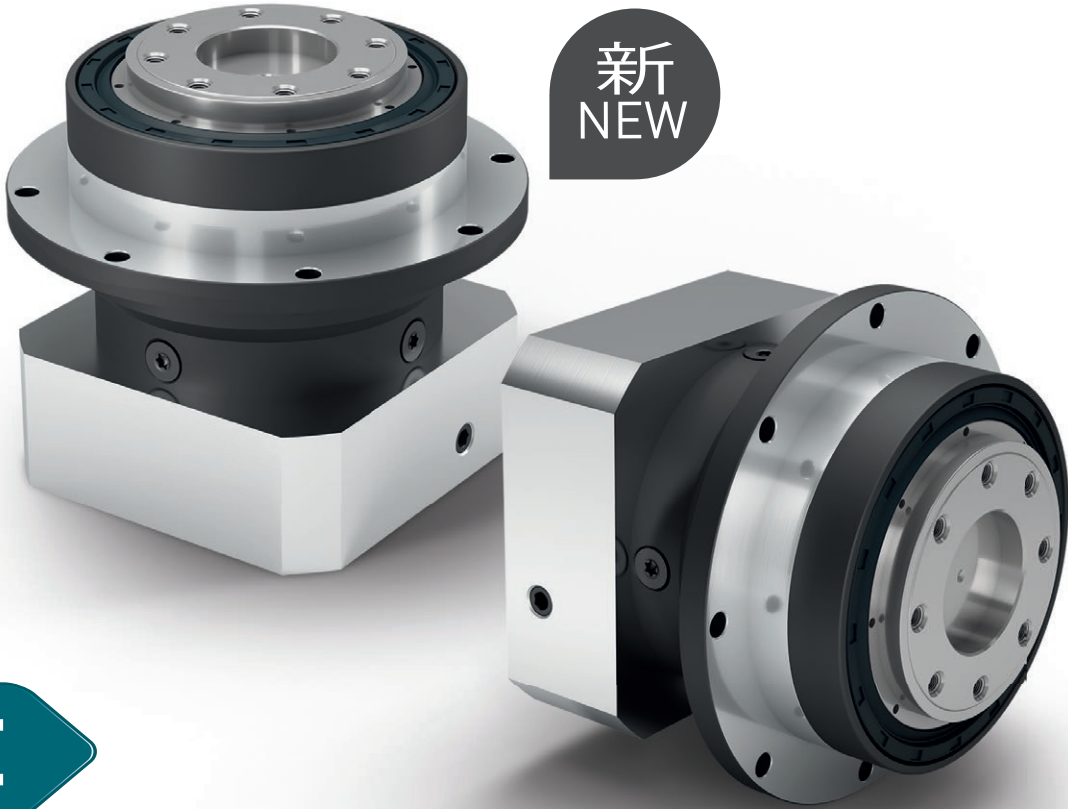


新
NEW



PFHE

用于高负载的法兰输出轴式行星减速机

PFHE是一种极具吸引力的产品，适用于高径向负载应用。这种特殊的、预胀紧的角接触滚子轴承，搭配符合 EN ISO 9409-1 标准的法兰输出轴，使得 PFHE 的承载能力极高。借助径向轴密封，这种减速机的输出端的防护等级达到 IP65，因此能够胜任严苛的使用环境。

The planetary gearbox with flange output shaft for high-load applications

The PFHE represents an economically attractive alternative for high-load applications in which high radial loads occur. The combination of special pre-stressed inclined roller bearings and a flanged output shaft in accordance with EN ISO 9409-1 gives the PFHE a very high load capacity. Thanks to the radial shaft seal that is used, this gearbox achieves protection class IP65 at the output side and can therefore also withstand adverse usage conditions.

额定扭矩
Nominal output torque **15 - 260 Nm**

回程间隙
Torsional backlash **7 - 12 arcmin**

倾斜力矩
Tilting moment **110 - 407 Nm**

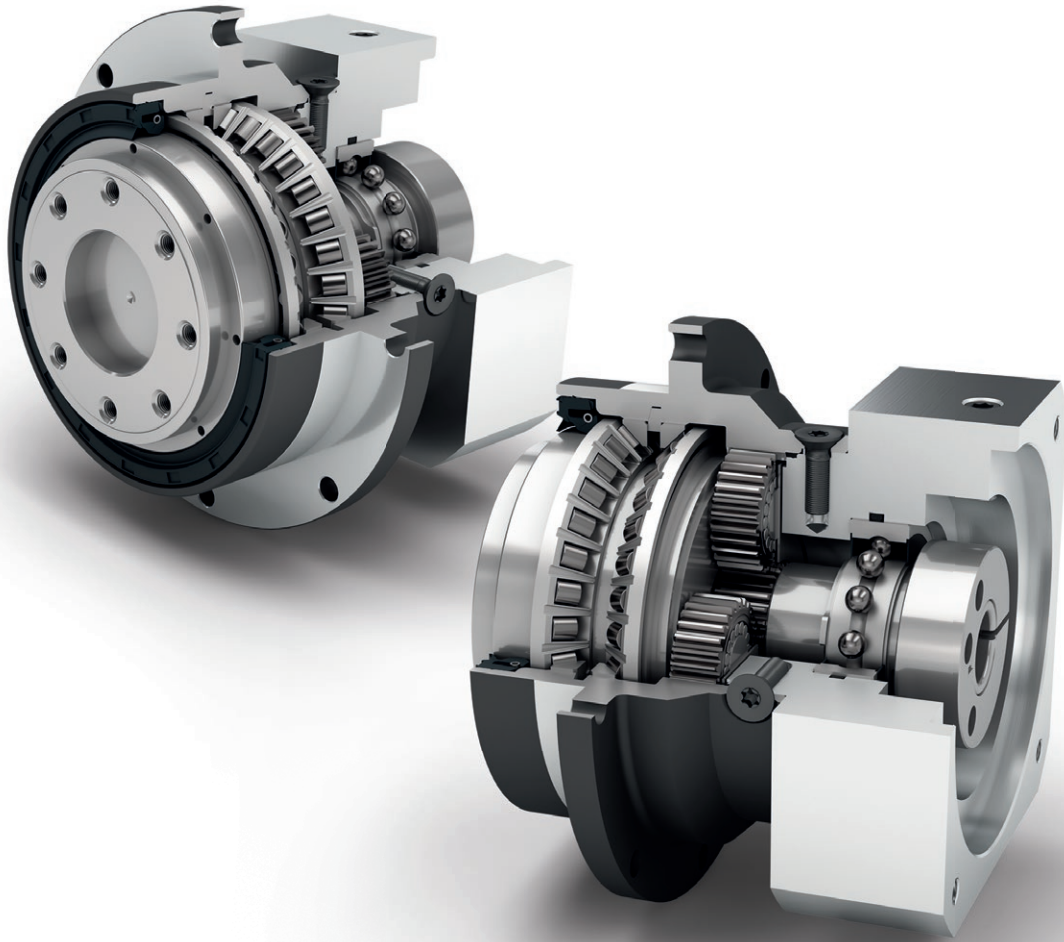
防护等级
Protection class **IP65**

结构尺寸
Frame sizes

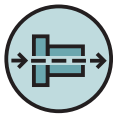
64

90

110



Economy Line
Economy Line



同轴减速机
Coaxial gearbox



直齿
Spur gear



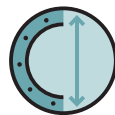
预先拉紧的角接触滚子轴承
Preloaded angular contact roller bearings



法兰输出轴 (按 ISO 9409 标准)
Flange output shaft (ISO 9409)



旋转方向 同方向
Equidirectional rotation



圆形特大号输出法兰
Extra large round type output flange



径向轴密封
Rotary shaft seal



行星齿轮架 (片状结构)
Planet carrier in disc design

Code	减速机参数	Gearbox characteristics			PFHE064	PFHE090	PFHE110	p ⁽¹⁾
	使用寿命 (L _{10h})	Service life (L _{10h})	t _L	h	30.000			
	满载时效率 ⁽²⁾	Efficiency at full load ⁽²⁾	η	%	97			
	最低工作温度	Min. operating temperature	T _{min}	°C	-25			
	最高工作温度	Max. operating temperature	T _{max}		90			
	防护等级	Protection class			IP65			
S	标准润滑	Standard lubrication			润滑脂 (终生润滑) / Grease (lifetime lubrication)			
F	食品级润滑	Food grade lubrication			润滑脂 (终生润滑) / Grease (lifetime lubrication)			
L	低温润滑 ⁽³⁾	Low temperature lubrication ⁽³⁾			润滑脂 (终生润滑) / Grease (lifetime lubrication)			
	安装位置	Installation position			任意 / Any			
S	标准回程间隙	Standard backlash	j _t	arcmin	< 10	< 7	< 7	1
					< 12	< 9	< 9	2
	抗扭刚度 ⁽²⁾	Torsional stiffness ⁽²⁾	c _G	Nm / arcmin	5,4 - 10,6	16,1 - 32,5	37,0 - 77,0	1
					5,0 - 11,5	15,7 - 38,5	30,0 - 95,0	2
	减速机重量	Gearbox weight	m _G	kg	1,1	3,3	7,1	1
					1,5	3,7	9,1	2
S	标准的箱体表面	Standard surface			箱体: 钢 - 热处理后氧化 (黑色) Housing: Steel - heat-treated and post-oxidized (black)			
	运行噪音 ⁽⁴⁾	Running noise ⁽⁴⁾	Q _G	dB(A)	60	62	65	
	基于减速机输入法兰的最大弯矩 ⁽⁵⁾	Max. bending moment based on the gearbox input flange ⁽⁵⁾	M _b	Nm	8	16	40	

输出轴载荷	Output shaft loads				PFHE064	PFHE090	PFHE110	p ⁽¹⁾
20,000 h 的径向力 ⁽⁶⁾⁽⁷⁾	Radial force for 20,000 h ⁽⁶⁾⁽⁷⁾	F _{r20.000h}	N		2300	4100	5150	
20,000 h 的轴向力 ⁽⁶⁾⁽⁷⁾	Axial force for 20,000 h ⁽⁶⁾⁽⁷⁾	F _{a20.000h}		2850	5450	6450		
30,000 h 的径向力 ⁽⁶⁾⁽⁷⁾	Radial force for 30,000 h ⁽⁶⁾⁽⁷⁾	F _{r30.000h}		2000	3650	4550		
30,000 h 的轴向力 ⁽⁶⁾⁽⁷⁾	Axial force for 30,000 h ⁽⁶⁾⁽⁷⁾	F _{a30.000h}		2500	4800	5600		
最大径向力 ⁽⁷⁾⁽⁸⁾	Maximum radial force ⁽⁷⁾⁽⁸⁾	F _{r Stat}		2300	4100	5150		
最大轴向力 ⁽⁷⁾⁽⁸⁾	Maximum axial force ⁽⁷⁾⁽⁸⁾	F _{a Stat}		2850	5450	6450		
20,000 h 倾斜力矩 ⁽⁶⁾⁽⁸⁾	Tilting moment for 20,000 h ⁽⁶⁾⁽⁸⁾	M _{K20.000h}	Nm		110	278	407	
30,000 h 倾斜力矩 ⁽⁶⁾⁽⁸⁾	Tilting moment for 30,000 h ⁽⁶⁾⁽⁸⁾	M _{K30.000h}		96	248	360		

转动惯量	Moment of inertia				PFHE064	PFHE090	PFHE110	p ⁽¹⁾
转动惯量 ⁽²⁾	Mass moment of inertia ⁽²⁾	J	kgcm ²		0,073 - 0,224	0,407 - 1,170	1,505 - 3,658	1
					0,064 - 0,132	0,356 - 0,667	1,377 - 2,432	2

(1) 减速机级数

(2) 传动比相关的数值可在 Tec Data Finder 中检索 - www.neugart.com

(3) T_{min} = -40°C. 理想运行温度最高为 50°C

(4) 距离减速机 1 m 时; 在输入转速为 n₁=3000 min⁻¹ 且无负荷时测得; i=5

(5) 最大发动机重量* (单位: kg) = 0.2 × M_b / 发动机长度 (单位: m)

* 发动机重量对称分布

* 水平和固定的安装位置

(6) 数据以 n₂=100 min⁻¹ 的输出轴转速为准。

(7) 基于输出轴末端

(8) 更改 T_{2N}, F_r, F_a 以及周期和轴承使用寿命时, 数值存在偏差 (部分较高)。利用 NCP 针对应用进行专门设计 - www.neugart.com

(1) Number of stages

(2) The ratio-dependent values can be retrieved in Tec Data Finder - www.neugart.com

(3) T_{min} = -40°C. Optimal operating temperature max. 50°C

(4) Sound pressure level from 1 m, measured on input running at n₁=3000 rpm no load; i=5

(5) Max. motor weight* in kg = 0.2 × M_b / motor length in m

* with symmetrically distributed motor weight

* with horizontal and stationary mounting

(6) These values are based on an output shaft speed of n₂=100 rpm

(7) Based on the end of the output shaft

(8) Other (sometimes higher) values following changes to T_{2N}, F_r, F_a, cycle, and service life of bearing. Application specific configuration with NCP - www.neugart.com

输出扭矩	Output torques			PFHE064	PFHE090	PFHE110	i ⁽¹⁾	p ⁽²⁾					
额定输出扭矩 ⁽³⁾	Nominal output torque ⁽³⁾	T _{2N}	Nm	28	85	115	3	1					
				38	115	155	4						
				40	110	195	5						
				25	65	135	7						
				18	50	120	8						
				15	38	95	10						
				44	130	240	9	2					
				44	120	260	12						
				44	110	230	15						
				44	120	260	16						
				44	120	260	20						
				40	110	230	25						
				44	120	260	32						
				40	110	230	40						
				18	50	120	64						
				15	38	95	100						
				最大输出扭矩 ⁽⁴⁾	Max. output torque ⁽⁴⁾	T _{2max}	Nm		45	136	184	3	1
									61	184	248	4	
64	176	312	5										
40	104	216	7										
29	80	192	8										
24	61	152	10										
70	208	384	9					2					
70	192	416	12										
70	176	368	15										
70	192	416	16										
70	192	416	20										
64	176	368	25										
70	192	416	32										
64	176	368	40										
29	80	192	64										
24	61	152	100										

⁽¹⁾ 传动比 (i=n₁/n₂)
⁽²⁾ 减速机级数
⁽³⁾ 利用 NCP 针对应用进行专门设计 – www.neugart.com
⁽⁴⁾ 允许输出轴转动30.000转；参见第 142 页

⁽¹⁾ Ratios (i=n₁/n₂)
⁽²⁾ Number of stages
⁽³⁾ Application specific configuration with NCP – www.neugart.com
⁽⁴⁾ 30,000 rotations of the output shaft permitted; see page 143

输出扭矩	Output torques			PFHE064	PFHE090	PFHE110	i ⁽¹⁾	p ⁽²⁾
急停扭矩 ⁽³⁾	Emergency stop torque ⁽³⁾	T _{2Stop}	Nm	66	180	390	3	1
				88	240	520	4	
				80	220	500	5	
				80	178	340	7	
				80	190	380	8	
				80	200	480	10	
				88	260	500	9	2
				88	240	520	12	
				88	220	500	15	
				88	240	520	16	
				88	240	520	20	
				80	220	500	25	
				88	240	520	32	
				80	220	500	40	
				80	190	380	64	
				80	200	480	100	

输入转速	Input speeds			PFHE064	PFHE090	PFHE110	i ⁽¹⁾	p ⁽²⁾					
T _{2N} 和 S1 时的平均热输入转速 ⁽⁴⁾⁽⁵⁾	Average thermal input speed at T _{2N} and S1 ⁽⁴⁾⁽⁵⁾	n _{1N}	min ⁻¹	2350 ⁽⁶⁾	1900 ⁽⁶⁾	1600 ⁽⁶⁾	3	1					
				2950 ⁽⁶⁾	2200 ⁽⁶⁾	1900 ⁽⁶⁾	4						
				3550 ⁽⁶⁾	2750 ⁽⁶⁾	2200 ⁽⁶⁾	5						
				4500	4000 ⁽⁶⁾	3350 ⁽⁶⁾	7						
				4500	4000	3500 ⁽⁶⁾	8						
				4500	4000	3500	10						
				4500	4000 ⁽⁶⁾	3300 ⁽⁶⁾	9	2					
				4500	4000	3500 ⁽⁶⁾	12						
				4500	4000	3500	15						
				4500	4000	3500	16						
				4500	4000	3500	20						
				4500	4000	3500	25						
				4500	4000	3500	32						
				4500	4000	3500	40						
				4500	4000	3500	64						
				4500	4000	3500	100						
				最高机械输入转速 ⁽⁴⁾	Max. mechanical input speed ⁽⁴⁾	n _{1Limit}	min ⁻¹		7500	7000	6500		

⁽¹⁾ 传动比 (i=n₁/n₂)

⁽²⁾ 减速机级数

⁽³⁾ 允许 1000 次

⁽⁴⁾ 利用 NCP 针对应用设计转速 - www.neugart.com

⁽⁵⁾ 定义请参见第 142 页

⁽⁶⁾ 在 50% T_{2N} 输出和 S1 模式下的平均热传动转速

⁽¹⁾ Ratios (i=n₁/n₂)

⁽²⁾ Number of stages

⁽³⁾ Permitted 1000 times

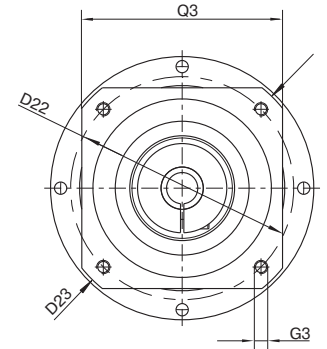
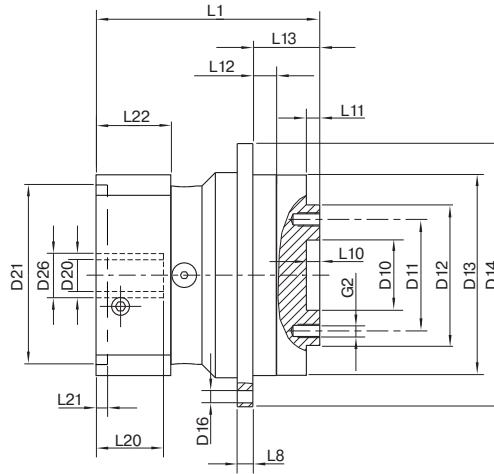
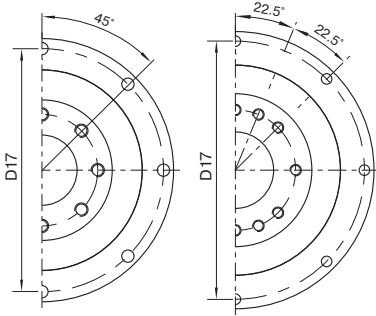
⁽⁴⁾ Application-specific speed configurations with NCP - www.neugart.com

⁽⁵⁾ See page 143 for the definition

⁽⁶⁾ Average thermal input speed at 50% T_{2N} and S1

PFHE064
PFHE090

PFHE110



图示为带平键的 PFHE090 / 1 级 / 法兰输出轴 / 19 mm 锁紧系统 / 适配电机法兰 - 单一法兰 / B5 电机法兰类型
 Drawing corresponds to a PFHE090 / 1-stage / flange output shaft / 19 mm clamping system / motor adaptation - one part / B5 flange type motor
 所有其它变量可在 www.neugart.com 下 Tec Data Finder 中检索 - All other variants can be retrieved in the Tec Data Finder at www.neugart.com

几何尺寸 ⁽¹⁾	Geometry ⁽¹⁾			PFHE064	PFHE090	PFHE110	p ⁽²⁾	Code
输出端定位凹槽直径	Centering diameter output shaft	D10	H7	20	31,5	40		
输出端安装孔节圆直径	Pitch circle diameter output shaft	D11		31,5	50	63		
输出轴定位凸台直径	Centering diameter output shaft	D12	h7	40	63	80		
输出法兰定位凸台直径	Centering diameter output flange	D13		64	90	110		
输出法兰直径	Flange diameter output	D14		86	118	145		
输出端安装孔直径	Mounting bore output	D16		4,5 8x45°	5,5 8x45°	5,5 8x45°		
输出法兰安装孔节圆直径	Pitch circle diameter output flange	D17		79	109	135		
最小总长	Min. total length	L1		72	100,5	117	1	
				84,5	118	144	2	
输出端法兰厚度	Flange thickness output	L8		4	7	8		
输出轴定位凸台深度	Centering depth output shaft	L10		4	6	6		
		L11		3	6	7		
输出法兰定位凸台深度	Centering depth output flange	L12		7,5	10,5	10,5		
输出法兰长度	Output flange length	L13		19,5	30	29		
输入端锁紧系统直径	Clamping system diameter input	D26		更多信息见第 131 页 More information on page 131				
电机轴直径 j6/k6	Motor shaft diameter j6/k6	D20		具体尺寸视电机/减速机法兰而定。 可以在 www.neugart.com 下 Tec Data Finder. 中针对每个电机适配电机特有的输入法兰几何尺寸 The dimensions vary with the motor/gearbox flange. The input flange dimensions can be retrieved for each specific motor in Tec Data Finder at www.neugart.com				
最大允许的电机轴长	Max. permis. motor shaft length	L20						
最小允许的电机轴长	Min. permis. motor shaft length							
输入端定位凹槽直径	Centering diameter input	D21						
输入端定位凹槽深度	Centering depth input	L21						
输入端安装孔节圆直径	Pitch circle diameter input	D22						
输入法兰长度	Motor flange length	L22						
输入法兰对角线尺寸	Diagonal dimension input	D23						
安装螺纹 x 深度	Mounting thread x depth	G3	4x					
输入端法兰外方	Flange cross section input	Q3	■					
法兰输出轴 (相似的 EN ISO 9409-1)	Flange output shaft (similar EN ISO 9409-1)							D
数量 x 螺纹 x 深度	Number x thread x depth	G2		8 x M5x7	8 x M6x10	12 x M6x12		

⁽¹⁾ 所有的尺寸单位为mm
⁽²⁾ 减速机级数

⁽¹⁾ Dimensions in mm
⁽²⁾ Number of stages