1.200	0,25 D2 MR3
0,37	2.800	0 - 1.200	**6**	1 - 430	2,25	1.200	0,37 D2 MR3
0,55	2.800	0 - 1.200	**6**	1 - 650	3,3	1.200	0,55 D2 MR3
0,55	2.800	0 - 1.200	**12**	1 - 290	3,3	1.200	0,55 D2 MR5
0,75	2.800	0 - 1.200	**12**	1 - 405	4,5	1.200	0,75 D2 MR5
1,1	2.800	0 - 1.200	**12**	1 - 600	6,5	1.200	1,1 D2 MR5
1,5	2.800	0 - 1.200	**12**	1 - 820	8,8	1.200	1,5 D2 MR5
1,5	2.800	0 - 1.200	**20**	1 - 475	8,8	1.200	1,5 D2 MR7
1,85	2.800	0 - 1.200	**12**	1 - 1.020	11	1.200	1,85 D2 MR5
1,85	2.800	0 - 1.200	**20**	1 - 600	11	1.200	1,85 D2 MR7
2,2	2.800	0 - 1.200	**12**	1 - 1.200	12	1.200	2,2 D2 MR5*
2,2	2.800	0 - 1.200	**20**	1 - 715	13	1.200	2,2 D2 MR7
3,0	2.800	0 - 1.200	**45**	1 - 400	17	1.200	3,0 D2 MR9
3,3	2.800	0 - 1.200	**45**	1 - 450	19	1.200	3,3 D2 MR9
4,0	2.800	0 - 1.200	**45**	1 - 550	23	1.200	4,0 D2 MR9

* not permitted for mode of operation S1

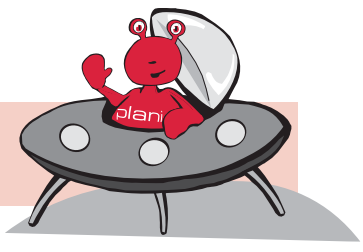
P_1 motor power
n_1 input speed
n_2 output speed
M_2 output torque speed variator
D2 motor 2-pole (n_1 = 2,800 rpm)

See diagram 2, page 10

Speed range n_2 of the speed variator can be internally limited within each range ex factory or by using the mechanical speed limitation device (DBM) as mounted part on the speed variators. A later mounting of the DBM onto the speed variator is always possible without problems.

All motors can be supplied in execution "electrically according to NEMA ".

The planetroll® speed variators of the series LVZ are available for the power range between 7.5 kW and 15 kW. With these gears n_2 = 0 is not possible.



planomaster® with motor 4-pole (n_1 = 1,400 rpm)

table 3 ◂

power – speed – torque							
P_1 [kW]	n_1 [rpm]	n_2 [rpm]	$M_{2\ max.}$ with n_2 [Nm]	[rpm]	M_2 with $n_{2\ max.}$ [Nm]	[rpm]	planomaster® with motor
0,027	1.100	0 - 470	**0,8**	1 - 160	0,45	470	0,027 D4 MRV
0,09	1.400	0 - 600	**3,5**	1 - 180	1,2	600	0,09 D4 MR1
0,12	1.400	0 - 600	**3,5**	1 - 250	1,6	600	0,12 D4 MR1
0,12	1.400	0 - 600	**7**	1 - 100	1,6	600	0,12 D4 MR3
0,18	1.400	0 - 600	**3,5**	1 - 400	2,2	600	0,18 D4 MR1
0,18	1.400	0 - 600	**7**	1 - 150	2,2	600	0,18 D4 MR3
0,25	1.400	0 - 600	**7**	1 - 220	3,1	600	0,25 D4 MR3
0,37	1.400	0 - 600	**7**	1 - 350	4,4	600	0,37 D4 MR3
0,37	1.400	0 - 600	**14**	1 - 160	4,4	600	0,37 D4 MR5
0,55	1.400	0 - 600	**14**	1 - 250	6,5	600	0,55 D4 MR5
0,75	1.400	0 - 600	**14**	1 - 350	8,9	600	0,75 D4 MR5
1,1	1.400	0 - 600	**14**	1 - 470	13	600	1,1 D4 MR5
1,1	1.400	0 - 600	**25**	1 - 270	13	600	1,1 D4 MR7
1,5	1.400	0 - 600	**25**	1 - 410	18	600	1,5 D4 MR7
2,2	1.400	0 - 600	**50**	1 - 260	25	600	2,2 D4 MR9
2,5	1.400	0 - 600	**50**	1 - 310	29	600	2,5 D4 MR9
3,0	1.400	0 - 600	**50**	1 - 415	36	600	3,0 D4 MR9
4,0	1.400	0 - 600	**110**	1 - 225	47	600	4,0 D4 MR11
5,5	1.400	0 - 600	**110**	1 - 325	66	600	5,5 D4 MR11
7,5	1.400	0 - 600	**110**	1 - 500	93	600	7,5 D4 MR11

P_1 motor power
n_1 input speed
n_2 output speed
M_2 output torque speed variator
D2 motor 4-pole (n_1 = 1,400 rpm)

See diagram 3, page 11

Speed range n_2 of the speed variator can be internally limited within each range ex factory or by using the mechanical speed limitation device (DBM) as mounted part on the speed variators. A later mounting of the DBM onto the speed variator is always possible without problems.

All motors can be supplied in execution "electrically according to NEMA ".

The planetroll® speed variators of the series LVZ are available for the power range between 7.5 kW and 15 kW.
With these gears n_2 = 0 is not possible.

planomaster® with motor 6-pole (n_1 = 900 rpm)

table 4 ◂

power – speed – torque							
P_1 [kW]	n_1 [rpm]	n_2 [rpm]	$M_{2\,max.}$ with n_2 [Nm]	[rpm]	M_2 with $n_{2\,max.}$ [Nm]	[rpm]	planomaster® with motor
0,06	900	0-390	**4**	1-100	1,3	390	0,06 D6 MR1
0,09	900	0-390	**4**	1-150	1,9	390	0,09 D6 MR1
0,09	900	0-390	**10**	1-60	1,9	390	0,09 D6 MR3
0,12	900	0-390	**4**	1-200	2,55	390	0,12 D6 MR1
0,12	900	0-390	**10**	1-80	2,55	390	0,12 D6 MR3
0,18	900	0-390	**10**	1-120	3,6	390	0,18 D6 MR3
0,25	900	0-390	**10**	1-170	5	390	0,25 D6 MR3
0,25	900	0-390	**16**	1-100	5	390	0,25 D6 MR5
0,37	900	0-390	**16**	1-150	7,4	390	0,37 D6 MR5
0,55	900	0-390	**16**	1-220	11	390	0,55 D6 MR5
0,75	900	0-390	**16**	1-300	14,7	390	0,75 D6 MR5
0,75	900	0-390	**35**	1-135	14,2	390	0,75 D6 MR7
1,1	900	0-390	**35**	1-200	21	390	1,1 D6 MR7
1,5	900	0-390	**55**	1-175	28	390	1,5 D6 MR9
2,2	900	0-390	**55**	1-260	42	390	2,2 D6 MR9
3,0	900	0-390	**110**	1-170	56	390	3,0 D6 MR11
4,0	900	0-390	**110**	1-270	80	390	4,0 D6 MR11

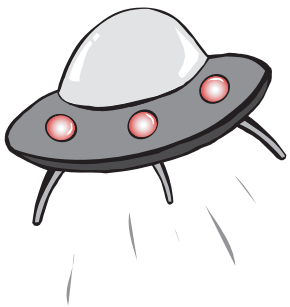
P_1 motor power
n_1 input speed
n_2 output speed
M_2 output torque speed variator
D2 motor 6-pole (n_1 = 900 rpm)

See diagram 4, page 12

Speed range n_2 of the speed variator can be internally limited within each range ex factory or by using the mechanical speed limitation device (DBM) as mounted part on the speed variators. A later mounting of the DBM onto the speed variator is always possible without problems.

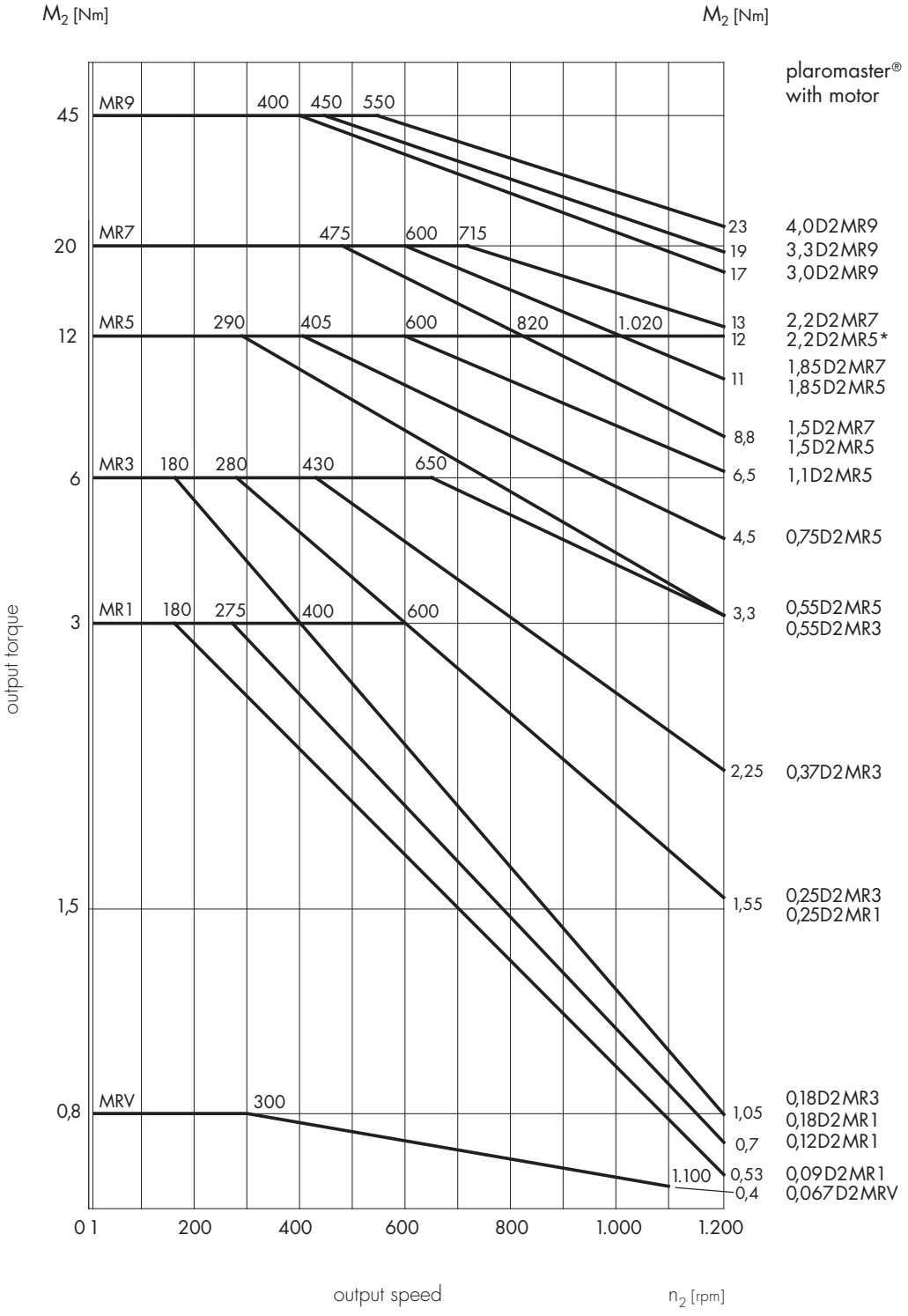
All motors can be supplied in execution "electrically according to NEMA ".

The planetroll® speed variators of the series LVZ are available for the power range between 7.5 kW and 15 kW.
With these gears n_2 = 0 is not possible.



speed and torque characteristic line n_1 = 2,800 rpm

diagram 2 ◂

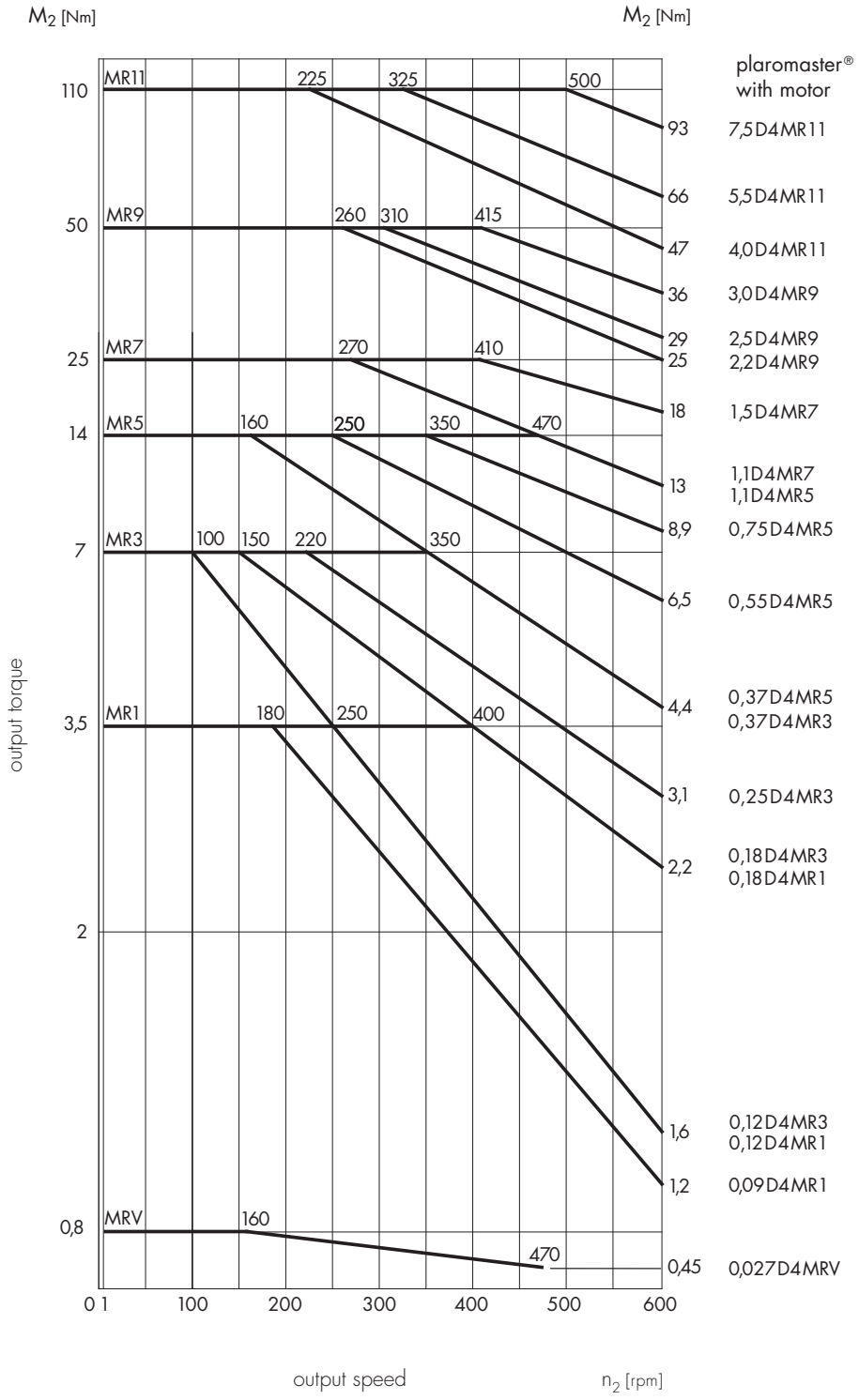


* not permitted for mode of operation S1

See table 2, page 7

speed and torque characteristic line n_1=1,400 rpm

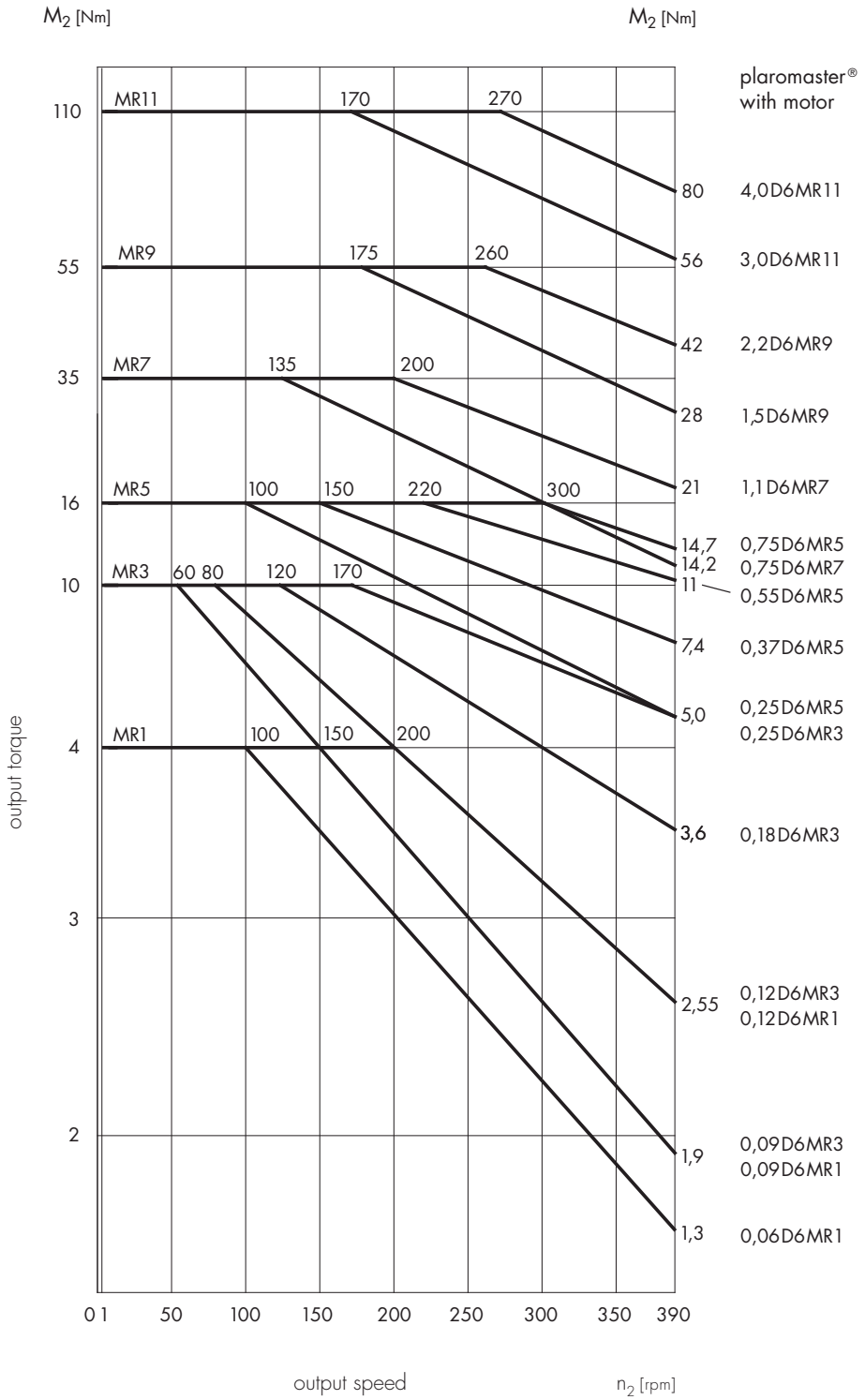
diagram 3



See table 3, page 8

speed and torque characteristic line n_1 = 900 rpm

diagram 4 ◂



See table 4, page 9

MRV-B3 with input hollow shaft

picture 1 ◂

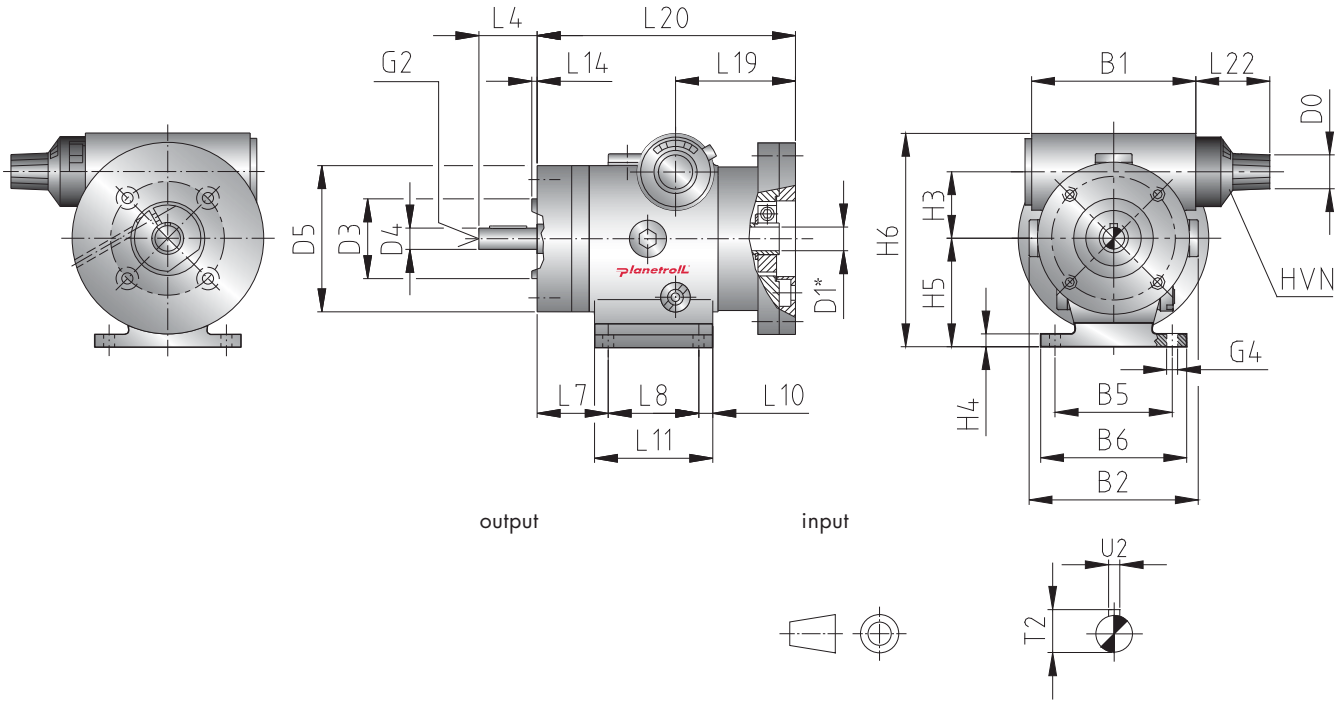


table 5 ◂

size	dimensions [mm]														
MRV-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	62	64			45	55	13	*		30j6	8h6	55			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M3		4,5					25	5
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	42	82				22		26	35		5	45			2
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					45	97		28		8,8			2		

* motor mounting dimensions see page 55

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

Planetroll the driving power

MRV-B5 with input hollow shaft

picture 2

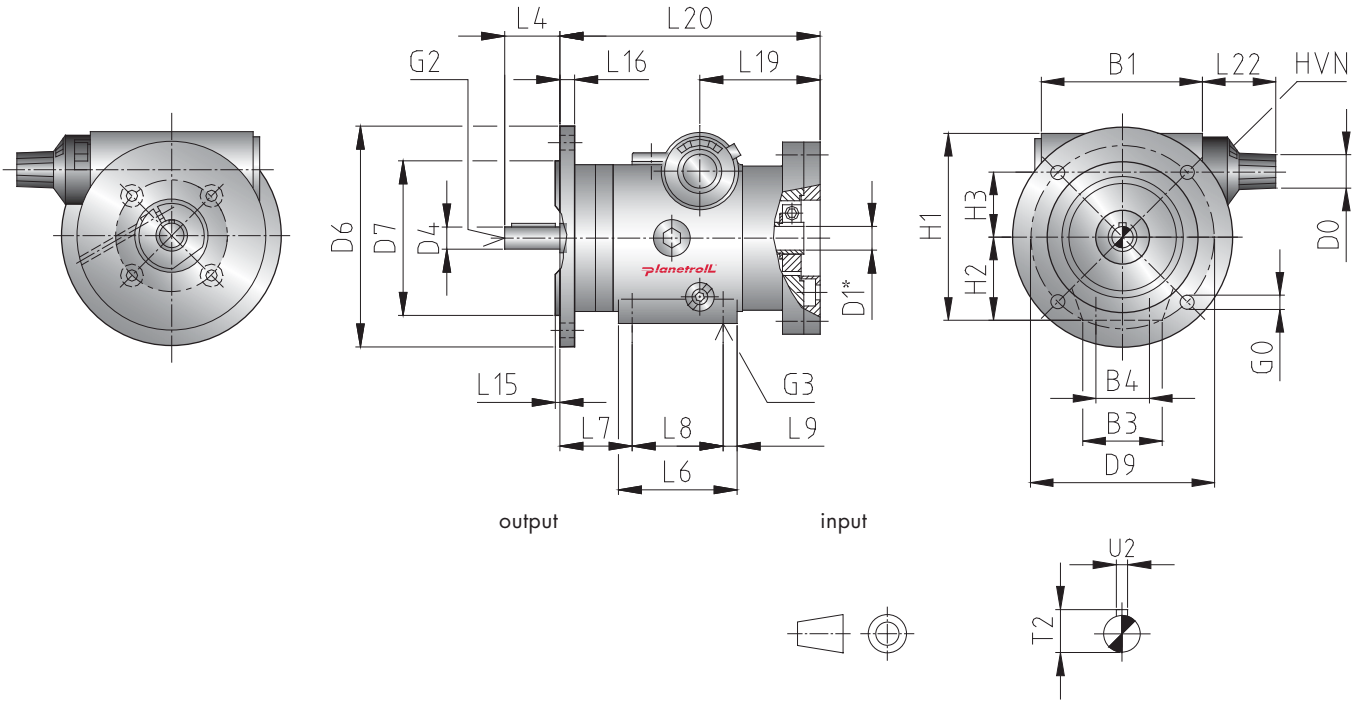


table 6

size	dimensions [mm]														
MRV-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	62		30	20			13	*			8h6		90	60j6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	75				5,5		D M3	M4x8				72	32	25	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						22	45	26	35	5					
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	2,5	8			45	97		28		8,8			2		

* motor mounting dimensions see page 55

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MRV-B14 with input hollow shaft

picture 3 ◂

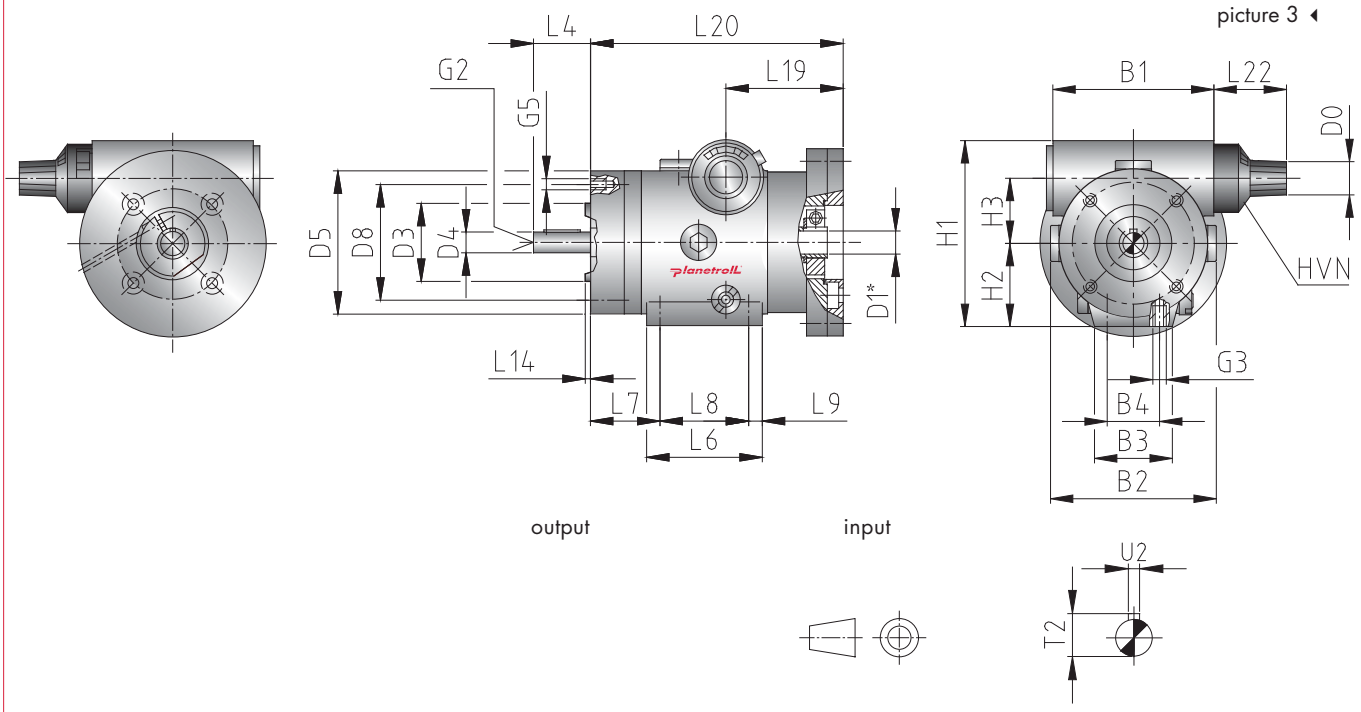


table 7 ◂

size	dimensions [mm]														
MRV-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	62	64	30	20			13	*		30j6	8h6	55			47
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M3	M4x8		M3x6		72	32	25	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						22	45	26	35	5					2
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					45	97		28		8,8			2		

* motor mounting dimensions see page 55

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

Planetroll the driving power

MR1-B3 with input hollow shaft

picture 4

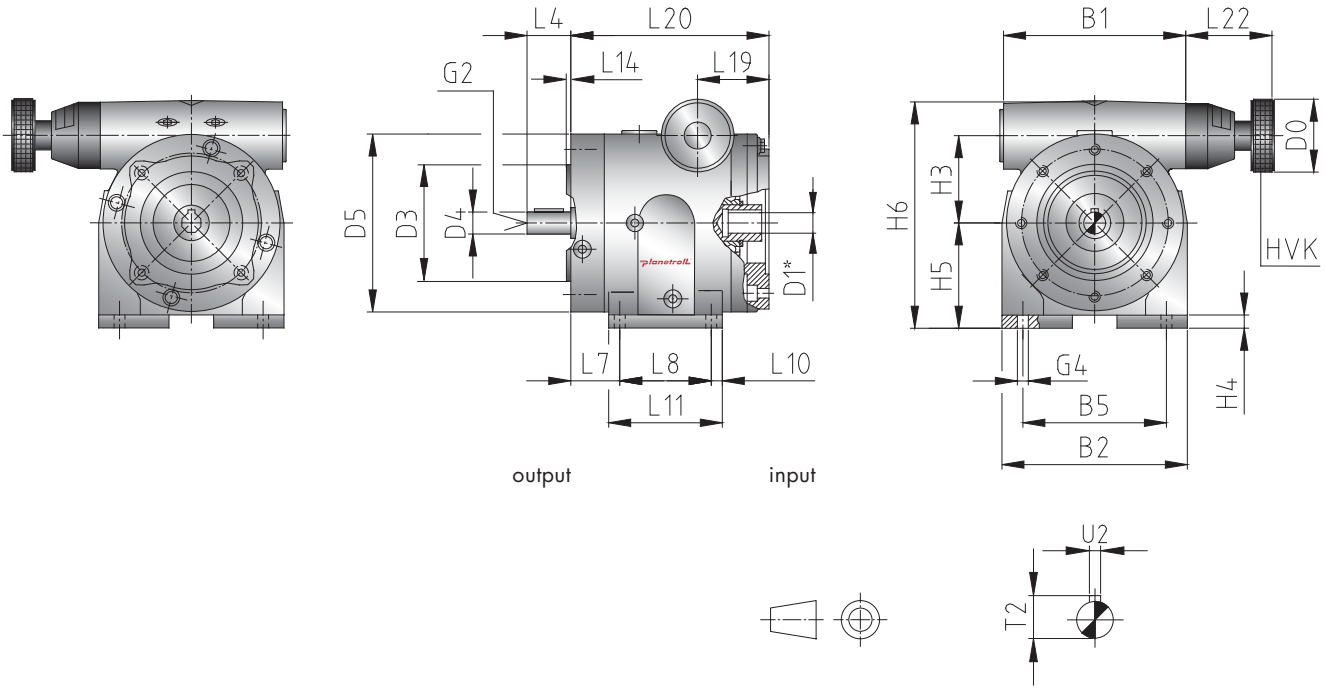


table 8

size	dimensions [mm]														
MR1-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	90	87			70		40	*		50j6	9h6	85			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M4		5,5					39	6
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	56	114				20		22	60		7,5	75			2,5
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					42	116		57		10,2			3		

* motor mounting dimensions see page 55

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR1-B5 with input hollow shaft

picture 5 ◂

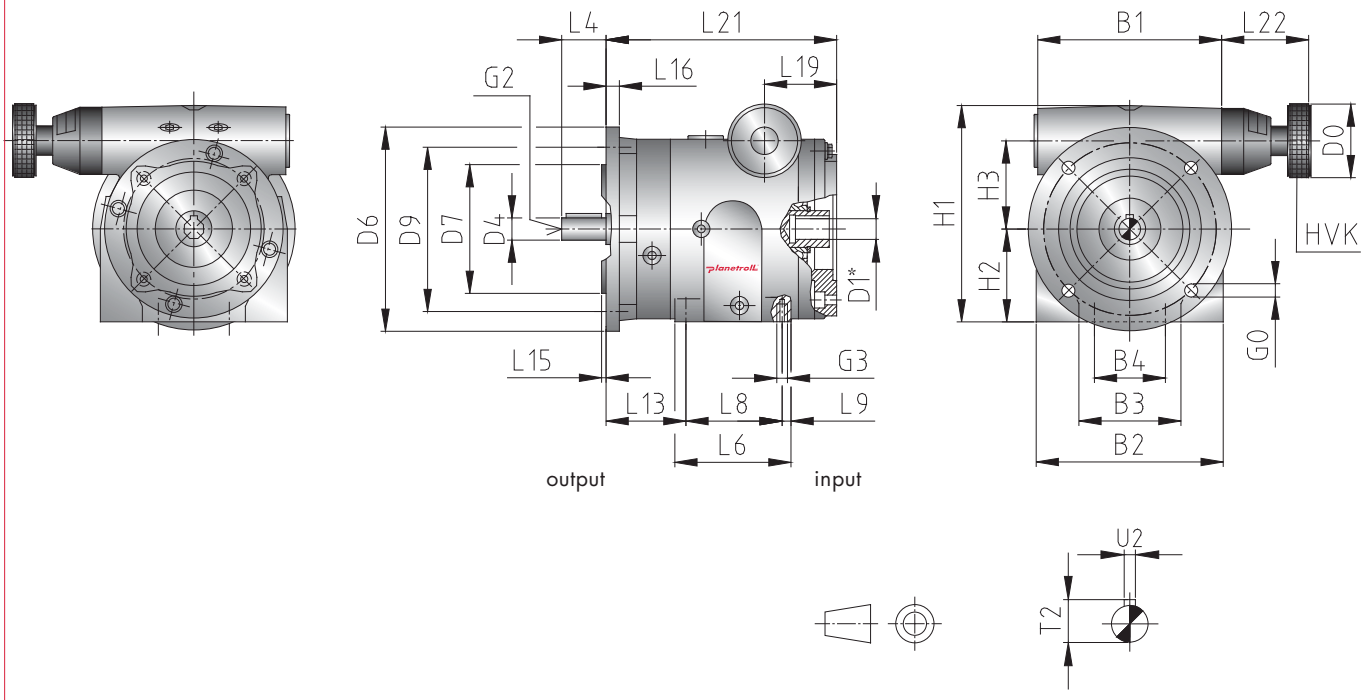


table 9 ◂

size	dimensions [mm]														
MR1-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	90	87	48	38			40	*			9h6		120	80j6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	100				6,6		D M4	M5x10				108	50	39	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						20	73		60	7				37	
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	3	10			42		131	57		10,2			3		

* motor mounting dimensions see page 55

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

Planetroll® the driving power

MR1-B14 with input hollow shaft

picture 6

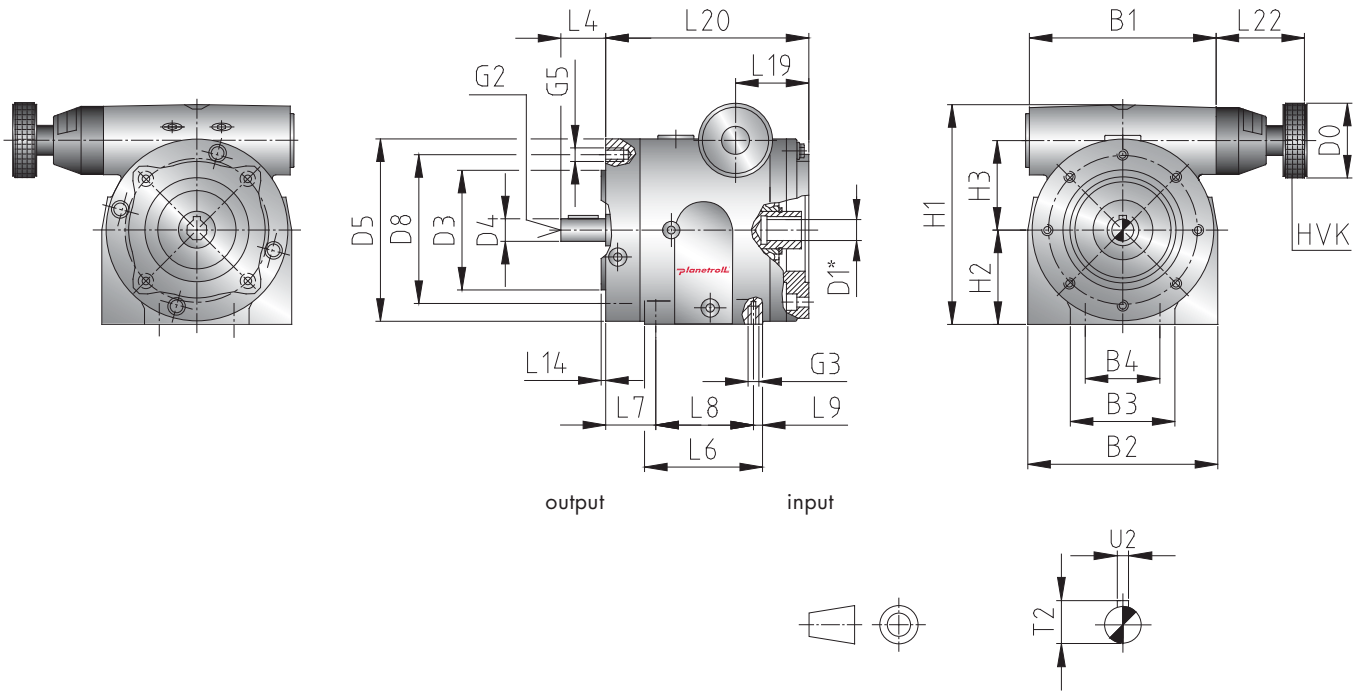


table 10

size	dimensions [mm]														
MR1-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	90	87	48	38			40	*		50j6	9h6	85			65
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M4	M5x10		M5x10		108	50	39	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						20	73	22	60	7					2,5
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					42	116		57		10,2			3		

* motor mounting dimensions see page 55

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR3-B3 with input hollow shaft

picture 7 ◂

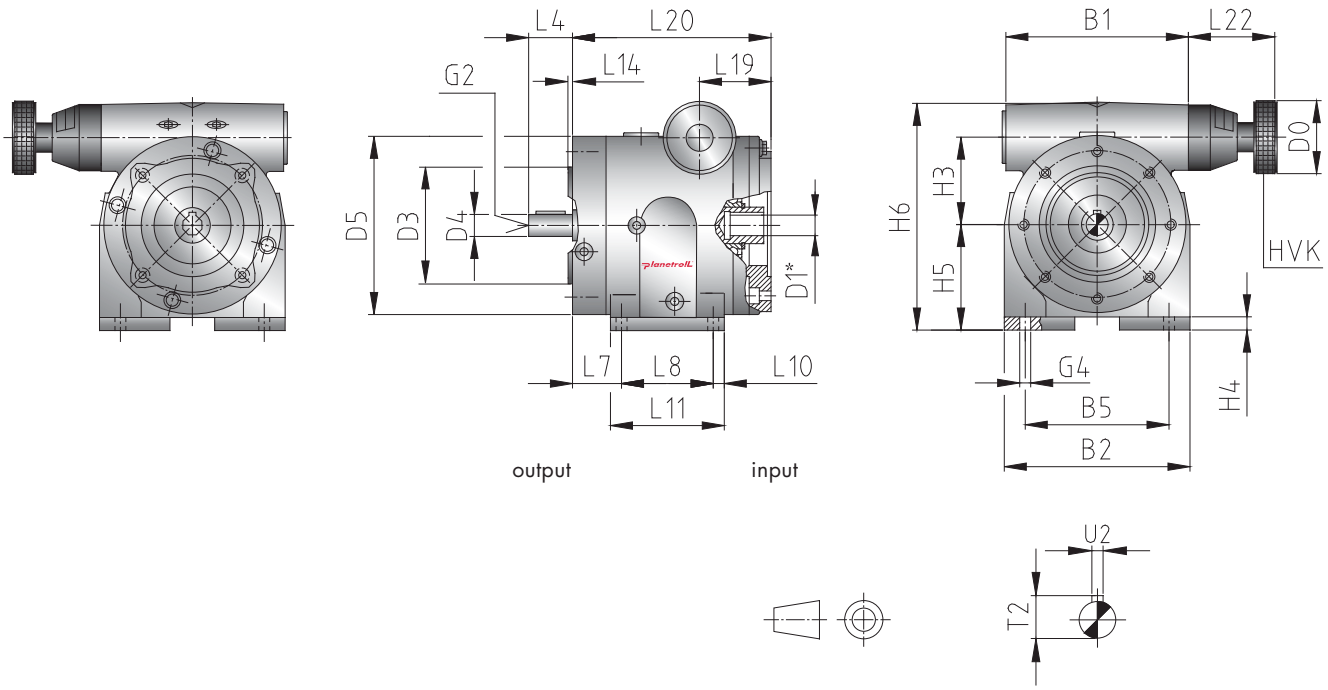


table 11 ◂

size	dimensions [mm]														
MR3-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	125	127			90		50	*		80j6	14h6	122			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M5		6,6					60	8
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	71	156				30		30	65		10	85			3
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					49	136		64		16			5		

* motor mounting dimensions see page 55

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR3-B5 with input hollow shaft

picture 8

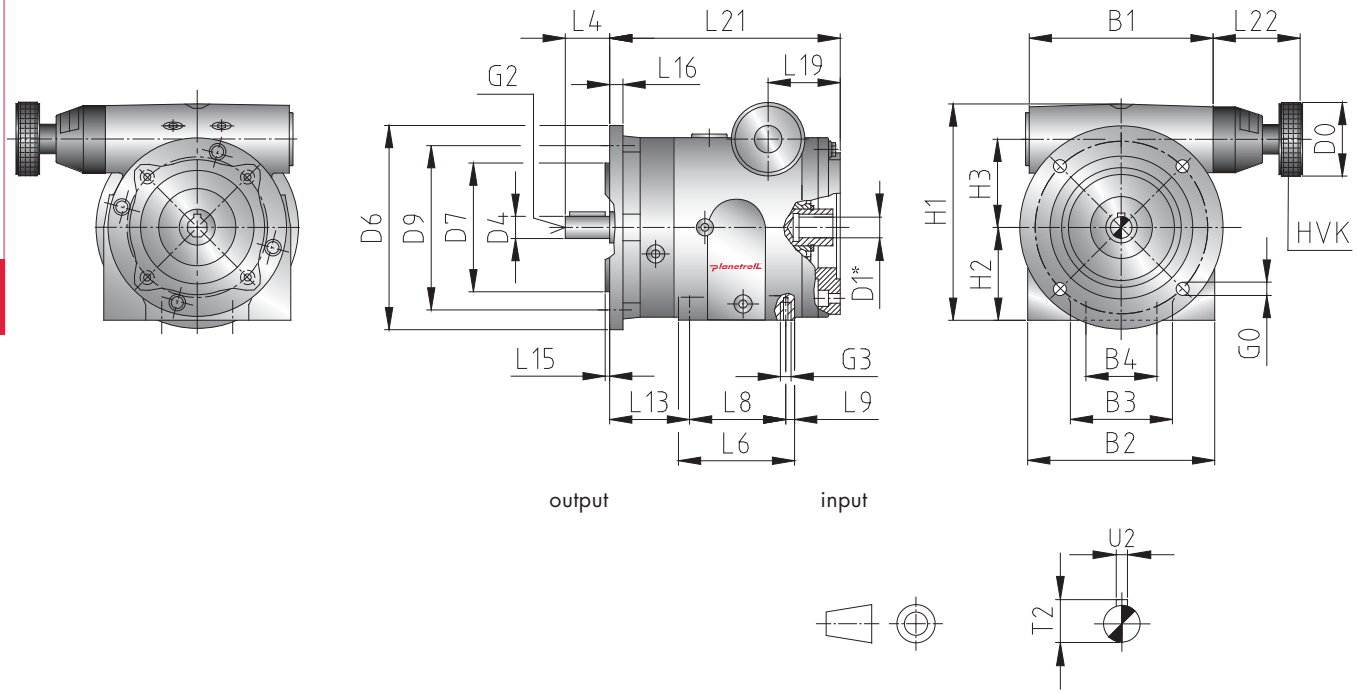


table 12

size	dimensions [mm]														
MR3-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	125	127	70	50			50	*			14h6		120	80j6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	100				6,6		D M5	M5x10				148	63	60	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						30	81		65	10				50	
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	3	7			49		156	64		16			5		

* motor mounting dimensions see page 55

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR3-B14 with input hollow shaft

picture 9 ◂

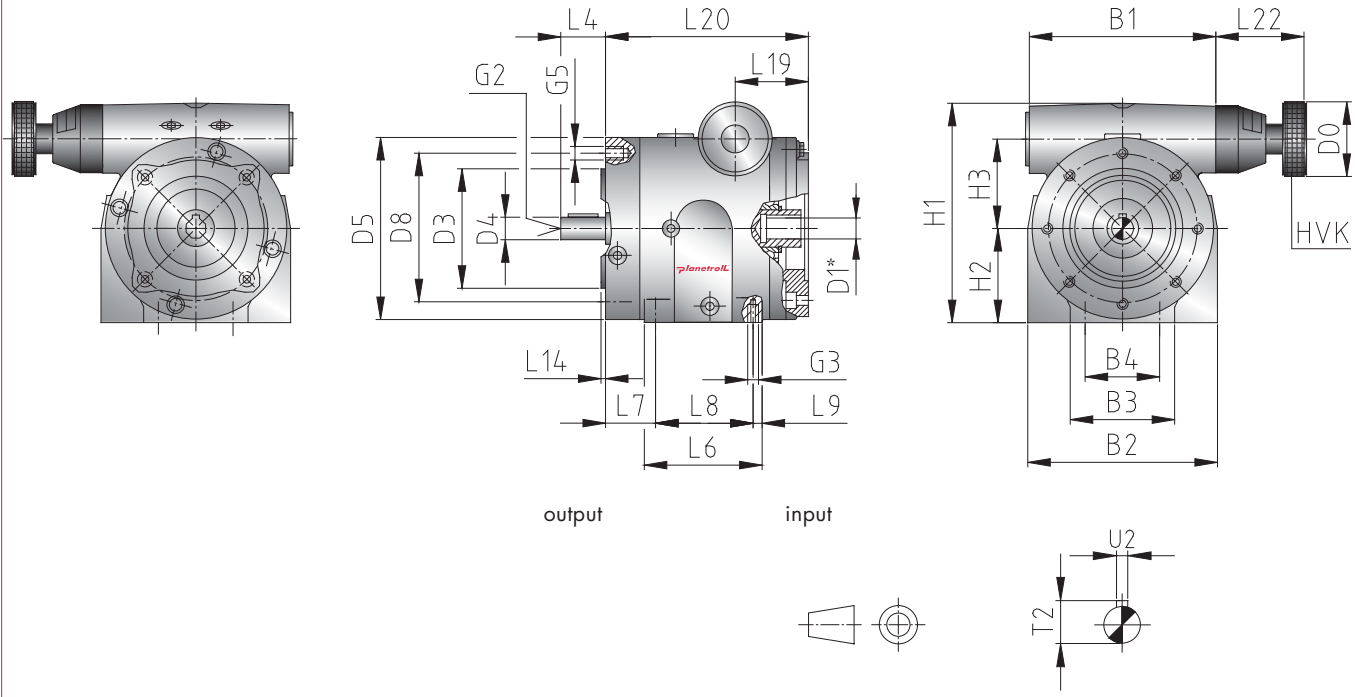


table 13 ◂

size	dimensions [mm]														
MR3-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	125	127	70	50			50	*		80j6	14h6	122			100
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M5	M5x10		M6x12		148	63	60	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						30	81	30	65	10					3
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					49	136		64		16			5		

* motor mounting dimensions see page 55

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

Planetroll the driving power

MR5-B3 with input hollow shaft

picture 10

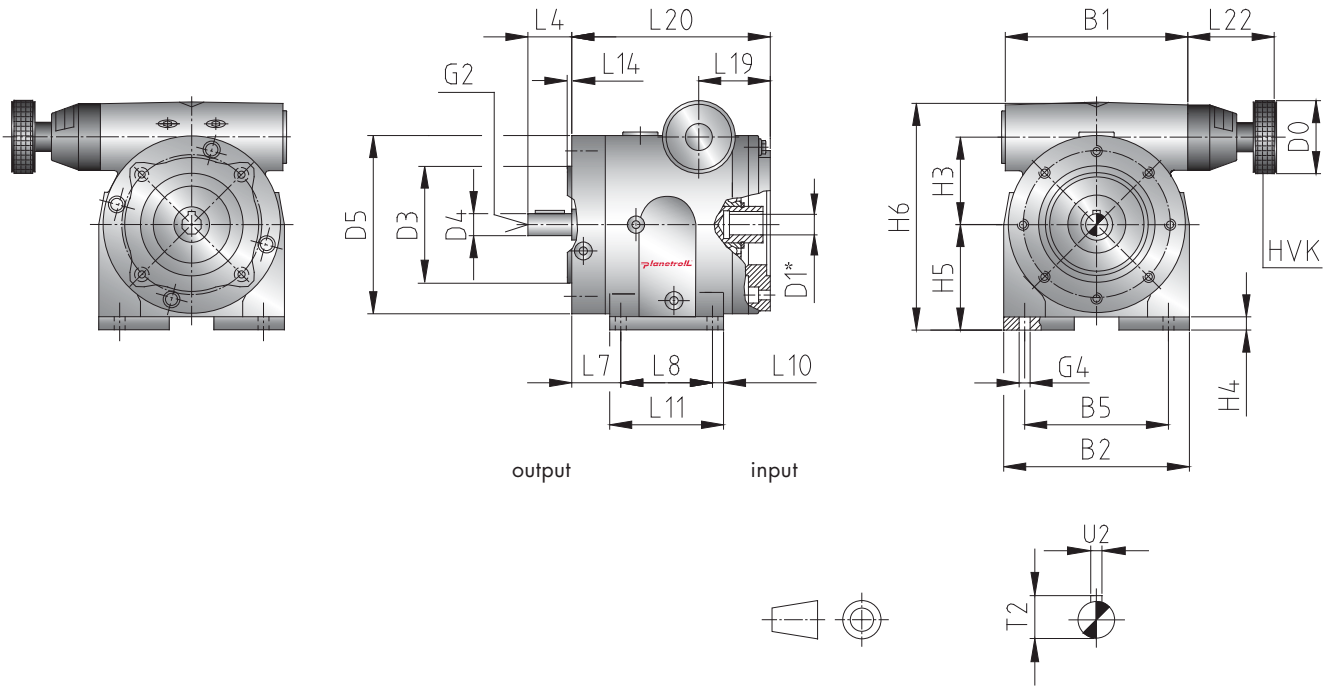


table 14

size	dimensions [mm]														
MR5-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	162	165			130		50	*		110j6	19h6	160			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M6		9					76	10
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	90	191				40		43	80		15	110			3,5
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					62	180		64		21,5			6		

* motor mounting dimensions see page 55

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR5-B5 with input hollow shaft

picture 11 ◂

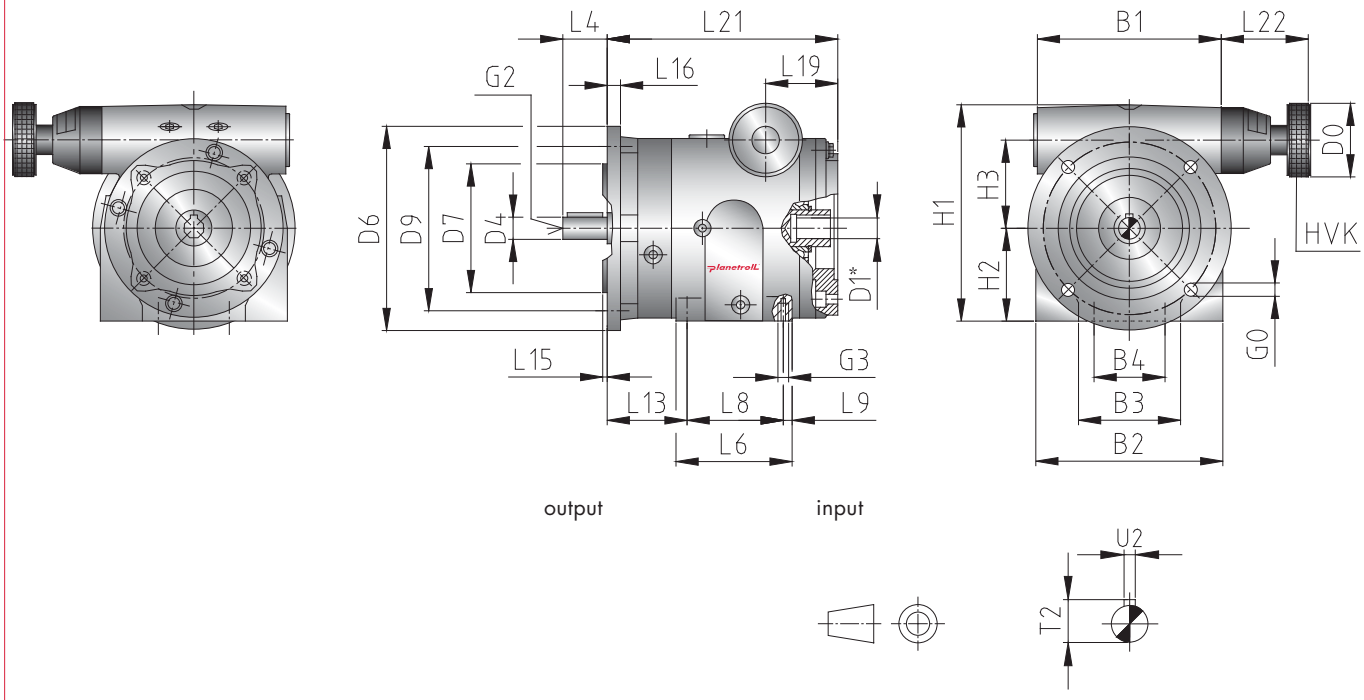


table15 ◂

size	dimensions [mm]														
MR5-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	162	165	105	90			50	*			19h6		160	110j6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	130				9		D M6	M8x16				181	80	76	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						40	106		80	15				63	
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	3,5	9			62		200	64		21,5			6		

* motor mounting dimensions see page 55

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR5-B14 with input hollow shaft

picture 12

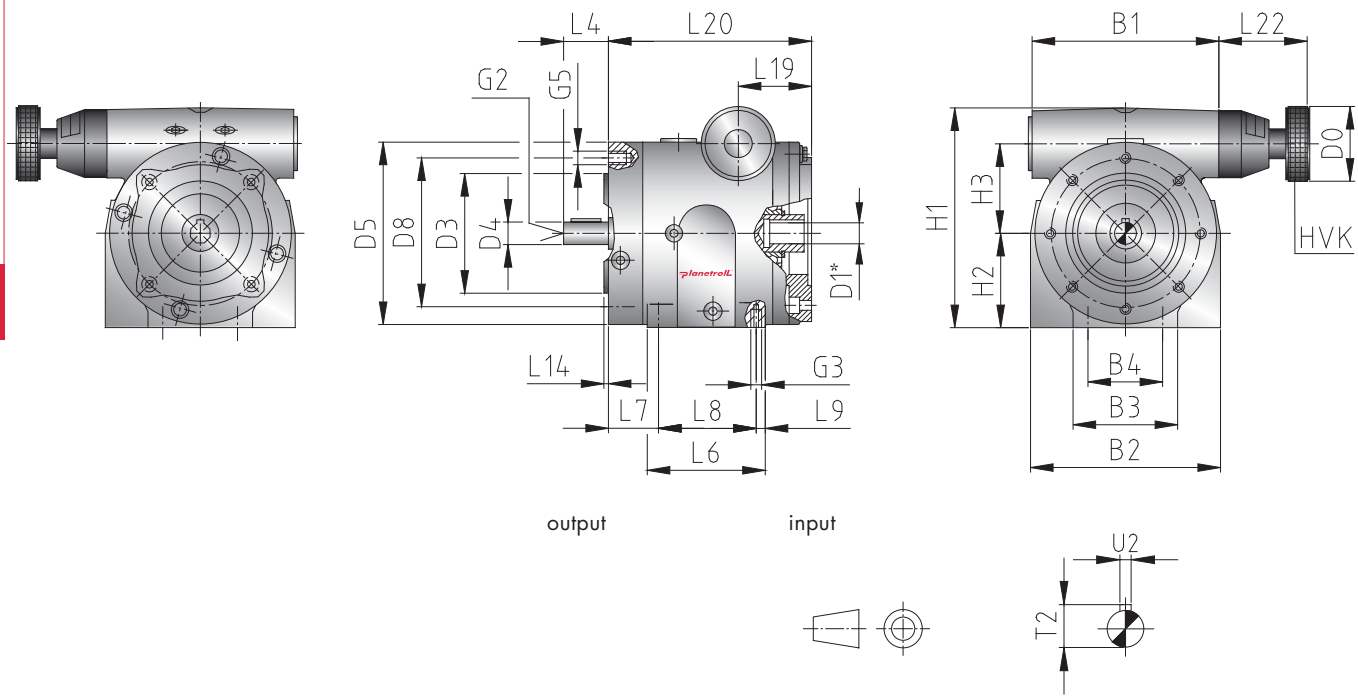


table 16

size	dimensions [mm]														
MR5-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	162	165	105	90			50	*		110j6	19h6	160			130
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M6	M8x16		M8x16		181	80	76	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						40	106	43	80	15					3,5
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					62	180		64		21,5			6		

* motor mounting dimensions see page 55

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR7-B3 with input hollow shaft

picture 13 ◂

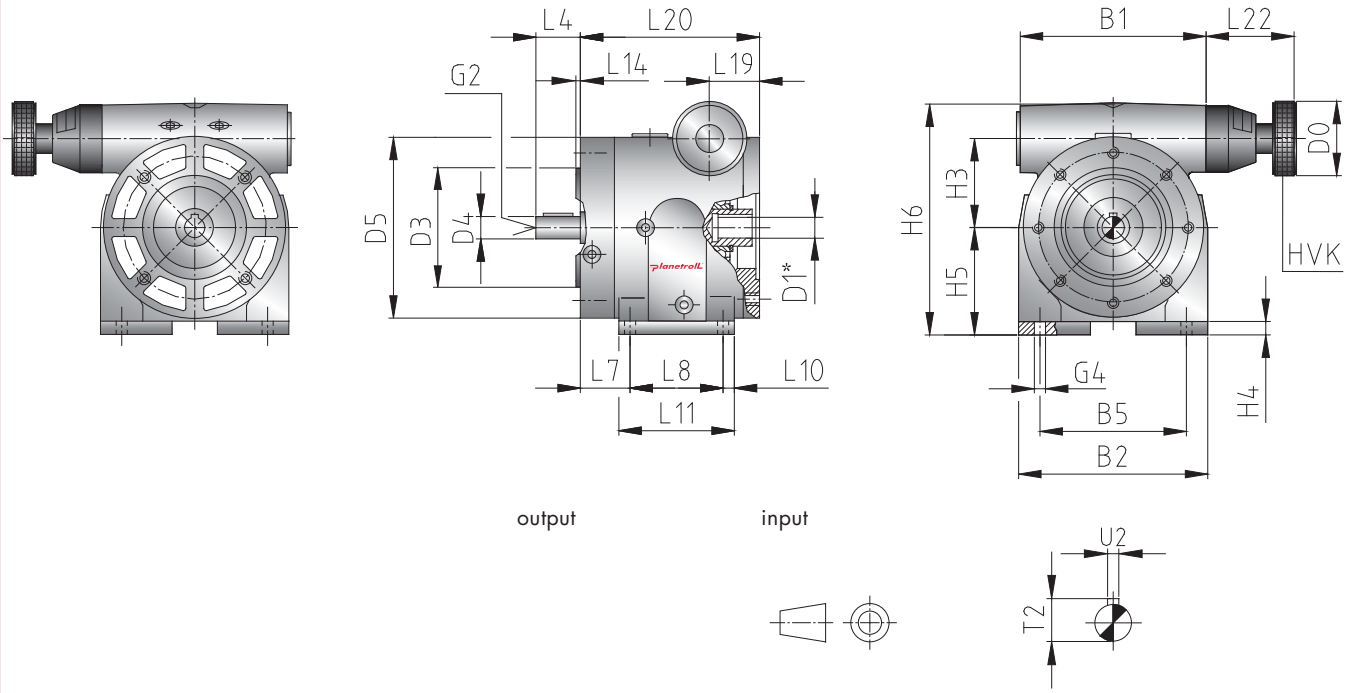


table17 ◂

size	dimensions [mm]														
MR7-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	200	202			160		70	*		130j6	24h6	199			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M8		11					95	12
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	112	244				50		30	110		17,5	145			3,5
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					60	185		92		27			8		

* motor mounting dimensions see page 55

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

Planetroll the driving power

MR7-B5 with input hollow shaft

picture 14

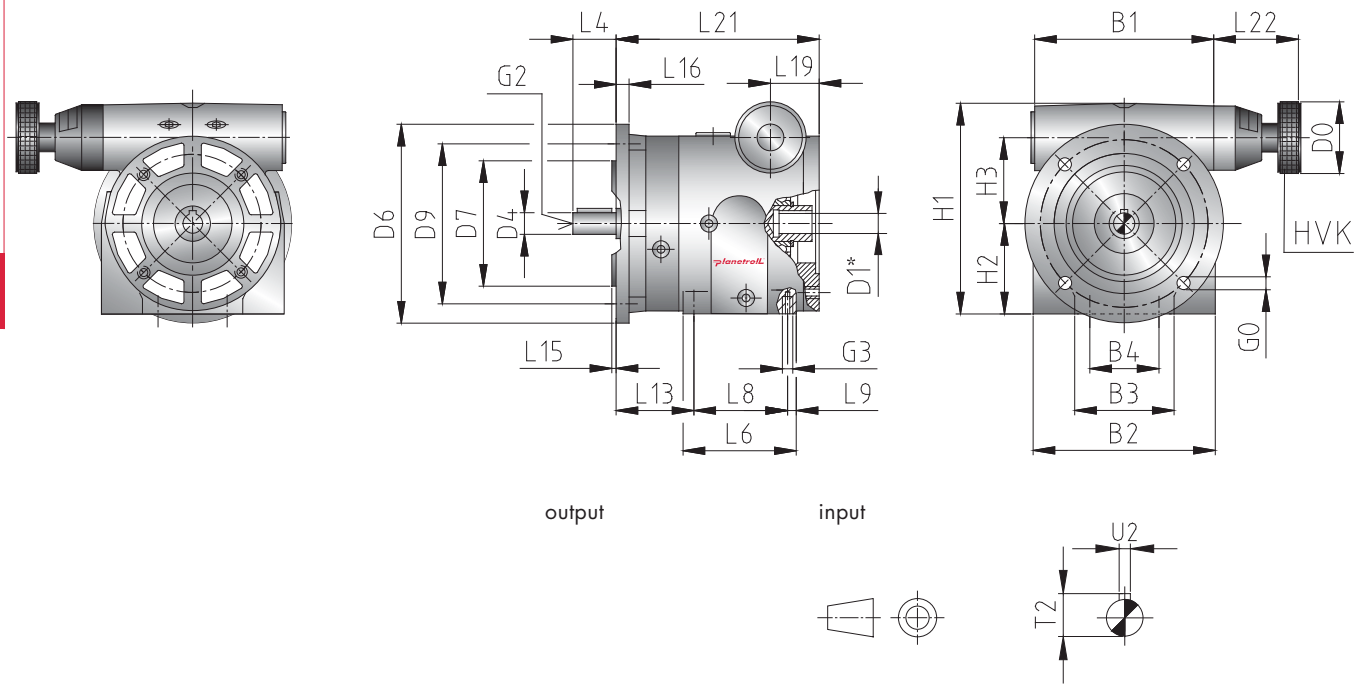


table 18

size	dimensions [mm]														
MR7-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	200	202	122	105			70	*			24h6		200	130j6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	165				11		D M8	M8x16				232	100	95	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						50	135		110	18				55	
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	3,5	11			60		210	92		27			8		

* motor mounting dimensions see page 56

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR7-B14 with input hollow shaft

picture 15 ◂

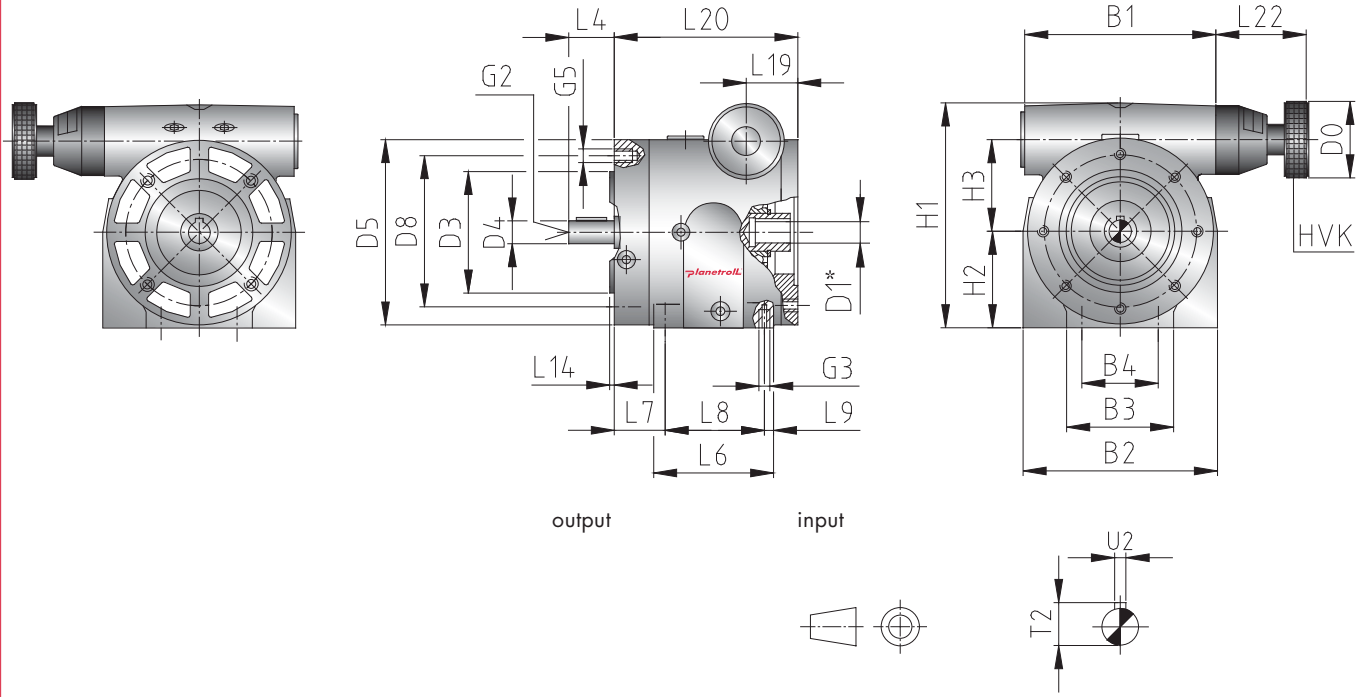


table 19 ◂

size	dimensions [mm]														
MR7-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	200	202	122	105			70	*		130j6	24h6	199			165
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M8	M8x16		M10x20		232	100	95	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						50	135	30	110	18					3,5
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					60	185		92		27			8		

* motor mounting dimensions see page 56

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR9-B3 with input hollow shaft

picture 16

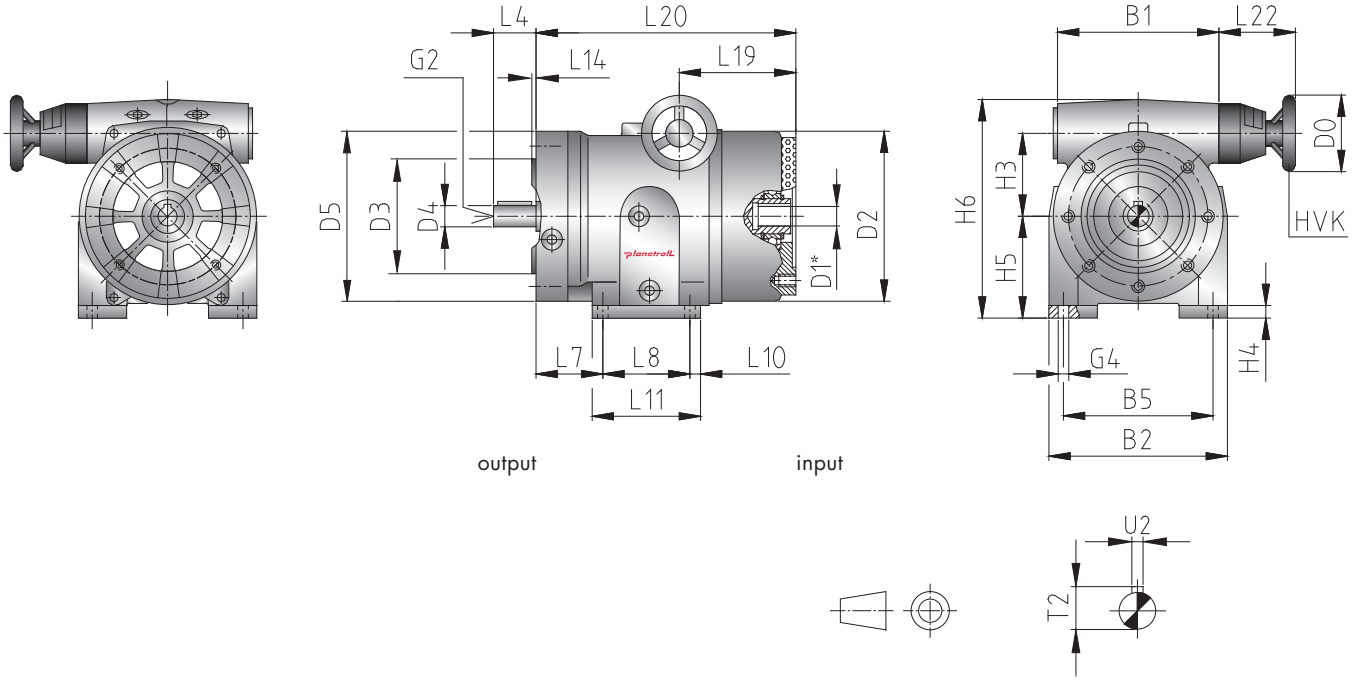


table 20

size	dimensions [mm]														
MR9-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	236	230			200		100	*	250	180j6	28h6	238			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M10		14					112	12
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	132	287				60		41	130		20	170			4
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					165	320		92		31			8		

* motor mounting dimensions see page 56

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR9-B5 with input hollow shaft

picture 17 ◂

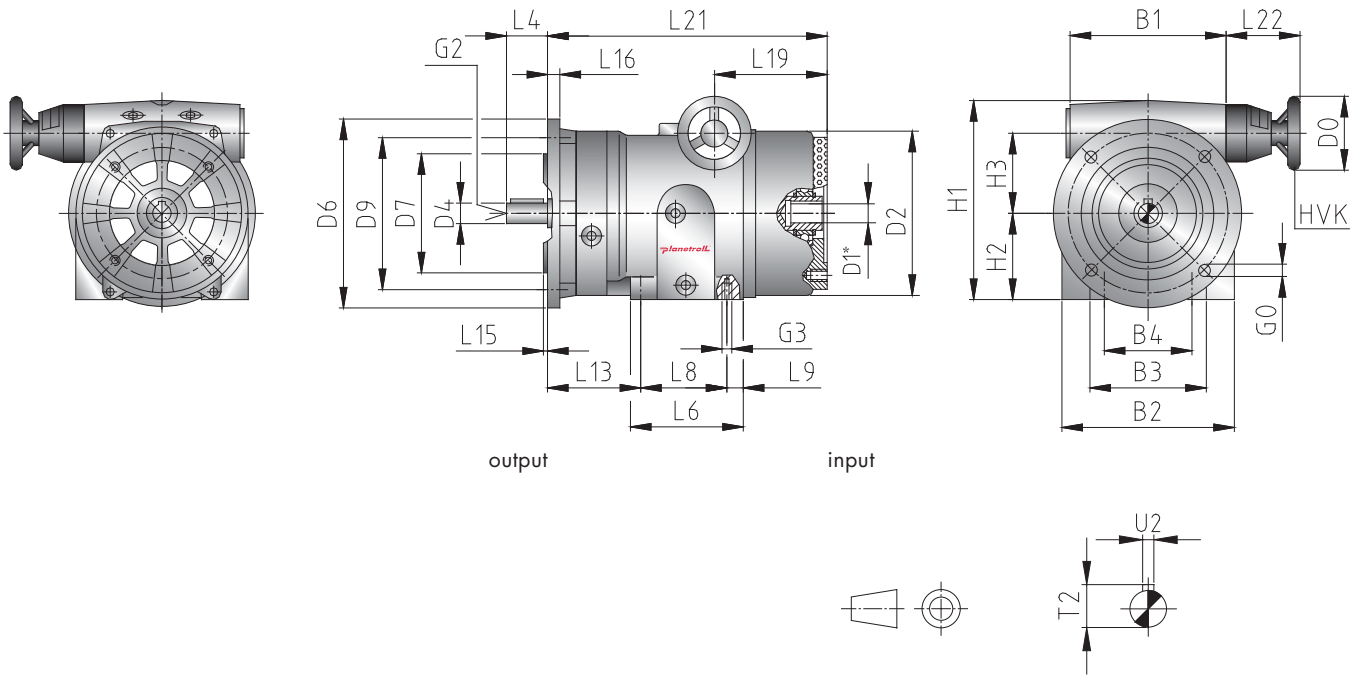


table 21 ◂

size	dimensions [mm]														
MR9-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	236	230	162	144			100	*	250		28h6		250	180j6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	215				14		D M10	M10x20				275	120	112	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						60	172		130	29				71	
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	4	12			165		350	92		31			8		

* motor mounting dimensions see page 56

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR9-B14 with input hollow shaft

picture 18

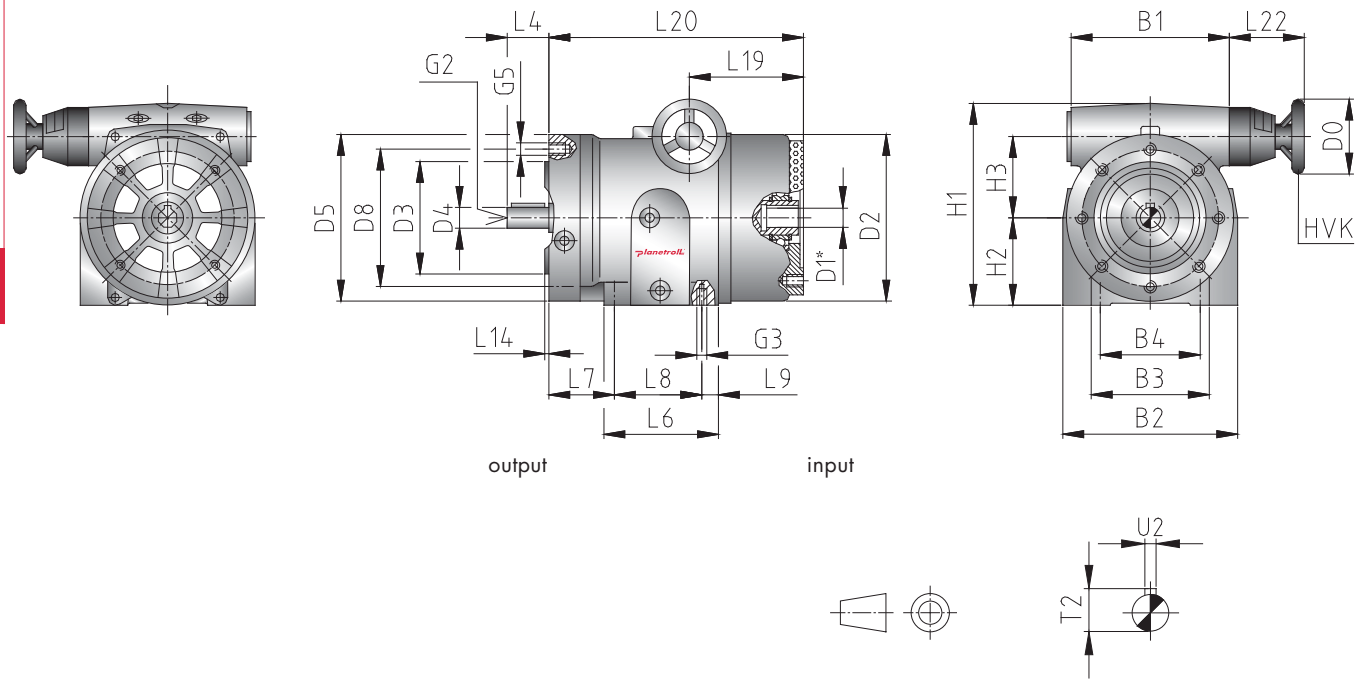


table 22

size	dimensions [mm]														
MR9-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	236	230	162	144			100	*	250	180j6	28h6	238			215
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M10	M10x20		M12x24		275	120	112	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						60	172	41	130	29					4
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					165	320		92		31			8		

* motor mounting dimensions see page 56

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR11-B3 with input hollow shaft

picture 19 ◂

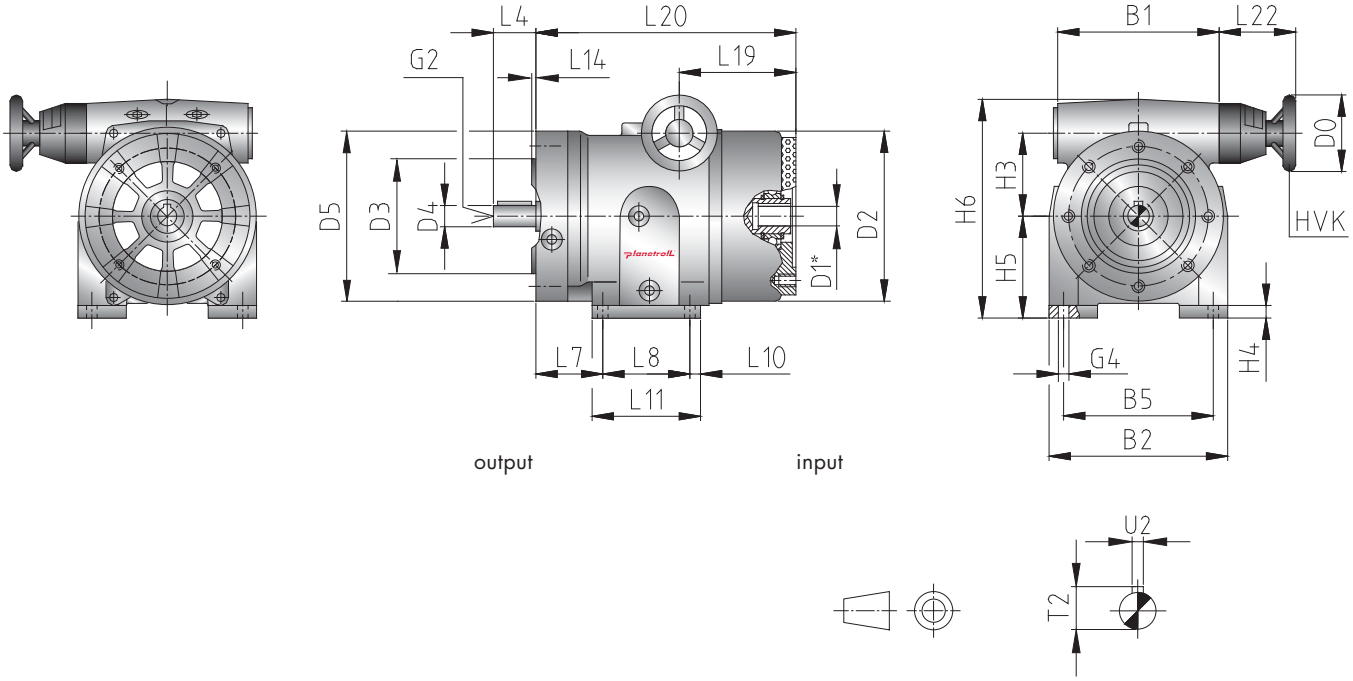


table 23 ◂

size	dimensions [mm]														
MR11-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	236	315			280		125	*	350	230j6	38h6	318			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M12		14					147	20
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	200	390				80		45	200		25	250			4
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					223	460		92		41			10		

* motor mounting dimensions see page 56

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR11-B5 with input hollow shaft

picture 20

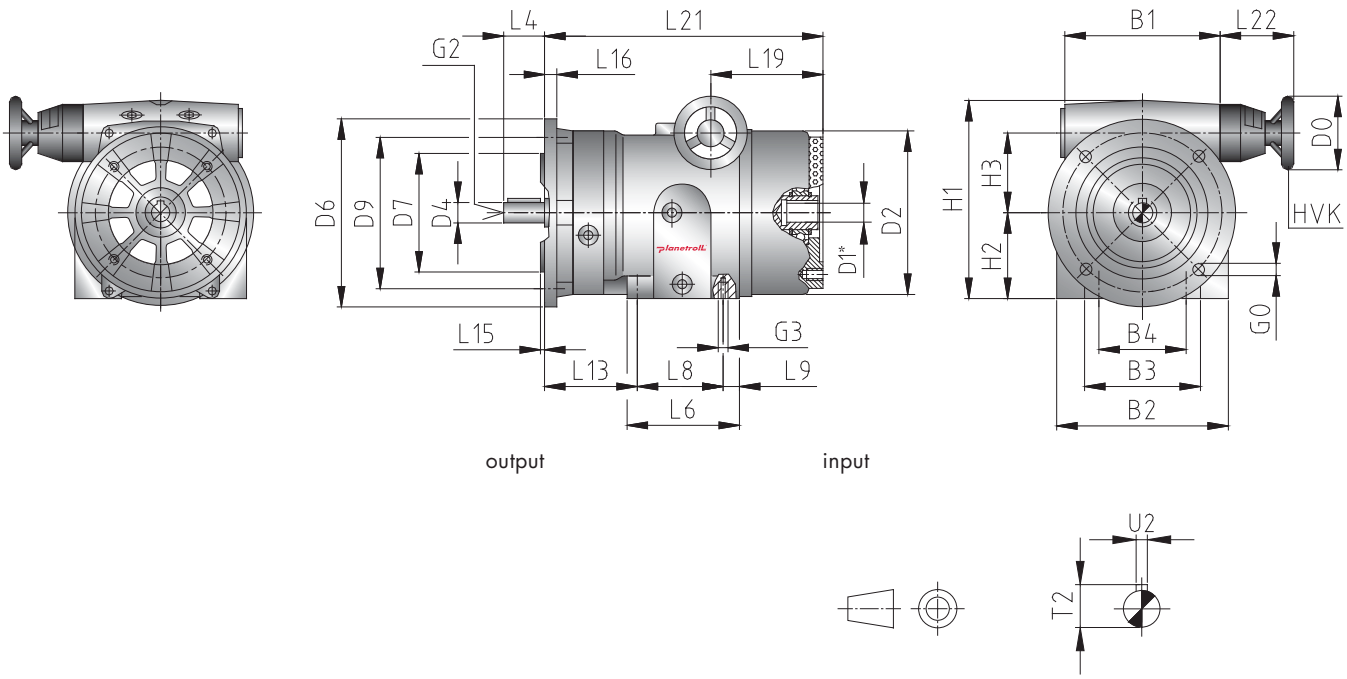


table 24

size	dimensions [mm]														
MR11-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	236	315	225	192			125	*	350		38h6		350	250h6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	300				18		D M12	M12x24				370	180	147	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						80	258		200	45				85	
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	5	15			223		500	92		41			10		

* motor mounting dimensions see page 56

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

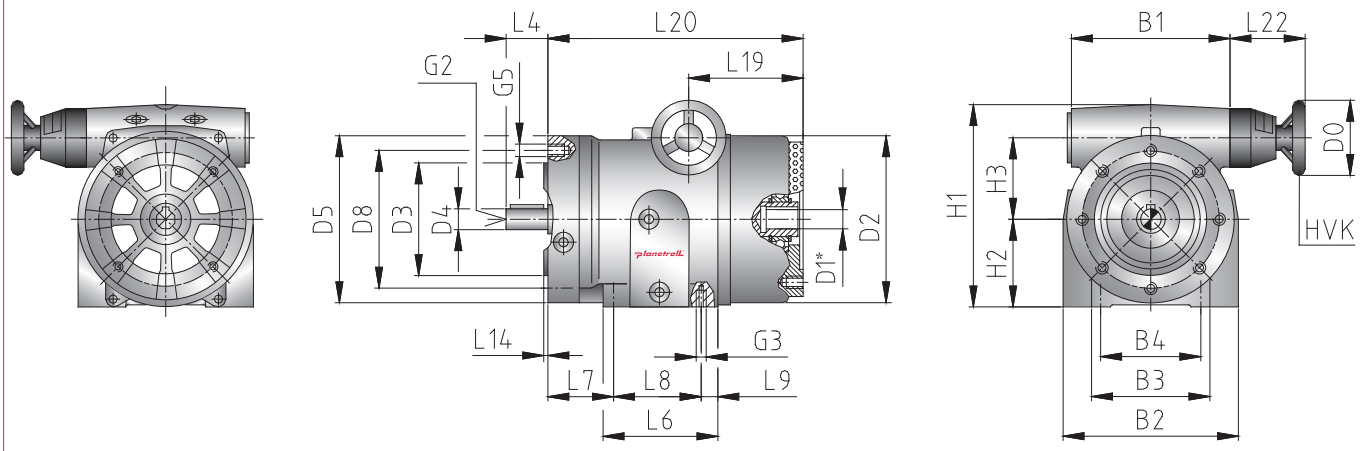
B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR11-B14 with input hollow shaft

picture 21 ◂



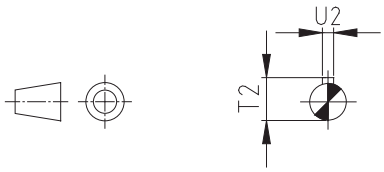


table 25 ◂

size	dimensions [mm]														
MR11-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	236	315	225	192			125	*	350	230j6	38h6	318			265
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
							D M12	M12x24		M12x22		370	180	147	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
						80	258	45	200	45					4
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
					223	460		92		41			10		

* motor mounting dimensions see page 56

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MRV-B3 free input shaft

picture 22

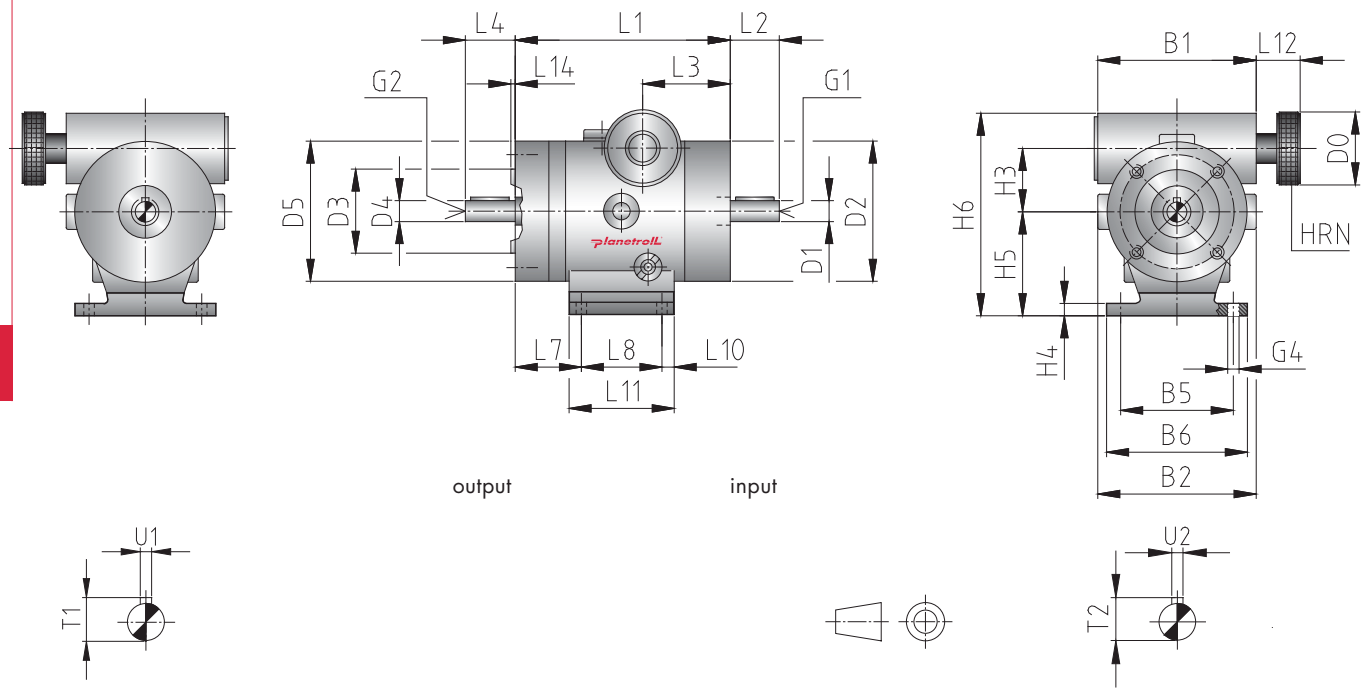


table 26

size	dimensions [mm]														
MRV-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	62	64			45	55	32	8h6	54	30j6	8h6	55			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M3	D M3		4,5					25	5
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	42	82	87	20	35	22		26	35		5	45	28		2
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
									8,8	8,8		2	2		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MRV-B5 free input shaft

picture 23 ◂

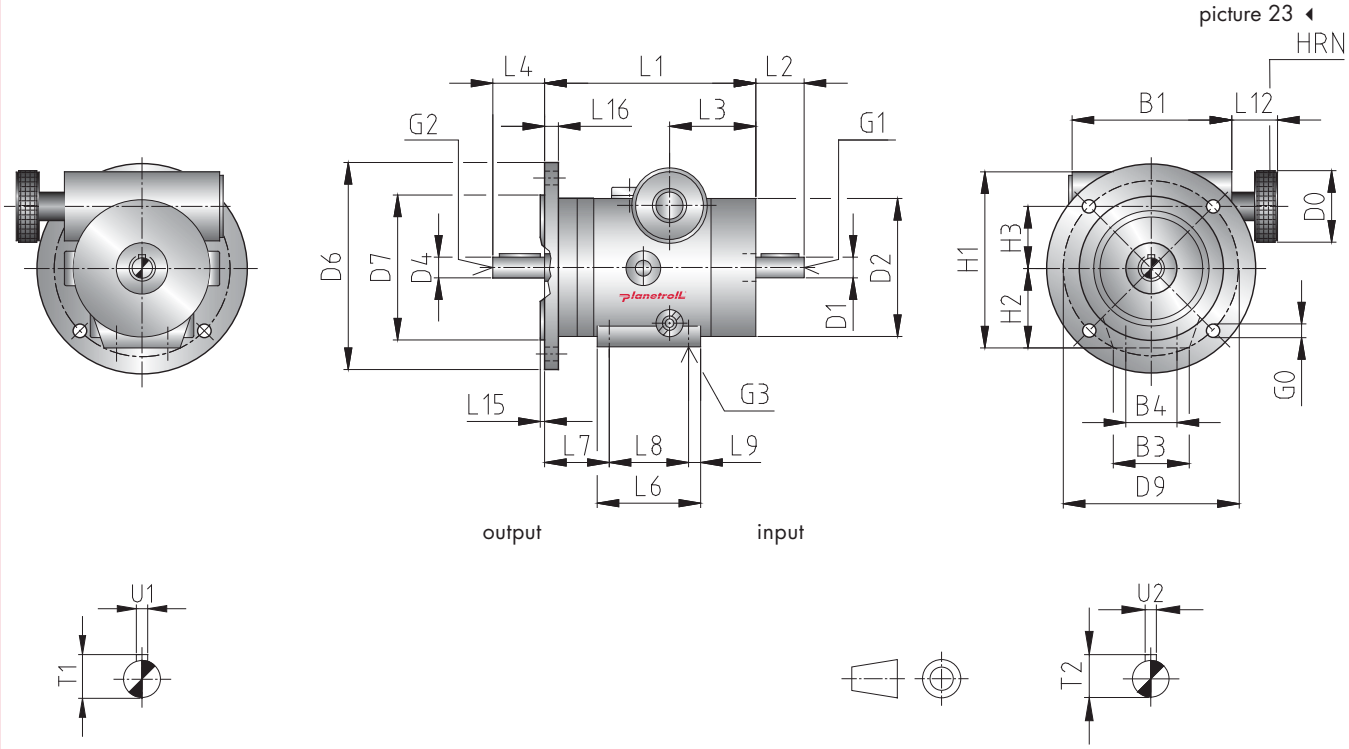


table 27 ◂

size	dimensions [mm]														
MRV-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	62		30	20			32	8h6	54		8h6		90	60j6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	75				5,5	D M3	D M3	M4x8				72	32	25	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
			87	20	35	22	45	26	35	5			28		
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	2,5	8							8,8	8,8		2	2		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MRV-B14 free input shaft

picture 24

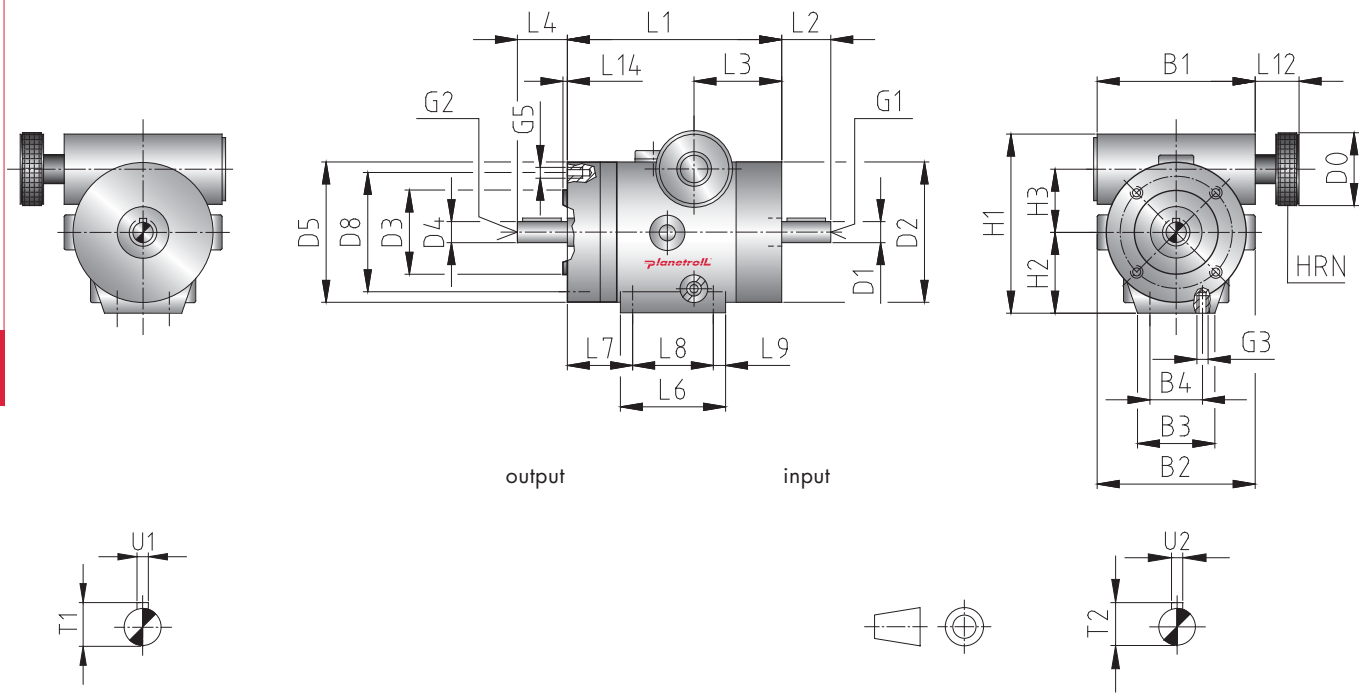


table 28

size	dimensions [mm]														
MRV-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	62	64	30	20			32	8h6	54	30j6	8h6	55			47
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M3	D M3	M4x8		M3x6		72	32	25	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
			87	20	35	22	45	26	35	5			28		2
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
									8,8	8,8		2	2		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR1-B3 free input shaft

picture 25 ◂

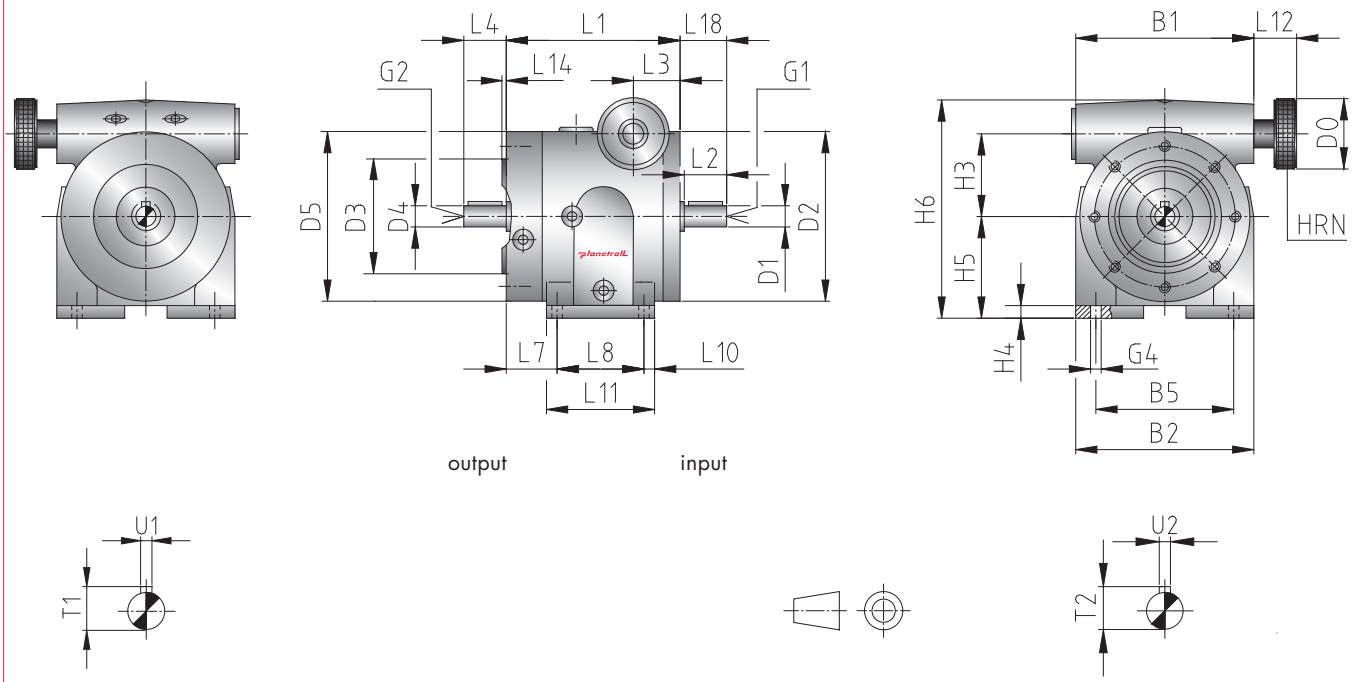


table 29 ◂

size	dimensions [mm]														
MR1-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	90	87			70		40	9h6	85	50j6	9h6	85			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M4	D M4		5,5					39	6
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	56	114	104	20	30	20		22	60		7,5	75	36		2,5
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
				21					10,2	10,2		3	3		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR1-B5 free input shaft

picture 26

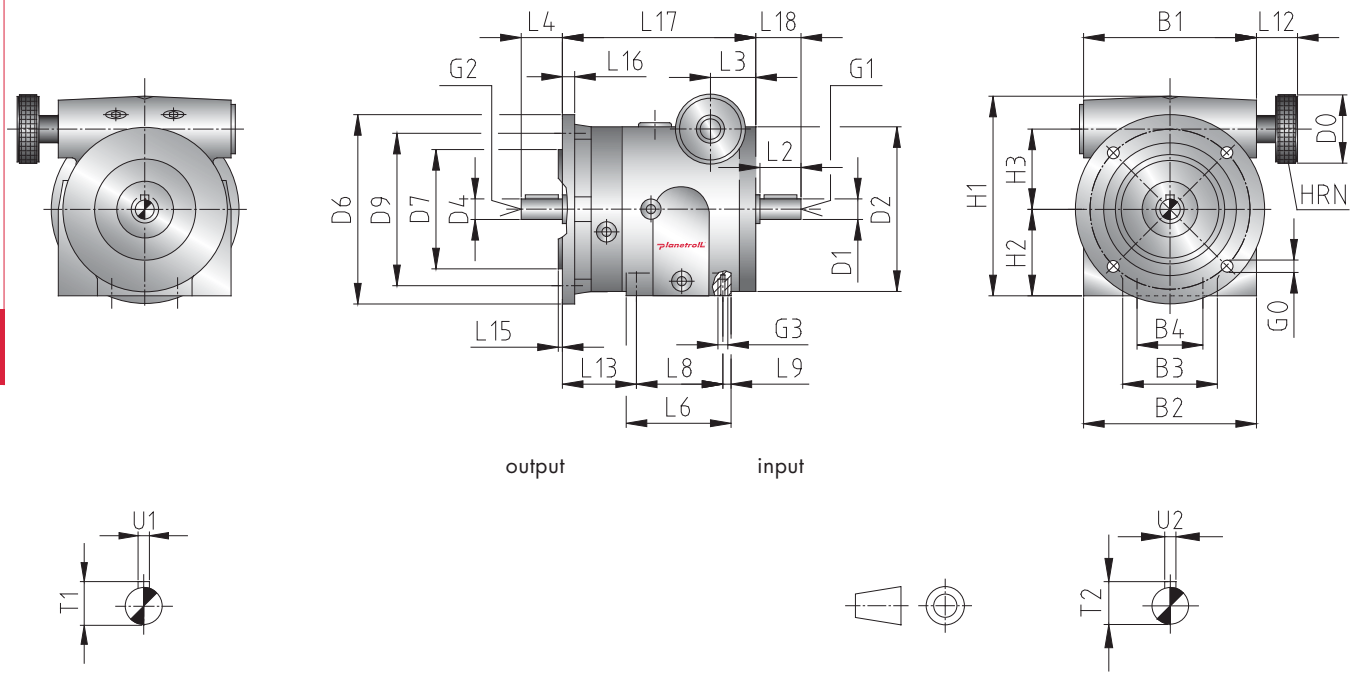


table 30

size	dimensions [mm]														
MR1-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	90	87	48	38			40	9h6	85		9h6		120	80j6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	100				6,6	D M4	D M4	M5x10				108	50	39	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
				20	30	20	73		60	7			36	37	
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	3	10	119	21					10,2	10,2		3	3		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR1-B14 free input shaft

picture 27 ◂

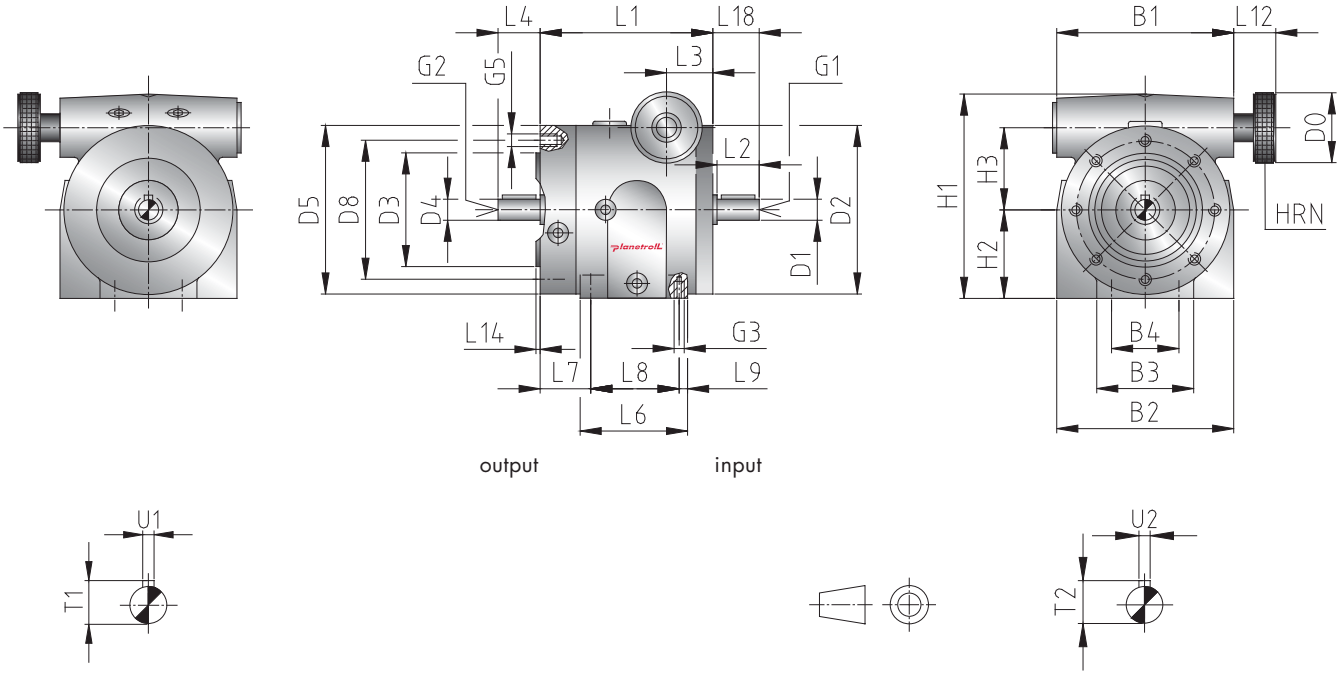


table 31 ◂

size	dimensions [mm]														
MR1-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	90	87	48	38			40	9h6	85	50j6	9h6	85			65
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M4	D M4	M5x10		M5x10		108	50	39	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
			104	20	30	20	73	22	60	7			36		2,5
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
				21					10,2	10,2		3	3		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

Planetroll® the driving power

MR3-B3 free input shaft

picture 28

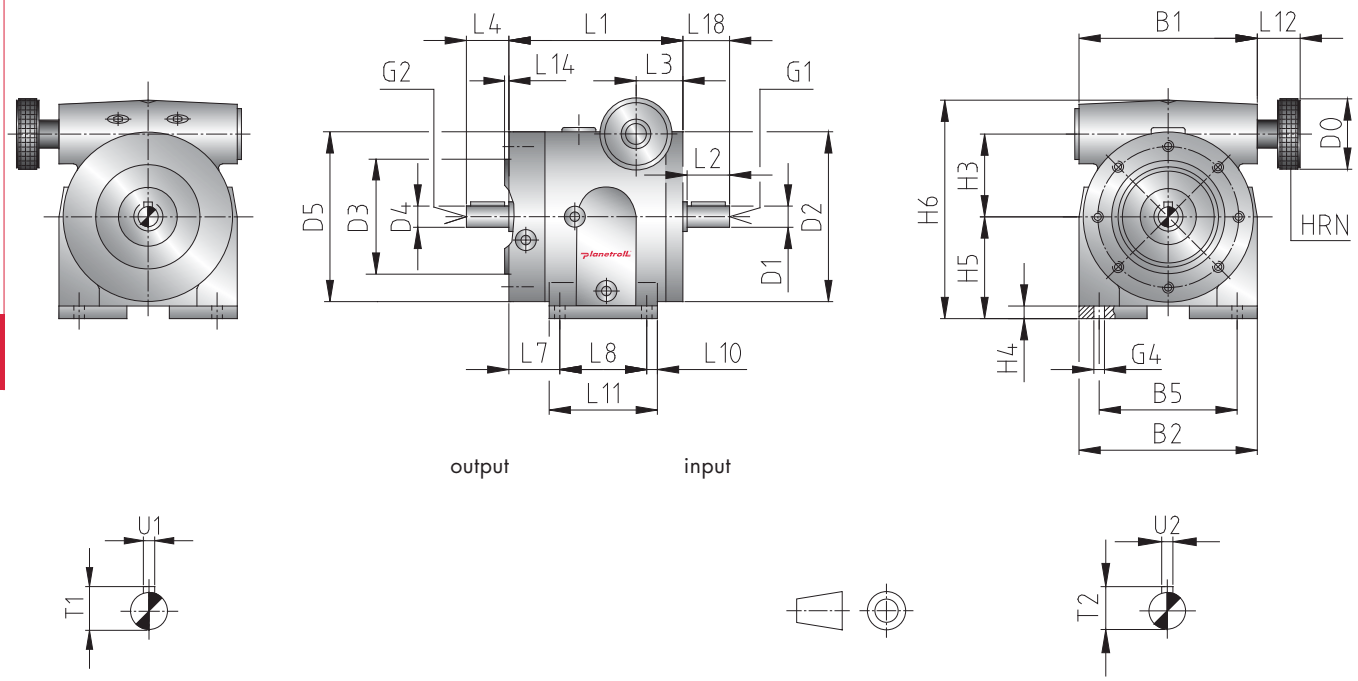


table 32

size	dimensions [mm]														
MR3-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	125	127			90		50	14h6	122	80j6	14h6	122			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M5	D M5		6,6					60	8
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	71	156	121	30	34	30		30	65		10	85	31		3
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
				31					16	16		5	5		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR3-B5 free input shaft

picture 29 ◂

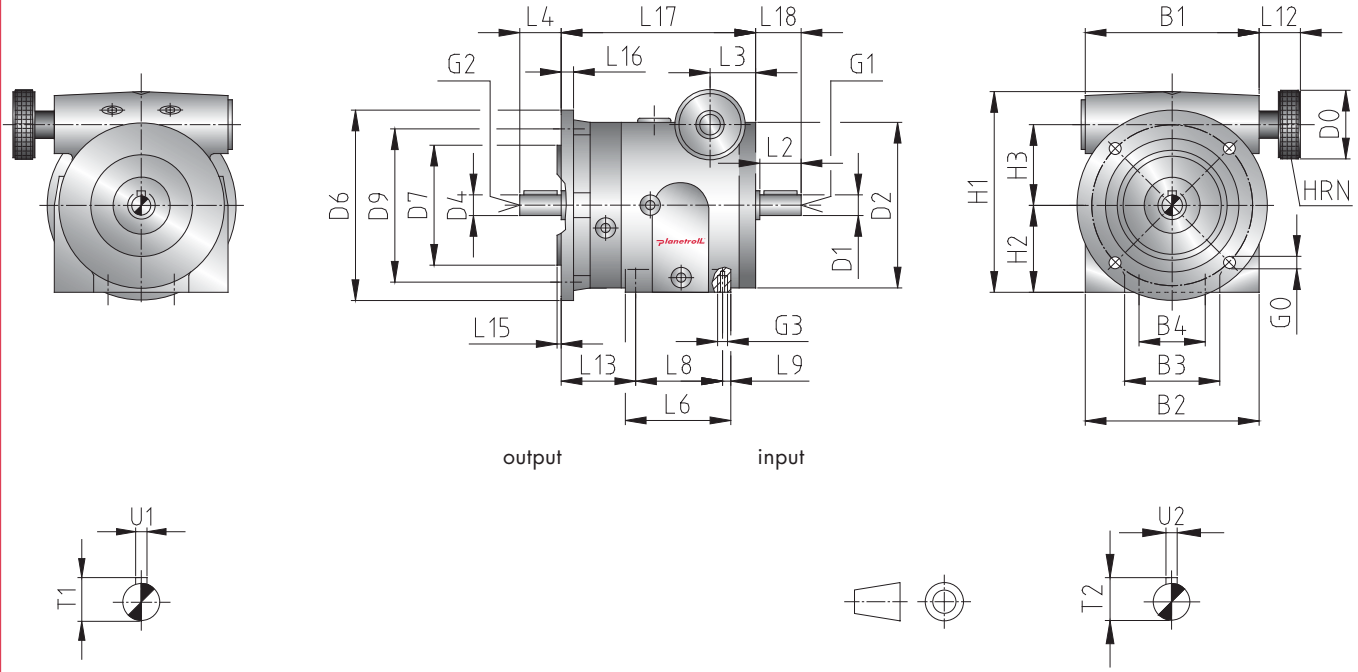


table 33 ◂

size	dimensions [mm]														
MR3-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	125	127	70	50			50	14h6	122		14h6		120	80j6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	100				6,6	D M5	D M5	M5x10				148	63	60	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
				30	34	30	81		65	10			31	50	
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	3	7	141	31					16	16		5	5		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

Planetroll® the driving power

MR3-B14 free input shaft

picture 30

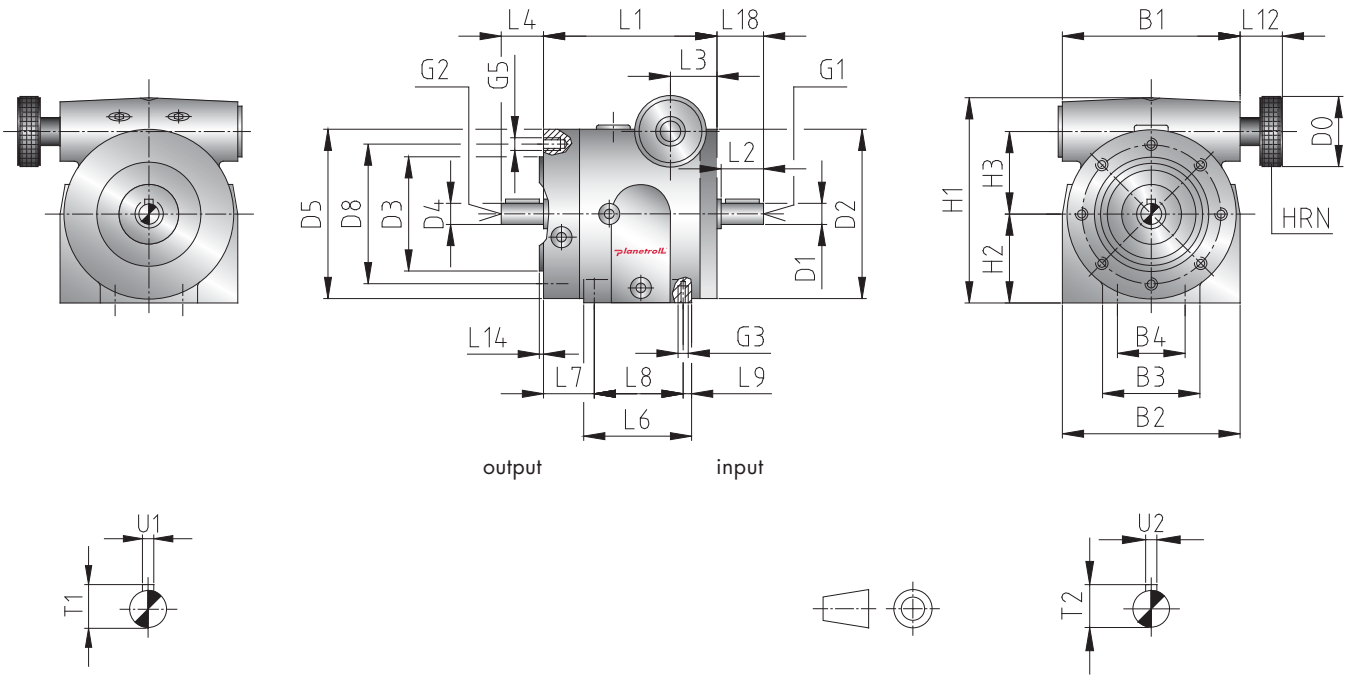


table 34

size	dimensions [mm]														
MR3-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	125	127	70	50			50	14h6	122	80j6	14h6	122			100
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M5	D M5	M5x10		M6x12		148	63	60	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
			121	30	34	30	81	30	65	10			31		3
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
				31					16	16		5	5		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR5-B3 free input shaft

picture 31 ◂

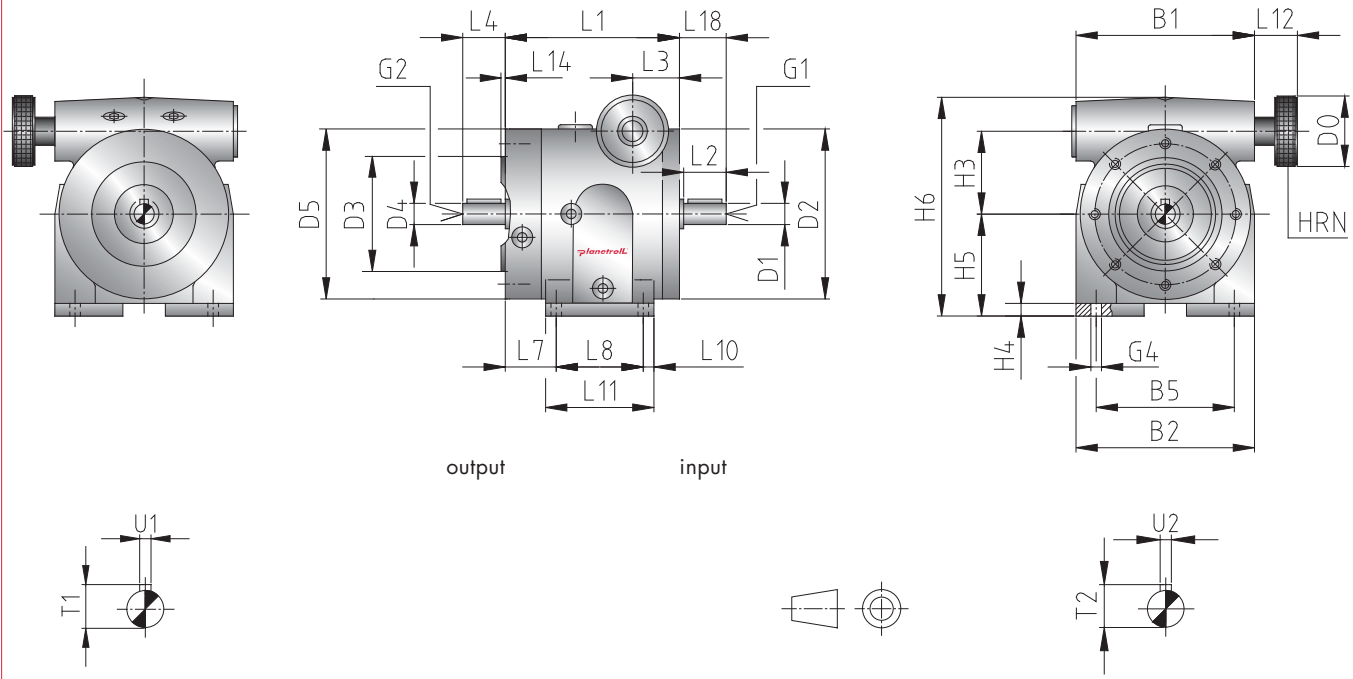


table 35 ◂

size	dimensions [mm]														
MR5-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	162	165			130		50	19h6	160	110j6	19h6	160			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M6	D M6		9					76	10
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	90	191	160	40	42	40		43	80		15	110	31		3,5
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
				41					21,5	21,5		6	6		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR5-B5 free input shaft

picture 32

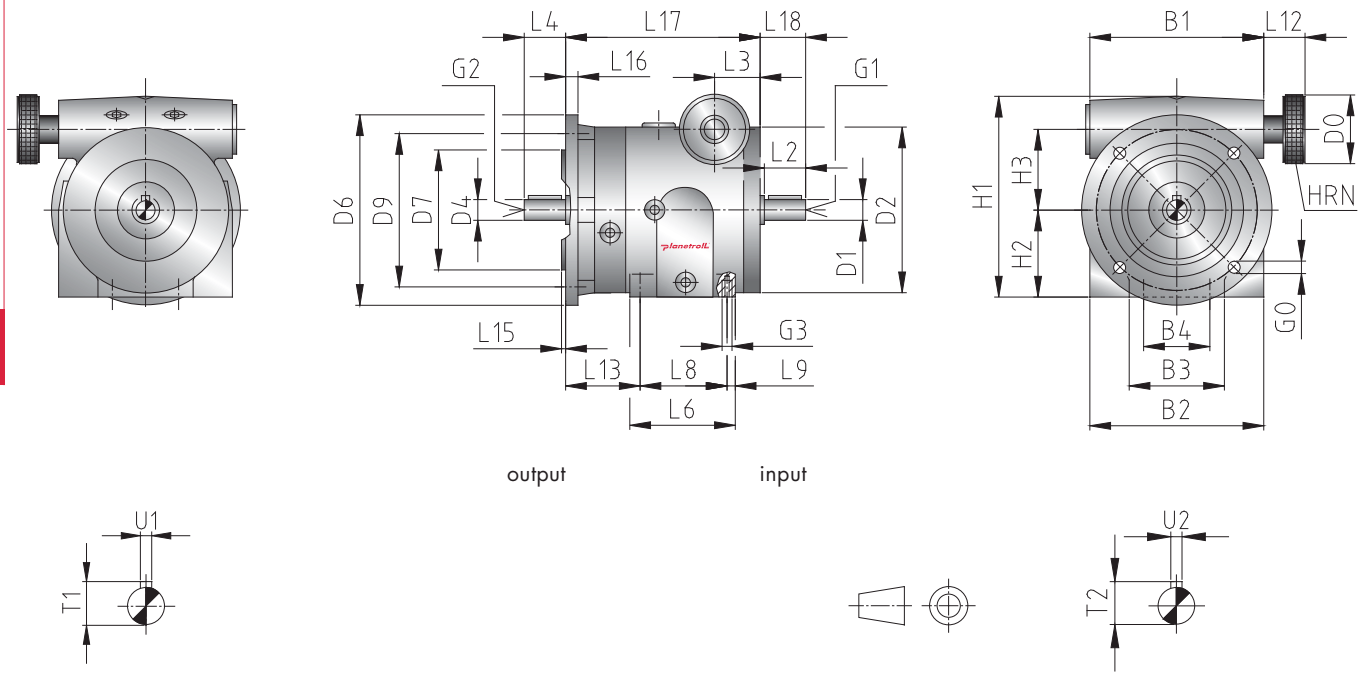


table 36

size	dimensions [mm]														
MR5-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	162	165	105	90			50	19h6	160		19h6		160	110j6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	130				9	D M6	D M6	M8x16				181	80	76	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
				40	42	40	106		80	15			31	63	
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	3,5	9	180	41					21,5	21,5		6	6		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR5-B14 free input shaft

picture 33 ◂

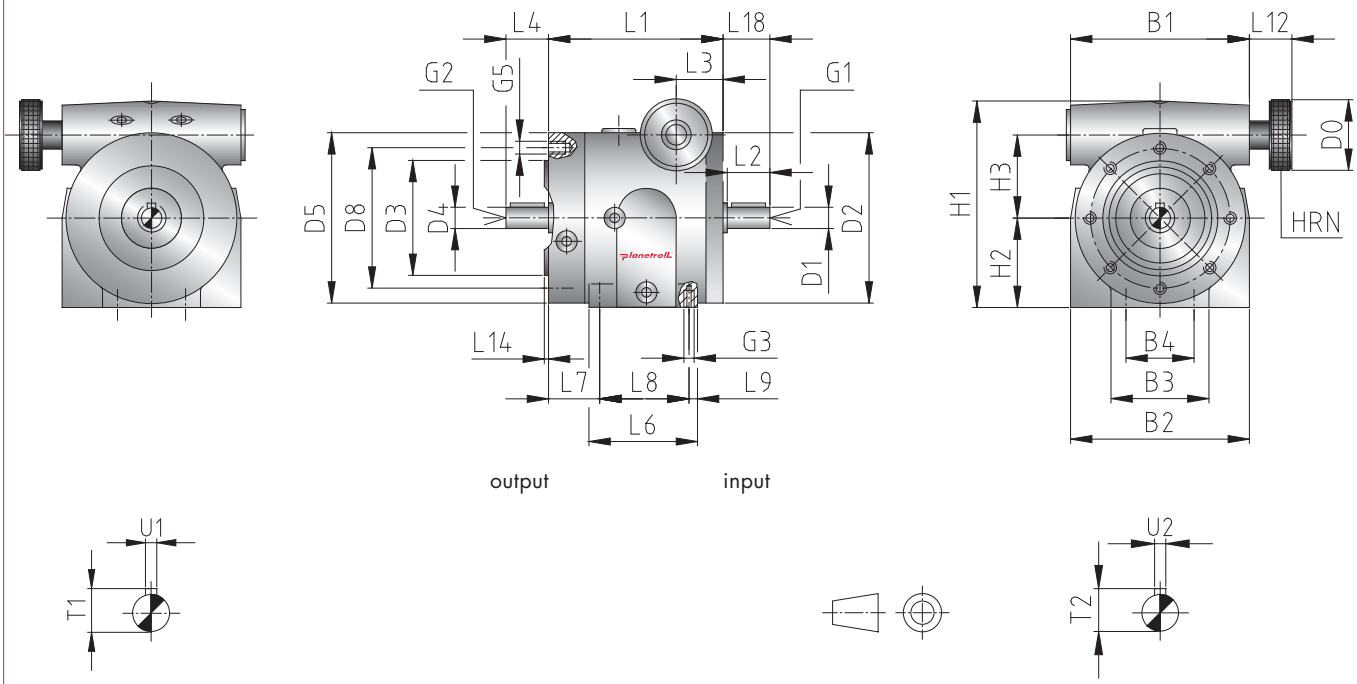


table 37 ◂

size	dimensions [mm]														
MR5-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	162	165	105	90			50	19h6	160	110j6	19h6	160			130
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M6	D M6	M8x16		M8x16		181	80	76	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
			160	40	42	40	106	43	80	15			31		3,5
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
				41					21,5	21,5		6	6		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR7-B3 free input shaft

picture 34

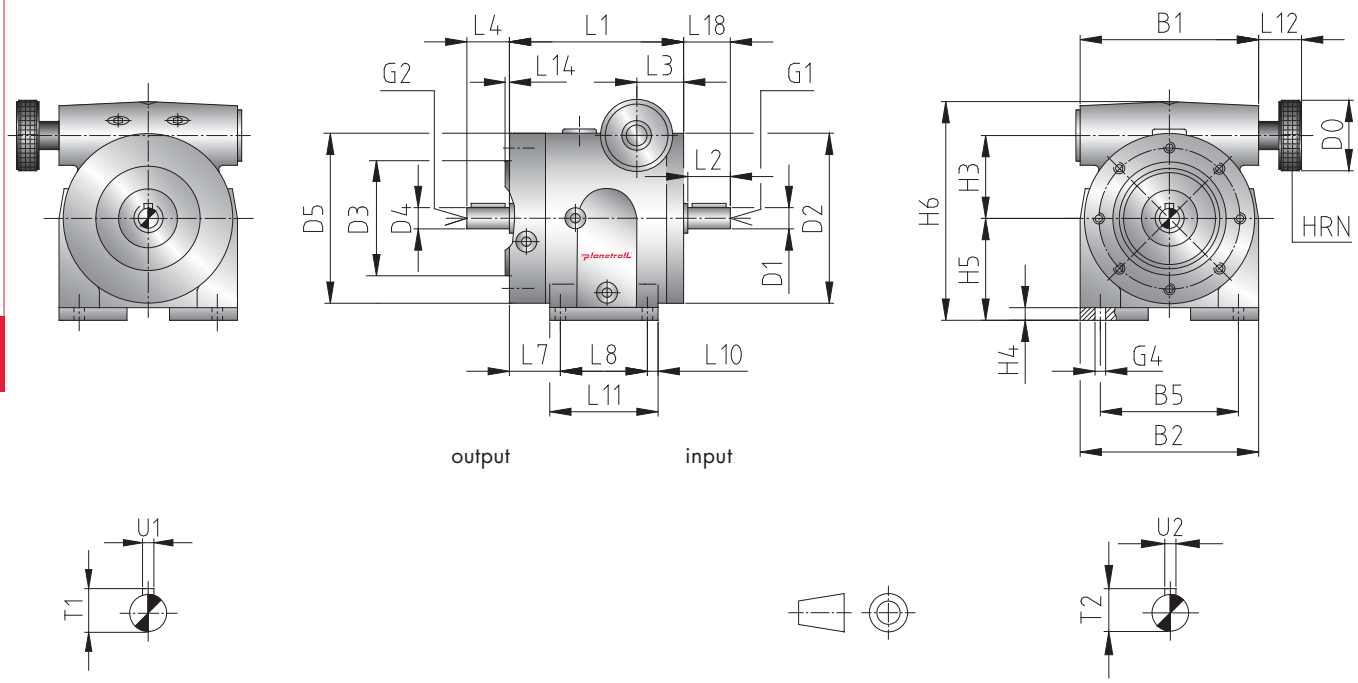


table 38

size	dimensions [mm]														
MR7-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	200	202			160		70	24h6	200	130j6	24h6	199			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M8	D M8		11					95	12
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	112	244	185	50	60	50		30	110		17,5	145	52		3,5
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
				52					27	27		8	8		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR7-B5 free input shaft

picture 35 ◂

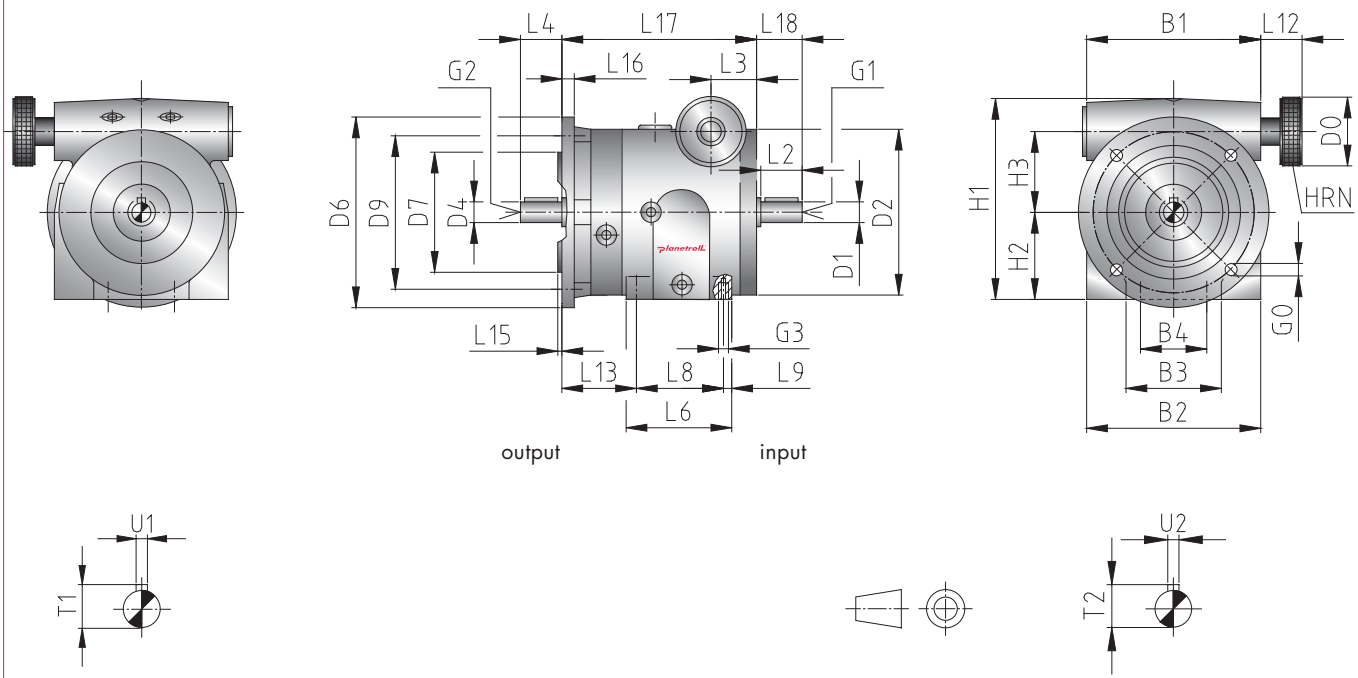


table 39 ◂

size	dimensions [mm]														
MR7-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	200	202	122	105			70	24h6	200		24h6		200	130j6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	165				11	D M8	D M8	M8x16				232	100	95	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
				50	60	50	135		110	18			52	55	
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	3,5	11	210	52					27	27		8	8		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR7-B14 free input shaft

picture 36

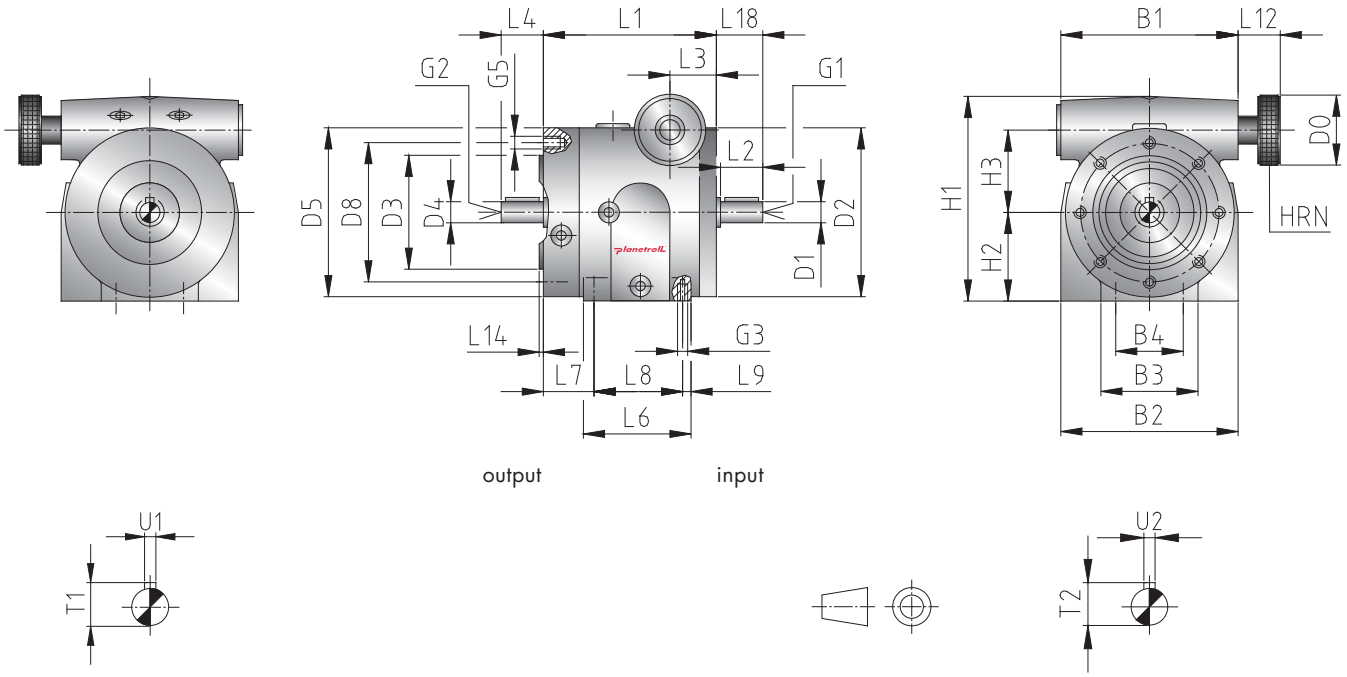


table 40

size	dimensions [mm]														
MR7-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	200	202	122	105			70	24h6	200	130j6	24h6	199			165
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M8	D M8	M8x16		M10x20		232	100	95	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
			185	50	60	50	135	30	110	18			52		3,5
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
				52					27	27		8	8		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR9-B3 free input shaft

picture 37 ◂

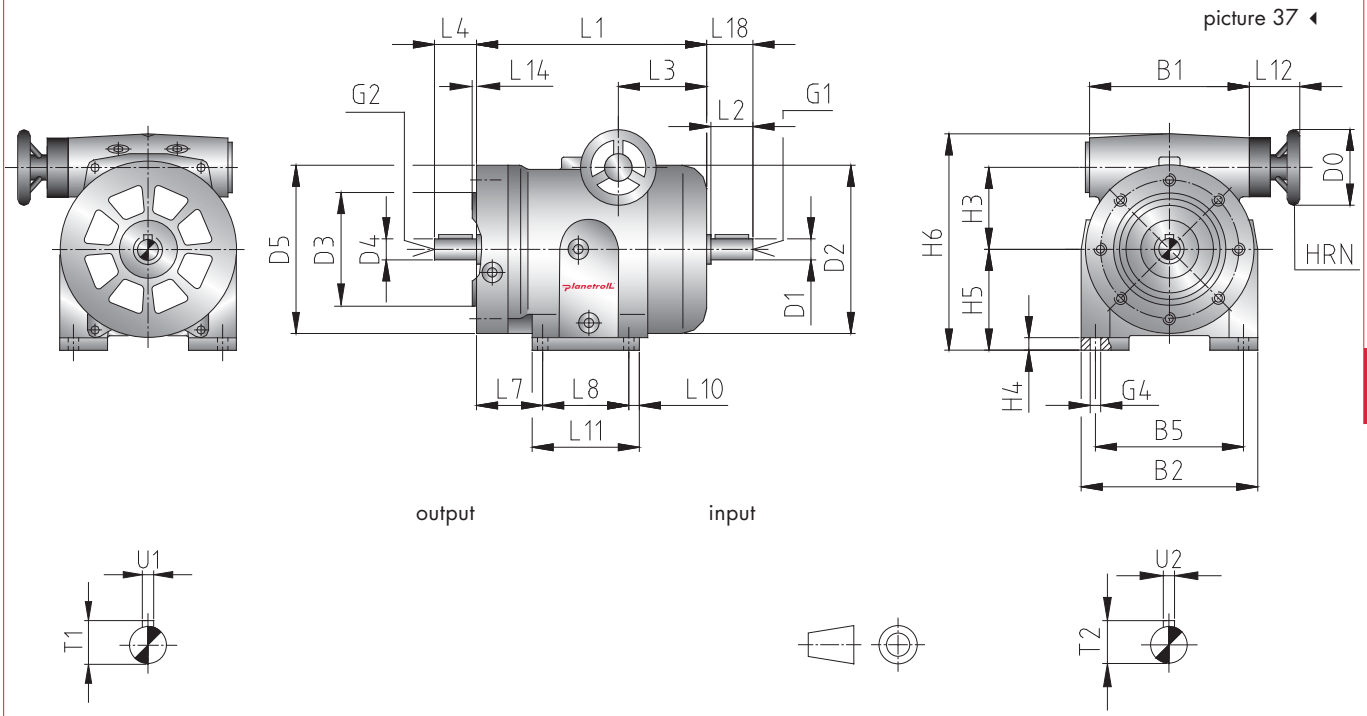


table 41 ◂

size	dimensions [mm]														
MR9-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	236	230			200		100	28h6	250	180j6	28h6	238			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M10	D M10		14					112	12
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	132	287	295	60	140	60		41	130		20	170	50		4
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
				62					31	31		8	8		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

Planetroll the driving power

MR9-B5 free input shaft

picture 38

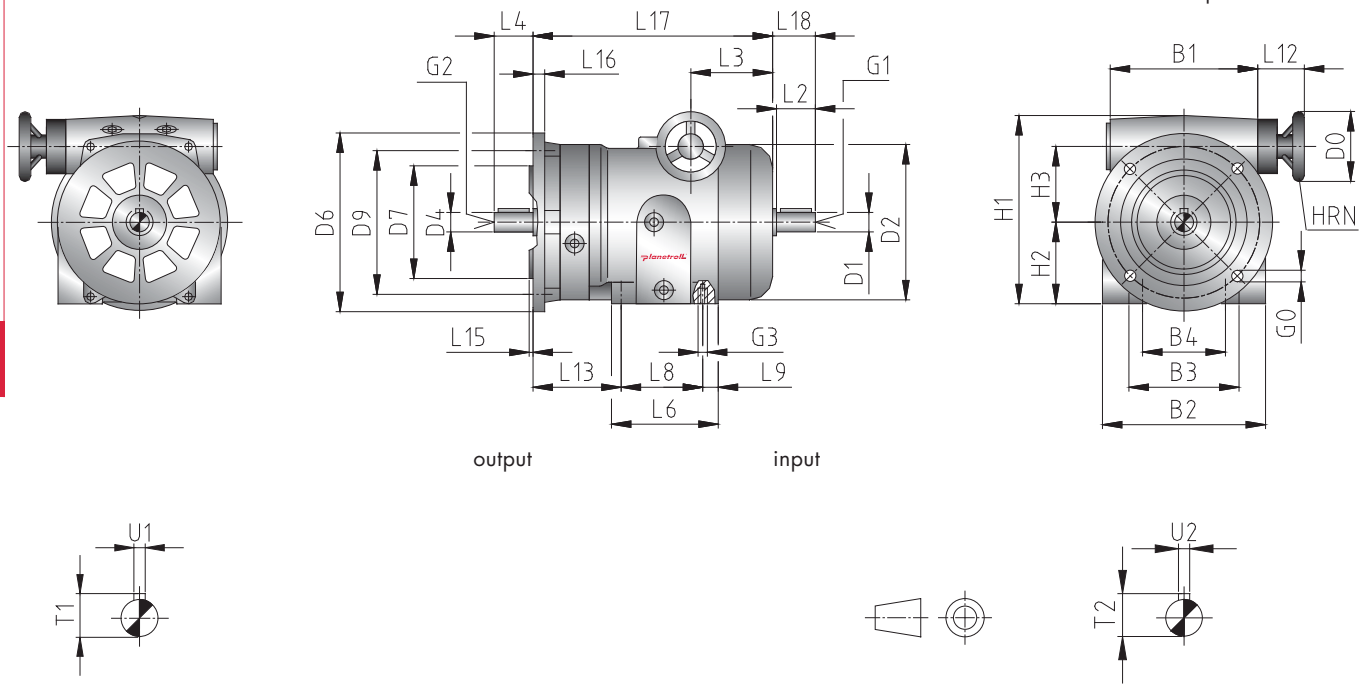


table 42

size	dimensions [mm]														
MR9-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	236	230	162	144			100	28h6	250		28h6		250	180j6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	215				14	D M10	D M10	M10x20				275	120	112	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
				60	140	60	172		130	29			50	71	
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	4	12	325	62					31	31		8	8		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR9-B14 free input shaft

picture 39 ◂

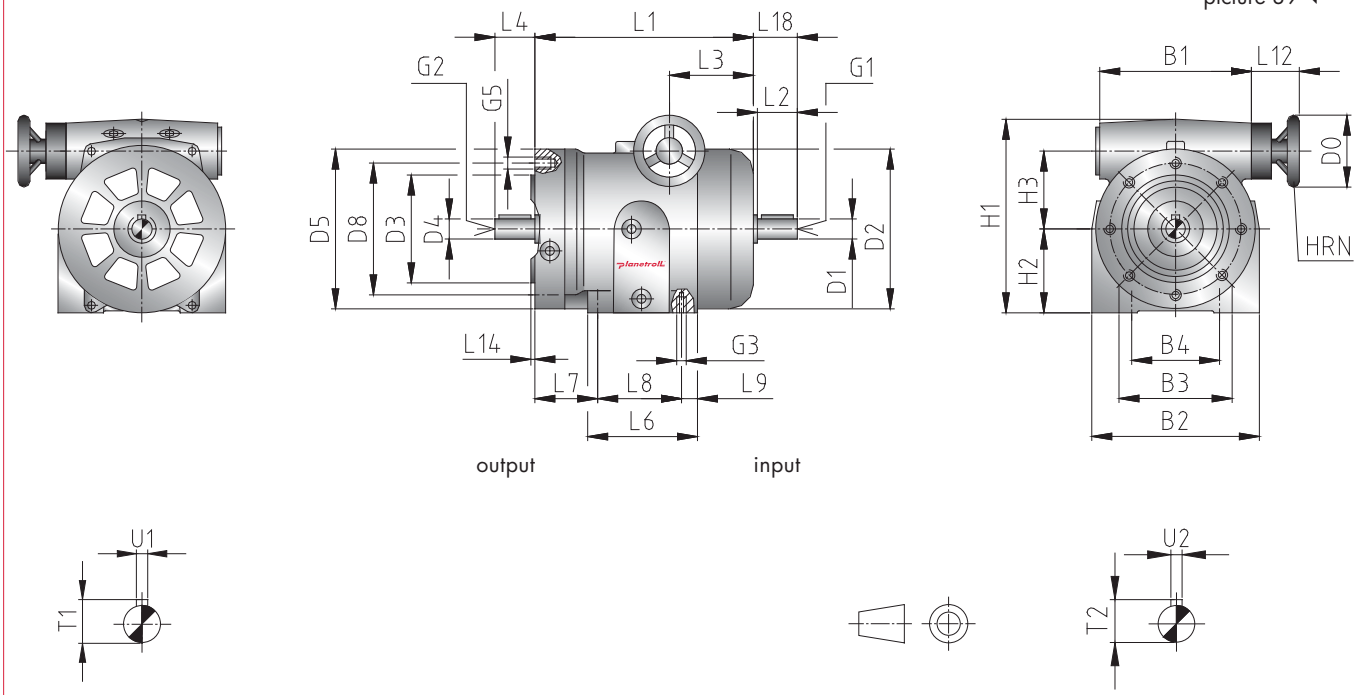


table 43 ◂

size	dimensions [mm]														
MR9-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	236	230	162	144			100	28h6	250	180j6	28h6	238			215
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M10	D M10	M10x20		M12x24		275	120	112	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
			295	60	140	60	172	41	130	29			50		4
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
				62					31	31		8	8		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR11-B3 free input shaft

picture 40

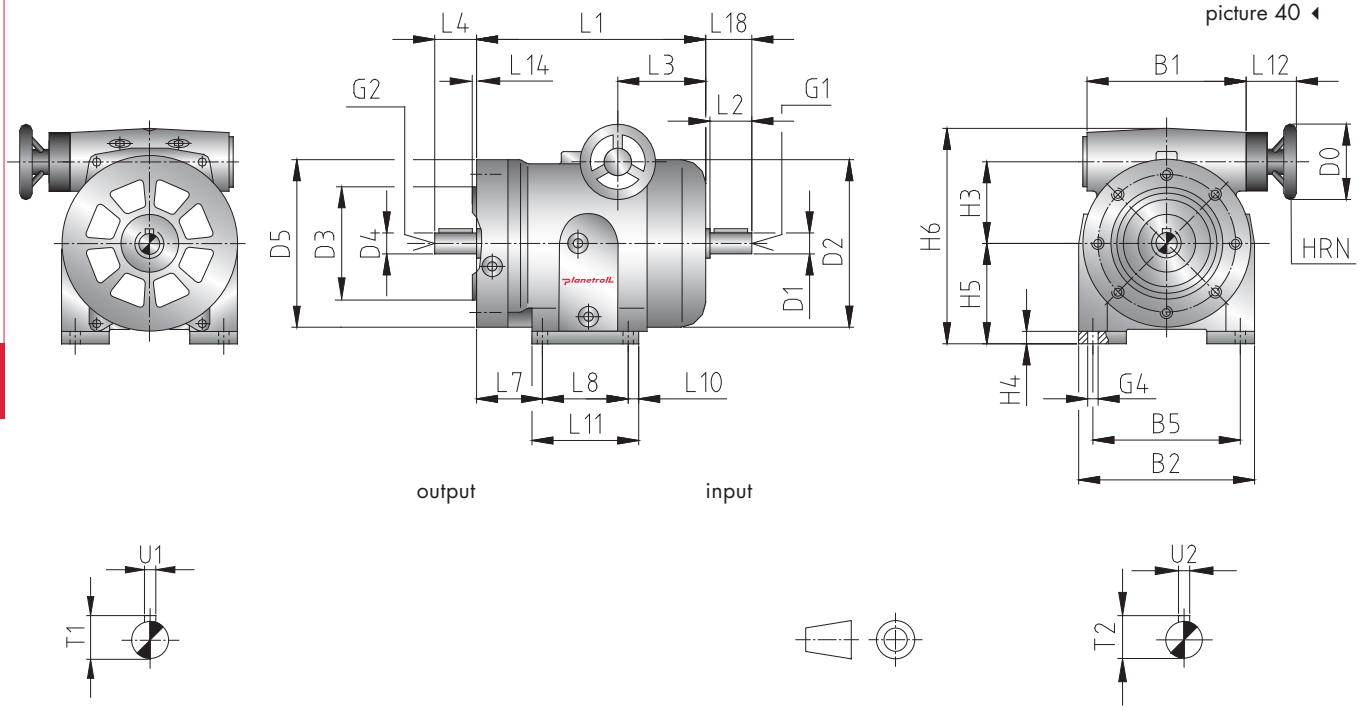


table 44

size	dimensions [mm]														
MR11-B3	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	236	315			280		125	38h6	350	230j6	38h6	318			
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M12	D M12		14					147	20
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
	200	390	432	80	195	80		45	200		25	250	50		4
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
				82					41	41		10	10		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR11-B5 free input shaft

picture 41 ◂

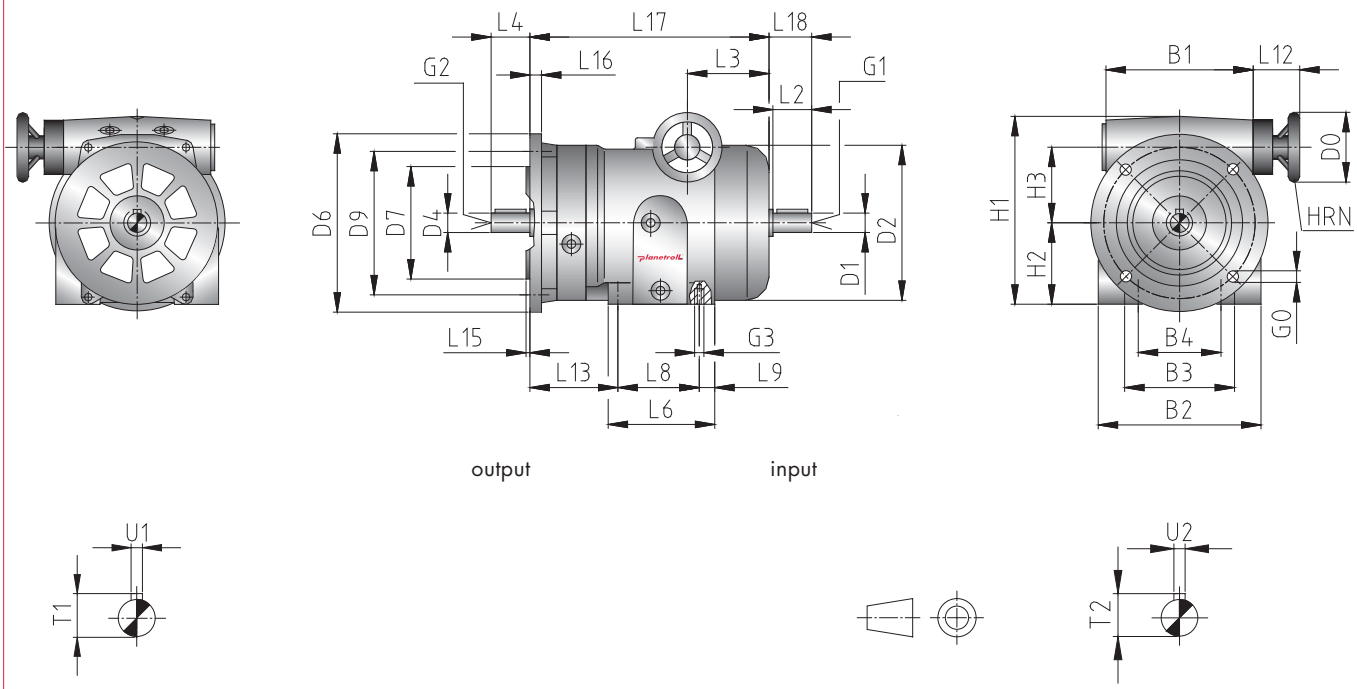


table 45 ◂

size	dimensions [mm]														
MR11-B5	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	236	315	225	192			125	38h6	350		38h6		350	250h6	
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
	300				18	D M12	D M12	M12x24				370	180	147	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
				80	195	80	258		200	45			50	85	
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
	5	15	472	82					41	41		10	10		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MR11-B14 free input shaft

picture 42

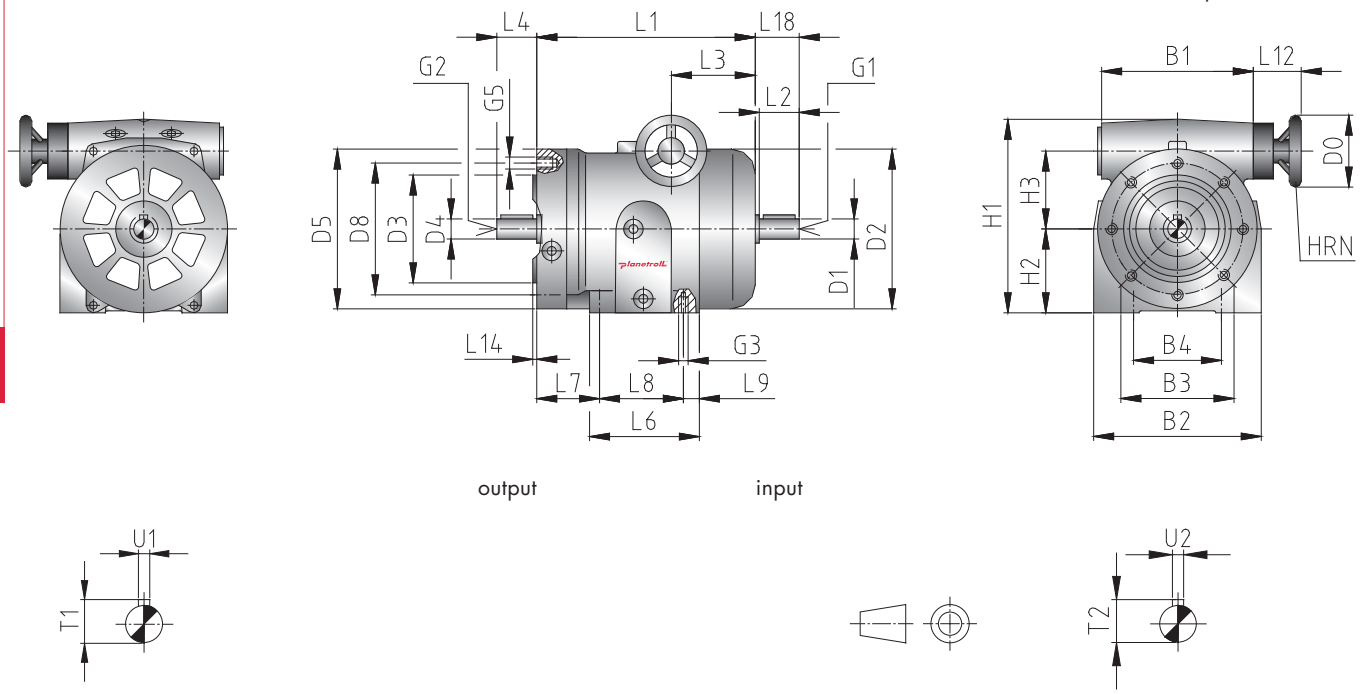


table 46

size	dimensions [mm]														
MR11-B14	B1	B2	B3	B4	B5	B6	D0	D1	D2	D3	D4	D5	D6	D7	D8
	236	315	225	192			125	38h6	350	230j6	38h6	318			265
	D9	D10	D11	D12	G0	G1	G2	G3	G4	G5	G6	H1	H2	H3	H4
						D M12	D M12	M12x24		M12x22		370	180	147	
	H5	H6	L1	L2	L3	L4	L6	L7	L8	L9	L10	L11	L12	L13	L14
			432	80	195	80	258	45	200	45			50		4
	L15	L16	L17	L18	L19	L20	L21	L22	T1	T2	T3	U1	U2	U3	
				82					41	41		10	10		

5 types of construction are to be defined on speed variator output and foot socket:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

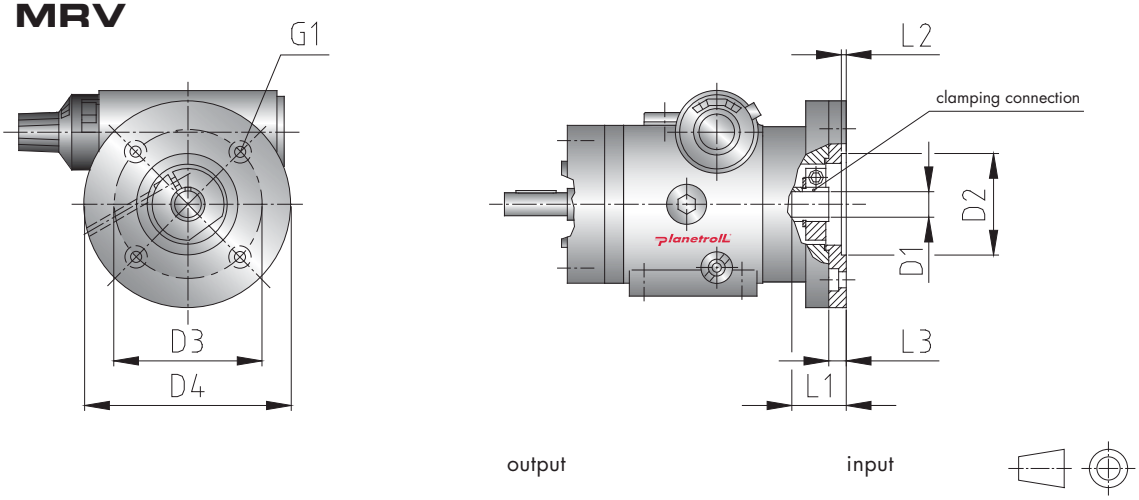
B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

MRV

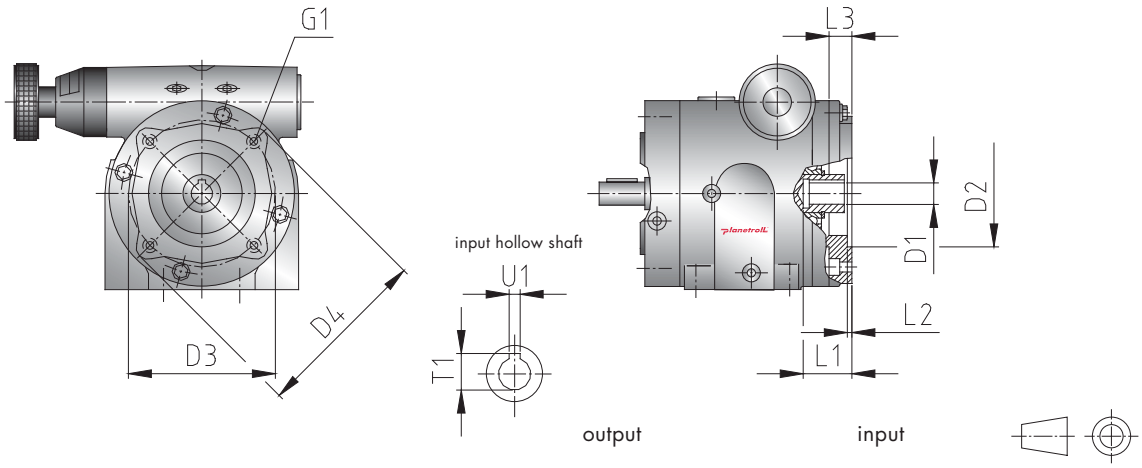


picture 43

table 47

size	motor size	motor flange type	flange dimensions [mm]								clamping connection	
			D1	D2	D3	D4	G1	L1	L2	L3		
MRV	no IEC standard	B14-28	8	28	40	72	5,5	25	5,5	6	tightening torque for clamping screw M3	2,1 Nm
		B14-25	9	25	36	72	4,5	25	5,5	6		
		B14-32	9	32	45	72	5,5	25	4	6		

MR1, MR3, MR5



picture 44

table 48

size	motor size	IEC motor flange type	flange dimensions [mm]									
			D1	D2	D3	D4	G1	L1	L2	L3	T1	U1
MR1	BG56	B14-80	9	50	65	80	5,5	20	3	12	10,4	3
	BG63	B14-90	11	60	75	90	5,5	23	3	12	12,8	4
MR3	BG63	B14-90	11	60	75	90	5,5	23	3	15	12,8	4
	BG71	B14-105	14	70	85	105	6,6	30	4	15	16,3	5
MR5	BG71	B14-105	14	70	85	105	6,6	30	4	20	16,3	5
	BG80	B14-120	19	80	100	120	6,6	40	4	20	21,8	6
	BG90	B14-140	24	95	115	140	9	50	4	20	27,3	8

All speed variators can be delivered according to NEMA motor connecting dimensions. Further IEC motor flange types and input hollow shaft diameters (D1) on request.

MR7

picture 45 ◂

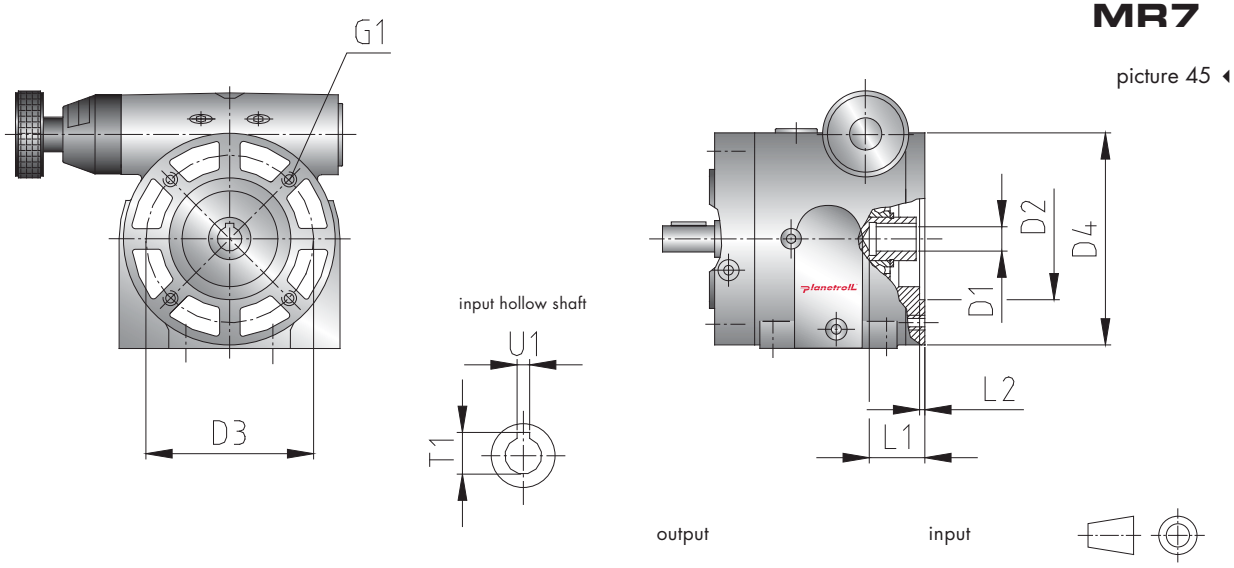


table 49 ◂

size	motor size	IEC motor flange type	flange dimensions [mm]								
			D1	D2	D3	D4	G1	L1	L2	T1	U1
MR7	BG80	B5-200	19	130	165	200	M10	40	4,5	21,8	6
	BG90	B5-200	24	130	165	200	M10	50	4,5	27,3	8

MR9, MR11

picture 46 ◂

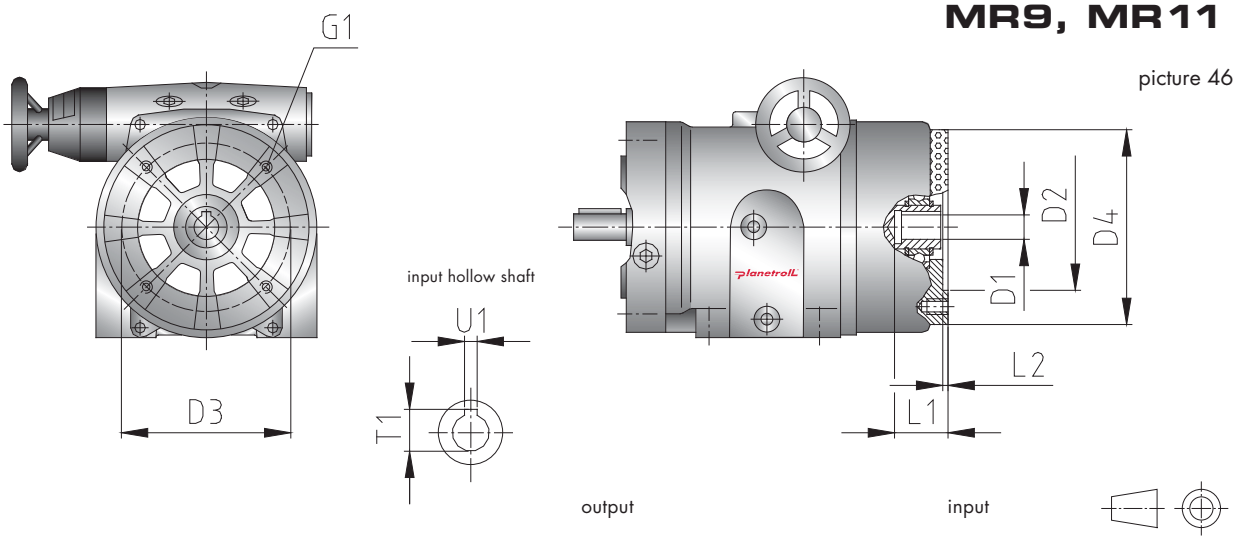
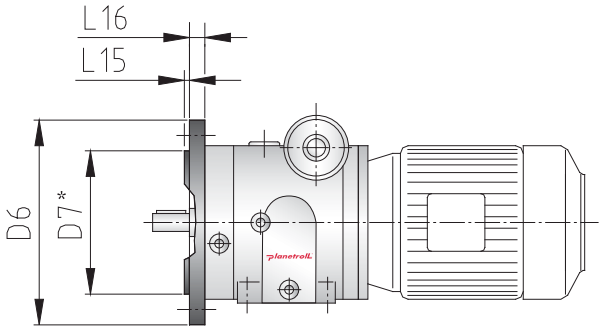


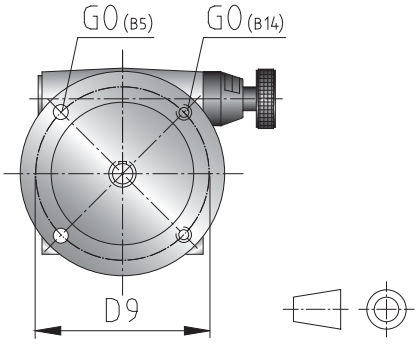
table 50 ◂

size	motor size	IEC motor flange type	flange dimensions [mm]								
			D1	D2	D3	D4	G1	L1	L2	T1	U1
MR9	BG100	B5-250	28	180	215	250	M12	60	6	31,3	8
	BG112	B5-250	28	180	215	250	M12	60	6	31,3	8
MR11	BG112	B5-250	28	180	215	250	M12	60	6	31,3	8
	BG132	B5-300	38	230	265	300	M12	80	6	41,3	10

All speed variators can be delivered according to NEMA motor connecting dimensions. Further IEC motor flange types and input hollow shaft diameters (D1) on request.

output flange dimensions





picture 47 ◂

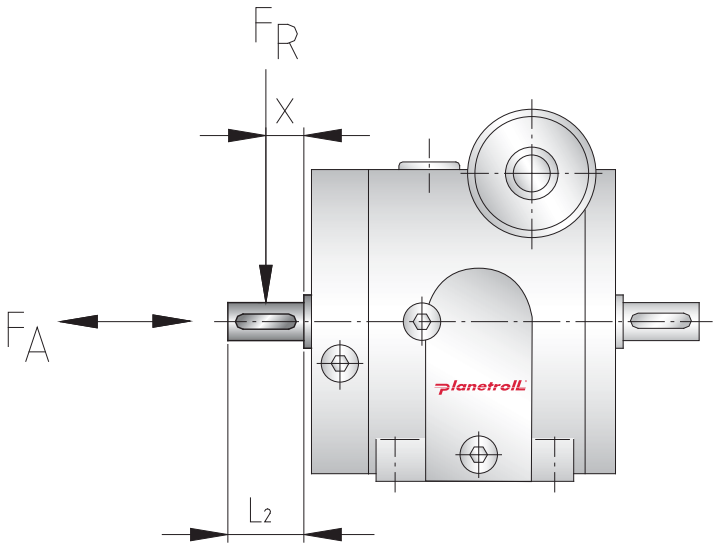
table 51 ◂

size	IEC flange type		flange dimensions [mm]							
	B5	B14	D6	D7*	D9	G0 (B5)	G0 (B14)	L15	L16 (B5)	L16 (B14)
MRV	B5-80	B14-80	80	50	65	5,5	M5x8	2,5	8	8
	B5-90	B14-90	90	60	75	5,5	M5x8	2,5	8	8
MR1	B5-90	B14-90	90	60	75	5,5	M5x15	2,5	6	15
	B5-105	B14-105	105	70	85	6,6	M6x15	2,5	7	15
	B5-120	B14-120	120	80	100	6,6	M6x15	3	10	15
	B5-140	B14-140	140	95	115	9	M8x15	3	10	15
	B5-160		160	110	130	9		3,5	10	
MR3		B14-90	90	60	75		M5x10	2,5		20
	B5-105	B14-105	105	70	85	6,6	M6x12	2,5	6	20
	B5-120	B14-120	120	80	100	6,6	M6x20	3	7	20
	B5-140	B14-140	140	95	115	9	M8x20	3	9	20
	B5-160	B14-160	160	110	130	9	M8x20	3,5	9	20
	B5-200	B14-200	200	130	165	11	M10x20	3,5	12	20
MR5		B14-120	120	80	100		M6x16	3		20
	B5-140	B14-140	140	95	115	9	M8x16	3	8	20
	B5-160	B14-160	160	110	130	9	M8x20	3,5	9	20
	B5-200	B14-200	200	130	165	11	M10x20	3,5	12	20
	B5-250		250	180	215	14		4	15	
MR7		B14-140	140	95	115		M8x20	3		25
	B5-160	B14-160	160	110	130	9	M8x20	3,5	12	25
	B5-200	B14-200	200	130	165	11	M10x20	3,5	11	25
	B5-250		250	180	215	14		4	12	
	B5-300		300	230	265	14		4	12	
MR9		B14-160	160	110	130		M8x25	3,5		30
	B5-200	B14-200	200	130	165	11	M10x25	3,5	12	30
	B5-250	B14-250	250	180	215	14	M12x30	4	12	30
	B5-300	B14-300	300	230	265	14	M12x24	4	12	30
	B5-350		350	250	300	18		5	12	
MR11		B14-200	200	130	165		M10x20	3,5		40
	B5-250	B14-250	250	180	215	14	M12x24	4	19	40
	B5-300		300	230	265	14		4	15	
	B5-350		350	250	300	18		5	15	
	B5-400		400	300	350	18		5	16	

D7* fitting clearance ≤ ø 230 in j6
> ø 230 in h6

permissible output shaft load

picture 48 ◂



output input

Point of load application corresponds to the centre of the output shaft. The values for F_R have regard to 30 % axial force.

If force entry of radial load F_R is out of centre of output shaft, then the permissible values of force ($x > L_2/2$) will reduce or the permissible values of force ($x < L_2/2$) will increase.

Points of load application on speed variator output shaft:

F_A permissible axial force
F_R permissible radial force
L_2 shaft length
x distance

table 52 ◂

permissible output shaft radial force F_R [N]		
size	type of construction	
	B3/B14	V/B5
MRV	90	–
MR1	250	300
MR3	370	500
MR5	600	800
MR7	700	1.000
MR9	900	1.300
MR11	2.100	3.700

V Reinforced/double output shaft bearing (without output flange centering, with tapped holes in foot socket)

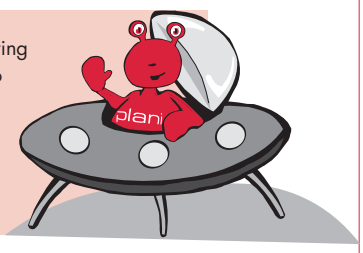
Please note:

The maximum permissible radial loads for a maximum output speed n_2 = 1,200 rpm (speed variator with 2-pole motor) and a rolling-contact bearing service life of 20,000 h are indicated in table 52.

If output speed range is used below n_2 = 1,200 rpm, then permissible radial load will increase and bearing life respectively. Such as for n_2 = 600 rpm permissible radial load on output shaft will duplicate and also bearing life.

Special executions for exceptional high radial and axial loads (e. g. as pump drive, progressive cavity pumps amongst others) or longer bearing life can be realized on request.

For closer technical information please contact planetroll®.



control element: **HRN**

picture 49 ◂

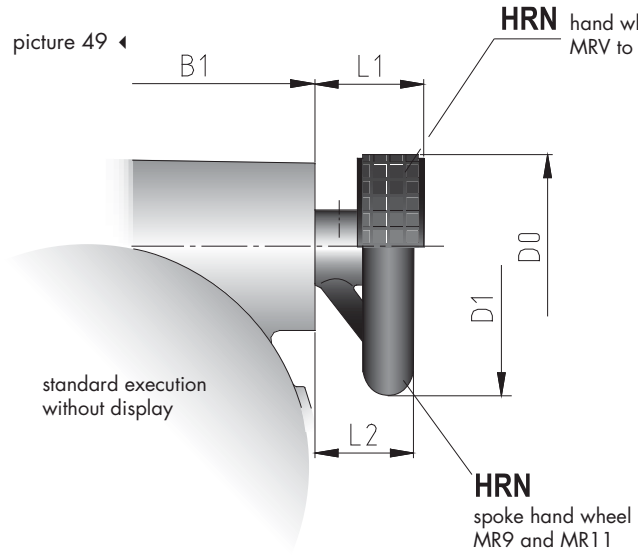


table 53 ◂

size	control element	dimensions [mm]				
		B1	D0	D1	L1	L2
MRV	HRN	62	32		28	
MR1	HRN	90	40		36	
MR3	HRN	125	50		31	
MR5	HRN	162	50		31	
MR7	HRN	200	70		52	
MR9	HRN	236		100		50
MR11	HRN	236		125		50

control element: **HVK**

picture 50 ◂

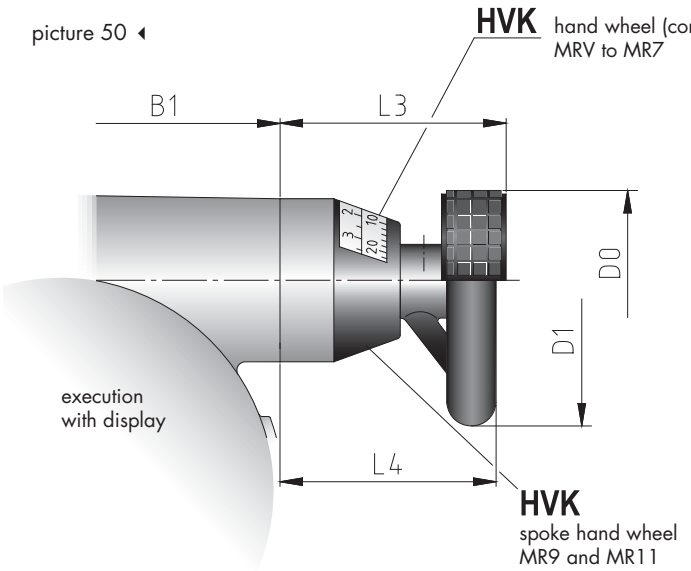


table 54 ◂

size	control element	dimensions [mm]				
		B1	D0	D1	L3	L4
MRV	HVN	62	13		28	
MR1	HVK4	90	40		57	
MR3	HVK5	125	50		64	
MR5	HVK5	162	50		64	
MR7	HVK6	200	70		92	
MR9	HVK7	236		100		92
MR11	HVK7	236		125		92

A very precise repeatable adjustment of variator output speed can be realized over the complete speed range by using the omnidirectional position indicator HVK.

MR9 and MR11 are equipped with a spoke hand wheel. The spoke hand wheels HRN and HVK for speed variator sizes MR9 and MR11 are made of aluminium.

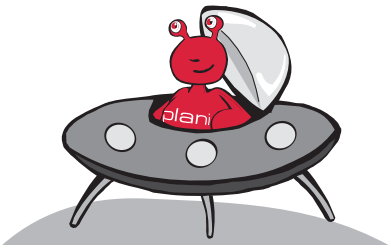
technical data/HVK:

housing: black, of polyamid 6.6, impact-proof with window

Ziffern: black

display:
- large scale: 0 - 12 with scaling
- fine scale: 0 - 100 with scaling

hand wheel: HRN black, plastics (aluminium)
- dust- and waterproof



Notice:
Further to speed setting by means of hand wheel, an electric speed setting is also possible (see page 62).

Planetroll® the driving power

control element: **HRS**

picture 51 ◂

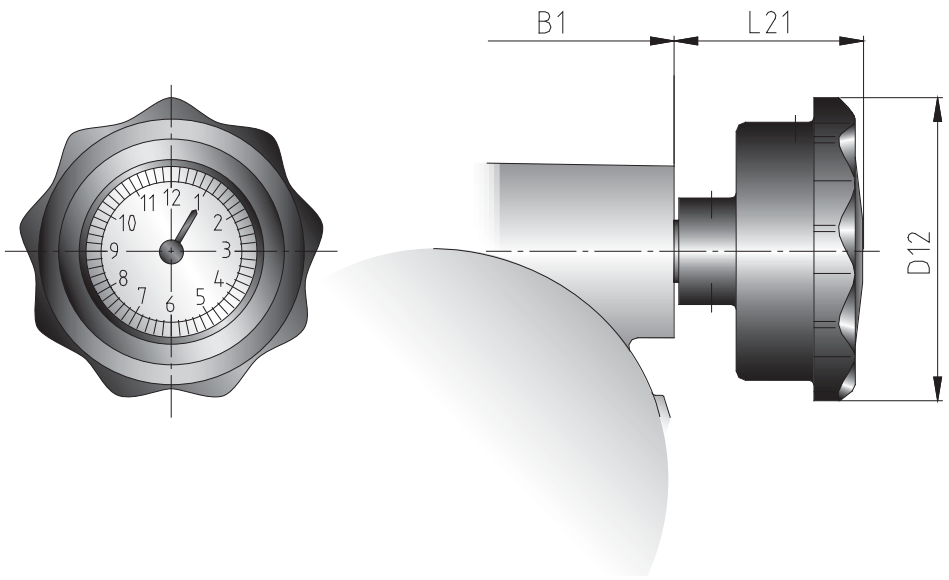


table 55 ◂

size	control element	dimensions [mm]		
		B1	D12	L21
MRV	HRS	62	75	54
MR1	HRS	90	75	57
MR3	HRS	125	75	47
MR5	HRS	162	75	47
MR7	HRS	200	100	70
MR9	HRS	236	120	78
MR11	HRS	236	120	78

This control element makes it possible to read the adjusted position by means of pointer and scale inside hand wheel. This control element HRS (gravity position indicator) is only suitable for speed variator assembly with horizontal setting shaft.

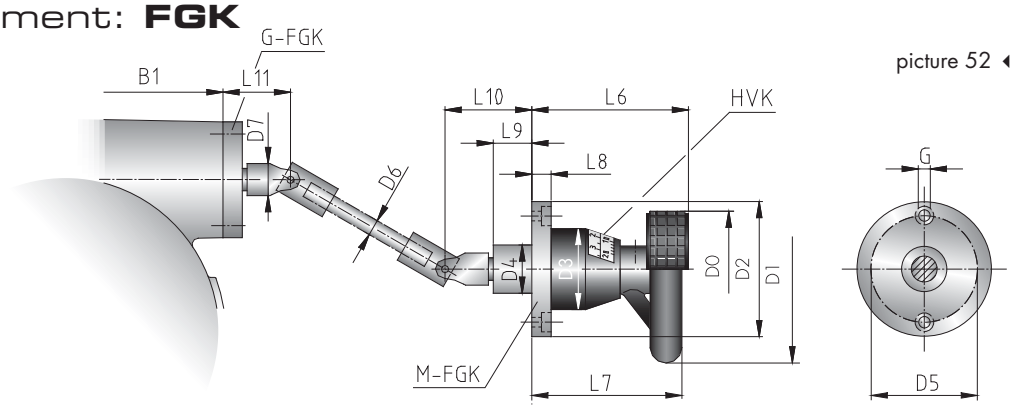
technical data:

position indicator:	dustproof
rotational direction to the right:	increasing values
standard scale:	0- 6 with scaling
	0-12 with scaling
hand wheel:	HRS, die-cast aluminium

options:

- special scales
- mineral glass display
- 2 pointers
- waterproof

control element: **FGK**



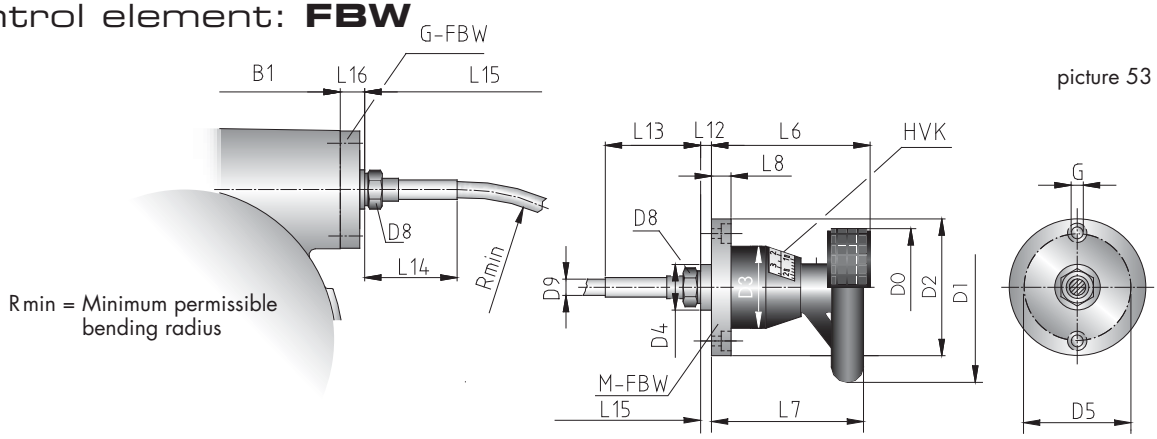
picture 52 ◂

FGK = Remote control by means of propeller shaft, connection acc. to DIN 808, angular misalignment max. 30°.

table 56 ◂

size	control element	dimensions [mm]															
		B1	D0	D1	D2	D3	D4	D5	D6	D7	G	L6	L7	L8	L9	L10	L11
MRV	FGK4	62	50		52	38	25	42	8	13	2x4,5	73		10	22	40	37
MR1	FGK5	90	50		75	46	25	65	8	13	2x4,5	74		10	24	42	51
MR3	FGK5	125	50		75	46	25	65	8	13	2x4,5	74		10	24	42	41
MR5	FGK5	162	50		75	46	25	65	8	13	2x4,5	74		10	24	42	41
MR7	FGK6	200	70		80	58	50	65	12	25	4x5,5	108		10	27	57	39
MR9	FGK7	236		100	80	58	50	65	12	25	4x5,5		102	10	27	57	39
MR11	FGK7	236		125	80	58	50	65	12	25	4x5,5		102	10	27	57	39

control element: **FBW**



Rmin = Minimum permissible bending radius

picture 53 ◂

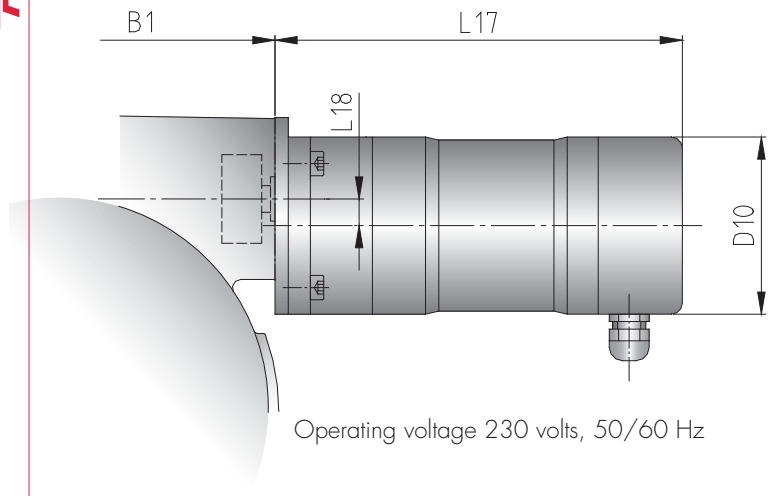
FBW = Remote control by means of flexible shaft, connection acc. to DIN 75 532.

table 57 ◂

size	control element	dimensions [mm]																		
		B1	D0	D1	D2	D3	D4	D5	D8	D9	G	L6	L7	L8	L12	L13	L14	L15	L16	Rmin
MRV	FBW4	62	50		52	38	25	42	SW27	14	2x4,5	67		10	11	60	60	ordering length flexible shaft	3	110
MR1	FBW5	90	50		75	46	25	65	SW27	14	2x4,5	74		10	13	60	60		18	110
MR3	FBW5	125	50		75	46	25	65	SW27	14	2x4,5	74		10	13	60	60		9	110
MR5	FBW5	162	50		75	46	25	65	SW27	14	2x4,5	74		10	13	60	60		9	110
MR7	FBW6	200	70		80	58	50	65	⌀ 33	24	4x5,5	108		10	14	100	100		23	230
MR9	FBW7	236		100	80	58	50	65	⌀ 33	24	4x5,5		102	10	14	100	100		23	230
MR11	FBW7	236		125	80	58	50	65	⌀ 33	24	4x5,5		102	10	14	100	100		23	230

control element: **EFB electric remote control**

picture 54 ◂



Operating voltage 230 volts, 50/60 Hz

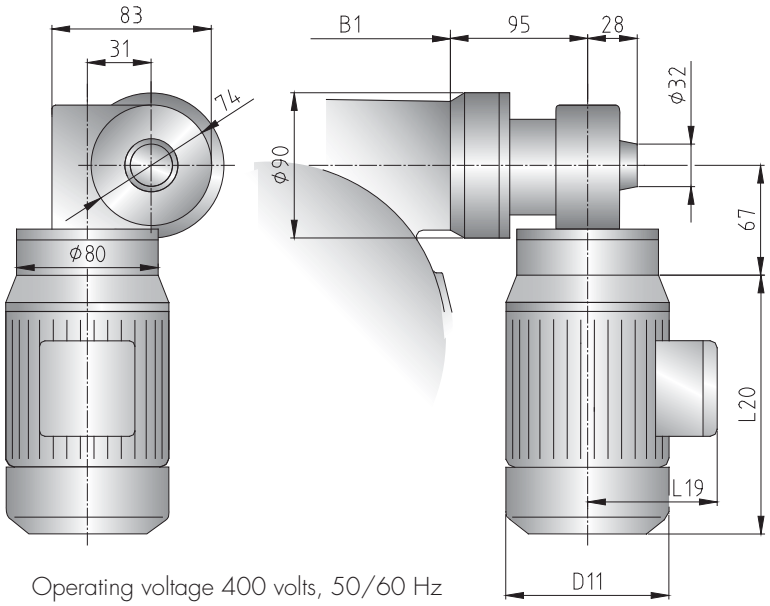
This electric remote control consits of a synchronous motor and a safety coupling as torque limiter. The standard setting time is 24 seconds for the complete speed setting range.

table 58 ◂

size	dimensions [mm]			
	B1	D10	L17	L18
MR1	90	65	135	13
MR3	125	65	127	13
MR5	162	65	189	13
MR7	200	65	200	13

The linear size L17 is specified for the EFB with standard setting time of 24 seconds.

picture 55 ◂



Operating voltage 400 volts, 50/60 Hz

This electric remote control for sizes MR7, MR9 and MR11 consists of a three-phase motor and a safety coupling as torque limiter. The standard setting time is 24 seconds for the complete speed setting range.

Special operating voltages for EFB on request.

table 59 ◂

size	dimensions [mm]			
	B1	D11	L19	L20
MR7	200	112	97	168
MR9	236	112	97	168
MR11	236	112	97	168

The dimensions D11 and L20 are specified for the EFB with standard setting time of 24 seconds.

Options for all remote controls:

Setting time 6, 12, **24**, 60, 120 seconds. All electric remote control motors can be delivered acc. to ATEX 95 for zones 1 and 21.

The speed variator mounting positions are marked with the numbers 1 – 2 – 3 – 4 – 5 – 6. Deviating mounting positions, so-called pendulum positions, can be realized as well.

picture 56 ◂

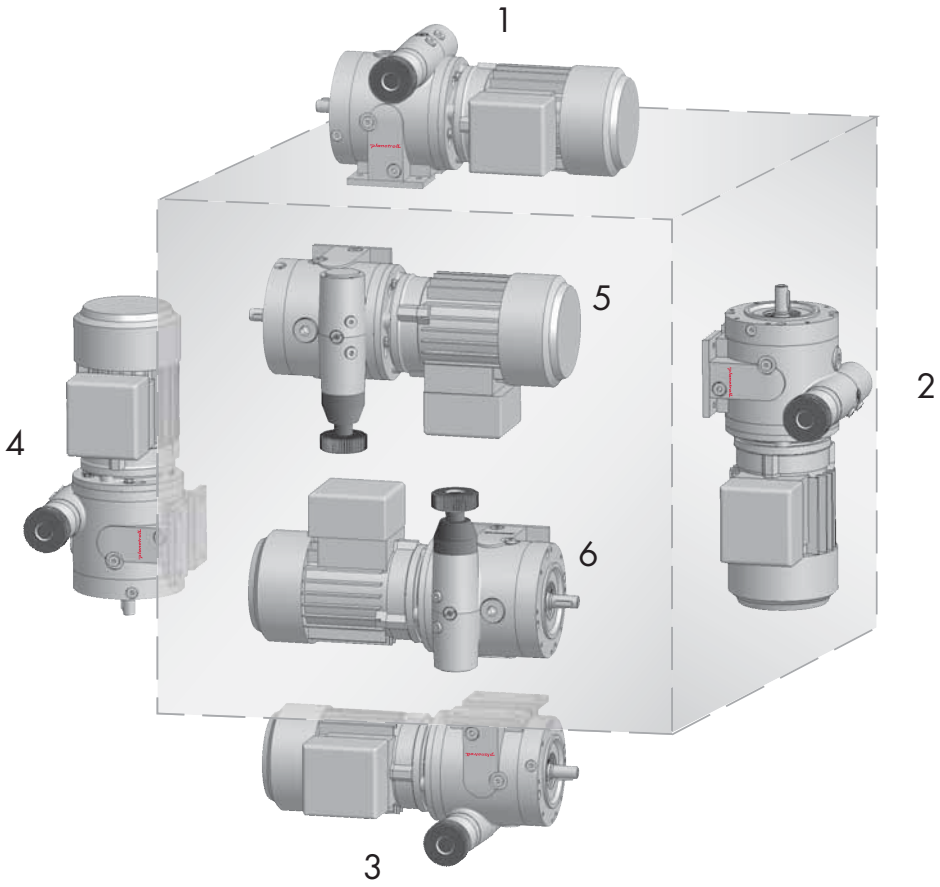


table 60 ◂

mounting position	1	2	3	4	5	6
	B3, B5, B14	V3, V6, V19	B8	V1, V5, V18	B6	B7
size	weight [kg]					
MRV	0,94					
MR1	2,21					
MR3	5,70	5,72	5,70	5,77	5,70	
MR5	11,68	11,75	11,68	11,82	11,70	
MR7	20,22	20,46	20,22	20,52	20,22	
MR9	39,48	39,75	39,43	39,91	39,48	
MR11	103,00		101,60	104,10	102,30	

The indicated weights refer to type of construction B14 with input hollow shaft as well as control element HRN.

description motor gear unit

table 61 ◂

sample of description:

0,25	D	4	(Ex)	M	R	3	-2

drive motor	code
motor power [kW]	
three-phase	**D**
AC current	**W**

motor pole count	
n_1 = 2,800 rpm motor pole count	**2**
n_1 = 1,400 rpm motor pole count	**4**
n_1 = 900 rpm motor pole count	**6**

motor execution		
standard motor	without code →	code casket not applied
brake motor		**(Br)**
increased safety		**(Ex)**
flame-proof enclosure		**(Ex)d**

speed variator	code
planomaster®	**M**
system	**R**
system	A
size	**V, 1, 3, 5, 7, 9, 11**

type of construction	
B3	**-1**
B5	**-2**
B14	**-3**
B3/B5	**-1/2**
B3/B14	**-1/3**
V	**-V**

Specification of types of construction:

B3 Foot mounting with through holes as well as centring and tapped holes in the output flange.

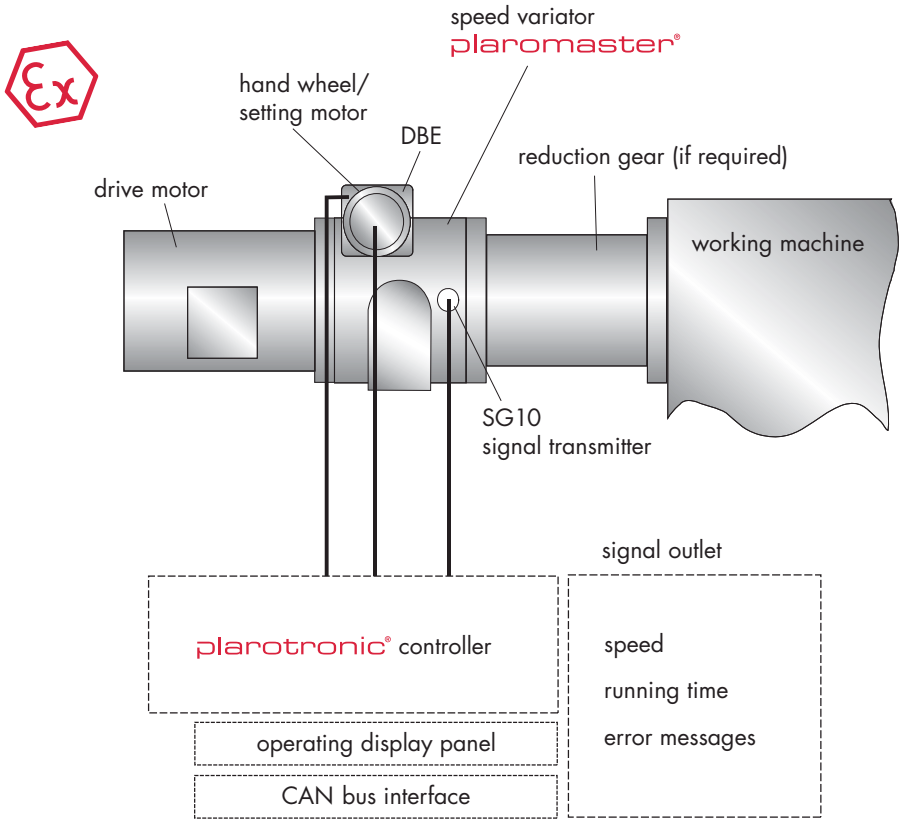
B5 Output flange mounting with centring and through holes as well as tapped holes foot-sided in the housing.

B14 Output flange mounting with centring and tapped holes as well as tapped holes foot-sided in the housing.

B3/B5 Foot mounting with through holes as well as output flange mounting with centring and through holes.

B3/B14 Foot mounting with through holes as well as output flange mounting with centring and tapped holes.

V Reinforced/double output shaft bearing (without output flange centring, with tapped holes in foot socket)



picture 57

DBE:
electric speed limiter

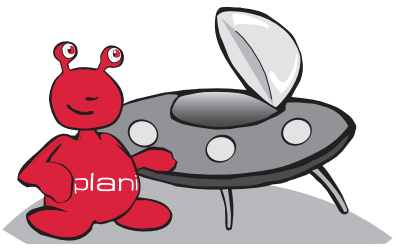
The planotronic® speed control can be compared systematically with a speed regulation of an electronical drive. Speed setting, that is the positioning element, is not realized over an electronic actuator, but a mechanical change in speed variator geometry. This mechanical change results in a speed adaption on speed variator output. If no electric remote control (EFB) is used, then mechanical change is realized by means of a hand wheel on so-called setting spindle. If the planotronic® speed regulation is used, a setting motor is planned as positioning element for the planomaster® speed. Setting motor obtains the corresponding positioning order from controller to faster or to slower speed, that means turning to the right or to the left. If a positioning order takes place, speed changes until positioning order is finished.

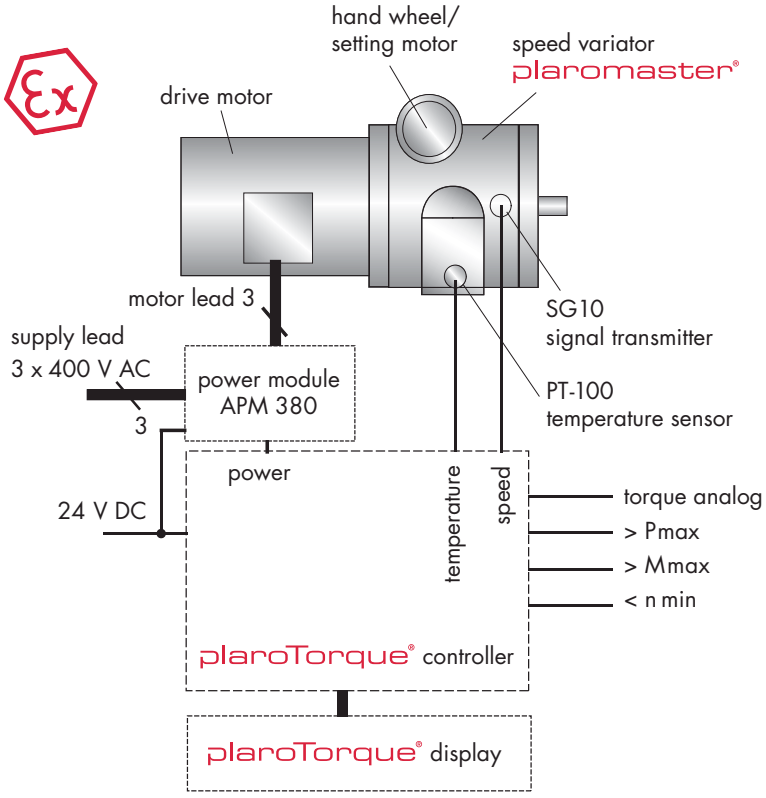
Therefore, the positioning element has an integral character. This is considered accordingly in planotronic® speed regulation.

The actual value of transmission output speed of planomaster® speed variator is collected by means of an incremental speed sensing system. Sensing time of speed depends on resolution and accuracy of speed setting respectively. Sensing time is 1 second with exact speed settings to +/-1 revolution per minute, as gearing of transmission output ring of speed variator provides 60 pulses per revolution of output ring. This corresponds to 1 pulse per second during 1 revolution and 1 Hz pulse frequency respectively.

technical data:

speed range:	1 to 1,200 rpm (50 Hz, without reduction gearbox)
power range:	0.18 to 7.5 kW (motor power)
temperature range:	-20 to +115 °C (on speed variator surface)
accuracy:	speed setting +/- 2 rpm
ATEX specification:	category 2, zones 1 and 21
input signals:	speed reference value 0..10 V or 0/4..20 mA
alarm signals:	block setting motor out of order
bus signals:	activation reference value checking alarm signals





picture 58 ◂

With the planetroll® torque meter plaroTorque® it is possible to collect the actual existing torque on speed variator output shaft regarding operating conditions.

The influencing variables changing over the speed range are included here.

Ultimately, the plaroTorque® is a measuring system with a typical accuracy of +/-2 %, referring to full scale.

If a reduction or transmission gear unit is used connected in series with the speed variator, then the typical influencing variables mentioned above are calculated with torque.

The torque determined by plaroTorque® is the basic principle for a sophisticated as well as cost- and energy-saving calculation of drive units and furthermore serves as process and characteristic value, i.e. in process technology.

The application of plaroTorque® in test rigs or experimental set-ups permits a precise knowledge of general efficiency, power demand as well as efficiency of working machines.

As a matter of course, it is no problem to apply the plaroTorque® in explosion-proof areas, zones 1 and 21 according to ATEX 95.

technical data:

torque range:	0 to 110 Nm (without reduction gear)
speed range:	1 to 1,200 rpm (50 Hz, without reduction gear)
power range:	0.18 to 7.5 kW (motor power)
temperature range:	-20 to +115 °C (on speed variator surface)
accuracy:	+/-4 % (typically 2 %) from full scale
power supply:	input 400/440 V AC, 40/60 Hz controller 24 V DC
supply fluctuations:	are considered
ATEX specification:	category 2, zones 1 and 21
input signals:	speed reference 0..10 V or 0/4..20 mA
measuring signals:	torque, speed, power as voltage output 0..10 V or supply output 0/4..20 mA
alarm signals:	exceeding of max. torque, max. motor power and max. temperature as relay contact, operating time on display unit
bus signals:	further alarm signals digitally possible over device network

Classification of explosion-proof equipment

According to EU-Directive 94/9/EC (also named ATEX 95 – previously ATEX 100a) the explosion-proof equipment is classified as follows:

Specification of **planetroll®** drives printed in **bold**.

planetroll® speed variators do not need any external control in general! (However, this is not valid for system MA of speed variators.)

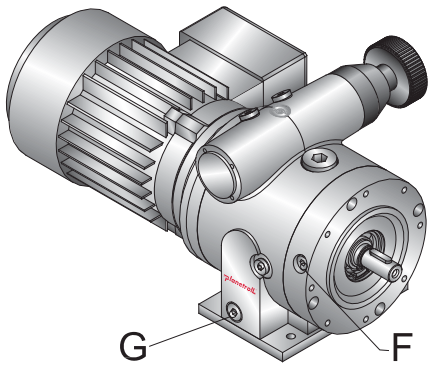
table 62 ◂

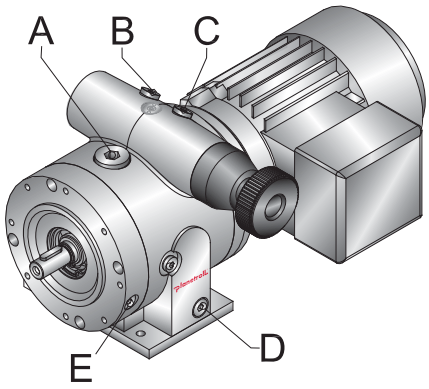
classification of equipment

group	group I		group II					
	mines, mine gas		other areas with danger of gas or dust explosion					
category	M		1		2		3	
zone	1	2	0	20	**1**	**21**	**2**	**22**
Ex atmosphere			G	D	**G**	**D**	**G**	**D**
ignition protective system planetroll® speed variators planomaster® system MR					**ck**	**ck**	**ck**	**ck**
ignition protective system planetroll® speed variators planetdrive®					**c**	**c**	**c**	**c**
ignition protective system planetroll® geared motors					**c/k**	**c/k**	**c/k**	**c/k**

category	M = mining	
	1 = extremely high safety	
	2 = high safety	
	3 = standard safety	
	Probability of explosive atmosphere:	
zone	0/20 = constantly, long-term, frequently (predominantly)	
	1/21 = occasionally, during standard operation	
	2/22 = rarely, short-time	
Ex atmosphere	**G = gas**	
	D = dust	
ignition protective system	fr = protection by vapour-resisting casing	b = protection by ignition source control
	d = protection by flame-proof enclosure	p = protection by pressurized enclosure
	g = intrinsic safety	**k = protection by liquid enclosure**
	c = protection by safe construction	

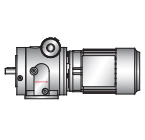
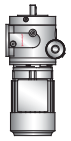
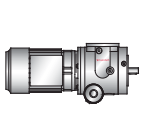
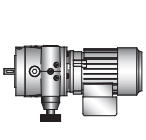
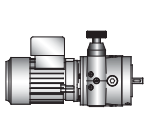
category	type	conformity by
2	electrical appliances	EC prototype test certification and – conformity to type of construction or – production quality assurance
	non-electrical appliances	**technical documentation to Notified Body and internal production control**
3	all	internal production control





picture 59 ◂

table 63 ◂

	mounting position	1	2	3	4	5	6
		B3, B5, B14	V3, V6, V19	B8	V1, V5, V18	B6	B7
size							
MRV	traction fluid filling for life (contents 15 ml)						
MR1	filling quantity	70 ml					
	filler plug	A	A	D/G	B/C	G	D
	control plug	E	G	F	D	C	B
	drain plug	D/G	B/C	B/C	E/F	D	G
MR3	filling quantity	160 ml	180 ml	160 ml	230 ml	160 ml	
	filler plug	A	A	D/G	B/C	G	D
	control plug	E	G	F	D	C	B
	drain plug	D/G	B/C	B/C	E/F	D	G
MR5	filling quantity	300 ml	370 ml	300 ml	450 ml	320 ml	
	filler plug	A	A	D/G	B/C	G	D
	control plug	E	G	F	D	C	B
	drain plug	D/G	B/C	B/C	E/F	D	G
MR7	filling quantity	500 ml	750 ml	500 ml	820 ml	500 ml	
	filler plug	A	A	D/G	B/C	G	D
	control plug	E	G	F	D	C	B
	drain plug	D/G	B/C	B/C	E/F	D	G
MR9	filling quantity	850 ml	1.130 ml	800 ml	1.300 ml	850 ml	
	filler plug	A	A	D/G	B/C	G	D
	control plug	E	G	F	D	C	B
	drain plug	D/G	B/C	B/C	E/F	D	G
MR11	filling quantity	3.200 ml		1.700 ml	4.400 ml	2.500 ml	
	filler plug	A	A	D/G	B/C	G	D
	control plug	E	G	F	D	C	B
	drain plug	D/G	B/C	B/C	E/F	D	G

ATTENTION!

Table 63 is only for information. It is absolutely necessary to observe the separate schedule for traction fluid quantities, DOKU T148 as well as the planomaster® operating instructions MR – ATEX (DOKU T146) and MR – non ATEX (DOKU T001)!

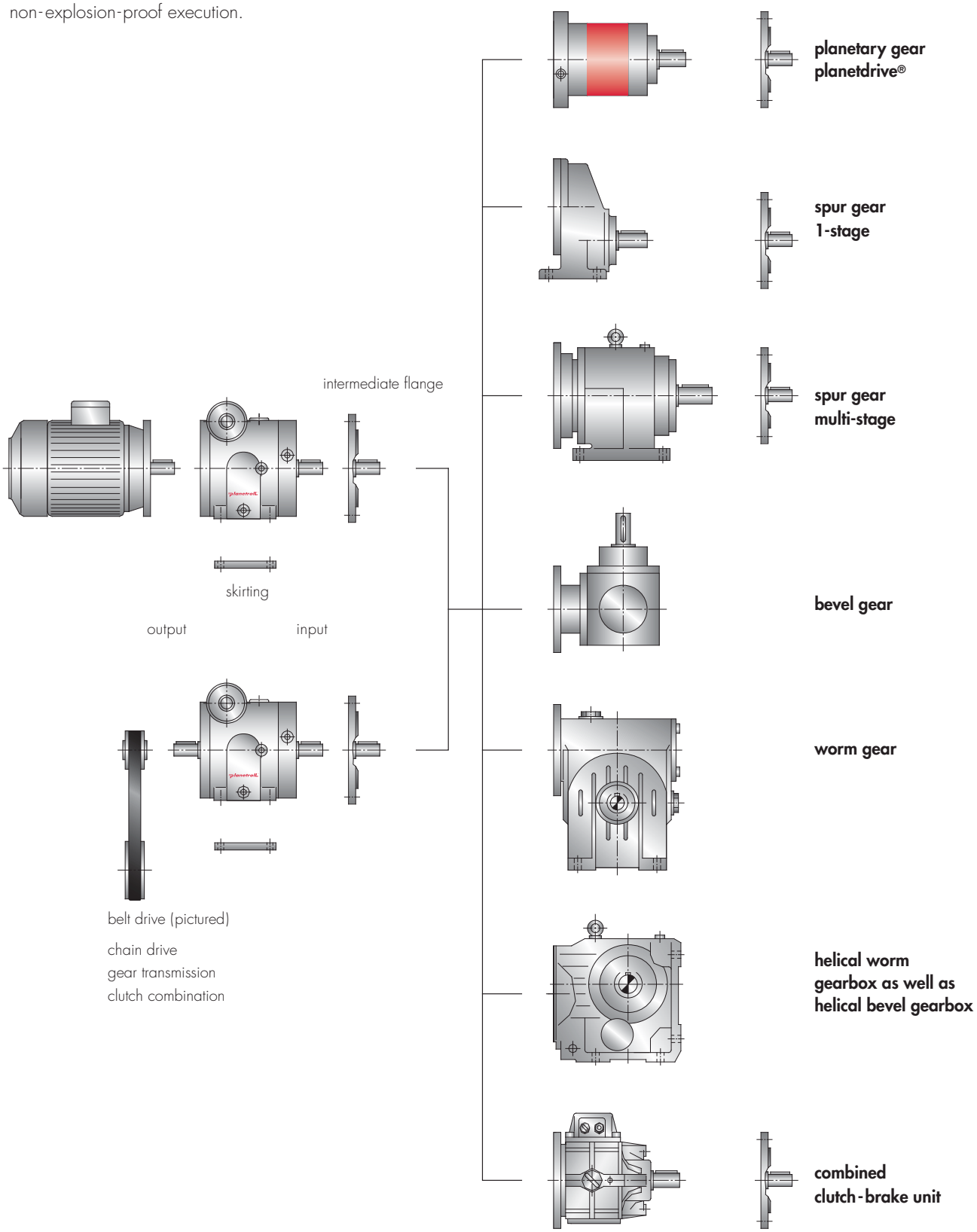
The synthetic traction fluids used in the speed variators planomaster® are special oils and may NOT be replaced by any gear lubricating oil or mixed up with minimum quantities of gear lubricating oil!

The planomaster® can be supplied with most different IEC standard motors, NEMA motors as well as other motor types in explosion-proof and non-explosion-proof execution. For ATEX explosion-proof zones 1 and/or 21 the planomaster® requires the motors conformal to ATEX only with ignition protective system "explosion-proof" for applications in zone 1.

The planomaster® output can be combined with a number of reduction or transmission gearboxes in explosion-proof and non-explosion-proof execution.

For this reason it is possible to reduce output speed of speed variator and to increase it respectively at the same time when speed is changing. These gearboxes connected in series can be mounted either in closed or so-called open type of construction on the planetroll® speed variators planomaster®.

picture 60



Before ending our journey through this planomaster® catalog, here is some additional useful information:

Important documents for the operation of the speed variators

planomaster® operating instructions
MR – ATEX (DOKU T146)
MR – non ATEX (DOKU T001)

traction fluid filling quantity schedule
DOKU T148

Speed variator technology

The speed variator planomaster® is not self-locking.

For backlash-free reversal and eccentric operating status we recommend to use the speed variator planomaster® of system MA.

System MA has to be controlled in applications acc. to ATEX 95.

Sorts of traction fluid

The sort of traction fluid filled to each speed variator is indicated on identification plate of speed variator. The traction fluids used in the planomaster® speed variator are special oils and may not be replaced by gear lubricating oil or mixed up with minimum quantities of gear lubrication oil. Traction fluid quantity depends on each mounting position of speed variator.

Please be aware of other planetroll® products:

planetdrive® (planetary gear)

planotronic® (speed variator control)

planoTorque® (torque meter)

low-backlash planetary gears

geared motors

high-precision speed variators

special gears (for customized solution)

Visit our website for other important information concerning planetroll® and its products

www.planetroll.de
www.planetroll.com

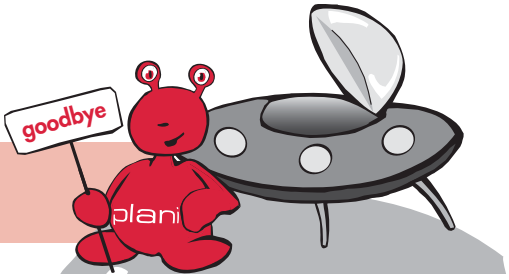
phone number:

+49 (0) 700 planetroll,
+49 (0) 700 7526387655

Should you have any additional questions, we are happy to assist you in any way possible.

Certified according to DIN EN ISO 9001:2000

We wish all the best for you and are looking forward to meet you again soon – your plani.



Headquarters Munderkingen

planetroll GmbH & Co. KG
Brunnenbergstraße 11-13
D-89597 Munderkingen
phone: +49(0)73 93/95 18-0
phone: +49(0)700 planetroll
fax: +49(0)73 93/95 18-98
e-mail: office@planetroll.de
www.planetroll.de
www.planetroll.com

Bernhard Häußler
Sales Manager
phone: +49 (0) 73 93/95 18-31
fax: +49 (0) 73 93/95 18-98
e-mail: bhaeussler@planetroll.de

Georg Vieweger
Sales Engineer
phone: +49 (0) 73 93/95 18-30
fax: +49 (0) 73 93/95 18-98
e-mail: gvieweger@planetroll.de

Alfons Stankalla
Sales Engineer
phone: +49 (0) 73 93/95 18-32
fax: +49 (0) 73 93/95 18-98
e-mail: astankalla@planetroll.de

Jochen Baur
Sales Engineer
phone: +49 (0) 73 93/95 18-36
fax: +49 (0) 73 93/95 18-98
e-mail: jbaur@planetroll.de

Mark Hellwig
Sales Department
phone: +49 (0) 73 93/95 18-38
fax: +49 (0) 73 93/95 18-98
e-mail: mhellwig@planetroll.de

Regina Ziegner
Sales Department
phone: +49 (0) 73 93/95 18-35
fax: +49 (0) 73 93/95 18-98
e-mail: rziegner@planetroll.de

Margit Lorinser
Sales Department
phone: +49 (0) 73 93/95 18-34
fax: +49 (0) 73 93/95 18-98
e-mail: mlorinser@planetroll.de

Germany

Dipl.-Ing. (FH) Wilfried Haberer
Büro für Antriebstechnik
Karlsbader Straße 10
78052 VS-Villingen
phone: +49 (0) 77 21/7 30 97
mobil: +49 (0) 175/2 24 49 65
fax: +49 (0) 77 21/7 30 98
e-mail: wilfried.haberer@t-online.de

KW Antriebs-
& Automationstechnik GmbH
Koberger Straße 41
90408 Nürnberg
phone 1: +49 (0) 9 11/3 66 38 88
phone 2: +49 (0) 9 11/3 66 38 89
mobil 1: +49 (0) 172/8 10 47 72
mobil 2: +49 (0) 172/8 12 34 44
fax: +49 (0) 9 11/3 66 38 90
e-mail: info@kw-antriebstechnik.de
www.kw-antriebstechnik.de

INFRA-ANTRIEBE
HANS NELK GMBH
Alter Kirchpfad 6a
32657 Lemgo
phone: +49 (0) 52 61/34 45
mobil 1: +49 (0) 171/5 24 86 74
mobil 2: +49 (0) 160/6 31 91 97
fax: +49 (0) 52 61/1 56 41
e-mail: info@infra-antriebe.de
www.infra-antriebe.de

IBW INGENIEURBÜRO WEBER
Unterstraße 8
37351 Silberhausen
phone: +49 (0) 3 60 75/6 28 48
mobil: +49 (0) 1 72/8 03 22 61
fax: +49 (0) 3 60 75/6 28 23
e-mail: ingenieurbuero.weber@lycosxxl.de

ATV Antriebstechnik Vogelskamp e. K.
Heinrich-Heine-Straße 31
42489 Wülfrath
phone: +49 (0) 20 58/89 55 10
mobil: +49 (0) 1 60/96 83 61 52
fax: +49 (0) 20 58/89 55 11
e-mail: info@vogelskamp.de
www.vogelskamp.de

ps antriebstechnik GmbH
Zum Grenzgraben 29
76698 Ubstadt-Weiher
phone: +49 (0) 72 51/96 28-0
fax: +49 (0) 72 51/96 28-28
e-mail: peter.schmidt@ps-antriebstechnik.de
e-mail: tino.schmidt@ps-antriebstechnik.de
www.ps-antriebstechnik.de

Heinrich WOLF GmbH & Co. KG
Antriebs- und Steuerungstechnik
Röntgenstraße 1
23701 Eutin
phone: +49 (0) 45 21/7 39 52
fax: +49 (0) 45 21/7 42 79
e-mail: info@wolf-eutin.de
www.wolf-eutin.de

International

AXIS-Aandrijvingen BV
Coenecoop 133
2741 PJ WADDINXVEEN
NETHERLANDS
phone: +31 (182) 64 70 70
fax: +31 (182) 63 26 32
e-mail: info@axisgear.nl
www.axis-stuifmeel.nl

VEKTOR AG
Chriesbaumstraße 4
8604 VOLKETSWIL
SWITZERLAND
phone: +41 (1) 9 46 06 60
fax: +41 (1) 9 45 55 10
e-mail: info@vektor.ch
www.vektor.ch

REGAL A/S
Industrivej 4
4000 ROSKILDE
DENMARK
phone: +45 (46) 77 70 00
fax: +45 (46) 75 76 20
e-mail: regal@regal.dk
www.regal.dk

VORKAUF, S.A.
Hauptsitz: MADRID
Comandante Franco, 3
28016 MADRID
SPAIN
phone: +34 (91) 3 59 17 12
fax: +34 (91) 3 50 04 31
e-mail: vorkauf@vorkauf.es
www.vorkauf.es
Further offices in:
BARCELONA
BILBAO
VIGO

IBERACERO, S.L.
Zona, Industrial Maia I Lote 45
4475-132 Gemunde – Maia
(PORTO)
PORTUGAL
phone: +351 (22) 9 47 90 20
fax: +351 (22) 9 47 90 29
e-mail:
iberacero@mail.telepac.pt

AC&DC POWERDRIVES
(OEM) LTD
Unit 43 Britannia Way
Enterprise Industrial Estate,
LICHFIELD,
STAFFORDSHIRE WS14 9UY
GREAT BRITAIN
phone: +44 (15 43) 25 59 95
fax: +44 (15 43) 25 03 16
e-mail: acdcpowerdrives@aol.com
www.acdcpowerdrives.co.uk

BINDER MAGNETIC
1, allée des Barbanniers
92632 GENNEVILLIERS-CEDEX
FRANCE
phone: +33 (0) 1 46 13 80 80
fax: +33 (0) 1 46 13 80 99
E-mail: info@binder-magnetic.fr
www.binder-magnetic.fr

Ing. Franz Schmachtl KG
Pummererstraße 36
4020 LINZ
AUSTRIA
phone: +43 (0) 7 32/76 46-0
fax: +43 (0) 7 32/78 50 36
e-mail: office.linz@schmachtl.at
www.schmachtl.at

ANDANTEX S.p.A.
Via F.lli di Dio 2/A
20063 CERNUSCO SUL NAVIGLIO
(MILANO)
ITALY
phone: +39 (02) 92 17 09-1
fax: +39 (02) 92 10 04 55
e-mail: andmec@andantex.it
www.andantex.it

MEKANEX Maskin AB
Dalvägen 20 A
16956 SOLNA
SWEDEN
phone: +46 (0) 8 705 96 60
fax: +46 (0) 8 27 06 87
e-mail: info@mekanex.se
www.mekanex.se

MEKANEX OY
Sorronrinne 12, PL 30
08501 LOHJA AS.
FINLAND
phone: +358 (0) 19 32 831
fax: +358 (0) 19 383 803
e-mail: info@mekanex.fi
www.mekanex.fi

DIEQUA CORPORATION
180, Covington Drive
Bloomingdale, IL 60108-3105
USA
phone: +1 (630) 9 80-11 33
fax: +1 (630) 9 80-12 32
e-mail: info@diequa.com
www.diequa.com

International

YAMAKYU CHAIN CO., LTD.
15-16, 2-Chome
Takanawa, Minato-Ku
TOKYO 108
JAPAN
phone: +81 (3) 4 45 85 11
fax: +81 (3) 4 45 85 26
e-mail: inter@yamakyu.co.jp
www.yamakyu.co.jp

GERMAN TECH AUTO CO., LTD
No.58, Wu Chuan Road
Wu-Ku Industrial Park
TAIPEI HSIEN
TAIWAN R.O.C
phone: +886 (2) 22 99 02 37
fax: +886 (2) 22 99 02 39
e-mail: steve@zfgta.com.tw
www.gta-dtc.com

DAESHIN ELECTRIC IND. CO.
71-546 Hongeun 1-dong
Seodaemun-Gu
SEOUL 120-101
KOREA
phone: +82 (2) 32 16-30 11
fax: +82 (2) 32 16-23 07
e-mail: dsmk@korea.com
www.candrive.co.kr

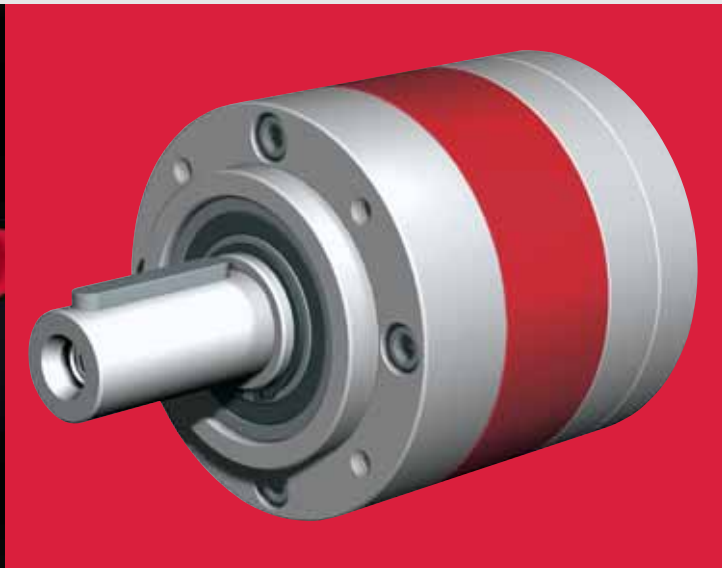
TAMKER Kft.
Budafoki út 31
1111 BUDAPEST
HUNGARY
phone: +36 (1) 4 67-28 00
fax: +36 (1) 4 67-28 14
e-mail: tamker@axelero.hu
www.tamker.hu

catalog MR no. 04/05-01_02

Planetroll®
the driving power

Planetengetriebe ◂ ▸ planetary gears


Planet Saturn



planetdrive®

...das Ding mit dem roten Ring ◂ ▸ the thing with the red ring

Der Saturn

Saturn ist der sechste Planet unseres Sonnensystems und nach Jupiter der zweitgrößte. Auch er gehört zu den so genannten Gasplaneten und besteht zum Hauptteil aus Wasserstoff und Helium. Saturn hat mit seinen ca. 28 Satelliten nach Jupiter die zweitmeisten aller Planeten unseres Systems.

Das Faszinierendste an Saturn jedoch ist sein komplexes System von Ringen, dessen Natur und Aufbau bis heute noch nicht vollständig geklärt ist. Die Ringe des Saturn bestehen zum größten Teil aus Wassereis und haben nur eine Dicke von etwa 20 Metern.

Einige Fakten:
Äquator-Durchmesser: 120.536 km; Masse: 95,14 Erdmassen; Dauer eines Sonnenumlaufs: 29,458 Jahre; Dichte: 0,687 g/cm^3; Bahngeschwindigkeit: 9,65 km/s; Mittlere Temperatur: -179 °C

The Saturn

Saturn is the sixth planet of our solar system and, compared to Jupiter, is the second largest. It belongs to the group of gas planets and consists primarily of hydrogen and helium. With approximately 28 moons, or satellites, Saturn has the second most of all the planets in our solar system.

The most fascinating thing about Saturn, however, is its complex system of rings, which nature and structure is not yet completely understood. It is known that the rings of Saturn are made up mostly of ice and have a thickness of only about 20 meters.

Interesting facts:
Equator diameter: 120,536 km; mass: 95.14 times earth's mass; 1 Saturn year: 29.458 earth years; density: 0.687 g/cm^3; orbit speed: 9.65 km/s; average temperature: -179 °C

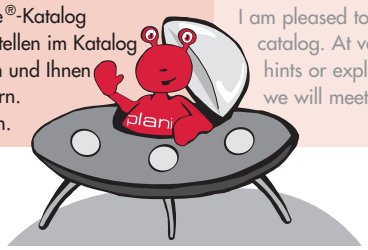
planetdrive®

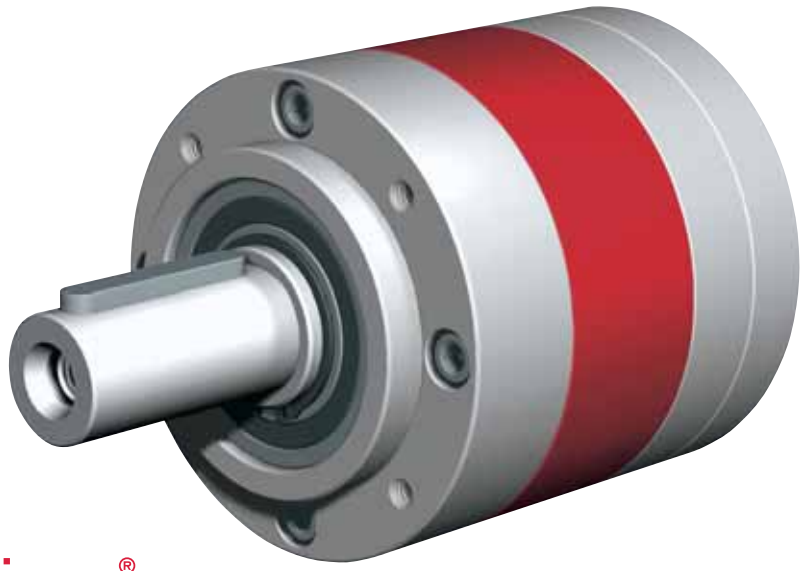
…das Ding mit dem roten Ring ◂ ▸ the thing with the red ring

Seite ◂▸ page

Ich freue mich, Sie durch den planetdrive®-Katalog begleiten zu dürfen. An verschiedenen Stellen im Katalog werde ich mit meinem Raumschiff landen und Ihnen Tipps geben oder wichtige Dinge erläutern. Also, mal seh'n wie oft wir uns begegnen.

I am pleased to accompany you through the planetdrive® catalog. At various places in this catalog I will give you hints or explain important details. See how many times we will meet.





planetdrive®

…das Ding mit dem roten Ring ◂▸ the thing with the red ring

Die entscheidenden Vorteile
Hohe Zuverlässigkeit, kurze Lieferzeit sowie flexibles Anbaukonzept in bewährter planetroll® Qualität zu einem attraktiven Preis.

◂▸

The deciding advantages
High reliability, short delivery time as well as flexible mounting system – planetroll® quality at an economical price.

Die neue Technik
Ein sich selbst zentrierendes Planetengetriebe mit Wechselflanschsystem und axialem Längenausgleich.

◂▸

The new technology
A self centring planetary reducer with flange adapter system and axial length compensation.

Die Eigenschaften
Ein Planetengetriebe mit großer Einsatzbreite, auf ATEX- und GMP-Standard-Forderungen ausgerichtet. Entwickelt für Servo- und IEC-Motoranbau.

◂▸

The capabilities
A planetary gear with a wide range of uses meets ATEX and GMP standard requirements. Developed for servo and IEC motor mounting.

planetdrive®

6 Baugrößen: PD040 bis PD190	◂▸	6 sizes: PD040 to PD190
Drehmomentbereich von 4 Nm bis 480 Nm	◂▸	torque range from 4 Nm to 480 Nm
Untersetzungen von 3:1 bis 1.000:1	◂▸	ratios from 3:1 to 1000:1
3faches NOT-AUS Moment	◂▸	triple emergency stop torque
Lebensdauer 20.000 h	◂▸	service life 20,000 h
Geringes Verdrehspiel	◂▸	low backlash
Hoher Wirkungsgrad	◂▸	high efficiency
Für Zyklus- und Dauerbetrieb geeignet	◂▸	adapted for intermittent and continuous operation
Axialer Längenausgleich	◂▸	axial length compensation
Geeignet für alle Einbaulagen	◂▸	configured for all mounting positions
Wartungsfrei durch Lebensdauerschmierung	◂▸	maintenance-free by lifetime lubrication
Einfacher Anbau von Servo- und IEC-Motoren durch Klemmring-Technik	◂▸	simple motor mounting by clamping ring technology
Kurze Lieferzeiten für Vorzugsreihe R1	◂▸	short delivery times for standard series R1

Untersetzungen / max. zulässige Abtriebsdrehmomente
ratios / max. permissible output torques

Abtriebsnenndrehmoment T_{2N} ◂ ▸ nominal output torque T_{2N}
Beschleunigungsmoment T_{2B}* ◂ ▸ acceleration torque T_{2B}*

Tabelle 1 ◂ ▸ table 1

Untersetzung	Getriebe-stufen	Baugröße ◂ ▸ size											
ratio	number of gear stages	PD040		PD065		PD085		PD120		PD155		PD190	
i		T_{2N}	T_{2B}*	T_{2N}	T_{2B}*	T_{2N}	T_{2B}*	T_{2N}	T_{2B}*	T_{2N}	T_{2B}*	T_{2N}	T_{2B}*
		Nm		Nm		Nm		Nm		Nm		Nm	
3	1			13	25	35	70	85	160	160	290	290	460
4	1	4	8	14	28	45	88	90	180	250	375	440	620
5	1	4,5	8	16	32	45	90	110	210	270	405	460	645
7	1	4,5	8	15	28	43	86	90	160	270	405	460	645
9	1	4	7										
10	1			14	25	35	70	80	160	160	290	290	460
16	2	5	10	19	34	55	98	100	180	270	405	460	645
20	2	5	10	19	34	55	98	100	180	270	405	460	645
25	2	5	10	21	40	58	105	110	210	290	435	480	670
28	2	5	10	21	40	55	98	100	180	270	405	460	645
35	2	5	10	21	40	58	105	110	210	290	435	480	670
40	2			21	40	55	98	100	180	270	405	460	645
49	2	5	10										
50	2			21	40	58	105	110	210	290	435	480	670
70	2			17	32	50	90	95	175	290	435	480	670
100	2			16	29	35	70	85	160	170	310	310	500
64	3	5	10										
80	3	5	10										
100	3	5	10										
120	3			21	40	55	100	100	180	170	310	310	500
140	3	5	10										
160	3			21	40	55	100	100	200	270	405	460	645
175	3	5	10										
200	3			21	40	58	105	100	200	270	405	460	645
245	3	5	10										
250	3			21	40	58	110	110	210	290	435	480	670
343	3	5	10										
350	3			21	40	58	110	110	210	290	435	480	670
500	3			21	40	58	110	110	210	290	435	480	670
700	3			19	38	50	95	95	190	290	435	480	670
729	3	5	10										
1.000	3			18	36	35	70	70	140	170	310	310	500

Die Abtriebsdrehmomente beziehen sich auf eine Lebensdauer von 20.000 h, Nenn-Eingangsdrehzahl, Betriebsfaktor 1 und Betriebsart S1 für elektrische Maschinen. Detailinformationen zur jeweiligen Getriebe-Baugröße und zu den Leistungswerten erhalten Sie auf den Katalogseiten 8 bis 19.

* Maximal 1.000 Zyklen pro Stunde. T_{2B}-Anteil an der Gesamtlaufzeit < 5 %.

Fett gedruckte Untersetzungen sind Bestandteil der Vorzugsreihe R1.
Dünn gedruckte Untersetzungen sind Bestandteil der Nebenreihe R2.
Achtung: Lieferzeit auf Anfrage bei Bestellung aus Nebenreihe R2.

The output torques refer to a service life of 20,000 h, nominal input speed, service factor 1 and mode of operation S1 for electrical machines. Detailed information to the respective gear construction size and to the power ratings you will find in our catalog pages 8 to 19.

* Up to a maximum of 1000 cycles per hour, T_{2B} portion of the total running time < 5 %.

Reduction ratios **printed in bold** are components of the standard series R1.
Reduction ratios printed in plain are components of the non-standard series R2.
Attention: delivery time on request for purchase orders of non-standard series R2.

PD 040 / PD 065 / PD 085

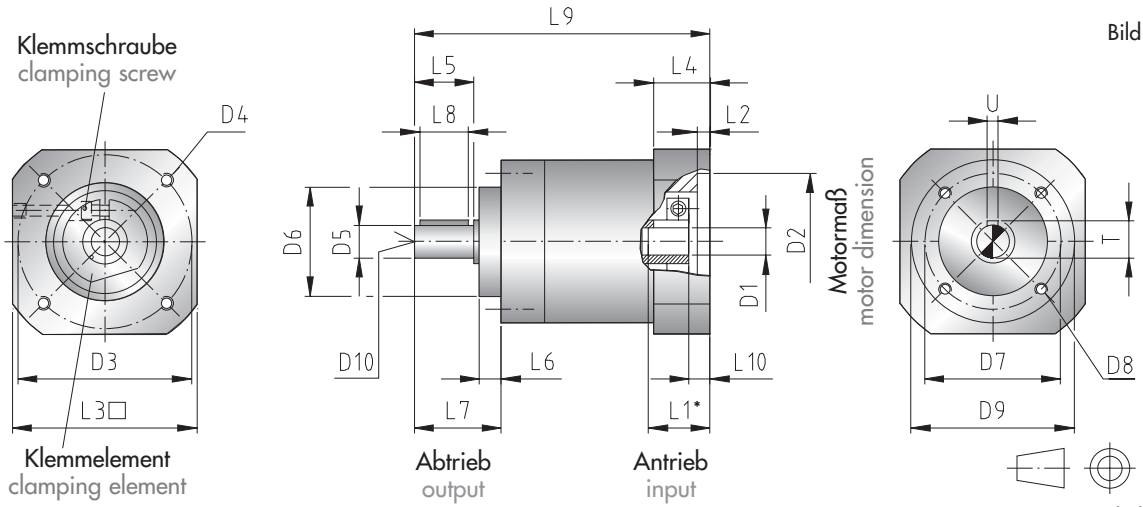


Bild 1 ◂ ▸ picture 1

Tabelle 2 ◂ ▸ table 2

Baugröße	size	PD040			PD065			PD085		
Getriebestufe	gear stage	1	2	3	1	2	3	1	2	3
Gesamtlänge	total length	L9*			L9*			L9*		
Getriebehohlwelle gear hollow shaft D1	Ø 9 F6 x 22,5	90	106	122						
	Ø 11 F6 x 26,5	95	111		123	147	171			
	Ø 14 F6 x 31,0				128	152		151	182	213
	Ø 19 F6 x 41,0							161	192	

D2	Zentrierung Ø *	centering Ø *	22-60	22-80	50-110
D3	Lochkreis*	hole circle*	32-75	40-100	60-130
D4	Gewinde / Bohrung*	thread / bore*	M3-M5	M3-M6	M4-M8
D5	Abtriebswelle Ø	output shaft Ø	10 k6	14 k6	20 k6
D6	Zentrierung Ø	centering Ø	25 h7	40 h7	55 h7
D7	Lochkreis	hole circle	33	52	70
D8	Gewinde	thread	M4x8	M5x10	M6x12
D9	Gehäuse Ø	housing Ø	40	65	85
D10	DIN 332	DIN 332	DM4	DM5	DM6
L2	Zentriertiefe*	centering depth*	3-5	3,5-7	3,5-7
L3	Flanschmaß*□	flange dimension*□	40-85	65-100	85-120
L4	Flanschbreite*	flange width*	22-31	20-35	26-40
L5	Wellenlänge	shaft length	23	30	40
L6	Zentrierbund	pilot depth	5	8	8
L7	Einbaumaß	install. dimension	29	39	49
L8	Passfederlänge	key length	18	25	32
U	Passfederbreite	key width	3	5	6
T	Höhe über Passfeder	height over key	11,2	16,0	22,5

Alle Maße in mm ◂ ▸ all dimensions in mm

* Abmessungen sind abhängig vom Motoranschlussmaß. Bitte sehen Sie hierzu unsere Auswahltabelle zu den Motorflanschen auf Seite 20 bis 22.
Die **fett gedruckten** Längenmaße L9* sind Bestandteil der Vorzugsreihe R1.

Bitte beachten Sie bei der Auslegung des Antriebs die zulässigen Abtriebsdrehmomente auf Seite 5, Tabelle 1.

PD 120 / PD 155 / PD 190

Wie versprochen, hier nun mein erster Hinweis:

Das äußerst flexibel gestaltete Antriebshohlwellenkonzept und Wechselflansch-Baukastensystem bieten die Möglichkeit, nahezu jeden von Ihnen gewünschten Motor an die Planeten-getriebe der Baureihe planetdrive® anzubauen.

Bei der Auslegung des Antriebs ist zu beachten, dass die zulässigen Getriebe-Abtriebsdrehmomente nicht überschritten werden.

As promised, here is my first reference:

The extremely flexible arranged input shaft and motor flange building block principle offers the possibility of mounting almost any desired motor to the planetdrive® series of the planetary reducers.

During interpretation of the drive please be sure that the permissible output torques are not exceeded.

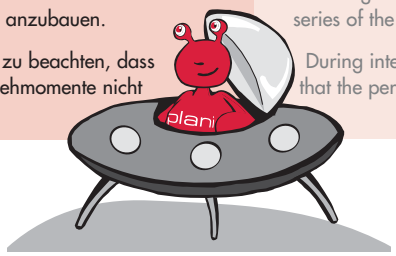


Tabelle 3 ◂ ▸ table 3

Baugröße		size	PD120			PD155			PD190		
Getriebestufe		gear stage	1	2	3	1	2	3	1	2	3
Gesamtlänge		total length	L9*			L9*			L9*		
Getriebehohlwelle gear hollow shaft D1		Ø 19 F6 x 41,0	184	220	256						
		Ø 24 F6 x 51,0	196	232		250	294	322			376
		Ø 32 F6 x 62,0				262	306		297	351	
D2	Zentrierung Ø *	centering Ø *	50-180			70-230			80-230		
D3	Lochkreis*	hole circle*	65-215			85-265			100-265		
D4	Gewinde / Bohrung*	thread / bore*	M4-M10			M5-M12			M6-M12		
D5	Abtriebswelle Ø	output shaft Ø	25 k6			40 k6			55 k6		
D6	Zentrierung Ø	centering Ø	80 h7			110 h7			140 h7		
D7	Lochkreis	hole circle	100			130			165		
D8	Gewinde	thread	M8x16			M10x20			M12x24		
D9	Gehäuse Ø	housing Ø	120			155			190		
D10	DIN 332	DIN 332	DM10			DM16			DM20		
L2	Zentriertiefe*	centering depth*	4-7			4-10			4,5-15		
L3	Flanschmaß*□	flange dimension*□	120-180			155-220			190-240		
L4	Flanschbreite*	flange width*	31-50			37-50			37-60		
L5	Wellenlänge	shaft length	50			80			100		
L6	Zentrierbund	pilot depth	10			14			16		
L7	Einbaumaß	install. dimension	61			95			117		
L8	Passfederlänge	key length	40			70			80		
U	Passfederbreite	key width	8			12			16		
T	Höhe über Passfeder	height over key	28,0			43,0			59		

Alle Maße in mm ◂ ▸ all dimensions in mm

* Dimensions depend on the motor assembly dimension. For this, please see our selection table for the motor flanges on pages 20 to 22.
The longitudinal dimensions L9* **printed in bold** are a component of the standard series R1.

During selection of drive please consider the permissible output torques on page 5, table 1.

PD 040

Tabelle 4 ◂ ▸ table 4

Untersetzung	Getriebestufen	Abtriebsnenn-drehmoment	Beschleunigungs-moment *	NOT-AUS Drehmoment **	Massenträgheits-moment	
ratio	number of gear stages	nominal output torque	accelerating torque*	emergency stop torque **	moment of inertia	
i		T_{2N}	T_{2B}*	T_{2NOT}**	Hohlwelle ø9	Hohlwelle ø11
					hollow shaft ø9	hollow shaft ø11
		Nm	Nm	Nm	kgcm²	
4	1	4	8	12	0,033	0,060
5	1	4,5	8	13,5	0,031	0,058
7	1	4,5	8	13,5	0,030	0,057
9	1	4	7	12	0,029	0,056
16	2	5	10	15	0,033	0,060
20	2	5	10	15	0,031	0,058
25	2	5	10	15	0,031	0,058
28	2	5	10	15	0,031	0,058
35	2	5	10	15	0,030	0,057
49	2	5	10	15	0,030	0,057
64	3	5	10	15	0,030	0,057
80	3	5	10	15	0,030	0,057
100	3	5	10	15	0,030	0,057
140	3	5	10	15	0,030	0,057
175	3	5	10	15	0,030	0,057
245	3	5	10	15	0,030	0,057
343	3	5	10	15	0,030	0,057
729	3	5	10	15	0,030	0,057

Die Abtriebsdrehmomente beziehen sich auf eine Lebensdauer von 20.000 h, Nenn-Eingangsdrehzahl, Betriebsfaktor 1 und Betriebsart S1 für elektrische Maschinen.

* Maximal 1.000 Zyklen pro Stunde. T_{2B}-Anteil an der Gesamtlaufzeit < 5 %.

** Maximal 1.000-mal während der Getriebelebensdauer zulässig.

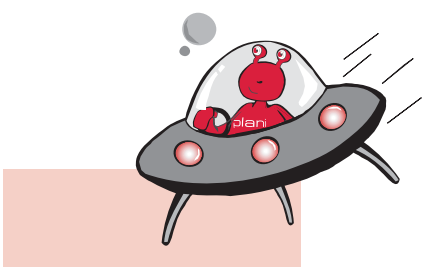
Fett gedruckte Untersetzungen sind Bestandteil der Vorzugsreihe R1.
Dünn gedruckte Untersetzungen sind Bestandteil der Nebenreihe R2.
Achtung: Lieferzeit auf Anfrage bei Bestellung aus Nebenreihe R2.

The output torques refer to a service life of 20,000 h, nominal input speed, service factor 1 and operating mode S1 for electrical machines.

* Up to a maximum of 1000 cycles per hour. T_{2B} portion of the total running time < 5 %.

** Up to a maximum of 1000 times permissible during gearbox lifetime.

Reduction ratios **printed in bold** are components of the standard series R1.
Reduction ratios printed in plain are components of the non-standard series R2.
Attention: delivery time on request for purchase orders of non-standard series R2.



PD 040

Tabelle 5 ◂ ▸ table 5

Getriebestufen	number of gear stages			1	2	3
Verdrehspiel	torsional backlash		arcmin	20	25	30
Verdrehsteifigkeit	torsional rigidity		Nm/arcmin	0,4	0,5	0,6
Wirkungsgrad bei Volllast	efficiency with full load		%	96	94	90
Gewicht ca.	approximate weight		kg	0,3	0,4	0,5
Maximal zulässige Radialkraft	max. permissible radial load		N	220		
Maximal zulässige Axialkraft	max. permissible axial load		N	330		
Nenn-Eingangsdrehzahl	rated input speed		min^{-1}/rpm	3.000		
Max. Eingangsdrehzahl	max. input speed		min^{-1}/rpm	6.000		
Schmierung	lubrication			Lebensdauer-Fettschmierung lifetime grease lubrication		
Betriebstemperatur*** Gehäuse-Oberflächentemperatur	operating temperature*** housing surface temperature		°C	-25 bis +90 / kurzzeitig +120 -25 to +90 / short-time +120		
Einbaulage	mounting position			beliebig / any		
Schutzart	protective system			IP 64		
Schallemission****	running noise****		dB(A)	≤ 70		
Lebensdauer	service life		h	20.000		
Anzugsmoment für die Klemmschraube M3	tightening torque for clamping screw	M3	Nm	2,1	Hohlwelle Ø9 / hollow shaft Ø9	
Anzugsmoment für die Klemmschraube M4	tightening torque for clamping screw	M4	Nm	4,2	Hohlwelle Ø11 / hollow shaft Ø11	
Flanschgenauigkeit	flange tolerance			DIN 42955-N		
Getriebe-Oberfläche	gear surface			Gehäuse pulverbeschichtet RAL3020. Flansche aus Aluminium. Housing powder coated RAL3020. Flanges out of aluminium.		

Aus Diagramm 1 können Sie, in Abhängigkeit von der Abtriebsdrehzahl n_2 und der auf die Abtriebswelle einwirkenden Radialkraft, die Lebensdauer der Abtriebswellenlagerung ermitteln.

From the diagram 1 you can determine the life span of the output shaft bearing depending on output speed n_2 and the acting radial force on the output shaft bearing.

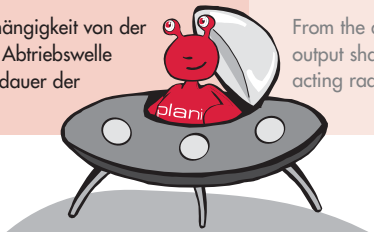
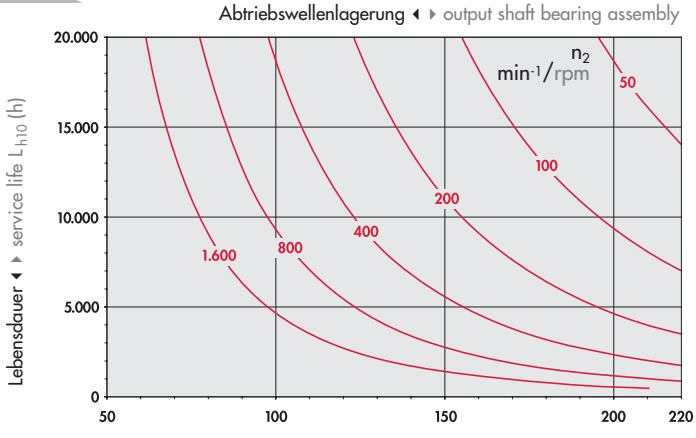


Diagramm 1 ◂ ▸ diagram 1

Abtriebswellenlagerung ◂ ▸ output shaft bearing assembly



*** **Achtung!** Werden die Getriebe mit der maximal zulässigen Eingangsdrehzahl betrieben oder kommen Motoren mit hoher Wärmeentwicklung zur Verwendung, dann ist sicherzustellen, dass die zulässige Betriebstemperatur des Getriebes nicht überschritten wird.

**** Ermittelt bei 1m Abstand und Nenn-Eingangsdrehzahl, ohne Last.

*** **Attention!** If the gears are operated with the maximum permissible input speed, or if motors are used with high generation of heat, then it is to be guaranteed that the permissible operating temperature of the gear is not exceeded.

**** Determined at a distance of 1m and rated input speed, without load.

n_2 = Abtriebsdrehzahl ◂ ▸ n_2 = output speed

PD 065

Tabelle 6 ◂ ▸ table 6

Untersetzung	Getriebestufen	Abtriebsnenn-drehmoment	Beschleunigungs-moment*	NOT-AUS Drehmoment**	Massenträgheits-moment	
ratio	number of gear stages	nominal output torque	accelerating torque*	emergency stop torque**	moment of inertia	
i		T_{2N}	T_{2B}*	T_{2NOT}**	Hohlwelle ø11	Hohlwelle ø14
					hollow shaft ø11	hollow shaft ø14
		Nm	Nm	Nm	kgcm²	
3	1	13	25	39	0,128	0,367
4	1	14	28	42	0,086	0,324
5	1	16	32	48	0,074	0,314
7	1	15	28	45	0,064	0,304
10	1	14	25	42	0,059	0,299
16	2	19	34	57	0,083	0,321
20	2	19	34	57	0,072	0,312
25	2	21	40	63	0,072	0,311
28	2	21	40	63	0,063	0,303
35	2	21	40	63	0,063	0,303
40	2	21	40	63	0,059	0,299
50	2	21	40	63	0,059	0,299
70	2	17	32	51	0,059	0,298
100	2	16	29	48	0,059	0,298
120	3	21	40	63	0,059	0,298
160	3	21	40	63	0,059	0,298
200	3	21	40	63	0,059	0,298
250	3	21	40	63	0,059	0,298
350	3	21	40	63	0,059	0,298
500	3	21	40	63	0,059	0,298
700	3	19	38	57	0,059	0,298
1.000	3	18	36	54	0,059	0,298

Die Abtriebsdrehmomente beziehen sich auf eine Lebensdauer von 20.000 h, Nenn-Eingangsdrehzahl, Betriebsfaktor 1 und Betriebsart S1 für elektrische Maschinen.

* Maximal 1.000 Zyklen pro Stunde. T_{2B}-Anteil an der Gesamtlaufzeit < 5 %.

** Maximal 1.000-mal während der Getriebelebensdauer zulässig.

Fett gedruckte Untersetzungen sind Bestandteil der Vorzugsreihe R1.
Dünn gedruckte Untersetzungen sind Bestandteil der Nebenreihe R2.
Achtung: Lieferzeit auf Anfrage bei Bestellung aus Nebenreihe R2.

The output torques refer to a service life of 20,000 h, nominal input speed, service factor 1 and operating mode S1 for electrical machines.

* Up to a maximum of 1000 cycles per hour. T_{2B} portion of the total running time < 5 %.

** Up to a maximum of 1000 times permissible during gearbox lifetime.

Reduction ratios **printed in bold** are components of the standard series R1.
Reduction ratios printed in plain are components of the non-standard series R2.
Attention: delivery time on request for purchase orders of non-standard series R2.

PD 065

Tabelle 7 ◂ ▸ table 7

Getriebestufen		number of gear stages			1	2	3
Verdrehspiel		torsional backlash		arcmin	12	15	20
Verdrehsteifigkeit		torsional rigidity		Nm/arcmin	1,6	2	2,1
Wirkungsgrad bei Volllast		efficiency with full load		%	97	94	90
Gewicht ca.		approximate weight		kg	1,3	1,7	2
Maximal zulässige Radialkraft		max. permissible radial load		N	930		
Maximal zulässige Axialkraft		max. permissible axial load		N	1.080		
Nenn-Eingangsdrehzahl		rated input speed		min^{-1}/rpm	3.000		
Max. Eingangsdrehzahl		max. input speed		min^{-1}/rpm	6.000		
Schmierung		lubrication			Lebensdauer-Fettschmierung lifetime grease lubrication		
Betriebstemperatur*** Gehäuse-Oberflächentemperatur		operating temperature*** housing surface temperature		°C	-25 bis +90 / kurzzeitig +120 -25 to +90 / short-time +120		
Einbaulage		mounting position			beliebig / any		
Schutzart		protective system			IP 64		
Schallemission****		running noise****		dB(A)	≤ 70		
Lebensdauer		service life		h	20.000		
Anzugsmoment für die Klemmschraube	M4	tightening torque for clamping screw	M4	Nm	4,2	Hohlwelle Ø11 / hollow shaft Ø11	
	M5		M5		8,3	Hohlwelle Ø14 / hollow shaft Ø14	
Flanschgenauigkeit		flange tolerance			DIN 42955-N		
Getriebe-Oberfläche		gear surface			Gehäuse pulverbeschichtet RAL3020. Flansche aus Aluminium. Housing powder coated RAL3020. Flanges out of aluminium.		

*** **Achtung!** Werden die Getriebe mit der maximal zulässigen Eingangsdrehzahl betrieben oder kommen Motoren mit hoher Wärmeentwicklung zur Verwendung, dann ist sicherzustellen, dass die zulässige Betriebstemperatur des Getriebes nicht überschritten wird.

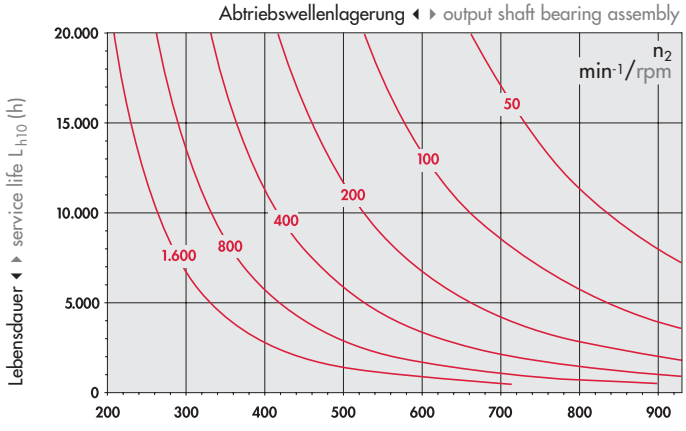
**** Ermittelt bei 1m Abstand und Nenn-Eingangsdrehzahl, ohne Last.

*** **Attention!** If the gears are operated with the maximum permissible input speed, or if motors are used with high generation of heat, then it is to be guaranteed that the permissible operating temperature of the gear is not exceeded.

**** Determined at a distance of 1m and rated input speed, without load.

Diagramm 2 ◂ ▸ diagram 2

Abtriebswellenlagerung ◂ ▸ output shaft bearing assembly



n_2 = Abtriebsdrehzahl ◂ ▸ n_2 = output speed

PD 085

Tabelle 8 ◂ ▸ table 8

Untersetzung	Getriebestufen	Abtriebsnenn-drehmoment	Beschleunigungs-moment*	NOT-AUS Drehmoment**	Massenträgheits-moment	
ratio	number of gear stages	nominal output torque	accelerating torque*	emergency stop torque**	moment of inertia	
i		T_{2N}	T_{2B}*	T_{2NOT}**	Hohlwelle ø14	Hohlwelle ø19
					hollow shaft ø14	hollow shaft ø19
		Nm	Nm	Nm	kgcm²	
3	1	35	70	105	0,67	1,62
4	1	45	88	135	0,49	1,44
5	1	45	90	135	0,43	1,36
7	1	43	86	129	0,37	1,30
10	1	35	70	105	0,34	1,27
16	2	55	98	165	0,48	1,42
20	2	55	98	165	0,42	1,35
25	2	58	105	174	0,42	1,35
28	2	55	98	165	0,37	1,29
35	2	58	105	174	0,37	1,29
40	2	55	98	165	0,34	1,26
50	2	58	105	174	0,34	1,26
70	2	50	90	150	0,34	1,26
100	2	35	70	105	0,34	1,20
120	3	55	100	165	0,34	1,20
160	3	55	100	165	0,34	1,26
200	3	58	105	174	0,34	1,26
250	3	58	110	174	0,34	1,26
350	3	58	110	174	0,34	1,26
500	3	58	110	174	0,34	1,26
700	3	50	95	150	0,34	1,26
1.000	3	35	70	105	0,34	1,26

Die Abtriebsdrehmomente beziehen sich auf eine Lebensdauer von 20.000 h, Nenn-Eingangsdrehzahl, Betriebsfaktor 1 und Betriebsart S1 für elektrische Maschinen.

* Maximal 1.000 Zyklen pro Stunde. T_{2B}-Anteil an der Gesamtlaufzeit < 5 %.

** Maximal 1.000-mal während der Getriebelebensdauer zulässig.

Fett gedruckte Untersetzungen sind Bestandteil der Vorzugsreihe R1.
Dünn gedruckte Untersetzungen sind Bestandteil der Nebenreihe R2.
Achtung: Lieferzeit auf Anfrage bei Bestellung aus Nebenreihe R2.

The output torques refer to a service life of 20,000 h, nominal input speed, service factor 1 and operating mode S1 for electrical machines.

* Up to a maximum of 1000 cycles per hour. T_{2B} portion of the total running time < 5 %.

** Up to a maximum of 1000 times permissible during gearbox lifetime.

Reduction ratios **printed in bold** are components of the standard series R1.
Reduction ratios printed in plain are components of the non-standard series R2.
Attention: delivery time on request for purchase orders of non-standard series R2.

PD 085

Tabelle 9 ◂ ▸ table 9

Getriebestufen		number of gear stages			1	2	3
Verdrehspiel		torsional backlash		arcmin	10	15	20
Verdrehsteifigkeit		torsional rigidity		Nm/arcmin	4,8	6	5,5
Wirkungsgrad bei Volllast		efficiency with full load		%	96	94	90
Gewicht ca.		approximate weight		kg	2,6	3,5	4
Maximal zulässige Radialkraft		max. permissible radial load		N	1.770		
Maximal zulässige Axialkraft		max. permissible axial load		N	2.180		
Nenn-Eingangsdrehzahl		rated input speed		min^{-1}/rpm	3.000		
Max. Eingangsdrehzahl		max. input speed		min^{-1}/rpm	5.000		
Schmierung		lubrication			Lebensdauer-Fettschmierung lifetime grease lubrication		
Betriebstemperatur*** Gehäuse-Oberflächentemperatur		operating temperature*** housing surface temperature		°C	-25 bis +90 / kurzzeitig +120 -25 to +90 / short-time +120		
Einbaulage		mounting position			beliebig / any		
Schutzart		protective system			IP 64		
Schallemission****		running noise****		dB(A)	≤ 70		
Lebensdauer		service life		h	20.000		
Anzugsmoment für die Klemmschraube	M5	tightening torque for clamping screw	M5	Nm	8,3	Hohlwelle Ø14 / hollow shaft Ø14	
	M8		M8		43,0	Hohlwelle Ø19 / hollow shaft Ø19	
Flanschgenauigkeit		flange tolerance			DIN 42955-N		
Getriebe-Oberfläche		gear surface		Gehäuse pulverbeschichtet RAL3020. Flansche aus Aluminium. Housing powder coated RAL3020. Flanges out of aluminium.			

*** **Achtung!** Werden die Getriebe mit der maximal zulässigen Eingangsdrehzahl betrieben oder kommen Motoren mit hoher Wärmeentwicklung zur Verwendung, dann ist sicherzustellen, dass die zulässige Betriebstemperatur des Getriebes nicht überschritten wird.

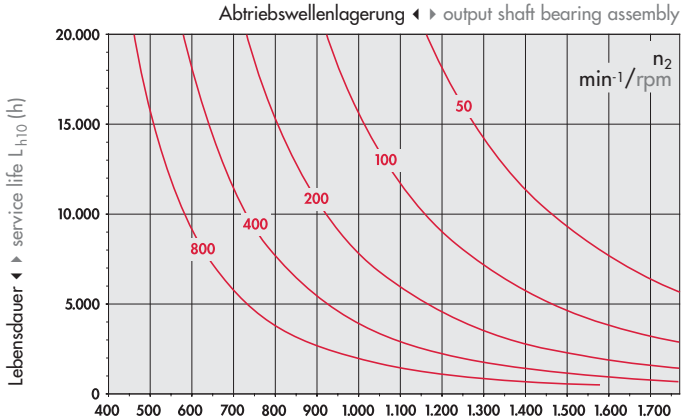
**** Ermittelt bei 1m Abstand und Nenn-Eingangsdrehzahl, ohne Last.

*** **Attention!** If the gears are operated with the maximum permissible input speed, or if motors are used with high generation of heat, then it is to be guaranteed that the permissible operating temperature of the gear is not exceeded.

**** Determined at a distance of 1m and rated input speed, without load.

Diagramm 3 ◂ ▸ diagram 3

Abtriebswellenlagerung ◂ ▸ output shaft bearing assembly



Radialkraft in Wellenmitte ◂ ▸ radial force in center of shaft (N)

n_2 = Abtriebsdrehzahl ◂ ▸ n_2 = output speed

PD 120

Tabelle 10 ◂ ▸ table 10

Untersetzung	Getriebestufen	Abtriebsnenn-drehmoment	Beschleunigungs-moment*	NOT-AUS Drehmoment**	Massenträgheits-moment	
ratio	number of gear stages	nominal output torque	accelerating torque*	emergency stop torque**	moment of inertia	
i		T_{2N}	T_{2B}*	T_{2NOT}**	Hohlwelle ø19	Hohlwelle ø24
					hollow shaft ø19	hollow shaft ø24
		Nm	Nm	Nm	kgcm²	
3	1	85	160	255	2,59	3,66
4	1	90	180	270	1,90	2,97
5	1	110	210	330	1,61	2,68
7	1	90	160	270	1,41	2,48
10	1	80	160	240	1,32	2,39
16	2	100	180	300	1,89	2,96
20	2	100	180	300	1,61	2,68
25	2	110	210	330	1,60	2,67
28	2	100	180	300	1,41	2,48
35	2	110	210	330	1,40	2,47
40	2	100	180	300	1,33	2,40
50	2	110	210	330	1,32	2,39
70	2	95	175	285	1,32	2,39
100	2	85	160	255	1,32	2,39
120	3	100	180	300	1,32	2,39
160	3	100	200	300	1,32	2,39
200	3	100	200	300	1,32	2,39
250	3	110	210	330	1,32	2,39
350	3	110	210	330	1,32	2,39
500	3	110	210	330	1,32	2,39
700	3	95	190	285	1,32	2,39
1.000	3	70	140	210	1,32	2,39

Die Abtriebsdrehmomente beziehen sich auf eine Lebensdauer von 20.000 h, Nenn-Eingangsdrehzahl, Betriebsfaktor 1 und Betriebsart S1 für elektrische Maschinen.

* Maximal 1.000 Zyklen pro Stunde. T_{2B}-Anteil an der Gesamtlaufzeit < 5 %.

** Maximal 1.000-mal während der Getriebelebensdauer zulässig.

Fett gedruckte Untersetzungen sind Bestandteil der Vorzugsreihe R1.
Dünn gedruckte Untersetzungen sind Bestandteil der Nebenreihe R2.
Achtung: Lieferzeit auf Anfrage bei Bestellung aus Nebenreihe R2.

The output torques refer to a service life of 20,000 h, nominal input speed, service factor 1 and operating mode S1 for electrical machines.

* Up to a maximum of 1000 cycles per hour. T_{2B} portion of the total running time < 5 %.

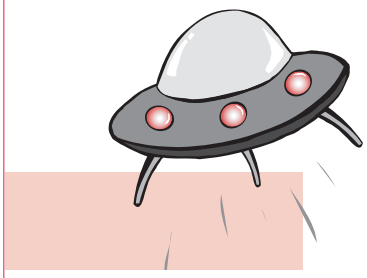
** Up to a maximum of 1000 times permissible during gearbox lifetime.

Reduction ratios **printed in bold** are components of the standard series R1.
Reduction ratios printed in plain are components of the non-standard series R2.
Attention: delivery time on request for purchase orders of non-standard series R2.

PD 120

Tabelle 11 ◂ ▸ table 11

Getriebestufen	number of gear stages		1	2	3
Verdrehspiel	torsional backlash	arcmin	10	15	20
Verdrehsteifigkeit	torsional rigidity	Nm/arcmin	10	13	12
Wirkungsgrad bei Volllast	efficiency with full load	%	96	94	90
Gewicht ca.	approximate weight	kg	6	8,6	10
Maximal zulässige Radialkraft	max. permissible radial load	N	3.000		
Maximal zulässige Axialkraft	max. permissible axial load	N	3.730		
Nenn-Eingangsdrehzahl	rated input speed	min^{-1}/rpm	3.000		
Max. Eingangsdrehzahl	max. input speed	min^{-1}/rpm	5.000		
Schmierung	lubrication		Lebensdauer-Fettschmierung lifetime grease lubrication		
Betriebstemperatur*** Gehäuse-Oberflächentemperatur	operating temperature*** housing surface temperature	°C	-25 bis +90 / kurzzeitig +120 -25 to +90 / short-time +120		
Einbaulage	mounting position		beliebig / any		
Schutzart	protective system		IP 64		
Schallemission****	running noise****	dB(A)	≤ 70		
Lebensdauer	service life	h	20.000		
Anzugsmoment für die Klemmschraube M8	tightening torque for clamping screw M8	Nm	43		
Flanschgenauigkeit	flange tolerance		DIN 42955-N		
Getriebe-Oberfläche	gear surface		Gehäuse pulverbeschichtet RAL3020. Flansche aus Aluminium. Housing powder coated RAL3020. Flanges out of aluminium.		



*** **Achtung!** Werden die Getriebe mit der maximal zulässigen Eingangsdrehzahl betrieben oder kommen Motoren mit hoher Wärmeentwicklung zur Verwendung, dann ist sicherzustellen, dass die zulässige Betriebstemperatur des Getriebes nicht überschritten wird.

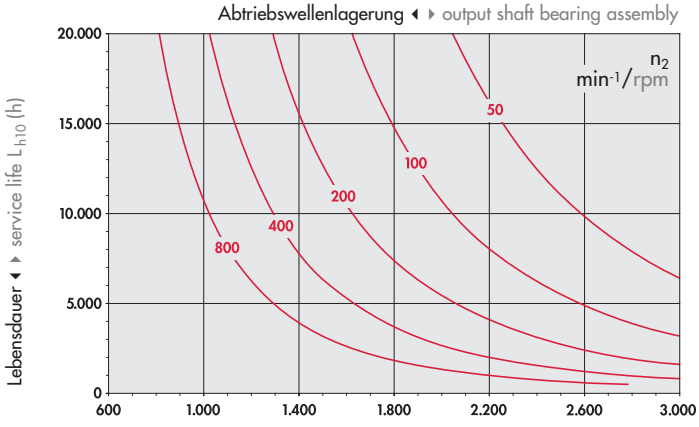
**** Ermittelt bei 1m Abstand und Nenn-Eingangsdrehzahl, ohne Last.

*** **Attention!** If the gears are operated with the maximum permissible input speed, or if motors are used with high generation of heat, then it is to be guaranteed that the permissible operating temperature of the gear is not exceeded.

**** Determined at a distance of 1m and rated input speed, without load.

Diagramm 4 ◂ ▸ diagram 4

Abtriebswellenlagerung ◂ ▸ output shaft bearing assembly



n_2 = Abtriebsdrehzahl ◂ ▸ n_2 = output speed

PD 155

Tabelle 12 ◂ ▸ table 12

Untersetzung	Getriebestufen	Abtriebsnenn-drehmoment	Beschleunigungs-moment*	NOT-AUS Drehmoment**	Massenträgheits-moment	
ratio	number of gear stages	nominal output torque	accelerating torque*	emergency stop torque**	moment of inertia	
i		T_{2N}	T_{2B}*	T_{2NOT}**	Hohlwelle ø24	Hohlwelle ø32
					hollow shaft ø24	hollow shaft ø32
		Nm	Nm	Nm	kgcm²	
3	1	160	290	480	7,50	10,60
4	1	250	375	750	4,70	7,80
5	1	270	405	810	3,70	6,80
7	1	270	405	810	3,00	6,10
10	1	160	290	480	2,70	5,80
16	2	270	405	810	3,90	7,00
20	2	270	405	810	3,30	6,40
25	2	290	435	870	3,20	6,30
28	2	270	405	810	3,00	6,10
35	2	290	435	870	3,90	6,00
40	2	270	405	810	2,70	5,80
50	2	290	435	870	2,70	5,80
70	2	290	435	870	2,70	5,80
100	2	170	310	510	2,70	5,80
120	3	170	310	510	2,70	5,80
160	3	270	405	810	2,70	5,80
200	3	270	405	810	2,70	5,80
250	3	290	435	870	2,70	5,80
350	3	290	435	870	2,70	5,80
500	3	290	435	870	2,70	5,80
700	3	290	435	870	2,70	5,80
1.000	3	170	310	510	2,70	5,80

Die Abtriebsdrehmomente beziehen sich auf eine Lebensdauer von 20.000 h, Nenn-Eingangsdrehzahl, Betriebsfaktor 1 und Betriebsart S1 für elektrische Maschinen.

* Maximal 1.000 Zyklen pro Stunde. T_{2B}-Anteil an der Gesamtlaufzeit < 5 %.

** Maximal 1.000-mal während der Getriebelebensdauer zulässig.

Fett gedruckte Untersetzungen sind Bestandteil der Vorzugsreihe R1.
Dünn gedruckte Untersetzungen sind Bestandteil der Nebenreihe R2.
Achtung: Lieferzeit auf Anfrage bei Bestellung aus Nebenreihe R2.

The output torques refer to a service life of 20,000 h, nominal input speed, service factor 1 and operating mode S1 for electrical machines.

* Up to a maximum of 1000 cycles per hour. T_{2B} portion of the total running time < 5 %.

** Up to a maximum of 1000 times permissible during gearbox lifetime.

Reduction ratios **printed in bold** are components of the standard series R1.
Reduction ratios printed in plain are components of the non-standard series R2.
Attention: delivery time on request for purchase orders of non-standard series R2.

PD 155

Tabelle 13 ◂ ▸ table 13

Getriebestufen		number of gear stages			1	2	3
Verdrehspiel		torsional backlash		arcmin	10	15	20
Verdrehsteifigkeit		torsional rigidity		Nm/arcmin	34	37	38
Wirkungsgrad bei Volllast		efficiency with full load		%	96	94	90
Gewicht ca.		approximate weight		kg	12,6	17	20
Maximal zulässige Radialkraft		max. permissible radial load		N	6.770		
Maximal zulässige Axialkraft		max. permissible axial load		N	7.730		
Nenn-Eingangsdrehzahl	1-stufig	rated input speed	1-stage	min^{-1}/rpm	2.600		
	2+3-stufig		2+3-stage	min^{-1}/rpm	3.000		
Max. Eingangsdrehzahl		max. input speed		min^{-1}/rpm	3.600		
Schmierung		lubrication			Lebensdauer-Fettschmierung lifetime grease lubrication		
Betriebstemperatur*** Gehäuse-Oberflächentemperatur		operating temperature*** housing surface temperature		°C	-25 bis +90 / kurzzeitig +120 -25 to +90 / short-time +120		
Einbaulage		mounting position			beliebig / any		
Schutzart		protective system			IP 64		
Schallemission****		running noise****		dB(A)	≤ 70		
Lebensdauer		service life		h	20.000		
Anzugsmoment für die Klemmschraube M8		tightening torque for clamping screw M8		Nm	43		
Flanschgenauigkeit		flange tolerance			DIN 42955-N		
Getriebe-Oberfläche		gear surface			Gehäuse pulverbeschichtet RAL3020. Flansche aus Aluminium. Housing powder coated RAL3020. Flanges out of aluminium.		

*** **Achtung!** Werden die Getriebe mit der maximal zulässigen Eingangsdrehzahl betrieben oder kommen Motoren mit hoher Wärmeentwicklung zur Verwendung, dann ist sicherzustellen, dass die zulässige Betriebstemperatur des Getriebes nicht überschritten wird.

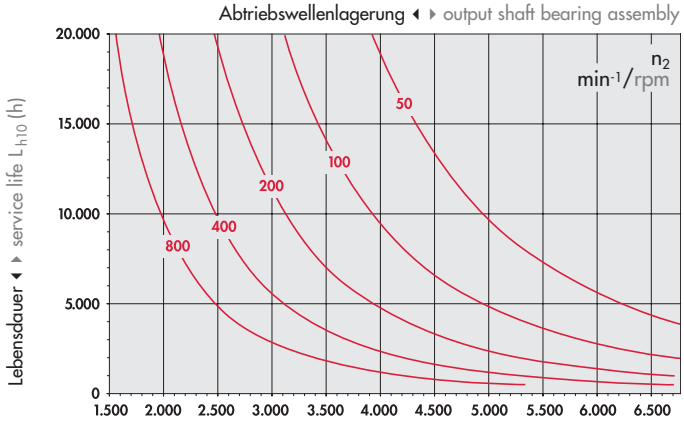
**** Ermittelt bei 1m Abstand und Nenn-Eingangsdrehzahl, ohne Last.

*** **Attention!** If the gears are operated with the maximum permissible input speed, or if motors are used with high generation of heat, then it is to be guaranteed that the permissible operating temperature of the gear is not exceeded.

**** Determined at a distance of 1m and rated input speed, without load.

Diagramm 5 ◂ ▸ diagram 5

Abtriebswellenlagerung ◂ ▸ output shaft bearing assembly



Radialkraft in Wellenmitte ◂ ▸ radial force in center of shaft (N)

n_2 = Abtriebsdrehzahl ◂ ▸ n_2 = output speed

PD 190

Tabelle 14 ◂ ▸ table 14

Untersetzung	Getriebestufen	Abtriebsnenn-drehmoment	Beschleunigungs-moment*	NOT-AUS Drehmoment**	Massenträgheits-moment	
ratio	number of gear stages	nominal output torque	accelerating torque*	emergency stop torque**	moment of inertia	
i		T_{2N}	T_{2B}*	T_{2NOT}**	Hohlwelle ø24	Hohlwelle ø32
					hollow shaft ø24	hollow shaft ø32
		Nm	Nm	Nm	kgcm²	
3	1	290	460	870	16,90	20,20
4	1	440	620	1.320	9,50	12,80
5	1	460	645	1.380	6,80	10,10
7	1	460	645	1.380	4,70	8,00
10	1	290	460	870	3,50	6,80
16	2	460	645	1.380	6,80	10,10
20	2	460	645	1.380	5,00	8,30
25	2	480	670	1.440	4,90	8,20
28	2	460	645	1.380	3,70	7,00
35	2	480	670	1.440	3,00	6,30
40	2	460	645	1.380	3,00	6,30
50	2	480	670	1.440	3,00	6,30
70	2	480	670	1.440	3,00	6,30
100	2	310	500	930	3,00	6,30
120	3	310	500	930	3,00	6,30
160	3	460	645	1.380	3,00	6,30
200	3	460	645	1.380	3,00	6,30
250	3	480	670	1.440	3,00	6,30
350	3	480	670	1.440	3,00	6,30
500	3	480	670	1.440	3,00	6,30
700	3	480	670	1.440	3,00	6,30
1.000	3	310	500	930	3,00	6,30

Die Abtriebsdrehmomente beziehen sich auf eine Lebensdauer von 20.000 h, Nenn-Eingangsdrehzahl, Betriebsfaktor 1 und Betriebsart S1 für elektrische Maschinen.

* Maximal 1.000 Zyklen pro Stunde. T_{2B}-Anteil an der Gesamtlaufzeit < 5 %.

** Maximal 1.000-mal während der Getriebelebensdauer zulässig.

Fett gedruckte Untersetzungen sind Bestandteil der Vorzugsreihe R1.
Dünn gedruckte Untersetzungen sind Bestandteil der Nebenreihe R2.
Achtung: Lieferzeit auf Anfrage bei Bestellung aus Nebenreihe R2.

The output torques refer to a service life of 20,000 h, nominal input speed, service factor 1 and operating mode S1 for electrical machines.

* Up to a maximum of 1000 cycles per hour. T_{2B} portion of the total running time < 5 %.

** Up to a maximum of 1000 times permissible during gearbox lifetime.

Reduction ratios **printed in bold** are components of the standard series R1.
Reduction ratios printed in plain are components of the non-standard series R2.
Attention: delivery time on request for purchase orders of non-standard series R2.

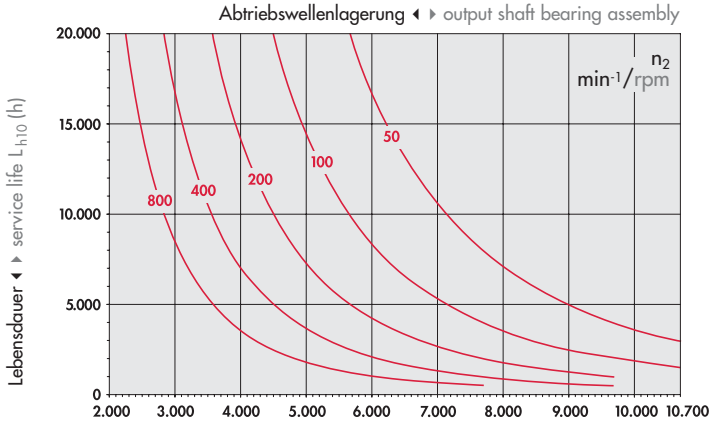
PD 190

Tabelle 15 ◂ ▸ table 15

Getriebestufen	number of gear stages			1	2	3
Verdrehspiel	torsional backlash		arcmin	10	15	20
Verdrehsteifigkeit	torsional rigidity		Nm/arcmin	80	93	90
Wirkungsgrad bei Volllast	efficiency with full load		%	96	94	90
Gewicht ca.	approximate weight		kg	23	31	36
Maximal zulässige Radialkraft	max. permissible radial load		N	10.700		
Maximal zulässige Axialkraft	max. permissible axial load		N	13.500		
Nenn-Eingangsdrehzahl 1-stufig	rated input speed	1-stage	min^{-1}/rpm	2.000		
Nenn-Eingangsdrehzahl 2+3-stufig	rated input speed	2+3-stage	min^{-1}/rpm	2.600		
Max. Eingangsdrehzahl	max. input speed		min^{-1}/rpm	3.600		
Schmierung	lubrication			Lebensdauer-Fettschmierung lifetime grease lubrication		
Betriebstemperatur*** Gehäuse-Oberflächentemperatur	operating temperature*** housing surface temperature		°C	-25 bis +90 / kurzzeitig +120 -25 to +90 / short-time +120		
Einbaulage	mounting position			beliebig / any		
Schutzart	protective system			IP 64		
Schallemission****	running noise****		dB(A)	≤ 70		
Lebensdauer	service life		h	20.000		
Anzugsmoment für die Klemmschraube M8	tightening torque for clamping screw M8		Nm	43		
Flanschgenauigkeit	flange tolerance			DIN 42955-N		
Getriebe-Oberfläche	gear surface			Gehäuse pulverbeschichtet RAL3020. Flansche aus Aluminium. Housing powder coated RAL3020. Flanges out of aluminium.		

Diagramm 6 ◂ ▸ diagram 6

Abtriebswellenlagerung ◂ ▸ output shaft bearing assembly



*** **Achtung!** Werden die Getriebe mit der maximal zulässigen Eingangsdrehzahl betrieben oder kommen Motoren mit hoher Wärmeentwicklung zur Verwendung, dann ist sicherzustellen, dass die zulässige Betriebstemperatur des Getriebes nicht überschritten wird.

**** Ermittelt bei 1m Abstand und Nenn-Eingangsdrehzahl, ohne Last.

*** **Attention!** If the gears are operated with the maximum permissible input speed, or if motors are used with high generation of heat, then it is to be guaranteed that the permissible operating temperature of the gear is not exceeded.

**** Determined at a distance of 1m and rated input speed, without load.

n_2 = Abtriebsdrehzahl ◂ ▸ n_2 = output speed

PD 040 / PD 065 / PD 085

P	D				–						–	1	A	A	0
1	2	3	4	5		6	7	8	9	10	11	12	13	14	15

Tabelle 16 ◂ ▸ table 16

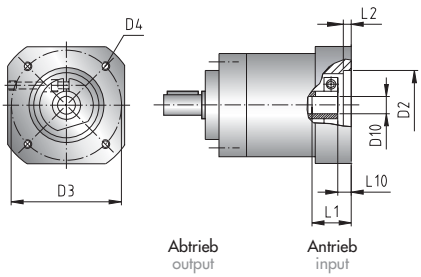
Baugröße size
PD040
PD065
PD085

Baugröße size	D10 [mm]	Motorwellencode motor shaft code
PD040	3	A
PD040	4	B
PD040	5	C
PD040	6	D
PD040	7	E
PD040	8	F
PD040	9	G
PD040	10	H
PD040	11	I
PD065	6	A
PD065	7	B
PD065	8	C
PD065	9	D
PD065	10	E
PD065	11	F
PD065	12	G
PD065	14	H
PD085	9	A
PD085	10	B
PD085	11	C
PD085	12	D
PD085	14	E
PD085	15	F
PD085	16	G
PD085	19	H

Baugröße size	Flanschcode flange code	D2 [mm]	D3 [mm]	D4 [mm]	L1 min. [mm]	L1 max. [mm]	L2 [mm]	L10 [mm]
PD040	AA	25,0	32,0	M3	15,0	27,0	3,0	4,5
PD040	AB	25,0	63,0	M5	14,0	26,0	3,0	3,5
PD040	AC	30,0	46,0	M4	14,0	26,0	3,0	3,5
PD040	AD	35,0	65,5	M5	14,0	26,0	3,0	3,5
PD040	AE	30,0	46,0	M5	14,0	26,0	3,0	3,5
PD040	AH	30,0	45,0	M3	15,0	27,0	3,5	4,5
PD040	AI	50,0	70,0	M4	18,0	30,0	3,5	7,5
PD040	AJ	22,0	43,8	Ø3,5	14,0	26,0	2,5	3,5
PD040	AK	22,0	48,0	M3	14,0	26,0	3,0	3,5
PD065	AA	30,0	45,0	M3	19,0	30,5	4,0	5,0
PD065	AB	30,0	46,0	M4	19,0	30,5	4,0	5,0
PD065	AC	36,0	70,7	M4	19,0	30,5	4,0	5,0
PD065	AD	40,0	63,0	M4	19,0	30,5	4,0	5,0
PD065	AE	40,0	63,0	M5	19,0	30,5	4,0	5,0
PD065	AF	40,0	70,0	M4	19,0	30,5	4,0	5,0
PD065	AG	50,0	60,0	M4	19,0	30,5	4,0	5,0
PD065	AH	50,0	65,0	M5	19,0	30,5	4,0	5,0
PD065	AI	50,0	70,0	M4	19,0	30,5	4,0	5,0
PD065	AJ	50,0	70,0	M5	19,0	30,5	4,0	5,0
PD065	AK	50,0	80,0	M5	19,0	30,5	4,0	5,0
PD065	AL	50,0	95,0	M6	19,0	30,5	4,0	5,0
PD065	AM	50,0	100,0	M6	19,0	30,5	4,0	5,0
PD065	AN	60,0	75,0	M5	19,0	30,5	4,0	5,0
PD065	AO	60,0	90,0	M5	19,0	30,5	4,0	5,0
PD065	AP	70,0	90,0	M5	21,0	32,5	4,0	7,0
PD065	AQ	70,0	90,0	M5	23,0	34,5	5,5	9,0
PD065	AR	70,0	90,0	M6	19,0	30,5	4,0	5,0
PD065	AS	73,1	98,5	M5	19,0	30,5	4,0	5,0
PD065	AT	80,0	100,0	M6	19,0	30,5	4,0	5,0
PD065	AU	22,0	48,0	M3	19,0	30,5	4,0	5,0
PD065	AV	45,0	65,5	M5	19,0	30,5	4,0	5,0
PD065	AW	73,1	99,0	M6	22,0	33,5	4,0	8,0
PD065	AX	80,0	100,0	M6	29,0	40,5	7,0	15,0
PD085	AA	50,0	60,0	M4	24,0	41,0	4,5	5,5
PD085	AB	50,0	65,0	M5	24,0	41,0	4,5	5,5
PD085	AC	50,0	70,0	M4	24,0	41,0	4,5	5,5
PD085	AD	50,0	70,0	M5	24,0	41,0	4,5	5,5
PD085	AE	50,0	80,0	M5	24,0	41,0	4,5	5,5
PD085	AF	50,0	95,0	M6	24,0	41,0	4,5	5,5
PD085	AG	50,0	100,0	M6	24,0	41,0	4,5	5,5
PD085	AH	60,0	75,0	M5	24,0	41,0	4,5	5,5
PD085	AI	60,0	90,0	M5	24,0	41,0	4,5	5,5
PD085	AJ	70,0	90,0	M5	26,0	43,0	5,5	7,5
PD085	AK	70,0	90,0	M5	28,0	45,0	5,5	9,5
PD085	AM	73,1	98,5	M5	24,0	41,0	4,5	5,5
PD085	AN	73,1	99,0	M6	24,0	41,0	4,5	5,5
PD085	AO	50,0	95,0	M6	25,0	42,0	5,5	6,5
PD085	AP	50,0	100,0	M6	25,0	42,0	5,5	6,5
PD085	AR	60,0	99,0	M6	24,0	41,0	4,5	5,5
PD085	AS	70,0	90,0	M5	24,0	41,0	4,5	5,5
PD085	AT	70,0	90,0	M6	24,0	41,0	4,5	5,5
PD085	AU	80,0	100,0	M6	24,0	41,0	4,5	5,5
PD085	AV	95,0	115,0	M8	24,0	41,0	4,5	5,5
PD085	AW	95,0	130,0	M8	24,0	41,0	4,5	5,5

Untersetzung ◂ ▸ ratio		Code
PD040 i	PD065 - PD085 i	code
	3	003
4	4	004
5	5	005
7	7	007
9		009
	10	010
16	16	016
20	20	020
25	25	025
28	28	028
35	35	035
	40	040
49		049
	50	050
64		064
	70	070
80		080
100	100	100
	120	120
140		140
	160	160
175		175
	200	200
245		245
	250	250
343		343
	350	350
	500	500
	700	700
729		729
	1.000	999

Bild 2 ◂ ▸ picture 2



D10 und D2 sind Motormaße.

D10 and D2 are motor dimensions.

L1: Mindestlänge bzw. maximal zulässige Länge der Motorwelle.

L1: Minimum length resp. maximum permissible length of motor shaft.

Weitere Wechselflanschvarianten auf Anfrage.

Further adapter flange variants on request.

PD 120 / PD 155 / PD 190

P	D				–						–	1	A	A	0
1	2	3	4	5		6	7	8	9	10	11	12	13	14	15

Tabelle 17 ◂ ▸ table 17

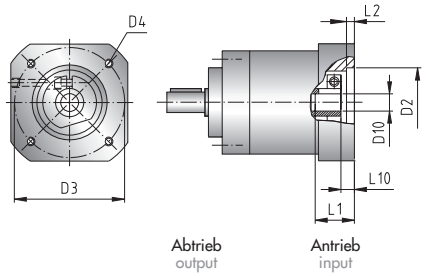
Baugröße size
PD120
PD155
PD190

Baugröße size	D10 [mm]	Motorwellencode motor shaft code
PD120	14	A
PD120	15	B
PD120	16	C
PD120	19	D
PD120	22	E
PD120	24	F
PD155	19	A
PD155	22	B
PD155	24	C
PD155	28	D
PD155	32	E
PD190	19	A
PD190	22	B
PD190	24	C
PD190	28	D
PD190	32	E

Baugröße size	Flanschcode flange code	D2 [mm]	D3 [mm]	D4 [mm]	L1 min. [mm]	L1 max. [mm]	L2 [mm]	L10 [mm]
PD120	AA	50,0	95,0	M6	28,0	52,0	6,5	7,5
PD120	AB	50,0	100,0	M6	28,0	52,0	6,5	7,5
PD120	AC	60,0	75,0	M5	27,0	51,0	5,5	6,5
PD120	AD	60,0	99,0	M6	27,0	51,0	5,5	6,5
PD120	AE	70,0	90,0	M5	27,0	51,0	5,5	6,5
PD120	AF	70,0	90,0	M6	27,0	51,0	5,5	6,5
PD120	AG	80,0	100,0	M6	27,0	51,0	5,5	6,5
PD120	AH	95,0	115,0	M8	27,0	51,0	5,5	6,5
PD120	AI	95,0	130,0	M8	27,0	51,0	5,5	6,5
PD120	AJ	110,0	130,0	M8	27,0	51,0	5,5	6,5
PD120	AK	110,0	130,0	M8	38,0	62,0	7,0	17,5
PD120	AL	110,0	145,0	M8	45,0	69,0	7,0	24,5
PD120	AM	110,0	165,0	M10	38,0	62,0	7,0	17,5
PD120	AN	80,0	100,0	M6	45,0	69,0	7,0	24,5
PD120	AO	95,0	115,0	M8	45,0	69,0	7,0	24,5
PD120	AP	95,0	115,0	M8	31,0	55,0	7,0	10,5
PD120	AQ	95,0	115,0	M6	27,0	51,0	5,5	6,5
PD120	AR	50,0	70,0	M4	27,0	51,0	5,5	6,5
PD155	AA	95,0	115,0	M8	30,0	64,0	6,5	8,5
PD155	AB	95,0	130,0	M8	30,0	64,0	6,5	8,5
PD155	AC	110,0	130,0	M8	30,0	64,0	6,5	8,5
PD155	AD	110,0	145,0	M8	30,0	64,0	6,5	8,5
PD155	AE	110,0	145,0	M8	40,0	74,0	10,0	18,5
PD155	AF	110,0	145,0	M8	45,0	79,0	10,0	23,5
PD155	AG	110,0	165,0	M10	30,0	64,0	6,5	8,5
PD155	AH	130,0	165,0	M10	40,0	74,0	10,0	18,5
PD155	AI	80,0	100,0	M6	30,0	64,0	6,5	8,5
PD155	AJ	130,0	215,0	M12	30,0	64,0	6,5	8,5
PD155	AK	70,0	90,0	M5	30,0	64,0	6,5	8,5
PD190	AA	110,0	145,0	M8	30,0	64,0	6,5	8,5
PD190	AB	110,0	145,0	M8	36,0	70,0	12,5	14,5
PD190	AC	110,0	165,0	M10	30,0	64,0	6,5	8,5
PD190	AD	114,3	200,0	M12	30,0	64,0	6,5	8,5
PD190	AE	114,3	200,0	M12	50,0	84,0	12,5	28,5
PD190	AF	130,0	165,0	M10	30,0	64,0	6,5	8,5
PD190	AG	130,0	165,0	M10	36,0	70,0	12,5	14,5
PD190	AH	130,0	215,0	M12	30,0	64,0	6,5	8,5
PD190	AI	180,0	215,0	M12	30,0	64,0	6,5	8,5
PD190	AJ	180,0	215,0	M12	50,0	84,0	12,5	28,5

Untersetzung ◂ ▸ ratio PD120 - PD190 i	Code code
3	003
4	004
5	005
7	007
10	010
16	016
20	020
25	025
28	028
35	035
40	040
50	050
70	070
100	100
120	120
160	160
200	200
250	250
350	350
500	500
700	700
1.000	999

Bild 3 ◂ ▸ picture 3



D10 und D2 sind Motormaße.

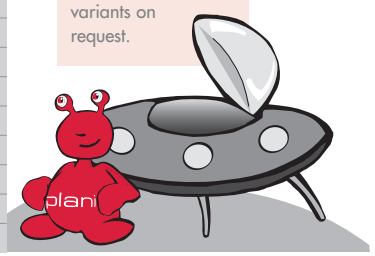
D10 and D2 are motor dimensions.

L1: Mindestlänge bzw. maximal zulässige Länge der Motorwelle.

L1: Minimum length resp. maximum permissible length of motor shaft.

Weitere Wechselflanschvarianten auf Anfrage.

Further adapter flange variants on request.



planetdrive® Bestellbeispiel ◂ ▸ planetdrive® order example

P	D	1	2	0	–	C	A	B	0	2	8	–	1	A	A	0
1	2	3	4	5		6	7	8	9	10	11		12	13	14	15

1-5	Planetengetriebe Baugröße	planetary gear size	Code	PD120
6	Motorwelle	motor shaft	Code	C
7-8	Flanschcode	flange code	Code	AB
9-11	Untersetzung	ratio	Code	028
12	Abtriebswelle genutet	grooved output shaft	Code	1
13-14	Standard-Abtriebsflansch	standard output flange	Code	AA
15	Ausführung	execution	Code	0

PD 040 / PD 065 / PD 085 / PD 120 / PD 155 / PD 190

P	D				–						–	1	A	A	0
1	2	3	4	5		6	7	8	9	10	11	12	13	14	15

Tabelle 18 ◂ ▸ table 18

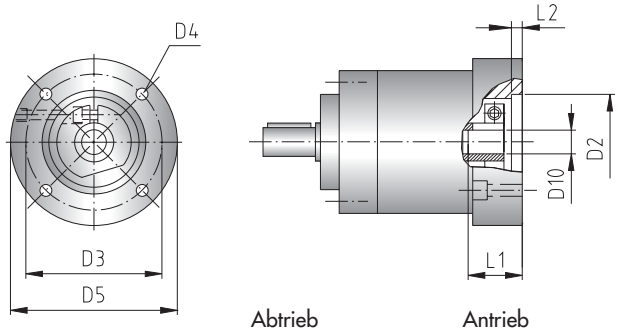
Baugröße size
PD040
PD065
PD085
PD120
PD155
PD190

Baugröße size	D10 [mm]	Motorwellencode motor shaft code
PD040	3	A
PD040	4	B
PD040	5	C
PD040	6	D
PD040	7	E
PD040	8	F
PD040	9	G
PD040	10	H
PD040	11	I
PD065	6	A
PD065	7	B
PD065	8	C
PD065	9	D
PD065	10	E
PD065	11	F
PD065	12	G
PD065	14	H
PD085	9	A
PD085	10	B
PD085	11	C
PD085	12	D
PD085	14	E
PD085	15	F
PD085	16	G
PD085	19	H
PD120	14	A
PD120	15	B
PD120	16	C
PD120	19	D
PD120	22	E
PD120	24	F
PD155	19	A
PD155	22	B
PD155	24	C
PD155	28	D
PD155	32	E
PD190	19	A
PD190	22	B
PD190	24	C
PD190	28	D
PD190	32	E

Baugröße size	Flanschcode flange code	D2 [mm]	D3 [mm]	D4 [mm]	D5 [mm]	L1 min. [mm]	L1 max. [mm]	L2 [mm]	Für Motor-baugröße for motor size
PD040	NA	50,0	65,0	Ø5,5	80,0	10,0	22,0	3,0	IEC 56, B14
PD040	NB	60,0	75,0	Ø5,5	90,0	14,0	26,0	3,0	IEC 63, B14
PD065	NA	50,0	65,0	Ø5,5	80,0	14,0	26,0	4,0	IEC 56, B14
PD065	NB	60,0	75,0	Ø5,5	90,0	14,0	26,0	4,0	IEC 63, B14
PD065	NC	70,0	85,0	Ø6,6	105,0	19,0	30,5	4,0	IEC 71, B14
PD085	NA	50,0	65,0	Ø5,5	85,0	19,0	30,5	4,5	IEC 56, B14
PD085	NB	60,0	75,0	Ø5,5	90,0	19,0	30,5	4,5	IEC 63, B14
PD085	NC	70,0	85,0	Ø6,6	105,0	19,0	30,5	4,5	IEC 71, B14
PD085	ND	80,0	100,0	Ø6,6	120,0	24,0	41,0	4,5	IEC 80, B14
PD120	NB	60,0	75,0	Ø5,5	120,0	23,0	41,0	5,5	IEC 63, B14
PD120	NC	70,0	85,0	Ø6,6	120,0	24,0	41,0	5,5	IEC 71, B14
PD120	ND	80,0	100,0	Ø6,6	120,0	24,0	41,0	5,5	IEC 80, B14
PD120	NE	95,0	115,0	Ø9,0	140,0	27,0	51,0	5,5	IEC 90, B14
PD155	NC	70,0	85,0	Ø6,6	155,0	27,0	51,0	6,5	IEC 71, B14
PD155	ND	80,0	100,0	Ø6,6	155,0	27,0	51,0	6,5	IEC 80, B14
PD155	NE	95,0	115,0	Ø9,0	155,0	27,0	51,0	6,5	IEC 90, B14
PD155	NF	110,0	130,0	Ø9,0	160,0	30,0	64,0	6,5	IEC 100, B14
PD155	NF	110,0	130,0	Ø9,0	160,0	30,0	64,0	6,5	IEC 112, B14
PD190	NC	70,0	85,0	Ø6,6	190,0	30,0	64,0	6,5	IEC 71, B14
PD190	ND	80,0	100,0	Ø6,6	190,0	30,0	64,0	6,5	IEC 80, B14
PD190	NE	95,0	115,0	Ø9,0	190,0	30,0	64,0	6,5	IEC 90, B14
PD190	NF	110,0	130,0	Ø9,0	190,0	30,0	64,0	6,5	IEC 100, B14
PD190	NF	110,0	130,0	Ø9,0	190,0	30,0	64,0	6,5	IEC 112, B14

Untersetzung ◂ ▸ ratio PD040 i	 PD065 - PD190 i	Code code
	3	003
4	4	004
5	5	005
7	7	007
9		009
	10	010
16	16	016
20	20	020
25	25	025
28	28	028
35	35	035
	40	040
49		049
	50	050
64		064
	70	070
80		080
100	100	100
	120	120
140		140
	160	160
175		175
	200	200
245		245
	250	250
343		343
	350	350
	500	500
	700	700
729		729
	1.000	999

Bild 4 ◂ ▸ picture 4



D10 und D2 sind Motormaße.

D10 and D2 are motor dimensions.

L1: Mindestlänge bzw. maximal zulässige Länge der Motorwelle.

L1: Minimum length resp. maximum permissible length of motor shaft.

planetdrive® Bestellbeispiel ◂ ▸ planetdrive® order example

P	D	0	4	0	–	G	N	A	0	0	5	–	1	A	A	0
1	2	3	4	5		6	7	8	9	10	11		12	13	14	15

1-5	Planetengetriebe Baugröße	planetary gear size	Code	PD040
6	Motorwelle	motor shaft	Code	G
7-8	Flanschcode	flange code	Code	NA
9-11	Untersetzung	ratio	Code	005
12	Abtriebswelle genutet	grooved output shaft	Code	1
13-14	Standard-Abtriebsflansch	standard output flange	Code	AA
15	Ausführung	execution	Code	0

PD 040 / PD 065 / PD 085 / PD 120 / PD 155 / PD 190

Bild 5 ◂ ▸ picture 5

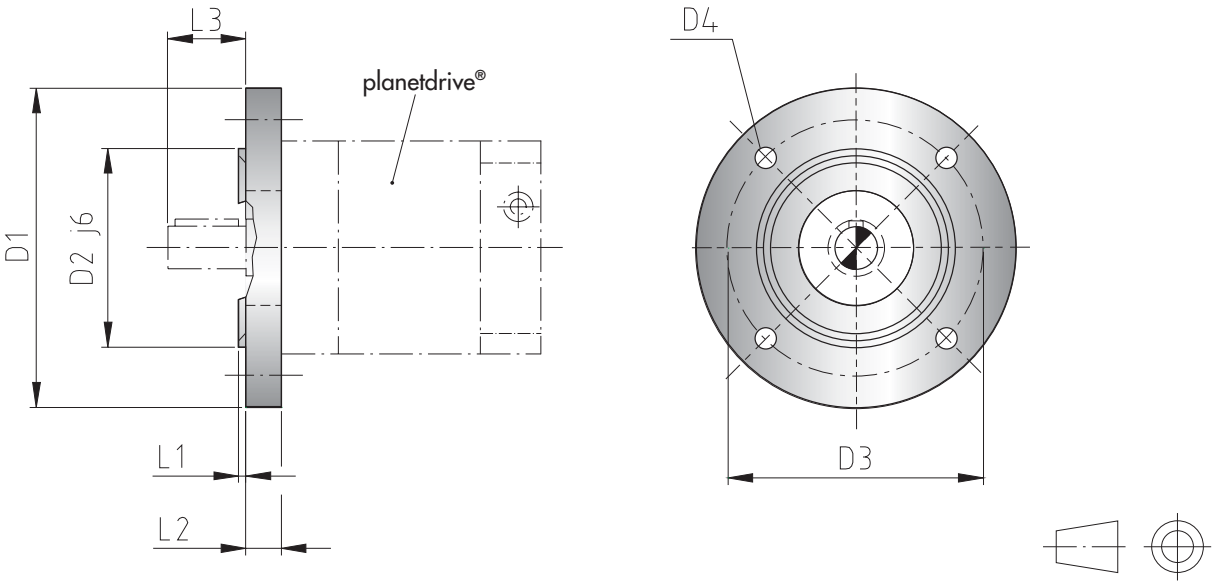


Tabelle 19 ◂ ▸ table 19

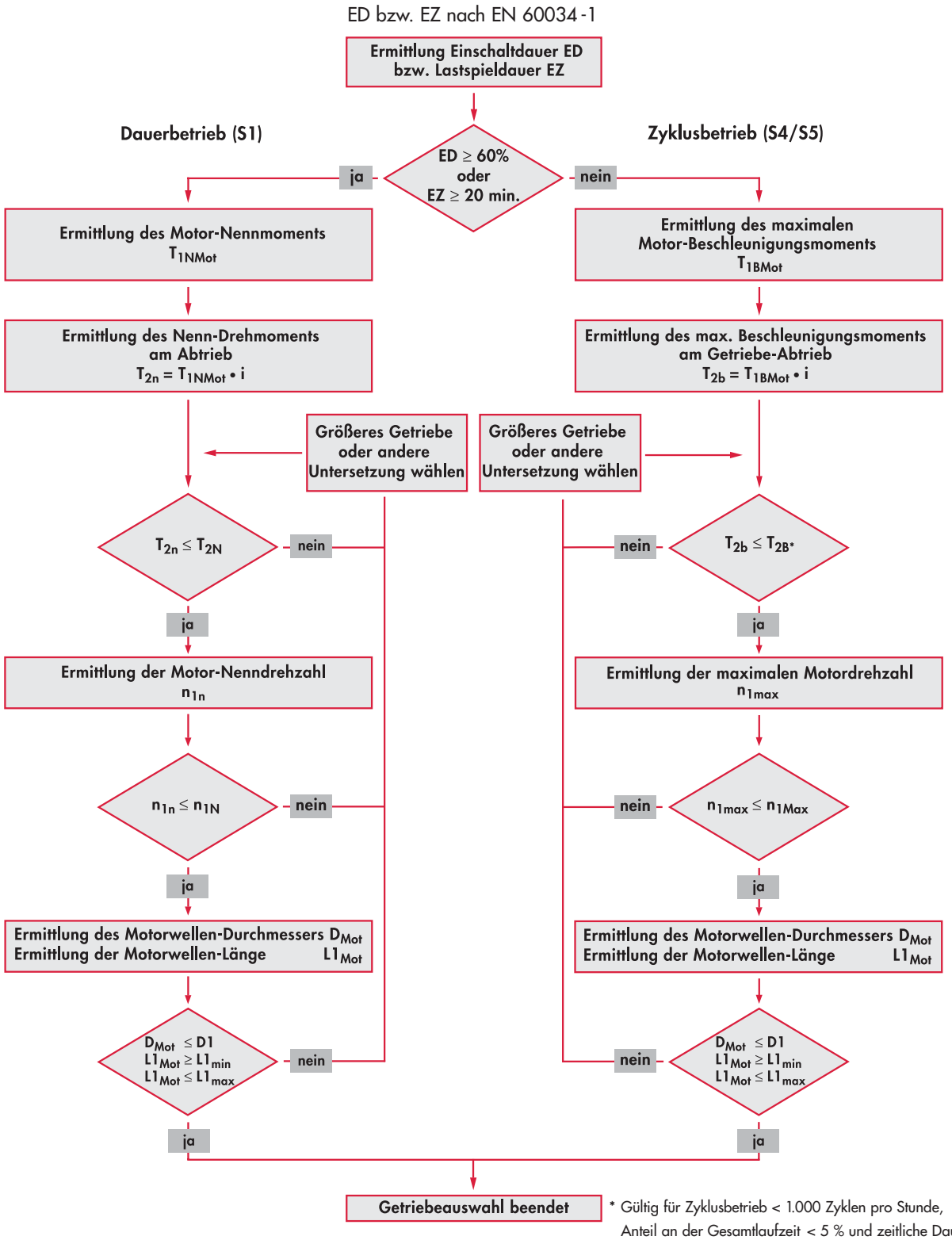
Baugröße	IEC-Flansch-Typ		Flanschmaße							
size	IEC flange type		flange dimensions							
	B5	B14	D1	D2	D3	L1	L2	L3	D4/B5	D4/B14
PD040	B5-Ø80	B14-Ø80	80	50	65	2,5	6	23	Ø5,5	M5
	B5-Ø90	B14-Ø90	90	60	75	2,5	6	23	Ø5,5	M5
PD065	B5-Ø90	B14-Ø90	90	60	75	2,5	9	30	Ø5,5	M5
	B5-Ø105	B14-Ø105	105	70	85	3	9	30	Ø6,6	M6
	B5-Ø120	B14-Ø120	120	80	100	3	9	30	Ø6,6	M6
	B5-Ø160	B14-Ø160	160	110	130	3,5	9	30	Ø9,0	M8
PD085	B5-Ø120	B14-Ø120	120	80	100	3	9	40	Ø6,6	M6
	B5-Ø160	B14-Ø160	160	110	130	3,5	9	40	Ø9,0	M8
PD120		B14-Ø160	160	110	130	3,5	11	50		M8
	B5-Ø200	B14-Ø200	200	130	165	3,5	11	50	Ø11	M10
PD155		B14-Ø200	200	130	165	3,5	15	80		M10
	B5-Ø250	B14-Ø250	250	180	215	4	15	80	Ø14	M12
PD190		B14-Ø250	250	180	215	4	17	100		M12
	B5-Ø300	B14-Ø300	300	230	265	4	17	100	Ø14	M12

Alle Maße in mm ◂ ▸ all dimensions in mm

Weitere Abtriebsflansche auf Anfrage ◂ ▸ other output flanges on request

Ob ein Getriebe für den Anwendungsfall geeignet ist, kann durch den Vergleich der maximal möglichen Motormomente und der Getriebedaten schnell und sicher ermittelt werden.

Falls die maximal möglichen Motormomente die zulässigen Werte des gewünschten Getriebes überschreiten, ist eine Nachrechnung über die tatsächlich vom Anwender benötigten Drehmomente durchzuführen.

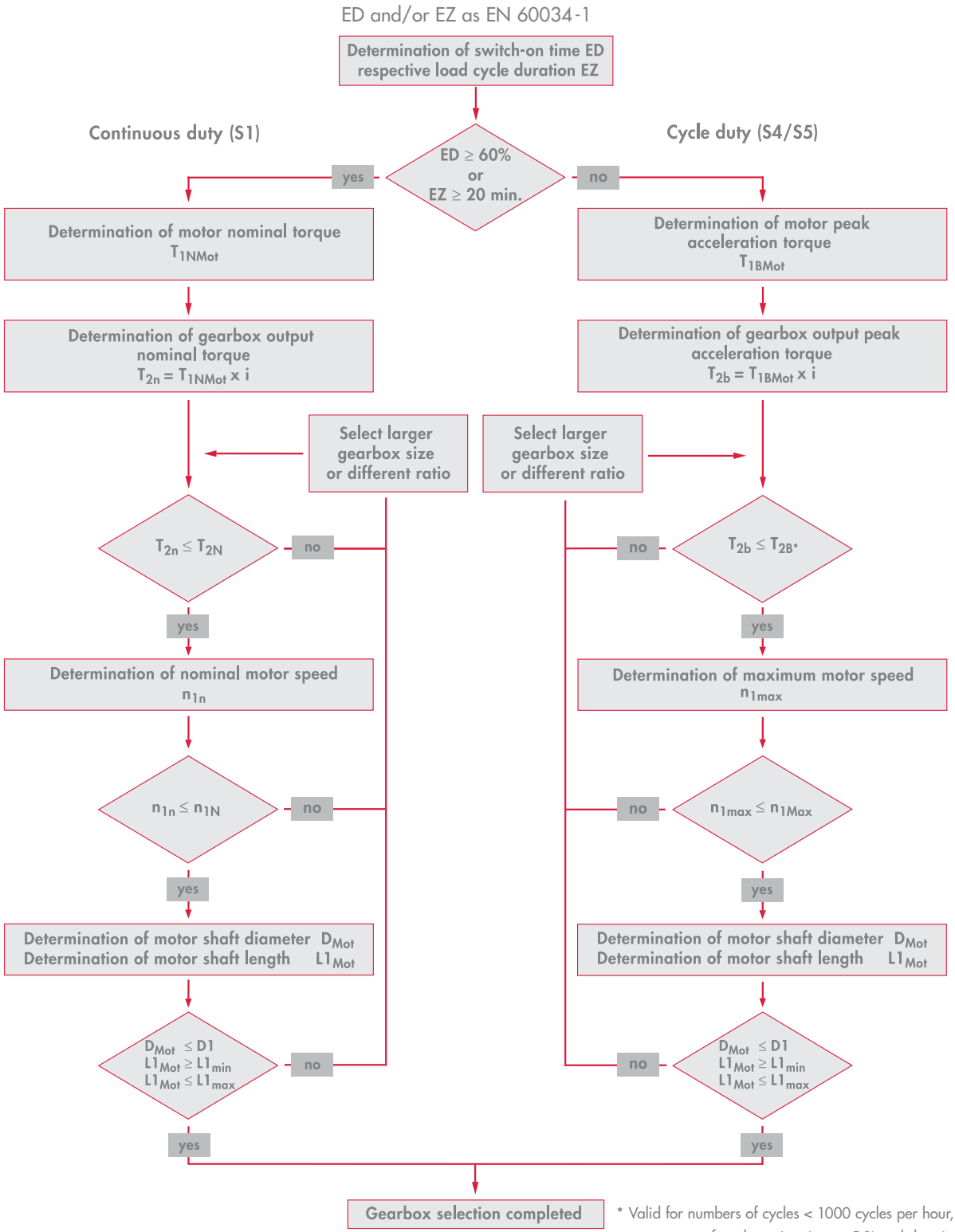


* Gültig für Zyklusbetrieb < 1.000 Zyklen pro Stunde, Anteil an der Gesamtlaufzeit < 5 % und zeitliche Dauer des Impulses < 0,3 sec.

T_{1NMot}	Nennmoment (aus Motordaten)	n_{1n}	Motor-Nenndrehzahl (aus Motordaten)	D_{Mot}	Motorwellen-Durchmesser (aus Motordaten)
T_{1BMot}	Beschleunigungsmoment (aus Motordaten)	n_{1N}	Nenn-Eingangsdrehzahl (Katalogangabe)	D1	Motorwellen-Durchmesser (Katalogangabe)
T_{2n}	Nenn-Drehmoment am Getriebe-Abtrieb	n_{1max}	Maximale Motordrehzahl (aus Motordaten)	$L1_{Mot}$	Länge Motorwelle (aus Motordaten)
T_{2b}	Beschleunigungsmoment am Getriebe-Abtrieb	n_{1Max}	Max. zul. Eingangsdrehzahl (Katalogangabe)	$L1_{min}$	Mindestlänge der Motorwelle (Katalogangabe)
T_{2N}	Abtriebsdrehmoment (Katalogangabe)	i	Untersetzung	$L1_{max}$	Maximal zulässige Länge der Motorwelle (Katalogangabe)
T_{2B*}	Beschleunigungsmoment (Katalogangabe)				

The quickest and most reliable method to determine the appropriate gearbox size for a specific application, is a comparison of motor peak torque with gearbox data.

In case the motor peak torque exceeds the permitted gearbox values, a calculation based on the actual application specific torque is required.



* Valid for numbers of cycles < 1000 cycles per hour, percentage of total running time < 5 % and duration of impulse less than 0.3 sec.

T_{1NMot}	nominal torque (from motor data)	n_{1n}	rated speed of motor (from motor data)	D_{Mot}	motor shaft diameter (from motor data)
T_{1BMot}	acceleration torque (from motor data)	n_{1N}	rated input speed (from catalog)	D1	motor shaft diameter (from catalog)
T_{2n}	nominal torque on gearbox output side	n_{1max}	maximum motor speed (from motor data)	$L1_{Mot}$	motor shaft length (from motor data)
T_{2b}	acceleration torque on gearbox output side	n_{1Max}	maximum perm. input speed (from catalog)	$L1_{min}$	minimum length of motor shaft (from catalog)
T_{2N}	nominal output torque (from catalog)	i	ratio	$L1_{max}$	maximum length of motor shaft (from catalog)
T_{2B*}	acceleration torque (from catalog)				

Zum Ende unserer Reise durch den planetdrive® Katalog hier noch ein paar nützliche Hinweise:

Before ending our journey through this planetdrive® catalog, here is some additional useful information:

Die Montage des planetdrive® an den Motor ist schnell und einfach durchzuführen. Sie sollte in vertikaler Lage erfolgen, um die Vorteile des zentrierlosen Flansches sowie die Selbstzentrierungseigenschaften über das Klemmelement zu nutzen.

The assembly of planetdrive® to the motor is fast and easily accomplished. It should be made in a vertical position in order to take advantage of the centerless flange as well as the self-centering characteristics of the clamping element.

Eine übersichtliche Montageanleitung liegt generell jedem Getriebe bei und ist somit automatisch an dem Ort, an dem sie auch benötigt wird.

Assembly instructions are included with each unit.

Umrechnungstabelle für verschiedene Einheiten:

Conversion table for different values:

1 mm	◂▸	0,0394 in
1 N	◂▸	0,225 lbf
1 kg	◂▸	2,205 lb
1 Nm	◂▸	8,851 in lb
1 kgcm^2	◂▸	8,85 •10^{-4} in lb s^2

Informieren Sie sich bitte auch über die anderen planetroll® Produkte:

Please be aware of other planetroll® products:

planomaster® (Regelgetriebe)	◂▸	planomaster® (variable-speed gear)
planotronic® (Getriebesteuerung)	◂▸	planotronic® (drive control)
planoTorque® (Drehmomenterfassung)	◂▸	planoTorque® (torque collection)
spielarme Planetengetriebe	◂▸	low-backlash planetary gears
Getriebemotoren	◂▸	geared motors
Feinstregelgetriebe	◂▸	high-precision variable-speed gears
Sondergetriebe (für kundenspezifische Lösungen)	◂▸	special gears (for customized solutions)

Alle wichtigen Informationen zu diesen Produkten wie zu planetroll® selbst, erhalten Sie im Internet unter
www.planetroll.de
www.planetroll.com

Visit our website for other important information concerning planetroll® and its products
www.planetroll.de
www.planetroll.com

Sie erreichen uns auch über Telefon
+49 (0) 700 planetroll,
+49 (0) 700 7526387655

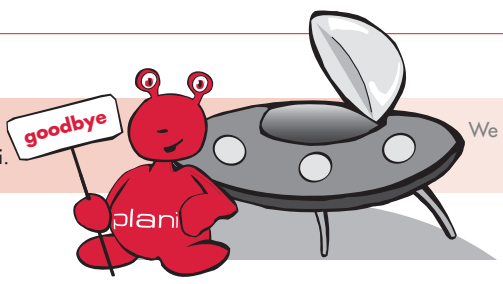
phone number:
+49 (0) 700 planetroll,
+49 (0) 700 7526387655

Für Fragen und Anregungen Ihrerseits stehen wir Ihnen jederzeit gerne zur Verfügung. Sie erreichen uns und unsere Vertretungen telefonisch, per Fax oder E-Mail.

Should you have any additional questions we are happy to help you in any way possible. Please contact us, or our representatives, by phone, fax or e-mail.

Zertifiziert nach DIN EN ISO 9001:2000 ◂▸ Certified according to DIN EN ISO 9001:2000

Für Sie alles Gute und auf ein baldiges Wiedersehen – Ihr plani.



We wish all the best for you and are looking forward to meet you again soon – your plani.

Firmensitz
headquarters
Munderkingen ◂▸ Germany

planetroll GmbH & Co. KG
Brunnenbergstraße 11-13
D-89597 Munderkingen
Telefon: +49(0)73 93/95 18-0
Telefon: +49(0)700 planetroll
Telefax: +49(0)73 93/95 18-98
E-Mail: office@planetroll.de
www.planetroll.de
www.planetroll.com

Georg Vieweger
Sales Engineer
Telefon: +49(0)73 93/95 18-30
Telefax: +49(0)73 93/95 18-98
E-Mail: gvieweger@planetroll.de

Bernhard Häußler
Sales Engineer
Telefon: +49(0)73 93/95 18-31
Telefax: +49(0)73 93/95 18-98
E-Mail: bhaeussler@planetroll.de

Alfons Stankalla
Sales Engineer
Telefon: +49(0)73 93/95 18-32
Telefax: +49(0)73 93/95 18-98
E-Mail: astankalla@planetroll.de

Regina Ziegner
Sales Department
Telefon: +49(0)73 93/95 18-35
Telefax: +49(0)73 93/95 18-98
E-Mail: rziegner@planetroll.de

Margit Lorinser
Sales Department
Telefon: +49(0)73 93/95 18-34
Telefax: +49(0)73 93/95 18-98
E-Mail: mlorinser@planetroll.de

Deutschland
Germany

Dipl.-Ing. (FH) Wilfried Haberer
Büro für Antriebstechnik
Karlsbader Straße 10
78052 VS-Villingen
Telefon: +49(0) 77 21/7 30 97
Mobil: +49(0) 175/2 24 49 65
Telefax: +49(0) 77 21/7 30 98
E-Mail: wilfried.haberer@t-online.de

KW Antriebs-
& Automationstechnik GmbH
Koberger Straße 41
90408 Nürnberg
Telefon1: +49(0) 911/3 66 38 88
Telefon2: +49(0) 911/3 66 38 89
Mobil1: +49(0) 172/8 10 47 72
Mobil2: +49(0) 172/8 12 34 44
Telefax: +49(0) 911/3 66 38 90
E-Mail: kw.antriebstechnik@t-online.de
www.kw-antriebstechnik.de

INFRA-ANTRIEBE
HANS NELK GMBH
Alter Kirchpfad 6a
32657 Lemgo
Telefon: +49(0) 52 61/34 45
Mobil 1: +49(0) 171/5 24 86 74
Mobil 2: +49(0) 160/6 31 91 97
Telefax: +49(0) 52 61/1 56 41
E-Mail: info@infra-antriebe.de
www.infra-antriebe.de

IBW INGENIEURBÜRO WEBER
Unterstraße 8
37351 Silberhausen
Telefon: +49(0) 3 60 75/6 28 48
Mobil: +49(0) 172/8 03 22 61
Telefax: +49(0) 3 60 75/6 28 23
E-Mail: ingenieurbuero.weber@epost.de

ATV Antriebstechnik Vogelskamp e. K.
Heinrich-Heine-Straße 31
42489 Wülfrath
Telefon: +49(0) 20 58/89 55 10
Mobil: +49(0) 160/96 83 61 52
Telefax: +49(0) 20 58/89 55 11
E-Mail: info@vogelskamp.de

ps antriebstechnik GmbH
Zum Grenzgraben 29
76698 Ubstadt-Weiher
Telefon: +49(0) 72 51/96 28-0
Telefax: +49(0) 72 51/96 28-28
E-Mail: peter.schmidt@ps-antriebstechnik.de
E-Mail: tino.schmidt@ps-antriebstechnik.de
www.ps-antriebstechnik.de

International
international

AXIS-Aandrijvingen BV
Coenecoop 133
2741 PJ WADDINXVEEN
NETHERLANDS
phone: +31 (182) 64 70 70
fax: +31 (182) 63 26 32
e-mail: info@axisgear.nl
www.axis-stuifmeel.nl

VEKTOR AG
Chriesbaumstraße 4
8604 VOLKETSWIL
SWITZERLAND
phone: +41 (1) 9 46 06 60
fax: +41 (1) 9 45 55 10
e-mail: info@vektor.ch
www.vektor.ch

REGAL A/S
Industrivej 4
4000 ROSKILDE
DENMARK
phone: +45 (46) 77 70 00
fax: +45 (46) 75 76 20
e-mail: regal@regal.dk
www.regal.dk

IBERACERO, S.L.
headquarters: BILBAO
Ribera de Elorrieta, 5
48015 BILBAO
SPAIN
phone: +34 (94) 4 74 54 44
fax: +34 (94) 4 47 09 88
e-mail: bilbao@iberacero.es
www.iberacero.es
further offices in:
BARCELONA
MADRID
VIGO

IBERACERO, S.L.
Zona, Industrial Maia I Lote 45
4475-132 Gemunde – Maia
(PORTO)
PORTUGAL
phone: +351 (22) 9 47 90 20
fax: +351 (22) 9 47 90 29
e-mail:
iberacero@mail.telepac.pt

AC&DC POWERDRIVES
(OEM) LTD
Unit 43 Britannia Way
Enterprise Industrial Estate,
LICHFIELD,
STAFFORDSHIRE WS14 9UY
GREAT BRITAIN
phone: +44 (15 43) 25 59 95
fax: +44 (15 43) 25 03 16
e-mail: acdcpowerdrives@aol.com
www.acdcpowerdrives.co.uk

BINDER MAGNETIC
1, allée des Barbanniers
92632 GENNEVILLIERS-CEDEX
FRANCE
phone: +33(0) 1 46 13 80 80
fax: +33(0) 1 46 13 80 99
e-mail: info@binder-magnetic.fr
www.binder-magnetic.fr

ANDANTEX S.p.A.
Via F.lli di Dio 2/A
20063 CERNUSCO SUL NAVIGLIO
(MILANO)
ITALY
phone: +39(02) 92 17 09-1
fax: +39(02) 92 10 04 55
e-mail: andmec@andantex.it
www.andantex.it

MEKANEX Maskin AB
Dalvägen 20 A
169 56 SOLNA
SWEDEN
phone: +46(0) 8 705 96 60
fax: +46(0) 8 27 06 87
e-mail: info@mekanex.se
www.mekanex.se

MEKANEX OY
Sorronrinne 12, PL 30
08501 LOHJA AS.
FINLAND
phone: +358(0) 19 32 831
fax: +358(0) 19 383 803
e-mail: info@mekanex.fi
www.mekanex.fi

DIEQUA CORPORATION
180, Covington Drive
Bloomingdale, IL 60108-3105
USA
phone: +1(630) 9 80 11 33
fax: +1(630) 9 80 12 32
e-mail: info@diequa.com
www.diequa.com

YAMAKYU CHAIN CO., LTD.
15-16, 2-Chome
Takanawa, Minato-Ku
TOKYO 108
JAPAN
phone: +81(3) 4 45 85 11
fax: +81(3) 4 45 85 26
e-mail: inter@yamakyu.co.jp
www.yamakyu.co.jp

planetroll®
the driving power

planetroll GmbH & Co. KG
Brunnenbergstraße 11-13
D-89597 Munderkingen
E-Mail: office@planetroll.de

Telefon: +49(0)73 93/95 18-0
oder: +49(0)700 planetroll
Telefax: +49(0)73 93/95 18-98
http://www.planetroll.de

planetdrive®

…das Ding mit dem roten Ring ◂ ▸ the thing with the red ring

Katalog PD Nr. 05/04-01_10
catalog PD no. 05/04-01_10