

**KOFON** | 湖北科峰智能传动股份有限公司  
科峰智能 | Hubei Kofon Transmission Equipment Co., Ltd

地址: 湖北省黄冈市黄州区中粮大道9号

Add: No. 9 Zhongliang Avenue, Huanggang City, Hubei Province

电话(Tel): 0713 8585866 / 8585868 邮箱(E-mail): info@kofon.com.cn

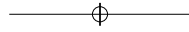
传真(Fax): 0713 8585911 网址(Web): www.kofon.com.cn



**S系列行星减速机**  
S SERIES PLANETARY GEARBOX



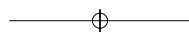
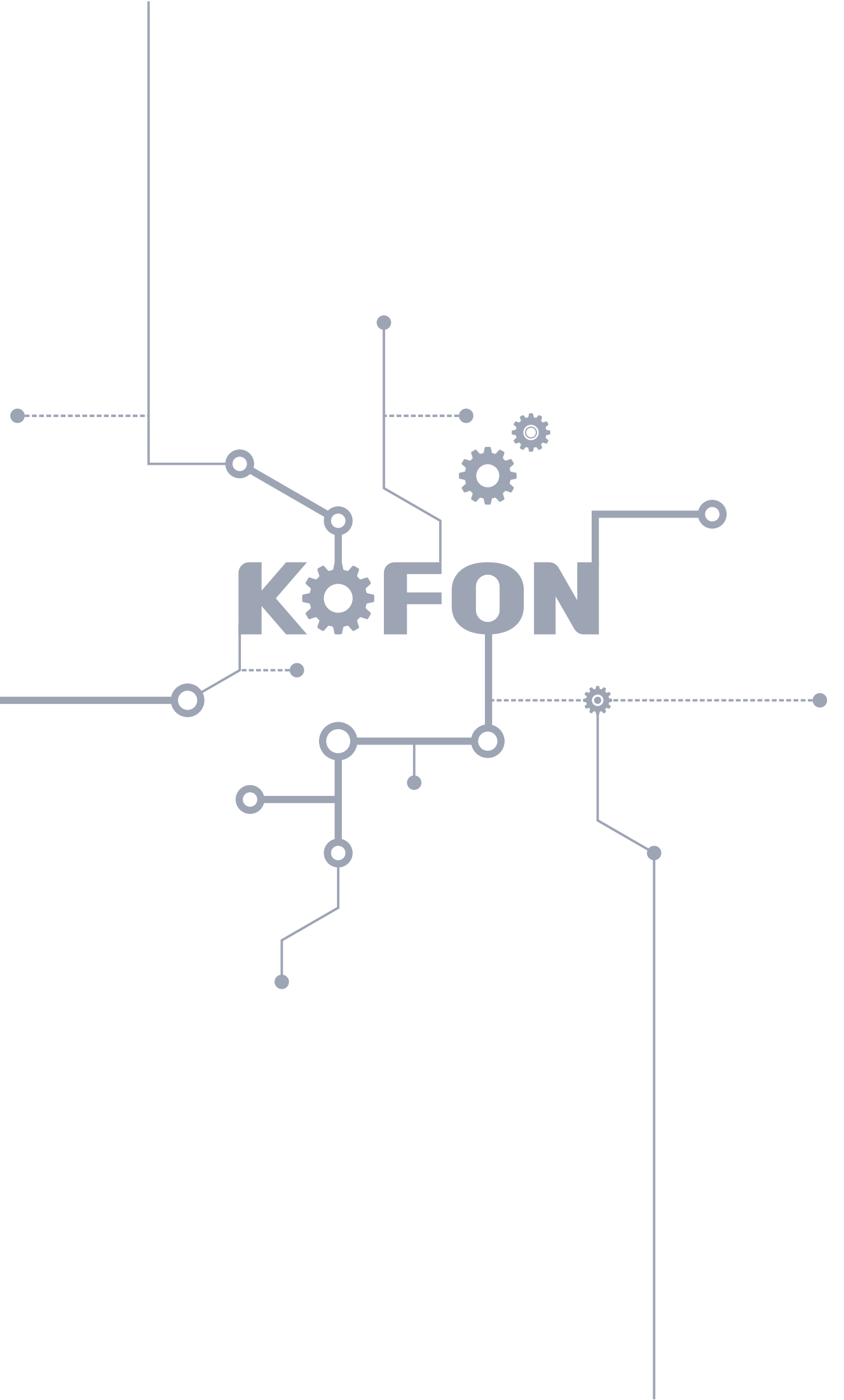
第1版：第1版正(正反印)



世界领先的精密减速机民族领导品牌

The National Leadership Brand of World's Leading Precision Reducer

KOFON





湖北科峰智能传动股份有限公司坐落于湖北省黄冈市黄冈产业园区内，公司一直专注于机械传动与控制应用领域关键零部件的研发、生产、销售，形成了精密行星减速机、工程机械用行星减速机、谐波减速机、精密零部件、机电一体化产品、及行星滚柱丝杠等其他的系列化产品。

公司装备有国内外的数控车床、加工中心、数控插齿机、数控磨齿机、拉齿机、全自动热处理线等生产加工设备600余台(套)，拥有格里森齿轮测量中心、克林贝格齿轮测量中心、蔡司三坐标等先进检测设备。

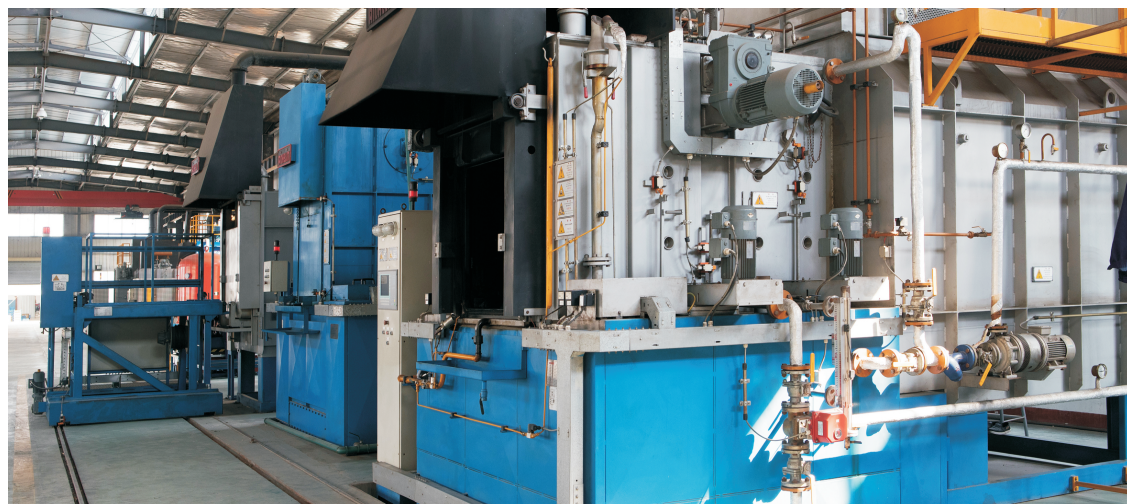
公司是国家专精特新“小巨人”企业，湖北省智能制造示范单位、湖北省制造业单项冠军企业、湖北省技术创新示范企业、全国和谐劳动关系创建示范企业。

公司产品定位国内外中高端市场，广泛应用于工业机器人、激光切割、智能物流、智能交通、新能源、高端机床、半导体及其他自动化等几十个行业领域，客户遍布四大洲二十多个国家。建立了覆盖全国的营销网络，积极拓展市场渠道，快速有效提高服务水平，提升产品市场占有率，实现产品全生命周期管理。

公司先后成立了传动技术研究院、湖北省工业设计中心、湖北省企业技术中心、湖北省企校联合创新中心等研发平台，从分析计算、结构设计、材料选配、加工工艺、装配到质量检测、品质控制等不断进行改进和完善，使精密行星减速机在输出扭矩、振动噪音、效率、径向和轴向受力、寿命和回程间隙等许多关键指标都处于业内先进水平。公司精密传动检测中心获得全球领先的第三方检测机构TüV NORD授予的“CTF客户检测资源实验室”资质。公司拥有授权专利一百余项。

公司高度重视质量管理体系建设，已通过ISO9001质量管理体系认证、ISO14001环境管理体系认证、ISO45001职业健康安全管理体系认证。

## 制造体系 MANUFACTURING SYSTEM



### 国际尖端的设备力

The Power of Global Top Equipment

科峰传动已与全球顶尖加工设备供应商达成战略合作关系,生产车间全线引入高端进口精密齿加工及机加工设备,恒温无尘装配车间和恒温精密加工车间设备水平达行业一流水准。

Kofon Motion has reach a strategic cooperation relationship with the global top processing equipment suppliers. Equipped with high-end imported precision machining equipment and constant temperature dust-free machining assembly workshop, Kofon Motion reach the industry-leading level for high precision reducer manufacturing.



### 系统规范的管控力

The power of Manufacturing System Control

科峰传动已建立从客户需求确认到最终发货确认的全过程的管控流程体系,严格按ISO9001:2008质量体系管控生产,建立ERP数据系统的信息管理体系,所有生产车间现场都严格按照6S标准进行生产管理。

Kofon Motion strictly comply with ISO9001:2008 quality system to control production, set up information management system of ERP data system, all production workshop site in strict accordance with the 6S standards for production management.



### 追求完美的品质力

The power of Perfect Quality Pursue

科峰传动针对管理层和所有生产工作人员都制定了具体的质量目标,不断优化每个产品工作流程,注重打造产品每个细节。出产的所有部件及产品的生产均可有效追溯。

Kofon Motion set specific quality objectives for management and all production staff, continuously optimize each product work process and focus on creating every detail of the product. Production of all parts and products can be traced effectively.



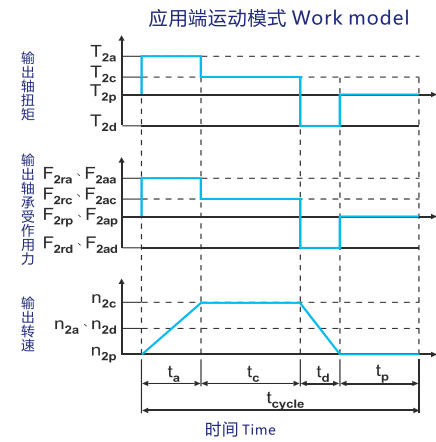
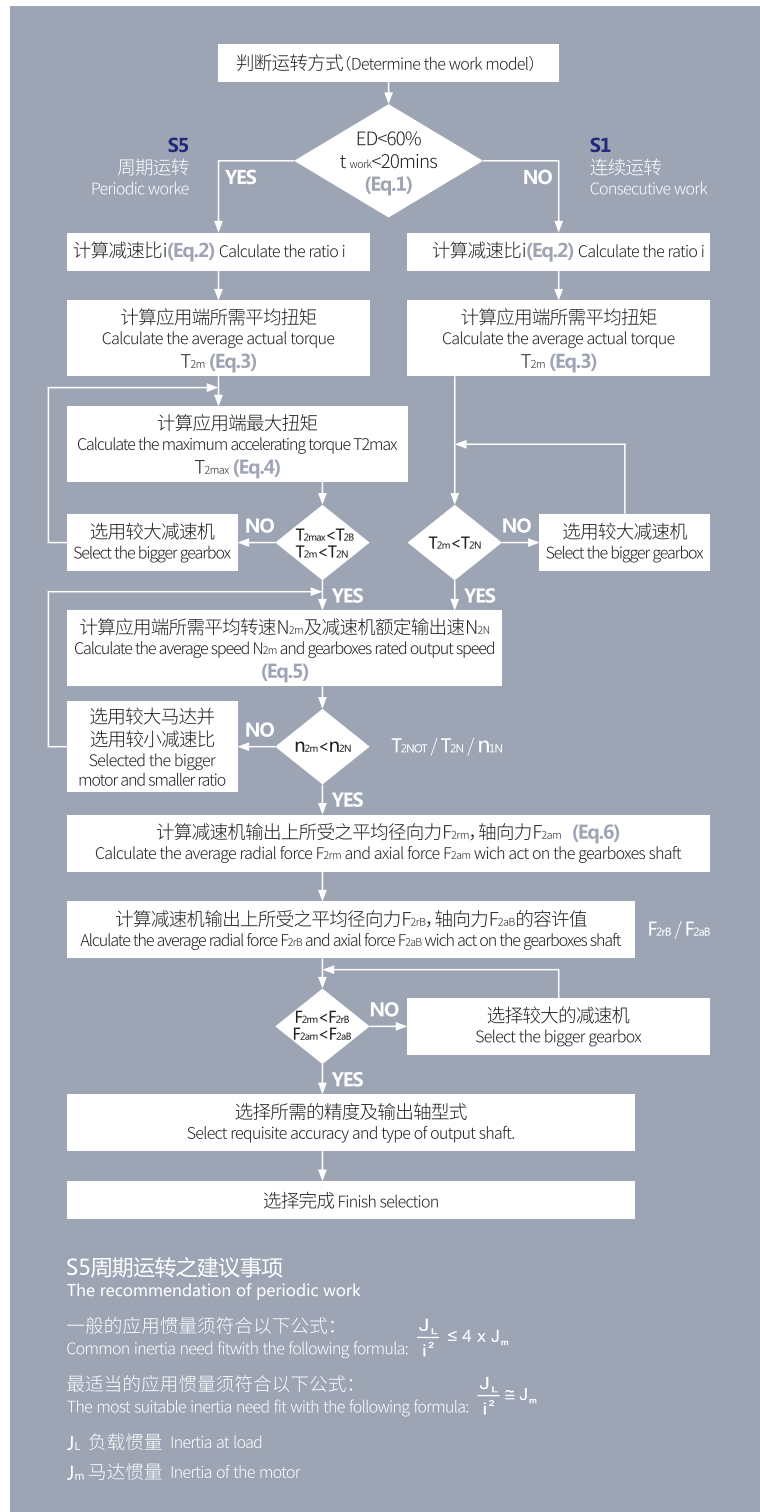
### 工匠精神的加工力

The Power of Processing Craftsman Spirit

公司引入动力传动领域顶级制造系统专业培训,打造制造团队的匠心和匠手,确保在国际领先设备的硬件前提下,打造软性制造力,实现设备、工艺和制造的完美结合。

Kofon Motion bring in professional training of top manufacturing system in the field of power transmission, constantly create craftsman spirit for manufacturing team to create manufacturing power and achieve the perfect combination of equipment, process and manufacturing.

# 减速机选型 GEARBOX SELECTION



1.  $ED = \frac{t_a + t_c + t_d}{t_{cycle}} \times 100\%$ ,  $t_{work} = t_a + t_c + t_d$   
下标说明: a. 加速, c. 等速, explanation: a: accelerated c: constant d: 减速, p. 停止 d: deceleration p: stop (Eq.1)

2.  $i \approx \frac{n_m}{n_{work}}$   
 $n_m$  马达输出速度 Output speed of motor  
 $n_{work}$  实际应用速度 Actual speed on work (Eq.2)

3.  $T_{2m} = \sqrt[3]{\frac{n_{2a} \times t_a \times T_{2a}^3 + n_{2c} \times t_c \times T_{2c}^3 + n_{2d} \times t_d \times T_{2d}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$  (Eq.3)

4.  $T_{2max} = T_{mb} \times i \times K_A \times \eta$

$K_A$  负载系数 Coefficient at load

$K_A$	周期次数/小时 Periodic times/hour
1.0	0~1,000
1.1	1,000~1,500
1.3	1,500~2,000
1.6	2,000~3,000
1.8	3,000~5,000

$T_{mb}$  马达最大输出扭矩 The maximum output torque of motor  
 $\eta$  减速机运转效率 gearbox efficiency on work (Eq.4)

5.  $n_{2a} = n_{2d} = \frac{1}{2} \times n_{2c}$   
 $n_{2m} = \frac{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}{t_a + t_c + t_d}$   
 $n_{2N} = \frac{n_{2m}}{i}$  (Eq.5)

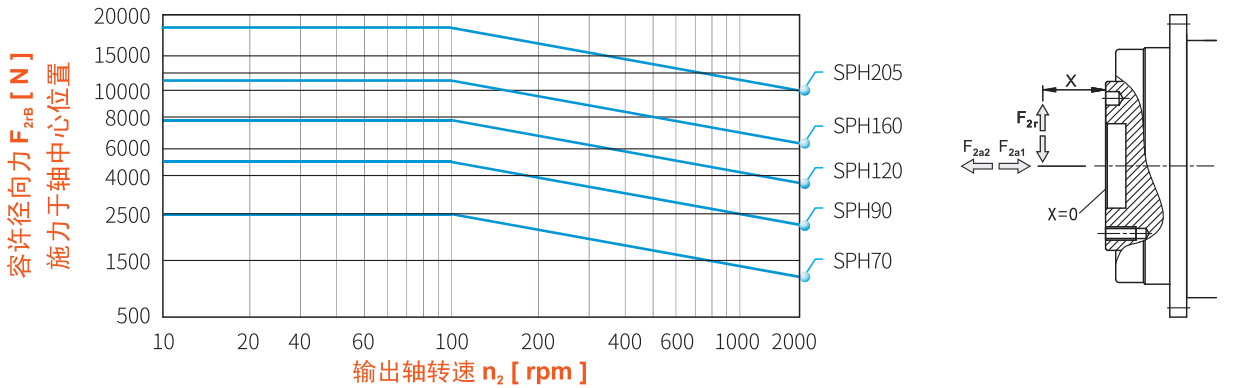
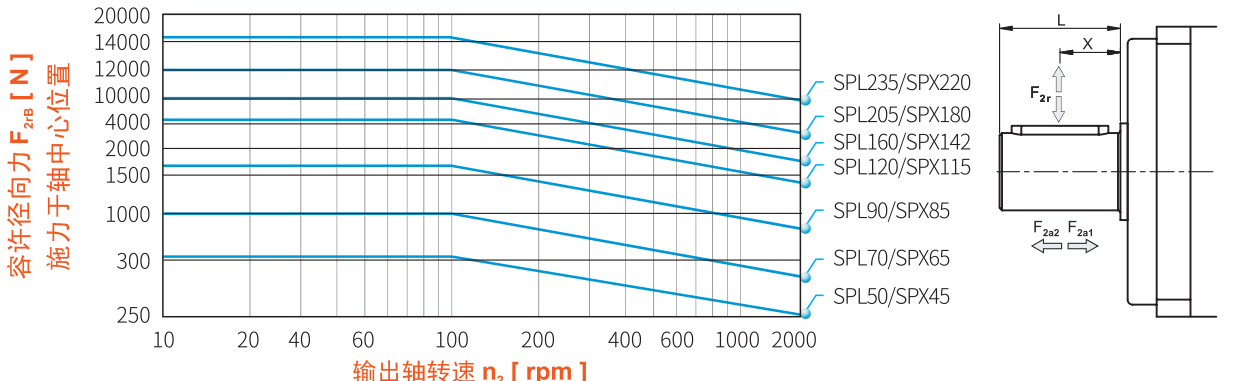
6.  $F_{2rm} = \sqrt[3]{\frac{n_{2a} \times t_a \times F_{2ra}^3 + n_{2c} \times t_c \times F_{2rc}^3 + n_{2d} \times t_d \times F_{2rd}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$   
 $F_{2am} = \sqrt[3]{\frac{n_{2a} \times t_a \times F_{2ra}^3 + n_{2c} \times t_c \times F_{2rc}^3 + n_{2d} \times t_d \times F_{2rd}^3}{n_{2a} \times t_a + n_{2c} \times t_c + n_{2d} \times t_d}}$  (Eq.6)

## 减速机输出轴容许的径向力和轴向力

Permissible Radial Force and Axial Force of Gearbox Output Shaft

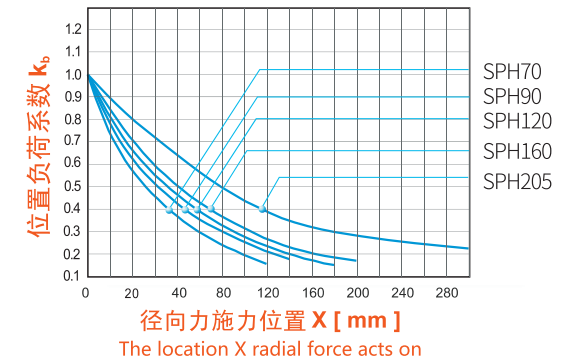
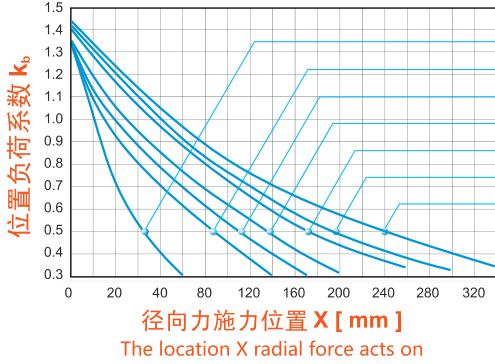
当径向力  $F_{2r}$  施力在输出轴中心位置时即  $X=1/2L$  (SPH系列  $X=0$ )，不同规格的减速机在不同的输出转速使用下，使用寿命为20000hr时所能承受的径向力  $F_{2rB}$ ，请参照下图。

Please consult the left picture to find the right permissible radial force  $F_{2rB}$ , when gearbox with 20000hr, using life works at different output speed on the condition that radial force  $F_{2r}$  acts on the middle of the output shaft,  $X=1/2L$  (SPH series  $X=0$ ).



当径向力  $F_{2r}$  施力不在输出轴中心位置时，越靠近减速机即  $X < 1/2L$ ，所容许的径向力变大，远离则相反。如下图，依减速机规格及径向施力位置  $X$ ，查出位置负荷系数  $K_b$ 。

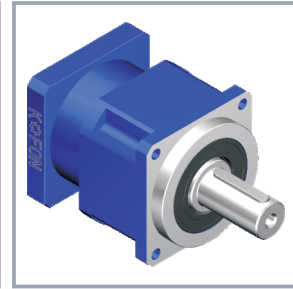
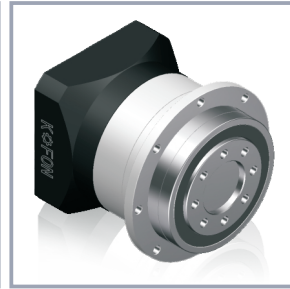
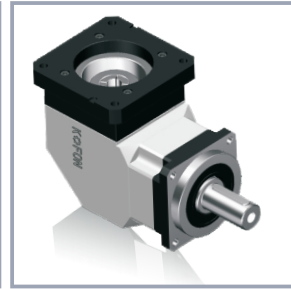
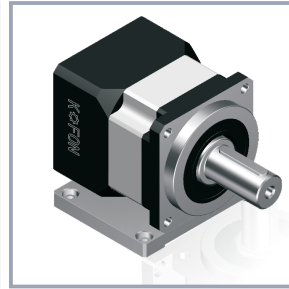
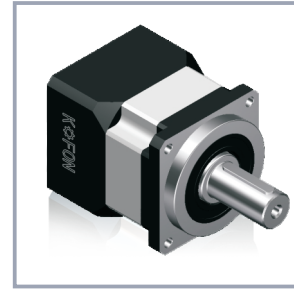
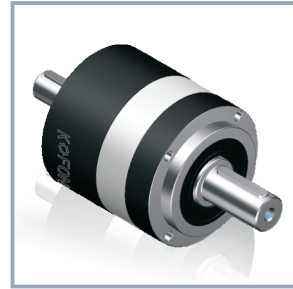
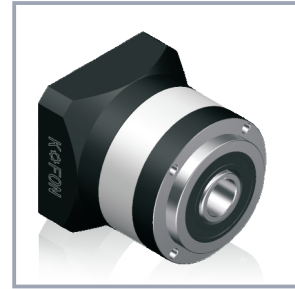
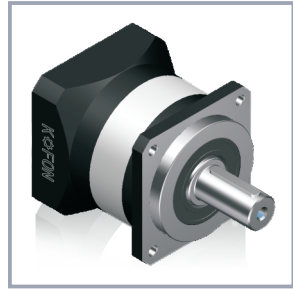
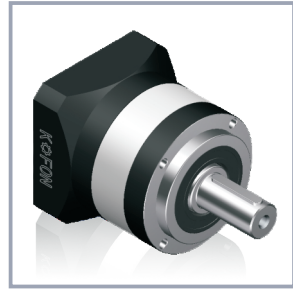
The gearbox permissible radial force is bigger when radial force is closer to gearbox ( $X < 1/2L$ ) on the condition that radial force  $F_{2r}$  is not at the middle of the shaft. Under the same condition you can consult the left picture to find the locational coefficient at load  $K_b$  by the specification of gearbox and the location  $X$  radial force acts on.



说明 / Description:  
SPL、SPLH、SPLS、SPLF、SVX 径向力和轴向力速度和位置系数同 SPL、SPX。  
The SPL、SPLH、SPLS、SPLF、SVX radial force and axial force coefficient of speed and position with the SPL、SPX.

# 目录

## CONTENTS



**SPL**

**SPLF**

**SPLN**

**SPLS**

**SPX**

**SPXD SVX**

**SPH**

**PX**

**SPL**  
系列行星减速机  
SPL SERIES SERVO  
PLANETARY GEARBOX

13

**SPLF**  
系列行星减速机  
SPLF SERIES SERVO  
PLANETARY GEARBOX

17

**SPLN**  
系列行星减速机  
SPLN SERIES SERVO  
PLANETARY GEARBOX

21

**SPLS**  
系列行星减速机  
KPLN SERIES SERVO  
PLANETARY GEARBOX

25

**SPX**  
系列行星减速机  
SPX SERIES SERVO  
PLANETARY GEARBOX

29

**SPXD**  
系列行星减速机  
SPXD SERIES SERVO  
PLANETARY GEARBOX

33

**SVX**  
系列行星减速机  
SVX SERIES SERVO  
PLANETARY GEARBOX

34

**SPH**  
系列行星减速机  
SPH SERIES SERVO  
PLANETARY GEARBOX

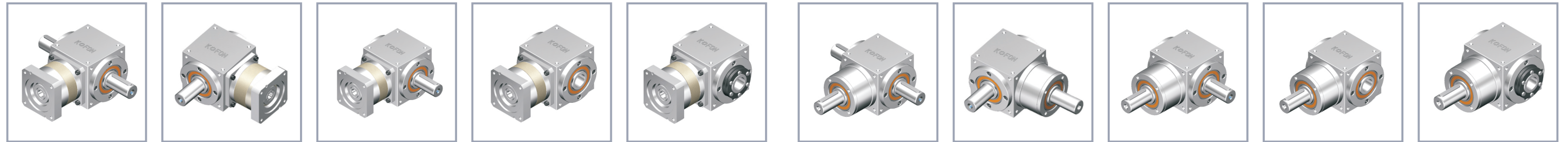
38

**PX**  
系列行星减速机  
PX SERIES SERVO  
PLANETARY GEARBOX

63

# 目录

## CONTENTS



# STFL STFL1 STFR1 STFH STFC STL STL1 STR1 STH STC

**STFL**  
系列行星减速机  
STFL SERIES SERVO  
PLANETARY GEARBOX

48

**STFL1**  
系列行星减速机  
STFL1 SERIES SERVO  
PLANETARY GEARBOX

50

**STFR1**  
系列行星减速机  
STFR1 SERIES SERVO  
PLANETARY GEARBOX

52

**STFH**  
系列行星减速机  
STFH SERIES SERVO  
PLANETARY GEARBOX

54

**STFC**  
系列行星减速机  
STFC SERIES SERVO  
PLANETARY GEARBOX

56

**STL**  
系列减速机  
STL SERIES SERVO  
GEARBOX

58

**STL1**  
系列减速机  
STL1 SERIES SERVO  
GEARBOX

59

**STR1**  
系列减速机  
STR1 SERIES SERVO  
GEARBOX

60

**STH**  
系列减速机  
STH SERIES SERVO  
GEARBOX

61

**STC**  
系列减速机  
STC SERIES SERVO  
GEARBOX

62

## 订货说明 ORDERING INSTRUCTIONS

**SPX S D - 115 - 100 - S1 - Motor Model**

电机型号, 未注明为标准尺寸  
Motor model, not specified for the standard size

轴输出形式S1:光轴, 未注明为带键轴  
Motor adapter, not specified for the standard size

速比: 单级(Single stage)3/4/5/7/8/9/10  
Ratio 双级(Double stage)12/16/20/25/32(35)/40(45)/50(49)/64(63)  
三级(Three stage)60/80/100/125/160(140)/200(180)/256(252)/320(315)/512(504)

规格(Model):40/65/85/115/142/180/220

带底座形式,未注明不带  
With the base form, not specified for the form without the base

'S' 轴输入, 'N' 为孔输出,未注明为孔输入,轴输出  
'S' for shaft input, 'N' for hole output, not specified for the hole input, shaft output

产品系列 (Product series) :SPX, SVX

**SPL S - 120 - 100 - S1 - Motor Model**

电机型号, 未注明为标准尺寸  
Motor model, not specified for the standard size

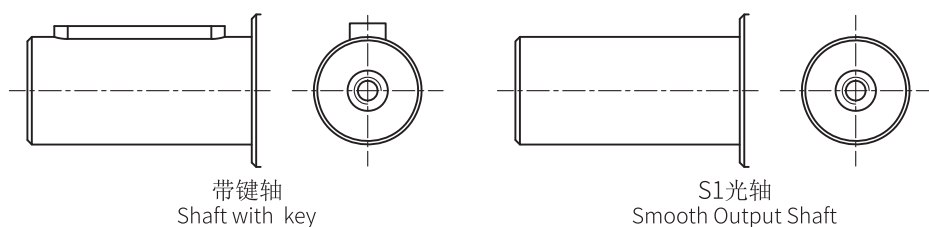
轴输出形式S1:光轴, 未注明为带键轴  
Shaft output form of the S1: Smooth Output Shaft , not specified for the keyed shaft

速比: 单级(Single stage)3/4/5/7/8/9/10  
Ratio 双级(Double stage)12/16/20/25/32(35)/40(45)/50(49)/64(63)  
三级(Three stage)60/80/100/125/160(140)/200(180)/256(252)/320(315)/512(504)

规格(Model):40/70/90/120/160/205/235

'S' 轴输入, 'N' 为孔输出,未注明为孔输入,轴输出  
'S' for shaft input, 'N' for hole output, not specified for the hole input, shaft output

产品系列 (Product series) :SPL, SPLF, SPH



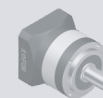
选用范例: SPXN-115-16-S1-LB-ABB-8M1230  
如果找不到适合的适配器, 请提供电机厂商及规格。  
如果有疑问请咨询客服人员。  
The selection of examples: SPXN-115-16-S1-LB-ABB-8M1230  
If you can't find a suitable adapter, please provide the motor manufacturers and specifications.  
If in doubt, please contact customer service.

## SPL 系列行星减速机 SERIES SERVO PLANETARY GEARBOX



### SPL系列行星减速机产品特点 SPL Series Servo Planetary Gearbox Product Highlight

- 经济型:高性价比  
Economic Type: High Quality with competitive price.
- 齿轮材料选用高级低碳合金锻钢, 经过渗碳淬火之深度硬化处理, 硬度可达到HRC60, 保证齿轮强度和寿命。  
Choosing low-carbon alloy forged steel as the raw material of the gear, the hardness can reach HRC60 by deepen harden of carburizing heat treatment to ensure gear strength and lifetime.
- 可适配全球任何一台伺服电动机。  
Can be connected with any servo motor around the world.
- 使用合成润滑脂, 并采用IP65密封设计, 不泄漏免维护。  
No grease leakage and maintenance free by using synthetic lubricating grease and IP65 protection design.



**SPL系列行星减速机技术参数**  
SPL Series Servo Planetary Gearbox Technical Data

产品型号 Model		SPL40	SPL70	SPL90	SPL120	SPL160	SPL205	SPL235	Ratio	Stage
额定输出扭矩 Rated Output Torque	Nm	13	35	100	190	440	600	1000	3	1
		17	42	110	240	544	1050	1600	4	
		17	44	115	245	585	1000	1850	5	
		--	40*	105*	240*	500*	800*	1650*	6	
		--	40*	100	235*	480	800	1550*	7	
		12	38	95	210	450	800	1350	8	
		--	36	90	200	415	710	1300*	9	
		--	32	81	196	400	710	1300	10	
		16	37	100	210	450	650	1000	12	
		16	44	110	230	450	1050	1600	16	
		17	44	110	230	564	1000	1850	20	
		17	44	110	255	608	1000	1850	25	
		17	44	110	255	608/35	1050/35	1800	32	
		17	44	110	250	608	1000	1850	40	
		13	38	95	210	450/63	800/63	1350	64	
		17	45	120	255	580	1000	1850	80	
		17	45	120	255	580	1000	1850	100	
		17	45	120	255	580	1000	1850	125	
		17	45	120	255	580	1000/140	1850/140	160	
		17	45	120	255	608	1000/180	1850/180	200	
17	45	120	255	608/224	1000/252	1850/252	256			
17	45	120	255	580/280	1000/315	1850/315	320			
13	38	95	210	450/504	800/441	1350/504	512			
故障停止扭矩 Emergency Stop Torque	Nm	2倍额定输出扭矩 Double Rated Output Torque								
最大径向力 <sup>1</sup> Max Radial Force	N	385	550	1020	2070	7300	12000	14000		
最大轴向力 <sup>1</sup> Max Axial Force	N	250	375	570	970	6400	6800	7800		
倾斜力矩 <sup>2</sup>	Nm	5	15	30	100	450	1150	1500		
满载效率 Full Loading Efficiency	%	97								1
		95								2
		93								3
平均寿命 Average lifetime	h	20000								
重量 Weight	kg	0.4	1.4	2.7	6.5	19.5	31	53		1
		0.5	2	3.8	9.5	26.5	39	66		2
		0.6	2.4	5	11	34	48	75		3

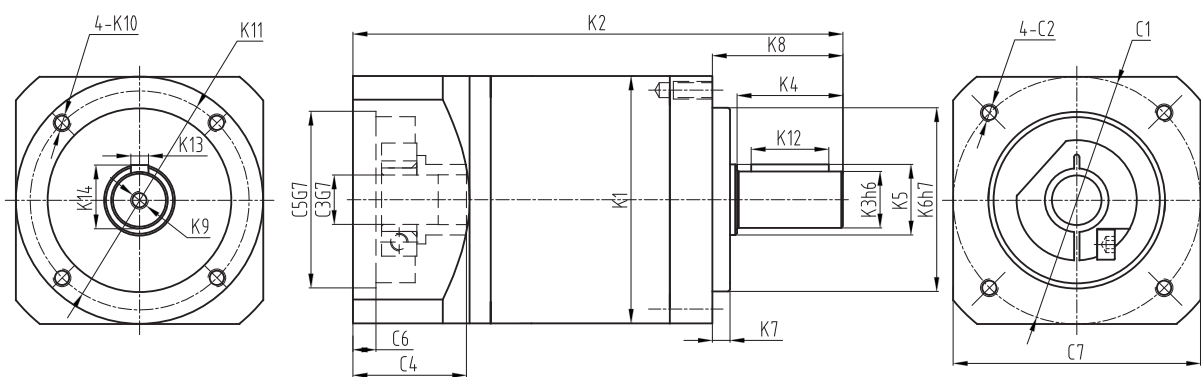
角标“1”在输出转速100rpm时，作用于输出轴中心位置(L/2处)之容许径向力及轴向力。  
角标“2”输出转速100rpm时的数据，更改使用工况时数据存在偏差。  
注：带“\*”的为不常用速比，表格内有2组数字的表示扭矩对应的实际速比，最大加速扭矩等于额定扭矩150%。  
The subscript "1" in the output speed of 100RPM, in the center of the output shaft position (L/2) permissible radial force and axial force.  
The angle label "2" outputs the data when the speed is 100 rpm, and there is a deviation when the working condition is changed.  
Note: with "\*" is not commonly used speed ratio, in the form of 2 groups of digital representation of the torque corresponding to the actual ratio, the maximum acceleration torque is equal to 150% of the rated torque.

产品型号 Model		SPL40	SPL70	SPL90	SPL120	SPL160	SPL205	SPL235	Ratio	Stage
转动惯量 Rotational Inertia	kgcm <sup>2</sup>	0.031	0.135	0.77	2.63	12.1	28.98	69.61	3	1
		0.22	0.093	0.52	1.79	7.75	23.67	54.37	4	
		0.019	0.078	0.45	1.53	6	22.75	53.27	5	
		--	0.07	0.42	1.5	5.52	22.48	50.84	6	
		--	0.069	0.4	1.4	5.1	22.48	50.84	7	
		0.017	0.065	0.39	1.32	3.74	22.59	50.84	8	
		--	0.065	0.39	1.32	3.62	22.59	50.84	9	
		--	0.065	0.39	1.32	3.62	22.55	50.56	10	
		0.031	0.105	0.67	1.63	10.1	18.98	59.61	12	
		0.023	0.088	0.5	1.75	7.47	7.54	23.67	16	
		0.022	0.075	0.44	1.53	6.65	7.42	22.75	20	
		0.019	0.075	0.44	1.49	5.81	7.54	22.75	25	
		0.019	0.064	0.39	1.32	6.34	7.14	22.59	32	
		0.017	0.064	0.39	1.32	5.36	7.14	22.59	40	
		0.016	0.064	0.39	1.32	4.08	7.54	22.59	64	
		0.029	0.075	0.5	1.53	7.4	7.54	22.75	80	
		0.019	0.064	0.44	1.49	7.3	7.42	22.59	100	
		0.019	0.064	0.7	2.57	7.3	7.42	22.75	125	
		0.029	0.064	0.39	1.3	6.5	7.14	22.75	160	
		0.016	0.064	0.39	1.3	6.5	7.14	22.75	200	
0.016	0.064	0.39	1.3	6.5	7.14	22.75	256			
0.016	0.064	0.39	1.3	6.5	7.14	22.75	320			
0.016	0.064	0.39	1.3	6.5	7.14	22.59	512			
回程间隙 Backlash	arcmin	≤12	≤8	≤8	≤8	≤8	≤8	≤8		1
		≤15	≤10	≤10	≤10	≤10	≤10	≤10		2
		≤17	≤12	≤12	≤12	≤12	≤12	≤12		3
抗扭刚性 Torsional Rigidity	Nm/arcmin	0.7	3	4.8	10	28.7	120	200		
噪音 <sup>1</sup> Noise	dB(A)	55	58	60	62	68	70	72		
最大输入速度 <sup>2</sup> Max Input Speed	min <sup>-1</sup>	8000	6000	6000	6000	6000	4000	3000		
额定输入速度 <sup>2</sup> Rated Input Speed	min <sup>-1</sup>	4000	4000	3000	3000	3000	2000	1500		

角标“1”环境温度为20℃。  
角标“2”噪音在n1<3000min<sup>-1</sup>、1米处测得。  
The subscript "1" the environment temperature is 20°C.  
The subscript "2" sound in n1<3000min<sup>-1</sup>, measured at 1 m.

### SPL系列行星减速机标准尺寸

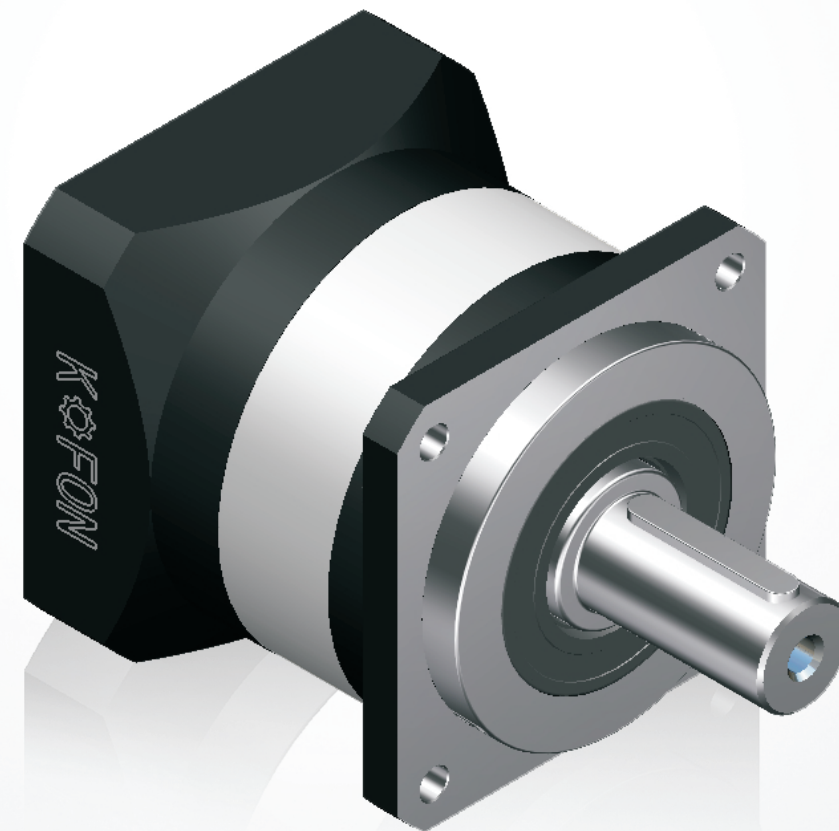
SPL Series Servo Planetary Gearbox Standard Size



型号 Model	SPL40			SPL70			SPL90			SPL120			SPL160			SPL205			SPL235		
Stage	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
K1	φ40			φ70			φ89			φ120			φ160			φ205			φ235		
K2	88.8	101.8	113.8	122	145.7	169.4	149	180.3	211.6	196	237.8	246	275.5	336.5	356	288	348	409	358	402	462
K3	φ10			φ14			φ20			φ25			φ40			φ55			φ75		
K4	23			30			36			50			80			82			105		
K5	φ12			φ17			φ25			φ40			φ50			φ60			φ85		
K6	φ26			φ40			φ60			φ80			φ130			φ160			φ180		
K7	2			3			3			4			5			20			30		
K8	26			35			40			55			87			105			138		
K9	M3X9			M5X12			M6X15			M10X26			M12X25			M20X40			M20X40		
K10	M4X6			M5X12			M6X12			M10X20			M12X20			M12X20			M16X25		
K11	φ34			φ52			φ70			φ100			φ145			φ184			φ210		
K12	16			22			28			40			70			70			90		
K13	3			5			6			8			12			16			20		
K14	11.2			16			22.5			28			43			59			79.5		
C1	φ46			φ70			φ90			φ145	φ90	φ200	φ145	φ215	φ200	φ235	φ215	φ200			
C2	M4X10			M5X12			M6X15			M8X20	M6X15	M12X25	M8X20	M12X25	M12X25	M12X25	M12X25	M12X25			
C3	φ8			φ14			φ19			φ24	φ19	φ35	φ24	φ42	φ35	φ55	φ42	φ35			
C4	26.1			32.1			41.6			61.3	41.6	82	61.3	82.5	82	116	82.5	82			
C5	φ30			φ50			φ70			φ110	φ70	φ114.3	φ110	φ180	φ114.3	φ200	φ180	φ114.3			
C6	6			6.5			6.5			8	6.5	8	6.5	8	8	8	8	8			
C7	45			70			89			120	89	175	120	190	175	220	190	175			

## SPLF系列行星减速机

SERIES SERVO PLANETARY GEARBOX



### SPLF系列行星减速机产品特点

SPLF Series Servo Planetary Gearbox Product Highlight

经济型:高性价比  
Economic Type: High Quality with competitive price.

齿轮材料选用高级低碳合金锻钢, 经过渗碳淬火之深度硬化处理, 硬度可达到HRC60, 保证齿轮强度和寿命。  
Choosing low-carbon alloy forged steel as the raw material of the gear, the hardness can reach HRC60 by deepen harden of carburizing heat treatment to ensure gear strength and lifetime.

可适配全球任何一台伺服电动机。  
Can be connected with any servo motor around the world.

使用合成润滑脂, 并采用IP65密封设计, 不泄漏免维护。  
No grease leakage and maintenance free by using synthetic lubricating grease and IP65 protection design.

**SPLF系列行星减速机技术参数**  
SPLF Series Servo Planetary Gearbox Technical Data

产品型号 Model		SPLF40	SPLF70	SPLF90	SPLF120	SPLF160	SPLF205	SPLF235	Ratio	Stage
额定输出扭矩 Rated Output Torque	Nm	13	35	100	190	440	600	1000	3	1
		17	42	110	240	544	1050	1600	4	
		17	44	115	245	585	1000	1850	5	
		--	40*	105*	240*	500*	800*	1650*	6	
		--	40*	100	235*	480	800	1550*	7	
		12	38	95	210	450	800	1350	8	
		--	36	90	200	415	710	1300*	9	
		--	32	81	196	400	710	1300	10	
		16	37	100	210	450	650	1000	12	
		16	44	110	230	450	1050	1600	16	
		17	44	110	230	564	1000	1850	20	
		17	44	110	255	608	1000	1850	25	
		17	44	110	255	608/35	1050/35	1800	32	
		17	44	110	250	608	1000	1850	40	
		13	38	95	210	450/63	800/63	1350	64	
		17	45	120	255	580	1000	1850	80	
		17	45	120	255	580	1000	1850	100	
		17	45	120	255	580	1000	1850	125	
		17	45	120	255	580	1000/140	1850/140	160	
		17	45	120	255	608	1000/180	1850/180	200	
17	45	120	255	608/224	1000/252	1850/252	256			
17	45	120	255	580/280	1000/315	1850/315	320			
13	38	95	210	450/504	800/441	1350/504	512			
故障停止扭矩 Emergency Stop Torque	Nm	2倍额定输出扭矩 Double Rated Output Torque								
最大径向力 <sup>1</sup> Max Radial Force	N	385	550	1020	2070	7300	12000	14000		
最大轴向力 <sup>1</sup> Max Axial Force	N	250	375	570	970	6400	6800	7800		
倾斜力矩 <sup>2</sup>	Nm	5	15	30	100	450	1150	1500		
满载效率 Full Loading Efficiency	%	97								1
		95								2
		93								3
平均寿命 Average lifetime	h	20000								
重量 Weight	kg	0.45	1.5	2.9	7	20.5	32	54		1
		0.55	2.1	4	10	28	40	67		2
		0.65	2.5	5.2	11.5	35	49	76		3

角标“1”在输出转速100rpm时，作用于输出轴中心位置(L/2处)之容许径向力及轴向力。  
角标“2”输出转速100rpm时的数据，更改使用工况时数据存在偏差。  
注：带“\*”的为不常用速比，表格内有2组数字的表示扭矩对应的实际速比，最大加速扭矩等于额定扭矩150%。  
The subscript "1" in the output speed of 100RPM, in the center of the output shaft position (L/2) permissible radial force and axial force.  
The angle label "2" outputs the data when the speed is 100 rpm, and there is a deviation when the working condition is changed.  
Note: with "\*" is not commonly used speed ratio, in the form of 2 groups of digital representation of the torque corresponding to the actual ratio, the maximum acceleration torque is equal to 150% of the rated torque.

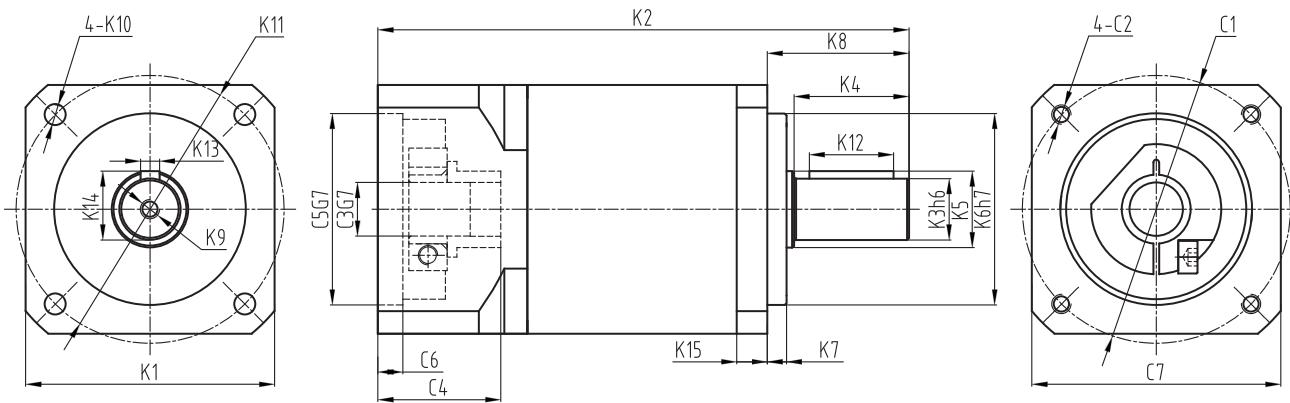
产品型号 Model		SPLF40	SPLF70	SPLF90	SPLF120	SPLF160	SPLF205	SPLF235	Ratio	Stage
转动惯量 Rotational Inertia	kgcm <sup>2</sup>	0.031	0.135	0.77	2.63	12.1	28.98	69.61	3	1
		0.22	0.093	0.52	1.79	7.75	23.67	54.37	4	
		0.019	0.078	0.45	1.53	6	22.75	53.27	5	
		--	0.07	0.42	1.5	5.52	22.48	50.84	6	
		--	0.069	0.4	1.4	5.1	22.48	50.84	7	
		0.017	0.065	0.39	1.32	3.74	22.59	50.84	8	
		--	0.065	0.39	1.32	3.62	22.59	50.84	9	
		--	0.065	0.39	1.32	3.62	22.55	50.56	10	
		0.031	0.105	0.67	1.63	10.1	18.98	59.61	12	
		0.023	0.088	0.5	1.75	7.47	7.54	23.67	16	
		0.022	0.075	0.44	1.53	6.65	7.42	22.75	20	
		0.019	0.075	0.44	1.49	5.81	7.54	22.75	25	
		0.019	0.064	0.39	1.32	6.34	7.14	22.59	32	
		0.017	0.064	0.39	1.32	5.36	7.14	22.59	40	
		0.016	0.064	0.39	1.32	4.08	7.54	22.59	64	
		0.029	0.075	0.5	1.53	7.4	7.54	22.75	80	
		0.019	0.064	0.44	1.49	7.3	7.42	22.59	100	
		0.019	0.064	0.7	2.57	7.3	7.42	22.75	125	
		0.029	0.064	0.39	1.3	6.5	7.14	22.75	160	
		0.016	0.064	0.39	1.3	6.5	7.14	22.75	200	
0.016	0.064	0.39	1.3	6.5	7.14	22.75	256			
0.016	0.064	0.39	1.3	6.5	7.14	22.75	320			
0.016	0.064	0.39	1.3	6.5	7.14	22.59	512			
回程间隙 Backlash	arcmin	≤12	≤8	≤8	≤8	≤8	≤8	≤8		1
		≤15	≤10	≤10	≤10	≤10	≤10	≤10		2
		≤17	≤12	≤12	≤12	≤12	≤12	≤12		3
抗扭刚性 Torsional Rigidity	Nm/arcmin	0.7	3	4.8	10	28.7	120	200		
噪音 <sup>1</sup> Noise	dB(A)	55	58	60	62	68	70	72		
最大输入速度 <sup>2</sup> Max Input Speed	min <sup>-1</sup>	8000	6000	6000	6000	6000	4000	3000		
额定输入速度 <sup>2</sup> Rated Input Speed	min <sup>-1</sup>	4000	4000	3000	3000	3000	2000	1500		

角标“1”环境温度为20℃。  
角标“2”噪音在n1<3000min<sup>-1</sup>、1米处测得。  
The subscript "1" the environment temperature is 20°C.  
The subscript "2" sound in n1<3000min<sup>-1</sup>, measured at 1 m.



### SPLF系列行星减速机标准尺寸

SPLF Series Servo Planetary Gearbox Standard Size



型号 Model	SPLF40			SPLF70			SPLF90			SPLF120			SPLF160			SPLF205			SPLF235		
Stage	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
K1	45			70			89			120			175			210			240		
K2	88.8	101.8	113.8	122	145.7	169.4	149	180.3	211.6	196	237.8	246	275.5	336.5	356	288	348	409	358	402	462
K3	φ10			φ14			φ20			φ25			φ40			φ55			φ75		
K4	23			30			36			50			80			82			105		
K5	φ12			φ17			φ25			φ40			φ50			φ60			φ85		
K6	φ26			φ50			φ80			φ110			φ130			φ160			φ180		
K7	2			3			3			4			5			20			30		
K8	26			35			40			55			87			105			138		
K9	M3X9			M5X12			M6X15			M10X26			M12X25			M20X40			M20X40		
K10	φ3.5			φ5.5			φ6.5			φ9			φ11			φ13			φ17		
K11	φ50			φ85			φ100			φ130			φ185			φ230			φ275		
K12	16			22			28			40			70			70			90		
K13	3			5			6			8			12			16			20		
K14	11.2			16			22.5			28			43			59			79.5		
K15	6			8			10			14			15			18			18		
C1	φ46			φ70			φ90			φ145			φ90	φ200	φ145	φ215	φ200	φ235	φ215	φ200	
C2	M4X10			M5X12			M6X15			M8X20	M6X15	M12X25	M8X20	M12X25	M12X25	M12X25	M12X25	M12X25	M12X25	M12X25	
C3	φ8			φ14			φ19			φ24			φ19	φ35	φ24	φ42	φ35	φ55	φ42	φ35	
C4	26.1			32.1			41.6			61.3			41.6	82	61.3	82.5	82	116	82.5	82	
C5	φ30			φ50			φ70			φ110			φ70	φ114.3	φ110	φ180	φ114.3	φ200	φ180	φ114.3	
C6	6			6.5			6.5			8			6.5	8	6.5	8	8	8	8	8	
C7	45			70			89			120			89	175	120	190	175	220	190	175	

## SPLN 系列行星减速机

### SERIES SERVO PLANETARY GEARBOX



### SPLN系列行星减速机产品特点

#### SPLN Series Servo Planetary Gearbox Product Highlight

经济型:高性价比

Economic Type: High Quality with competitive price.

齿轮材料选用高级低碳合金锻钢, 经过渗碳淬火之深度硬化处理, 硬度可达到HRC60, 保证齿轮强度和寿命。

Choosing low-carbon alloy forged steel as the raw material of the gear, the hardness can reach HRC60 by deepen harden of carburizing heat treatment to ensure gear strength and lifetime.

可适配全球任何一台伺服电动机。

Can be connected with any servo motor around the world.

使用合成润滑脂, 并采用IP65密封设计, 不泄漏免维护。

No grease leakage and maintenance free by using synthetic lubricating grease and IP65 protection design.



**SPLN系列行星减速机技术参数**  
SPLN Series Servo Planetary Gearbox Technical Data

产品型号 Model		SPLN70	SPLN90	SPLN120	SPLN160	SPLN205	Ratio	Stage
额定输出扭矩 Rated Output Torque	Nm	35	100	190	440	600	3	1
		42	110	240	544	1050	4	
		44	115	245	585	1000	5	
		40*	105*	240*	500*	800*	6	
		40*	100	235*	480	800	7	
		38	95	210	450	800	8	
		36	90	200	415	710	9	
		32	81	196	400	710	10	
		37	100	210	450	650	12	
		44	110	230	450	1050	16	
		44	110	230	564	1000	20	
		44	110	255	608	1000	25	
		44	110	255	608/35	1050/35	32	
		44	110	250	608	1000	40	
		38	95	210	450/63	800/63	64	
		45	120	255	580	1000	80	
		45	120	255	580	1000	100	
		45	120	255	580	1000	125	
		45	120	255	580	1000/140	160	
		45	120	255	608	1000/180	200	
45	120	255	608/224	1000/252	256			
45	120	255	580/280	1000/315	320			
38	95	210	450/504	800/441	512			
故障停止扭矩 Emergency Stop Torque	Nm	2倍额定输出扭矩 Double Rated Output Torque						
最大径向力 <sup>1</sup> Max Radial Force	N	550	1020	2070	7300	12000		
最大轴向力 <sup>1</sup> Max Axial Force	N	375	570	970	6400	6800		
满载效率 Full Loading Efficiency	%	97					1	
		95					2	
		93					3	
平均寿命 Average lifetime	h	20000						
重量 Weight	kg	1.3	2.4	6	20	30	1	
		1.8	3.6	9	27	38	2	
		2	4.8	10.5	34.5	47	3	

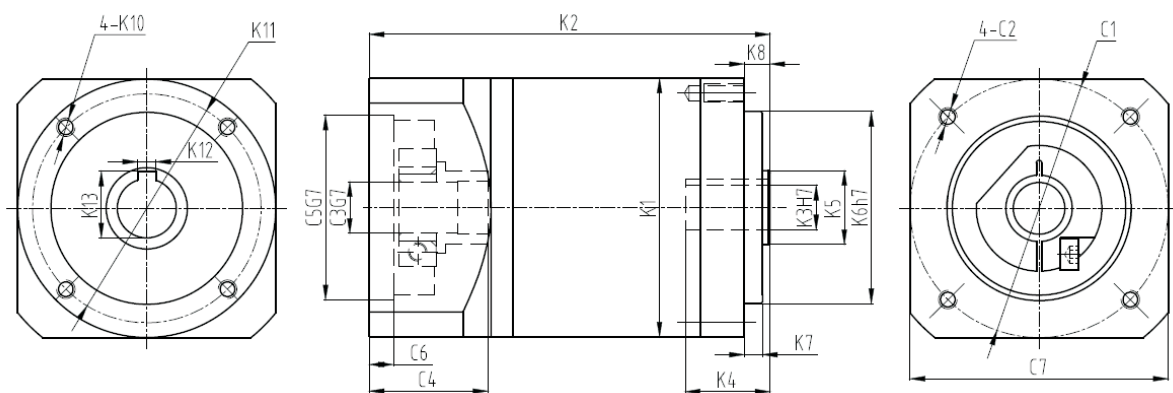
角标“1”在输出转速100rpm时，作用于输出轴中心位置(L/2处)之容许径向力及轴向力。  
注：带“\*”的为不常用速比，表格内有2组数字的表示扭矩对应的实际速比，最大加速扭矩等于额定扭矩150%。  
The subscript "1" in the output speed of 100RPM, in the center of the output shaft position (L/2) permissible radial force and axial force.  
Note: with "\*" is not commonly used speed ratio, in the form of 2 groups of digital representation of the torque corresponding to the actual ratio, the maximum acceleration torque is equal to 150% of the rated torque.

产品型号 Model		SPLN70	SPLN90	SPLN120	SPLN160	SPLN205	Ratio	Stage
转动惯量 Rotational Inertia	kgcm <sup>2</sup>	0.135	0.77	2.63	12.1	28.98	3	1
		0.093	0.52	1.79	7.75	23.67	4	
		0.078	0.45	1.53	6	22.75	5	
		0.07	0.42	1.5	5.52	22.48	6	
		0.069	0.4	1.4	5.1	22.48	7	
		0.065	0.39	1.32	3.74	22.59	8	
		0.065	0.39	1.32	3.62	22.59	9	
		0.065	0.39	1.32	3.62	22.55	10	
		0.105	0.67	1.63	10.1	18.98	12	
		0.088	0.5	1.75	7.47	7.54	16	
		0.075	0.44	1.53	6.65	7.42	20	
		0.075	0.44	1.49	5.81	7.54	25	
		0.064	0.39	1.32	6.34	7.14	32	
		0.064	0.39	1.32	5.36	7.14	40	
		0.064	0.39	1.32	4.08	7.54	64	
		0.075	0.5	1.53	7.4	7.54	80	
		0.064	0.44	1.49	7.3	7.42	100	
		0.064	0.7	2.57	7.3	7.42	125	
		0.064	0.39	1.3	6.5	7.14	160	
		0.064	0.39	1.3	6.5	7.14	200	
0.064	0.39	1.3	6.5	7.14	256			
0.064	0.39	1.3	6.5	7.14	320			
0.064	0.39	1.3	6.5	7.14	512			
回程间隙 Backlash	arcmin	≤8	≤8	≤8	≤8	≤8		1
		≤10	≤10	≤10	≤10	≤10		2
		≤12	≤12	≤12	≤12	≤12		3
抗扭刚性 Torsional Rigidity	Nm/arcmin	3	4.8	10	28.7	120		
噪音 <sup>1</sup> Noise	dB(A)	58	60	62	68	70		
最大输入速度 <sup>2</sup> Max Input Speed	min <sup>-1</sup>	6000	6000	6000	6000	4000		
额定输入速度 <sup>2</sup> Rated Input Speed	min <sup>-1</sup>	4000	3000	3000	3000	2000		

角标“1”环境温度为20℃。  
角标“2”噪音在n1<3000min<sup>-1</sup>、1米处测得。  
The subscript "1" the environment temperature is 20°C.  
The subscript "2" sound in n1<3000min<sup>-1</sup>, measured at 1 m.

### SPLN系列行星减速机标准尺寸

SPLN Series Servo Planetary Gearbox Standard Size



型号 Model	SPLN70			SPLN90			SPLN120			SPLN160			SPLN205		
Stage	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
K1	φ70			φ89			φ120			φ160			φ205		
K2	92	115.7	139.4	113	144.3	175.6	146	187.8	196	195.5	256.5	286	208	268	327
K3	φ12			φ16			φ25			φ38			M2XZ24XP30XH6		
K4	23			25			36			45			48		
K5	φ17			φ30			φ40			φ50			φ60		
K6	φ40			φ60			φ80			φ130			φ160		
K7	3			3			4			5			20		
K8	5			4			5			7			25		
K10	M5X12			M6X12			M10X20			M12X20			M12X20		
K11	φ52			φ70			φ100			φ145			φ184		
K12	4			5			8			10			GB/T3478.1		
K13	13.8			18.3			28.3			41.3			GB/T3478.1		
C1	φ70			φ90			φ145		φ90	φ200		φ145	φ215		φ200
C2	M5X12			M6X15			M8X20		M6X15	M12X25		M8X20	M12X25		M12X25
C3	φ14			φ19			φ24		φ19	φ35		φ24	φ42		φ35
C4	32.1			41.6			61.3		41.6	82		61.3	82.5		82
C5	φ50			φ70			φ110		φ70	φ114.3		φ110	φ180		φ114.3
C6	6.5			6.5			8		6.5	8		6.5	8		8
C7	70			89			120		89	175		120	190		175

## SPLS系列行星减速机

SERIES SERVO PLANETARY GEARBOX



### SPLS系列行星减速机产品特点

#### SPLS Series Servo Planetary Gearbox Product Highlight

经济型:高性价比  
Economic Type: High Quality with competitive price.

齿轮材料选用高级低碳合金锻钢, 经过渗碳淬火之深度硬化处理, 硬度可达到HRC60, 保证齿轮强度和寿命。  
Choosing low-carbon alloy forged steel as the raw material of the gear, the hardness can reach HRC60 by deepen harden of carburizing heat treatment to ensure gear strength and lifetime.

可适配全球任何一台伺服电动机。  
Can be connected with any servo motor around the world.

使用合成润滑脂, 并采用IP65密封设计, 不泄漏免维护。  
No grease leakage and maintenance free by using synthetic lubricating grease and IP65 protection design.

## SPLS系列行星减速机技术参数

SPLS Series Servo Planetary Gearbox Technical Data

产品型号 Model		SPLS70	SPLS90	SPLS120	SPLS160	SPLS205	Ratio	Stage	
额定输出扭矩 Rated Output Torque	Nm	35	100	190	440	600	3	1	
		42	110	240	544	1050	4		
		44	115	245	585	1000	5		
		40*	105*	240*	500*	800*	6		
		40*	100	235*	480	800	7		
		38	95	210	450	800	8		
		36	90	200	415	710	9		
		32	81	196	400	710	10		
		37	100	210	450	650	12		
		44	110	230	450	1050	16		
		44	110	230	564	1000	20	2	
		44	110	255	608	1000	25		
		44	110	255	608/35	1050/35	32		
		44	110	250	608	1000	40		
		38	95	210	450/63	800/63	64		
		45	120	255	580	1000	80		
		45	120	255	580	1000	100		
		45	120	255	580	1000	125		
		45	120	255	580	1000/140	160		
		45	120	255	608	1000/180	200		
45	120	255	608/224	1000/252	256	3			
45	120	255	580/280	1000/315	320				
38	95	210	450/504	800/441	512				
故障停止扭矩 Emergency Stop Torque	Nm	2倍额定输出扭矩 Double Rated Output Torque							
最大径向力 <sup>1</sup> Max Radial Force	N	550	1020	2070	7300		12000		
最大轴向力 <sup>1</sup> Max Axial Force	N	375	570	970	6400		6800		
倾斜力矩 <sup>2</sup>	Nm	15	30	100	450		1150		
满载效率 Full Loading Efficiency	%	97					1		
		95					2		
		93					3		
平均寿命 Average lifetime	h	20000							
重量 Weight	kg	1.4	2.7	6.5	19	31		1	
		2	3.8	9.5	26	39		2	
		2.4	5	11	33.5	48		3	

角标“1”在输出转速100rpm时，作用于输出轴中心位置(L/2处)之容许径向力及轴向力。

角标“2”输出转速100rpm时的数据，更改使用工况时数据存在偏差。

注：带“\*”的为不常用速比，表格内有2组数字的表示扭矩对应的实际速比，最大加速扭矩等于额定扭矩150%。

The subscript "1" in the output speed of 100RPM, in the center of the output shaft position (L/2) permissible radial force and axial force.

The angle label "2" outputs the data when the speed is 100 rpm, and there is a deviation when the working condition is changed.

Note: with "\*" is not commonly used speed ratio, in the form of 2 groups of digital representation of the torque corresponding to the actual ratio, the maximum acceleration torque is equal to 150% of the rated torque.

产品型号 Model		SPLS70	SPLS90	SPLS120	SPLS160	SPLS205	Ratio	Stage	
转动惯量 Rotational Inertia	kgcm <sup>2</sup>	0.135	0.77	2.63	12.1	28.98	3	1	
		0.093	0.52	1.79	7.75	23.67	4		
		0.078	0.45	1.53	6	22.75	5		
		0.07	0.42	1.5	5.52	22.48	6		
		0.069	0.4	1.4	5.1	22.48	7		
		0.065	0.39	1.32	3.74	22.59	8		
		0.065	0.39	1.32	3.62	22.59	9		
		0.065	0.39	1.32	3.62	22.55	10		
		0.105	0.67	1.63	10.1	18.98	12		
		0.088	0.5	1.75	7.47	7.54	16		
		0.075	0.44	1.53	6.65	7.42	20	2	
		0.075	0.44	1.49	5.81	7.54	25		
		0.064	0.39	1.32	6.34	7.14	32		
		0.064	0.39	1.32	5.36	7.14	40		
		0.064	0.39	1.32	4.08	7.54	64		
		0.075	0.5	1.53	7.4	7.54	80		
		0.064	0.44	1.49	7.3	7.42	100		
		0.064	0.7	2.57	7.3	7.42	125		
		0.064	0.39	1.3	6.5	7.14	160		
		0.064	0.39	1.3	6.5	7.14	200		
0.064	0.39	1.3	6.5	7.14	256	3			
0.064	0.39	1.3	6.5	7.14	320				
0.064	0.39	1.3	6.5	7.14	512				
回程间隙 Backlash	arcmin	≤8	≤8	≤8	≤8		≤8		1
		≤10	≤10	≤10	≤10		≤10		2
		≤12	≤12	≤12	≤12		≤12		3
抗扭刚性 Torsional Rigidity	Nm/arcmin	3	4.8	10	28.7		120		
噪音 <sup>1</sup> Noise	dB(A)	58	60	62	68		70		
最大输入速度 <sup>2</sup> Max Input Speed	min <sup>-1</sup>	6000	6000	6000	6000		4000		
额定输入速度 <sup>2</sup> Rated Input Speed	min <sup>-1</sup>	4000	3000	3000	3000		2000		

角标“1”环境温度为20℃。

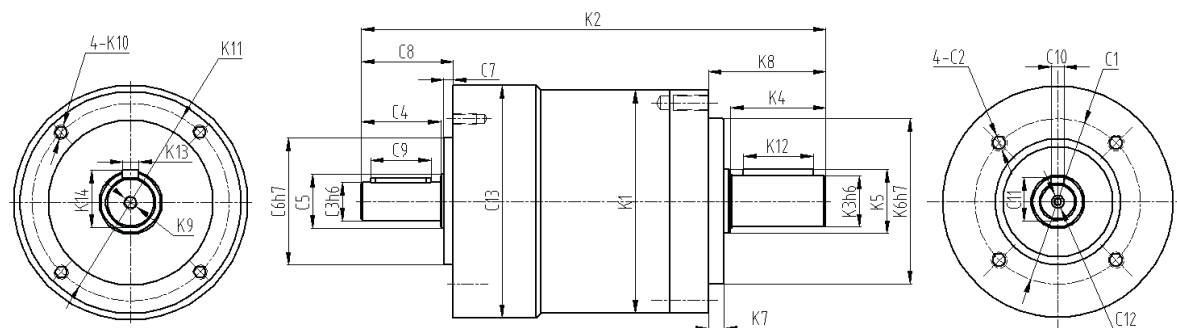
角标“2”噪音在n1<3000min<sup>-1</sup>、1米处测得。

The subscript "1" the environment temperature is 20°C.

The subscript "2" sound in n1<3000min<sup>-1</sup>, measured at 1 m.

### SPLS系列行星减速机标准尺寸

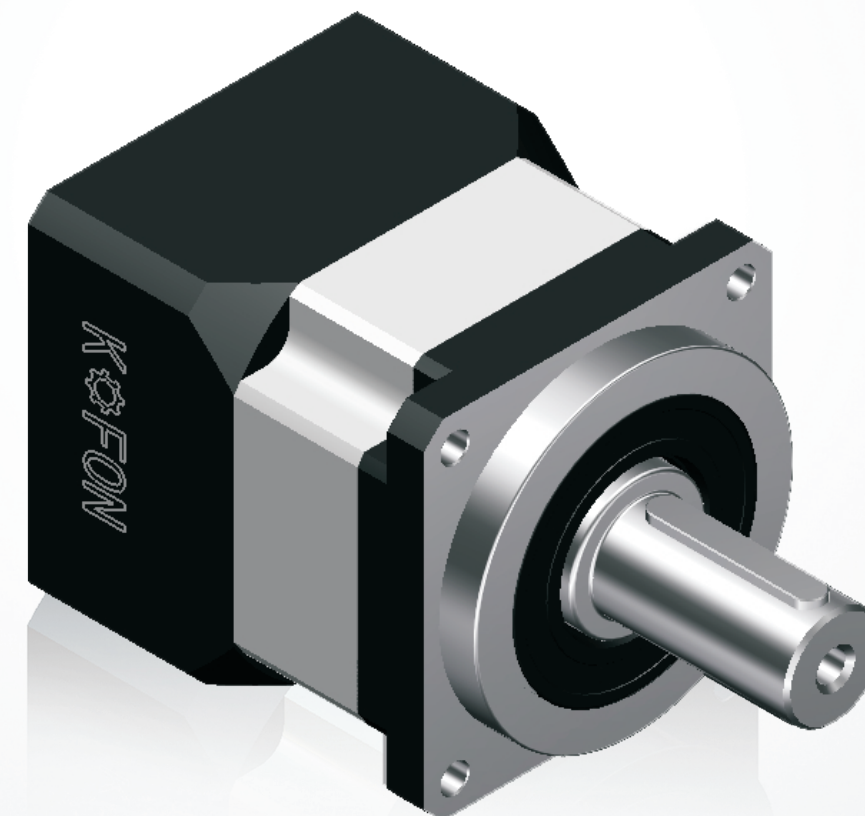
SPLS Series Servo Planetary Gearbox Standard Size



型号 Model	SPLS70			SPLS90			SPLS120			SPLS160			SPLS205		
Stage	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
K1	φ70			φ89			φ120			φ160			φ205		
K2	139.5	163.2	186.9	163.7	195	226.3	215	256.8	260.7	340.5	401.5	401	355	366.5	427.5
K3	φ14			φ20			φ25			φ40			φ55		
K4	30			36			50			80			82		
K5	φ17			φ25			φ40			φ50			φ60		
K6	φ40			φ60			φ80			φ130			φ160		
K7	3			3			4			5			20		
K8	35			40			55			87			105		
K9	M5X12			M6X15			M10X26			M12X25			M20X40		
K10	M5X12			M6X12			M10X20			M12X20			M12X20		
K11	φ52			φ70			φ100			φ145			φ184		
K12	22			28			40			70			70		
K13	5			6			8			12			16		
K14	16			22.5			28			43			59		
C1	φ52			φ70			φ100		φ70	φ145		φ100	φ135		φ145
C2	M5X11			M6X15			M10X20		M6X15	M12X20		M10X20	M8X14		M12X20
C3	φ12			φ16			φ22		φ16	φ35		φ22	φ40		φ35
C4	25			26			40		26	57		40	70		57
C5	φ17			25			φ35		φ25	φ50		φ35	φ50		φ50
C6	φ40			60			φ80		φ60	φ130		φ80	φ120		φ130
C7	3			3			4		3	5		4	8		5
C8	29			30			45		30	65		45	80		65
C9	18			20			32		20	45		32	60		45
C10	4			5			6		5	10		6	12		10
C11	13.5			18			24.5		18	38		24.5	43		38
C12	M4X8			M5X10			M6X16		M5X10	M12X25		M6X16	M12X25		M12X25
C13	φ73			φ92			φ123		φ92	φ162		φ123	φ150		φ162

## SPX系列行星减速机

SERIES SERVO PLANETARY GEARBOX



### SPX系列行星减速机产品特点

#### SPX Series Servo Planetary Gearbox Product Highlight

经济型:高性价比

Economic Type: High Quality with competitive price.

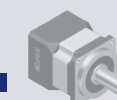
齿轮材料选用高级低碳合金钢, 经过渗碳淬火之深度硬化处理, 硬度可达到HRC60, 保证齿轮强度和寿命。  
Choosing low-carbon alloy forged steel as the raw material of the gear, the hardness can reach HRC60 by deepen harden of carburizing heat treatment to ensure gear strength and lifetime.

可适配全球任何一台伺服电动机。

Can be connected with any servo motor around the world.

使用合成润滑脂, 并采用IP65密封设计, 不泄漏免维护。

No grease leakage and maintenance free by using synthetic lubricating grease and IP65 protection design.



## SPX系列行星减速机技术参数

SPX Series Servo Planetary Gearbox Technical Data

产品型号 Model		SPX40	SPX65	SPX85	SPX115	SPX142	SPX180	SPX220	Ratio	Stage
额定输出扭矩 Rated Output Torque	Nm	13	35	100	190	440	600	1000	3	1
		17	42	110	240	544	1050	1600	4	
		17	44	115	245	585	1000	1850	5	
		--	40*	105*	240*	500*	800*	1650*	6	
		--	40*	100	235*	480	800	1550*	7	
		12	38	95	210	450	800	1350	8	
		--	36	90	200	415	710	1300*	9	
		--	32	81	196	400	710	1300	10	
		16	37	100	210	450	650	1000	12	
		16	44	110	230	450	1050	1600	16	
		17	44	110	230	564	1000	1850	20	
		17	44	110	255	608	1000	1850	25	
		17	44	110	255	608/35	1050/35	1800	32	
		17	44	110	250	608	1000	1850	40	
		13	38	95	210	450/63	800/63	1350	64	
		17	45	120	255	580	1000	1850	80	
		17	45	120	255	580	1000	1850	100	
		17	45	120	255	580	1000	1850	125	
		17	45	120	255	580	1000/140	1850/140	160	
		17	45	120	255	608	1000/180	1850/180	200	
17	45	120	255	608/224	1000/252	1850/252	256			
17	45	120	255	580/280	1000/315	1850/315	320			
13	38	95	210	450/504	800/441	1350/504	512			
故障停止扭矩 Emergency Stop Torque	Nm	2倍额定输出扭矩 Double Rated Output Torque								
最大径向力 <sup>1</sup> Max Radial Force	N	385	550	1020	2070	7300	12000	14000		
最大轴向力 <sup>1</sup> Max Axial Force	N	250	375	570	970	6400	6800	7800		
倾斜力矩 <sup>2</sup>	Nm	5	15	30	100	450	1150	1500		
满载效率 Full Loading Efficiency	%	97								1
		95								2
		93								3
平均寿命 Average lifetime	h	20000								
重量 Weight	kg	0.4	1.3	2.8	6.5	17.5	34	53		1
		0.5	1.7	3.8	9.5	24.5	39	66		2
		0.6	2.2	5	12	32	45	75		3

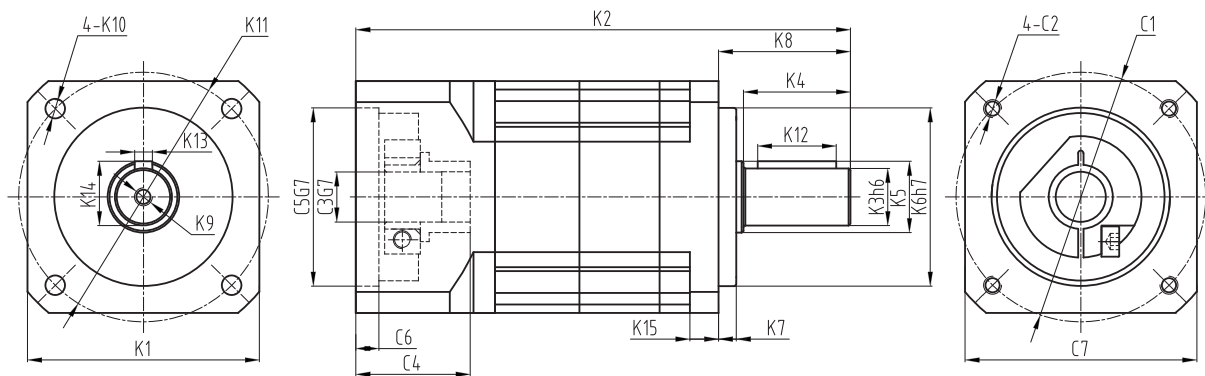
角标“1”在输出转速100rpm时，作用于输出轴中心位置(L/2处)之容许径向力及轴向力。  
角标“2”输出转速100rpm时的数据，更改使用工况时数据存在偏差。  
The subscript "1" in the output speed of 100RPM, in the center of the output shaft position (L/2) permissible radial force and axial force.  
The angle label "2" outputs the data when the speed is 100 rpm, and there is a deviation when the working condition is changed.

产品型号 Model		SPX40	SPX65	SPX85	SPX115	SPX142	SPX180	SPX220	Ratio	Stage
转动惯量 Rotational Inertia	kgcm <sup>2</sup>	0.031	0.135	0.77	2.63	12.1	28.98	69.61	3	1
		0.22	0.093	0.52	1.79	7.75	23.67	54.37	4	
		0.019	0.078	0.45	1.53	6	22.75	53.27	5	
		--	0.07	0.42	1.5	5.52	22.48	50.84	6	
		--	0.069	0.4	1.4	5.1	22.48	50.84	7	
		0.017	0.065	0.39	1.32	3.74	22.59	50.84	8	
		--	0.065	0.39	1.32	3.62	22.59	50.84	9	
		--	0.065	0.39	1.32	3.62	22.55	50.56	10	
		0.031	0.105	0.67	1.63	10.1	18.98	59.61	12	
		0.023	0.088	0.5	1.75	7.47	7.54	23.67	16	
		0.022	0.075	0.44	1.53	6.65	7.42	22.75	20	
		0.019	0.075	0.44	1.49	5.81	7.54	22.75	25	
		0.019	0.064	0.39	1.32	6.34	7.14	22.59	32	
		0.017	0.064	0.39	1.32	5.36	7.14	22.59	40	
		0.016	0.064	0.39	1.32	4.08	7.54	22.59	64	
		0.029	0.075	0.5	1.53	7.4	7.54	22.75	80	
		0.019	0.064	0.44	1.49	7.3	7.42	22.59	100	
		0.019	0.064	0.7	2.57	7.3	7.42	22.75	125	
		0.029	0.064	0.39	1.3	6.5	7.14	22.75	160	
		0.016	0.064	0.39	1.3	6.5	7.14	22.75	200	
0.016	0.064	0.39	1.3	6.5	7.14	22.75	256			
0.016	0.064	0.39	1.3	6.5	7.14	22.75	320			
0.016	0.064	0.39	1.3	6.5	7.14	22.59	512			
回程间隙 Backlash	arcmin	≤12	≤8	≤8	≤8	≤8	≤8	≤8		1
		≤15	≤10	≤10	≤10	≤10	≤10	≤10		2
		≤17	≤12	≤12	≤12	≤12	≤12	≤12		3
抗扭刚性 Torsional Rigidity	Nm/arcmin	0.7	3	4.8	10	28.7	120	200		
噪音 <sup>1</sup> Noise	dB(A)	55	58	60	62	68	70	72		
最大输入速度 <sup>2</sup> Max Input Speed	min <sup>-1</sup>	8000	6000	6000	6000	6000	4000	3000		
额定输入速度 <sup>2</sup> Rated Input Speed	min <sup>-1</sup>	4000	4000	3000	3000	3000	2000	1500		

角标“1”环境温度为20℃。  
角标“2”噪音在n1<3000min<sup>-1</sup>、1米处测得。  
The subscript "1" the environment temperature is 20°C.  
The subscript "2" sound in n1<3000min<sup>-1</sup>, measured at 1 m.

### SPX系列行星减速机标准尺寸

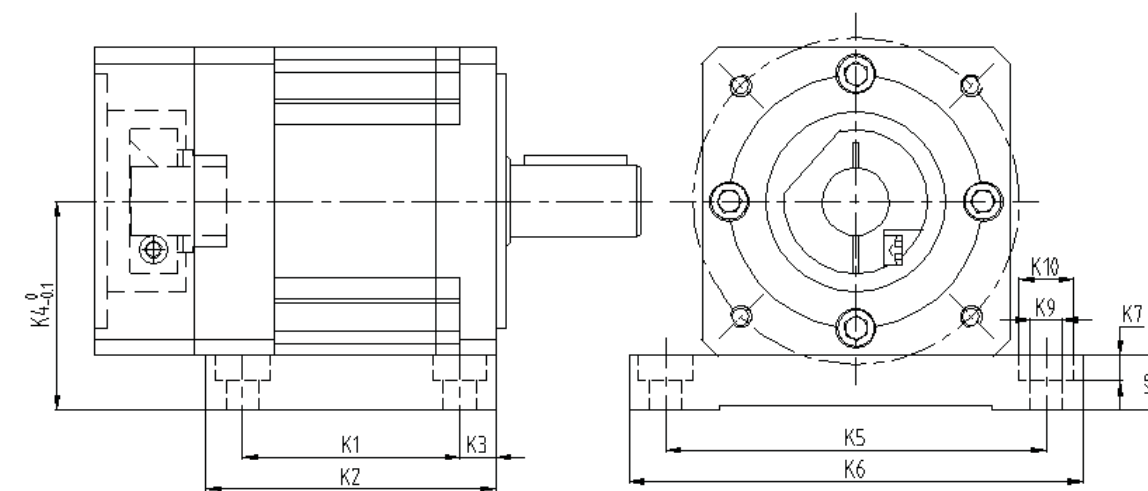
SPX Series Servo Planetary Gearbox Standard Size



型号 Model	SPX40			SPX65			SPX85			SPX115			SPX142			SPX180			SPX220		
Stage	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
K1	45			65			85			115			142			180			220		
K2	88.3	101.3	114.3	122	145.7	169.4	149	180.3	211.6	196	237.8	246	275.5	336.5	356	288	348	409	358	402	462
K3	φ10			φ14			φ20			φ25			φ40			φ55			φ75		
K4	23			30			36			50			80			82			105		
K5	φ12			φ17			φ25			φ40			φ50			φ60			φ85		
K6	φ26			φ50			φ70			φ95			φ130			φ160			φ180		
K7	5			3			3			4			5			20			30		
K8	29			35			40			55			87			105			138		
K9	M3X9			M5X12			M6X15			M10X26			M12X25			M20X40			M20X40		
K10	φ3.5			φ5.5			φ6.5			φ9			φ11			φ13			φ17		
K11	φ50			φ70			φ100			φ130			φ165			215			250		
K12	16			22			28			40			70			70			90		
K13	3			5			6			8			12			16			20		
K14	11.2			16			22.5			28			43			59			79.5		
K15	6			8			10			14			15			20			20		
C1	φ46			φ70			φ90			φ145			φ200			φ145	φ215	φ200	φ235	φ215	φ200
C2	M4X10			M5X12			M6X15			M8X20			M12X25	M8X20	M12X25	M12X25	M12X25	M12X25	M12X25	M12X25	M12X25
C3	φ8			φ14			φ19			φ24			φ35			φ24	φ42	φ35	φ55	φ42	φ35
C4	26.1			32.1			41.6			61.3			82			61.3	82.5	82	116	82.5	82
C5	φ30			φ50			φ70			φ110			φ114.3			φ110	φ180	φ114.3	φ200	φ180	φ114.3
C6	6			6.5			6.5			8			8			6.5	8	8	8	8	8
C7	45			65			85			120			175			120	190	175	220	190	175

### SPXD系列行星减速机标准尺寸

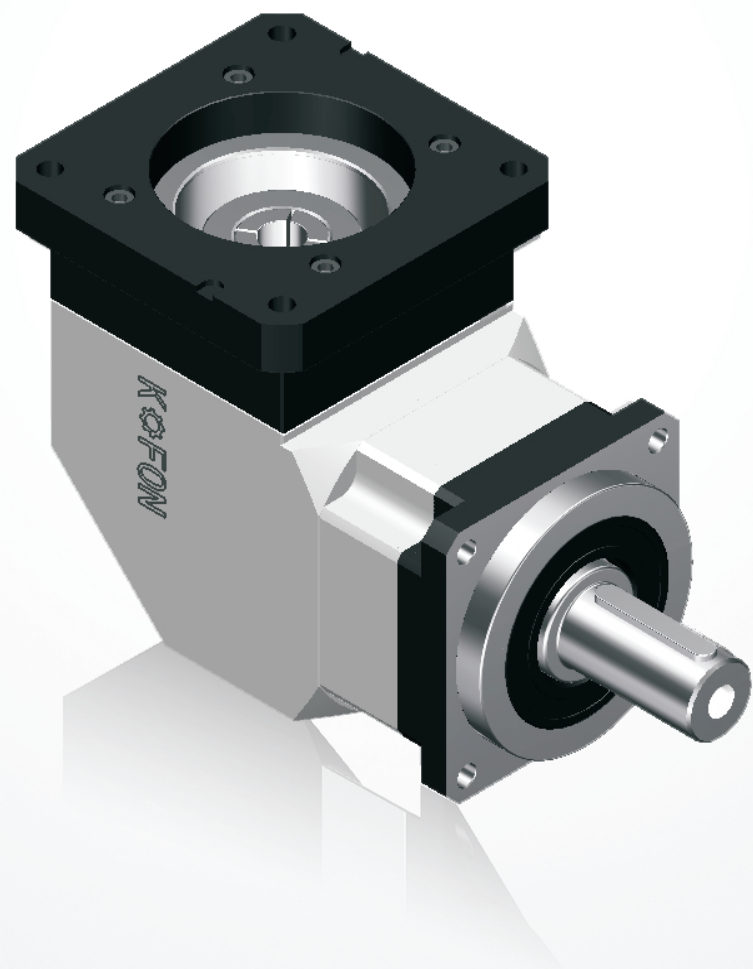
SPXD Series Servo Planetary Gearbox Standard Size



型号 Model	SPX45	SPX85	SPX115	SPX142	SPX180	SPX220	级数
K1	40	42	55	100	88	110	1
	64	75	95	160	80	98	2
	88	105	95	135	80	98	3
K2	60	65	85	130	112	140	1
	80	100	125	190	105	128	2
	110	130	125	160	105	128	3
K3	10	10	12.5	10	12	15	
K4	45	55	70	90	108	132	
K5	80	105	130	165	200	250	
K6	100	125	150	190	225	280	
K7	7	9	9	-	-	-	
K8	12.5	12.5	15	19	18	22	
K9	φ6.5	φ9	φ9	φ11	φ13	φ17	
K10	φ13	φ15	φ15	-	-	-	

# SVX系列行星减速机

## SERIES SERVO PLANETARY GEARBOX



### SVX系列行星减速机产品特点

#### SVX Series Servo Planetary Gearbox Product Highlight

经济型:高性价比  
Economic Type: High Quality with competitive price.

齿轮材料选用高级低碳合金锻钢, 经过渗碳淬火之深度硬化处理, 硬度可达到HRC60, 保证齿轮强度和寿命。  
Choosing low-carbon alloy forged steel as the raw material of the gear, the hardness can reach HRC60 by deepen harden of carburizing heat treatment to ensure gear strength and lifetime.

可适配全球任何一台伺服电动机。  
Can be connected with any servo motor around the world.

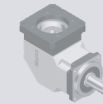
使用合成润滑脂, 并采用IP65密封设计, 不泄漏免维护。

### SVX系列行星减速机技术参数

#### SVX Series Servo Planetary Gearbox Technical Data

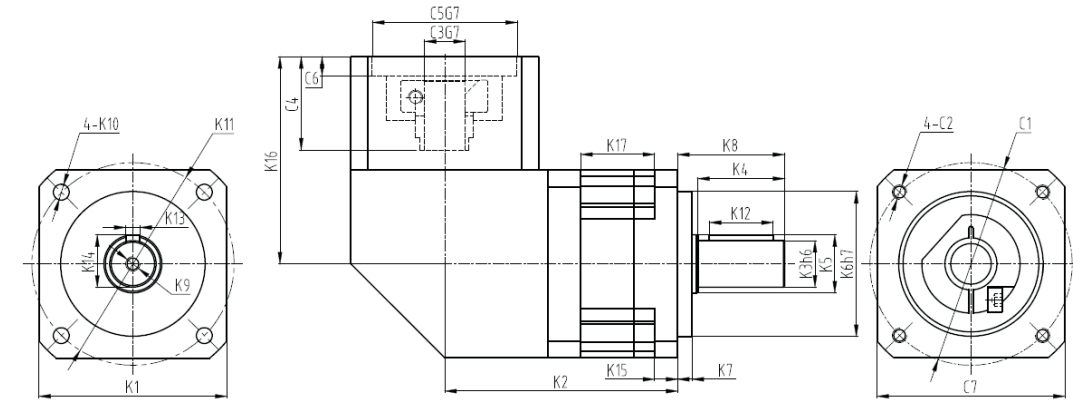
产品型号 Model	SVX65	SVX85	SVX115	SVX142	SVX180	SVX220	Ratio	Stage
额定输出扭矩 Rated Output Torque	28	78	150	360	585	1300	1	1
	22	68	150	332	585	1220	2	
	17	60	137	316	512	1020	2.5	
	15	54	120	270	450	800	3	
	42	110	240	544	1050	1600	4	
	44	115	245	585	1000	1850	5	
	40*	105*	240*	500*	800*	1650*	6	
	40*	100	235*	480	800	1550*	7	
	38	95	210	450	800	1350	8	
	36	90	200	415	710	1300*	9	3
	32	81	196	400	710	1300	10	
	37	100	210	450	650	1000	12	
	44	110	230	450	1050	1600	16	
	44	110	230	564	1000	1850	20	
	44	110	255	608	1000	1850	25	
	44	110	255	608/35	1050/35	1800	32	
	44	110	250	608	1000	1850	40	
	38	95	210	450/63	800/63	1350	64	
	45	120	255	580	1000	1850	80	
	45	120	255	580	1000	1850	100	
45	120	255	580	1000	1850	125		
45	120	255	580	1000/140	1850/140	160		
45	120	255	608	1000/180	1850/180	200		
45	120	255	608/224	1000/252	1850/252	256		
45	120	255	580/280	1000/315	1850/315	320		
38	95	210	450/504	800/441	1350/504	512		
故障停止扭矩 Emergency Stop Torque	Nm 2倍额定输出扭矩 Double Rated Output Torque							
最大径向力 <sup>1</sup> Max Radial Force	N	550	1020	2070	7300	12000	14000	
最大轴向力 <sup>1</sup> Max Axial Force	N	375	570	970	6400	6800	7800	
倾斜力矩 <sup>2</sup>	Nm	15	30	100	450	1150	1500	
满载效率 Full Loading Efficiency	%	98						1
		96						2
		94						3
		92						4
平均寿命 Average lifetime	h	20000						
重量 Weight	kg	2	4.4	10	16	38	55	1
		2.3	5.4	12	23	45	68	2
		2.8	6.8	15	31	50	78	3
		3.4	8	18	40	56	85	4

角标“1”在输出转速100rpm时, 作用于输出轴中心位置(L/2处)之容许径向力及轴向力,  
角标“2”输出转速100rpm时的数据, 更改使用工况时数据存在偏差。  
注: 带“\*”的为不常用速比, 表格内有2组数字的表示扭矩对应的实际速比, 最大加速扭矩等于额定扭矩150%。  
The subscript "1" in the output speed of 100RPM, in the center of the output shaft position (L/2) permissible radial force and axial force,  
The angle label "2" outputs the data when the speed is 100 rpm, and there is a deviation when the working condition is changed.  
Note: with "\*" is not commonly used speed ratio, in the form of 2 groups of digital representation of the torque corresponding to the actual ratio,  
the maximum acceleration torque is equal to 150% of the rated torque.



### SVX系列行星减速机标准尺寸

SVX Series Servo Planetary Gearbox Standard Size



产品型号 Model		SVX65	SVX85	SVX115	SVX142	SVX180	SVX220	Ratio	Stage
转动惯量 Rotational Inertia	kgcm <sup>2</sup>	1.3	3.16	7.7	23.57	58.99	195.4	1	1
		1.11	2.7	6.31	17.75	45.35	140.24	2	
		1.09	2.68	6.26	17.54	44.86	135.7	2.5	
		1.09	2.66	6.17	17.18	44.01	134.95	3	
		0.093	0.52	1.79	7.75	23.67	54.37	4	
		0.078	0.45	1.53	6	22.75	53.27	5	
		0.07	0.42	1.5	5.52	22.48	50.84	6	
		0.069	0.4	1.4	5.1	22.48	50.84	7	
		0.065	0.39	1.32	3.74	22.59	50.84	8	
		0.065	0.39	1.32	3.62	22.59	50.84	9	
		0.065	0.39	1.32	3.62	22.55	50.56	10	
		0.105	0.67	1.63	10.1	18.98	59.61	12	
		0.088	0.5	1.75	7.47	7.54	23.67	16	
		0.075	0.44	1.53	6.65	7.42	22.75	20	
		0.075	0.44	1.49	5.81	7.54	22.75	25	
		0.064	0.39	1.32	6.34	7.14	22.59	32	
		0.064	0.39	1.32	5.36	7.14	22.59	40	
		0.064	0.39	1.32	4.08	7.54	22.59	64	
		0.075	0.5	1.53	7.4	7.54	22.75	80	
		0.064	0.44	1.49	7.3	7.42	22.59	100	
0.064	0.7	2.57	7.3	7.42	22.75	125			
0.064	0.39	1.3	6.5	7.14	22.75	160			
0.064	0.39	1.3	6.5	7.14	22.75	200			
0.064	0.39	1.3	6.5	7.14	22.75	256			
0.064	0.39	1.3	6.5	7.14	22.75	320			
0.064	0.39	1.3	6.5	7.14	22.59	512			
回程间隙 Backlash	arcmin	≤8	≤8	≤8	≤8	≤8	≤8		1
		≤10	≤10	≤10	≤10	≤10	≤10		2
		≤12	≤12	≤12	≤12	≤12	≤12		3
		≤15	≤15	≤15	≤15	≤15	≤15		4
抗扭刚性 Torsional Rigidity	Nm/arcmin	3	4.8	10	28.7	120	200		
噪音 <sup>1</sup> Noise	dB(A)	63	65	68	70	72	75		
最大输入速度 <sup>2</sup> Max Input Speed	min <sup>-1</sup>	6000	6000	6000	6000	4000	3000		
额定输入速度 <sup>3</sup> Rated Input Speed	min <sup>-1</sup>	4000	3000	3000	3000	2000	1500		

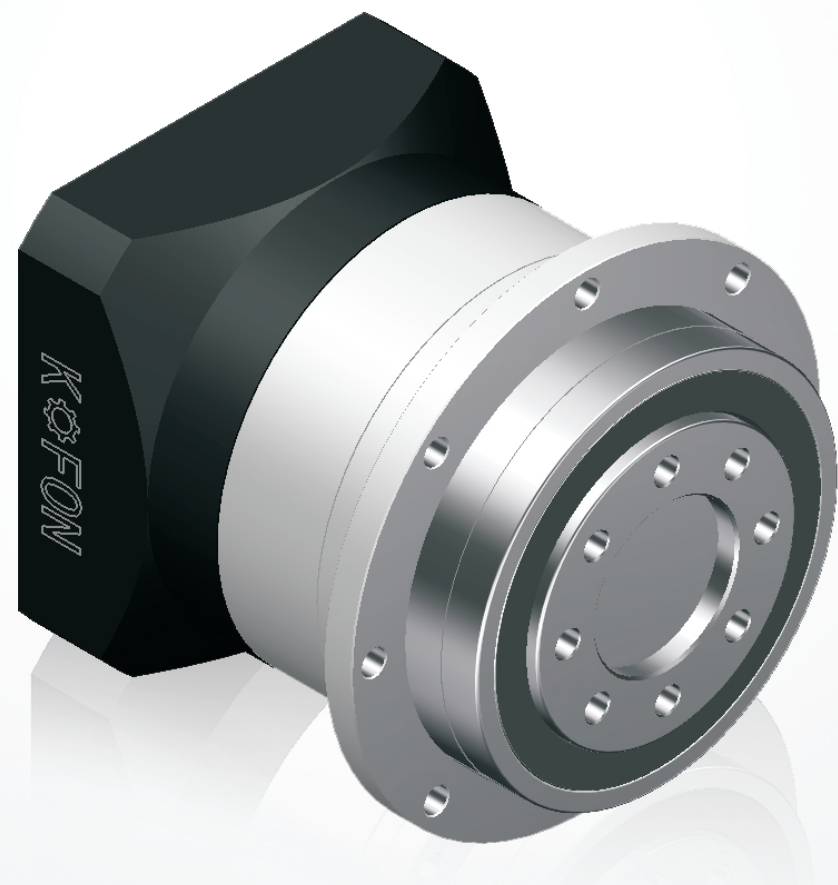
角标“1”环境温度为20℃。  
角标“2”噪音在n1<3000min<sup>-1</sup>、1米处测得。  
The subscript "1" the environment temperature is 20℃.  
The subscript "2" sound in n1<3000min<sup>-1</sup>, measured at 1 m.

型号 Model	SVX65				SVX85				SVX115				SVX142				SVX180				SVX220																			
Stage	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																
K1	65				85				110				142				180				220																			
K2	75.5	93	116.7	140.4	95	105.2	136.5	167.8	119.5	154	195.8	198.2	141	187	248	309	204.5	251.5	312.5	220	285.5	332.5																		
K3	φ16				φ22				φ32				φ40				φ55				φ75																			
K4	30				36				50				80				82				105																			
K5	φ20				φ25				φ40				φ50				φ60				φ85																			
K6	φ50				φ80				φ110				φ130				φ160				φ180																			
K7	5				10				12				15				20				30																			
K8	37				48				65				97				105				138																			
K9	M5X12				M6X16				M10X22				M12X26				M20X40				M20X40																			
K10	φ5.5				φ6.5				φ9				φ11				φ13				φ17																			
K11	φ70				φ100				φ130				φ165				φ215				φ250																			
K12	22				28				40				70				70				90																			
K13	5				6				10				12				16				20																			
K14	18				24.5				35				43				59				79.5																			
K15	8				10				14				15				20				25																			
K16	82.5				94				140				114				169				204				169				210				204				169			
K17	30	37.6	61.3	85	30	39.7	66	97.3	35	60	101.8	86.8	55	80	141	202	69				81																			
C1	φ70				φ90				φ145				φ200				φ215				φ200				φ235				φ215				φ200							
C2	M5X12				M6X15				M8X20				M12X12				M12X25				M12X25				M12X25				M12X25				M12X25							
C3	φ14				φ19				φ24				φ35				φ42				φ35				φ55				φ42				φ35							
C4	32.1				41.3				61.3				81.3				82.5				81.3				116				82.5				81.3							
C5	φ50				φ70				φ110				φ114.3				φ180				φ114.3				φ200				φ180				φ114.3							
C6	6.5				6.5				8				6.5				8				8				82				8				8							
C7	65				85				120				175				190				175				20				190				175							



# SPH系列行星减速机

## SERIES SERVO PLANETARY GEARBOX



### SPH系列行星减速机产品特点

#### SPH Series Servo Planetary Gearbox Product Highlight

经济型:高性价比

Economic Type: High Quality with competitive price.

齿轮材料选用高级低碳合金锻钢,经过渗碳淬火之深度硬化处理,硬度可达到HRC60,保证齿轮强度和寿命。

Choosing low-carbon alloy forged steel as the raw material of the gear, the hardness can reach HRC60 by deepen harden of carburizing heat treatment to ensure gear strength and lifetime.

可适配全球任何一台伺服电动机。

Can be connected with any servo motor around the world.

使用合成润滑脂,并采用IP65密封设计,不泄漏免维护。

### SPH系列行星减速机技术参数

#### SPH Series Servo Planetary Gearbox Technical Data

产品型号 Model		SPH70	SPH90	SPH120	SPH160	SPH205	Ratio	Stage
额定输出扭矩 Rated Output Torque	Nm	35	100	190	440	600	3	1
		42	110	240	544	1050	4	
		44	115	245	585	1000	5	
		40*	105*	240*	500*	800*	6	
		40*	100	235*	480	800	7	
		38	95	210	450	800	8	
		36	90	200	415	710	9	
		32	81	196	400	710	10	2
		37	100	210	450	650	12	
		44	110	230	450	1050	16	
		44	110	230	564	1000	20	
		44	110	255	608	1000	25	
		44	110	255	608/35	1050/35	32	
		44	110	250	608	1000	40	
		38	95	210	450/63	800/63	64	3
		45	120	255	580	1000	80	
		45	120	255	580	1000	100	
		45	120	255	580	1000	125	
		45	120	255	580	1000/140	160	
		45	120	255	608	1000/180	200	
45	120	255	608/224	1000/252	256			
45	120	255	580/280	1000/315	320			
38	95	210	450/504	800/441	512			
故障停止扭矩 Emergency Stop Torque	Nm	2倍额定输出扭矩 Double Rated Output Torque						
最大径向力 <sup>1</sup> Max Radial Force	N	2000	4000	7800	10000	16000		
最大轴向力 <sup>1</sup> Max Axial Force	N	1600	3000	7000	8000	13000		
倾斜力矩 <sup>2</sup>	Nm	40	135	350	550	1500		
满载效率 Full Loading Efficiency	%	97						1
		95						2
		93						3
平均寿命 Average lifetime	h	20000						
重量 Weight	kg	2	5.5	10	22	37		1
		2.5	6.5	12.5	29	42		2
		3	7.5	15.3	36	48		3

角标“1”在输出转速100rpm时,作用于输出轴中心位置(L/2处)之容许径向力及轴向力,

角标“2”输出转速100rpm时的数据,更改使用工况时数据存在偏差。

注:带“\*”的为不常用速比,表格内有2组数字的表示扭矩对应的实际速比,最大加速扭矩等于额定扭矩150%。

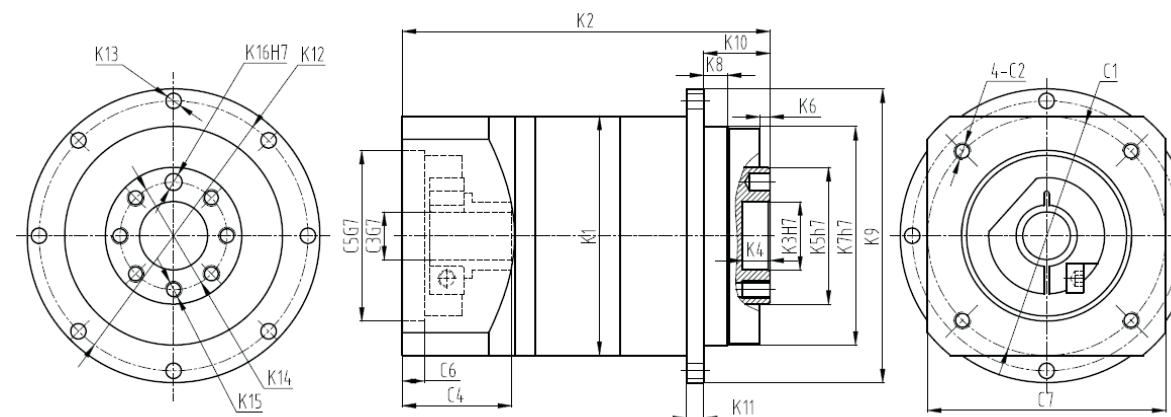
The subscript "1" in the output speed of 100RPM, in the center of the output shaft position (L/2) permissible radial force and axial force, The angle label "2" outputs the data when the speed is 100 rpm, and there is a deviation when the working condition is changed.

Note: with "\*" is not commonly used speed ratio, in the form of 2 groups of digital representation of the torque corresponding to the actual ratio, the maximum acceleration torque is equal to 150% of the rated torque.

产品型号 Model		SPH70	SPH90	SPH120	SPH160	SPH205	Ratio	Stage
转动惯量 Rotational Inertia	kgcm <sup>2</sup>	0.135	0.77	2.63	12.1	28.98	3	1
		0.093	0.52	1.79	7.75	23.67	4	
		0.078	0.45	1.53	6	22.75	5	
		0.07	0.42	1.5	5.52	22.48	6	
		0.069	0.4	1.4	5.1	22.48	7	
		0.065	0.39	1.32	3.74	22.59	8	
		0.065	0.39	1.32	3.62	22.59	9	2
		0.065	0.39	1.32	3.62	22.55	10	
		0.105	0.67	1.63	10.1	18.98	12	
		0.088	0.5	1.75	7.47	7.54	16	
		0.075	0.44	1.53	6.65	7.42	20	
		0.075	0.44	1.49	5.81	7.54	25	
		0.064	0.39	1.32	6.34	7.14	32	3
		0.064	0.39	1.32	5.36	7.14	40	
		0.064	0.39	1.32	4.08	7.54	64	
		0.075	0.5	1.53	7.4	7.54	80	
		0.064	0.44	1.49	7.3	7.42	100	
		0.064	0.7	2.57	7.3	7.42	125	
回程间隙 Backlash	arcmin	≤8	≤8	≤8	≤8	≤8		1
		≤10	≤10	≤10	≤10	≤10		2
		≤12	≤12	≤12	≤12	≤12		3
抗扭刚性 Torsional Rigidity	Nm/arcmin	3	4.8	10	28.7	120		
噪音 <sup>1</sup> Noise	dB(A)	58	60	62	68	70		
最大输入速度 <sup>2</sup> Max Input Speed	min <sup>-1</sup>	6000	6000	6000	6000	4000		
额定输入速度 <sup>2</sup> Rated Input Speed	min <sup>-1</sup>	4000	3000	3000	3000	2000		

角标“1”环境温度为20℃。  
角标“2”噪音在n1<3000min<sup>-1</sup>、1米处测得。  
The subscript "1" the environment temperature is 20℃.  
The subscript "2" sound in n1<3000min<sup>-1</sup>, measured at 1 m.

### SPH系列行星减速机标准尺寸 SPH Series Servo Planetary Gearbox Standard Size



型号 Model	SPH70			SPH90			SPH120			SPH160			SPH205		
Stage	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
K1	φ70			φ97			φ120			φ160			φ210		
K2	108	131.7	155.4	137.2	168.5	199.8	177	218.8	227	232.7	293.7	380.2	235	297	358
K3	φ20			31.5			40			50			80		
K4	8			12			12			12			22.5		
K5	φ40			φ63			φ80			φ100			φ160		
K6	3			6			6			6			6		
K7	φ64			φ90			φ110			φ140			φ200		
K8	7			10			10			14.6			15		
K9	φ86			φ118			φ145			φ179			φ247		
K10	19.5			30			29			38			56		
K11	5			8			10			10			12		
K12	φ79			φ109			φ135			φ168			φ233		
K13	8-φ4.5			8-φ5.5			8-φ5.5			12-φ6.6			12-φ9		
K14	φ31.5			φ50			φ63			φ80			φ125		
K15	7-M5X8			7-M6X12			11-M6X15			11-M8X18			11-M10X17		
K16	φ5X6			φ6X7			φ6X7			φ8X8			φ10X10		
C1	φ70			φ90			φ145		φ90	φ200		φ145	φ215		φ200
C2	M5X12			M6X15			M8X20		M6X15	M12X25		M8X20	M12X25		M12X25
C3	φ14			φ19			φ24		φ19	φ35		φ24	φ42		φ35
C4	32.1			41.6			61.3		41.6	82		61.3	82.5		82
C5	φ50			φ70			φ110		φ70	φ114.3		φ110	φ180		φ114.3
C6	6.5			6.5			8		6.5	8		8	8		8
C7	70			97			120		89	175		120	190		175

角标“1”不同规格的机型螺孔布局有差异，以实际提供图纸为准。  
Type of screw hole layout angle of "1" of different sizes have differences, to provide the actual drawings.

# 订货说明

## ORDERING INSTRUCTIONS

### ST075 FL - 4 - S1 - MOTOR

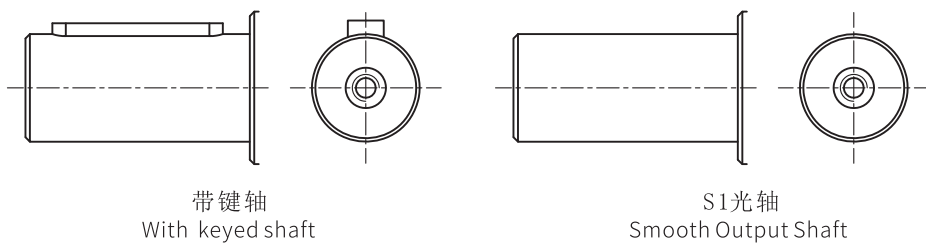
电机适配器, 未注明为标准尺寸  
Motor adapter, not specified for the standard size

轴形式S1: 光轴, 未注明为带键轴  
Shaft output form of the S1: Smooth Output Shaft, not specified for the keyed shaft

速比: 单级(Single stage)1/2/3/4/5/6  
Ratio 双级(Double stage)8/10/16/20/24/30  
三级(Three stage)32/40/50/60/80/120  
四级(Four stage)160/200/250/320/400

减速机型式(Deceleration type): FL, FL1, FR1, FH, FC, L, L1, R1, H, C

产品系列(Product series): ST075, ST090, ST110, ST140, ST170, ST210, ST240



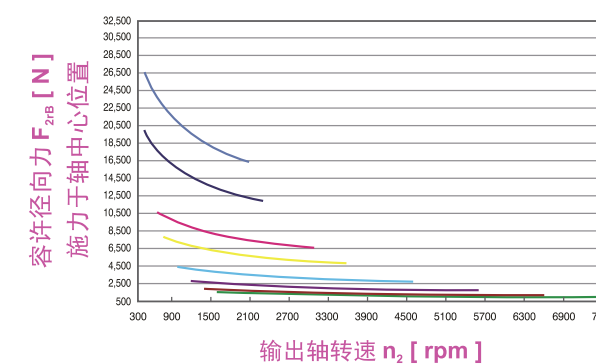
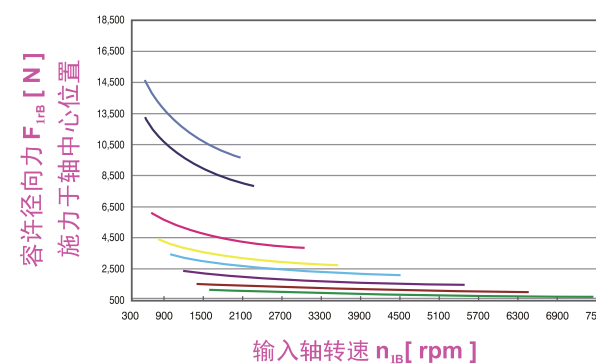
选用范例: ST090-FL-20-S1/SIEMENS 1FT6 041-4AF71  
如果有疑问或非标定做请咨询客服人员。  
The selection of examples: ST090-FL-20-S1/SIEMENS 1FT6 041-4AF71  
If in doubt, please contact customer service.

## 减速机轴容许的径向力和轴向力

Permissible Radial Force and Axial Force of Gearbox Shaft

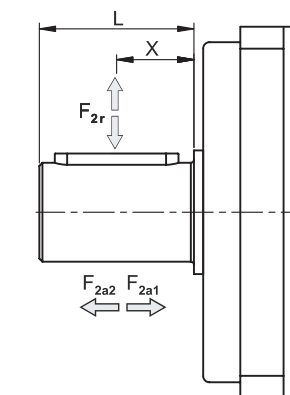
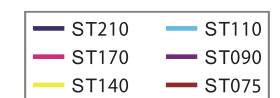
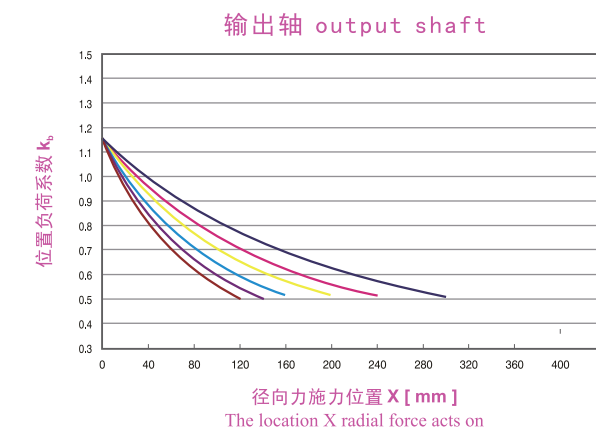
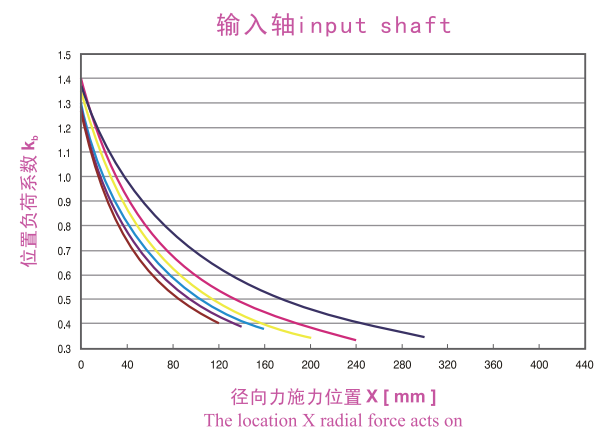
当径向力 $F_{2r}$ 施力在轴中心位置时即 $X=1/2L$ , 不同规格的减速机在不同的输出转速使用下, 使用寿命为20000hr时所能承受的径向力 $F_{1rB}$ 、 $F_{2rB}$ , 请参照下图。

Please consult the left picture to find the right permissible radial force  $F_{1rB}$ 、 $F_{2rB}$ , when gearbox with 20000hr, using life works at different output speed on the condition that radial force  $F_{2r}$  acts on the middle of the shaft  $X=1/2L$ .



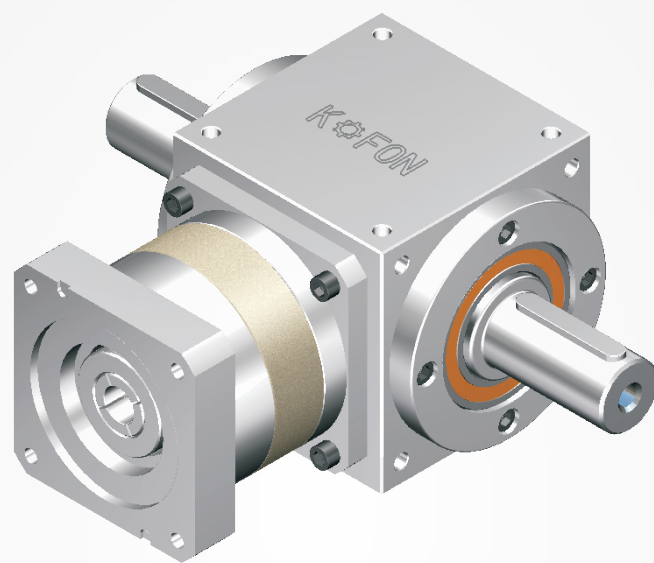
当径向力 $F_{2r}$ 施力不在轴中心位置时, 越靠近减速机即 $X<1/2L$ , 所容许的径向力变大, 远离则相反。如下图, 依减速机规格及径向施力位置 $X$ , 查出位置负荷系数 $K_b$ 。

The gearbox permissible radial force is bigger when radial force is closer to gearbox ( $X<1/2L$ ) on the condition that radial force  $F_{2r}$  is not at the shaft. Under the same condition you can consult the left picture to find the locational coefficient at load  $K_b$  by the specification of gearbox and the location  $X$  radial force acts on.



# ST 法兰型系列行星减速机

## ST FLANGE SERIES PLANETARY GEARBOX



### ST 法兰型系列产品特点

ST flange series product features:

一体化铝合金本体确保最大刚性与耐蚀性，多重精密加工表面易于组装。  
Integration of alloy aluminum body to ensure the maximum rigidity and corrosion resistance, and easy to assemble with multiple precision machined surface.

采用顶级蜗线伞齿轮，经最佳化设计，接触齿面负载均一、容许高扭矩输出。  
The use of top-level spiral bevel gear, with optimization design, the contact tooth surface of uniform load, allowable high torque output.

齿轮采用高强度渗碳合金钢，研磨精密度符合ISO 6级标准。  
Gear is made of high strength alloy steel carburizing, grinding precision accorded with the standard of ISO 6.

多重合金钢输出输入轴的设计适用于各种工业上的需求。  
The design of multiple alloy steel output and input shaft applies to various industrial requirements.

高精度研磨的蜗线伞齿轮组可以达到400:1的减速比。  
Spiral bevel gear set of high precision grinding can achieve 400:1 ratio.

高扭矩低侧隙的精简结构设计适用于精密伺服的应用。  
The simplified structure design with high torque and low backlash applies to applications of precision servo.

免保养无需更换润滑油，运转寿命长。  
With maintenance-free, no need to replace the grease and long service life.

### ST法兰系列行星减速机技术参数

ST Flange Series Servo Planetary Gearbox Technical Data

产品型号 Model	ST070FL	ST090FL	ST110FL	ST140FL	ST170FL	ST210FL	ST240FL	Ratio	Stage	
	ST070FL1	ST090FL1	ST110FL1	ST140FL1	ST170FL1	ST210FL1	ST240FL1			
	ST070FR1	ST090FR1	ST110FR1	ST140FR1	ST170FR1	ST210FR1	ST240FR1			
	ST070FH	ST090FH	ST110FH	ST140FH	ST170FH	ST210FH	ST240FH			
	ST070FC	ST090FC	ST110FC	ST140FC	ST170FC	ST210FC	ST240FC			
额定输出扭矩 Rated Output Torque	Nm	45	78	150	360	585	1300	2150	1	1
		42	68	150	330	585	1220	2010	2	
		37	60	130	280	450	1020	1800	2.5	
		33	54	120	270	450	1020	1650	3	
		42	68	150	330	544	1220	2010	4	2
		42	68	150	330	544	1220	2010	5	
		42	68	150	290	480	1000	--	7	
		42	68	65	210	450	800	1550	8	
		36	68	90	200	415	910	--	9	
		32	68	150	330	544	910	1500	10	
		42	68	150	330	544	1220	2010	16	3
		42	68	150	330	544	1220	2010	20	
		42	68	150	330	544	1220	2010	25	
		42	68	150	330	544	1220	2010	32	
		42	68	150	330	544	1220	2010	40	
		42	68	150	330	544	1220	2010	50	
		42	68	150	330	544	1220	2010	80	3
		42	68	150	330	544	1220	2010	100	
故障停止扭矩 <sup>1</sup> Fault stop torque <sup>1</sup>	Nm	2倍额定输出扭矩						1~100	1~3	
回程间隙 Backlash	arcmin	≤8	≤8	≤8	≤8	≤10	≤12	≤15	1~3	1
		≤10	≤10	≤10	≤10	≤12	≤15	≤15	4~20	2
		≤12	≤12	≤12	≤12	≤15	≤17	≤17	25~100	3
输出最大径向力 <sup>2</sup> Output maximum radial force <sup>2</sup>	N	1100	1700	2700	4800	6600	11500	16000	1~100	1~3
输出最大轴向力 <sup>2</sup> Output maximum axial force <sup>2</sup>	N	550	850	1350	2400	3300	5750	8500	1~100	1~3
平均寿命 Average life span	hr	20000						1~3	1	
单级效率η Single stage efficiency	%	≥96%						1~3	1~3	
		≥94%						4~20	1	
		≥92%						25~100	2	
噪音 <sup>3</sup> Noise <sup>3</sup>	dB(A)	≤72	≤76	≤77	≤78	≤80	≤82	≤84	1~100	1

最大输入速度 <sup>2</sup> Max input speed <sup>2</sup>	rpm	3500	3500	3000	3000	2500	2000	1800	1~3	1
		6000	6000	6000	6000	6000	6000	4000	4~100	2~3
额定输入速度 <sup>2</sup> Rated input speed <sup>2</sup>	rpm	2500	2500	2000	2000	1500	1500	1200	1~3	1
		3000	3000	3000	3000	3000	3000	2000	4~100	2~3
转动惯量 Moment of inertia	kgcm <sup>2</sup>	1.3	3.16	7.7	23.57	58.99	195.4	369.34	1	1
		1.11	2.7	6.31	17.75	45.35	140.24	249.74	2	1
		1.09	2.68	6.26	17.54	44.86	135.7	240.53	2.5	1
		1.09	2.66	6.17	17.18	44.01	134.95	237.71	3	1
		0.15	0.5	2.79	5.4	7.5	11.91	29.26	4~20	2
		0.14	0.48	2	3.6	5.8	9.46	25.43	25~100	3
重量 Weight	kg	4.4	7.1	12.1	20.9	36.1	69.4	95.2	1~3	1
		4.8	8.1	14.3	24.2	38.5	74.1	102.4	4~20	2
		5.5	9.8	16.9	27.7	40.8	80.4	115.2	25~100	3

1.角标“1”在输出转速100rpm时，作用于输出轴中心位置（L/2处）之容许径向力及轴向力。

2.角标“2”环境温度为20℃。

3.角标“3”音在n1=3000min<sup>-1</sup>、1米处测得。

样本重量作为参考以实物为准。

<sup>1</sup> The subscript "1" in the output speed of 100RPM, in the center of the output shaft position (L/2) permissible radial force and axial force.  
Note: with "\*" is not commonly used speed ratio, in the form of 2 groups of digital representation of the torque corresponding to the actual ratio.

<sup>2</sup> The subscript "2" the environment temperature is 20℃.

<sup>3</sup> The subscript "3" sound in n1=3000min<sup>-1</sup>, measured at 1 m.

The Weight of the Sample book shall be taken as a refereace, subject to physical object.

## ST轴系列减速机技术参数

ST Axis Series Servo Gearbox Technical Data

产品型号 Model		ST070L	ST090L	ST110L	ST140L	ST170L	ST210L	ST240L	Ratio	Stage
		ST070L1	ST090L1	ST110L1	ST140L1	ST170L1	ST210L1	ST240L1		
		ST070R	ST090R	ST110R	ST140R	ST170R	ST210R	ST240R		
		ST070H	ST090H	ST110H	ST140H	ST170H	ST210H	ST240H		
		ST070C	ST090C	ST110C	ST140C	ST170C	ST210C	ST240C		
额定输出扭矩 Rated Output Torque	Nm	45	78	150	360	585	1300	2150	1	1
		42	68	150	330	585	1220	2010	2	
		37	60	130	280	450	1020	1800	2.5	
		33	54	120	270	450	1020	1650	3	
故障停止扭矩 <sup>1</sup> Fault stop torque <sup>1</sup>	Nm	2倍额定输出扭矩						1~3	1~3	
回程间隙 Backlash	arcmin	≤8	≤8	≤8	≤8	≤10	≤12	≤15	1~3	1
输出最大径向力 <sup>1</sup> Output maximum radial force	N	1100	1700	2700	4800	6600	11500	16000	1~3	1~3
输出最大轴向力 <sup>1</sup> Output maximum axial force	N	550	850	1350	2400	3300	5750	8500	1~3	1~3
平均寿命 Average life span	h	20000						1~3	1	
效率η Efficiency	%	≥96%						1~3	1~3	
噪音 <sup>3</sup> Noise <sup>3</sup>	dB(A)	≤72	≤76	≤77	≤78	≤80	≤82	≤84	1~100	1
最大输入速度 <sup>4</sup> Max input speed <sup>4</sup>	min <sup>-1</sup>	3500	3500	3000	3000	2500	2000	1800	1~3	1
额定输入速度 <sup>4</sup> Rated input speed <sup>4</sup>	min <sup>-1</sup>	2500	2500	2000	2000	1500	1500	1200	1~3	1
转动惯量 Moment of inertia	kgcm <sup>2</sup>	1.3	3.16	7.7	23.57	58.99	195.4	369.34	1	1
		1.11	2.7	6.31	17.75	45.35	140.24	249.74	2	1
		1.09	2.68	6.26	17.54	44.86	135.7	240.53	2.5	1
		1.09	2.66	6.17	17.18	44.01	134.95	237.71	3	1
重量 Weight	kg	4.2	6.8	11.6	19.8	34.8	66.2	98.1	L系列	
		4.1	6.7	11.5	19.5	34.2	65.1	96.6	L1R1系列	
		3.9	6.4	11	18.1	31.6	60	89.4	H系列	
		4.2	6.9	11.4	19.6	33.7	63.3	97.9	C系列	

1. 角标“1”最大加速扭矩等于故障停止扭矩50%

2. 角标“2”在转速100rpm时，作用于轴中心位置（L/2处）之容许径向力及轴向力

3. 角标“3”噪音在n1=3000min<sup>-1</sup>、1米处测得

4. 角标“4”环境温度为20℃

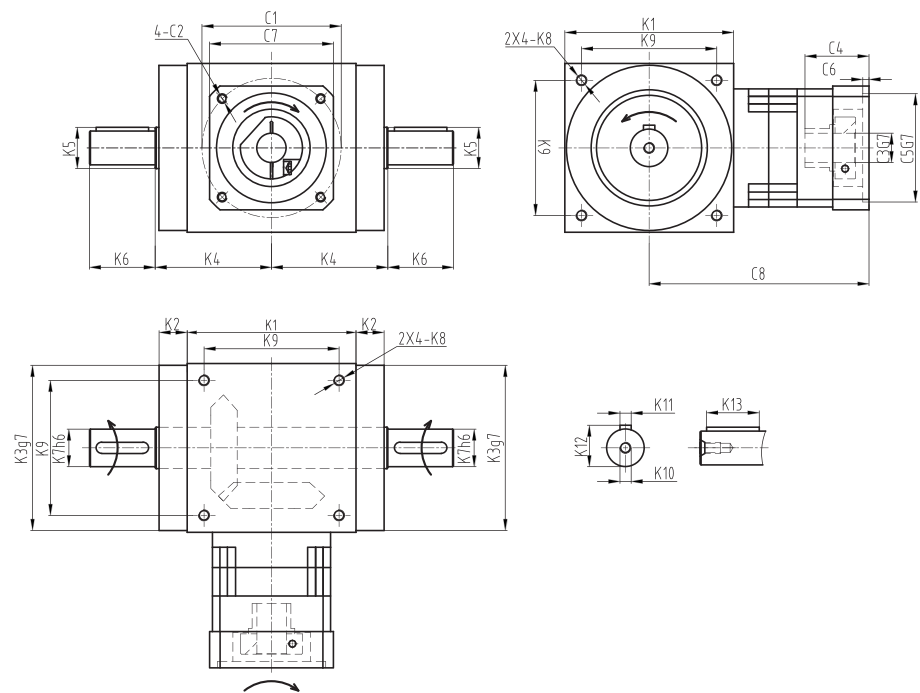
<sup>1</sup> The subscript "1" maximum acceleration torque is equal to the failure to stop torque 50%

<sup>2</sup> The subscript "2" at the speed of 100RPM, acting on the center axis (L/2) permissible radial force and axial force

<sup>3</sup> The subscript "3" noise in n1=3000min<sup>-1</sup>, measured at 1 m

<sup>4</sup> The subscript "4" the environment temperature is 20 DEG C

**STFL系列行星减速机标准尺寸**  
STFL Series Servo Planetary Gearbox Standard Size



尺寸 Size	ST070FL	ST090FL	ST110FL	ST140FL	ST170FL	ST210FL	ST240FL
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	φ73	φ88	φ108	φ135	φ165	φ205	φ235
K4	54	62	72	87	102	127	147
K5	φ20	φ25	φ35	φ45	φ55	φ75	φ85
K6	30	35	40	50	60	75	85
K7	φ16	φ18	φ22	φ32	φ40	φ50	φ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
单级减速机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25

尺寸 Size	ST070FL	ST090FL	ST110FL	ST140FL	ST170FL	ST210FL	ST240FL
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	93	103	143	172.2	248.5	318	355
双级减速机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	114.5	137	147	208	248.5	318	355
三级减速机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ200
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ35
C4	32.1	41.6	41.6	61.3	61.3	82	82
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ114.3
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	175
C8	138.2	168	178.3	249.8	309.5	358	399

第1版：第1版正（正反印）

SPL

SPLF

SPLN

SPLS

SPX

SVX

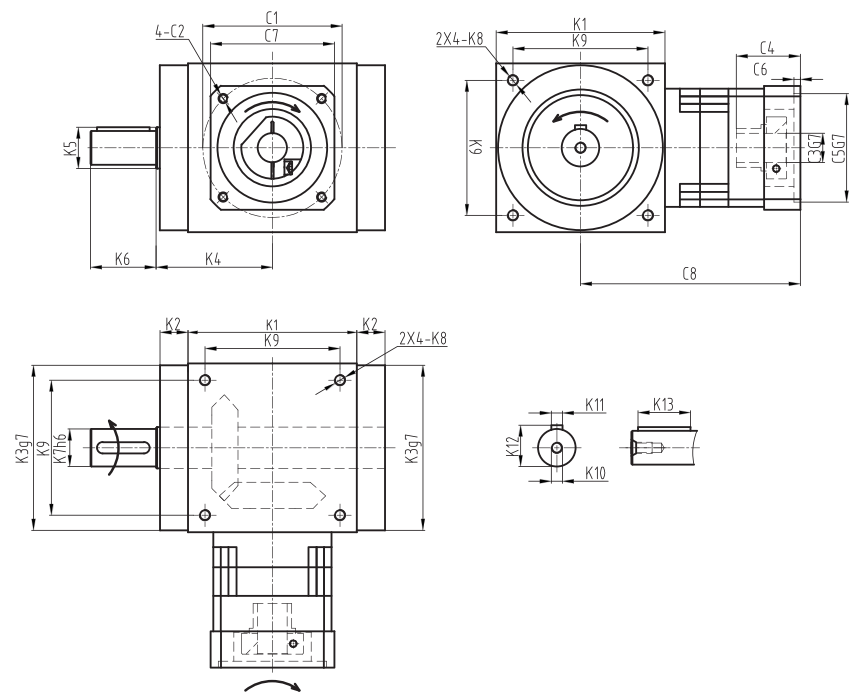
SPH

ST

PX

伺服行星减速机

**STFL1系列行星减速机标准尺寸**  
STFL1 Series Servo Planetary Gearbox Standard Size



尺寸 Size	ST070FL1	ST090FL1	ST110FL1	ST140FL1	ST170FL1	ST210FL1	ST240FL1
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	φ73	φ88	φ108	φ135	φ165	φ205	φ235
K4	54	62	72	87	102	127	147
K5	φ20	φ25	φ35	φ45	φ55	φ75	φ85
K6	30	35	40	50	60	75	85
K7	φ16	φ18	φ22	φ32	φ40	φ50	φ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
单级减速电机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25

尺寸 Size	ST070FL1	ST090FL1	ST110FL1	ST140FL1	ST170FL1	ST210FL1	ST240FL1
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	93	103	143	172.2	248.5	318	355
双级减速电机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	114.5	137	147	208	248.5	318	355
三级减速电机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ200
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ35
C4	32.1	41.6	41.6	61.3	61.3	82	82
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ114.3
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	175
C8	138.2	168	178.3	249.8	309.5	358	399

第1版：第2版正（正反印）

SPL

SPLF

SPLN

SPLS

SPX

SVX

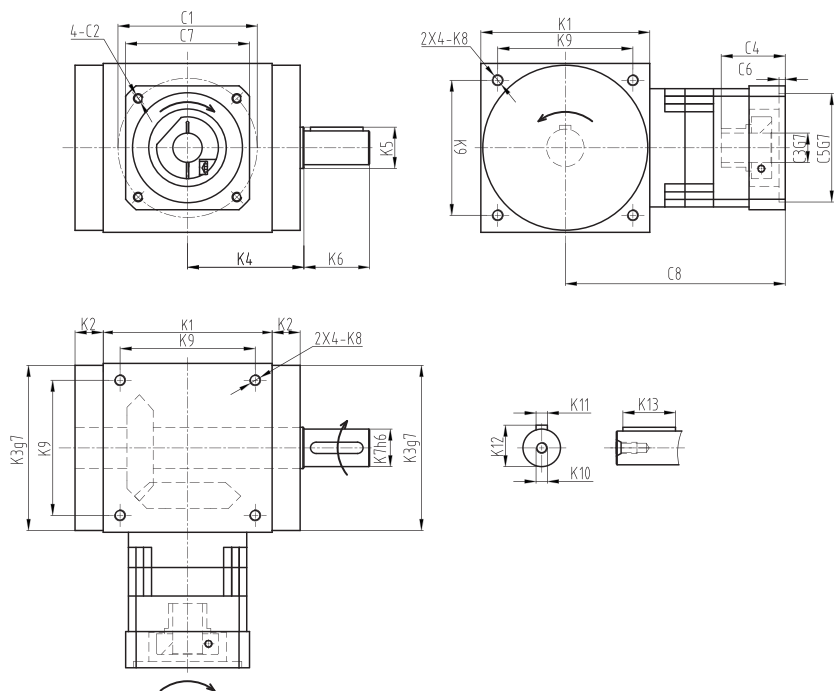
SPH

ST

PX

伺服行星减速机

**STFR1系列行星减速机标准尺寸**  
STFR1 Series Servo Planetary Gearbox Standard Size



尺寸 Size	ST070FR1	ST090FR1	ST110FR1	ST140FR1	ST170FR1	ST210FR1	ST240FR1
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	φ73	φ88	φ108	φ135	φ165	φ205	φ235
K4	54	62	72	87	102	127	147
K5	φ20	φ25	φ35	φ45	φ55	φ75	φ85
K6	30	35	40	50	60	75	85
K7	φ16	φ18	φ22	φ32	φ40	φ50	φ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
单级减速机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25

尺寸 Size	ST070FR1	ST090FR1	ST110FR1	ST140FR1	ST170FR1	ST210FR1	ST240FR1
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	93	103	143	172.2	248.5	318	355
双级减速机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	114.5	137	147	208	248.5	318	355
三级减速机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ200
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ35
C4	32.1	41.6	41.6	61.3	61.3	82	82
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ114.3
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	175
C8	138.2	168	178.3	249.8	309.5	358	399

第1版：第3版正（正反印）

SPL

SPLF

SPLN

SPLS

SPX

SVX

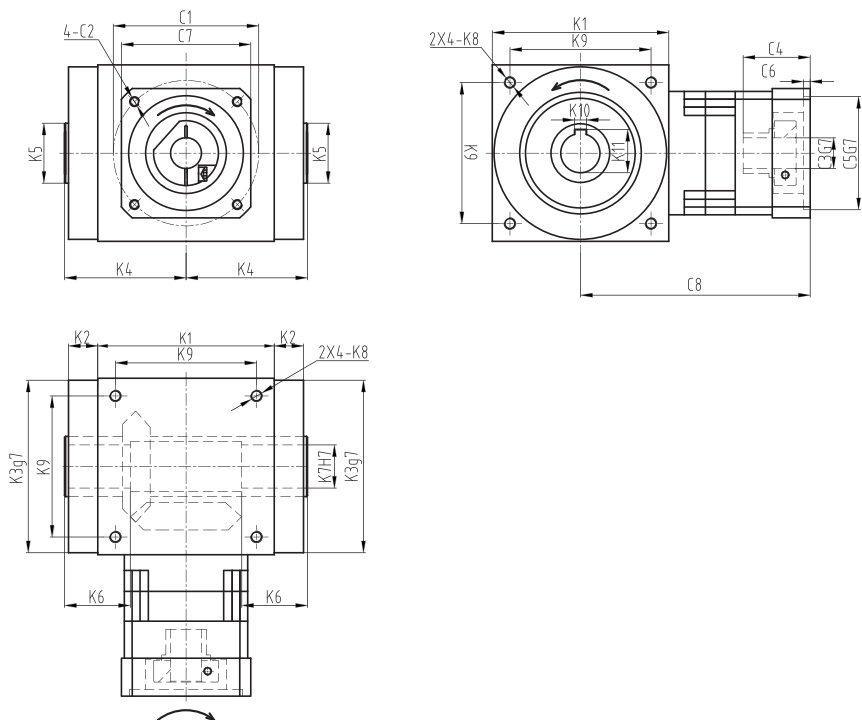
SPH

ST

PX

科峰传动

**STFH系列行星减速机标准尺寸**  
STFH Series Servo Planetary Gearbox Standard Size



尺寸 Size	ST070FH	ST090FH	ST110FH	ST140FH	ST170FH	ST210FH	ST240FH
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	φ73	φ88	φ108	φ135	φ165	φ205	φ235
K4	54	62	72	87	102	127	147
K5	φ20	φ30	φ35	φ45	φ55	φ75	φ85
K6	32	35	40	50	55	65	80
K7	φ12	φ18	φ22	φ32	φ40	φ50	φ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	5	6	6	10	12	14	16
K11	16.3	20.8	24.8	35.3	43.3	53.8	59.3
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
单级减速机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25

尺寸 Size	ST070FH	ST090FH	ST110FH	ST140FH	ST170FH	ST210FH	ST240FH
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	93	103	143	172.2	248.5	318	355
双级减速机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	114.5	137	147	208	248.5	318	355
三级减速机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ200
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ35
C4	32.1	41.6	41.6	61.3	61.3	82	82
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ114.3
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	175
C8	138.2	168	178.3	249.8	309.5	358	399

第1版：第3版反(正反印)

SPL

SPLF

SPLN

SPLS

SPX

SVX

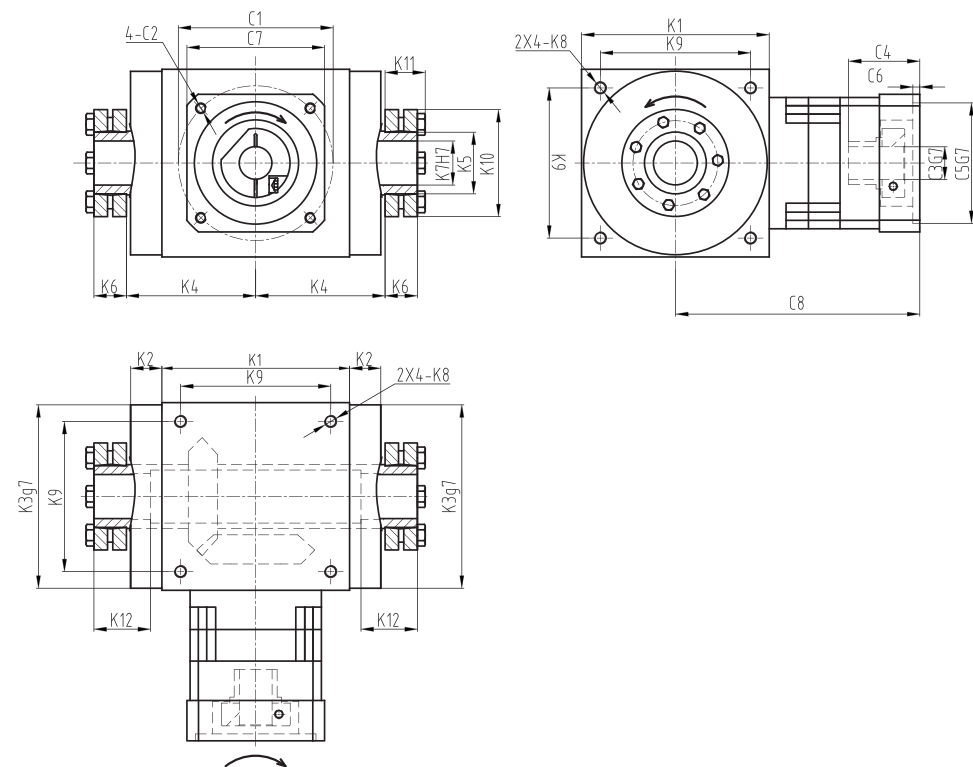
SPH

ST

PX

伺服行星减速机

**STFC系列行星减速机标准尺寸**  
STFC Series Servo Planetary Gearbox Standard Size



尺寸 Size	ST070FC	ST090FC	ST110FC	ST140FC	ST170FC	ST210FC	ST240FC
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	φ73	φ88	φ108	φ135	φ165	φ205	φ235
K4	54	62	72	87	102	127	147
K6	14	18	18	24	26	29	29
K7	φ12	φ18	φ22	φ32	φ40	φ50	φ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	41	50	50	80	90	110	115
K11	18.5	23	23	29.5	31.5	34.5	34.5
K12	32	35	40	50	55	65	80
单级减速电机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ42

尺寸 Size	ST070FC	ST090FC	ST110FC	ST140FC	ST170FC	ST210FC	ST240FC
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	93	103	143	172.2	248.5	318	355
双级减速电机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ215
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ42
C4	32.1	41.6	41.6	61.3	61.3	82	116
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ180
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	190
C8	114.5	137	147	208	248.5	318	355
三级减速电机连接尺寸							
C1	φ70	φ90	φ90	φ145	φ145	φ200	φ200
C2	M5X12	M6X15	M6X15	M8X20	M8X20	M12X25	M12X25
C3	φ14	φ19	φ19	φ24	φ24	φ35	φ35
C4	32.1	41.6	41.6	61.3	61.3	82	82
C5	φ50	φ70	φ70	φ110	φ110	φ114.3	φ114.3
C6	6.5	6.5	6.5	8	8	8	8
C7	65	85	85	120	120	175	175
C8	138.2	168	178.3	249.8	309.5	358	399

第1版：第2版反(正反印)

SPL

SPLF

SPLN

SPLS

SPX

SVX

SPH

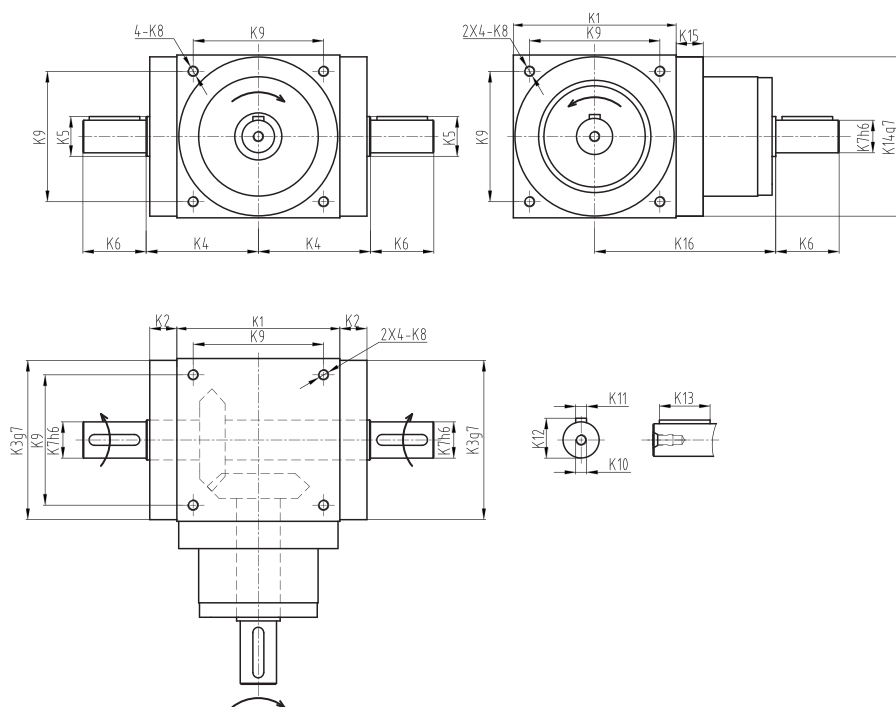
ST

PX

伺服行星减速机

### STL系列减速机标准尺寸

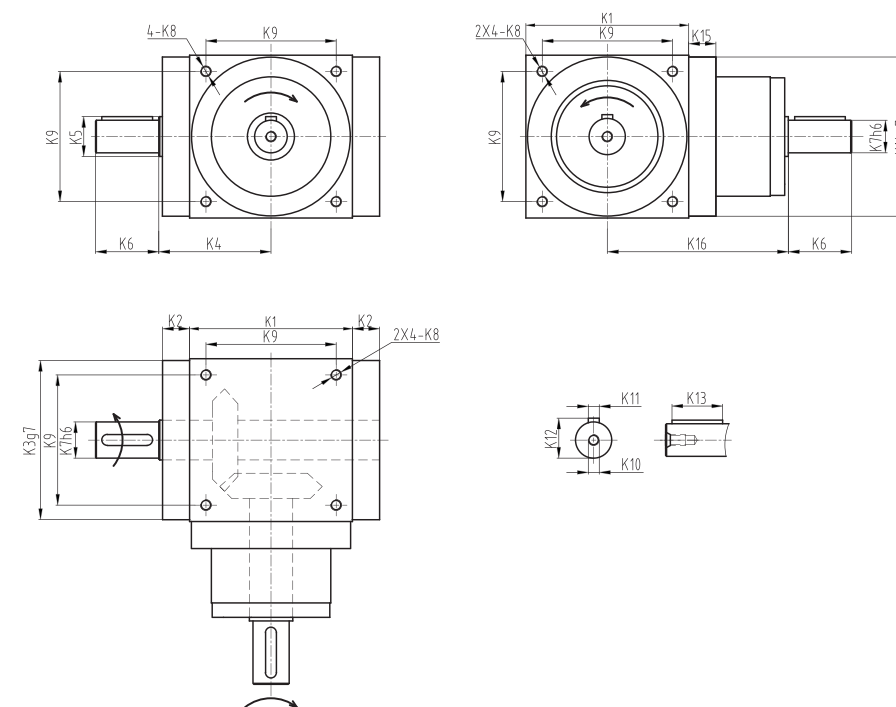
STL Series Servo Gearbox Standard Size



尺寸 Size	ST070L	ST090L	ST110L	ST140L	ST170L	ST210L	ST240L
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	φ73	φ88	φ108	φ135	φ165	φ205	φ235
K4	54	62	72	87	102	127	147
K5	φ20	φ25	φ35	φ45	φ55	φ75	φ85
K6	30	35	40	50	60	75	85
K7	φ16	φ18	φ22	φ32	φ40	φ50	φ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
K14	73	88	108	135	165	205	235
K15	15	15	15	15	15	20	25
K16	90	100	115	130	155	195	225

### STL1系列减速机标准尺寸

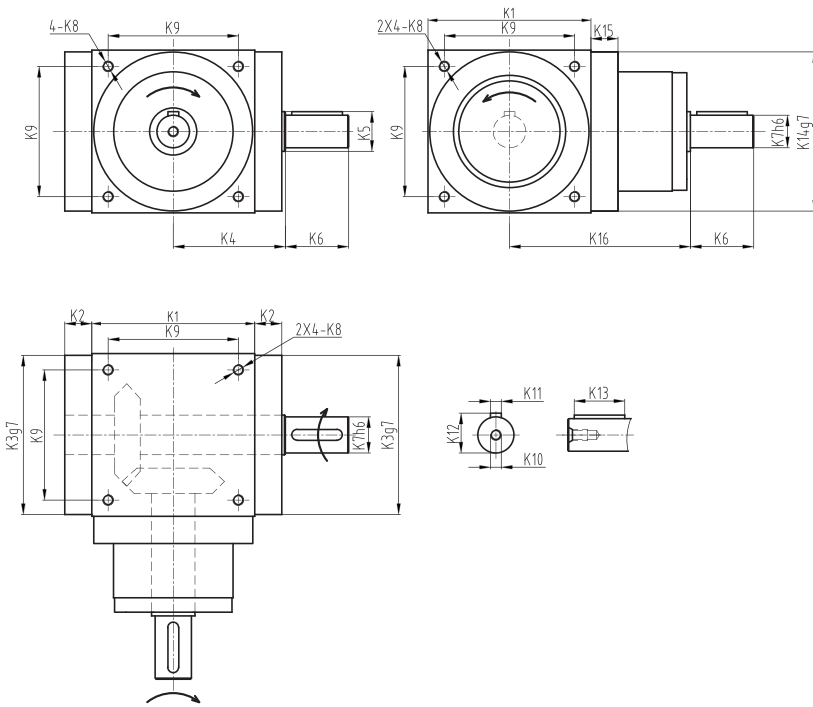
STL1 Series Servo Gearbox Standard Size



尺寸 Size	ST070L1	ST090L1	ST110L1	ST140L1	ST170L1	ST210L1	ST240L1
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	φ73	φ88	φ108	φ135	φ165	φ205	φ235
K4	54	62	72	87	102	127	147
K5	φ20	φ25	φ35	φ45	φ55	φ75	φ85
K6	30	35	40	50	60	75	85
K7	φ16	φ18	φ22	φ32	φ40	φ50	φ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
K14	73	88	108	135	165	205	235
K15	15	15	15	15	15	20	25
K16	90	100	115	130	155	195	225

### STR1系列减速机标准尺寸

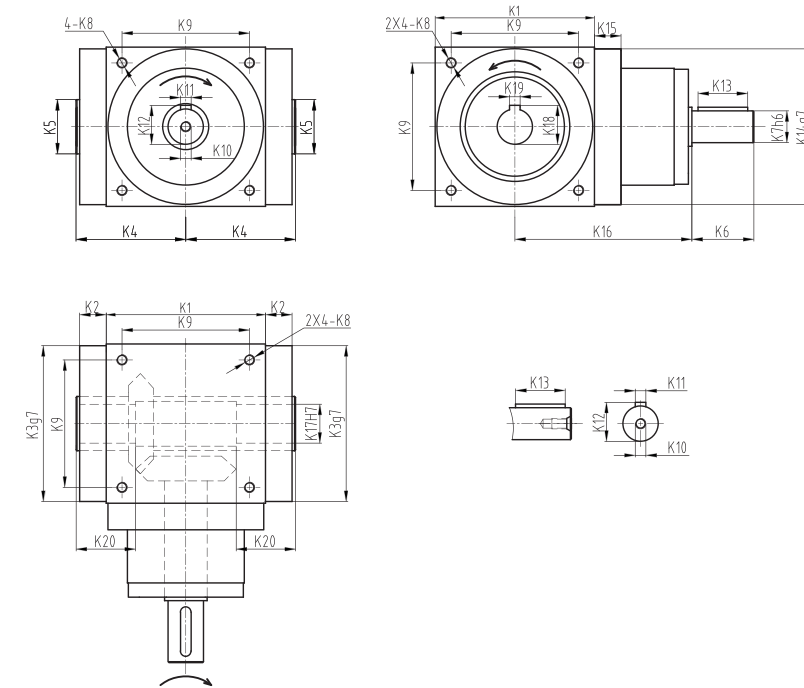
STR1 Series Servo Gearbox Standard Size



尺寸 Size	ST070L1	ST090L1	ST110L1	ST140L1	ST170L1	ST210L1	ST240L1
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	φ73	φ88	φ108	φ135	φ165	φ205	φ235
K4	54	62	72	87	102	127	147
K5	φ20	φ25	φ35	φ45	φ55	φ75	φ85
K6	30	35	40	50	60	75	85
K7	φ16	φ18	φ22	φ32	φ40	φ50	φ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
K14	73	88	108	135	165	205	235
K15	15	15	15	15	15	20	25
K16	90	100	115	130	155	195	225

### STH系列减速机标准尺寸

STH Series Servo Gearbox Standard Size



尺寸 Size	ST070H	ST090H	ST110H	ST140H	ST170H	ST210H	ST240H
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	φ73	φ88	φ108	φ135	φ165	φ205	φ235
K4	54	62	72	87	102	127	147
K5	φ20	φ30	φ35	φ45	φ55	φ75	φ85
K6	30	35	40	50	60	75	85
K7	φ16	φ18	φ22	φ32	φ40	φ50	φ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
K14	73	88	108	135	165	205	235
K15	15	15	15	15	15	20	25
K16	90	100	115	130	155	195	225
K17	φ12	φ18	φ22	φ32	φ40	φ50	φ55
K18	5	6	6	10	12	14	16
K19	16.3	20.8	24.8	35.3	43.3	53.8	59.3
K20	32	35	40	50	55	65	80

第2版：第1版正（正反印）

SPL

SPLF

SPLN

SPLS

SPX

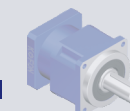
SVX

SPH

ST

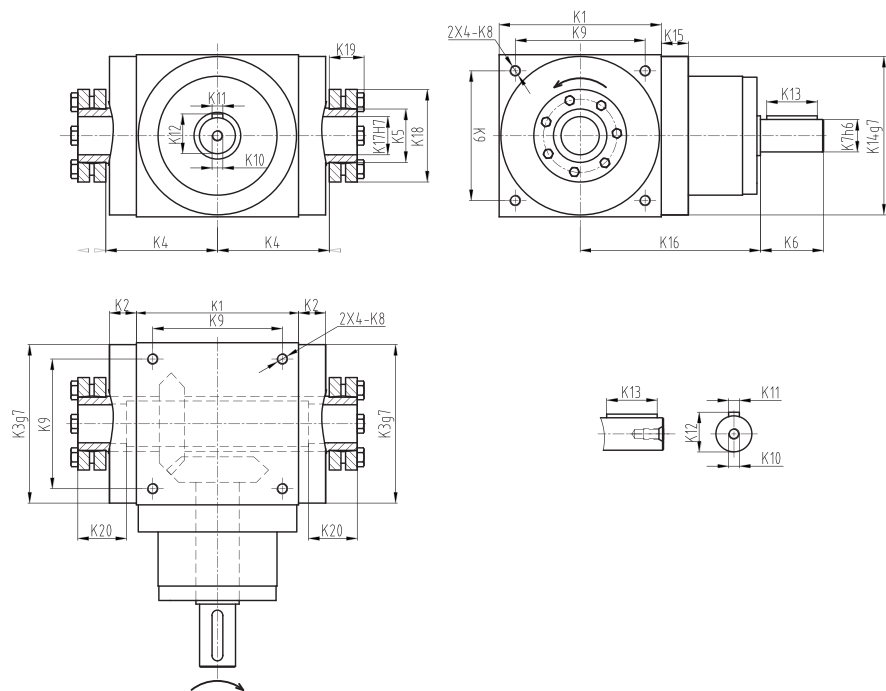
PX

伺服行星减速机



### STC系列减速机标准尺寸

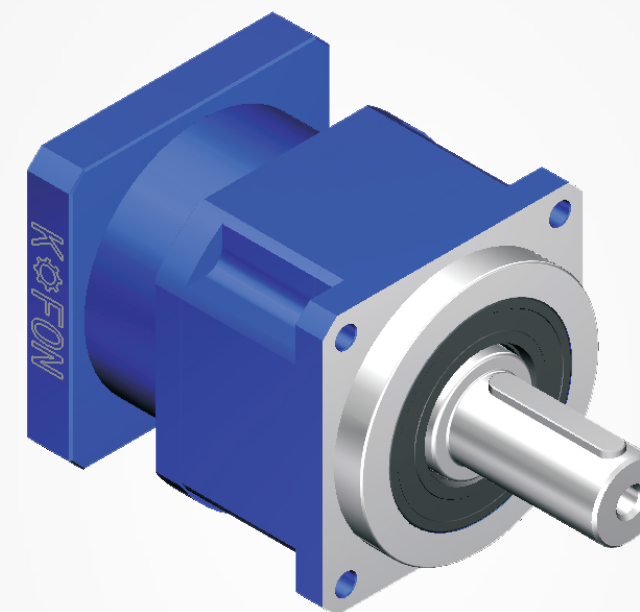
STC Series Servo Gearbox Standard Size



尺寸 Size	ST070C	ST090C	ST110C	ST140C	ST170C	ST210C	ST240C
K1	75	90	110	140	170	210	240
K2	14.5	15	15	15	15	20	25
K3	φ73	φ88	φ108	φ135	φ165	φ205	φ235
K4	54	62	72	87	102	127	147
K6	30	35	40	50	60	75	80
K7	φ16	φ18	φ22	φ32	φ40	φ50	φ55
K8	M6X8	M6X15	M8X10	M10X13	M12X20	M16X25	M16X35
K9	60	72	88	110	134	170	190
K10	M5X12.5	M5X12.5	M8X19	M12X28	M16X36	M16X36	M16X36
K11	5	6	6	10	12	14	16
K12	18	20.5	24.5	35	43	53.5	59
K13	25	28	32	45	50	70	80
K14	73	88	108	135	165	205	235
K15	15	15	15	15	15	20	25
K16	90	100	115	130	155	195	225
K17	φ14	φ18	φ22	φ32	φ40	φ50	φ55
K18	41	50	50	80	90	110	115
K19	18.5	23	23	29.5	31.5	34.5	34.5
K20	32	35	40	50	55	65	80

## PX 系列行星减速机

SERIES SERVO PLANETARY GEARBOX



### PX 系列行星减速机产品特点

PX Series Servo Planetary Gearbox Product Highlight

经济型: 高性价比

Economic Type: High Quality with competitive price.

齿轮材料选用高级低碳合金锻钢, 经过渗碳淬火之深度硬化处理, 硬度可达到HRC60, 保证齿轮强度和寿命。

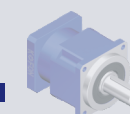
Choosing low-carbon alloy forged steel as the raw material of the gear, the hardness can reach HRC60 by deepen harden of carburizing heat treatment to ensure gear strength and lifetime.

可适配全球任何一台伺服电动机。

Can be connected with any servo motor around the world.

使用合成润滑脂, 并采用IP65密封设计, 不泄漏免维护。

No grease leakage and miantenance free by using synthetic lubricating grease and IP65 protection design.



**PX系列行星减速机技术参数**  
PX Series Servo Planetary Gearbox Technical Data

产品型号 Model		PX190	PX240	PX285	PX330	PX400	减速比	级数
额定输出扭矩 Rated Output Torque	Nm	800	-	-	-	-	3	1
		1780	3500	5800	10190	15565	4	
		1345	2640	4400	7180	11120	5	
		745	1485	2595	4080	6150	8	
		2035	--	--	--	--	12	2
		2035	3710	6400	10800	16660	16	
		2035	3710	6400	10800	16660	20	
		1485	2805	4710	7550	12140	25	
		2035	3710	6400	10800	16660	32	
		1485	2805	4710	7550	12140	40	
		840	1580	2790	4430	6635	64	
		2590	4820	8130	13700	20760	80	
		2590	4820	8130	13700	20760	100	3
		1855	3610	6030	9800	15200	125	
		2590	4820	8130	13700	20760	160	
		1855	3610	6030	9800	15200	200	
		2596	4820	8130	13700	20760	256	
		1855	3610	6030	9800	15200	320	
		1070	2000	3560	5630	8450	512	
		故障停止扭矩 Fault stop torque	Nm	2倍额定输出扭矩				
最大径向力 <sup>1</sup> Maximum radial force <sup>1</sup>	N	6500	10500	15000	17000	26500		
最大轴向力 <sup>1</sup> Maximum axial force <sup>1</sup>	N	5000	8000	12000	15000	20000		
满载效率 Full load efficiency	%	96						1
		94						2
		90						3
平均寿命 Average life span	h	10000						
重量 Weight	kg	39	71	113	145	250		1
		42	87.5	136	190	340		2
		46.5	89	140	216	360		3

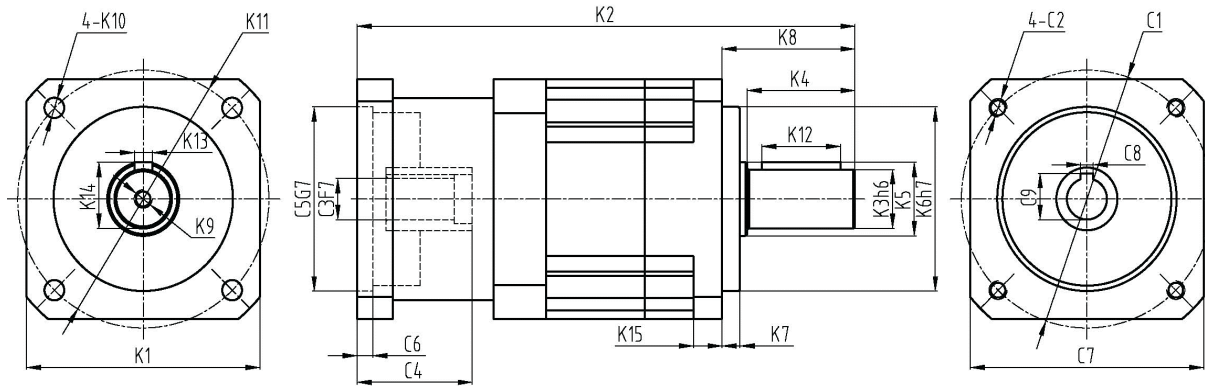
角标“1”在输出转速100rpm时，作用于输出轴中心位置（L/2处）之容许径向力及轴向力，最大加速扭矩等于额定扭矩150%  
The subscript "1" in the output speed of 100RPM, in the center of the output shaft position (L/2) permissible radial force and axial force, the maximum acceleration torque is equal to the rated torque of 150%

产品型号 Model		PX190	PX240	PX285	PX330	PX400	配电机孔径		
转动惯量 Rotational Inertia	kgcm <sup>2</sup>	15.6	-	-	-	-	28 (弹性连接)		
		16.3	15.0	40.2	--	--	28 (键连接)		
		15.4	--	--	--	--	32 (弹性连接)		
		16.1	14.8	39.9	75.1	--	32 (键连接)		
		15.2	--	--	--	--	35 (弹性连接)		
		15.9	14.5	39.6	74.8	--	35 (键连接)		
		15	--	--	--	--	38 (弹性连接)		
		15.7	14.3	39.2	74.3	--	38 (键连接)		
		15.3	13.7	38.5	73.4	--	42 (键连接)		
		--	--	37.8	72.6	251.6	45 (键连接)		
		--	--	36.5	70.9	249.6	50 (键连接)		
		--	--	34.5	68.5	246.7	55 (键连接)		
		--	--	--	65.4	243	60 (键连接)		
		--	--	--	62.5	239.5	64 (键连接)		
		--	--	--	--	238.5	65 (键连接)		
		--	--	--	--	232.4	70 (键连接)		
		--	--	--	--	216.2	80 (键连接)		
		--	--	--	--	205.8	85 (键连接)		
		回程间隙 Backlash	arcmin	≤10	≤10	≤10	≤10	≤10	1
				≤18	≤18	≤18	≤18	≤18	2
≤22	≤22			≤22	≤22	≤22	3		
抗扭刚性 Torsional Rigidity	Nm/arcmin	66.7	123.3	213.3	339	536.4			
噪音 <sup>1</sup> Noise <sup>1</sup>	dB(A)	70	72	75	75	75			
最大输入速度 <sup>2</sup> Max Input Speed <sup>2</sup>	min <sup>-1</sup>	3000	3000	2500	2000	2000			
额定输入速度 <sup>2</sup> Rated Input Speed <sup>2</sup>	min <sup>-1</sup>	2000	2000	1500	1500	1500			

角标“1”环境温度为20℃  
角标“2”噪音在n1=2000min-1、1米处测得  
The subscript "1" the environment temperature is 20 DEG C  
The subscript "2" noise in n1=2000min-1, measured at 1 m

## PX系列行星减速机标准尺寸

PX Series Servo Planetary Gearbox Standard Size



型号 Model	PX190			PX240			PX285			PX330			PX400		
级数	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
K1	190			240			285			330			400		
K2	339	400	448	362	425.5	486.5	412	502	587	461	561	656	536	642	750
K3	φ50			φ65			φ70			φ80			φ90		
K4	80			100			110			120			135		
K5	φ60			φ75			φ85			φ90			φ100		
K6	φ160			φ225			φ250			φ290			φ350		
K7	20			20			20			25			25		
K8	102			125			135			150			165		
K9	M12X26			M12X26			M16X35			M16X35			M16X35		
K10	φ13.5			φ18			φ18			φ22			φ22		
K11	φ215			φ265			φ315			φ370			φ425		
K12	70			90			100			110			125		
K13	14			18			20			22			25		
K14	53.5			69			74.5			85			95		
K15	25			25			25			30			35		
C1	φ200			φ215		φ200	φ265		φ215	φ300		φ265	φ350		φ300
C2	M12X25			M12X25			M12X25			M16X35		M12X25		M16X35	
C31	φ35		φ42	φ35		φ55	φ42		φ60	φ55		φ80	φ60		
C4	81.5		85	81.5		110	85		130	110		175	130		
C5	φ114.3		φ180	φ114.3		φ230	φ180		φ250	φ230		φ300	φ250		
C6	8		8	8		8	8		8	8		10	8		
C7	176		240	176		285	240		330	285		400	330		
C8	0		12	0		16	12		18	16		22	18		
C9	--		45.3	--		59.3	45.3		64.4	59.3		85.4	64.4		

角标“1”减速机输入孔35以内为光轴弹性锁紧，不带键槽。

The subscript "1" less than 35 for the reducer input hole axis elastic lock, without keyway.

The National Leadership Brand of World's Leading Precision Reducer

## 安装说明

### INSTALLATION INSTRUCTION

正确的安装、使用和维护减速机是保证机械设备正常运行的总环节。因此，在您安装科峰行星减速机时，请务必严格按照下面的安装使用相关事项，认真的装配和使用。

The correct installation, use and maintenance of the gearboxes, are important parts to ensure the normal operation of mechanical equipment, therefore, when you install a KOFON gearboxes, besure to strictly follow the install related matters to assembly and use seriously.

### 原动机的连接

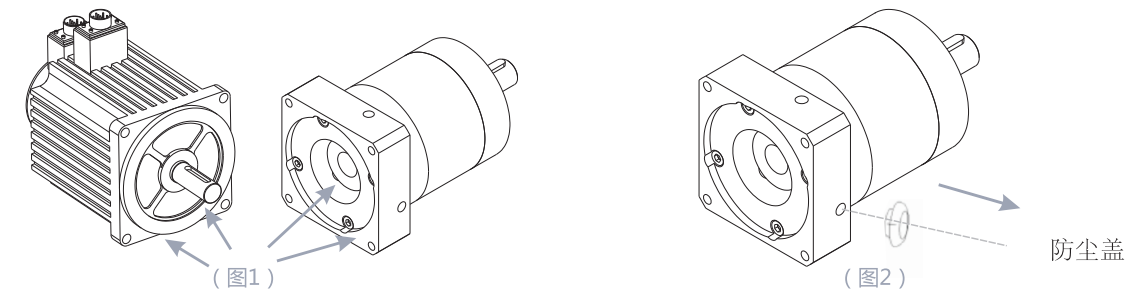
The Connection to the Prime Engine

**第一步** 安装前确认电机和减速机是否完好无损，并且严格检查电机与减速机相连接的各部位尺寸 是否匹配，主要指电机的凸台尺寸与减速机凹槽尺寸及配合公差。

**Step1.** Before installation confirm the motor and gearboxes are intact, and strictly check whether the size of the various parts of the motor and gearboxes connected match, mainly refers to the size of the spigot of the motor and gearboxes norch size and fit tolerance.

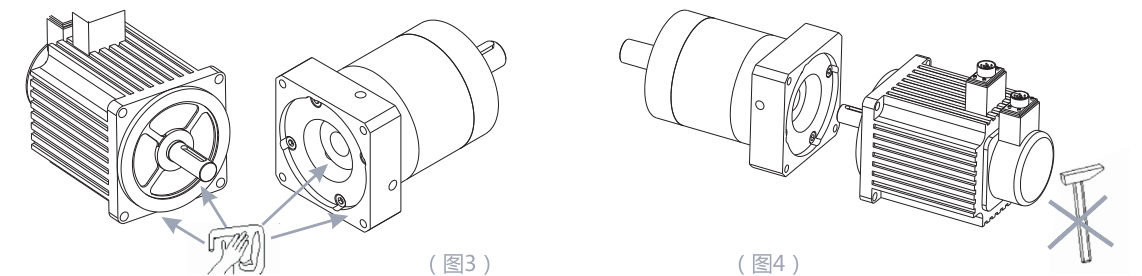
**第二步** 取下减速机法兰外侧工艺孔上的防尘盖，调整减速机输入轴弹性夹装置使其紧固螺栓与工艺孔对其，插入内六角扳手松开紧固螺栓，此步骤适合筒夹式锁紧机构联。

**Step 2.** Remove the dust cover on the technological bores of the gearboxes flange outer. Adjust input shaft elastic clamping device so that the fastening bolt is aligned with the technological bore. Insert hex wrench to loosen the fastening bolts. This step is suitable for tube clip-locking mechanism coupling.



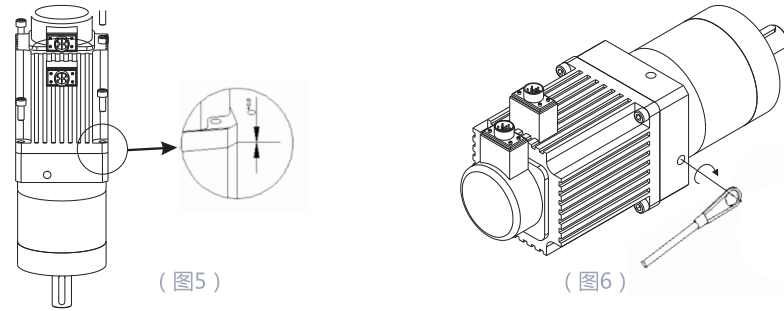
**第三步** 将电机输出轴、定位凸台及减速机连接部位的防锈油用汽油或锌钠水擦拭净，其目的是保证连接的紧密性及运转的灵活性，并且防止不必要的磨损。将电机与减速机自然连接，连接时必须保证电机输出轴与减速机输入轴同轴度一致，且二者外侧法兰平行。同轴度不一致，会导致电机轴断或减速机齿轮磨损。另外，在安装时，严禁用铁锤等击打，防止轴向力或径向力过大损坏轴承或齿轮。

**Step 3.** Then wipe the anti-rust oil on the motor output shaft,the positioning spigot and gearboxes coupling parts with gasoline or zinc sodium water. Its purpose is to ensure that the coupling tightness and operation flexibility, and to prevent unnecessary wear. Naturally connect the motor and gearboxes, ensure that the concentricityof the gear output shaft and the motor of the input shaft is the same, and both the outside of the flange parallel. If the concentricity is inconsistency, will cause broken motor shaft and gearboxes gear wear, further, when installed, do not hit with a hammer and other objects, to prevent axial force is so large that damage the bearing of gear.



**第四步** 在电机与减速机连接前, 请先将电机方位与减速机方位尽量对齐, 为保证受力均匀, 请先将任意对角位置的安装螺栓旋上, 但不要旋紧, 再旋上另外两个对角位置的安装螺栓最后逐个旋紧四个安装螺栓, 最后, 旋紧紧固螺栓。所有紧固螺栓均需用力矩扳手按标明的固定扭力矩数据进行固定和检查。

**Step 4.** Before connecting the motor and gearboxes, please machine of decelerate of motor bearing and azimuth alignment as far as possible, in order to ensure uniform force, please spin on mounting bolts in the any angular position, but do , spin on the other two on the angular position of the mounting bolts and then tighten the four mounting bolts one by one. Finally, tighten the bolts, all fastening bolts are required to use torque wrench fixed torsional moment data indicated to fix and check.



(表1)

代表型号 Product Model	SPL40/SPX40	SPL70/SPX65	SPL90/SPX85	SPL120/SPX115	SPL160/SPX142	SPX180/SPX220	
预紧力矩 Tightening Torque	TA (Nm)	4.5	9	15	36	36	81
螺栓大小 Bolt Size	Sw (mm)	M4	M5	M6	M8	M8	M10

## 与工作机的连接

### The Connection of the Work Machine

与工作机安装时, 应重视传动中心轴线对中, 其误差不得大于所用联轴器的使用补偿。对中良好能延长使用寿命, 并获得理想的传动效率, 在输出轴上安装传动件时, 不允许使用锤子敲击, 通常利用装配夹具和轴端的内螺纹, 用栓塞将传动件压入, 否则有可能造成减速机内部零件的损坏。最好不要采用刚性固定式联轴器, 因该类联轴器安装不当, 会引起不必要的外加载荷, 以致造成轴承的早起损坏, 严重时甚至造成输出轴的断裂。

When the installation of the working machine, we should attach importance to the transmission center axis aligned, and the error should not be greater than the amount of coupling the use of compensation. Aligning well can extend the service life and to obtain the desired transmission efficiency, when install transmission parts on the output shaft, not allowed to tap with a hammer, usually use the internal threads of the assembly fixture and shaft end, using bolts pressed into the drive member. Failure to do so may cause damage of the internal parts of the reducer, best not to use steel fixed coupling, because class coupling improper installation will cause unnecessary applied load, and resulting in early bearing damage, serve or even cause the output shaft fracture.

## 减速机的固定

### The Gearboxes Fixing

减速机应牢固地安装在稳定的基础或支座上, 且冷却空气循环流畅。基础不可靠, 运转时会引起震动及噪声, 并促使轴承及齿轮受损。当传动联结件有突出物或采用齿轮、链轮传动时, 应考虑加装防护装置。安装就位后, 应按次序全面检查安装位置的准确性, 各紧固件压紧的可靠性, 安装后应能灵活转动, 减速机采用脂润滑, 方可进行空载试运转, 时间不得少于2小时。运转应平稳, 无冲击、振动、杂音及渗漏油现象, 发现异常应及时排除。如环境温度过高或过低时, 需改变润滑油的牌号。

Gearboxes should be securely mounted on a stable foundation or bearing, and the cooling air circulation flowing. unstable foundation will cause vibration and noise during operation, and promote the bearing and gear damage. When the drive couplings with protrusion or gear and sprocket, you should consider the installation of protective devices, after installation, you should have a in -order comprehensive check of the accuracy of the installation location and the reliability of fasteners clamping. The machine should be flexible rotation after installation. The operation should be smooth without shock, vibration. Noise and oil leakage phenomenon. Abnormor should be immediately removed. If the ambient temperature istoohigh or too low, the gradess of grease need to be changed.

## 维护说明 MAINTANCE INSTRUCTIONS

减速机在使用过程中应定期检查油脂的质量, 对于混入杂质或变质的油脂需及时更换。

一般情况下, 对于长期连续工作的减速机, 按运行20000小时或隔年更换新油脂, 间断用的减速机, 在重新运转之前亦应检查润滑脂情况, 再润滑可由专业厂家完成, 根据运转情况决定再润滑的间隔和数量。如果旧的润滑脂不能完全被清除, 则应该相应限制所注入润滑脂数量, 以避免过润滑。如再润滑周期间隔较长, 推荐对全部润滑脂进行彻底的更换。油脂添加量为内部空间1/3为宜, 如输入转速较低可适当增加, 但最多不能超过内部空间的1/2。

输出端回转部分采用唇形密封圈(TC型)密封, 密封圈的更换一般以是否有油脂泄漏作为更换的依据。对于间断使用的减速机, 在重新运转之前亦应检查密封情况, 判断有无必要更换密封圈。更换密封圈时只需拆下相应密封圈座即可更换。

工作中, 当发现油温温升超过90°C 或产生不正常的噪声现象时应停止使用, 检查原因, 必须排除故障后, 方可继续运转。

用户应有合理的使用维护规章制度, 对减速机的运转情况和检验中发现的问题应做认真记录, 上述规定严格执行。

Gearboxes oil quality should be checked regularly during use, timely replacement of for impurities or deterioration grease required.

Under normal circumstances, gearboxes for long-term continuous work, should be replaced with new grease in accordance with the running 20000 hours or every other year. Intermittent gearboxes should be checked the grease before re-operation. Relubrication can be completely by professional manufacturers. Teh re-lubrication intervals and quantities should be decided according to the functioning. If the old grease can not be completely removed, accordingly limit the number of grease to avoid lubrication, if re-lubrication cycle interval is longer, recommended to completely replace ann the grease. grease dosage is preferably 1/3 of the internal space, if the input speed is low may be appropriate to increase. But can not exceed a maximum of 1/2 of the internal space.

The output of the rotary part(tc) use skeleton oil seal, the seals replacement generally based on whether the grease leaks. Gearboxes for intermittent use, also should be check the seal before re-operation, determine whether there is necessary for replacement of seals, the seals can be replaced only need to remove the seal seat.

At work when the temperature rise of the oil temperature exceeds90°C orproduce abnormal phenomena such as noise, stop using it and check the cause. The fault must be removed before they are allowed to continue operation.

Operation and inspection should be carefully recorded. The above provisions should be strictly enforced.

备忘录 MEMO

备忘录 MEMO