



• TRANSMISSION  
传动

• QUALITY  
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服务

# PLANETARY GEARBOX

## 行星减速器 | 产品手册

CATALOGUE  
2023版



**浙江赛亚智能传动科技有限公司**

ZHEJIANG SAIYA INTELLIGENT TRANSMISSION TECHNOLOGY CO., LTD

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**浙江赛亚智能传动科技有限公司**

ZHEJIANG SAIYA INTELLIGENT TRANSMISSION TECHNOLOGY CO., LTD

SINCE  
2006

赛亚传动

过硬的产品品质  
HIGH PRODUCT QUALITY

始终如一的服务  
CONSISTENT SERVICE

浙江赛亚智能传动科技有限公司成立于2011年，是一家集研发、生产及销售为一体的高新技术企业。公司主营：精密行星减速机、交直流减速电机、小型减速电机、直流有刷和无刷电机等。公司产品以其差异化和高性价比优势，广泛应用于工业机器人、智能物流、光伏、新能源、工作母机等领域，以及食品、包装、纺织、电子、医疗等专用机械设备，我司始终坚持以客户为导向、以产品为核心、以服务为宗旨的理念，努力为客户提供领先的传动技术方案和服务，创造高效、节能的工作环境。

Founded in 2011, Zhejiang Saiya Intelligent Transmission Technology Co.,Ltd is a national hi-tech enterprise which integrates R&D, production and sale. Our company is specializing in producing precision planetary gear box, ac/dc gear motor, small gear motor, dc brushed and brushless gear motor, etc.

Depending on differentiated and high cost performance advantage, Our products are widely used in the field of industrial robot, intelligent logistics, photovoltaic, machine tool, etc.

Meanwhile, our products are also used in food equipmnt, packing equipment, textile equipemnt, electronics equipment and medical equipment, etc.

Our company always adheres to the business philosophy of customer oriented, product centered, and service oriented, makes great efforts to provide customers with leading transmission technology and services, and creates efficient and energy saving working environment.



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TRANSMISSION  
专业的传动设备供应商



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始终如一品质



● 服务  
SERVICE  
专业的售后服务

## Planetary Gearbox Series 行星减速器 系列

### 经典经济型

经典经济型行星减速器。高性价比。应用领域广泛  
Classical economic planetary gearbox. This gearbox can be widely used indifferent area. At the same time it is with high quality & competitive price.



### SPB系列

SPB系列斜齿行星减速器。采用双支撑结构，承载扭力大、噪音低、使用寿命长  
SPB helical planetary gearbox. Adopt dual supporting structure for output shaft, with high torque, low noise and working life is much longer.



### VR同心轴精密型

VR同心轴精密型减速器。高精度型，精密型和标准型可选  
VR series high precision planetary gearbox. standard type, precision type and high precision type optional.



## Planetary Gearbox Selection Table

### 行星减速机选型表格

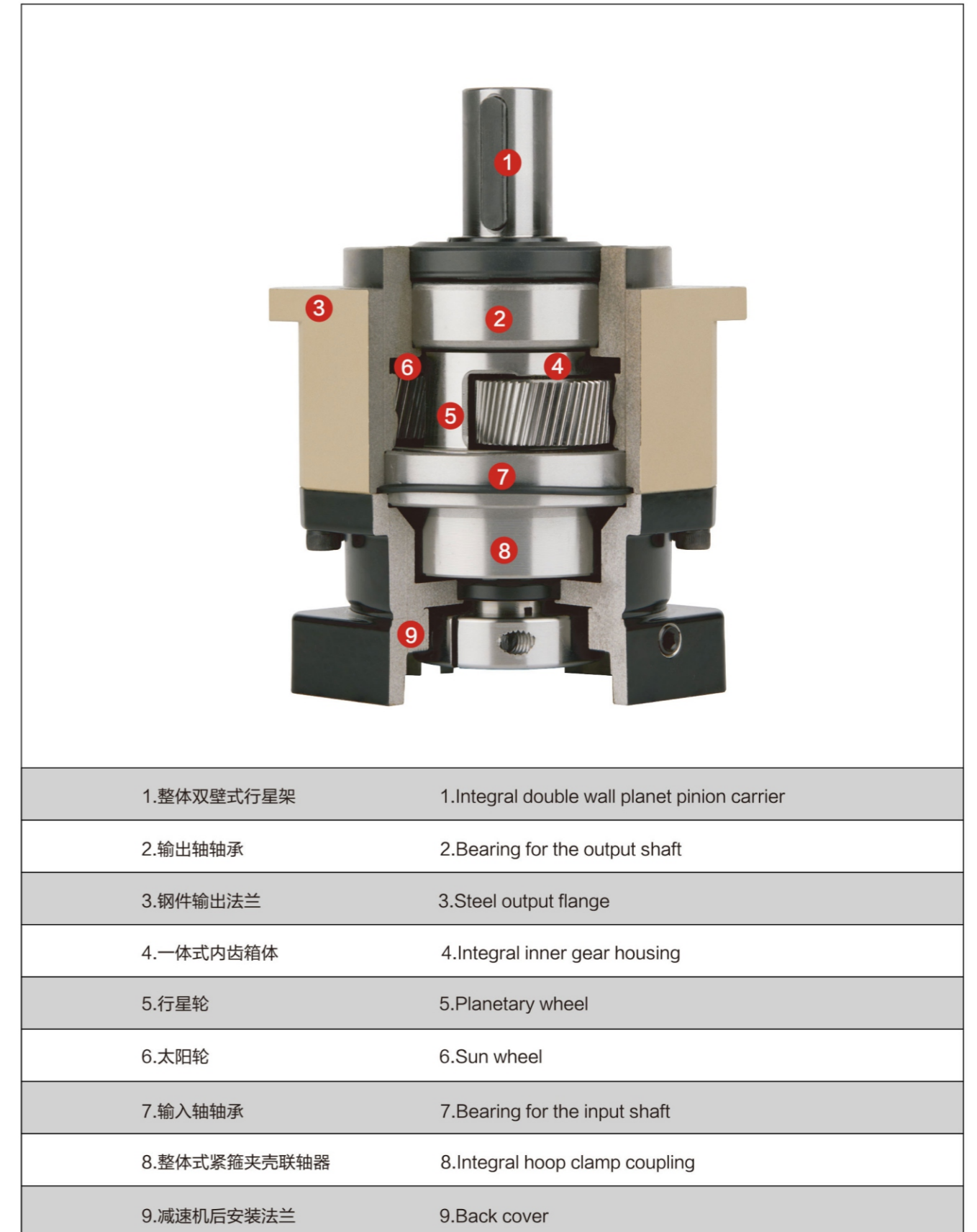
选型需要的基本信息 Selection of basic information need

项目 Project	指标 Indicators	参数 Parameter
<b>1.电机信息 The motor information</b>		
电机型号 Motor model (1)		
电机功率 Motor power (2)		
电机转速 Motor speed (2)		
<b>2.对行星减速机的要求 Claim to the planetary reducer</b>		
减速比 Ratio (3)	3~512	
背隙 Backlash (4)	标准或精密Standard or Precision	
使用扭矩 Usage torque (5)	≤额定扭矩Rated torque	
减速机座号 Planetary gearbox frame code (6)		
<b>3.工作环境 The work environment</b>		
每分钟正反转次数 CW&CCW rotation per minute	标准或自定义Standard or custom	
工作环境温度 Working environment temperature	标准或自定义Standard or custom 标准Standard(-25~+90)℃	
防护等级 Protection grade	标准Standard IP54(SP/SF),IP65(HAB)	
<b>4.确定行星减速机型号 Determine the planetary reduction model number</b>		
行星减速机型号 (7) Planetary reduction model number (7)		

- (1): 用于查询电机输出端尺寸, 使能与减速机输入尺寸相匹配。  
 (2): 根据推荐电机选型对照表来选型。也要用于使用扭矩计算。  
 (3): 减速比 $=n1/n2$ , 若无相应速比可选择最相近速比使用。  
 (4): 根据使用要求而定。  
 (5): 根据使用的设备需要多少额定扭矩保证运行和电机轴直径使用范围, 由此确定减速机座号和减速机系列号。  
 (6): 根据安装方式来确定, 具体可以参考各系列外形尺寸图。  
 (7): 根据以上内容即可确定减速机的具体型号。

- (1): For checking motor output dimensions,make it matching gearbox's input.  
 (2): To select the gearbox according to the motor power form. Also used to calculate the output torque.  
 (3): Gear ratio $=n1/n2$ , if the required ratio is not available, you can select the nearest one.  
 (4): According to the requirement of use.  
 (5): To select the gearbox according to the output torque requirement of the equipment and motor shaft diameter.  
 (6): To select the gearbox according to the assembly way.  
 (7): The gearbox can be selected according to the above information.

## Product Structure 产品结构图



P Series Planetary Gearbox  
行星减速齿轮箱P系列

● 产品图 PRODUCTS



SPE



SPB



SPF

型号分解 SIGNAL DECOMPOSITION

80    SPF    40    K  
①    ②    ③    ④

①	减速器外径	80mm Gearbox external diameter 80mm
②	减速器系列代号 Gearbox series code	SPB : 斜齿系列 SPB : Helical Gearbox
		SPE : 圆形输出法兰 SPE : Round output flange
		SPF : 方形输出法兰 SPF : Square output flange
		WSPE : 直角输入圆形法兰输出 WSPE : Right angle round output flange
		WSPF : 直角输入方形法兰输出 WSPF : Right angle square output flange
③	Gear ratio	单级3,4,5,8,10 Single stage 3,4,5,8,10
		两级9,12,15,16,20,25,32,40,64 Two stage 9,12,15,16,20,25,32,40,64
		三级60,80,100,120,160,200,256,320,516 Three stage 60,80,100,120,160,200,256,320,516
④	轴承类型 Bearing type	K : 滚珠轴承 Ball bearing

SPE/SPF 系列按伺服电机功率选型推荐表 (输入转速为3000rpm)  
SPE/SPF Series Gearbox Selection Form According To the Power of Servo Motor

功率 Power	SPE/SPF60--速比(2) SPE/SPF60-Ratio(2)	SPE/SPF80--速比(2) SPE/SPF80-Ratio(2)	SPE/SPF120--速比(2) SPE/SPF120-Ratio(2)	SPE/SPF160--速比(2) SPE/SPF160-Ratio(2)
50W	64, 160, 200, 256			
100W	3, 4, 5, 8, 10, 9, 12, 15, 16, 20, 25, 32, 40, 60, 80, 100, 120	64, 160, 200, 256, 320		
200W	3, 4, 5, 8, 10, 9, 12, 15, 16, 20, 25, 32, 40, 60	80, 100, 120, 160		
400W	3, 4, 5, 8, 10, 9, 12, 15, 16, 20, 25	32, 40, 60, 80	64, 100, 120, 160	
750W	(3, 4, 5, 9, 12, 16)	3, 4, 5, 8, 10, 9, 12, 15, 16, 20, 25, 32, 40	60, 80, 100	64, 120, 160, 200, 256
1000W		(3, 4, 5, 8, 10, 9, 12, 15, 16, 20, 25, 32)	3, 4, 5, 8, 10, 9, 12, 15, 16, 25, 32, 40, 60	64, 80, 100, 120, 160, 200, 256
1500W		(3, 4, 5, 8, 10, 9, 12, 15, 16, 20)	3, 4, 5, 8, 10, 9, 12, 15, 16, 25, 32, 40	64, 60, 80, 100, 120, 160
2000W			3, 4, 5, 8, 10, 9, 12, 15, 16, 20, 25, 32	40, 60, 80, 100
2500W			3, 4, 5, 8, 9, 12, 15, 16, 20, 25	(3, 4, 5, 8, 10, 9, 12, 15, 16, 25) 32, 40, 60, 80, 100
3000W			(3, 4, 5, 8, 9, 12, 15, 16, 20)	3, 4, 5, 8, 10, 9, 12, 15, 16, 25, 32, 40, 60, 80
3500W			(3, 4, 5, 8, 9, 12, 15, 16)	3, 4, 5, 8, 10, 9, 12, 15, 16, 20, 25, 32, 40, 60
4500W				3, 4, 5, 8, 10, 9, 12, 15, 16, 20, 25, 32, 40
5500W				3, 4, 5, 8, 10, 9, 12, 15, 16, 20, 25, 32, 40
7500W				3, 4, 5, 8, 10, 9, 12, 15, 16, 20, 25

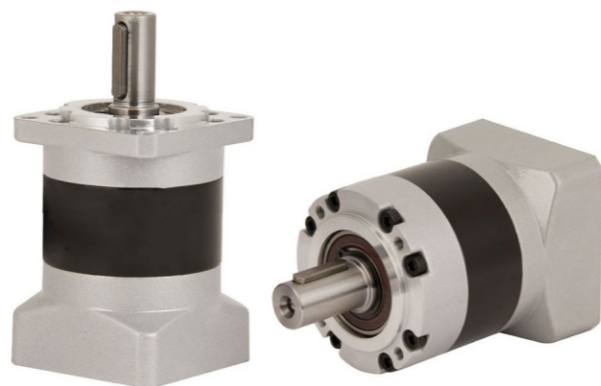
- (1): 对照表中“( )”为次选速比。  
 (2): 减速机使用≤扭矩额定扭矩时, 可选择相同机座中的相应速比。  
 (1): “( )” is second-choice ratio  
 (2): When Gearbox' operation torque ≤Rated torque,select the ratio accordingly in same frame.

减速机适用电机的轴径范围, 见下列表格Input shaft range:

减速机系列 Planetary gearbox series	SPE/SPF	SPE/SPF 60	SPE/SPF 80	SPE/SPF 120	SPE/SPF 160
电机轴径 Motor shaft dianeter	mm	6≤d≤19	8≤d≤22	14≤d≤35	19≤d≤42

## SP 系列经典行星减速器

## SP Series Planetary Gearbox



## ■ 技术资料 TECHNICAL INFORMATION

产品型号 Model	单位 Unit	SP40	SP60	SP80	SP120	SP160	减速比 Gear ratio	级数 Stage
额定输出扭矩 Rated Output Torque	N.m	4.5	12	40	80	400	3	1
		6	16	50	100	450	4	
		6	16	50	110	450	5	
		5	15	45	120	450	8	
		5	15	45	120	305	10	
		16.5	44	110	210	400	9	
		18	44	120	260	800	12	2
		18	40	110	230	700	15	
		20	44	120	260	800	16	
		20	44	120	260	800	20	
		18	40	110	230	700	25	
		20	44	120	260	800	32	
		18	40	110	230	700	40	3
		7.5	18	50	120	450	64	
		20	44	120	260	800	60	
		20	44	120	260	800	80	
		20	44	120	260	800	100	
		18	40	110	230	700	120	
		20	44	120	260	800	160	3
		18	40	110	230	700	200	
		20	44	120	260	800	256	
		18	40	110	230	700	320	
		20	44	120	260	800	512	
		7.5	18	50	120	450	512	

产品型号 Model Number	SP40	SP60	SP80	SP120	SP160
抗扭刚性 Torsional stiffness	0.7	1.8	4.5	12	38
噪音 Noise Level	55	58	60	65	70
最高输入转速 Max Input speed (rpm)	10000	8000	6000	6000	6000
推荐输入转速 Recommend Input speed (rpm)	4500	4000	4000	4000	3000
最大径向力 Max radial torque(N)	160	340	650	1500	4200
最大轴向力 Max axial torque(N)	160	450	900	2100	6000
工作温度 Operating temperature	-25℃~90℃				
保护等级 IP	IP54				
润滑方式 Lubrication	终身润滑 Life time lubrication				
安装方式 Mount type	Any direction				

## SP 系列经典行星减速器

## SP Series Planetary Gearbox

## ■ 技术资料 TECHNICAL INFORMATION

产品型号 Model	单位 Unit	SP40	SP60	SP80	SP120	SP160	减速比 Gear ratio	级数 Stage
转动惯量 Moment of Inertia	Kgc <sup>m</sup> <sup>2</sup>	0.031	0.135	0.77	2.63	12.14	3	1
		0.022	0.093	0.52	1.79	7.78	4	
		0.019	0.078	0.45	1.53	6.07	5	
		0.017	0.065	0.39	1.32	4.63	8	
		0.015	0.054	0.34	1.14	3.52	10	
		0.030	0.131	0.74	2.62	12.1	9	
		0.029	0.127	0.72	2.56	12.37	12	2
		0.023	0.077	0.71	2.53	12.35	15	
		0.022	0.088	0.50	1.75	7.47	16	
		0.019	0.075	0.44	1.5	6.65	20	
		0.019	0.075	0.44	1.49	5.81	25	
		0.017	0.064	0.39	1.3	4.5	32	
		0.016	0.064	0.39	1.3	4.5	40	3
		0.016	0.064	0.39	1.3	4.5	64	
		0.029	0.13	0.70	2.57	12.1	60	
		0.019	0.075	0.50	1.5	5.81	80	
		0.019	0.075	0.44	1.49	5.8	100	
		0.029	0.13	0.70	2.5	12.1	120	
		0.016	0.064	0.39	1.3	4.5	160	3
		0.016	0.064	0.39	1.3	4.5	200	
		0.016	0.064	0.39	1.3	4.5	256	
		0.016	0.064	0.39	1.3	4.5	320	
		0.016	0.064	0.39	1.3	4.5	512	
		0.016	0.064	0.39	1.3	4.5	512	

产品型号 Model Number		SP40	SP60	SP80	SP120	SP160	级数 Stage	
回程间隙 Backlash	弧分 arcmin	精密 Percision	≤5	≤3	≤3	≤3	≤3	1
		标准 Standard	≤10	≤8	≤8	≤8	≤8	
		精密 Percision	≤8	≤5	≤5	≤5	≤5	2
		标准 Standard	≤12	≤10	≤10	≤10	≤10	
		精密 Percision	≤10	≤8	≤8	≤8	≤8	3
		标准 Standard	≤15	≤12	≤12	≤12	≤12	

产品型号 Model Number	SP40	SP60	SP80	SP120	SP160	级数 Stage
满载效率 Full load efficiency(%)					96	1
					94	2
					90	3
重量 Net weight(Kg)	0.4	0.9	2.1	6	18	1
	0.5	1.1	2.6	8	22	2
	0.6	1.3	3.1	9.5	29	3

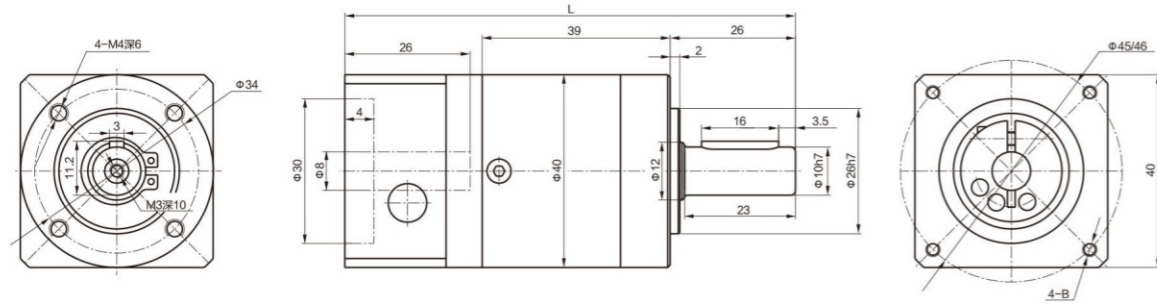
使用寿命 Working Life	20,000 hours				
瞬间急停扭矩 Instant stop torque	2倍于额定扭矩 2×Rated torque				

最大轴向力 Max axial torque(N)	160	450	900	2100	6000
工作温度 Operating temperature	-25℃~90℃				
保护等级 IP	IP54				
润滑方式 Lubrication	终身润滑 Life time lubrication				
安装方式 Mount type	Any direction				

### 40SPE/SPF系列外形尺寸图

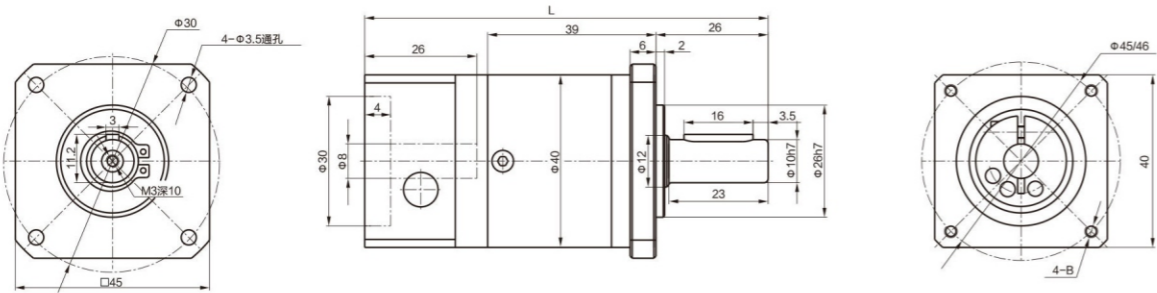
### 40SPE/SPF Series Dimensions

SPE-50/100W 外形尺寸图 50/100W dimensions



总长 Total length	1-Stage	2-Stage	3-Stage
L	93.5	106.5	119

SPF-50/100W 外形尺寸图 50/100W dimensions



总长 Total length	1-Stage	2-Stage	3-Stage
L	93.5	106.5	119

(1):订购时请告知详细的电机型号, 图纸以外形尺寸图确认为准。

(2):Provide specific motor type when ordering,the dimensions are subject to final outline drawing.

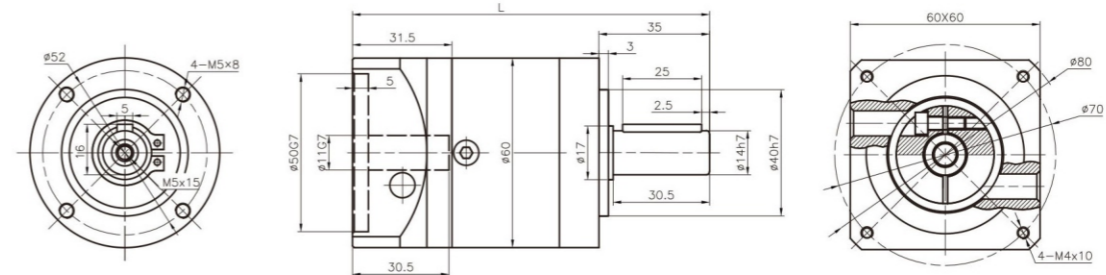
满载效率 Full load efficiency(%)						96	1
						94	2
						90	3
重量 Net weight(Kg)	0.4	0.9	2.1	6	18	1	
	0.5	1.1	2.6	8	22	2	
	0.6	1.3	3.1	9.5	29	3	

使用寿命 Working Life	20,000 hours	
瞬间急停扭矩 Instant stop torque	2倍于额定扭矩 2 × Rated torque	

### 60SPE系列外形尺寸图

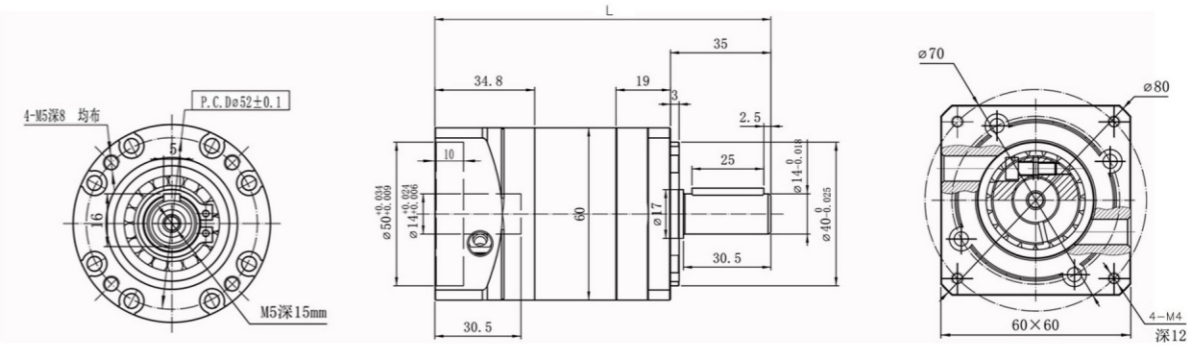
### 60SPE Series Dimensions

200W 外形尺寸图 200W dimensions



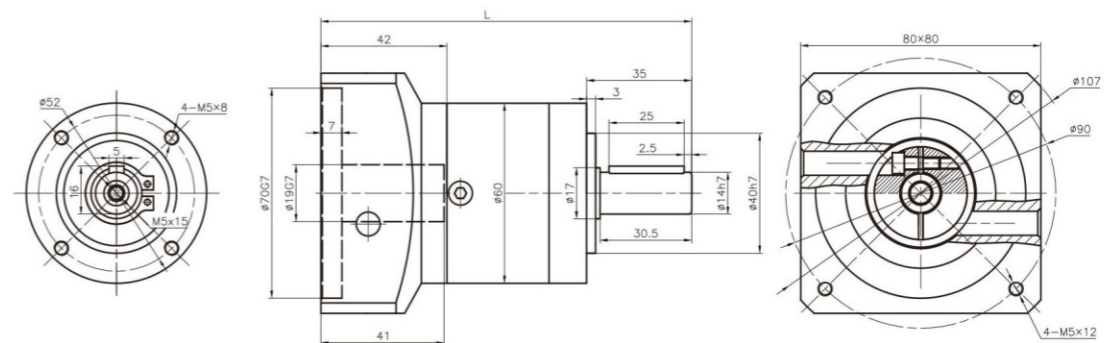
总长 Total length	1-Stage	2-Stage	3-Stage
L	117.1	135.1	138.5

400W 外形尺寸图 400W dimensions



总长 Total length	1-Stage	2-Stage	3-Stage
L	117.1	135.1	138.5

750W 外形尺寸图(次选) 750W dimensions (second choice)

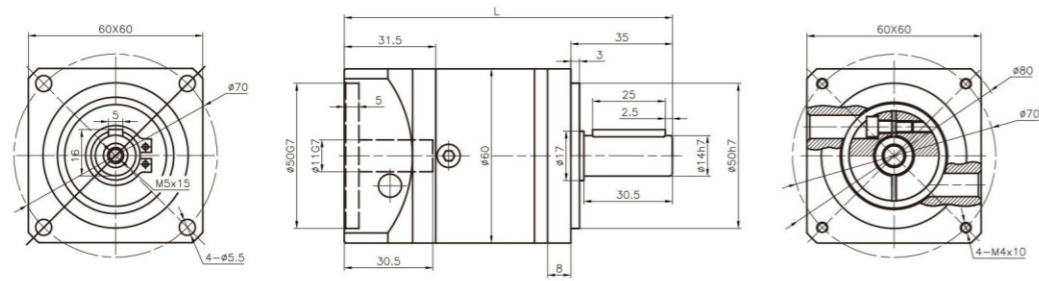


总长 Total length	1-Stage	2-Stage
L	123.5	136.5

60SPF系列外形尺寸图

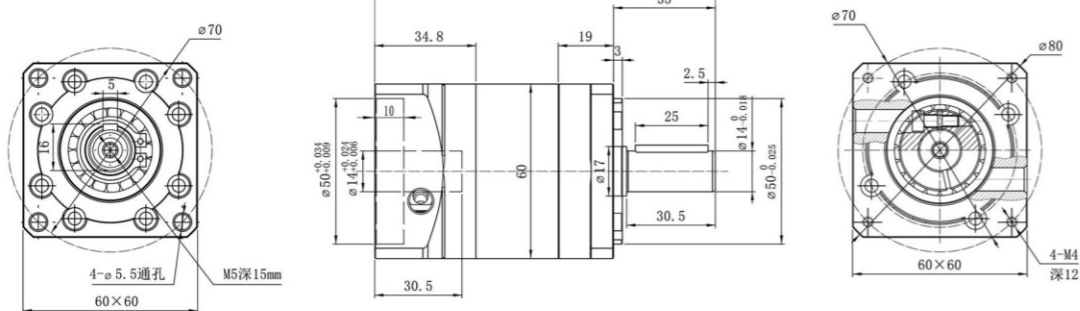
60SPF Series Dimensions

200W 外形尺寸图 200W dimensions



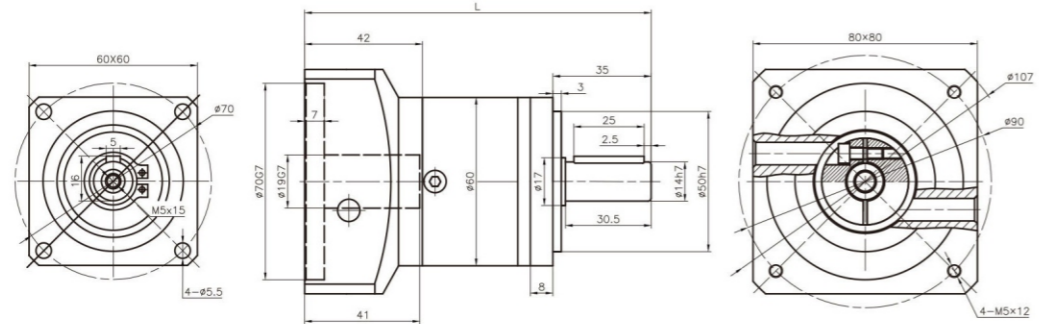
总长 Total length	1-Stage	2-Stage	3-Stage
L	117.1	135.1	138.5

400W 外形尺寸图 400W dimensions



总长 Total length	1-Stage	2-Stage	3-Stage
L	117.1	135.1	138.5

750W 外形尺寸图(次选) 750W dimensions (second choice)



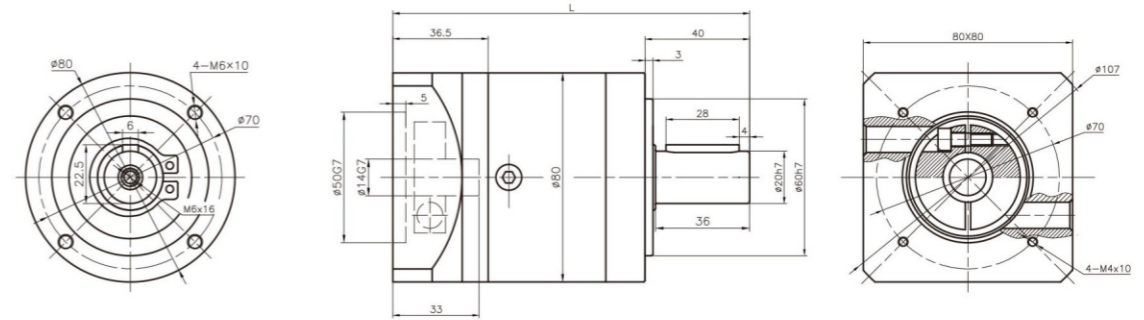
总长 Total length	1-Stage	2-Stage
L	123.5	136.5

- (1): 订购时请告知详细的电机型号, 图纸以外形尺寸图确认为准。
- (2): Provide specific motor type when ordering, the dimensions are subject to final outline drawing.

80SPE系列外形尺寸图

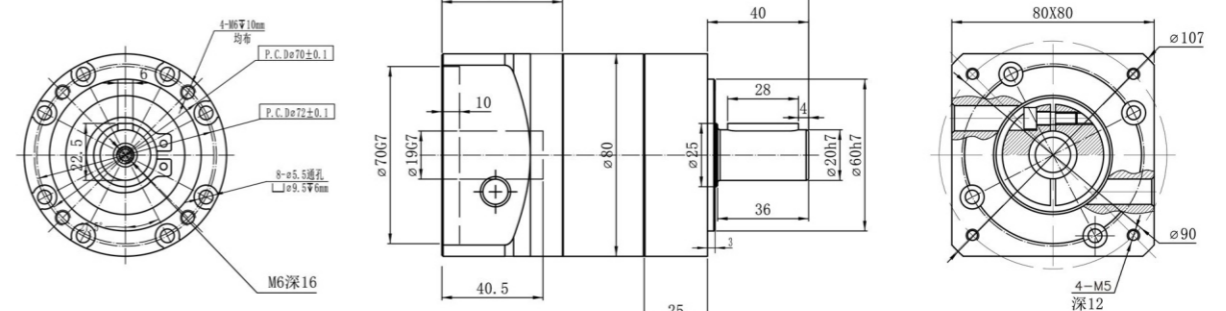
80SPE Series Dimensions

400W 外形尺寸图 400W dimensions



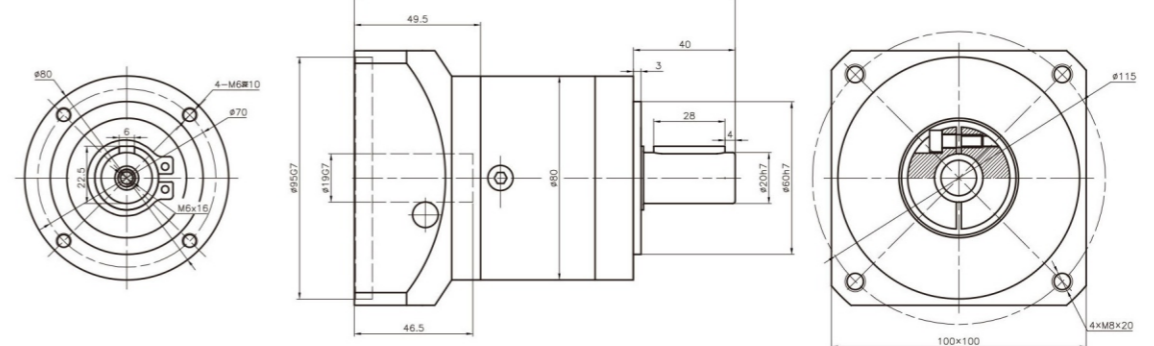
总长 Total length	1-Stage	2-Stage	3-Stage
L	136.5	154.5	172

750W 外形尺寸图 750W dimensions



总长 Total length	1-Stage	2-Stage	3-Stage
L	145	166.5	179

1000W 外形尺寸图(次选) 1000W dimensions (second choice)



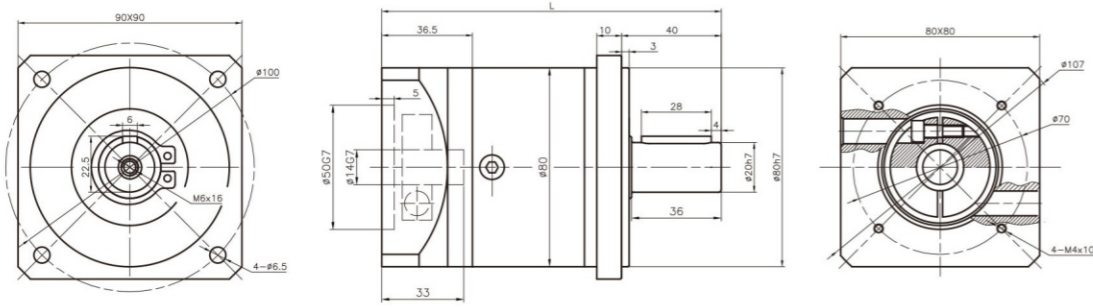
总长 Total length	1-Stage	2-Stage
L	163.5	181.5

- (1): 订购时请告知详细的电机型号, 图纸以外形尺寸图确认为准。
- (2): Provide specific motor type when ordering, the dimensions are subject to final outline drawing.

### 80SPF系列外形尺寸图

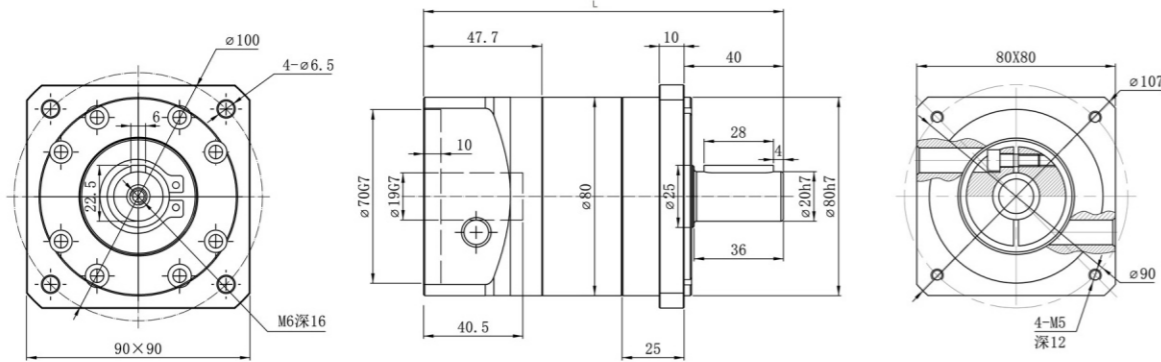
### 80SPF Series Dimensions

400W 外形尺寸图 400W dimensions



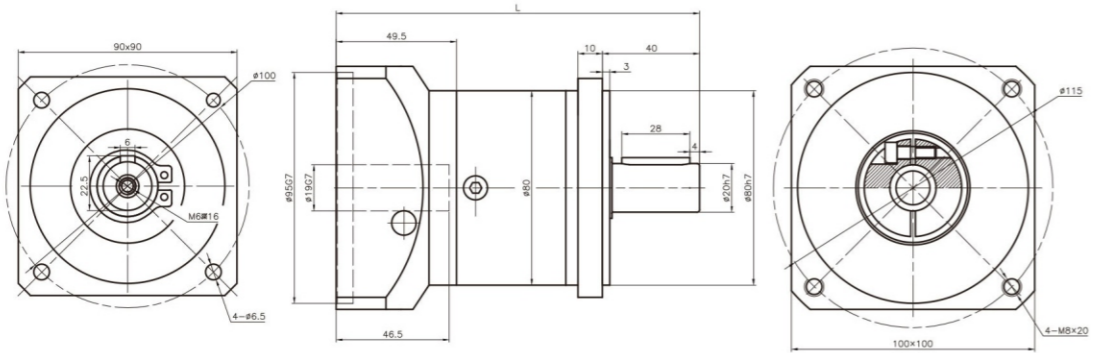
总长 Total length	1-Stage	2-Stage	3-Stage
L	136.5	154.5	172

750W 外形尺寸图 750W dimensions



总长 Total length	1-Stage	2-Stage	3-Stage
L	145	166.5	179

1000W 外形尺寸图(次选) 1000W dimensions (second choice)



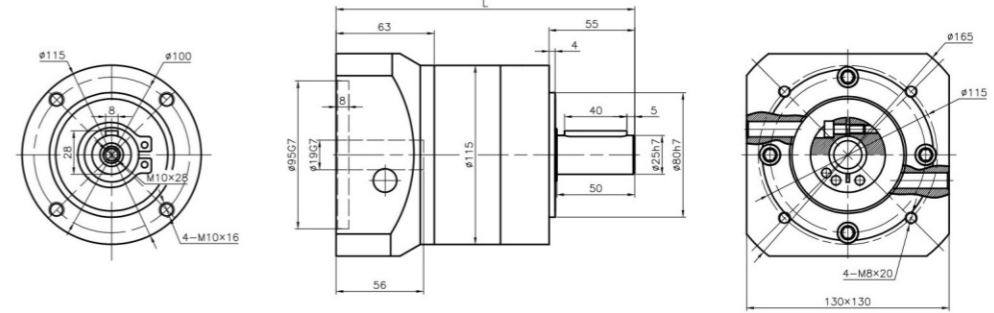
总长 Total length	1-Stage	2-Stage
L	163.5	181.5

(1):订购时请告知详细的电机型号, 图纸以外形尺寸图确认为准。  
 (2):Provide specific motor type when ordering,the dimensions are subject to final outline drawing.

### 120SPE系列外形尺寸图

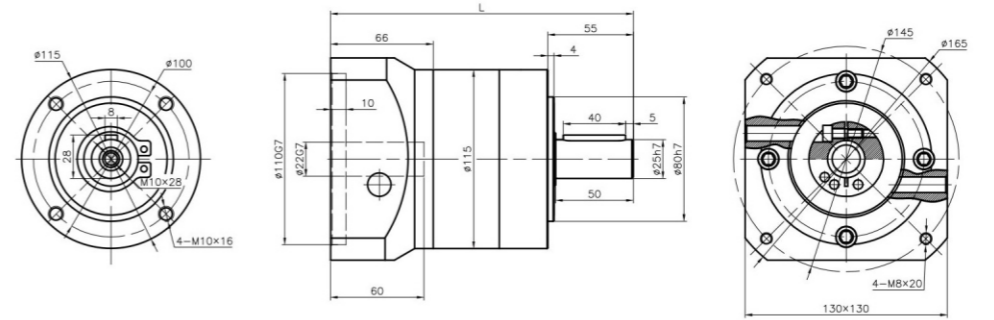
### 120SPE Series Dimensions

1000W 外形尺寸图 1000W dimensions



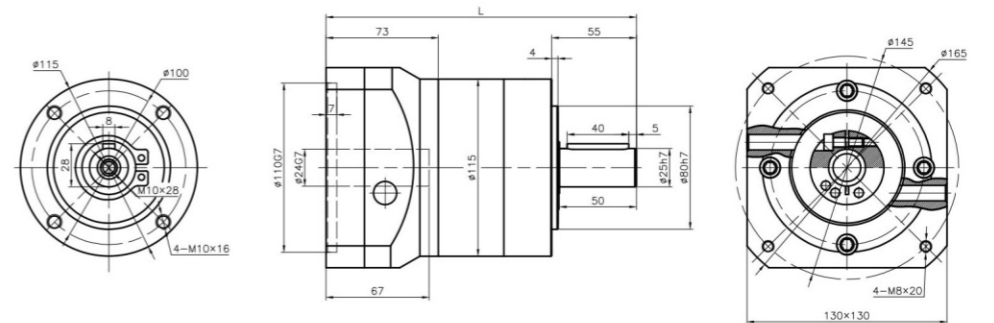
总长 Total length	1-Stage	2-Stage	3-Stage
L	191.7	223.7	243

2000W 外形尺寸图 2000W dimensions



总长 Total length	1-Stage	2-Stage	3-Stage
L	194.7	227.7	247

3000W 外形尺寸图(次选) 3000W dimensions (second choice)



总长 Total length	1-Stage	2-Stage
L	201.7	235.2

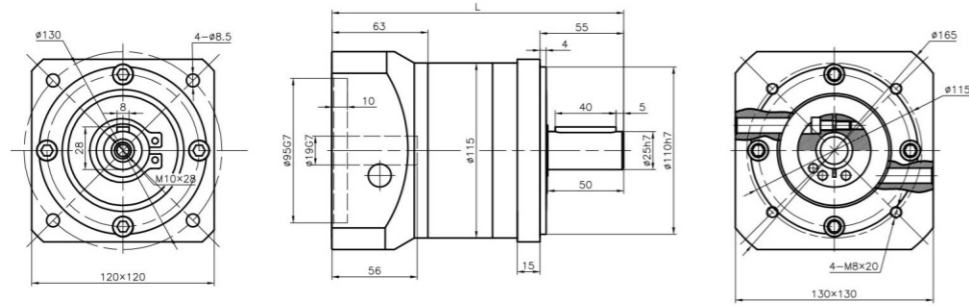
(1):订购时请告知详细的电机型号, 图纸以外形尺寸图确认为准。  
 (2):Provide specific motor type when ordering,the dimensions are subject to final outline drawing.



## 120SPF系列外形尺寸图

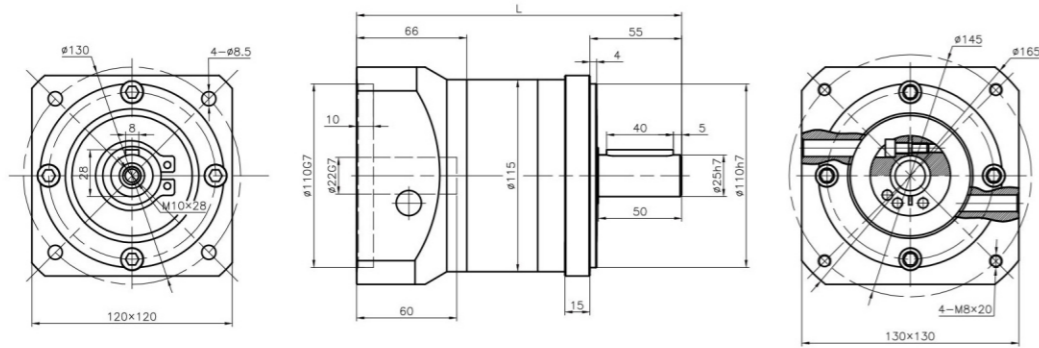
## 120SPF Series Dimensions

1000W 外形尺寸图 1000W dimensions



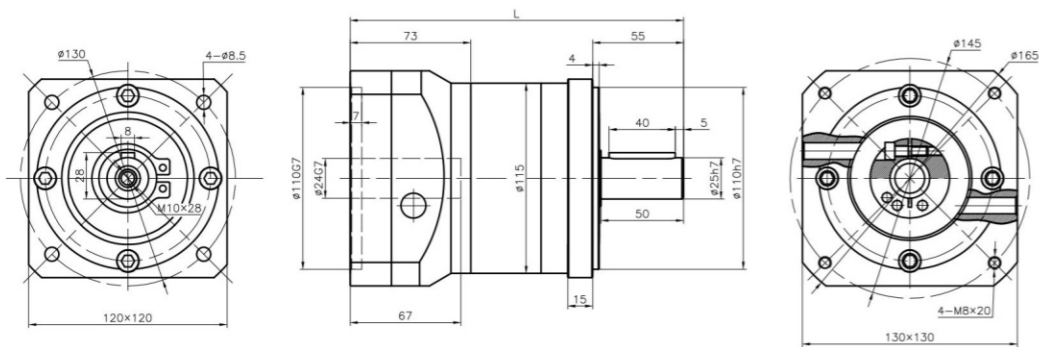
总长 Total length	1-Stage	2-Stage	3-Stage
L	191.7	223.7	243

2000W 外形尺寸图 2000W dimensions



总长 Total length	1-Stage	2-Stage	3-Stage
L	194.7	227.7	247

3000W 外形尺寸图(次选) 3000W dimensions (second choice)



总长 Total length	1-Stage	2-Stage
L	201.7	235.2

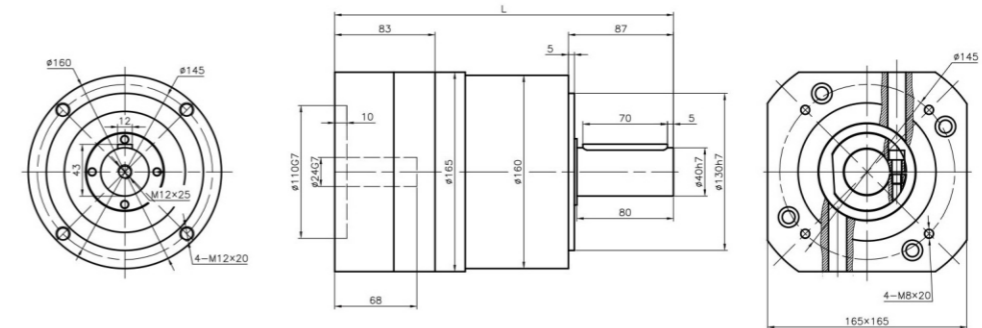
(1):订购时请告知详细的电机型号, 图纸以外形尺寸图确认为准。

(2):Provide specific motor type when ordering,the dimensions are subject to final outline drawing.

## 160SPE系列外形尺寸图

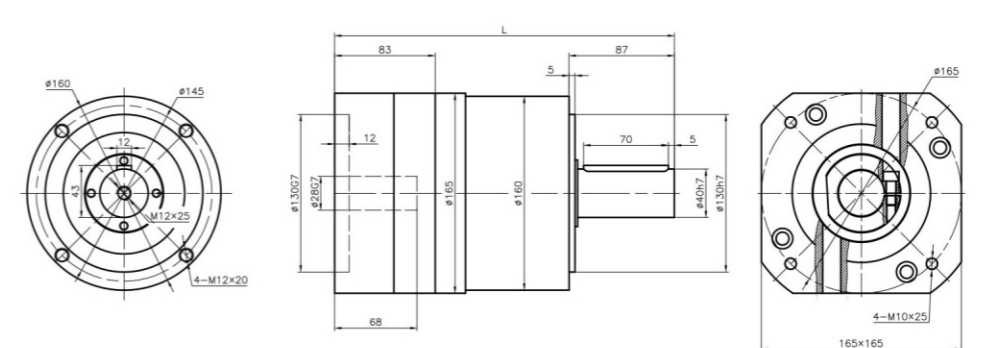
## 160SPE Series Dimensions

3000W 外形尺寸图 3000W dimensions



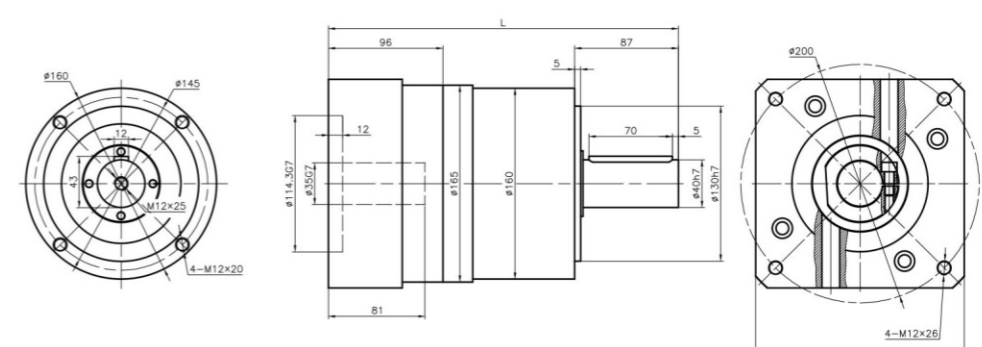
总长 Total length	1-Stage	2-Stage	3-Stage
L	280.5	321.5	363

4000W 外形尺寸图 4000W dimensions



总长 Total length	1-Stage	2-Stage	2-Stage
L	280.5	321.5	363

5000W 外形尺寸图(次选) 5000W dimensions (second choice)



总长 Total length	1-Stage	2-Stage
L	293.5	334.5

(1):订购时请告知详细的电机型号, 图纸以外形尺寸图确认为准。

(2):Provide specific motor type when ordering,the dimensions are subject to final outline drawing.

# 160SPF系列外形尺寸图

## 160SPF Series Dimensions

**3000W 外形尺寸图 3000W dimensions**

总长 Total length	1-Stage	2-Stage	3-Stage
L	280.5	321.5	363

**4000W 外形尺寸图 4000W dimensions**

总长 Total length	1-Stage	2-Stage	3-Stage
L	280.5	321.5	363

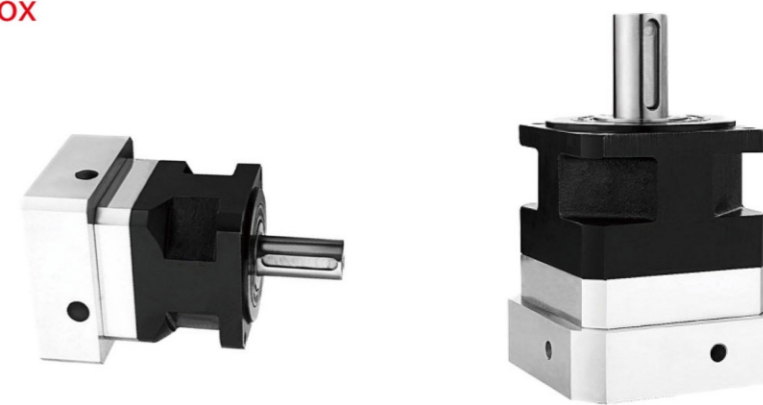
**5000W 外形尺寸图(次选) 5000W dimensions (second choice)**

总长 Total length	1-Stage	2-Stage
L	293.5	334.5

(1):订购时请告知详细的电机型号, 图纸以外形尺寸图确认为准。  
 (2):Provide specific motor type when ordering,the dimensions are subject to final outline drawing.

# SPS 系列经典行星减速器

## SPS Series Planetary Gearbox



### 技术资料 TECHNICAL INFORMATION

产品型号 Model	单位 Unit	SPS70	SPS90	SPS115	SPS142	SPS190	减速比 Gear ratio	级数 Stage
额定输出扭矩 Rated Output Torque	N.m	30	75	150	400	1000	3	1
		40	100	200	560	1200	4	
		50	110	210	700	1900	5	
		37	62	148	450	1000	8	
		27	45	125	305	630	10	
		77	120	260	910	1800	12	
		68	110	210	780	1800	15	2
		77	120	260	910	1800	16	
		77	110	260	910	1800	20	
		68	110	210	780	1800	25	
		77	120	260	910	1800	32	
		68	110	210	780	1800	40	
		37	62	148	450	100	64	
		27	45	125	305	630	100	

产品型号 Model	SPS70	SPS90	SPS115	SPS142	SPS190
噪音 Noise Level	58	60	65	68	70
最高输入转速 Max Input speed (rpm)	14000	10000	8500	6500	6000
推荐输入转速 Recommend Input speed (rpm)	5000	4500	4000	3000	2500
最大径向力 Max radial torque(N)	3000	3900	4300	8200	12000
最大轴向力 Max axial torque(N)	6000	9000	12000	19000	28000
工作温度 Operating temperature	-25°C~90°C				
保护等级 IP	IP54				
润滑方式 Lubrication	终身润滑 Life time lubrication				
安装方式 Mount type	任意 Any direction				

# SPS 系列经典行星减速器

## SPS Series Planetary Gearbox

### ■ 技术资料 TECHNICAL INFORMATION

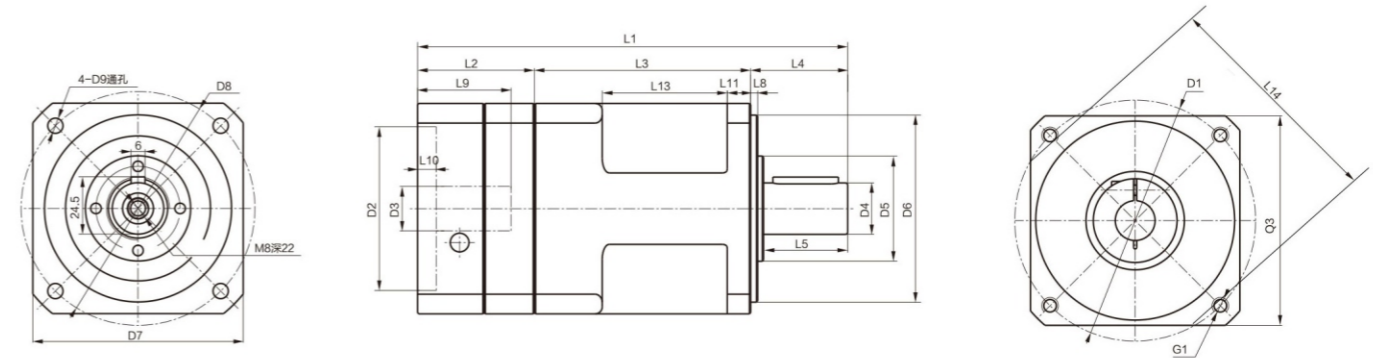
产品型号 Model	单位 Unit	SPS70	SPS90	SPS115	SPS142	SPS190	减速比 Gear ratio	级数 Stage
转动惯量 Moment of Intertia	Kgcm <sup>2</sup>	0.32	0.81	2.1	12.14	47.52	3	1
		0.2	0.6	1.51	7.78	29.69	4	
		0.16	0.52	1.22	6.07	23.18	5	
		0.12	0.46	1.05	4.63	16.83	8	
		0.1	0.44	1	4.25	15.32	10	
		0.22	0.75	2	12.37	30.25	12	2
		0.21	0.74	2	12.35	23.53	15	
		0.2	0.56	1.48	7.47	28.95	16	
		0.17	0.5	1.41	6.65	22.71	20	
		0.16	0.48	1.21	5.81	22.46	25	
		0.13	0.45	1.46	6.36	16.65	32	
		0.13	0.45	1.05	5.28	16.54	40	
		0.13	0.45	1.05	4.5	16.45	64	
		0.12	0.44	1	4.17	15.07	100	

产品型号 Model			SPS70	SPS90	SPS115	SPS142	S-PS190	级数 Stage	
回程间隙 Backlash	弧分 arcmin	精密 Percision	≤3	≤3	≤3	≤3	≤3	1	
		标准 Standard	≤8	≤8	≤8	≤8	≤8		
		精密 Percision	≤5	≤5	≤5	≤5	≤5	2	
		标准 Standard	≤10	≤10	≤10	≤10	≤10		
抗扭刚性 Torsional stiffness			6	9	20	44	130	1	
			7	10	22	46	140	2	
满载效率 Full load efficiency(%)								98	1
								95	2
重量 Net weight(Kg)			3	4.3	9	15.4	33.5	1	
			3.8	5.7	11.6	18.6	45	2	

使用寿命 Working Life	20,000 hours
急停扭矩 Instant stop torque	2倍于额定扭矩 2 × Rated torque

# SPS 系列经典行星减速器

## SPS Series Planetary Gearbox



### ■ SPS系列外形尺寸 SPS SERIES DIMENSIONS

产品型号 Model	SPS70		SPS90		SPS115		SPS142		SPS190	
	1	2	1	2	1	2	1	2	1	2
级数 Stage	1	2	1	2	1	2	1	2	1	2
尺寸 Size	单位(Unit): mm									
L1	124	147.5	155.5	184	193	226.9	280.5	321.5	305.5	353
L3	62.5	86	69	97.5	77.5	111	110.5	151.5	121	169
输出端 Output End										
L4	32		41.5		64.5		87		90	
L5	28		36		58		80		82	
L8	3		33		4		5		6	
D4	φ19h7		φ22h7		φ32h7		φ40h7		φ55h7	
D5	φ35		φ40		φ45		φ65		φ95	
D6	φ60h7		φ80h7		φ110h7		φ130h7		φ160h7	
D7	70		90		115		142		190	
D8	φ75		φ100		φ130		φ165		φ215	
D9	φ5.5		φ6.5		φ8.5		φ11		φ13.5	
L13	23		30		34		52		52	
L14	64		87		115		140		190	
输入端 Input End										
L2	29.5		45		51		80		94	
L9	23		35		45		67		81	
L10	3		3.5		3.5		6		6	
D1	φ75		φ100		φ115		φ165		φ215	
D2	φ50h7		φ80h7		φ95h7		φ130h7		φ180h7	
D3	φ11h7		φ16h7		φ19h7		φ35h7		φ38h7	
G1	M5 × 12		M6 × 15		M8 × 22		M10 × 25		M12 × 25	
Q3	70		90		115		142		190	

## WSP 系列经典行星减速器

## WSP Series Planetary Gearbox



## ■ 技术资料 TECHNICAL INFORMATION

产品型号 Model	单位 Unit	WSP40	WSP60	WSP80	WSP120	减速比 Gear ratio	级数 Stage
额定输出扭矩 Rated Output Torque	N.m	4.5	12	40	80	3	1
		6	16	50	100	4	
		6	16	50	110	5	
		5	15	45	120	8	
		5	15	45	120	10	
		16.5	44	110	210	9	
		18	44	120	260	12	2
		18	40	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	3
		7.5	18	50	120	64	
		20	44	120	260	60	
		20	44	120	260	80	
		20	44	120	260	100	
		18	40	110	230	120	
		20	44	120	260	160	3
		18	40	110	230	200	
		20	44	120	260	256	
		18	40	110	230	320	
		7.5	18	50	120	512	

产品型号 Model Number	WSP40	WSP60	WSP80	WSP120
噪音 Noise Level	6.5	65	68	70
最高输入转速 Max Input speed (rpm)	18000	13000	7000	6500
推荐输入转速 Recommend Input speed (rpm)	4500	3000	3000	3000
最大径向力 Max radial torque(N)	160	340	650	1500
最大轴向力 Max axial torque(N)	160		900	2100
工作温度 Operating temperature	零下25℃~90℃			
保护等级 IP	IP54			
润滑方式 Lubrication	终身润滑 Life time lubrication			
安装方式 Mount type	Any direction			

## WSP 系列行星减速器

## WSP Series Planetary Gearbox

## ■ 技术资料 TECHNICAL INFORMATION

产品型号 Model	单位 Unit	WSP40	WSP60	WSP80	WSP120	减速比 Gear ratio	级数 Stage
转动惯量 Moment of Inertia	Kgcm <sup>2</sup>	0.044	0.246	1.189	5.75	3	1
		0.035	0.204	0.939	3.91	4	
		0.032	0.189	0.869	3.35	5	
		0.03	0.176	0.809	2.89	8	
		0.026	0.152	0.73	2.54	10	
		0.043	0.242	1.15	5.73	9	
		0.042	0.238	1.139	2.6	12	2
		0.036	0.188	1.129	5.53	15	
		0.035	0.199	0.919	3.83	16	
		0.032	0.186	0.859	3.26	20	
		0.032	0.186	0.859	2.84	25	
		0.03	0.175	0.809	2.84	32	
		0.029	0.175	0.809	2.84	40	3
		0.029	0.175	0.809	5.62	64	
		0.042	0.187	0.929	3.28	60	
		0.032	0.186	0.919	5.81	80	
		0.032	0.186	0.859	3.26	100	
		0.042	0.175	0.119	5.47	120	
		0.029	0.175	0.809	2.84	160	3
		0.029	0.175	0.809	2.84	200	
		0.029	0.175	0.809	2.84	256	
		0.029	0.175	0.809	2.84	320	
		0.029	0.175	0.809	2.84	512	

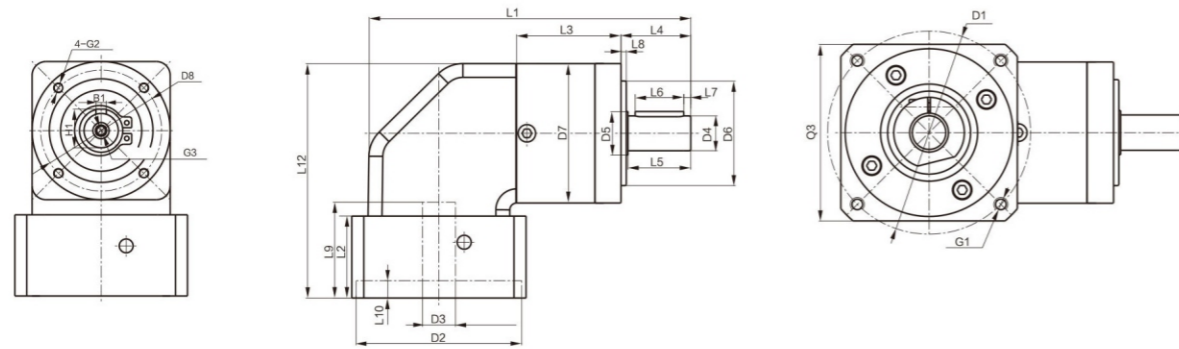
产品型号 Model		WSP40	WSP60	WSP80	WSP120	级数 Stage
回程间隙 Backlash	标准 Standard	≤40	≤30	≤25	≤15	1
	标准 Standard	≤45	≤35	≤30	≤20	2
	标准 Standard	≤50	≤40	≤40	≤25	3
满载效率 Full load efficiency(%)		94				1
		92				2
		88				3
重量 Net weight(Kg)		0.51	0.51	0.51	12	1
		0.61	0.61	0.61	14	2
		0.71	0.71	0.71	16	3
抗扭刚性 Torsional stiffness		0.7	1.5	4.5	10	1
		1.1	2.5	6.5	13	2
		1	2.5	6.3	12	3

使用寿命 Working Life	20,000 hours
瞬间急停扭矩 Instant stop torque	2倍于额定扭矩 2× Rated torque

## WSPE 系列行星减速器

### WSPE Series Planetary Gearbox

#### ■ 外形尺寸 DIMENSION

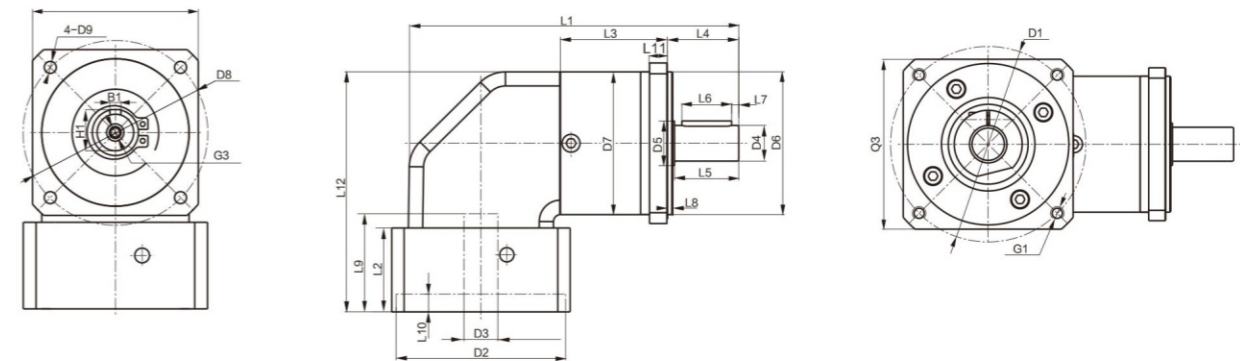


产品型号 Model	WSPE40			WSPE60			WSPE80			WSPE120		
级数 Stage	1	2	3	1	2	3	1	2	3	1	2	3
尺寸 Size	单位(Unit): mm											
L1	119.5	132.5	144.5	156.5	169.5	182	194	212	229.5	258.5	286.5	314
L3	38.5	51.5	63.5	46.5	59.5	72	60	78	95.5	73.7	101.5	129
L12	68			93			109.5			145.5		
输出端 Output End												
L4	26			35			40			55		
L5	24			30.5			36			50		
L6	16			25			28			40		
L7	2.5			2.5			4			5		
L8	2			3			3			4		
D4	Φ10h7			Φ14h7			Φ20h7			Φ25h7		
D5	Φ12			Φ17			Φ25			Φ35		
D6	Φ26			Φ40			Φ60			Φ80		
D7	Φ40			Φ60			Φ80			Φ115		
D8	Φ34			Φ52			Φ70			Φ100		
B1	3			5			6			8		
H1	11.2			16			22.5			28		
G2	M4×6			M5×18			M6×10			M10×16		
G3	M3×9			M5×12			M6×16			M10×22		
输入端 Input End												
L2	19			23			26.5			27		
L9	25			30			35			45		
L10	3			2.5			3.5			3.5		
D1	Φ46			Φ70			Φ100			Φ115		
D2	Φ30h7			Φ50h7			Φ80h7			Φ95h7		
D3	Φ8h7			Φ14h7			Φ16h7			Φ19h7		
G1	M4×10			M5×12			M6×15			M8×20		
Q3	40			60			90			115		

## WSPF 系列行星减速器

### WSPF Series Planetary Gearbox

#### ■ 外形尺寸 DIMENSION



产品型号 Model	WSPF40			WSPF60			WSPF80			WSPF120		
级数 Stage	1	2	3	1	2	3	1	2	3	1	2	3
尺寸 Size	单位(Unit): mm											
L1	119.5	132.5	144.5	156.5	169.5	182	194	212	229.5	258.5	286.5	314
L3	38.5	51.5	63.5	46.5	59.5	72	60	78	95.5	73.7	101.5	129
L12	68			93			109.5			145.5		
输出端 Output End												
L4	26			35			40			50		
L5	24			30.5			36			50		
L6	16			25			28			40		
L7	2.5			2.5			4			5		
L8	2			3			3			4		
L11	6			8			10			15		
D4	Φ10h7			Φ14h7			Φ20h7			Φ25h7		
D5	Φ12			Φ17			Φ25			Φ35		
D6	Φ26			Φ50			Φ80			Φ110		
D7	45			60			90			120		
D8	Φ50			Φ70			Φ100			Φ130		
D9	Φ3.5			Φ5.5			Φ6.5			Φ8.5		
B1	3			5			6			8		
H1	11.2			16			22.5			28		
G3	M3×9			M5×12			M6×16			M10×22		
输入端 Input End												
L2	19			23			26.5			27		
L9	25			30			35			45		
L10	3			2.5			3.5			3.5		
D1	Φ46			Φ70			Φ100			Φ115		
D2	Φ30h7			Φ50h7			Φ80h7			Φ95h7		
D3	Φ8h7			Φ14h7			Φ16h7			Φ19h7		
G1	M4×10			M5×12			M6×15			M8×20		
Q3	40			60			90			115		

## SPB 系列斜齿行星减速器

### SPB Series Planetary Gearbox



#### ■ 技术资料 Technical Information

产品型号 Model	单位 Unit	60 SPB	60(A) SPB	90 SPB	90(A) SPB	115 SPB	142 SPB	180 SPB	220 SPB	减速比 Gear ratio	级数 Stage		
额定输出扭矩 Rated Output Torque	N.m	55 /	130 /	208	342	588	1140	3	1				
		50 /	140 /	290	542	1050	1700	4					
		60 /	160 /	330	650	1200	2000	5					
		55 /	150 /	310	600	1100	1900	6					
		50 /	140 /	300	550	1100	1800	7					
		45 /	120 /	260	500	1000	1600	8					
		40 /	100 /	230	450	900	1500	9					
		40 /	100 /	230	450	900	1500	10					
		55	55	130	130	208	342	588				1140	15
		50	50	140	140	290	542	1050				1700	20
	60	60	160	160	330	650	1200	2000	25				
	55	55	150	150	310	600	1100	1900	30				
	50	50	140	140	300	550	1100	1800	35				
	45	45	120	120	260	500	1000	1600	40				
	40	40	100	100	230	450	900	1500	45				
	60	60	160	160	330	650	1200	2000	50				
	55	55	150	150	310	600	1100	1900	60				
	50	50	140	140	300	550	1100	1800	70				
	45	45	120	120	260	500	1000	1600	80				
	40	40	100	100	230	450	900	1500	90				
40	40	100	100	230	450	900	1500	100					
											2		

产品型号 Model	60SPB	60(A)SPB	90SPB	90(A)SPB	115SPB	142SPB	180SPB	220SPB
噪音 Noise Level	≤58	≤60	≤60	≤63	≤63	≤65	≤67	≤70
最高输入转速 Max Input speed (rpm)	10000	10000	8000	8000	8000	6000	6000	4000
推荐输入转速 Recommend Input speed (rpm)	5000	5000	4000	4000	4000	3000	3000	2000
最大轴向力 Max axial torque	1530	1530	3250	3250	6700	9400	14500	50000
最大径向力 Max radial torque	765	765	1625	1655	3350	4700	7250	25000
工作温度 Operating temperature	零下10℃~90℃							
保护等级 IP	IP65							
润滑方式 Lubrication	终身润滑 Life time lubrication							
安装方式 Mount type	任意方向 Any direction							

## SPB 系列斜齿行星减速器

### SPB Series Planetary Gearbox

#### ■ 技术资料 Technical Information

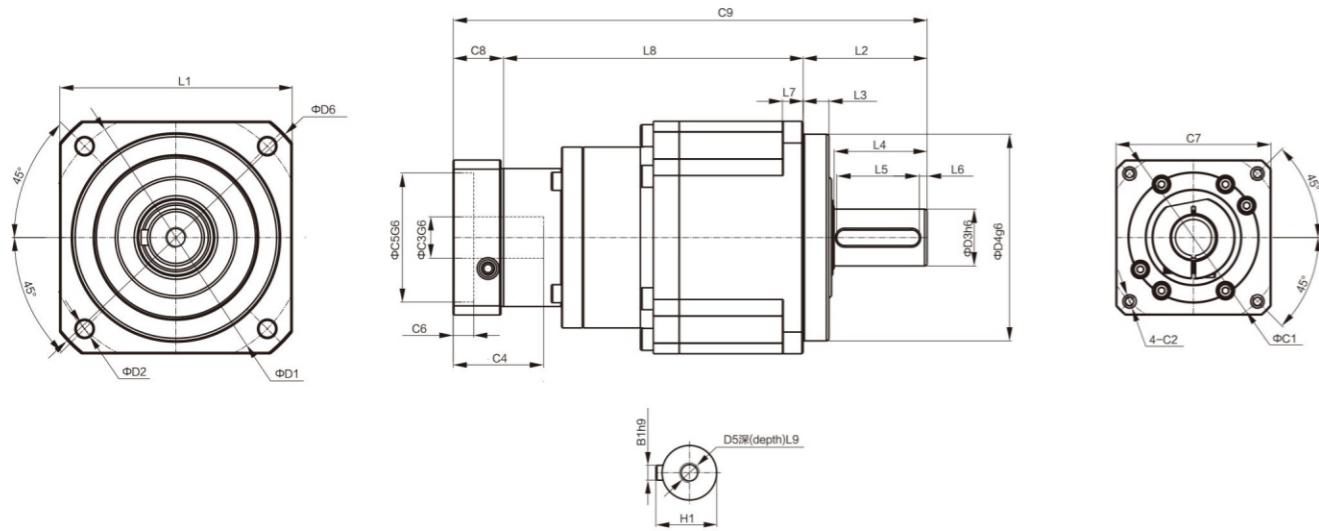
产品型号 Model	单位 Unit	60 SPB	60(A) SPB	90 SPB	90(A) SPB	115 SPB	142 SPB	180 SPB	220 SPB	减速比 Gear ratio	级数 Stage	
转动惯量 Moment of Inertia	N.m	0.16	/	130	/	3.25	9.21	28.98	69.61	3	1	
		0.14	/	140	/	2.74	7.54	23.67	54.37	4		
		0.13	/	160	/	2.71	7.42	23.29	53.27	5		
		0.13	/	150	/	2.65	7.25	22.75	51.72	6		
		0.13	/	140	/	2.62	7.14	22.48	50.97	7		
		0.13	/	120	/	2.58	7.07	22.59	50.84	8		
		0.13	/	100	/	2.57	7.04	22.53	50.63	9		
		0.13	/	100	/	2.57	7.03	22.51	50.56	10		
		0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29	15		2
		0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29	20		
	0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29	25			
	0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29	30			
	0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29	35			
	0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29	40			
	0.03	0.13	0.13	0.47	0.47	2.71	7.42	23.29	45			
	0.03	0.13	0.13	0.44	0.44	2.57	7.03	22.51	50			
	0.03	0.13	0.13	0.44	0.44	2.57	7.03	22.51	60			
	0.03	0.13	0.13	0.44	0.44	2.57	7.03	22.51	70			
	0.03	0.13	0.13	0.44	0.44	2.57	7.03	22.51	80			
	0.03	0.13	0.13	0.44	0.44	2.57	7.03	22.51	90			
0.03	0.13	0.13	0.44	0.44	2.57	7.03	22.51	100				

产品型号 Model Number	60 SPB	60(A) SPB	90 SPB	90(A) SPB	115 SPB	142 SPB	180 SPB	220 SPB	级数 Stage	
回程间隙 Backlash	弧分 arcmin	精密 Precision	≤3	/	≤3	/	≤3	≤3	≤3	1
		标准 Standard	≤5	/	≤5	/	≤5	≤5	≤5	
		精密 Precision	/	≤5	≤5	≤5	≤5	≤5	≤5	2
		标准 Standard	/	≤7	≤7	≤7	≤7	≤7	≤7	
抗扭刚性 Torsional stiffness		7	7	14	14	25	50	145	225	1
		7	7	14	14	25	50	145	225	2
满载效率 Full load efficiency(%)		≥97								1
		≥94								2
重量 Net weight(Kg)		1.3	1.3	3.7	3.7	7.8	14.5	29	48	1
		1.5	1.9	4.1	5.3	9	17.5	33	60	2

使用寿命 Working Life	20,000 hours
瞬间急停扭矩 Instant stop torque	3倍于额定扭矩 3 × Rated torque

### SPB 系列斜齿行星减速器 SPB Series Planetary Gearbox

■ 外形尺寸 DIMENSIONS (单级Single Stage, 减速比Gear Ratio i=3-10)

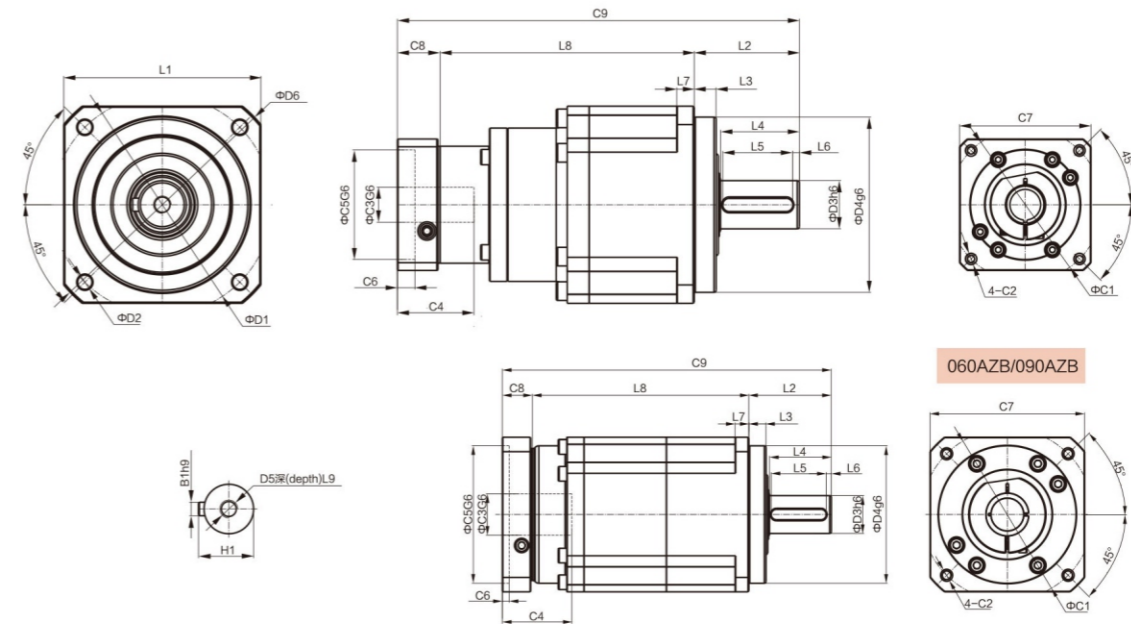


■ 尺寸表 DIMENSION Table

产品型号 Model	060SPB	090SPB	115SPB	142SPB	180SPB	220SPB
D1	70	100	130	165	215	250
D2	5.5	6.6	9	11	13	17
D3 h6	16	22	32	40	55	75
D4 q6	50	80	110	130	160	180
D5	M5×0.8P	M8×1.25P	M12×1.75P	M16×2P	M20×2.5P	M20×2.5P
D6	80	116	152	185	240	292
L1	60	90	115	142	180	220
L2	37	48	65	97	105	138
L3	7	10	12	15	20	30
L4	28	36	51	79	82	105
L5	25	32	40	70	70	90
L6	2	3	5	4	6	7
L7	6	8	10	15	20	25
L8	65.5	78	101.5	119.5	154	163.5
L9	12.5	19	28	36	42	42
C1	70	100	130	165	215	235
C2	M5×0.8P	M6×1P	M8×1.25P	M10×1.5P	M12×1.75P	M12×1.75P
C3	≤14/≤16	≤19/≤24	≤32	≤38	≤48	≤55
C4	35	40.5	51	60	85	116
C5 G6	50	80	110	130	180	200
C6	8	4	5	6	6	6
C7	60	90	115	142	190	200
C8	19.5	17.5	20	22.5	29	63
C9	122	143.5	186.5	239	288	364.5
B1 h9	5	6	10	12	16	20
H1	18	24.5	35	43	59	79.5
尺寸 Size	单位(Unit): mm					

### SPB 系列斜齿行星减速器 SPB Series Planetary Gearbox

■ 外形尺寸 DIMENSIONS (双级, 减速比i=15-100)



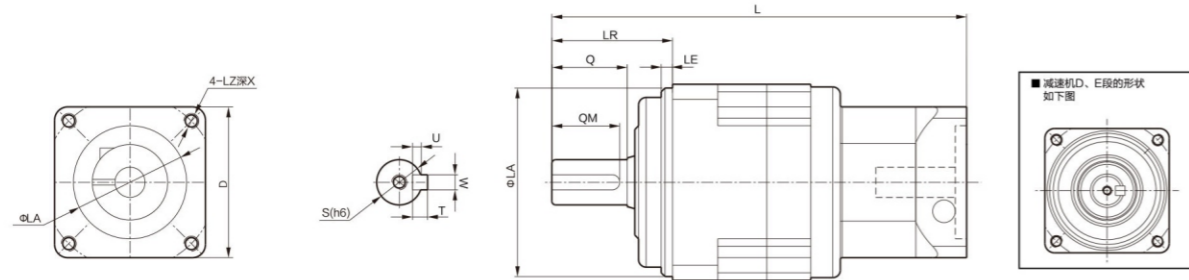
产品型号 Model	060SPB	090SPB	090SPB	115SPB	142SPB	180SPB	220SPB
D1	70	100	130	165	215	250	
D2	5.5	6.6	9	11	13	17	
D3 h6	16	22	32	40	55	75	
D4 q6	50	80	110	130	160	180	
D5	M5×0.8P	M8×1.25P	M12×1.75P	M16×2P	M20×2.5P	M20×2.5P	
D6	80	116	152	185	240	292	
L1	60	90	115	142	180	220	
L2	37	48	65	97	105	138	
L3	7	10	12	15	20	30	
L4	28	36	51	79	82	105	
L5	25	32	40	70	70	90	
L6	2	3	5	4	6	7	
L7	6	8	10	15	20	25	
L8	102.5	116	126	143	169.5	207.5	
L9	12.5	19	28	36	42	42	
C1	70	70	100	100	130	165	
C2	M5×0.8P	M5×0.8P	M6×1P	M6×1P	M8×1.25P	M10×1.5P	
C3	≤14/≤16	≤14/≤16	≤19/≤24	≤19/≤24	≤32	≤38	
C4	35	35	40.5	40	50	60	
C5 G6	50	50	80	80	110	130	
C6	8	8	4	4	5	6	
C7	60	60	90	90	115	142	
C8	19.5	19.5	17.5	17.5	12.5	22.5	
C9	159	183.5	191.5	225.5	283.5	335	
B1 h9	5	6	10	12	16	20	
H1	18	24.5	35	43	59	79.5	
尺寸 Size	单位(Unit): mm						





# 同心轴精密型VR系列尺寸图

## VR SERIES PLANETARY GEARBOX DIMENSION



VR同心轴型减速机尺寸表

机种	型号		全长L	输出轴						法兰										
	减速比	段位号		马达功率	松下电器 MSMA	安川电机 SGMASH	三菱电机 HC-KFS HC-RFS	LR	S	Q	QM	QK	WxU	T	D	LB	LE	LE	LA	LZ
VRSF	3·5·9	B	50		99.5															
VRSF	15·20·25·35	B	50		110															
VRSF	3·5·9	B	100		99.5															
VRSF	15·20·25	B	100		110															
VRSF	3·5	B	200		104.5															
VRSF	3	B	400																	
VRSF	45·81	C	50		142															
VRSF	35	C	100		150															
VRSF	45	C	100		142															
VRSF	9	C	200		139.5															
VRSF	15·20·25·35	C	200		150															
VRSF	5·9	C	400		139.5															
VRSF	15·20·25	C	400		150															
VRSF	3·5	C	750		143.5															
VRSF	81	D	100		142															
VRSF	45	D	200		165															
VRSF	35	D	400																	
VRSF	9	D	750		158.5															
VRSF	15·20·25	D	750		171															
VRSF	3·5	D	1000																	
VRSF	3·5	D	1500		177															
VRSF	3	D	2000																	
VRSF	81	E	200		210															
VRSF	45	E	400																	
VRSF	35	E	750		235															
VRSF	45	E	750		235															
VRSF	9	E	1000		215															
VRSF	15·25	E	1000		235															
VRSF	9	E	1500		215															
VRSF	15	E	1500		235															
VRSF	5·9	E	2000		215															
VRSF	15	E	2000		235															
VRSF	3·5·9	E	2500	215	-															
VRSF	3·5·9	E	3000	215	225															
VRSF	3·5	E	3500	215	-	225														
VRSF	3·5	E	4000	225	-															
VRSF	3	E	1500	225	-															
VRSF	3	E	5000		225															

(1)基准机种(马达对应表系列)意外的马达, 请咨询(因为根据马达安装的不同法兰尺寸有可能不同)  
 (2)输入轴转动方向与马达输入转动方向相同  
 (3)全部为斜齿轮使用范围

# 安装

## ASSEMBLY

### 安装马达的步骤 Assembly Procedure

客户自行安装伺服马达时, 请按以下要领进行安装。伺服马达的尺寸多种多样, 除指定的产品外, 有些马达可能会无法连接法兰, 因此, 一定要使用您订货时指定的马达。  
 If a customer personally assembles the servo motor and reducer please use the following tip. The reducer flange to which the servo motor is attached has different dimensions based on the motor specified. Therefore, assembly may be impossible for some motor. Make sure the correct motor is specified before ordering the reducer.

#### 1. 安装无键马达 Spec. In Case Of Assembling A Motor Without Key

- 取下橡胶帽, 转动输入轴, 使螺栓头和紧固螺钉的孔吻合。并确认固定螺栓已松开。  
Take off the rubber cap, turn the input shaft, and match the head of the bolt to the hole of the rubber cap. Make sure that the set bolt is loosened.
- 将马达轴平稳地插入输入轴 (请确保不受阻塞地顺畅的插入)。请充分注意不要让马达倾斜插入。  
Gradually put the motor shaft into the input shaft (Ensure that it is smoothly put in without iam.) Be careful not to be inserted with the motor tilted.
- 将马达固定在减速机上, 并按指定的扭矩将螺栓拧紧。参考表1  
Attach the motor to the reducer and fasten the bolt with designated fastening torque. See Table 1.
- 使用扭矩扳手等工具, 按指定的扭矩将输入轴的固定螺栓拧紧。参考表2  
Fasten the set bolt of the input shaft with designated fastening torque wrench, etc. See Table 2.
- 盖上橡胶帽。安装到此结束。  
Put on the rubber cap. It is the end of assembling.

表1 Table1

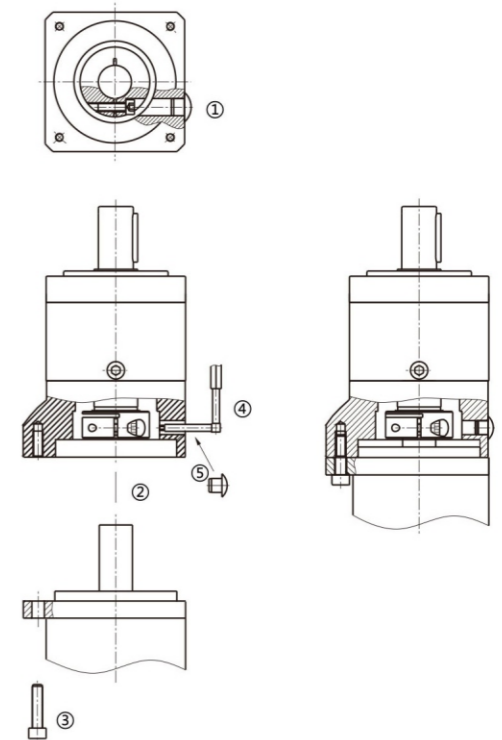
马达固定螺栓 Motor Combination Bolt	拧紧扭矩 Fastening Torque	
	(N.m)	(kgf.cm)
M3	1.0	10
M4	3.0	30
M5	5.8	60
M6	9.8	100
M8	19.6	200
M10	39.2	400
M12	68.6	700
M16	168	1650

表2 Table2

固定螺栓 Combination Bolt	拧紧扭矩 Fastening Torque	
	(N.m)	(kgf.cm)
M3	1.5	15
M4	3.5	35
M5	7.1	71
M6	12	120
M8	30	300
M10	60	612

带键槽式马达的键取下后, 可以像上述无键马达一样安装。无需担心会滑动。  
 You can assemble the motor with keyway like above when take off the key. There is no risk of dislocation.

PLE/FWE/WF/S 系列示意图  
 PLE/FWE/WF/S Series Schematic Diagram



### ■ 安装马达的步骤 Assembly Procedure

减速机安装在设备上时,请在确认安装面平坦且无毛刺等后,使用扭矩扳手等工具按指定的扭矩用螺栓将其固定。参考表3  
 Jointing with reducer In case of jointing a reducer with the device, make sure that the combining side is plane without inconsistency, and when assemble reducer onto equipment, ensuring assembly surface smooth and without burr. See Table 3.

● 表3 Table3

减速机固定螺栓 Reducer Combination Bolt	拧紧扭矩 Fastening Torque	
	(N.m)	(kgf.cm)
M5	5.8	60
M6	9.8	100
M8	19.6	200
M10	39.2	400
M12	68.6	700
M16	16.8	1650

### ■ 连接输出轴 Connection To The Output Shaft

注意事项 Cautions:

- 1、在输出轴上安装耦合器、滑轮等时,请勿在输出轴上施加过大的轴向负荷。  
When assemble a coupling, pulley, etc. onto the output shaft, make sure that excessive axial load not be given to the output shaft.
- 2、请勿使用强力将轴敲入,以免使轴承或减速机内部受到损伤。  
In case of strongly hitting the shaft with a hammer, the shaft inlet or the inside of the reducer may be damaged, therefore it shall be prohibited.
- 3、安装的耦合器等的轴和键槽如有较大松动,可能会导致设备烧毁,安装时请充分注意。  
If the shaft or key of a coupling assembled is loosed, it may cause carbonization, so be careful when assembling.
- 4、安装耦合器等时,请使用固定螺栓来将键固定住。  
For assembling of a coupling, fix the key with a set bolt.
- 5、连接时请充分调校轴心。Please adjust shaft centre carefully in connecting.

