

PLQE

一款可便捷安装的行星减速机 发热量低 可承受较高的力

这款 **PLQE** 结构简单，功能强劲。无需中间法兰便可直接将其连接在设备上。输出端较大规格的深沟球轴承能够承受较高的径向力和轴向力。同时仅产生极低的热量，即使在要求极高的生产循环中也能安全可靠地运行。

The easy to install planetary gearbox absorbs high forces with low heat generation

Our **PLQE** is uncomplicated and powerful. It can be connected directly to your installation without the need for an intermediate flange. The large deep groove ball bearings at the output can absorb large axial and radial forces. In the process, only little heat is generated, so reliable operations are assured even in complex production cycles.

- + 可安装在任意位置
- + 输入法兰可适配特殊的电机
- + 终生润滑，因此免维护
- + 旋转方向同向
- + 输出轴样式多样
- + 优化转动惯量的锁紧系统
- + 精确啮合

- + For any mounting position
- + Individual adaptation of the input flange to the motor
- + Lifetime lubrication for maintenance-free operation
- + Equidirectional rotation
- + Various output shaft designs
- + Clamping systems with optimized mass moment of inertia
- + Precise gearing

1 经过优化的输出轴承

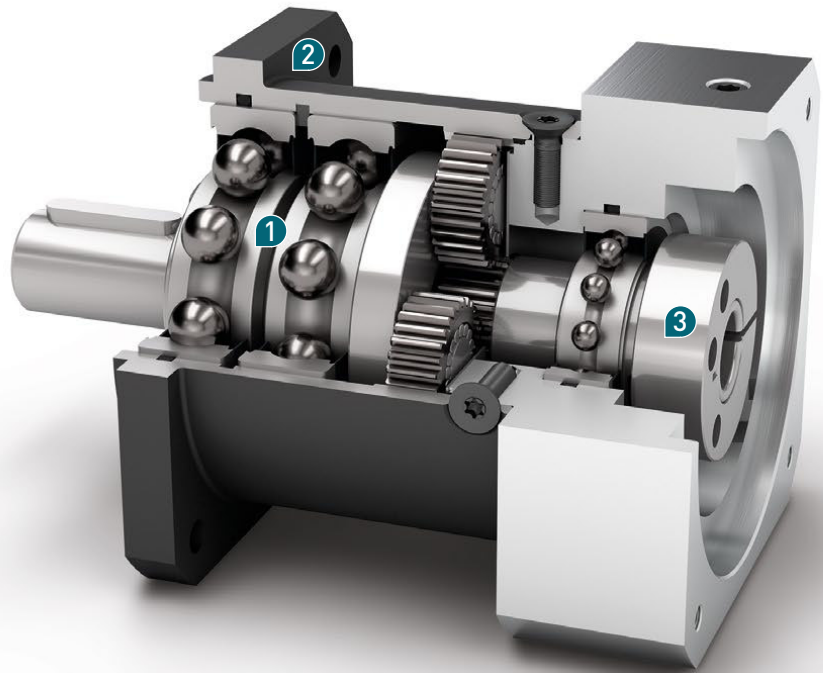
较大规格的深沟球轴承使得 **PLQE** 的性能尤其强劲。它能够承受较高的轴向力和径向力。无需额外的轴承组件，其驱动元件可直接安装在输出轴上。

2 安装简便

PLQE 配有带通孔的正方形输出法兰，因此可以直接将其安装在设备上，这样可以节省时间和成本。安装时，可通过通孔从任意角度对其进行安装。如此一来，进行结构设计就会变得十分简便。

3 最高转速时发热量仍很低

Neugart 研发的低摩擦损耗轴承结构和经过优化的润滑功能使得：**PLQE** 即使在面临极端挑战时也能自如应对。



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



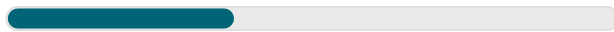
回程间隙
Torsional backlash **7 - 15 arcmin**



倾斜力矩
Tilting moment **37 - 232 Nm**



防护等级
Protection class **IP54**



结构尺寸
Frame sizes

- 60
- 80
- 120

1 Optimized output bearing

Large deep groove ball bearings make the **PLQE** especially powerful. It can even absorb high axial and radial forces with ease. Your drive elements can therefore be installed directly on the output shaft without the need for additional bearing components.

2 Easy installation

The square output flange on the **PLQE** with through hole can be mounted directly on the installation – saving time and money. These through holes facilitate full accessibility during installation. This makes your engineering much easier.

3 Low heat generation at the highest speeds

A Neugart developed low-friction bearing design and optimized lubrication make it possible: The **PLQE** overcomes extreme challenges.

Code	减速机参数	Gearbox characteristics			PLQE060	PLQE080	PLQE120	z ⁽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	%	98			1
97					2			
92					3			
	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			IP54			
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
					< 15	< 11	< 11	3
	抗扭刚度 ⁽²⁾	Torsional stiffness ⁽²⁾	c _g	Nm / arcmin	1,8 - 2,4	5,2 - 7,0	11,3 - 15,2	1
					1,9 - 2,4	5,7 - 7,0	12,3 - 15,2	2
					1,8 - 2,4	5,4 - 7,0	11,7 - 15,2	3
	减速机重量	Gearbox weight	m _G	kg	1,1	3,2	6,6	1
					1,3	3,7	8,6	2
					1,5	4,2	10,6	3
S	标准的箱体表面	Standard surface			箱体: 钢 - 氮碳共渗和后氧化处理 (黑色) Housing: Steel - nitrocarburized and post-oxidized (black)			
	运行噪音 ⁽⁴⁾	Running noise ⁽⁴⁾	Q _g	dB(A)	58	60	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	
	电机法兰精度	Motor flange precision			DIN 42955-N			

输出轴载荷	Output shaft loads			PLQE060	PLQE080	PLQE120	z ⁽¹⁾
20,000 h 的径向力 ⁽⁶⁾⁽⁷⁾	Radial force for 20,000 h ⁽⁶⁾⁽⁷⁾	F _{r20.000h}	N	900	2050	2950	
20,000 h 的轴向力 ⁽⁶⁾⁽⁷⁾	Axial force for 20,000 h ⁽⁶⁾⁽⁷⁾	F _{a20.000h}		1000	2500	2500	
30,000 h 的径向力 ⁽⁶⁾⁽⁷⁾	Radial force for 30,000 h ⁽⁶⁾⁽⁷⁾	F _{r30.000h}		700	1700	2400	
30,000 h 的轴向力 ⁽⁶⁾⁽⁷⁾	Axial force for 30,000 h ⁽⁶⁾⁽⁷⁾	F _{a30.000h}		800	2000	2100	
静态径向力 ⁽⁷⁾⁽⁸⁾	Static radial force ⁽⁷⁾⁽⁸⁾	F _{r Stat}		1500	2500	4000	
静态轴向力 ⁽⁷⁾⁽⁸⁾	Static axial force ⁽⁷⁾⁽⁸⁾	F _{a Stat}		1950	3800	3800	
20,000 h 倾斜力矩 ⁽⁶⁾⁽⁸⁾	Tilting moment for 20,000 h ⁽⁶⁾⁽⁸⁾	M _{K20.000h}	Nm	37	101	232	
30,000 h 倾斜力矩 ⁽⁶⁾⁽⁸⁾	Tilting moment for 30,000 h ⁽⁶⁾⁽⁸⁾	M _{K30.000h}		29	84	188	

转动惯量	Moment of inertia			PLQE060	PLQE080	PLQE120	z ⁽¹⁾
转动惯量 ⁽²⁾	Mass moment of inertia ⁽²⁾	J	kgcm ²	0,066 - 0,142	0,371 - 0,783	1,381 - 2,393	1
				0,066 - 0,123	0,366 - 0,625	1,414 - 2,292	2
				0,066 - 0,076	0,365 - 0,590	1,413 - 2,196	3

(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) 以输出轴中心为准
 (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 center of 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			PLQE060	PLQE080	PLQE120	i ⁽¹⁾	z ⁽²⁾
额定输出扭矩 ⁽³⁾⁽⁴⁾	Nominal output torque ⁽³⁾⁽⁴⁾	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	210	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	3
				40	110	230	40	
				18	50	120	64	
				44	110	260	60	
				44	120	260	80	
				44	120	260	100	
				44	110	230	120	3
				44	120	260	160	
				40	110	230	200	
44	120	260	256					
40	110	230	320					
18	50	120	512					
最大输出扭矩 ⁽⁴⁾⁽⁵⁾	Max. output torque ⁽⁴⁾⁽⁵⁾	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	336	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	3
				64	176	368	40	
				29	80	192	64	
				70	176	416	60	
				70	192	416	80	
				70	192	416	100	
				70	176	368	120	3
				70	192	416	160	
				64	176	368	200	
70	192	416	256					
64	176	368	320					
29	80	192	512					

PLQE

⁽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⁾ 平键 (代码 „A”)时的数值: 针对交变载荷

⁽⁵⁾ 允许输出轴转动30,000转; 参见第 136 页

⁽¹⁾ Ratios (i=n₁/n₂)

⁽²⁾ Number of stages

⁽³⁾ Application specific configuration with NCP – www.neugart.com

⁽⁴⁾ Values for feather key (code "A"): for repeated load

⁽⁵⁾ 30,000 rotations of the output shaft permitted; see page 137

输出扭矩	Output torques			PLQE060	PLQE080	PLQE120	i ⁽¹⁾	z ⁽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	3
				80	220	500	40	
				80	190	380	64	
				88	220	520	60	
				88	240	520	80	
				88	240	520	100	
				88	220	500	120	3
				88	240	520	160	
				80	220	500	200	
				88	240	520	256	
				80	220	500	320	
				80	190	380	512	

输入转速	Input speeds			PLQE060	PLQE080	PLQE120	i ⁽¹⁾	z ⁽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	4500 ⁽⁶⁾	3400 ⁽⁶⁾	3400 ⁽⁶⁾	3	1
				4500 ⁽⁶⁾	3450 ⁽⁶⁾	3500 ⁽⁶⁾	4	
				4500	4000 ⁽⁶⁾	3500 ⁽⁶⁾	5	
				4500	4000	3500	7	
				4500	4000	3500	8	
				4500	4000	3500	10	
				4500	4000 ⁽⁶⁾	3500 ⁽⁶⁾	9	2
				4500	4000 ⁽⁶⁾	3500 ⁽⁶⁾	12	
				4500	4000	3500 ⁽⁶⁾	15	
				4500	4000	3500 ⁽⁶⁾	16	
				4500	4000	3500	20	
				4500	4000	3500	25	
				4500	4000	3500	32	3
				4500	4000	3500	40	
				4500	4000	3500	64	
				4500	4000	3500	60	
				4500	4000	3500	80	
				4500	4000	3500	100	
				4500	4000	3500	120	3
				4500	4000	3500	160	
				4500	4000	3500	200	
				4500	4000	3500	256	
				4500	4000	3500	320	
				4500	4000	3500	512	
最高机械输入转速 ⁽⁴⁾	Max. mechanical input speed ⁽⁴⁾	n _{1Limit}	min ⁻¹	13000	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 136 页

(6) 在 50% T_{2N} 输出和 S1 模式下的平均热转动转速

(1) Ratios (i=n₁/n₂)

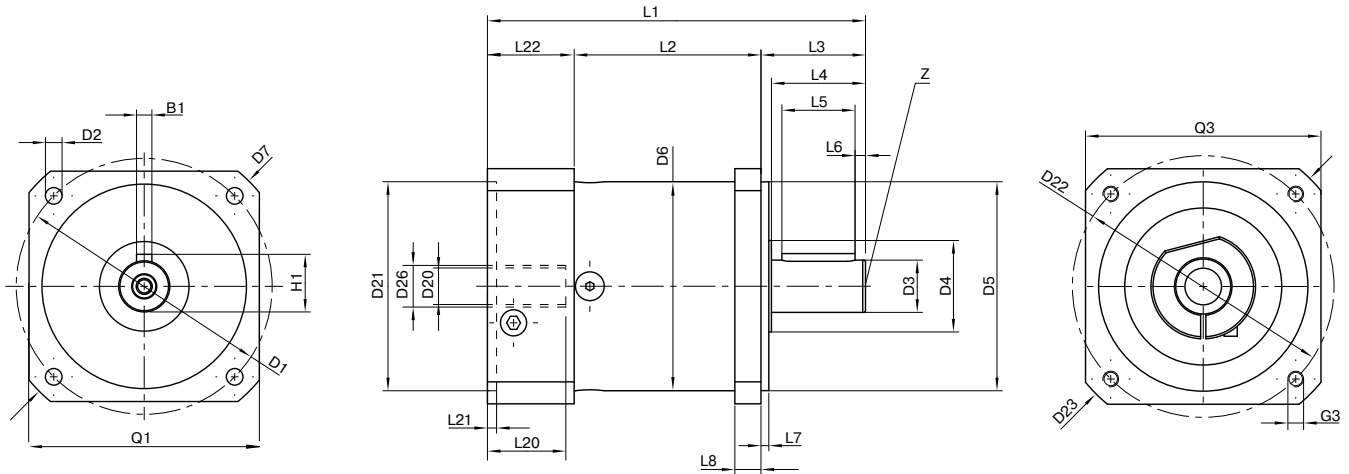
(2) Number of stages

(3) Permitted 1000 times

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

(5) See page 137 for the definition

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



图示为带平键的 PLQE080 / 1 级 / 附带平键的输出轴 / 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 PLQE080 / 1-stage / output shaft with feather key / 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⁾			PLQE060	PLQE080	PLQE120	z ⁽²⁾	Code
输出端安装孔节圆直径	Pitch circle diameter output	D1		75	100	130		
输出端安装孔直径	Mounting bore output	D2	4x	5,5	6,5	8,5		
输出轴直径	Shaft diameter output	D3	h7	16	20	25		
输出轴轴肩直径	Shaft collar output	D4		20	35	35		
输出端定位凸台直径	Centering diameter output	D5	h7	60	80	110		
箱体直径	Housing diameter	D6		60	80	115		
输出法兰对角线尺寸	Diagonal dimension output	D7		92	116	145		
输出端法兰外方	Flange cross section output	Q1	■	70	90	115		
最小总长	Min. total length	L1		111	145	201,5	1	
				123,5	162,5	229,5	2	
				136	180	257	3	
箱体长度	Housing length	L2		55	71,5	99	1	
				67,5	89	127	2	
				80	106,5	154,5	3	
输出轴轴长	Shaft length output	L3		32	40	55		
输出端定位凸台深度	Centering depth output	L7		3	3	4		
输出端法兰厚度	Flange thickness output	L8		10	10	15		
输入端锁紧系统直径	Clamping system diameter input	D26		更多信息见第 125 页 More information on page 125				
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							
最小允许的电机轴长	Min. permis. motor shaft length	L20						
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	■					
附带平键的输出轴 (DIN 6885-1)	Output shaft with feather key (DIN 6885-1)			A 5x5x20	A 6x6x28	A 8x7x40		A
平键宽度 (DIN 6885-1)	Feather key width (DIN 6885-1)	B1		5	6	8		
含平键在内的轴高 (DIN 6885-1)	Shaft height including feather key (DIN 6885-1)	H1		18	22,5	28		
到轴肩的距离	Shaft length from shoulder	L4		28	36	50		
平键长度	Feather key length	L5		20	28	40		
到轴端的距离	Distance from shaft end	L6		4	4	5		
中心孔 (DIN 332 DR 形)	Center hole (DIN 332, type DR)	Z		M5x12,5	M6x16	M10x22		
光滑输出轴	Smooth output shaft							B
到轴肩的距离	Shaft length from shoulder	L4		28	36	50		

⁽¹⁾ 所有的尺寸单位为mm
⁽²⁾ 减速机级数

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