

# Stainless-steel planetary gearheads



planetdrive<sup>®</sup> VPD

# About planetroll® – Ideas are the driving force

Since 1976, we have been gaining new momentum with forward-looking ideas and products, and setting new benchmarks in our markets. Today we are successfully engaged in two business areas.

In **power transmission technology**, we are one of the world's leading manufacturers of variable-speed gearboxes for use in explosion-proof areas according to ATEX 95. Furthermore, we develop and produce planetary gearheads in standard and special versions.

In the **stirring technology sector**, our customers benefit from our decades of experience in the

development and design of stirrer drive units. As a system supplier and specialist in the Ex-range, here we plan, develop and build complete solutions for plants – from consultancy, through design, construction and manufacturing, to the installation and commissioning of the stirrers.

For both business areas, we offer a wide range of the best tried-and-tested products. With our expert knowledge, good ideas and considerable flexibility, we would be particularly glad to develop application-specific solutions for you. Set us a task – you will be convinced by the quality of our solutions and products.

## planetdrive® VPD Stainless-steel planetary gearhead

### The decisive advantages of the planetdrive® VPD series

High reliability, flexible mounting system in proven **planetroll®** quality.

High-performance stainless-steel planetary gearheads for demanding hygiene and corrosion-prevention requirements in consideration of GMP, FDA, BISSC and NSF/USDA-H1 standards.

#### Properties

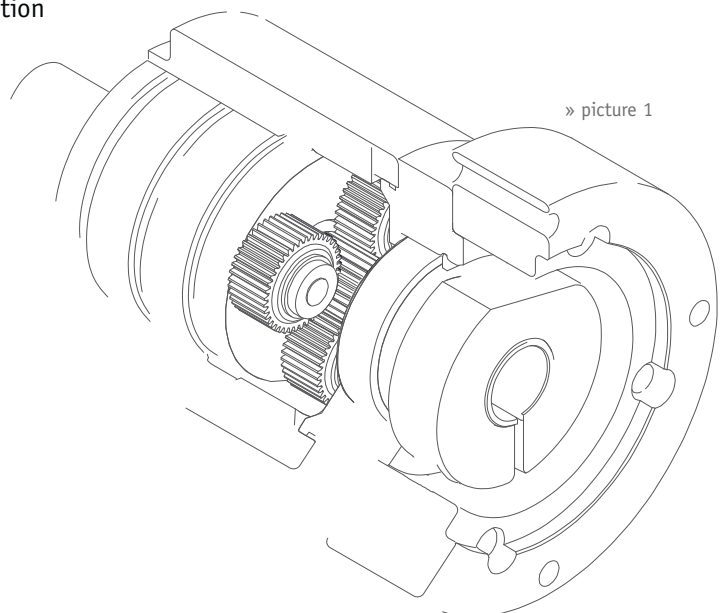
- Smooth housing, easy to clean
- High level of efficiency
- High radial forces
- Low torsional backlash
- 3 installation sizes
- Configured for all mounting positions
- Simple motor mounting by clamping ring technology
- Adapted for intermittent and continuous operation
- Output torques up to 210 Nm
- Service life > 20.000 h
- Maintenance-free
- Lifetime grease lubrication
- Suitable for use in foodstuffs ("food-grade")

#### Special technology

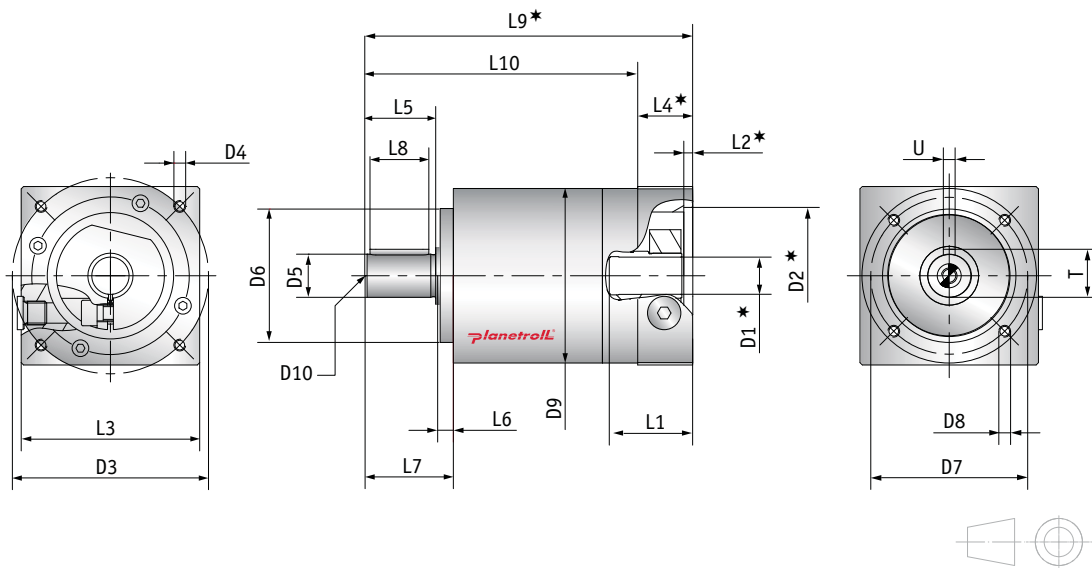
- Real stainless-steel planetary gearheads
- Housing made of 1.4301
- No nickel-plated or anodized housing parts
- Finished surfaces
- Rotary shaft washer with high resistance
- Adapter flange system
- Axial expansion compensation
- Lubricant NSF/USDA-H1 registered

#### Areas of application

- Food industry
- Pharmaceutical industry
- Chemical industry
- Packaging industry and many more



» picture 2



» All dimensions in mm

» table 1

Size	VPD070		VPD090		VPD125							
	1	2	1	2	1	2						
Reduction stages	1	2	1	2	1	2						
D1 Hollow shaft Ø	max. 14		max. 19		max. 24							
D2 Centering Ø	* Dimensions depend on motor connection dimensions											
D3 Hole circle Ø												
D4 Thread/Bore												
D5 Output shaft Ø	16 k6		22 k6		32 k6							
D6 Centering Ø	52 h7		68 h7		90 h7							
D7 Hole circle Ø	62		80		108							
D8 Thread	M5 x 10		M6 x 12		M8 x 16							
D9 Housing Ø	69		89		124							
D10 DIN 332	DM5		DM8		DM12							
L1 Motor shaft length	* Dimensions depend on motor connection dimensions											
L2 Centering depth												
L3 Flange dimension												
L4 Flange width												
L5 Shaft length							28		36		58	
L6 Centering collar							6		8		10	
L7 Installation dimension	35		45		70							
L8 Key length	22		30		50							
L9 Total length	* 135	* 159	* 167	* 198	* 215	* 251						
L10 Gearhead length	112	136	139	170	184	220						
U Key width	5		6		10							
T Height over key	18,0		24,5		35							

» table 2

Power values		Size				
		Ratio i	Reduction stages	VPD 070	VPD 090	VPD 125
Nominal output torque	$T_{2N}$ [Nm]	5	1	16	45	110
		10	1	14	35	80
		25	2	21	58	110
		50	2	21	58	110
		100	2	16	35	85
max. accelerating torque ①	$T_{2B}$ [Nm]	5	1	32	90	210
		10	1	25	70	160
		25	2	40	105	210
		50	2	40	105	210
		100	2	29	70	160
Emergency stop torque ②	$T_{2NOT}$ [Nm]	5	1	48	135	330
		10	1	42	105	240
		25	2	63	174	330
		50	2	63	174	330
		100	2	48	105	255
Moment of inertia	$I_1$ [kgcm <sup>2</sup> ]	5	1	0,314	1,36	2,68
		10	1	0,299	1,27	2,39
		25	2	0,311	1,35	2,67
		50	2	0,299	1,26	2,39
		100	2	0,298	1,20	2,39
Torsional backlash	[arcmin]	5 / 10	1	12	10	10
		25 / 50 / 100	2	15	15	15
Torsional rigidity	$C_t$ [Nm/arcmin]	5 / 10	1	2,8	5,5	12
		25 / 50 / 100	2	3,5	6,8	15
Efficiency ③	$\eta$ [%]	5/ 10	1	97	96	96
		25 / 50 / 100	2	94	94	94
Nominal input speed	$n_{1N}$ [rpm]	5/ 10	1	3000	3000	3000
		25 / 50 / 100	2			
Maximum input speed	$n_{1MAX}$ [rpm]	5/ 10	1	6000	6000	6000
		25 / 50 / 100	2			

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

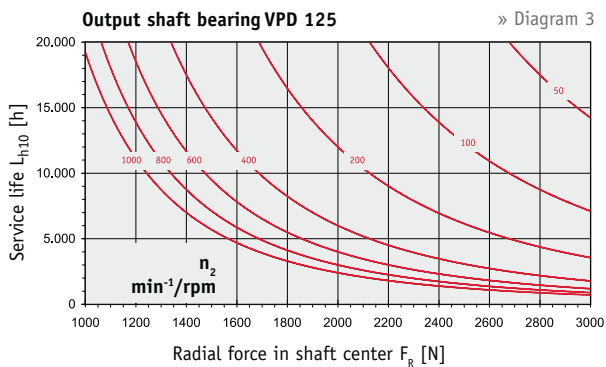
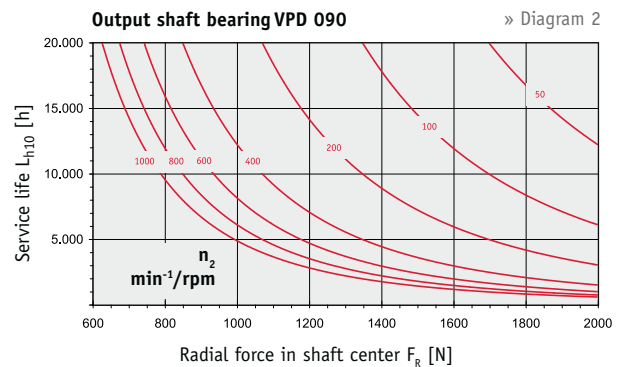
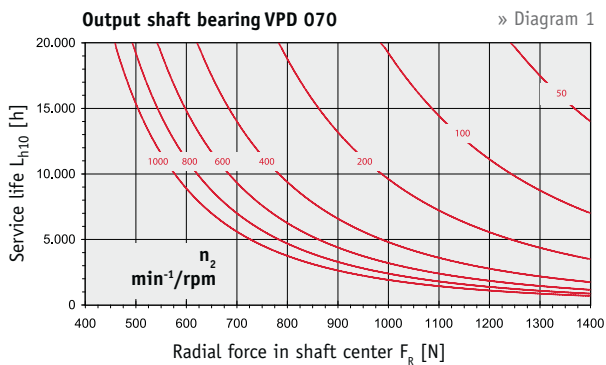
- ① Up to a maximum of 1,000 cycles per hour.  $T_{2B}$  portion of the total running time < 5 %
- ② Up to a maximum of 1,000 times permissible during gearhead service life
- ③ With full load
- ④ Based on output shaft center and  $n_2 = 100$  rpm
- ⑤ Housing surface temperature
- ⑥ Determined at 1 m distance and nominal input speed, without load

DETAILED POWER VALUE  
INFORMATION

VPD 070 / VPD 090 / VPD 125

» table 3

Power values		Size			
		VPD 070	VPD 090	VPD 125	
Permissible radial force ④		$F_R$ [N]	980	1350	2100
Permissible axial force ④		$F_A$ [N]	1600	3400	6000
Operating temperature ⑤		$\vartheta$ [°C]	- 25 bis + 90 / short-term + 120		
Lubrication			Lifetime grease lubrication NSF/USDA-H1 registered		
Weight approx.	1-stage	m [kg]	3,0	5,4	11,2
	2-stage		3,5	6,4	13,4
Mounting positions			User-defined		
Protective system			IP65		
Running noise ⑥		$L_p$ [dB (A)]	<68		
Service life		$L_h$ [h]	20.000		
Clamping screw			M5	M8	
Tightening torque of clamping screw		$M_A$ [Nm]	8,3	43	
Flange accuracy			DIN 42955 - N		
Gearhead surface			Stainless steel 1.4301 - X5CrNi18-10 (DIN)		



# planetroll® power transmission technology at a glance

planetroll® offers you a broad range of solutions and products for all your tasks in the power transmission technology sector. Here you will find an

overview of our standard products. We would be pleased to give you technical advice or send you special technical product documents.

## plaromaster®

### Variable speed gearboxes plaromaster® MR

plaromaster® MR are the world's leading variable-speed gearboxes in the explosion-proof area according to ATEX 95. They use the principle of rolling balls and are infinitely adjustable from and to zero speed, even with the highest starting or breakaway torques. They can be operated remotely by means of a hand wheel, or electrically. Due to the characteristics of the system, they cannot slip through – complex and costly ATEX external monitoring is not necessary.



» picture 3



» picture 4

## plarotronic®

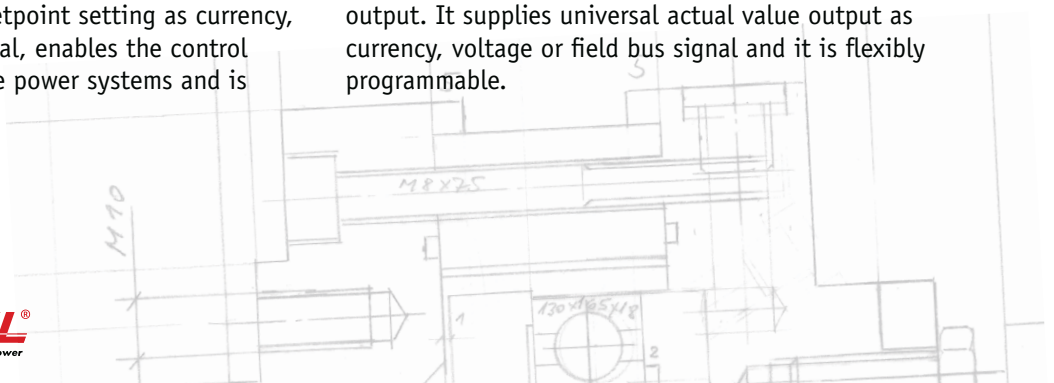
### Electronic speed control plarotronic®

plarotronic® is the precise electronic speed control for plaromaster® variable-speed gearboxes and combines the advantages of mechanical gear reduction with those of electrical systems. It processes universal setpoint setting as currency, voltage or field bus signal, enables the control of motors in stand-alone power systems and is flexibly programmable.

## plaroTorque®

### Electronic torque meter plaroTorque®

plaroTorque® presents a unique system of its kind in the world in combination with the plaromaster® variable-speed gearboxes. plaroTorque® electronically determines the real torque available on gearbox output. It supplies universal actual value output as currency, voltage or field bus signal and it is flexibly programmable.



# planetdrive®

## Planetary gearheads planetdrive® PD

planetdrive® PD is the well-established planetary gearhead from **planetroll®**. It is characterized by first-class reliability, a flexible mounting system, short delivery times and a very attractive price. The planetdrive® PD planetary gearheads are self-centring, equipped with an adapter flange system and axial length compensation, and are also maintenance-free thanks to lifetime lubrication.



» picture 5



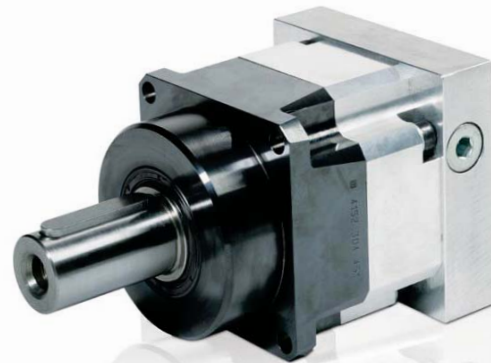
» picture 6

## Stainless-steel planetary gearheads planetdrive® VPD

planetdrive® VPD are high-powered stainless-steel planetary gearheads, which are used in the food, chemical and pharmaceutical industries, for instance. They combine the advantages of the planetdrive® PD construction series, are made of stainless-steel and impress with their smooth, dead-space-free and easy-to-clean surface. They are filled with an NSF/USDA-H1 approved lubricant.

## Low-backlash planetary gearheads planetdrive® PDH

The single-stage and double-stage low-backlash planetary gearheads from **planetroll®** ensure a minimum torsional backlash and enormous torsional rigidity for the highest precision and dynamics. Furthermore, they offer high radial forces, extremely high resistance against tilt, perfect control precision and extremely low-noise running thanks to an optimized tooth form.



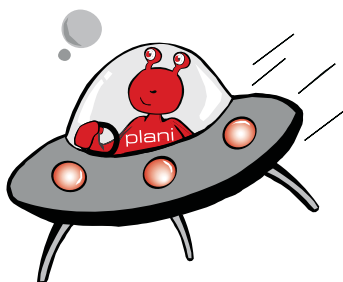
» picture 7

You can also obtain the following from planetroll®

- Servo control engineering
- Geared motors
- Special gearboxes for customized solutions

Our standards:

- ATEX compliant for zone 1 and 21
- GMP, FDA, BISSC, NSF/USDA-H1 compliant
- Silicone-free versions



## Contact

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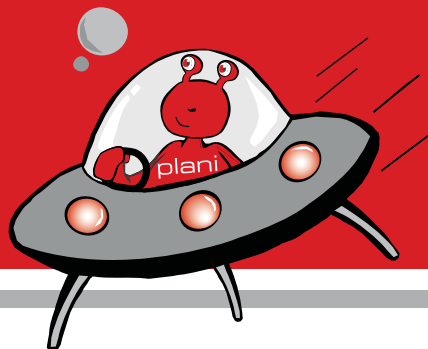
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Power transmission technology – quality in stainless-steel design

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