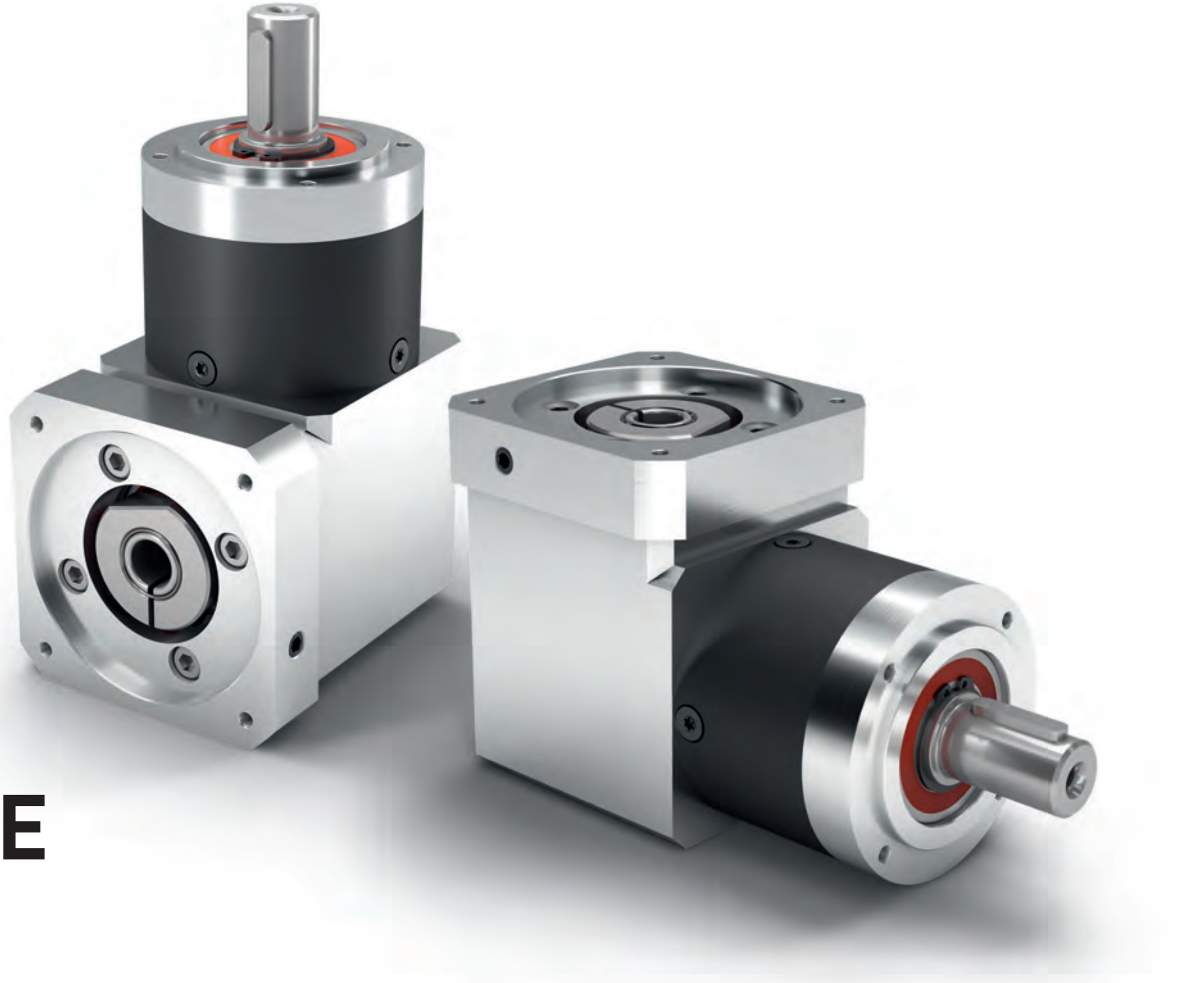


WPLE

直角行星减速机
轻巧
经济性较高

WPLE 一如继往地延续了经济型产品系列的优势。它的结构紧凑且牢固，因此非常适合动态的多轴系统。我们的直角行星减速机终身润滑，容易安装，因此其性价比是无可匹敌的。

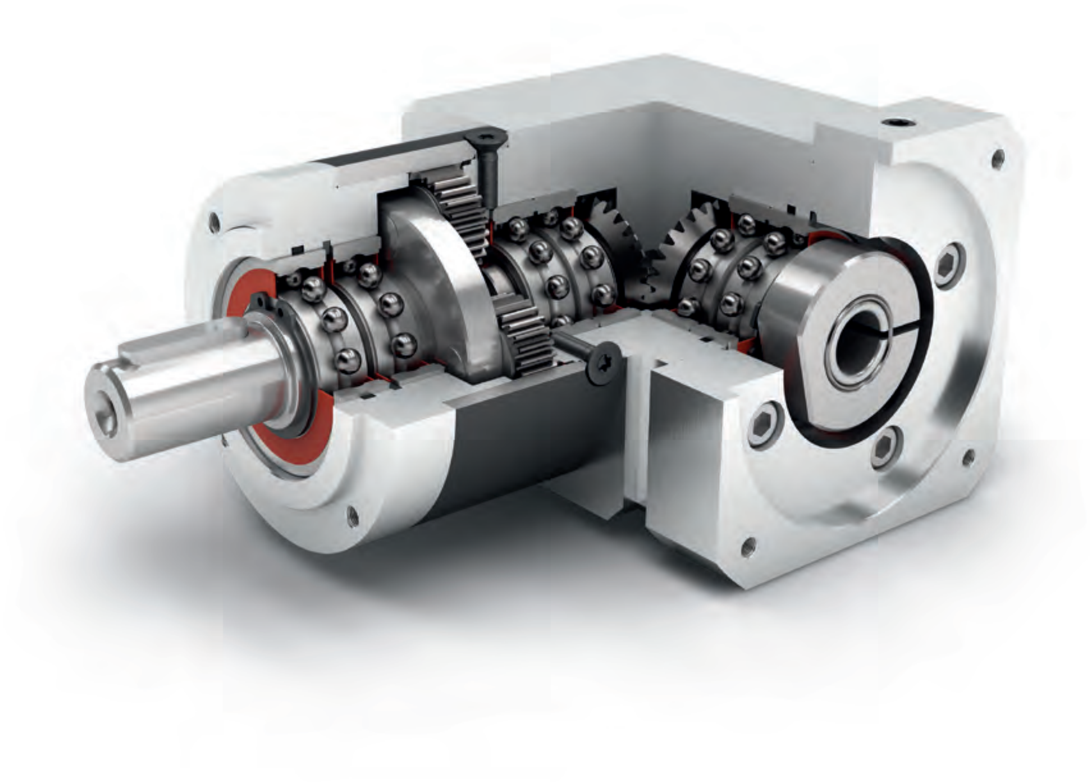
The versatile right angle planetary gearbox with lower weight and appealing cost effectiveness

The **WPLE** consistently continues the advantages of the Economy series. With its compact but powerful design, it is perfectly suited for dynamic multi-axis systems. Our right-angle gearbox is lubricated for life, easy to mount and offers an unmatched price/performance ratio.

周期性扭矩 Cyclic torque	**5 - 260 Nm**
径向力 Radial force	**200 - 2000 N**
轴向力 Axial force	**240 - 3800 N**
回程间隙 Torsional backlash	**11 - 28 arcmin**
防护等级 Protection class	**IP54**

结构尺寸
Frame sizes

40 **60** **80** **120**



E	经济型 Economy Line
	直角型减速机 Right angle gearbox
	旋转方向 同方向 Equidirectional rotation
	直齿 Spur gear
	锥齿轮 直角型 Bevel gear right angle stage
	圆形输出法兰 Round type output flange
	低摩擦深沟球轴承 Low-friction deep groove ball bearings
3 i 512	多样的传动比（i=3 至 i=512) High ratio variety i=3 up to i=512
	行星齿轮架 Planet carrier in disc design
RAL 9005	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			WPLE040	WPLE060	WPLE080	WPLE120	p(1)
	使用寿命(2)	Service life(2)	L_h	h	20.000				
	有效系数(3)	Efficiency(3)	η	%	95				1
					94				2
					88				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)				
	安装位置	Installation position			任意 / Any				
S	标准回程间隙	Standard backlash	φ	arcmin	< 21	< 16	< 13	< 11	1
					< 25	< 18	< 15	< 13	2
					< 28	< 21	< 17	< 15	3
	抗扭刚度(3)	Torsional stiffness(3)	C_{2t}	Nm / arcmin	0,5 - 0,8	1,5 - 2,3	4,0 - 7,9	9,9 - 17,5	1
					0,7 - 1,0	2,3 - 2,8	7,2 - 10,3	17,5 - 22,0	2
					0,8 - 1,0	2,3 - 2,8	7,9 - 10,4	17,5 - 22,0	3
	减速机重量(3)	Gearbox weight(3)	m	kg	0,6	1,6	3,7	9,6 - 9,7	1
					0,7	1,8	4,1 - 4,2	11,3 - 11,5	2
					0,7 - 0,8	2,0	4,6 - 4,7	13,1 - 13,3	3
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)	68	70	73	75	

输出轴载荷	Output shaft loads			WPLE040	WPLE060	WPLE080	WPLE120	p(1)
最大径向力	Maximum radial force	$F_{r\,max}$	N	200	700	1000	2000	
最大轴向力	Maximum axial force	$F_{a\,max}$		240	800	1450	3800	
最大倾斜力矩	Maximum tilting moment	$M_{K\,max}$	Nm	6	25	41	115	

输入特性	Input characteristics			WPLE040	WPLE060	WPLE080	WPLE120	p(1)
输入端锁紧系统直径（代码）	Clamping system diameter input (Code)	D26	mm	8 (A)	11 (C)	19 (E)(5)	24 (F)(5)	
				9 (B)(5)	14 (D)(5)	-	-	
转动惯量(3)(5)	Mass moment of inertia input(3)(5)	J_1	kgcm^2	0,040 - 0,057	0,227 - 0,363	0,862 - 1,226	2,645 - 3,670	1
				0,040 - 0,057	0,228 - 0,356	0,868 - 1,184	2,679 - 3,597	2
				0,040 - 0,056	0,228 - 0,238	0,868 - 1,162	2,679 - 3,506	3
平均空载扭矩(3)(5)	Average idle torque(3)(5)	T_0	Nm	0,05	0,15 - 0,20	0,25 - 0,60	0,80 - 1,35	1
				0,05	0,15 - 0,20	0,25 - 0,60	0,85 - 1,45	2
				0,05	0,15	0,25 - 0,35	0,85 - 1,05	3
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}		2	5	10,5	26	

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(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**			**WPLE040**	**WPLE060**	**WPLE080**	**WPLE120**	**i(1)**	**p(2)**
周期性扭矩(3)(4)	Cyclic torque(3)(4)	T_{2Z}	Nm	4,5	14	40	78	3	1
				6	19	53	104	4	
				7,5	24	67	130	5	
				8,5	25	65	135	7	
				6	18	50	120	8	
				5	15	38	95	10	
				13,5	43	120	210	9	2
				18	44	120	260	12	
				18	44	110	230	15	
				20	44	120	260	16	
				20	44	120	260	20	
				18	40	110	230	25	
				20	44	120	260	32	
				18	40	110	230	40	
				7,5	18	50	120	64	
				20	44	120	260	60	3
				20	44	120	260	80	
				20	44	120	260	100	
				18	44	110	230	120	
				20	44	120	260	160	
				18	40	110	230	200	
				20	44	120	260	256	
				18	40	110	230	320	
				7,5	18	50	120	512	
最大扭矩(3)(4)	Maximum torque(3)(4)	T_{2max}	Nm	7	23	64	124	3	1
				9,5	30	85	166	4	
				12	38	107	205	5	
				13,5	40	104	215	7	
				9,5	28	80	192	8	
				8	24	60	152	10	
				16,5	69	192	335	9	2
				28	70	192	415	12	
				28	70	176	365	15	
				32	70	192	415	16	
				32	70	192	415	20	
				28	64	176	365	25	
				32	70	192	415	32	
				28	64	176	365	40	
				12	28	80	192	64	
				32	70	192	415	60	3
				32	70	192	415	80	
				32	70	192	415	100	
				28	70	176	365	120	
				32	70	192	415	160	
				28	64	176	365	200	
				32	70	192	415	256	
				28	64	176	365	320	
				12	28	80	192	512	

(1) 传动比 ($i=n_1/n_2$)
(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

(1) Ratios ($i=n_1/n_2$)
(2) Number of stages
(3) Application specific configuration with NCP – www.neugart.com
(4) Based on reference clamping system diameter

输出扭矩	**Output torques**			**WPLE040**	**WPLE060**	**WPLE080**	**WPLE120**	**i(1)**	**p(2)**
连续扭矩(3)	Continuous torque(3)	T_{2D}	Nm	1,5	6	13,5	32	3	1
				2,5	8,5	18	43	4	
				3	10,5	22	53	5	
				4,5	15	32	75	7	
				5	15	36	86	8	
				4	12,5	32	80	10	
				5,5	19	41	96	9	2
				7,5	25	55	129	12	
				9,5	32	68	161	15	
				10	34	73	172	16	
				12,5	37	91	215	20	
				15	34	93	195	25	
				17	37	102	220	32	
				15	34	93	195	40	
				6	15	42	102	64	
				17	37	102	220	60	3
				17	37	102	220	80	
				17	37	102	220	100	
				15	37	93	195	120	
				17	37	102	220	160	
				15	34	93	195	200	
				17	37	102	220	256	
				15	34	93	195	320	
				6	15	42	102	512	

输入转速	**Input speeds**			**WPLE040**	**WPLE060**	**WPLE080**	**WPLE120**	**i(1)**	**p(2)**
连续输入转速(3)(4)	Continuous input speed(3)(4)	n_{1D}	min^{-1}	5000	4500	4000	3500	3	1
				5000	4500	4000	3500	4	
				5000	4500	4000	3500	5	
				5000	4500	4000	3500	7	
				5000	4500	4000	3500	8	
				5000	4500	4000	3500	10	
				5000	4500	4000	3500	9	2
				5000	4500	4000	3500	12	
				5000	4500	4000	3500	15	
				5000	4500	4000	3500	16	
				5000	4500	4000	3500	20	
				5000	4500	4000	3500	25	
				5000	4500	4000	3500	32	
				5000	4500	4000	3500	40	
				5000	4500	4000	3500	64	
				5000	4500	4000	3500	60	3
				5000	4500	4000	3500	80	
				5000	4500	4000	3500	100	
				5000	4500	4000	3500	120	
				5000	4500	4000	3500	160	
				5000	4500	4000	3500	200	
				5000	4500	4000	3500	256	
				5000	4500	4000	3500	320	
				5000	4500	4000	3500	512	
最高机械输入转速(3)	Max. mechanical input speed(3)	n_{1max}	min^{-1}	18000	13000	7000	6500		

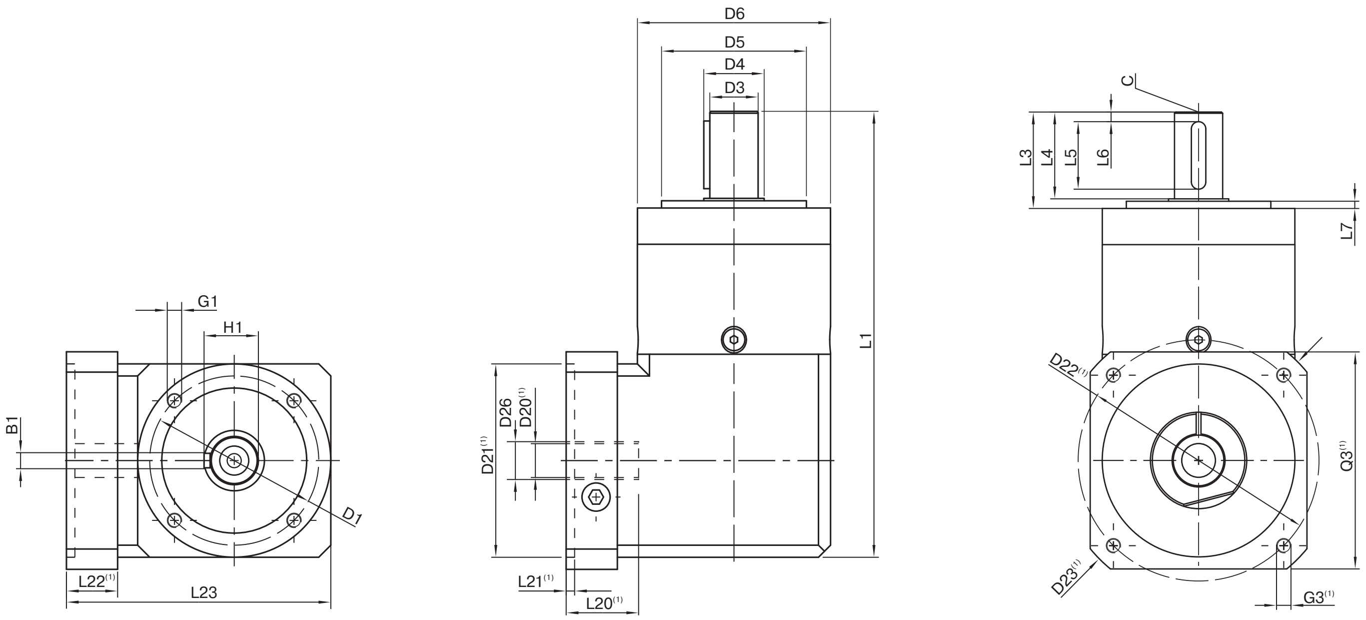
(1) 传动比 (i=n_1/n_2)
(2) 减速机级数
(3) 利用 NCP 针对应用进行专门设计 – www.neugart.com
(4) 参考夹紧系统直径

(1) Ratios (i=n_1/n_2)
(2) Number of stages
(3) Application specific configuration with NCP – www.neugart.com
(4) Based on reference clamping system diameter

输出扭矩	**Output torques**			**WPLE040**	**WPLE060**	**WPLE080**	**WPLE120**	i(1)	p(2)
急停扭矩(3)(4)	Emergency stop torque(3)(4)	T_{2Stop}	Nm	12	60	135	300	3	1
				16	80	180	400	4	
				20	80	220	500	5	
				26	80	178	340	7	
				27	80	190	380	8	
				25	70	170	430	10	
				33	88	260	500	9	2
				40	88	240	520	12	
				36	88	220	500	15	
				40	88	240	520	16	
				40	88	240	520	20	
				36	80	220	500	25	
				40	88	240	520	32	
				36	80	220	500	40	
				27	80	190	380	64	
				40	88	220	520	60	3
				40	88	240	520	80	
				40	88	240	520	100	
				36	88	220	500	120	
				40	88	240	520	160	
				36	80	220	500	200	
				40	88	240	520	256	
				36	80	220	500	320	
				27	80	190	380	512	

(1) 传动比 $(i=n_1/n_2)$
(2) 减速机级数
(3) 允许 1000 次
(4) 参考夹紧系统直径

(1) Ratios $(i=n_1/n_2)$
(2) Number of stages
(3) Permitted 1000 times
(4) Based on reference clamping system diameter



图示为带平键的 WPLE080 / 1 级 / 附带平键的输出轴 / 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 WPLE080 / 1-stage / output shaft with feather key / 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)**			**WPLE040**	**WPLE060**	**WPLE080**	**WPLE120**	**p(3)**	**Code**
输出端安装孔节圆直径	Pitch circle diameter output	D1		34	52	70	100		
输出轴直径	Shaft diameter output	D3	h7	10	14	20	25		
输出轴轴肩直径	Shaft collar output	D4		12	17	25	35		
输出端定位凸台直径	Centering diameter output	D5	h7	26	40	60	80		
箱体直径	Housing diameter	D6		40	60	80	115		
安装螺纹 x 深度	Mounting thread x depth	G1	4x	M4x6	M5x8	M6x10	M10x16		
总长	Total length	L1		110	147	184	249,5	1	
				123	159,5	201,5	277	2	
				135,5	172	219	304,5	3	
输出轴轴长	Shaft length output	L3		26	35	40	55		
输出端定位凸台深度	Centering depth output	L7		2	3	3	4		
最小总高度	Min. overall height	L23		67	85,5	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 60 页 More information on page 60					
带平键的输出轴 (DIN 6885-1)	Output shaft with feather key (DIN 6885-1)			A 3x3x18	A 5x5x25	A 6x6x28	A 8x7x40		**A**
平键宽度（DIN 6885-1)	Feather key width (DIN 6885-1)	B1		3	5	6	8		
含平键在内的轴高 (DIN 6885-1)	Shaft height including feather key (DIN 6885-1)	H1		11,2	16	22,5	28		
到轴肩的距离	Shaft length from shoulder	L4		23	30	36	50		
平键长度	Feather key length	L5		18	25	28	40		
到轴端的距离	Distance from shaft end	L6		2,5	2,5	4	5		
中心孔（DIN 332，DR 形)	Center hole (DIN 332, type DR)	C		M3x9	M5x12,5	M6x16	M10x22		
光滑输出轴	Smooth output shaft								**B**
到轴肩的距离	Shaft length from shoulder	L4		23	30	36	50		

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(2) 所有的尺寸单位为mm
(3) 减速机级数

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