



WPLHE

经济实惠且带有强大的输出轴承： WPLHE 直角行星减速机

节约轴向空间，经济实惠，防护等级IP65，专为承受高径向力和轴向力的输出端而设计：**WPLHE** 集合了已获成功的PLHE的全部优势。这是世界上首个将经济型减速机与高精度减速机组合的直角行星减速机。

Economical and with a heavy-duty output bearing: The WPLHE right-angle gearbox

Axially space-saving, economical, IP65-compliant and designed for high radial and axial forces at the output: The **WPLHE** combines all the advantages of the successful PLHE, the world's first combination of the Economy and Precision gearboxes, as an right-angle variant.

周期性扭矩
Cyclic torque **14 - 260 Nm**

径向力
Radial force **3200 - 6000 N**

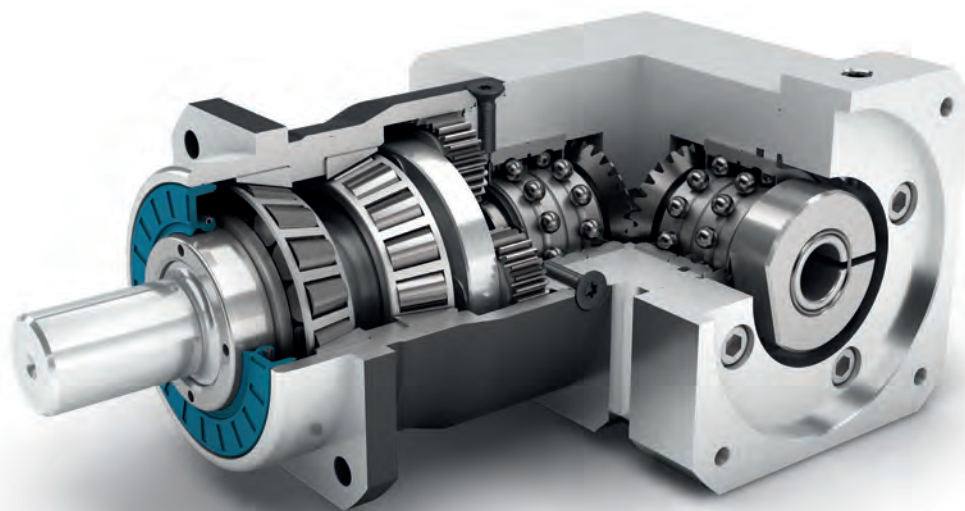
轴向力
Axial force **4400 - 8000 N**

回程间隙
Torsional backlash **11 - 18 arcmin**

防护等级
Protection class **IP65**

结构尺寸
Frame sizes





WPLHE



经济型
Economy Line



直齿
Spur gear



正方形输出法兰
Square type output flange



径向轴密封
Rotary shaft seal



行星齿轮架
Planet carrier in disc design



可选: 齿轮-齿条
行星减速机 (细节见第 158 页)
Option: Rack and pinion
Planetary gearbox (Details on page 158)



直角型减速机
Right angle gearbox



旋转方向 同方向
Equidirectional rotation



锥齿轮 直角型
Bevel gear right angle stage



配有预紧的圆锥滚子轴承
Preloaded tapered roller bearings



输出端带有超长定心环
Extra long centering collar



可选: 喷漆表面
——RAL 9005 黑色
Option: Painted surface
- RAL 9005 Jet black

技术特点的详细解释, 请从第201页读起。
Detailed explanations of the technical features starting on page 201.

Code	减速机参数	Gearbox characteristics			WPLHE060	WPLHE080	WPLHE120	p ⁽¹⁾
	使用寿命 ⁽²⁾	Service life ⁽²⁾	L _h	h	20.000			
	有效系数 ⁽³⁾	Efficiency ⁽³⁾	η	%	94			
	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)			
	安装位置	Installation position			任意 / Any			
S	标准回程间隙	Standard backlash	φ	arcmin	< 16	< 13	< 11	1
					< 18	< 15	< 13	2
	抗扭刚度 ⁽³⁾	Torsional stiffness ⁽³⁾	C _{2t}	Nm / arcmin	1,8 - 3,4	4,1 - 9,0	11,2 - 20,5	1
					2,5 - 4,5	7,3 - 12,1	16,7 - 27,0	2
	减速机重量 ⁽³⁾	Gearbox weight ⁽³⁾	m	kg	2,3	4,6	10,9 - 11,0	1
					2,5	5,0 - 5,1	12,5 - 12,8	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)			
B	喷漆表面 ⁽⁴⁾	Painted surface ⁽⁴⁾			RAL 9005 黑色 RAL 9005 Jet black			
	运行噪音 ⁽³⁾	Running noise ⁽³⁾	L _{pA}	dB(A)	70	73	75	

输出轴载荷	Output shaft loads			WPLHE060	WPLHE080	WPLHE120	p ⁽¹⁾
最大径向力	Maximum radial force	F _{r max}	N	3200	5500	6000	
最大轴向力	Maximum axial force	F _{a max}		3400	4500	6500	
最大倾斜力矩	Maximum tilting moment	M _{K max}	Nm	191	383	488	

输入特性	Input characteristics			WPLHE060	WPLHE080	WPLHE120	p ⁽¹⁾
输入端锁紧系统直径 (代码)	Clamping system diameter input (Code)	D26	mm	11 (C)	19 (E) ⁽⁵⁾	24 (F) ⁽⁵⁾	
				14 (D) ⁽⁵⁾	-	-	
转动惯量 ⁽³⁾⁽⁵⁾	Mass moment of inertia input ⁽³⁾⁽⁵⁾	J ₁	kgcm ²	0,231 - 0,413	0,921 - 1,394	1,832 - 2,970	1
				0,226 - 0,361	0,906 - 1,246	1,818 - 2,787	2
平均空载扭矩 ⁽³⁾⁽⁵⁾	Average idle torque ⁽³⁾⁽⁵⁾	T ₀	Nm	0,30 - 0,65	0,60 - 1,20	1,10 - 2,20	1
				0,20 - 0,30	0,45 - 0,65	0,90 - 1,40	2
基于减速机输入法兰的最大弯矩	Max. bending moment based on the gearbox input flange	M _{b1}		5	10,5	26	

(1) 减速机级数

(2) 利用 NCP 针对应用进行专门设计 - www.neugart.com

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

(4) 更多信息见第 183

(5) 参考 锁紧系统直径

(1) Number of stages

(2) Application specific configuration with NCP - www.neugart.com

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

(4) More information on page 183

(5) Reference clamping system diameter

输出扭矩	Output torques			WPLHE060	WPLHE080	WPLHE120	i ⁽¹⁾	p ⁽²⁾
周期性扭矩 ⁽³⁾	Cyclic torque ⁽³⁾	T _{2z}	Nm	14	40	78	3	1
				19	53	104	4	
				24	67	130	5	
				25	65	135	7	
				18	50	120	8	
				15	38	95	10	
				43	120	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	
				40	110	230	40	
				18	50	120	64	
				15	38	95	100	
				最大扭矩 ⁽³⁾	Maximum torque ⁽³⁾	T _{2max}	Nm	
30	85	166	4					
38	107	205	5					
40	104	215	7					
28	80	192	8					
24	60	152	10					
69	192	335	9					2
70	192	415	12					
70	176	365	15					
70	192	415	16					
70	192	415	20					
64	176	365	25					
70	192	415	32					
64	176	365	40					
28	80	192	64					
24	60	152	100					

WPLHE

(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

(1) Ratios (i=n₁/n₂)

(2) Number of stages

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

输出扭矩	Output torques			WPLHE060	WPLHE080	WPLHE120	i ⁽¹⁾	p ⁽²⁾
连续扭矩 ⁽³⁾	Continuous torque ⁽³⁾	T _{2D}	Nm	7	15,5	34	3	1
				8,5	19,5	43	4	
				10,5	23	53	5	
				15	32	75	7	
				15	36	86	8	
				12,5	32	80	10	2
				20	42	107	9	
				25	55	137	12	
				32	68	168	15	
				34	73	181	16	
				37	91	220	20	
				34	93	195	25	
				37	102	220	32	
				34	93	195	40	
				15	42	102	64	
				12,5	32	80	100	

输入转速	Input speeds			WPLHE060	WPLHE080	WPLHE120	i ⁽¹⁾	p ⁽²⁾
连续输入转速 ⁽³⁾⁽⁴⁾	Continuous input speed ⁽³⁾⁽⁴⁾	n _{1D}	min ⁻¹	3100	2750	3000	3	1
				3950	3300	3500	4	
				4500	3800	3500	5	
				4500	4000	3500	7	
				4500	4000	3500	8	
				4500	4000	3500	10	2
				3900	3600	2550	9	
				4500	3950	2900	12	
				4500	4000	3100	15	
				4500	4000	3000	16	
				4500	4000	3100	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 ⁽³⁾	Max. mechanical input speed ⁽³⁾	n _{1max}	min ⁻¹	13000

输出扭矩	Output torques			WPLHE060	WPLHE080	WPLHE120	i ⁽¹⁾	p ⁽²⁾
急停扭矩	Emergency stop torque ⁽⁴⁾⁽⁵⁾	T _{2Stop}	Nm	60	135	300	3	1
				80	180	400	4	
				80	220	500	5	
				80	178	340	7	
				80	190	380	8	
				70	170	430	10	2
				88	260	500	9	
				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	
				75	200	430	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) 参考夹紧系统直径

(5) 允许 1000 次

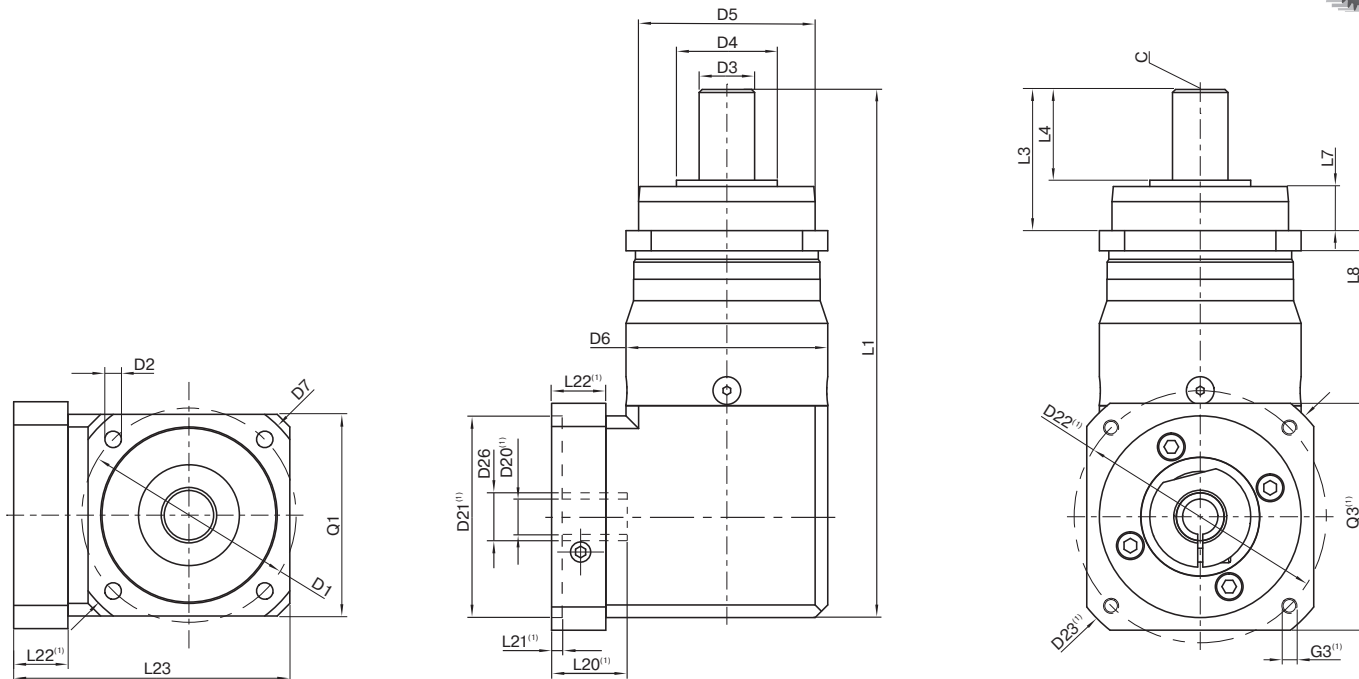
(1) Ratios (i=n₁/n₂)

(2) Number of stages

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

(4) Based on reference clamping system diameter

(5) Permitted 1000 times



图示为带平键的WPLHE080 / 1级 / 光滑输出轴 / 19 mm 锁紧系统 / 适配电机法兰-2 件式 - 正方形通用法兰 / B5 电机法兰类型
 Drawing corresponds to a WPLHE080 / 1-stage / smooth output shaft / 19 mm clamping system / motor adaptation - 2-part - square universal flange / B5 flange type motor

⁽¹⁾ 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。
⁽¹⁾ 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

几何尺寸 ⁽²⁾	Geometry ⁽²⁾			WPLHE060	WPLHE080	WPLHE120	p ⁽³⁾	Code
输出端安装孔节圆直径	Pitch circle diameter output	D1		68 - 75	85	120		
输出端安装孔直径	Mounting bore output	D2	4x	5,5	6,5	9,0		
输出轴直径	Shaft diameter output	D3	k7	16	22	32		
输出轴轴肩直径	Shaft collar output	D4		35	40	45		
输出端定位凸台直径	Centering diameter output	D5	h7	60	70	90		
箱体直径	Housing diameter	D6		60	80	115		
输出法兰对角线尺寸	Diagonal dimension output	D7		92	100	140		
输出端法兰外方	Flange cross section output	Q1	■	70	80	110		
总长	Total length	L1		168	209,5	272,5	1	
				180,5	227,5	300	2	
输出轴轴长	Shaft length output	L3		48	56	88		
输出端定位凸台深度	Centering depth output	L7		19	18	28		
输出端法兰厚度	Flange thickness output	L8		7	8	10		
最小总高度	Min. overall height	L23		90,5	109,5	145,5		
电机轴直径 j6/k6	Motor shaft diameter j6/k6	D20		更多信息见第 191/192 页 More information on page 191/192				
输入端锁紧系统直径	Clamping system diameter input	D26		更多信息见第 82 页 More information on page 82				
带平键的输出轴 (DIN 6885-1)	Output shaft with feather key (DIN 6885-1)			A 5x5x25	A 6x6x28	A 10x8x50		A
平键宽度 (DIN 6885-1)	Feather key width (DIN 6885-1)	B1		5	6	10		
含平键在内的轴高 (DIN 6885-1)	Shaft height including feather key (DIN 6885-1)	H1		18	24,5	35		
到轴肩的距离	Shaft length from shoulder	L4		28	36	58		
平键长度	Feather key length	L5		25	28	50		
到轴端的距离	Distance from shaft end	L6		2	4	4		
中心孔 (DIN 332, DR 形)	Center hole (DIN 332, type DR)	C		M5x12,5	M8x19	M12x28		
光滑输出轴	Smooth output shaft							
到轴肩的距离	Shaft length from shoulder	L4		28	36	58		B
花键输出轴 (DIN 5480)	Splined output shaft (DIN 5480)			W16x0,8x18x6m	W22x1,25x16x6m	W32x1,25x24x6m		C
花键或键槽的长度	Width of gearing	L _v		15	15	15		
输出轴轴长	Shaft length output	L3		46	46	56		
到轴肩的距离	Shaft length from shoulder	L4		26	26	26		
中心孔 (DIN 332, DR 形)	Center hole (DIN 332, type DR)	C		(M5x12,5)	(M8x19)	(M12x28)		

⁽²⁾ 所有的尺寸单位为mm
⁽³⁾ 减速机级数

⁽²⁾ Dimensions in mm
⁽³⁾ Number of stages