

# WPFR Series Planetary Gearbox

## 系列行星减速机

### FEATURES

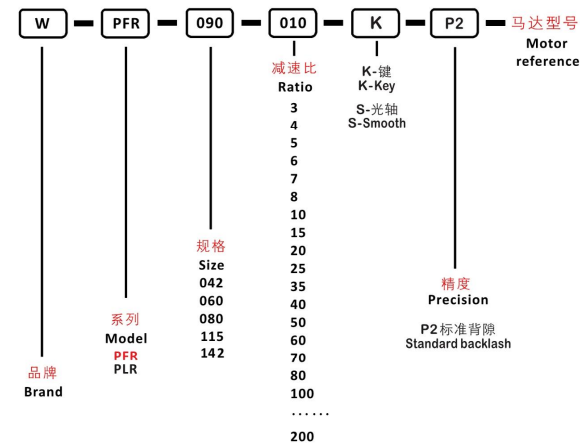
#### 产品特点

- » 行星臂架与输出轴采用一体式结构设计，确保最大的扭转刚性。
- » 行星轮采用满滚针设计，增加接触面积以提高结构刚性与输出扭矩。
- » 齿轮采用低碳钢表面渗碳淬火到HRC62，以获得最佳的耐磨及冲击韧性。
- » 齿形引用国外进口软件辅助设计，以获得最佳的齿形降低噪音。
- » 输入端与马达轴连接采用双边抱紧方式，以获取最大的夹紧力和零背隙的动力传递。
- » 采用蜗线伞齿轮设计，容许输出扭矩高、比直伞齿轮高30%以上。
- » 高容许输入转速，比直伞齿轮输入高8倍以上。
- » 蜗线伞齿轮的啮合齿印，经最佳优化设计，接触齿面负载均一，运转寿命长。
- » 蜗线伞齿轮啮合，经最佳运动误差分析与严格的制程控制，以确保高精度的运转背隙。
- » Planetary boom and output shaft are integrated structure designed to ensure maximum torsional rigidity.
- » Planetary wheel with full needle design, increase the contact area to improve the rigidity and output torque.
- » The gears are carburized and quenched to the HRC62 with low carbon steel surface for optimum wear and impact toughness.
- » Gears refer to foreign imported software-assisted design to obtain the best tooth shape to reduce noise.
- » The input terminal is connected to the motor shaft in a double-tight manner to obtain the maximum clamping force and zero backlash power transmission.
- » Adopt spiral bevel gear design, allow high output torque, more than 30% higher than straight bevel gear.
- » High tolerance input speed, more than 8 times higher than straight bevel gear input.
- » The meshing tooth imprint of spiral bevel gear has been optimized by optimum design, and the contact tooth surface load is uniform, and long running life.
- » Cochlear bevel gears are meshed by optimum motion error analysis and strict process control to ensure high precision running back clearance.



### INDICATION FOR MODEL SELECTION

#### • 机种型号表示



### GENERAL NOTICES

#### • 订货须知

- 机种、型号、扭矩
- 减速比或出力轴转速
- 工况及连接方式
- 数量及安装的机械名称
- 入力方式和入力转速
- 马达厂牌型号或法兰及马达轴尺寸
- Type, model and torque
- Ratio or output speed
- Working conditions and connection methods
- Quantity and installed machine name
- Input mode and input speed
- Motor brand model or flange and motor shaft size

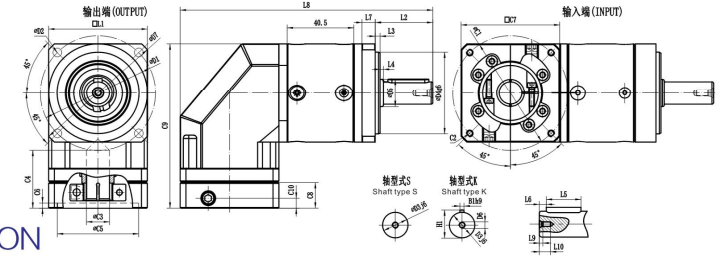
# PLANETARY GEARBOX

## ● 减速机性能资料/Performance

规格 Specification	单位 Unit	节数 Stage	减速比 Ratio	WPFR042	WPFR060	WPFR080	WPFR115	WPFR142
额定输出扭矩 Rated output torque T <sub>2N</sub>	Nm	1	3	8	18	40	125	290
			4	18	36	90	230	460
			5	16	40	110	260	550
			6	8	20	40	90	340
			7	8	20	40	90	340
			8	5	36	90	230	460
			10	5	40	110	260	550
			12	8	20	40	90	340
			14	-	20	40	90	340
			20	18	12	22	70	210
		2	15	16	40	110	260	550
			25	16	40	110	260	550
			30	16	18	40	125	290
			35	16	40	110	260	550
			40	-	36	90	230	460
			50	-	40	110	260	550
			60	-	20	40	90	340
			70	-	20	40	90	340
			80	-	36	90	230	460
			100	-	40	110	260	550
140	-	20	40	90	340			
200	-	12	22	70	210			
急停扭矩/Emergency stop torque T <sub>2NOT</sub>	Nm	1,2	3~200	二倍额定输出扭矩/Double rated output torque				
额定输入转速/Rated input speed n <sub>1N</sub>	rpm	1,2	3~200	4500	4000	3500	3500	3000
最大输入转速/Maximum input speed n <sub>1B</sub>	rpm	1,2	3~200	10000	8000	6000	6000	4500
标准背隙/Standard backlash P <sub>2</sub>	arcmin	1	3~20	≤26	≤16	≤16	≤16	≤16
		2	15~200	≤28	≤18	≤18	≤18	≤18
扭转刚性/Torsional rigidity	Nm/arcmin	1,2	3~200	0.65	1.8	4.7	11	35
容许径向力/Allowable radial force F <sub>2aB</sub>	N	1,2	3~200	165	240	400	1240	3700
容许轴向力/Allowable axial force F <sub>2aB</sub>	N	1,2	3~200	135	220	420	1000	3500
使用寿命/Lifespan	hr	1,2	3~200	10000*				
效率/Efficiency	%	1	3~20	94%				
		2	25~200	91%				
重量/Weight	kg	1	3~20	0.3	0.85	2	6	11
		2	25~200	0.4	0.9	2.3	7.5	13
使用温度/Working temperature	°C	1,2	3~200	(-10° C +90° C)				
润滑/Lubricating				合成润滑油/Synthetic lubricating grease				
防护等级/IP Grade		1,2	3~200	IP54				
安装方向/Installation direction		1,2	3~200	任意方向/in any direction				
噪音值(n <sub>1</sub> =3000, 无负载) Noise level (n <sub>1</sub> =3000, off load)	dB(A)	1,2	3~200	≤65	≤65	≤68	≤73	≤75

## ● 减速机转动惯量/Rotational inertia

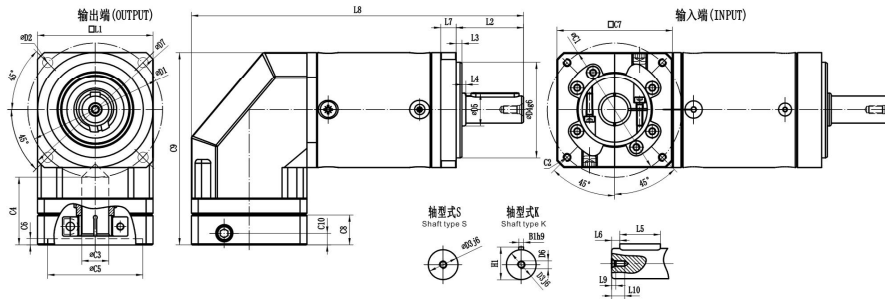
规格 Specification	单位 Unit	节数 Stage	减速比 Ratio	WPFR042	WPFR060	WPFR080	WPFR115	WPFR142
转动惯量J <sub>1</sub> Rotational inertia J <sub>1</sub>	kg·cm <sup>2</sup>	1	3~10	0.03	0.135	0.75	2.5	5.8
			12、14	0.03	0.09	0.45	1.3	1.9
			20	0.03	0.09	0.39	1.2	2.73
			15	0.015	0.09	0.45	2.4	3.3
		2	25~100	0.01	0.035	0.2	1.4	2.3
			120~200	0.005	0.035	0.18	1.3	2.1



## DIMENSION SINGLE SECTION

## ● 尺寸 (单节, 减速比 i=3~20) Dimension (single stage, Ratio i=3~20)

尺寸/Dimension	WPFR042	WPFR060	WPFR080	WPFR115	WPFR142
D1	-	70	100	130	185
D2	-	5.5	6.5	8.8	11
D3	-	14	20	25	40
D4	-	50	80	110	130
D5	-	17	25	35	55
D6	-	M5	M6	M10	M12
D7	-	80	120	160	230
L1	-	60	90	120	176
L2	-	35	40	55	87
L3	-	3	3	4	5
L4	-	2	1	1	2
L5	-	25	25	40	65
L6	-	2.5	5	5	5
L7	-	8	10	14	15
L8	-	153.5	204	288	340.5
L9	-	4.8	5	7.5	9.5
L10	-	12	18	23	25
C1	-	70	90	145	200
C2	-	M4	M5	M8	M12
C3	-	6~14	14~19	16~24	22~35
C4	-	35	54	81	81
C5	-	50	70	110	114.3
C6	-	3.5	6	14	19
C7	-	60	80	130	180
C8	-	16	30	45.5	57.5
C9	-	100	137	192	246.5
C10	-	9.5	14.5	27	32
B1h9	-	5	6	8	12
H1	-	16	22.5	28	43



## DIMENSION

### DOUBLE SECTION

- 尺寸 (双节, 减速比  $i=15\sim 200$ )  
Dimension(double stage, Ratio  $i=15\sim 200$ )

尺寸/Dimension	WPFR042	WPFR060	WPFR080	WPFR115	WPFR142
D1	-	70	100	130	185
D2	-	5.5	6.5	8.8	11
D3	-	14	20	25	32
D4	-	50	80	110	130
D5	-	17	25	35	40
D6	-	M5	M6	M10	M12
D7	-	80	120	160	230
D8	-	60	90	120	176
L1	-	35	40	55	87
L2	-	3	3	4	5
L3	-	2	1	1	2
L4	-	25	25	40	65
L5	-	2.5	4	5	5
L6	-	8	10	14	15
L7	-	172.5	228.5	288	388.5
L8	-	4.8	5	7.5	9.5
L9	-	12	18	23	25
C1	-	70	90	145	200
C2	-	M4	M5	M8	M12
C3	-	6-14	14-19	16-24	22-35
C4	-	35	54	81	81
C5	-	50	70	110	114.3
C6	-	3.5	6	14	19
C7	-	60	80	130	180
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# WPLR

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