Planetary Gear Units

FLYSOON

公司简介

FLYSOON 飞而速传动设备，工厂创建于1985年，是一家从事减、变速机研发、制造和经营于一体的高新科技企业。公司占地面积40000平方米，现有员工800多人，其中技术人员占20%。主要产品有：FSR系列斜齿轮减速机、FSS系列斜齿蜗轮蜗杆减速机、FSK系列锥齿轮减速机、FSF系列斜齿轮减速机、FSH、FSB系列大功率减速机、FSP系列行星齿轮减速机、X/B、8000系列摆线针轮减速机、FSXG系列悬挂减速机、FSSWL系列蜗轮螺杆升降机、FST系列螺旋锥齿轮转向箱等十六大系列，共计10000多个传动比，规格之多居国内行业之首；公司创建以来一贯以先进的经营理念、差异化的产品、丰富的制造经验、高度的责任心使产品广泛服务于：港口码头、钢铁冶金、啤酒饮料、矿山机械、食品包装、纺织印染、橡胶塑料、石油化工、起重运输、制药制革、环保设备等轻、重工业的机械传动领域。

为提高企业的技术装备和工艺水平，公司引进了德国HOFLER成型磨齿机及目前国内最先进的精密数控车床、加工中心、精密蜗轮磨床、数控蜗杆砂轮磨齿机、滚齿机、三坐标测量仪、齿轮检测仪器等精密仪器设备300多台/套，使产品制造工艺及装备具有国内领先水平。同时公司在国内同行业率先通过了ISO9001国际质量体系认证。

公司在全国各地设立了30多家销售分公司和门市部（售后服务网点），及时地、全方位地为广大客户提供周全的服务。产品还远销三十多个国家，分别分布于美洲、欧洲、亚洲、非洲，在国内外享有很好的信誉。创名牌产品是“飞而速”的目标，让客户满意是“飞而速”的宗旨。公司快速、健康的发展得到政府及相关部门的肯定，近几年被政府及相关部门授予工商企业信用A级“重合同守信用”单位、农业银行AAA级资信企业、高新技术企业、重点龙头企业、纳税大户，并成为中国通用机械减速机行业协会理事单位等。

About us

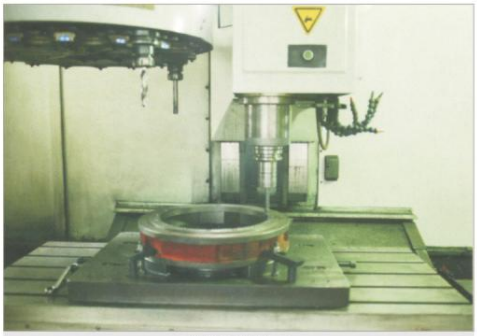
FLYSOON TRANSMISSION EQUIPMENT, The Factory was established in 1985 with the aim of improving the manufacturing level of gearbox in China. It covers more than 40000 square meters, owning over 800 staffs, including 18 series products:

1. FSR/FSS/FSK/FSF four seres - hard tooth flank gearbox
2. FSH/FSB two series gearbox - especially for mining
3. FSP series - high power planetary gearbox
4. X/B\8000 series and PYZ series cycloid reducer
5. FSXG series & SMR series - shaft-mounted gearbox
6. SWL series - worm screw jack
7. FST series - helical cone gearbox
8. NMRV series - worm reducer
9. ZDY/DBY two series - cone-column gearbox

The products are widely used in transmission field of light & heavy industry

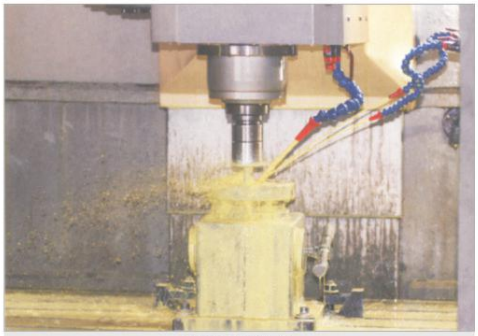
1. Beer & beverage
2. Mining machine
3. Food packing
4. Textile printing
5. Rubber & plastic material
6. Petrochemical industry
7. Transportation
8. Pharmacy & process hides
9. Environmental protection equipment

The factory was audited by SGS / BV / TUV and we were the first one to obtain the ISO9001 QA certification.



加工中心
Machining center

加工中心
Machining center



加工中心
Machining center

德玛吉加工中心
DMC 1035 V ECOLINE

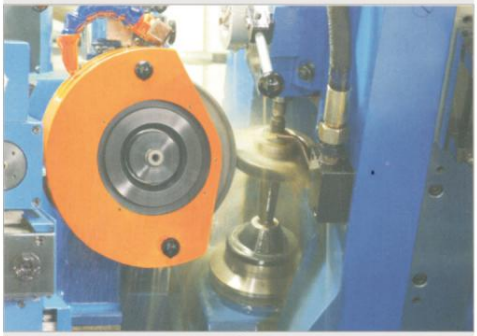
转矩转速功率测量仪
Measure instrument for torque, rotation rate and power

卧式加工中心
Machining center

三坐标测量仪
Three dimensional measure instrument

齿轮测量中心
Gear machining center

齿轮整体误差测量仪
Gear entirety error measure instrument



数控磨齿机
Numerical control gear grinding machine

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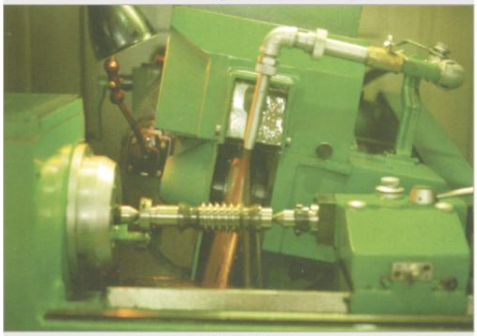
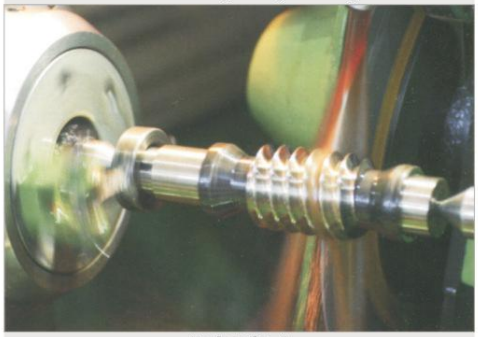


蜗杆磨床
Worm grinding machine

蜗 杆
Worm



蜗杆磨床
Worm grinding machine

服务系数 Service Factors

表1
Table 1

工作机系数 Factor for driven machine f1

工作机 Driven machines		日带载运行时间（小时） Effective daily operating period under load in hours		
		0.5	> 0.5–10	> 10
污水处理	**Waste water treatment**			
浓缩器（中心传动）	Thickeners(central drive)	–	–	1.2
压滤器	Filter presses	1.0	1.3	1.5
絮凝器	Flocculation apparata	0.8	1.0	1.3
曝气机	Aerators	–	1.8	2.0
搂集设备	Raking equipment	1.0	1.2	1.3
纵向、回转组合式接集装置	Combined longitudinal and rotaty rakes	1.0	1.3	1.5
浓缩器	Pre-thickeners	–	1.1	1.3
螺杆泵	Screw pumps	–	1.3	1.5
水轮机	Water turbines	–	–	2.0
泵	Pumps			
离心泵	Centrifugal pumps	1.0	1.2	1.3
容积式泵	Positive-displacement pumps			
1个活塞	1 piston	1.3	1.4	1.8
>1个活塞	> 1piston	1.2	1.4	1.5
挖泥机	**Dredgers**			
斗式运输机	Bucket conveyors	–	1.6	1.6
倾卸装置	Dumping devices	–	1.3	1.5
Carterpillar行走机构	Carterpillar travelling gears	1.2	1.6	1.8
斗式挖掘机	Bucket wheel excavators			
用于捡拾	as pick-up	–	1.7	1.7
用于粗料	for primitive material	–	2.2	2.2
切碎机	Cutter heads	–	2.2	2.2
行走机构	Traversing gears	–	1.4	1.8
弯板机	**Plate bending machines**	–	1.0	1.0
化学工业	**Chemical industry**			
挤压机	Extruders	–	–	1.6
调浆机	Dough mills	–	1.8	1.8
橡胶研光机	Rubber calenders	–	1.5	1.5
冷却圆筒	Cooling drums	–	1.3	1.4
混料机，用于	Mixers for			
均匀介质	uniform media	1.0	1.3	1.4
非均匀介质	non-uniform media	1.4	1.6	1.7
搅拌机，用于	Agitators for media with			
密度均匀介质	uniform density	1.0	1.3	1.5
不均匀介质	non-uniform density	1.2	1.4	1.6
不均匀气体吸收	non-uniform gas absorption	1.4	1.6	1.8
烘炉	Toasters	1.0	1.3	1.5
离心机	Centrifuges	1.0	1.2	1.3
金属加工设备	**Metal working mills**	1.0	1.0	1.2
翻板机	Plate tilters	1.0	1.2	1.2
推钢机	lngot pushers	–	1.6	1.6
绕线机	Winding machines	–	1.5	1.5
冷床横移架	Cooling bed transfer frames	–	1.6	1.6
辊式矫直机	Roller straighteners			
辊道	Roller tables			
连续式	continuous	–	1.5	1.5
间歇式	intermittent	–	2.0	2.0
可逆式轧管机	Reversing tube mills	–	1.8	1.8
剪切机	Shears			
连续式	continuous	–	1.5	1.5
曲柄式 *	crank type	1.0	1.0	1.0
连铸机驱动装置	Continuous casting drivers	–	1.4	1.4
轧机	Rolls			
可逆式开坯机	Reversing blooming mills	–	2.5	2.5
可逆式板坯轧机	Reversing slabbing mills	–	2.5	2.5
可逆式线材轧机	Reversing wire mills	–	1.8	1.8
可逆式薄板轧机	Reversing sheet mills	–	2.0	2.0
可逆式中厚板轧机	Reversing plate mills	–	1.8	1.8
辊缝调节驱动装置	Roll adjustmint drives	0.9	1.0	–

工作机 Driven machines		日带载运行时间（小时） Effective daily operating period under load in hours		
		0.5	> 0.5–10	>10
输送机械	**C onveyors**			
斗式输送机	Bucket conveyors	–	1.4	1.5
绞车	Hauling winches	1.4	1.6	1.6
卷扬机	Hoists	–	1.5	1.8
皮带输送机≤150kw	Belt conveyors 150 kW	1.0	1.2	1.3
皮带输送机≥150kw	Belt conveyors 150 kW	1.1	1.3	1.4
货用电梯 *	Goods lifts	–	1.2	1.5
客用电梯 *	Passenger lifts	–	1.5	1.8
刮板式输送机	Apron conveyors	–	1.2	1.5
自动扶梯	Escalators	1.0	1.2	1.4
轨道行走机构	Rail travelling gears	–	1.5	–
变频装置	**Frequency converters**	–	1.8	2.0
往复式压缩机	**R eciprocating compressors**	–	1.8	1.9
起重机械 **	**Cranes**			
回转机构 *	Slewing gears	1.0	1.4	1.8
俯仰机构	Luffing gears	1.0	1.1	1.4
行走机构	Travelling gears	1.1	1.6	2.0
提升机构	Hoisting gears	1.0	1.1	1.4
转臂式起重机	Derricking jib cranes	1.0	1.2	1.6
冷却塔	**Cooling towers**			
冷却塔风扇	Cooling tower fans	–	–	2.0
风机（轴流和离心式）	Blowers (axial and radial)	–	1.4	1.5
食品工业	**Food industry**			
蔗糖生产	Cane sugar production	–	–	1.7
甘蔗切碎机 *	Cane knives	–	–	1.7
甘蔗碾磨机	Cane mills			
甜菜糖生产	Beet sugar production	–	–	1.2
甜菜绞碎机	Beet cossettes macerators,			
窄取机，机械致冷机，蒸煮机	Extraction plants,Mechanical reftigerators,Juice boilers,	–	–	1.4
甜菜清洗机	Sugar beet washing machines,			
甜菜切碎机	Sugar beet cutters	–	–	1.5
造纸机械	**P aper machines**			
各种类型 ***	of all-kind	–	1.8	2.0
碎浆机驱动装置	Pulper drives	根据客户要求供货 Onrequest		
离心式压缩机	**Centrifugal compressors**	–	1.4	1.5
索道缆车	**Cableways**			
运货索道	Material ropeways	–	1.3	1.4
往返系统空中索道	To- and fro system aerial rope ways	–	1.6	1.8
T型杆升降机	T-bar lifts	–	1.3	1.4
连续索道	Continuous ropeways	–	1.4	1.6
水泥工业	**Cement industry**			
混凝土搅拌器	Concrete mixers	–	1.5	1.5
破碎机	Breakers	–	1.2	1.4
回转窑	Rotary kilns	–	–	2.0
管式磨机	Tube mills	–	–	2.0
选粉机	Separators	–	1.6	1.6
辊压机	Roll crushers	–	–	2.0

1. 工作机额定功率P2的确定：
*）按最大的扭矩确定额定功率。
**）可将载荷准确地分类。
***）检验热容量是绝对必要的。
2. 所列各项系数均为经验值。使用这些系数的前提条件是，所述机械设备应符合通常的设计规范和载荷条件。如遇特殊情况，请及时与我们取得联系。
3. 对于那些未列入此表的工作机械，请与我们联系。

1.Design for power rating of driven machine P2
*) Designed power corresponding to max. torque
**) Load can be exactly classified, for Instance.
***) A check for thermal capacity is absolutely essential
2. The listed factors are empirical values. Prerequisite for their application is that the machinery and equipment mentioned correspond to generally accepted design and load specifications. In case of derations from standard conditions, please refer to us
3.For driven machines which are not listed in this table, please refer to us.

减 速 器 Gear Units
服 务 系 数 Service Factor

表2 Tabie2	原动机系数 Factor for Prime mover	f2
电机，液压马达，汽轮机 Electric motors,hydraulic motors,turbines		1.0
4-6缸活塞发动机 Piston engines4-6cylinders		1.25
1-3缸活塞发动机 Piston engines1-3cylinders		1.5

表3 Table3	起动系数 Start factor			f3
每小时起动次数 Starts perhour \ f1×f2×f4 / f3	1	1.25 -1.75	2 -2.75	≥3
≤5	1	1	1	1
6-25	1.2	1.12	1.06	1
26-60	1.3	1.2	1.12	1.06
61-180	1.5	1.3	1.2	1.12
>180	1.7	1.5	1.3	1.2

表4 Table4	减速器安全系数 Safety factor		f4
重要性与安全要求 Importance and safety request.	一般设备，减速器失效仅引起单机停产且易更换备件 Ordinary equipment, malfuncition only cause accident of singlemachine and easily replaced.	重要设备，减速器失效引起机组、生产线或全厂停产。 Important equipment, malfunction cause the accident of assembling unit,production-line or whole factory.	高度安全要求，减速器失效引起设备、人身事故 Safety request highly. Malfunction cause the accident of equipment and personal injury.
f3	1.3-1.7	1.5-2.0	1.7-2.5

表5 Table5	峰值扭矩系数 Peak torque factor			f5
	每小时峰负荷次数 Load peak perhour			
	1-5	6-30	31-100	>100
单向载荷	0.5	0.65	0.7	0.85
交变载荷	0.7	0.95	1.10	1.25

表6 Table6	环境温度系数 Thermal factor				f6
不带辅助冷却装置或仅带冷却风扇 Without auxiliary cooling or with fan cooling					
环境温度 Ambient temperature	每小时工作周期（ED）百分比% Operating cycle perhour(ED)in%				
	100	80	60	40	20
10℃	1.14	1.20	1.32	1.54	2.04
20℃	1.00	1.06	1.16	1.35	1.79
30℃	0.87	0.93	1.00	1.18	1.56
40℃	0.71	0.75	0.82	0.96	1.27
50℃	0.55	0.58	0.64	0.74	0.98
带辅助冷却装置或仅带冷却风扇 For cooling with cooling coil,or with fan and cooling coil					
环境温度 Ambient temperature	每小时工作周期（ED）百分比% Operating cycle perhour(ED)in%				
	100	80	60	40	20
10℃	1.04	1.10	1.21	1.40	1.86
20℃	1.00	1.06	1.16	1.35	1.79
30℃	0.93	0.99	1.08	1.26	1.66
40℃	0.88	0.93	1.02	1.19	1.58
50℃	0.81	0.86	0.94	1.09	1.45

表7 Table7	海拔高度系数 Factor for altitude				f7
不带辅助冷却装置或仅带冷却风扇 Without auxiliary cooling or with fan cooling					
系数 Factor	海拔高度（m） Altitude(meters)				
	高达 Up to 1000	高达 Up to 2000	高达 Up to 3000	高达 Up to 4000	高达 Up to 5000
f7	1.0	0.95	0.90	0.85	0.80
带辅助冷却装置或仅带冷却风扇 For cooling with cooling coil,or with fan and cooling coil					
系数 Factor	海拔高度（m） Altitude(meters)				
	高达 Up to 1000	高达 Up to 2000	高达 Up to 3000	高达 Up to 4000	高达 Up to 5000
f7	1.0	0.98	0.96	0.94	0.92

表8 Table8	功率利用率系数 Utilization factor						f8
30%	40%	50%	60%	70%	80%	90%	100%
0.66	0.77	0.83	0.90	0.90	0.95	1.0	1.0

齿 轮 箱
平键和键槽
Parallelkeyandkeyway

	轴 Shaft d mm	轴公差 Shaft Tolerance	孔公差 Hole Tolerance
轴径公差标准(GB/T1095-1979) Toleyanceforshafcdiameter(GB/T1095-1979)	≤25	k6	H7
	>25 — 100	m6	
	>100	n6	

平 键

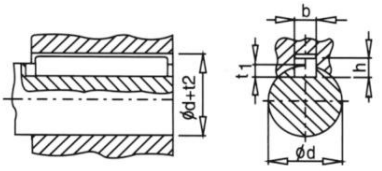
平键紧固方式，采用无锥度联接。

Drive type fastening without taper action

平键和键槽根据GB/T1095-19标准确定

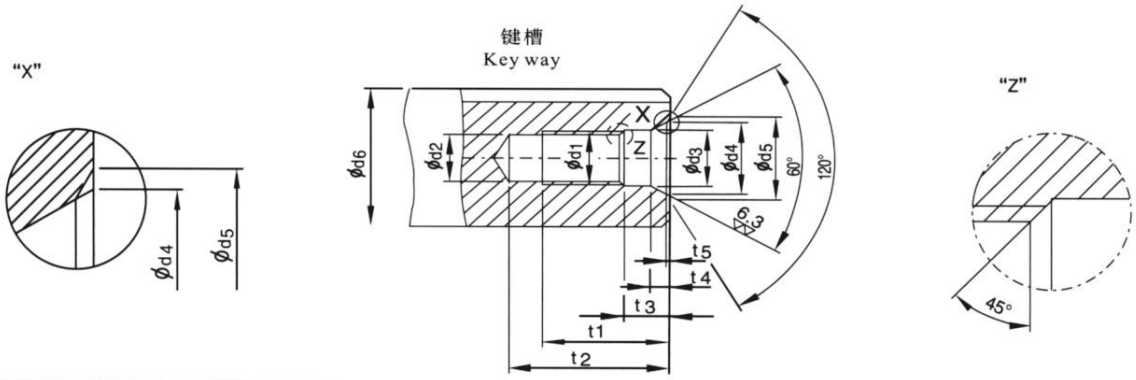
Parallel

Key and Keywayacc.to GB/T 1095-1979



直径 Diameter d mm	直径 Diameter d mm	宽度 Width b mm	高度 Height h mm	轴键槽深度 Depth of Key way in shaft t_1 mm	轮毂键槽深度 Depth of Key way in hub d+t_2 DIN 6885/1 mm
8	10	3	3	1.8	d+1.4
10	12	4	4	2.5	d+1.8
12	17	5	5	3	d+2.3
17	22	6	6	3.5	d+.28
22	30	8	7	4	d+3.3
30	38	10	8	5	d+3.3
38	44	12	8	5	d+3.3
44	50	14	9	5.5	d+3.8
50	58	16	10	6	d+4.3
58	65	18	11	7	d+4.4
65	75	20	12	7.5	d+4.9
75	85	22	14	9	d+5.4
85	95	25	14	9	d+5.4
95	110	28	16	10	d+6.4
110	130	32	18	11	d+7.4
130	150	36	20	12	d+8.4
150	170	40	22	13	d+9.4
170	200	45	25	15	d+10.4
200	230	50	28	17	d+11.4
230	260	56	32	20	d+12.4
260	290	63	32	20	d+12.4
290	330	70	36	22	d+14.4
330	380	80	40	25	d+15.4
380	440	90	45	28	d+17.4
440	500	100	50	31	d+19.4

C型带螺纹 C Screw Hole



d_6 1) mm	C 型 C 中心孔 hole	d_1	d_2 2)	d_3	d_4	d_5	t_1 +2 mm	t_2 min.	t_2 max.	t_3 +1	t_4 ≈	t_5 ≈
16<d6≤21	C 6	M 6	5	6.4	9.6	10.5	16	20	22	5	2.8	0.4
21<d6≤24	C 8	M 8	6.8	8.4	12.2	13.2	19	25	28	6	3.3	0.4
24<d6≤30	C 10	M 10	8.5	10.5	14.9	16.3	22	30	34	7.5	3.8	0.6
30<d6≤38	C 12	M 12	10.2	13	18.1	19.8	28	37	42	9.5	4.4	0.7
38<d6≤50	C 16	M 16	14	17	23	25.3	36	45	50	12	5.2	1.0
50<d6≤85	C 20	M 20	17.5	21	28.4	31.3	42	53	59	15	6.4	1.3
85 <d6≤130	C 24	M 24	21	25	34.2	38	50	63	68	18	8	1.6
130*<d6≤225*	C 30	M 30*	26.5	31	44	48	60	77	83	17	11	1.9
225*<d6≤320*	C 36	M 36*	32	37	55	60	74	93	99	22	15	2.3
320*<d6≤500*	C 42	M 42*	37.5	43	65	71	84	105	111	26	19	2.7

有关符号说明如下：

= 油 尺

= 加 油 孔

= 通 气 孔

= 放 油 孔

The signs specification is as following:

=Oil dipstick

=Oil filler

=Breather

=Oil –out drain

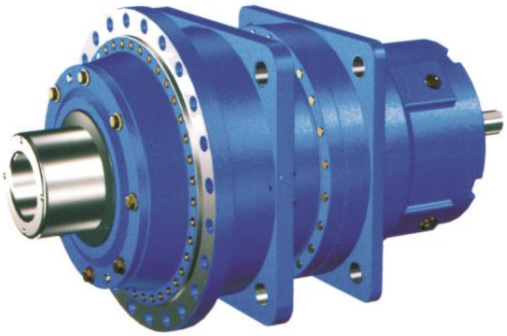
FSP系列行星齿轮减速机产品特点

Characteristics of FSP series planetary speed reducer

FSP系列行星齿轮减速机采用渐开线行星齿轮传动,合理利用内、外啮合、功率分流、因此具有重量轻、体积小、传动比范围大、效率高、运转平稳、噪声低、适应性强等特点。
该减速机广泛应用于冶金、矿山、起重运输、电力、能源、建筑建材、轻工、交通等工业部门。

FSP系列行星齿轮减速机

FSP series planetary speed reducer



FSP系列 / FSP SERIES

输出转速/OUTPUT SPEED	0.19-60r/min
输出转矩/OUTPUT TORQUE	高至2600000Nm Up to 2600000Nm
电机功率/MOTOR POWER	0.4-1293kW
安装形式/MOUNTED FORM	底脚安装、法兰安装 FOOT-MOUNTED AND FLANGE-MOUNTED MONTING
出轴方式/OUTPUT SHAFT DESIGN	实心轴、渐开线花键实心轴、渐开线花键空心轴、带胀紧盘空心轴
	SOLID SHAFT,SOLID SHAFT WITH INVOLUTE SPLINES, HOLLOW SHAFT WITH
	INVOLUTE SPLINES AND HOLLOW SHAFT WITH SHRINK DISK.

The FSP series planetary speed reducer adopts the involute planetary gear transmission with inner mesh,outer mesh and divided power employed reasonably.So the series has the feature of light weight,small volume,high tramsmission ratio,high efficiency,smooth rotation, low noise and good applicability ect..This series is widely used in industries such as metallurgy, mining,hoisting and transportation,electrical power,energy resources, comstruction and building materials,light industry and traffic industry.

型号表示方法 /Type Designations

一.FSP系列行星减速器型号与标记

Type designations of FSP series planetary gear units

FSP 2 S AZ – 12 – 80 – B512 – 96 – CW

- 减速器类型
- 行星传动级数
- 传动结构形式
- 输出轴形式
- 机座号
- 传动比
- 安装布置形式
- 附件
- 带直交轴传动输入轴旋转方向

FSP 2 S AZ – 12 – 80 – B512 – 96 – CW

- Gear units type
- Number of planetary gear stages
- Structure
- Output shaft
- Size
- Ratio
- Mounting position
- Add-on pieces
- Direction code of rotation of input shaft for bevel gear stage

型号说明	上例说明	Explanation of types	Explanation of the above example
减速器类型： FSP系列行星减速器	FSP系列行星减速器	Gear units type: FSP series planetary gear units	FSP series planetary gear units
行星传动级数： 2 二级传动 3 三级传动	2 二级行星传动	Number of planetary gear stages: 2 two stages 3 three stages	2 Two planetary gear stages
传动结构形式： N 标准型 L 带直交轴传动 S 带平行轴传动 K 带直交轴、平行轴传动	S 带平行轴传动	Structure: N Standard L Bevel gear stage S Helical gear stage K Bevel-helical gear stage	S Helical gear stage
输出轴形式： AZ 胀紧盘空心轴 AH 渐开线花键空心轴 BS 平键实心轴 BH 渐开线花键实心轴	AZ 胀紧盘空心轴输出	Output shaft: AZ hollow shaft with shrink disk AH hollow shaft with involute splines BS solid shaft with parallel key BH solid shaft with involute splines	AZ Hollow shaft with shrink disk
机座号： 9~36（见选型表）	12号机座号	Size: 9~36(see selection table)	Size 12
传动比： （见选型表） （实际传动比见20~22页）	公称传动比 i_N=80	Ratio: (see selection table) (for the actulal ratio see pages 20~22)	Nominal ratio i_N=80
安装布置形式： B500~B556 水平 V100~V130 立式（低速轴向下） V300~V330 立式（低速轴向上） 见 34 页	安装布置形式为B512 水平安装输入轴在右边	Mounting position: B500~B556 Horizontal V100~V130 Vertical(output shaft is downward) V300~V330 Vertical(output shaft is upward) See page 34	Mounting position B512 horizontal,input shaft at the right side
带直交轴传动输入轴旋转方向代号（面对输入轴方向看）： CW 顺时针 CCW 逆时针 其它省略	平行轴传动省略	Direction code of rotation of input shaft for bevel gear stage (viewing on input shaft): CW Clockwise CCW Counter clockwise The others can be omitted	Helical gear stage omitted
附件： 99 无附件 96 减速器底座 70 电机钟形支座（输入） 71 电机托架 72 电机支架 73 摆动底座 74 钟形支座（输出） 75 扭矩支撑臂（一侧） 76 扭矩支撑臂（二侧） 77 扭力轴支撑 见 35 页	96 带减速器底座	Add-on pieces: 99 without add-on piece 96 gear housing base 70 motor bell housing(input) 71 motor bracket 72 motor bracket 73 motor swing-base 74 bell-housing(output) 75 torque reaction arm(on one side) 76 torque reaction arm(on both sides) 77 torsion shaft support see page 35	96 Add-on the gear housing base

要求和说明

★ 为选择合适的FSP系列行星减速器请按样本中的详细说明进行。

★ 提供行星减速器可以直接安装。但不提供润滑油。

★ 给出的加油量只作为参考值，实际加油量应以油标的标记为准。

★ 减速器若未注明要求时一般为浸油润滑，若需要采用强制润滑请联系我们。

★ 对于B521、B351安装形式的全部规格和B511安装形式的21号规格以上的减速器，为了润滑输入部分轴承需加油泵润滑。

★ 对于V100/V300、V110/V310、V120/V320、V130/V330安装形式的减速器，为了确保润滑，必须相应提高油位，需加装补偿油箱。补偿油箱可装在减速器上也可装在用户主机上确定该项时请联系我们。

★ 使用环境温度低于0℃时润滑油应预热到0℃以上。环境温度高于40℃以上时应采取隔热和冷却措施。使用场地应避开恶劣的环境比如：盐水、含盐的空气、刺激性物质、灰尘、泥、落石或飞石、过重的压力、强烈振动和冲击载荷等。

★ 胀紧盘空心输出轴减速器按标准提供胀紧盘，但不提供防护装置。为防止发生事故，所有旋转部位应按安全规定加罩防护。

★ 基础螺栓的最低性能等级为8.8级，有水平垫板并进行防腐处理。

★ 样本中的附图只属范例，并不要求严格一致，所注尺寸可能有所变动。有关参数可能改进。

★ 所注重量仅为平均值，不要求严格一致。

有关符号说明如下：

=油标

=通气孔

=加油孔

= 放油孔

Requirement and Specification

★ For selection of suitable FSP series planetary gear units please observe the details given in this brochure.

★ The gear units supplied can be mounted directly. But the oil is not supplied.

★ Oil quantities given are guide values only,the exact Quantity of oil depends on the marks on the oil dipstick.

★ The gear units are supplied with dip lubrication without requirement,if required torced lubrication please refer to us.

★ For all sizes of B521、B351and above size 21 of B511, a motor pump is required for lubrication of the input bearing.

★ For V100/V300、V110/V310、V120/V320、V130/V330, the oil level must be increased for ensure lubricant supply, it should mount a oil compensating tank,The oil compensating tank can be mounted on the gear units or the user's driven machine,please refer to us for choice.

★ Where ambient temperatures are lower than 0℃,the oil must be pre-heated above 0℃.Where ambient temperatures are higher than 40℃,the heat insulation and cooling should be considered.Environmental conditions such as salt water,salt-laden air,aggressve substances, dust,mud,failling or flying stones,excessive pressure,heavy vibrations and extreme shock loads must be disclosed.

★ Shrink disk is supplied for the gear units of hollow output shaft for shrink disk,but not supply the guard.To prevent accibents,all rotating parts should be guarded according to safety regulations.

★ Forundation bolts of min.property class 8.8,it has levelling pads and treated with anti-corrosion.

★ The attached picture is only example, not strictly binding, the noted dimension may be changed.Some parameters referring to may be improved.

★ The noted weights are only mean values,not strictly binding.

The signs specification is as following:

=Oil dipstick

=Breather

=Oil-filler

=Oil -drain

选 型 指 南

减速器的承载能力受机械强度和热平衡许用功率两方面的限制，选用减速器时必须通过这两项功率核算。

1）计算传动比

$$i_s = \frac{n_1}{n_2}$$

式中：

i_s－要求的传动比

n_1－输入转速（r/min）

n_2－输出转速（r/min）

2）确定减速器的额定功率，应满足：

$$P_N \geqslant P_2 \times f_1 \times f_2 \times f_3 \times f_4$$

式中：

P_N－减速器额定功率（见额定功率表）

P_2－载荷功率（即工作机所需功率）

f_1－工作机系数（见表1）

f_2－原动机系数（见表2）

f_3－减速器安全系数（见表3）

f_4－启动系数（见表4）

3）校核最大扭矩，如峰值工作扭矩，超动扭矩或制动扭矩应满足要求：

$$P_N \geqslant \frac{T_A \times n_1}{9550} \times f_5$$

式中：

T_A－输入轴最大扭矩，如峰值工作扭矩、起动扭矩、制动扭矩（N.m）

f_5－峰值扭矩系数（见表5）

4）检查输出轴上是否允许有附加载荷，许用附加径向力见25～26页。

5）检查实际传动比i是否满足要求，实际传动比i见19～21页。

6）校核热平衡功率

减速器不带辅助冷却装置，应满足：

$$P_2 \leqslant P_G = P_{G1} \times f_6 \times f_8$$

式中：

P_G－减速器热功率

P_{g1}－无辅助冷却装置时的热功率（见热功率表）

f_6－环境温度系数（见表6）

f_8－功率利用率系数（见表8）

注：减速器服务系数见Ⅰ、Ⅱ页

Guidelines for the Selectioon

The loading capacity of gear units is restricted by the permissible powers of mechanical ten sion and the thermal balance,it should meet the following powers in selecting:

1) Calculate the transmission ratio:

$$i_s = \frac{n_1}{n_2}$$

i_s –the required transmission ratio

n_1 –the input speed(r/min)

n_2 –the output speed(r/min)

2) Determine the nominal power ratings of gear units:

$$P_N \geqslant P_2 \times f_1 \times f_2 \times f_3 \times f_4$$

P_N– the nominal power ratings of gear units (see nominal power ratings table)

P_2– loading power(the required power of driven machine)

f_1 – factor for driven machine(see table1)

f_2 – factor for prime mover(see table2)

f_3 – satety factor for gear units (see table3)

f_4 – starting factor(see table4)

3) Check the max.torque,the peak operating–, starting–or braking torque should meet the following requirement:

$$P_N \geqslant \frac{T_A \times n_1}{9550} \times f_5$$

T_A– the max.torque of input shaft,such as peak operating–,starting–or braking torque,

f_5 – peak to rque factor(see table5)

4) Check whether it permits the additional force of output shaft,for the permissible additional radial force see pages 25 ~ 26

5) Check whether the actual transimission ratio meets the requirement,the actual transimission ratio see pages19 ~ 21.

6) Check the power of thermal balance

a.the gear units without auxiliary cooling, should meet:

$$P_2 \leqslant P_G = P_{G1} \times f_6 \times f_8$$

P_G – the thermal capacities of gear units

P_{G1}– the thermal capacities without auxiliary cooling(see thermal capacities table)

f_6 – factor for ambient temperature (see table6)

f_8 – utilization factor(see table8)

Note:Gear units service factor see Ⅰ、Ⅱ page.

选 型 指 南

例：胶带输送机用行星齿轮减速器

电机功率 $P_1=75KW$

电机转速 $n_1=1500r/min$

最大起动转矩 $T_A=950Nm$

输送机转矩 $T_2=105000Nm$

输送机转速 $n_2=6.6r/min$

每日工作12小时

每小时起动次数8次

每小时工作周期ED=60%

工作环境温度30℃

安装在大车间使用，水平布置，要求减速器胀紧盘空心输出轴带底座

（1）计算传动比：

$$i_s=\frac{n_1}{n_2}=\frac{1500}{6.6}=227.27$$

则选减速器类型为：FSP3N $i_N=225$

（2）确定减速器规格：

输送机功率：

$$P_2=\frac{T_2\times n_2}{9550}=105000\times\frac{6.6}{9550}$$

$$=72.57KW$$

额定功率应为：

$$P_N\geqslant P_2\times f_1\times f_2\times f_3\times f_4$$

$$=72.57\times1.3\times1\times1.3\times1$$

$$=122.64KW$$

确定规格为17号$P_N=142kW>122.64kW$

（3）校核热功率：

功率利用系数：

$$\frac{P_2}{P_N}\times100\%=\frac{72.57}{142}\times100\%=51.1\%$$

则功率利用系数：$f_8=0.83$

减速器不带辅助冷却装置时

$$P_2=72.57KW<P_G$$

$$=P_{G1}\times f_6\times f_8=91\times1\times0.83$$

$$=75.53KW$$

满足要求

选用的减速器应为：

FSP3N-AZ-17-225-B500-96

Guidelines for the Selectioon

Example: planetary gear units used for glue feeding machine

Motor power rating $P_1=75KW$

Motor speed. $n_1=1500r/min$

Max. startingtorque $T_A=950Nm$

Torque for feeding machine $T_2=105000Nm$

Speed for feeding machine $n_2=6.6r/min$

Operating 12 hours per day

Starting 8 times per hour

Operating cycle per hour ED=60%

Ambient temperature 30℃

Installation in a large hall,horizontal,hollow output shaft for shrink disk,add-on housing base required

(1) Calculate the transmission ratio:

$$i_s=\frac{n_1}{n_2}=\frac{1500}{6.6}=227.27$$

Select gear unit type:FSP3N $i_N=225$

(2) Determine the gear units size

Power rating for feeding machine:

$$P_2=\frac{T_2\times n_2}{9550}=105000\times\frac{6.6}{9550}$$

$$=72.57KW$$

Nom.Power rating should be:

$$P_N\geqslant P_2\times f_1\times f_2\times f_3\times f_4$$

$$=72.57\times1.3\times1\times1.3\times1$$

$$=122.64KW$$

Determine size 17$P_N=142KW>122.64KW$

(3) Checking the thermal capacities

Utilization factor:

$$\frac{P_2}{P_N}\times100\%=\frac{72.57}{142}\times100\%=51.1\%$$

The utilization factor is: $f_8=0.83$

When the gear unit without auxiliary cooling:

$$P_2=72.57KW<P_G$$

$$=P_{G1}\times f_6\times f_8=91\times1\times0.83$$

$$=75.53KW$$

It meets the requirement.

The gear units selected is

FSP3N-AZ-17-225-B5000-96

型号FSP2N../规格9...36/TypeFSP2N../Sizes9...36

额定功率 P_N Nominal power ratings (kW)																												
i_N	n_1 r/min	n_2 r/min	规格 Sizes																									
			9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
25	1500	60	137	193	261	373	516	728	995	1256	1517	1834	2201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1000	40	91	129	174	249	344	485	663	837	1012	1223	1468	1625	1866	2127	2454	2863	3163	3532	3938	4394	4975	5514	6218	6965	7960	9286	10779
	750	30	68	96	131	187	258	364	497	628	759	917	1101	1219	1399	1595	1841	2127	2372	2649	2954	3296	3731	4135	4664	5223	5970	6965	8084
28	1500	54	123	173	235	336	465	655	895	1131	1366	1651	1981	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1000	36	82	116	157	224	310	437	597	754	910	1101	1321	1463	1679	1914	2209	2552	2847	3179	3544	3955	4477	4962	5597	6268	7164	8358	9701
	750	27	62	87	118	168	232	327	448	565	683	825	991	1097	1259	1436	1657	1914	2135	2384	2658	2966	3358	3722	4197	4701	5373	6268	7276
31.5	1500	48	109	154	209	298	413	582	796	1005	1214	1468	1761	1950	2239	2552	2945	3403	3796	4238	4726	5273	5970	6616	7462	8358	9551	11143	12934
	1000	32	73	103	139	199	275	388	531	670	809	978	1174	1300	1492	1701	1963	2268	2530	2826	3151	3515	3980	4411	4975	5572	6368	7429	8623
	750	24	55	77	104	149	206	291	398	502	607	734	881	975	1119	1276	1473	1701	1898	2129	2363	2637	2985	3308	3731	4179	4776	5572	6467
35.5	1500	42	96	135	183	261	361	509	696	879	1062	1284	1541	1706	1959	2233	2577	2977	3321	3709	4135	4614	5223	5789	6529	7313	8358	9750	11317
	1000	28	64	90	122	174	241	340	464	586	708	856	1027	1138	1306	1489	1718	1985	2214	2472	2757	3076	3482	3860	4353	4875	5572	6500	7547
	750	21	48	67	91	131	181	255	348	440	531	642	770	853	979	1117	1288	1489	1661	1854	2068	2307	2612	2895	3265	3656	4179	4875	5659
40	1500	38	87	122	165	236	327	461	630	796	961	1162	1394	1544	1772	2020	2331	2694	3005	3355	3741	4175	4726	5238	5907	6616	7562	8822	10240
	1000	25	57	80	109	155	215	303	415	523	632	764	917	1016	1166	1329	1534	1772	1977	2208	2461	2746	3109	3446	3886	4353	4975	5804	6737
	750	19	43	61	83	118	163	230	315	398	480	581	697	772	886	1010	1166	1347	1502	1678	1871	2087	2363	2619	2954	3308	3781	4411	5120

热功率 P_{g1} ★) Thermal capacities P_{G1} ★) (kW)																			
安装类型 Settings	规格 Sizes																		
	9	10	11	12	13	14	16	17	18	19/20	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36
1) 狭小空间 Small confined spaces	21	26	32	42	49	65	75	92	100	119	142	174	201	242	287	326	366	437
2) 室内大厅 大车间 Large halls, workshops	29	37	45	60	69	92	106	130	147	169	201	246	285	343	406	462	519	619
3) 室外 In the open	39	50	60	80	93	125	143	175	191	228	272	333	386	464	550	626	702	838

★) 用于水平安装形式，其它安装形式请与我们联系。

1) 风速≥0.5m/s

2) 风速≥1.4m/s

3) 风速≥3.7m/s

★) Values apply to horizontal mounting position,for other mounting positions please reter to us.

1) Wind velocity ≥0.5m/s

2) Wind velocity ≥1.4m/s

3) Wind velocity ≥3.7m/s

型号FSP2S../规格9...36/TypeFSP2S../Sizes9...36

额定功率 P_N Nominal power ratings (kW)																													
i_N	n_1 r/min	n_2 r/min	规格 Sizes 9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
45	1500	33.3	77	108	147	209	290	408	558	705	852	1030	1236	1368	1571	1790	2066	2387	2663	-	-	-	-	-	-	-	-	-	-
	1000	22.2	51	72	98	140	193	272	372	470	568	686	824	912	1047	1194	1377	1592	1775	1982	2210	2466	2792	3095	3490	3909	4467	5212	6050
	750	16.7	38	54	73	105	145	204	279	353	426	515	618	684	785	895	1033	1194	1332	1487	1658	1850	2094	2321	2618	2932	3351	3909	4537
50	1500	30.0	69	97	132	188	261	368	503	635	766	927	1112	1231	1414	1611	1860	2149	2397	-	-	-	-	-	-	-	-	-	-
	1000	20.0	46	65	88	126	174	245	335	423	511	618	741	821	942	1074	1240	1432	1598	1784	1989	2220	2513	2785	3141	3518	4021	4691	5445
	750	15.0	35	49	66	94	130	184	251	317	383	463	556	616	707	806	930	1074	1198	1338	1492	1665	1885	2089	2356	2639	3016	3518	4084
56	1500	26.8	62	87	118	168	233	328	449	567	684	827	993	1099	1262	1439	1660	1918	2140	-	-	-	-	-	-	-	-	-	-
	1000	17.9	41	58	79	112	155	219	299	378	456	552	662	733	841	959	1107	1279	1427	1593	1776	1982	2244	2487	2805	3141	3590	4188	4861
	750	13.4	31	43	59	84	116	164	224	283	342	414	496	550	631	719	830	959	1070	1195	1332	1486	1683	1865	2103	2356	2692	3141	3646
63	1500	23.8	55	77	105	150	207	292	399	504	608	735	883	977	1122	1279	1476	1705	1902	-	-	-	-	-	-	-	-	-	-
	1000	15.9	37	52	70	100	138	194	266	336	406	490	588	651	748	853	984	1137	1268	1416	1579	1762	1994	2210	2493	2792	3191	3723	4321
	750	11.9	27	39	52	75	103	146	199	252	304	368	441	489	561	639	738	853	951	1062	1184	1321	1496	1658	1870	2094	2393	2792	3241
71	1500	21.1	49	69	93	133	184	259	354	447	540	653	783	867	995	1135	1310	1513	1688	-	-	-	-	-	-	-	-	-	-
	1000	14.1	32	46	62	88	122	173	236	298	360	435	522	578	664	757	873	1009	1125	1256	1401	1563	1770	1961	2212	2478	2831	3303	3834
	750	10.6	24	34	46	66	92	129	177	223	270	326	392	434	498	567	655	757	844	942	1051	1172	1327	1471	1659	1858	2124	2478	2876
80	1500	18.8	43	61	82	118	163	230	314	397	479	579	695	770	883	1007	1162	1343	1498	-	-	-	-	-	-	-	-	-	-
	1000	12.5	29	41	50	79	109	153	209	264	319	386	463	513	589	671	775	895	999	1151	1243	1387	1571	1741	1963	2199	2513	2932	3403
	750	9.4	22	30	41	59	81	115	157	198	240	290	347	385	442	504	581	671	749	836	933	1041	1178	1306	1472	1649	1885	2199	2552
90	1500	16.7	38	54	73	105	145	204	279	353	426	515	618	684	785	895	1033	1941	1332	-	-	-	-	-	-	-	-	-	-
	1000	11.1	26	36	49	70	97	136	186	235	284	343	412	456	524	597	689	796	888	991	1105	1233	1396	1547	1745	1954	2234	2606	3025
	750	8.3	19	27	37	52	72	102	140	176	213	257	309	342	393	448	517	597	666	743	829	925	1047	1160	1309	1466	1675	1954	2269
100	1500	15.0	35	49	66	94	130	184	251	317	383	463	556	616	707	806	930	1074	1198	-	-	-	-	-	-	-	-	-	-
	1000	10.0	23	32	44	63	87	123	168	212	255	309	317	410	471	537	620	716	799	892	995	1110	1256	1393	1571	1759	2010	2345	2722
	750	7.5	17	24	33	47	65	92	126	159	192	232	278	308	353	403	465	537	599	669	746	832	942	1044	1178	1319	1508	1759	2042
112	1500	13.4	31	43	59	84	116	164	224	283	342	414	496	550	631	719	830	959	1070	-	-	-	-	-	-	-	-	-	-
	1000	8.9	21	29	39	56	78	109	150	189	228	276	331	366	421	480	553	639	713	797	888	991	1122	1243	1402	1571	1795	2094	2431
	750	6.7	15	22	29	42	58	82	112	142	171	207	248	275	316	360	415	480	535	597	666	743	841	933	1052	1178	1346	1571	1823
125	1500	12.0	28	39	53	75	104	147	201	254	307	371	445	493	565	645	744	859	959	-	-	-	-	-	-	-	-	-	-
	1000	8.0	18	26	35	50	70	98	134	169	204	247	297	328	377	430	496	573	639	714	796	888	1005	1114	1256	1407	1608	1876	2178
	750	6.0	14	19	26	38	52	74	101	127	153	183	222	246	283	322	372	430	479	535	597	666	754	836	942	1055	1206	1407	1633

热功率 P_{G1} ★) Thermal capacities P_{G1} ★) (kW)																			
安装类型 Settings	规格 Sizes 9	10	11	12	13	14	16	17	18	19/20	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36
狭小空间 1) Small confined spaces	15	20	24	32	36	49	56	69	75	89	106	130	151	182	215	245	275	328
室内大厅 2) 大车间 Large halls, workshops	22	28	34	45	52	69	79	97	106	127	151	185	214	257	305	347	389	464
室外 3) In the open	29	38	45	60	70	94	107	132	143	171	204	250	289	348	412	469	527	628

★) 用于水平安装形式，其它安装形式请与我们联系。

1) 风速≥0.5m/s

2) 风速≥1.4m/s

3) 风速≥3.7m/s

★) Values apply to horizontal mounting position, for other mounting positions please reter to us.

1) Wind velocity ≥0.5m/s

2) Wind velocity ≥1.4m/s

3) Wind velocity ≥3.7m/s

型号FSP2L../规格9...36/TypeFSP2L../Sizes9...36

额定功率 P_N Nominal power ratings (kW)																								
i_N	n_1	n_2	规格 Sizes																					
	r/min		9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31–36
31.5	1500	47.6	111	156	212	302	418	510	806	865	1230	1487*	1517	1976	2268									根据用户要求供货 On request
	1000	31.7	74	104	141	202	279	340	538	577	820	991	1011	1317	1512	1724*	1989*	2298*	2564*	2863*	2937*			
	750	23.8	55	78	106	151	209	255	403	433	615	743	758	988	1134	1293	1492	1724	1923	2147	2203			
35.5	1500	42.6	98	139	188	268	345	487	716	858	1091*	1319*	1504*	1753	2013*									
	1000	28.2	66	92	125	179	247	324	477	572	728	880	1003	1169	1342*	1530*	1712*	2040*	2275*	2540*	2833*			
	750	21.1	49	69	94	134	173	243	358	429	546	660	752	877	1006	1147	1284	1530	1706	1905	2124			
40	1500	37.5	87	123	167	238	306	432	635	802	969*	1171*	1405*	1556*	1786*									
	1000	25.0	58	82	111	159	204	288	423	535	646	781	937	1037	1191*	1358*	1567*	1810*	2019*	2255*	2514*			
	750	18.8	44	62	83	119	153	216	318	401	484	585	703	778	883	1018	1175	1358	1514	1691	1885			
45	1500	33.3	78	109	148	212	293	413	565	713	861*	1041*	1249*	1383*	1588*	1810	2089*							
	1000	22.2	52	73	99	141	195	275	376	475	574	694	833	922	1059*	1207*	1393*	1609*	1795*	2004*	2235*			
	750	16.7	39	55	74	106	146	206	282	356	430	520	625	692	794	905	1044	1207	1346	1503	1676	1870	2117	
50	1500	30.0	70	98	133	191	264	372	508	641	775*	937*	1124	1245*	1429*	1629*	1880							
	1000	20.0	47	66	89	127	176	248	339	428	517	625	749	830	953	1086	1253	1448*	1615*	1804*	2011*			
	750	15.0	35	49	67	95	132	186	254	321	387	468	562	622	714	815	940	1086	1211	1353	1508	1683	1905	
56	1500	26.8	62	88	119	170	235	332	454	573	692*	836	1004	1111*	1276*	1456*	1678							
	1000	17.9	42	59	79	113	157	221	302	382	461	558	669	741	851	970	1119	1293*	1442*	1610*	1796*	2004*	2268*	
	750	13.4	31	44	60	85	118	166	227	286	346	418	502	556	638	727	839	970	1082	1208	1347	1503	1701	
63	1500	23.8	55	78	106	151	209	295	403	509	615	743	892	988	1134	1293	1492	1724*	1923*	2147*	2394*			
	1000	15.9	37	52	71	101	139	197	269	339	410	496	595	659	766	862	995	1149	1282	1432	1596	1781*	2016*	
	750	11.9	28	39	53	76	105	147	202	255	307	372	446	494	567	646	746	862	961	1074	1197	1336	1512	
71	1500	21.1	49	69	94	134	186	262	358	452	546	660	792	877	1006	1147	1324	1530	1706*	1905	2124			
	1000	14.1	33	46	63	89	124	174	239	301	364	440	528	584	671	765	883	1020	1138	1270	1416	1580*	1789*	
	750	10.6	25	35	47	67	93	131	179	226	273	330	396	438	503	574	662	765	853	953	1062	1185	1342	
80	1500	18.8	44	62	83	119	165	232	318	401	484	585	703	778	893	1018	1175	1358	1514	1691	1885			
	1000	12.5	29	41	56	79	110	155	212	267	323	390	468	519	595	679	783	905	1010	1127	1257	1403*	1588*	
	750	9.4	22	31	42	60	82	116	159	200	242	293	351	389	447	509	587	679	757	845	943	1052	1191	
90	1500	16.7	39	55	74	106	146	206	282	356	430	520	625	692	794	905	1044	1207	1346	1503	1676	1870	2117	
	1000	11.1	26	36	49	71	98	138	188	238	287	347	416	461	529	603	696	804	897	1002	1117	1247	1411	
	750	8.3	19	27	37	53	78	103	141	178	215	260	312	346	397	453	522	603	673	752	838	935	1059	
100	1500	15.0	35	49	67	95	132	186	254	321	387	468	562	622	714	815	940	1086	1211	1353	1508	1683	1905	
	1000	10.0	23	33	44	64	88	124	169	214	258	312	375	415	476	543	627	724	808	902	1006	1122	1270	
	750	7.5	17	25	33	48	66	93	127	160	194	234	281	311	357	407	470	543	606	676	754	842	953	

* 要求强制润滑　　* Forced lubrication required

热功率 P_{G1} ★ Thermal capacities P_{G1} ★ (kW)																	
安装类型 Settings	规格 Sizes																
	9	10	11	12	13	14	16	17	18	19/20	21/22	23/24	25/26	27/28	29/30	31–36
狭小空间 1) Small confined spaces	14	18	22	29	34	46	52	64	70	83	99	121	141	169	200	根据用户要求供货 On request
室内大厅 大车间 2) Large halls, workshops	20	26	31	41	48	64	74	91	99	118	140	172	199	240	284	
室外 3) In the open	28	35	42	56	65	87	100	123	133	159	190	233	269	324	384	

★) 用于水平安装形式，其它安装形式请与我们联系。

1) 风速≥0.5m/s

2) 风速≥1.4m/s

3) 风速≥3.7m/s

★) Values apply to horizontal mounting position, for other mounting positions please reter to us.

1) Wind velocity ≥0.5m/s

2) Wind velocity ≥1.4m/s

3) Wind velocity ≥3.7m/s

型号FSP2K../规格9...20/TypeFSP2K../Sizes9...20

额定功率 P_N Nominal power ratings (kW)													
i_N	n_1 r/min	n_2 r/min	规格 Sizes 9	10	11	12	13	14	16	17	18	19	20
112	1500	13.4	30.9	43.6	59.0	84	117	164	225	284	343	415	498
	1000	8.9	20.6	29.0	39.4	56	78	110	150	189	229	276	332
	750	6.7	15.5	21.8	29.5	42	58	82	112	142	171	207	249
125	1500	12.0	27.7	39.0	52.9	76	105	147	201	254	307	372	446
	1000	8.0	18.5	26.0	35.3	50	70	98	134	170	205	248	297
	750	6.0	13.9	19.5	26.4	38	52	74	101	127	154	186	223
140	1500	10.7	24.7	34.9	47.2	67	93	132	180	227	274	332	398
	1000	7.1	16.5	23.2	31.5	45	62	88	120	151	183	221	265
	750	5.4	12.4	17.4	23.6	34	47	66	90	114	137	166	199
160	1500	9.4	21.6	30.5	41.3	59	82	115	157	199	240	290	348
	1000	6.3	14.4	20.3	27.5	39	54	77	105	132	160	193	232
	750	4.7	10.8	15.3	20.7	30	41	58	79	99	120	145	174
180	1500	8.3	19.2	27.1	36.7	52	73	102	140	177	213	258	310
	1000	5.6	12.8	18.1	24.5	35	48	68	93	118	142	172	206
	750	4.2	9.6	13.6	18.4	26	36	51	70	88	107	129	155
200	1500	7.5	17.3	24.4	33.1	47	65	92	126	159	192	232	279
	1000	5.0	11.5	16.3	22.0	31	44	61	84	106	128	155	186
	750	3.8	8.7	12.2	16.5	24	33	46	63	79	96	116	139
225	1500	6.7	15.4	21.7	29.4	42	58	82	112	141	171	206	248
	1000	4.4	10.3	14.5	19.6	28	39	55	75	94	114	138	165
	750	3.3	7.7	10.8	14.7	21	29	41	56	71	85	103	124
250	1500	6.0	13.9	19.5	26.4	38	52	74	101	127	154	186	223
	1000	4.0	9.2	13.0	17.6	25	35	49	67	85	102	124	149
	750	3.0	6.9	9.8	13.2	19	26	37	50	64	77	93	111
280	1500	5.4	12.4	17.4	23.6	34	47	66	90	114	137	166	199
	1000	3.6	8.2	11.6	15.7	22	31	44	60	76	91	111	133
	750	2.7	6.2	8.7	11.8	17	23	33	45	57	69	83	100
320	1500	4.7	10.8	15.3	20.7	30	41	58	79	99	120	145	174
	1000	3.1	7.2	10.2	13.8	20	76	38	52	66	80	97	116
	750	2.3	5.4	7.6	10.3	15	20	29	39	50	60	73	87
360	1500	4.2	9.6	13.6	18.4	26	36	51	70	88	107	129	155
	1000	2.8	6.4	9.0	12.2	17	24	34	47	59	71	86	103
	750	2.1	4.8	6.8	9.2	13	18	26	35	44	53	64	77
400	1500	3.8	8.7	12.2	16.5	24	33	46	63	79	96	116	139
	1000	2.5	5.8	8.1	11.0	16	22	31	42	53	64	77	93
	750	1.9	4.3	6.1	8.3	12	16	23	31	40	48	58	70
450	1500	3.3	7.7	10.8	14.7	21	29	41	56	71	85	103	124
	1000	2.2	5.1	7.2	9.8	14	19	27	37	47	57	69	83
	750	1.7	3.8	5.4	7.3	10	15	20	28	35	43	52	62
500	1500	3.0	6.9	9.8	13.2	19	26	37	50	64	77	93	111
	1000	2.0	4.6	6.5	8.8	13	17	25	34	42	51	62	74
	750	1.5	3.5	4.9	6.6	9	13	18	25	32	38	46	56
560	根据用户要求供货 On request												

热功率 P_{G1} ★) Thermal capacities P_{G1} ★) (kW)										
安装类型 Settings	规格 Sizes 9	10	11	12	13	14	16	17	18	19/20
狭小空间 1) Small confined spaces 2)	12	15	18	24	28	38	44	53	58	69
室内大厅 3) 大车间 Large halls, workshops	17	22	26	35	40	54	62	76	82	98
室外 In the open	23	29	35	47	54	73	83	102	111	133

★) 用于水平安装形式，其它安装形式请与我们联系。

1) 风速≥0.5m/s 2) 风速≥1.4m/s 3) 风速≥3.7m/s

★) Values apply to horizontal mounting position,for other mounting positions please reter to us.

1) Wind velocity ≥0.5m/s 2) Wind velocity ≥1.4m/s

3) Wind velocity ≥3.7m/s

型号FSP3N../规格9...36/TypeFSP3N../Sizes9...36

额定功率 P_N Nominal power ratings (kW)																													
i_N	n_1	n_2	规格 Sizes																										
	r/min		9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
140	1500	10.7	24.8	34.9	47.3	68	94	132	180	228	275	332	399	442	507	578	667	711	860	–	–	–	–	–	–	–	–	–	–
	1000	7.1	16.5	23.3	31.5	45	62	88	120	152	183	222	266	294	338	385	445	514	573	640	714	796	901	999	1127	1262	442	1682	1953
	750	5.4	12.4	17.5	23.7	34	47	66	90	114	137	166	199	221	253	289	333	385	430	480	535	597	676	749	845	946	1082	1262	1465
160	1500	9.4	21.7	30.6	41.4	59	82	115	158	199	241	291	349	386	444	506	584	674	752	–	–	–	–	–	–	–	–	–	–
	1000	6.3	14.5	20.4	27.6	39	55	77	105	133	161	194	233	258	296	337	389	450	501	560	624	697	789	874	986	1104	1262	1472	1709
	750	4.7	10.8	15.3	20.7	30	41	58	79	100	120	145	174	193	222	253	292	337	376	420	468	522	591	656	739	828	946	1104	1281
180	1500	8.3	19.3	27.2	36.8	53	73	103	140	177	214	258	310	343	394	450	519	599	669	–	–	–	–	–	–	–	–	–	–
	1000	5.6	12.9	18.1	24.5	35	48	68	93	118	143	172	207	229	263	300	346	400	446	498	555	619	701	777	876	981	1122	1309	1519
	750	4.2	9.6	13.6	18.4	26	36	51	70	88	107	129	155	172	197	225	259	300	334	373	416	464	526	583	657	736	841	981	1139
200	1500	7.5	17.3	24.4	33.1	47	65	92	126	159	192	233	279	309	355	405	467	539	602	–	–	–	–	–	–	–	–	–	–
	1000	5.0	11.6	16.3	22.1	32	44	62	84	106	128	155	186	206	237	270	311	360	401	488	499	557	631	699	789	883	1009	1178	1367
	750	3.8	8.7	12.2	16.6	24	33	46	63	80	96	116	140	155	177	202	233	270	301	336	375	418	473	524	591	662	757	883	1025
225	1500	6.7	15.4	21.7	29.4	42	58	82	112	142	171	207	248	275	315	360	415	479	535	597	666	743	841	932	1051	1178	1346	1570	1823
	1000	4.4	10.3	14.5	19.6	28	39	55	75	94	114	138	165	183	210	240	277	320	357	398	444	495	561	622	701	785	897	1047	1215
	750	3.3	7.7	10.9	14.7	21	29	41	56	71	86	103	124	137	158	180	207	240	267	299	333	372	421	466	526	589	673	785	911
250	1500	6.0	13.9	19.6	26.5	38	52	74	101	127	154	186	223	247	284	324	373	432	481	538	599	669	757	839	946	1060	1211	1413	1640
	1000	4.0	9.3	13.0	17.7	25	35	49	67	85	103	124	149	165	189	216	249	288	321	358	400	446	505	559	631	707	808	942	1094
	750	3.0	6.9	9.8	13.2	19	26	37	50	64	77	93	112	124	142	162	187	216	241	269	300	334	379	420	473	530	606	707	820
280	1500	5.4	12.4	17.5	23.7	34	47	66	90	114	137	166	199	221	253	289	333	385	430	480	535	597	676	749	845	946	1082	1262	1465
	1000	3.6	8.3	11.6	15.8	23	31	44	60	76	92	111	133	147	169	193	222	257	287	320	357	398	451	499	563	631	721	841	976
	750	2.7	6.2	8.7	11.8	17	23	33	45	57	69	83	100	110	127	144	167	193	215	240	268	299	338	375	422	473	541	631	732

热功率 P_{G1} ☆) Thermal capacities P_{G1} ☆) (kW)																			
安装类型 Settings	规格 Sizes																		
	9	10	11	12	13	14	16	17	18	19/20	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36
1) 狭小空间 Small confined spaces	14	18	22	29	34	46	52	64	70	83	99	121	141	169	200	228	256	305
2) 室内大厅 大车间 Large halls, workshops	20	26	31	41	48	64	74	91	99	118	140	172	199	240	284	323	362	432
3) 室外 In the open	28	35	42	56	65	87	100	123	133	159	190	233	269	324	384	437	490	585

☆) 用于水平安装形式，其它安装形式请与我们联系。

1) 风速≥0.5m/s

2) 风速≥1.4m/s

3) 风速≥3.7m/s

☆) Values apply to horizontal mounting position,for other mounting positions please reter to us.

1) Wind velocity ≥0.5m/s

2) Wind velocity ≥1.4m/s

3) Wind velocity ≥3.7m/s

型号FSP3S../规格9...36/TypeFSP3S../Sizes9...36

额定功率 P_N Nominal power ratings (kW)																														
i_N	n_1 r/min	n_2 r/min	规格 Sizes																											
			9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
280	1500	5.4	13.5	17.6	24	34	47	67	91	115	139	168	202	223	256	292	337	389	434	485	541	603	683	757	854	956	1093	1275	1480
	1000	3.6	8.3	12	16	23	31	44	61	77	93	112	134	149	171	195	225	260	290	323	361	402	455	505	569	638	729	850	987
	750	2.7	6.3	8.8	12	17	24	33	46	57	69	84	101	112	128	146	168	195	217	242	270	302	342	379	427	478	546	638	740
315	1500	4.8	11	16	21	30	42	59	81	102	123	149	179	198	228	260	300	346	386	431	481	536	607	673	759	850	971	1133	1316
	1000	3.2	7.4	10.5	14	20	28	39	54	68	82	100	119	132	152	173	200	231	257	287	320	358	405	449	506	567	648	756	877
	750	2.4	5.6	7.8	11	15	21	30	40	51	62	75	90	99	114	130	150	173	193	216	240	268	304	336	379	425	486	567	658
355	1500	4.2	10	14	19	27	37	53	72	91	110	132	159	176	202	230	266	307	343	383	417	476	539	597	673	754	862	1006	1167
	1000	2.8	6.7	9.3	13	18	25	35	48	60	73	88	106	117	135	154	177	205	228	255	284	317	359	398	449	503	575	670	778
	750	2.1	5	7	9	13	19	26	36	45	55	66	79	88	101	115	133	154	171	191	213	238	269	299	337	377	431	503	584
400	1500	3.8	8.8	12.4	17	24	33	47	64	80	97	118	141	156	179	204	236	273	304	339	379	422	478	530	598	669	765	893	1036
	1000	2.5	5.8	8.2	11	16	22	31	43	54	65	78	94	104	120	136	157	182	203	226	252	282	319	353	398	446	510	595	691
	750	1.9	4.4	6.2	8	12	17	23	32	40	49	59	71	78	90	102	118	136	152	170	189	211	239	265	299	335	383	446	518
450	1500	3.3	7.8	11	15	21	29	41	57	72	86	104	125	139	159	182	210	242	270	302	336	375	425	471	531	595	680	793	921
	1000	2.2	5.2	7.3	10	14	20	28	38	48	58	70	84	93	106	121	140	162	180	201	224	250	283	314	354	397	453	529	614
	750	1.7	3.4	5.5	7.4	11	15	21	28	36	43	52	63	69	80	91	105	121	135	151	168	188	213	236	266	298	340	397	460
500	1500	3.0	7	10	13.4	19	26	37	51	64	78	94	113	125	143	164	189	218	243	272	303	338	383	424	478	536	612	714	829
	1000	2.0	4.7	6.6	8.9	13	18	25	34	43	52	63	75	83	96	109	126	145	162	181	202	225	255	283	319	357	408	476	553
	750	1.5	3.5	5	6.7	10	13	19	26	32	39	47	56	62	72	82	94	109	122	136	151	169	191	212	239	268	306	357	414
560	1500	2.7	6.3	8.8	12	17	24	33	46	57	69	84	101	112	128	146	168	195	217	242	270	302	342	379	427	478	546	638	740
	1000	1.8	4.2	6	8	11	16	22	30	38	46	56	67	74	85	97	112	130	145	162	180	201	228	252	285	319	364	425	493
	750	1.3	3.1	4.4	6	9	12	17	23	29	35	42	50	56	64	73	84	97	109	121	135	151	171	189	213	239	273	319	370
630	1500	2.4	5.6	7.8	10.6	15	21	30	40	51	62	75	90	99	114	130	150	173	193	216	240	268	304	336	379	425	486	567	658
	1000	1.6	3.7	5.2	7	10	14	20	27	34	41	50	60	66	76	87	100	115	129	144	160	179	202	224	253	283	324	378	439
	750	1.2	2.8	3.9	5.3	8	10	15	20	26	31	37	45	50	57	65	75	87	97	108	120	134	152	168	190	213	243	283	329
710	1500	2.1	4.5	7	9.4	13	19	26	36	45	55	66	79	88	101	115	133	154	171	191	213	128	269	299	337	377	431	503	581
	1000	1.4	3.3	4.5	6.3	9	12	18	24	30	37	44	53	59	67	77	89	102	114	128	142	159	180	199	224	251	287	335	389
	750	1.1	2.5	3.5	4.7	7	9	13	18	23	27	33	40	44	51	58	66	77	86	96	107	119	135	149	168	189	215	251	292
800	1500	1.9	4.4	6.2	8.4	12	17	23	32	40	49	59	71	78	90	102	118	136	152	170	189	211	239	265	299	335	383	446	518
	1000	1.3	2.9	4.1	5.6	8	11	16	21	27	32	39	47	52	60	68	79	91	110	113	126	141	159	177	199	223	255	298	345
	750	0.9	2.2	3.1	4.2	6	8	12	16	20	24	29	35	39	45	51	59	68	76	85	95	106	120	132	149	167	191	223	259
900	1500	1.7	3.4	5.5	7.4	11	15	21	28	36	43	52	63	69	80	91	105	121	135	151	168	188	213	236	266	298	340	397	460
	1000	1.1	2.6	3.7	5	7	10	14	19	24	29	35	42	46	53	61	70	81	90	101	112	125	142	157	177	198	227	264	307
	750	0.8	1.9	2.7	3.7	5	7	10	14	18	22	26	31	35	40	45	52	61	68	75	84	94	106	118	133	149	170	198	230

热功率 P_{G1} ☆) Thermal capacities P_{G1} ☆) (kW)																			
安装类型 Settings	规格 Sizes																		
	9	10	11	12	13	14	16	17	18	19/20	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36
1) 狭小空间 Small confined spaces	12	15	18	24	28	40	43	53	57	69	82	100	116	139	165	188	211	252
2) 室内大厅 大车间 Large halls, workshops	17	21	26	34	40	53	61	75	81	97	116	142	164	197	234	266	298	356
3) 室外 In the open	23	29	35	46	54	72	82	101	110	131	156	192	222	267	316	360	404	482

☆) 用于水平安装形式，其它安装形式请与我们联系。
1) 风速≥0.5m/s
2) 风速≥1.4m/s
3) 风速≥3.7m/s

☆) Values apply to horizontal mounting position,for other mounting positions please reter to us.
1) Wind velocity ≥0.5m/s
2) Wind velocity ≥1.4m/s
3) Wind velocity ≥3.7m/s

型号FSP3K../规格9...30/TypeFSP3K../Sizes9...30

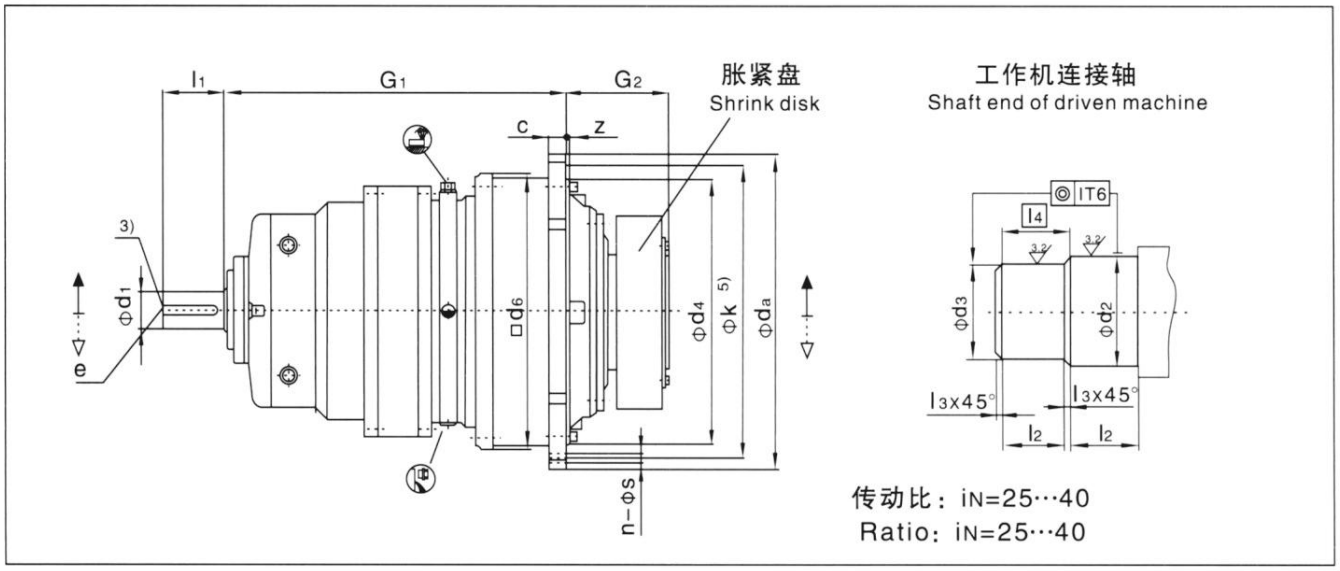
额定功率 P_N Nominal power ratings (kW)																									
i_N	n_1 r/min	n_2 r/min	规格 Sizes 9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31-36
560	1500	2.68	6.3	9	12	17	24	33	46	58	70	84	101	112	128	146	169	195	218	243	271	303	342	根据用户要求供货 On request
	1000	1.79	4.2	6	8	11	16	22	30	38	46	56	67	75	86	98	113	130	145	162	181	202	228	
	750	1.34	3.1	4.4	6	9	12	17	23	29	35	42	51	56	64	73	84	98	109	122	136	151	171	
630	1500	2.38	5.6	7.8	11	15	21	30	41	51	62	75	90	99	114	130	150	174	194	216	241	269	304	
	1000	1.59	3.7	5.2	7	10	14	20	27	34	41	50	60	66	76	87	100	116	129	144	161	179	203	
	750	1.19	2.8	3.9	5	8	11	15	20	26	31	37	45	50	57	65	75	87	97	108	121	134	152	
710	1500	2.11	5.0	7	9	14	19	26	36	45	55	66	80	88	101	115	133	154	172	192	214	239	270	
	1000	1.41	3.3	4.5	6	9	12	18	24	30	37	44	53	59	68	77	89	103	115	128	143	159	180	
	750	1.06	2.5	3.5	5	7	9	13	18	23	27	33	40	44	51	58	67	77	86	96	107	119	135	
800	1500	1.88	4.4	6	8	12	17	23	32	40	49	59	71	78	90	102	118	137	152	170	190	212	240	
	1000	1.25	2.9	4	6	8	11	16	21	27	32	39	47	52	60	68	79	91	102	113	127	141	160	
	750	0.94	2.2	3	4	6	8	12	16	20	24	29	35	39	45	51	59	68	76	85	95	106	120	
900	1500	1.67	3.9	5.5	7.5	11	15	21	28	36	43	52	63	70	80	91	105	121	136	151	169	188	213	
	1000	1.11	2.6	3.7	5	7	10	14	19	24	29	35	42	46	53	61	70	81	90	101	112	125	142	
	750	0.83	2.0	2.7	3.7	5	7	10	14	18	22	26	31	35	40	46	53	61	68	76	84	94	107	
1000	1500	1.50	3.5	5	6.7	10	13	19	26	32	39	47	57	63	72	82	95	109	122	136	152	169	192	
	1000	1.00	2.3	3.3	4.5	6	9	12	17	22	26	31	38	42	48	55	63	73	81	91	101	113	128	
	750	0.75	1.8	2.5	3.4	5	7	9	13	16	19	24	28	31	36	41	47	55	61	68	76	85	96	
1120	1500	1.35	3.1	4.4	6	9	12	17	23	29	35	42	51	56	64	73	84	98	109	122	136	151	171	
	1000	0.89	2.1	2.9	4	6	8	11	15	19	23	28	34	37	43	49	56	65	73	81	90	101	114	
	750	0.67	1.6	2.2	3	4.5	6	8	11	14	17	21	25	28	32	37	42	49	54	61	68	76	86	
1250	1500	1.20	2.8	4.0	5.4	8	11	15	20	26	31	38	45	50	58	66	76	87	98	109	121	136	153	
	1000	0.80	1.9	2.6	3.6	5	7	10	14	27	21	25	30	33	38	44	50	58	65	73	81	90	102	
	750	0.60	1.4	2.0	2.7	4	5	7	10	13	16	19	23	25	29	33	38	44	49	54	61	68	77	
1400	1500	1.07	2.5	3.5	4.8	7	9	13	18	23	28	34	40	45	51	59	68	78	87	97	108	121	137	
	1000	0.71	1.7	2.4	3.2	5	6	9	12	25	19	22	27	30	34	39	45	52	58	65	72	81	91	
	750	0.54	1.3	1.8	2.4	3.5	4.5	7	9	12	14	17	20	22	26	29	34	39	44	49	54	61	68	
1600	1500	0.94	2.2	3.1	4.2	6	8	12	16	20	24	29	35	39	45	51	59	68	78	85	95	106	120	
	1000	0.63	1.5	2.1	2.8	4	6	8	11	13	16	20	24	26	30	34	39	46	51	57	63	71	80	
	750	0.47	1.1	1.5	2.1	3	4	6	8	10	12	15	18	20	22	26	30	34	38	43	47	53	60	
1800	1500	0.83	2.0	2.8	3.7	5	7	10	14	18	22	26	31	35	40	46	53	61	68	76	84	94	107	
	1000	0.56	1.3	1.8	2.5	4	5	7	9	12	14	17	21	23	27	30	35	40	45	50	56	63	71	
	750	0.42	1.0	1.4	1.9	2.7	3.7	5.2	7.1	9	11	13	16	17	20	23	26	30	34	38	42	47	53	
2000	1500	0.75	1.8	2.5	3.4	4.8	6.6	9.4	12.8	16	19	24	28	31	36	41	47	55	61	68	76	85	96	
	1000	0.50	1.2	1.7	2.2	3.2	4.4	6.2	8.5	11	13	16	19	21	24	27	32	36	41	45	51	56	64	
	750	0.38	0.9	1.2	1.7	2.4	3.3	4.7	6.4	8	10	12	14	16	18	20	24	27	30	34	38	42	48	
2240	1500	0.67	1.6	2.2	3	4.3	5.9	8.3	11.4	14	17	21	25	28	32	37	42	49	54	61	68	76	86	
	1000	0.45	1.0	1.5	2	2.9	3.9	5.6	7.6	10	12	14	17	19	21	24	28	33	36	41	45	50	57	
	750	0.33	0.8	1.1	1.5	2.1	3.0	4.2	5.7	7.2	8.7	10.5	2.6	1.4	16	18	21	24	27	30	34	38	43	
2500	1500	0.60	1.4	2.0	2.7	3.8	5.3	7.5	10.2	12.9	16	19	23	25	29	33	38	44	49	54	61	68	77	
	1000	0.40	0.9	1.3	1.8	2.6	3.5	5.0	6.8	8.6	10.4	12.6	15.1	17	19	22	25	29	33	36	40	45	51	
	750	0.30	0.7	1.0	1.3	1.9	2.7	3.7	5.1	6.5	7.8	9.4	11.3	13	14	16	19	22	24	27	30	34	38	
2800	1500	0.54	1.3	1.8	2.4	3.4	4.7	6.7	9.1	12	14	17	20	22	26	29	34	39	44	49	54	61	68	
	1000	0.36	0.8	1.2	1.6	2.3	3.2	4.5	6.1	7.7	9.3	11.2	13.5	15	17	20	23	26	29	32	36	40	46	
	750	0.27	0.6	0.9	1.2	1.7	2.4	3.3	4.6	5.8	7.0	8.4	10.1	11.2	13	15	17	20	22	24	27	30	34	
3150	1500	0.48	1.1	1.6	2.1	3.0	4.2	5.9	8.1	10.2	12	15	18	20	23	26	30	35	39	43	48	54	61	
	1000	0.32	0.7	1.0	1.4	2.0	2.8	4.0	5.4	6.8	8.3	10	12	13.3	15	17	20	23	26	29	32	36	41	
	750	0.24	0.6	0.8	1.1	1.5	2.1	3.0	4.1	5.1	6.2	7.5	9	9.9	11	13	15	17	19	22	24	27	30	
3550	1500	0.42	1.0	1.4	1.9	2.7	3.7	5.3	7.2	9.1	11	13	16	18	20	23	27	31	34	38	43	48	54	
	1000	0.28	0.7	0.9	1.3	1.8	2.5	3.5	4.8	6.1	7.3	8.9	10.6	11.8	14	15	18	21	23	26	29	32	36	
	750	0.21	0.5	0.7	0.9	1.4	1.9	2.6	3.6	4.5	5.5	6.6	8	8.8	10	12	13	15	17	19	21	24	27	
4000	1500	0.38	0.9	1.2	1.7	2.4	3.3	4.7	6.4	8.1	9.7	12	14	16	18	20	24	27	30	34	38	42	48	
	1000	0.25	0.6	0.8	1.1	1.6	4.2	3.1	4.3	5.4	6.5	7.9	9.4	10.4	12	14	16	18	20	23	25	28	32	
	750	0.19	0.4	0.6	0.8	1.2	1.7	2.3	3.2	4	4.9	5.9	7.1	7.8	9	10	12	14	15	17	19	21	24	

热功率 P_{G1} ★) Thermal capacities P_{G1} ★) (kW)																	
安装类型 Settings	规格 Sizes 9	10	11	12	13	14	16	17	18	19/20	21/22	23/24	25/26	27/28	29/30	31-36
狭小空间 1) Small confined spaces	10	12	15	20	23	31	35	43	47	56	67	82	95	109	125	根据用户要求供货 On request
室内大厅 2) 大车间 Large halls, workshops	14	17	21	28	33	44	50	61	66	79	95	116	106	125	144	
室外 3) In the open	19	24	28	38	44	59	67	83	90	107	128	157	166	195	225	

★) 用于水平安装形式，其它安装形式请与我们联系。
1) 风速≥0.5m/s
2) 风速≥1.4m/s
3) 风速≥3.7m/s

★) Values apply to horizontal mounting position,for other mounting positions please reter to us.
1) Wind velocity ≥0.5m/s
2) Wind velocity ≥1.4m/s
3) Wind velocity ≥3.7m/s

型号FSP2NAZ../规格9...36/TypeFSP2NAZ../Sizes9...36

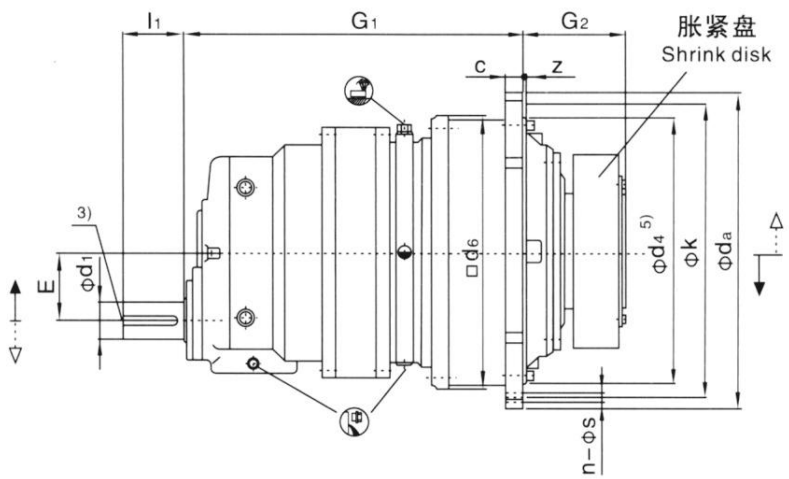


FSP2NAZ 机座号 Size	额定输出扭矩 Nom. output torque T_{2N} (N.m)	输入轴尺寸 Input shaft dimension		工作机连接轴 Shaft end of driven machine					c	da	d4 h7	d6	G1	G2	K	z	法兰孔 Flange bolts 孔径 Diameter s	数量 Qty. n	重量 Weight (kg) 2)	油量 Oil quantity (l)
		d1 1)	l1	d2 4)	d3 4)	l2	l3	l4												
9	22000	55	90	120	115	65	2.5	67.5	24	428	350	356	469	165	388	6±1.5	18	24	145	6
10	31000	55	90	130	125	70	2.5	72.5	28	472	394	400	489	174	436	8±1.5	18	28	195	8
11	42000	70	120	140	135	82.5	2.5	85.0	32	525	425	436	579	204	485	8±1.5	22	20	280	12
12	60000	70	120	160	155	90	2.5	92.5	34	605	495	510	593	224	555	9±1.5	26	20	425	16
13	83000	80	140	180	175	95	2.5	97.5	39	645	535	554	714	241	595	11±1.5	26	24	540	20
14	117000	80	140	210	205	105	2.5	107.5	42	720	610	629	737	278	665	9	26	32	805	32
16	160000	95	160	230	225	110	2.5	112.5	44	770	660	680	851	285	715	10	26	36	1030	40
17	202000	95	160	250	245	120	2.5	122.5	50	895	750	775	877	294	830	10	33	24	1500	56
18	244000	110	180	260	255	120	2.5	122.5	50	930	785	815	1006	303	865	10	33	32	1900	66
19	295000	110	180	280	275	135	2.5	137.5	56	980	840	870	1029.5	327.5	915	12	33	36	2000	82
20	354000	110	180	300	295	135	2.5	137.5	56	980	840	870	1029.5	327.5	915	12	33	36	2100	75
21	392000	120	210	310	305	152	2.5	154.5	62	1115	935	960	1046	354	1025	24	39	32	2650	110
22	450000	120	210	330	325	152	2.5	154.5	62	1115	935	960	1046	354	1025	24	39	32	2800	95
23	513000	130	210	350	345	164	2.5	166.5	68	1210	1025	1056	1150	380	1120	28	39	36	3450	150
24	592000	130	210	360	355	164	2.5	166.5	68	1210	1025	1056	1150	380	1120	28	39	36	3900	125
25	684000	140	240	380	375	180	2.5	182.5	74	1320	1115	1150	1241	407	1220	29	45	36	4750	190
26	763000	140	240	400	395	180	2.5	182.5	74	1320	1115	1150	1241	407	1220	29	45	36	5150	160
27	852000	150	240	430	425	191	2.5	193.5	81	1460	1215	1248	1379	453	1345	31	52	32	6100	245
28	950000	150	240	450	445	191	2.5	193.5	81	1460	1215	1248	1379	453	1345	31	52	32	6550	205
29	1060000	160	270	460	450	197.5	5	202.5	87	1565	1320	1355	1457	483	1450	34	52	36	7800	305
30	1200000	160	270	480	470	197.5	5	202.5	87	1565	1320	1355	1457	483	1450	34	52	36	8300	255
31	1330000	170	270	480	470	232	5	237.0	94	1665	1400	1443	1607	538	1545	36	62	32	10200	380
32	1500000	170	270	510	500	232	5	237.0	94	1665	1400	1443	1607	538	1545	36	62	32	10700	315
33	1680000	180	310	530	520	242	5	247.0	100	1755	1495	1536	1683	573	1635	36	62	36	12350	460
34	1920000	180	310	570	560	242	5	247.0	100	1755	1495	1536	1683	573	1635	36	62	36	13150	380
35	2240000	190	310	600	590	272	5	277.0	112	1945	1685	1720	1899	656	1825	40	62	40	17300	645
36	2600000	190	310	640	630	272	5	277.0	112	1945	1685	1720	1899	656	1825	40	62	40	18400	535

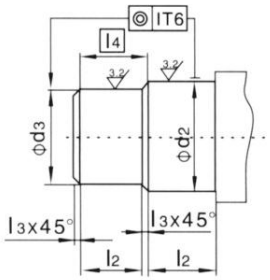
1） 当d1≤100时公差为m6，当d1>100时公差为n6
2） 重量不包括胀紧盘和润滑油。
3） 有关平键（符合GB/T1095-1979）与中心孔请参Ⅲ页
4） 当尺寸d2或d3≤160时，公差为h6
当尺寸d2或d3>160时，公差为g6
5） 孔的分布类型见19页

1) Shaft diameter d1≤100,tolerance m6;shaft diameter d1>100, tolerance n6
2) Weight without shrink disk and oil
3) For parallel key (GB/T1095-1979)and centre hole see page Ⅲ
4) When shaft diameter d2 or d3 ≤160,to leranceh6
When shaft diameter d2 or d3 >160,to leranceg6
5) For hole pattern,see page19

型号FSP2SAZ/规格9...36/TypeFSP2SAZ/Sizes 9...36



工作机连接轴
Shaft end of driven machine



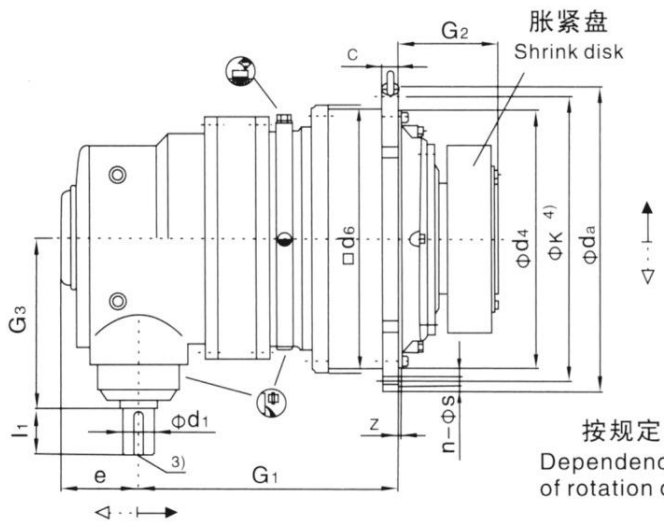
传动比：iN=45…125
Ratio：iN=45…125

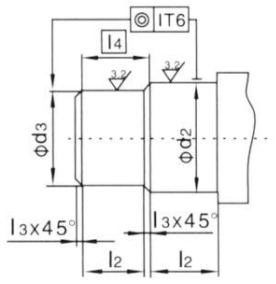
FSP2SAZ 机座号 Size	额定输出扭矩 Nom.output torque T_{2N} (N.m)	输入轴尺寸 Input shaft dimension		工作机连接轴 Shaft end of driven machine					c	d_a	d_4 h7	d_6	E	G_1	G_2	k	z	法兰孔 Flange bolts		重量 2) Weight (kg)	油量 Oil quantity (l)
		d_1 1)	l_1	d_2 4)	d_3 4)	l_2	l_3	l_4										孔径 Diameter s	数量 Qty n		
9	22000	38	60	120	115	65	2.5	67.5	24	428	350	356	90	469	165	388	$6^{\pm1.5}$	18	24	160	6
10	31000	38	60	130	125	70	2.5	72.5	28	472	394	400	90	489	174	436	$8^{\pm1.5}$	18	28	220	8
11	42000	55	90	140	135	82.5	2.5	85.0	32	525	425	436	115	579	204	485	$8^{\pm1.5}$	22	20	310	12
12	60000	55	90	160	155	90	2.5	92.5	34	605	495	510	115	593	224	555	$9^{\pm1.5}$	26	20	470	16
13	83000	70	120	180	175	95	2.5	97.5	39	645	535	554	140	714	241	595	$11^{\pm1.5}$	26	24	600	20
14	117000	70	120	210	205	105	2.5	107.5	42	720	610	629	140	737	278	665	9	26	32	900	32
16	160000	80	140	230	225	110	2.5	112.5	44	770	660	680	170	851	285	715	10	26	36	1150	40
17	202000	80	140	250	245	120	2.5	122.5	50	895	750	775	170	877	294	830	10	33	24	1650	56
18	244000	90	160	260	255	120	2.5	122.5	50	930	785	815	200	1006	303	865	10	33	32	1950	66
19	295000	90	160	280	275	135	2.5	137.5	56	980	840	870	200	1029.5	327.5	915	12	33	36	2400	82
20	354000	90	160	300	295	135	2.5	137.5	56	980	840	870	200	1029.5	327.5	915	12	33	36	2500	75
21	392000	100	180	310	305	152	2.5	154.5	62	1115	935	960	230	1076	354	1025	24	39	32	2900	110
22	450000	100	180	330	325	152	2.5	154.5	62	1115	935	960	230	1076	354	1025	24	39	32	3100	95
23	513000	120	210	350	345	164	2.5	166.5	68	1210	1025	1056	265	1175	380	1120	28	39	36	3800	150
24	592000	120	210	360	355	164	2.5	166.5	68	1210	1025	1056	265	1175	380	1120	28	39	36	4100	125
25	684000	130	210	380	375	180	2.5	182.5	74	1320	1115	1150	300	1291	407	1220	29	45	36	4950	190
26	763000	130	210	400	395	180	2.5	182.5	74	1320	1115	1150	300	1291	407	1220	29	45	36	5350	160
27	852000	140	240	430	425	191	2.5	193.5	81	1460	1215	1248	320	1429	453	1345	31	52	32	6800	245
28	950000	140	240	450	445	191	2.5	193.5	81	1460	1215	1248	320	1429	453	1345	31	52	32	7200	205
29	1060000	150	240	460	450	197.5	5	202.5	87	1565	1320	1355	360	1507	483	1450	34	52	36	8500	305
30	1200000	150	240	480	470	197.5	5	202.5	87	1565	1320	1355	360	1507	483	1450	34	52	36	9000	255
31	1330000	160	270	480	470	232	5	237.0	94	1665	1400	1443	400	1662	538	1545	36	62	32	10500	380
32	1500000	160	270	510	500	232	5	237.0	94	1665	1400	1443	400	1662	538	1545	36	62	32	11200	315
33	1680000	170	270	530	520	242	5	247.0	100	1755	1495	1536	400	1743	573	1635	36	62	36	12700	460
34	1920000	170	270	570	560	242	5	247.0	100	1755	1495	1536	400	1743	573	1635	36	62	36	13500	380
35	2240000	180	310	600	590	272	5	277.0	112	1945	1685	1720	442	1960	656	1825	40	62	40	17800	645
36	2600000	180	310	640	630	272	5	277.0	112	1945	1685	1720	442	1960	656	1825	40	62	40	18900	535

1) 当d1≤100时公差为m6，当d1>100时公差为n6
2) 不含胀紧盘与润滑油的重量
3) 有关平键（符合GB/T1095-1979）与中心孔请参Ⅲ页
4) 当尺寸≤160时公差为h6
5) 孔的分布类型见19页

1) Shaft diameter d1≤100,tolerance m6; shaft diameter d1>100,tolerance n6
2) Weight without shrink disk and oil
3) For parallel key（GB/T1095-1979）and centre hole see page Ⅲ
4) ≤160 h6
5) For hole pattern,see page 19

型号FSP2LAZ/规格9...36/TypeFSP2LAZ/Sizes9...36





按规定方向旋转
Dependency of direction of rotation on request

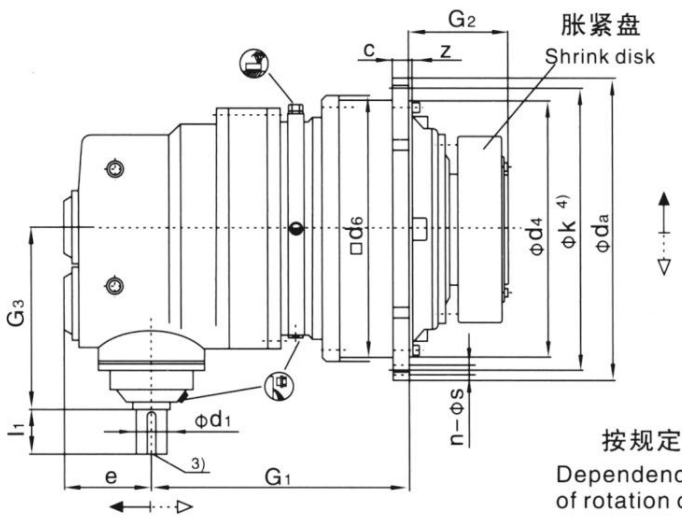
传动比：iN=31.5…100
Ratio: iN=31.5…100

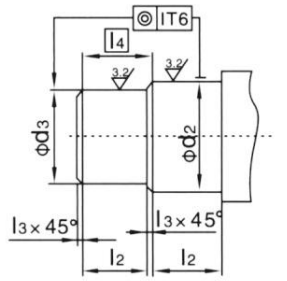
FSP2LAZ 机座号 Size	额定输出扭矩 Nom. output torque T_{2N} (N.m)	输入轴尺寸 Input shaft dimension iN≤90 d1 1)	iN≤90 l1	iN≥100 d1 1)	iN≥100 l1	工作机连接轴 Shaft end of driven machine d2 5)	d3 5)	l2	l3	l4	C	da	d4 h7	d6	e	G1	G2	G3	K	Z	法兰孔 Flange bolts 孔径 Diameter S	数量 Qty. n	重量 Weight 2) (Kg)	油量 Oil quantity (l)
9	22000	45	100	35	80	120	115	65	2.5	67.5	24	428	350	356	185	425	165	305	388	6±1.5	18	24	159	6
10	31000	45	100	35	80	130	125	70	2.5	72.5	28	472	394	400	185	446	174	305	436	8±1.5	18	28	215	8
11	42000	55	110	40	100	140	135	82.5	2.5	85	32	525	425	436	210	501	204	350	485	8±1.5	22	20	310	12
12	60000	55	110	40	100	160	155	90	2.5	92.5	34	605	495	510	210	514	224	350	555	9±1.5	26	20	470	16
13	83000	70	135	50	110	180	175	95	2.5	97.5	39	645	535	554	250	619	241	415	595	11±1.5	26	24	595	20
14	117000	70	135	50	110	210	205	105	2.5	107.5	42	720	610	629	250	642	278	415	665	9	26	32	890	32
16	160000	80	165	60	140	230	225	110	2.5	112.5	44	770	660	680	295	705	285	490	715	10	26	36	1137	40
17	202000	80	165	60	140	250	245	120	2.5	122.5	50	895	750	775	295	731	294	490	830	10	33	24	1660	56
18	244000	90	165	70	140	260	255	120	2.5	122.5	50	930	785	815	350	882	303	605	865	10	33	32	2100	66
19	295000	90	165	70	140	280	275	135	2.5	137.5	56	980	840	870	350	905.5	327.5	605	915	12	33	36	2200	82
20	354000	90	165	70	140	300	295	135	2.5	137.5	56	980	840	870	350	905.5	327.5	605	915	12	33	36	2300	75
21	392000	110	205	80	170	310	305	152	2.5	154.5	62	1115	935	960	400	996	354	700	1025	24	39	32	2930	110
22	450000	110	205	80	170	330	325	152	2.5	154.5	62	1115	935	960	400	996	354	700	1025	24	39	32	3100	95
23	513000	110	205	80	170	350	345	164	2.5	166.5	68	1210	1025	1056	400	1055	380	700	1120	28	39	36	3800	150
24	592000	110	205	80	170	360	355	164	2.5	166.5	68	1210	1025	1056	400	1055	380	700	1120	28	39	36	4300	125
25	684000	130	245	100	210	380	375	180	2.5	182.5	74	1320	1115	1150	475	1138	407	835	1220	29	45	36	5250	190
26	763000	130	245	100	210	400	395	180	2.5	182.5	74	1320	1115	1150	475	1138	407	835	1220	29	45	36	5660	160
27	852000	130	245	100	210	430	425	191	2.5	193.5	81	1460	1215	1248	475	1272	453	835	1345	31	52	32	6680	245
28	950000	130	245	100	210	450	445	191	2.5	193.5	81	1460	1215	1248	475	1272	453	835	1345	31	52	32	7180	205
29	1060000	150	245	110	210	460	450	197.5	5	202.5	87	1565	1320	1355	530	1367	483	945	1450	34	52	36	8500	305
30	1200000	150	245	110	210	480	470	197.5	5	202.5	87	1565	1320	1355	530	1367	483	945	1450	34	52	36	9070	255
31~36	根据用户要求供货 On request																							

1) 当d1≤100时公差为m6，当d1＞100时公差为n6
2) 不含胀紧盘与润滑油的重量
3) 有关平键（符合GB/T1095-1979）与中心孔请参Ⅲ页
4) 孔的分布类型见19 页
5) 当d2或d3≤160时公差为h6当d2或d3＞160时公差为g6

1) Shaft diameter d1≤100,tolerance m6; shaft diameter d1＞100,tolerace n6
2) Weight without shrink disk and oil
3) For parallel key(GB/T1095-1979) and centre hole see pageⅢ
4) For hole pattern,see page 19
5) Shaft diameter d2 or d3≤160,tolerance h6 Shaft diameter d2 or d3＞160,tolerance g6

型号FSP2KAZ/规格9...20/TypeFSP2KAZ/Sizes 9...20





按规定方向旋转
Dependency of direction of rotation on request

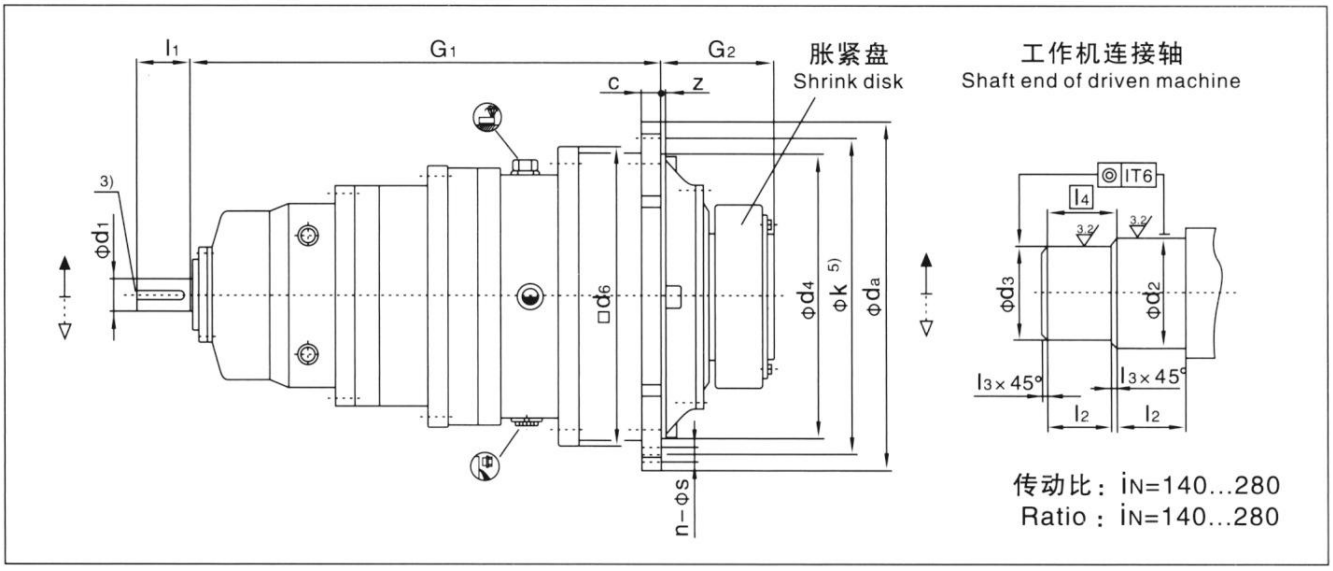
传动比：iN=112...500
Ratio：iN=112...500

FSP2KAZ 机座号 Size	额定输出扭矩 Nom.output torque T_{2N} (N.m)	输入轴尺寸 Input shaft dimension iN≤360 d_1 1)	l_1	iN≥400 d_1 1)	l_1	工作机连接轴 Shaft end of driven machine d_2 5)	d_3 5)	l_2	l_3	l_4	c	d_a	d_4 h7	d_6	e	G_1	G_2	G_3	k	z	法兰孔 Flange bolts 孔径 Diameter s	数量 Qty n	重量 2) Weight (kg)	油量 Oil quantity (l)
9	22000	30	70	25	60	120	115	65	2.5	67.5	24	428	350	356	119	360	165	320	388	6±1.5	18	24	165	6
10	31000	30	70	25	60	130	125	70	2.5	72.5	28	472	394	400	119	380	174	320	436	8±1.5	18	28	227	8
11	42000	35	80	28	60	140	135	82.5	2.5	85.0	32	525	425	436	137	419	204	375	485	8±1.5	22	20	320	12
12	60000	35	80	28	60	160	155	90	2.5	92.5	34	605	495	510	137	433	224	375	555	9±1.5	26	20	484	16
13	83000	45	100	35	80	180	175	95	2.5	97.5	39	645	535	554	172	518.5	241	445	595	11±1.5	26	24	618	20
14	117000	45	100	35	80	210	205	105	2.5	107.5	42	720	610	629	172	541.5	278	445	665	9	26	32	927	32
16	160000	55	110	40	100	230	225	110	2.5	112.5	44	770	660	680	194	632	285	520	715	10	26	36	1184	40
17	202000	55	110	40	100	250	245	120	2.5	122.5	50	895	750	775	194	658	294	520	830	10	33	24	1700	56
18	244000	70	135	50	110	260	255	120	2.5	122.5	50	930	785	815	240	741.5	303	615	865	10	33	32	2110	73
19	295000	70	135	50	110	280	275	135	2.5	137.5	56	980	840	870	240	764.5	327.5	615	915	12	33	36	2470	82
20	354000	70	135	50	110	300	295	135	2.5	137.5	56	980	840	870	240	764.5	327.5	615	915	12	33	36	2550	75
21~26	根据用户要求供货 On request																							

1) 当d1≤100时公差为m6，当d1>100时公差为n6
2) 不含胀紧盘与润滑油的重量
3) 有关平键（符合GB/T1095-1979）与中心孔请参Ⅲ页
5) 孔的分布类型见19页
4) 当d2或d3≤160时公差为h6，当d2或d3＞160时公差为g6

1) Shaft diameter d1≤100,tolerance m6; shaft diameter d1>100,tolerance n6
2) Weight without shrink disk and oil
3) For paralle key（GB/T1095-1979）and centre hoke see page Ⅲ
4) For hole pattern,see page 19
5) Shaft diameter d2 or d3≤160,tolerance h6
Shaft diameter d2 or d3＞160,tolerance g6

型号FSP3NAZ/规格9...36/TypeFSP3NAZ/Sizes9...36

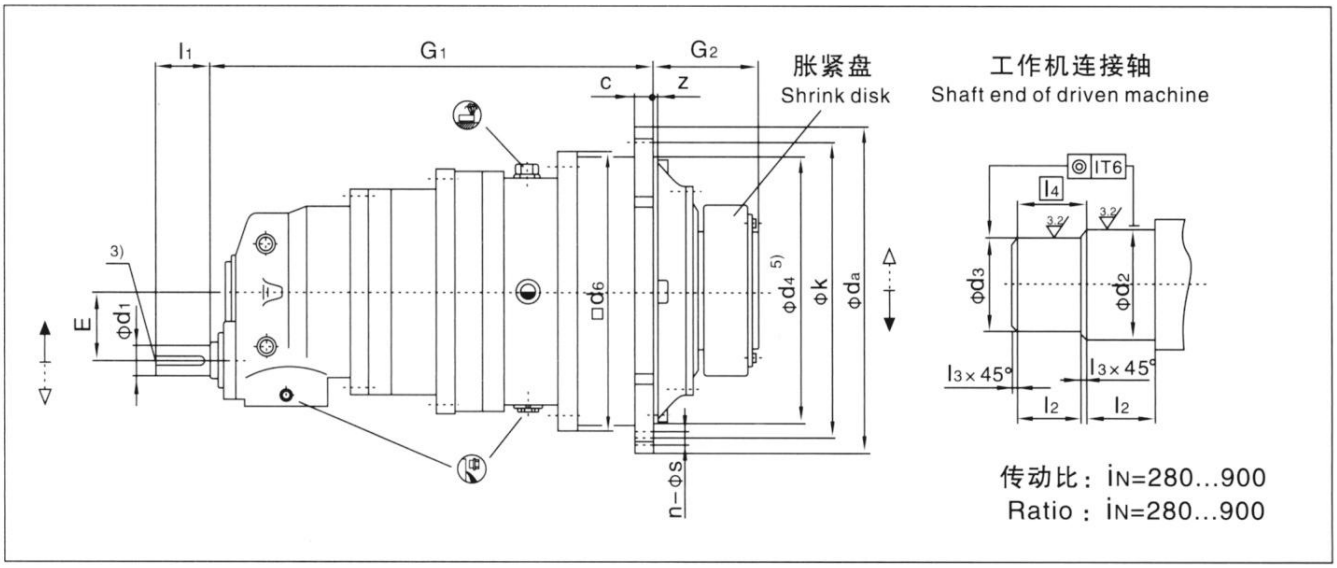


FSP2NAZ 机座号 Size	额定输出扭矩 Nom.output torque T_{2N} (N.m)	输入轴尺寸 Input shaft dimension d_1 1)	l_1	工作机连接轴 Shaft end of driven machine d_2 4)	d_3 4)	l_2	l_3	l_4	c	d_a	d_4 h7	d_6	G_1	G_2	k	z	法兰孔 Flange bolts 孔径 Diameter s	数量 Qty n	重量 Weight 2) (kg)	油量 Oil quantity (l)
9	22000	55	90	120	115	65	2.5	67.5	24	428	350	356	565	165	388	$6^{\pm1.5}$	18	24	152	7
10	31000	55	90	130	125	70	2.5	72.5	28	472	394	400	585	174	436	$8^{\pm1.5}$	18	28	205	9
11	42000	55	90	140	135	82.5	2.5	85.0	32	525	425	436	616	204	485	$8^{\pm1.5}$	22	20	295	13
12	60000	55	90	160	155	90	2.5	92.5	34	605	495	510	630	224	555	$9^{\pm1.5}$	26	20	447	17
13	83000	55	90	180	175	95	2.5	97.5	39	645	535	554	688	241	595	$11^{\pm1.5}$	26	24	567	21
14	117000	55	90	210	205	105	2.5	107.5	42	720	610	629	711	278	665	9	26	32	850	33
16	160000	70	120	230	225	110	2.5	112.5	44	770	660	680	853	285	715	10	26	36	1085	42
17	202000	70	120	250	245	120	2.5	122.5	50	895	750	775	879	294	830	10	33	24	1580	60
18	244000	80	140	260	255	120	2.5	122.5	50	930	785	815	1013.5	303	865	10	33	32	2000	70
19	295000	80	140	280	275	135	2.5	137.5	56	980	840	870	1036.5	327.5	915	12	33	36	2100	85
20	354000	80	140	300	295	135	2.5	137.5	56	980	840	870	1036.5	327.5	915	12	33	36	2200	75
21	392000	80	140	310	305	152	2.5	154.5	62	1115	935	960	1093	354	1025	24	39	32	2785	115
22	450000	80	140	330	325	152	2.5	154.5	62	1115	935	960	1093	354	1025	24	39	32	2950	105
23	513000	95	160	350	345	164	2.5	166.5	68	1210	1025	1056	1222	380	1120	28	39	36	3625	155
24	592000	95	160	360	355	164	2.5	166.5	68	1210	1025	1056	1222	380	1120	28	39	36	4100	135
25	684000	95	160	380	375	180	2.5	182.5	74	1320	1115	1150	1284.5	407	1220	29	45	36	5000	195
26	763000	95	160	400	395	180	2.5	182.5	74	1320	1115	1150	1284.5	407	1220	29	45	36	5400	170
27	852000	110	180	430	425	191	2.5	193.5	81	1460	1215	1248	1470	453	1345	31	52	32	6400	250
28	950000	110	180	450	445	191	2.5	193.5	81	1460	1215	1248	1470	453	1345	31	52	32	6875	220
29	1060000	110	180	460	450	197.5	5	202.5	87	1565	1320	1355	1517	483	1450	34	52	36	8190	310
30	1200000	110	180	480	470	197.5	5	202.5	87	1565	1320	1355	1517	483	1450	34	52	36	8715	280
31	1330000	120	210	480	470	232	5	237.0	94	1665	1400	1443	1585	540	1545	36	62	32	10700	390
32	1500000	120	210	510	500	232	5	237.0	94	1665	1400	1443	1585	540	1545	36	62	32	11200	360
33	1680000	130	210	530	520	242	5	247.0	100	1755	1495	1536	1710	573	1635	36	62	36	12950	470
34	1920000	130	210	570	560	242	5	247.0	100	1755	1495	1536	1710	573	1635	36	62	36	13800	430
35+36	根据用户要求供货 On request																			

1) 当d1≤100时公差为m6，当d1>100时公差为n6;
2) 不含胀紧盘与润滑油的重量;
3) 有关平键（符合GB/T1095-1979）与中心孔请参照Ⅲ页;
4) 孔的分布类型见19页;
5) 当d2或d3≤160时公差为h6，当d2或d3＞160时公差为g6

1) Shaft diameter d1≤100,tolerance m6;shaft diameter d1>100,tolerance n6
2) Weight without shrink disk and oil
3) For paralle key（GB/T1095-1979）and centre hoke see page Ⅲ
4) For hole pattern,see page 19
5) Shaft diameter d2 or d3≤160,tolerance h6
Shaft diameter d2 or d3＞160,tolerance g6

型号FSP3SAZ/规格9...36/TypeFSP3SAZ/Sizes 9...36

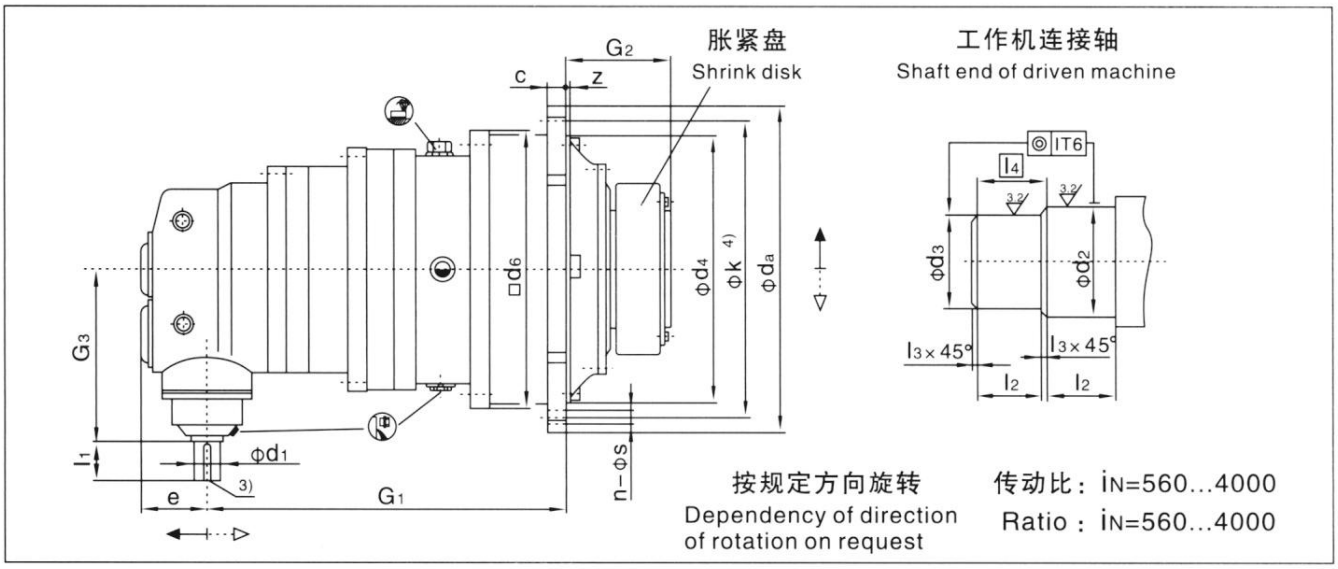


FSP3SAZ 机座号 Size	额定输出扭矩 Nom.ottput torque T_{2N} (N.m)	输入轴尺寸 Input shaft dimension d_1 1)	l_1	工作机连接轴 Shaft end of driven machine d_2 4)	d_3 4)	l_2	l_3	l_4	c	d_a	d_4 h7	d_6	E	G_1	G_2	k	z	法兰孔 Flange bolts 孔径 Dia-meter s	数量 Qty n	重量 Weight (kg) 2)	油量 Oil quan-tity (l)
9	22000	38	60	120	115	65	2.5	67.5	24	428	350	356	90	565	165	388	6±1.5	18	24	170	7
10	31000	38	60	130	125	70	2.5	72.5	28	472	394	400	90	585	174	436	8±1.5	18	28	230	9
11	42000	38	60	140	135	82.5	2.5	85.0	32	525	425	436	90	616	204	485	8±1.5	22	20	310	13
12	60000	38	60	160	155	90	2.5	92.5	34	605	495	510	90	630	224	555	9±1.5	26	20	460	17
13	83000	38	60	180	175	95	2.5	97.5	39	645	535	554	90	688	241	595	11±1.5	26	24	584	21
14	117000	38	60	210	205	105	2.5	107.5	42	720	610	629	90	711	278	665	9	26	32	875	33
16	160000	55	90	230	225	110	2.5	112.5	44	770	660	680	115	853	285	715	10	26	36	1115	42
17	202000	55	90	250	245	120	2.5	122.5	50	895	750	775	115	879	294	830	10	33	24	1625	60
18	244000	70	120	260	255	120	2.5	122.5	50	930	785	815	140	1013.5	303	865	10	33	32	2060	70
19	295000	70	120	280	275	135	2.5	137.5	56	980	840	870	140	1036.5	327.5	915	12	33	36	2160	85
20	354000	70	120	300	295	135	2.5	137.5	56	980	840	870	140	1036.5	327.5	915	12	33	36	2260	75
21	392000	70	120	310	305	152	2.5	154.5	62	1115	935	960	140	1093	354	1025	24	39	32	2870	115
22	450000	70	120	330	325	152	2.5	154.5	62	1115	935	960	140	1093	354	1025	24	39	32	3040	105
23	513000	80	140	350	345	164	2.5	166.5	68	1210	1025	1056	170	1222	380	1120	28	39	36	3730	155
24	592000	80	140	360	355	164	2.5	166.5	68	1210	1025	1056	170	1222	380	1120	28	39	36	4220	135
25	684000	80	140	380	375	180	2.5	182.5	74	1320	1115	1150	170	1284	407	1220	29	45	36	5150	195
26	763000	80	140	400	395	180	2.5	182.5	74	1320	1115	1150	170	1284	407	1220	29	45	36	5560	170
27	852000	90	160	430	425	191	2.5	193.5	81	1460	1215	1248	200	1470	453	1345	31	52	32	6580	250
28	950000	90	160	450	445	191	2.5	193.5	81	1460	1215	1248	200	1470	453	1345	31	52	32	7080	220
29	1060000	90	160	460	455	197.5	5	202.5	87	1565	1320	1355	200	1517	483	1450	34	52	36	8400	310
30	1200000	90	160	480	475	197.5	5	202.5	87	1565	1320	1355	200	1517	483	1450	34	52	36	8970	280
31	1330000	100	180	480	470	232	5	237.0	94	1665	1400	1443	230	1617	538	1545	36	62	32	11000	390
32	1500000	100	180	510	500	232	5	237.0	94	1665	1400	1443	230	1617	538	1545	36	62	32	11500	360
33	1680000	120	210	530	520	242	5	247.0	100	1755	1495	1536	265	1735	573	1635	36	62	36	13300	470
34	1920000	120	210	570	560	242	5	247.0	100	1755	1495	1536	265	1735	573	1635	36	62	36	14200	430
35 36	根据用户要求供货 On request																				

1) 当d1≤100时公差为m6，当d1>100时公差为n6;
2) 不含胀紧盘与润滑油的重量;
3) 有关平键（符合GB/T1095-1979）与中心孔请参Ⅲ页;
4) 孔的分布类型见19页;
5) 当d2或d3≤160时公差为h6当d2或d3＞160时公差为g6

1) Shaft diameter d1≤100,tolerance m6;shaft diameter d1>101 tolerance n6
2) Weight without shrink disk and oil
3) For parallel key (GB/T1095-1979)and centre hoke see page Ⅲ
4) For hole pattern,see page 19
5) Shaft diameter d2 or d3≤160,tolerance h6
Shaft diameter d2 or d3＞160,tolerance g6

型号FSP3KAZ/规格9...30/TypeFSP3KAZ/Sizes9...30



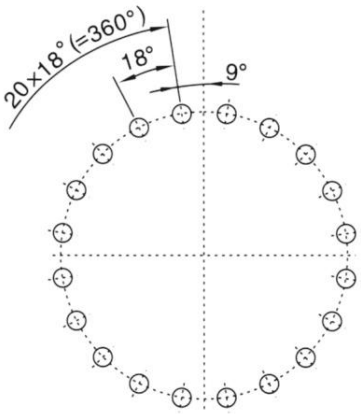
FSP3KAZ 机座号 Size	额定输出扭矩 Nom.ottput torque T_{2N} (N.m)	输入轴尺寸 Input shaft dimension iN≤2000 d1 1)	l1	iN≥2240 d1 1)	l1	工作机连接轴 Shaft end of driven machine d2 5)	d3 5)	l2	l3	l4	c	da	d4 h7	d6	e	G1	G2	G3	k	z	法兰孔 Flange bolts 孔径 Diameter s	数量 Qty n	重量 Weight 2) (kg)	油量 Oil quantity (l)
9	22000	30	70	25	60	120	115	65	2.5	67.5	24	428	350	356	119	456	165	320	388	6±1.5	18	24	180	7
10	31000	30	70	25	60	130	125	70	2.5	72.5	28	472	394	400	119	476	174	320	436	8±1.5	18	28	240	9
11	42000	30	70	25	60	140	135	82.5	2.5	85	32	525	425	436	119	507	204	320	485	8±1.5	22	20	315	15
12	60000	30	70	25	60	160	155	90	2.5	92.5	34	605	495	510	119	521	224	320	555	9±1.5	26	20	470	20
13	83000	30	70	25	60	180	175	95	2.5	97.5	39	645	535	554	119	579	241	320	595	11±1.5	26	24	595	21
14	117000	30	70	25	60	210	205	105	2.5	107.5	42	720	610	629	119	602	278	320	665	9	26	32	890	33
16	160000	35	80	28	60	230	225	100	2.5	112.5	44	770	660	680	137	693	285	375	715	10	26	36	1137	42
17	202000	35	80	28	60	250	245	120	2.5	122.5	50	895	750	775	137	719	294	375	830	10	33	24	1660	60
18	244000	45	100	35	80	260	255	120	2.5	122.5	50	930	785	815	172	818	303	445	865	10	33	32	2100	70
19	295000	45	100	35	80	280	275	135	2.5	137.5	56	980	840	870	172	841	327.5	445	915	12	33	36	2200	85
20	354000	45	100	35	80	300	295	135	2.5	137.5	56	980	840	870	172	841	327.5	445	915	12	33	36	2300	75
21	392000	45	100	35	80	310	305	152	2.5	154.5	62	1115	935	960	172	897.5	354	445	1025	24	39	32	2930	115
22	450000	45	100	35	80	330	325	152	2.5	154.5	62	1115	935	960	172	897.5	354	445	1025	24	39	32	3100	105
23	513000	55	110	40	100	350	345	164	2.5	166.5	68	1210	1025	1056	194	1003	380	520	1120	28	39	36	3800	155
24	592000	55	110	40	100	360	355	164	2.5	166.5	68	1210	1025	1056	194	1003	380	520	1120	28	39	36	4300	135
25	684000	55	110	40	100	380	375	180	2.5	182.5	74	1320	1115	1150	194	1065	407	520	1220	29	45	36	5250	135
26	763000	55	110	40	100	400	395	180	2.5	182.5	74	1320	1115	1150	194	1065	407	520	1220	29	45	36	5660	170
27	852000	70	135	50	110	430	425	191	2.5	193.5	81	1460	1215	1248	240	1205.5	453	615	1345	31	52	32	6680	250
28	950000	70	135	50	110	450	445	191	2.5	193.5	81	1460	1215	1248	240	1205.5	453	615	1345	31	52	32	7180	220
29	1060000	70	135	50	110	460	450	197.5	5	202.5	87	1565	1320	1355	240	1252.5	483	615	1450	34	52	36	8500	310
30	1200000	70	135	50	110	480	470	197.5	5	202.5	87	1565	1320	1355	240	1252.5	483	615	1450	34	52	36	9070	280
31~36	根据用户要求供货 On request																							

1) 当d1≤100时公差为m6，当d1>100时公差为n6；
2) 不含胀紧盘与润滑油的重量；
3) 有关平键（符合GB/T1095-1979）与中心孔请参Ⅲ页；
4) 孔的分布类型见19页；
5) 当d2或d3≤160时公差为h6，当d2或d3>160时公差为g6

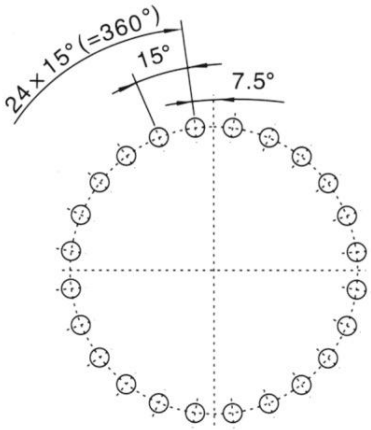
1) Shaft diameter d1≤100,tolerance m6;shaft diameter d1>100,tolerance n6
2) Weight without shrink disk and oil
3) For paralle key（GB/T1095-1979）and centre hole see page Ⅲ
4) For hole pattern,see page 19
5) Shaft diameter d2 or d3≤160,tolerance h6
Shaft diameter d2 or d3>160,tolerance g6

输出法兰孔布置形式 / Hole Patterns on Output Flange

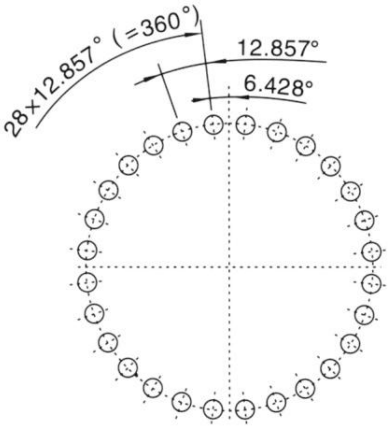
从 输 出 端 看
Viewing on output shaft



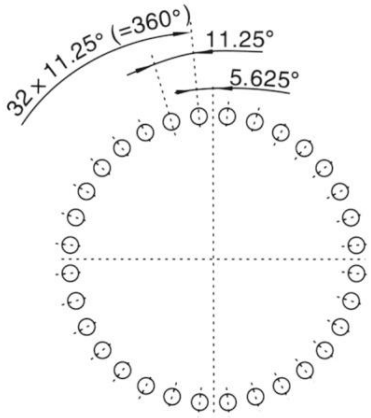
规格/Size：11、12



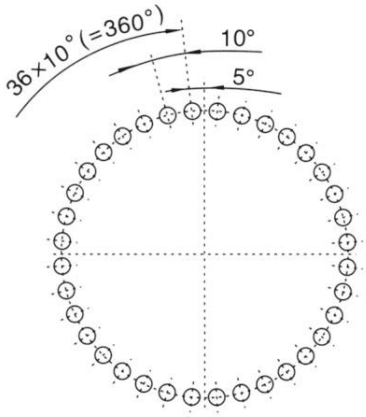
规格/Size：9、13、17



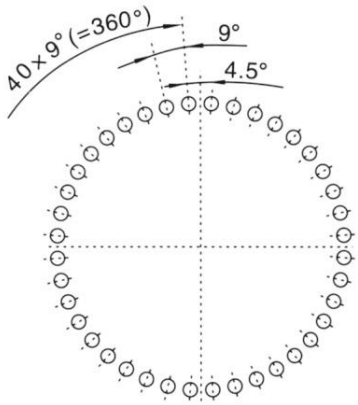
规格/Size：10



规格/Size：14、18、21、22、27、28、31、32



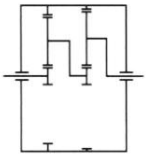
规格/Size：16、19、20、23、24、25、26、29、30、33、34



规格/Size：35、36

型号FSP2N...FSP2S../实际传动比/Types FSP2N...FSP2S../Actual ratios

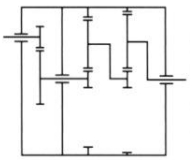
FSP2N..



i_N=25...40

规格 Size FSP2N..	实际传动比 Actual Ratios				
	25	28	31.5	35.5	40
9	25.634	28.058	31.142	35.201	40.781
10	25.634	28.058	31.142	35.201	40.781
11	25.875	28.233	31.207	35.072	40.301
12	24.983	27.260	30.130	33.863	38.912
13	24.958	27.318	30.321	34.272	39.706
14	24.958	27.318	30.321	34.272	39.706
16	24.750	27.090	30.068	33.987	39.375
17	24.750	27.090	30.068	33.987	39.375
18	24.958	27.318	30.321	34.272	39.706
19/20	26.622	29.139	32.342	36.557	42.353
21/22	26.622	29.139	32.342	36.557	42.353
23/24	26.872	29.321	32.409	36.424	41.855
25/26	26.872	29.321	32.409	36.424	41.855
27/28	26.622	29.139	32.342	36.557	42.353
29/30	26.622	29.139	32.342	36.557	42.353
31/32	26.872	29.321	32.409	36.424	41.855
33/34	26.622	29.139	32.342	36.557	42.353
35/36	26.872	29.321	32.409	36.424	41.855

FSP2S..

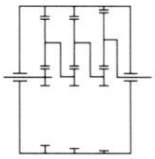


i_N=45...125

规格 Size FSP2S..	实际传动比 Actual Ratios									
	45	50	56	63	71	80	90	100	112	125
9	45.601	51.544	59.715	61.953	71.775	78.782	91.272	99.735	115.55	124.74
10	45.601	51.544	59.715	61.953	71.775	78.782	91.272	99.735	115.55	124.74
11	43.209	48.561	55.802	63.399	72.853	81.303	93.426	99.678	114.54	123.14
12	41.719	46.887	53.878	61.213	70.340	78.499	90.205	96.241	110.59	118.90
13	43.797	49.505	57.353	59.977	69.485	78.827	91.324	95.963	111.18	119.12
14	43.797	49.505	57.353	59.977	69.485	78.827	91.324	95.963	111.18	119.12
16	42.318	47.833	55.417	61.438	71.178	78.788	91.278	96.594	111.91	120.31
17	42.318	47.833	55.417	61.438	71.178	78.788	91.278	96.594	111.91	120.31
18	42.867	48.454	56.136	60.320	69.882	78.976	91.496	95.963	111.18	119.12
19/20	45.725	51.684	59.878	64.341	74.541	84.241	97.596	102.36	118.59	127.06
21/22	46.357	52.399	60.706	66.084	76.561	84.746	98.182	103.90	120.37	129.4
23/24	45.373	50.993	58.597	64.442	74.051	82.781	95.124	101.60	116.75	125.5
25/26	45.373	50.993	58.597	64.442	74.051	82.781	95.124	101.60	116.75	125.5
27/28	46.948	53.067	61.480	66.345	76.863	84.241	97.596	102.36	118.59	127.0
29/30	46.948	53.067	61.480	66.345	76.863	84.241	97.596	102.36	116.59	127.0
31/32	45.575	51.221	58.858	66.102	75.958	83.932	96.448	104.30	119.86	127.5
33/34	45.481	51.409	59.559	66.345	76.863	84.241	97.596	104.69	121.28	129.0
35/36	45.373	50.993	58.597	65.562	75.338	81.252	93.368	100.53	115.52	129.2

型号FSP3N...FSP3S../实际传动比/Types FSP3N...FSP3S../Actual ratios

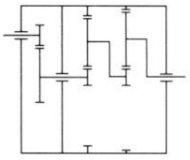
FSP3N..



i_N=140...280

规格 Size TP3N..	实际传动比 Actual Ratios						
	140	160	180	200	225	250	280
9	146.81	165.95	192.25	210.43	233.57	264.01	305.86
10	146.81	165.95	192.25	210.43	233.57	264.01	305.86
11	147.12	165.34	189.99	207.96	230.82	260.90	302.26
12	142.04	159.64	183.44	200.79	222.86	251.90	291.84
13	142.94	161.57	187.19	204.88	227.41	257.04	297.79
14	142.94	161.57	187.19	204.88	227.41	257.04	297.79
16	143.08	161.73	187.37	204.45	225.98	253.97	291.84
17	143.08	161.73	187.37	204.45	225.98	253.97	291.84
18	142.94	161.57	187.19	204.88	227.41	257.04	297.79
19/20	152.47	172.34	199.66	218.54	242.57	274.18	317.65
21/22	152.47	172.34	199.66	218.54	242.57	274.18	317.65
23/24	152.79	171.71	197.32	215.97	239.71	270.95	313.91
25/26	152.79	171.71	197.32	215.97	239.71	270.95	313.91
27/28	152.47	172.34	199.66	218.54	242.57	274.18	317.65
29/30	152.47	172.34	199.66	218.54	242.57	274.18	317.65
31/32	152.79	171.71	197.32	215.97	239.71	270.95	313.91
33/34	153.90	173.96	201.54	219.91	243.07	273.18	313.91
35/36	154.22	173.33	199.17	217.32	240.21	269.96	310.22

FSP3S..

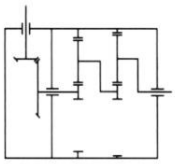


i_N=280...900

规格 Size TP3S..	实际传动比 Actual Ratios										
	280	315	355	400	450	500	560	630	710	800	900
9	295.21	333.68	386.58	401.07	464.65	510.01	590.87	645.65	748.01	807.55	935.57
10	295.21	333.68	386.58	401.07	464.65	510.01	590.87	645.65	748.01	807.55	935.57
11	295.82	332.46	382.03	399.60	459.18	508.15	583.92	643.29	739.21	798.04	924.56
12	285.62	320.99	368.86	385.82	443.35	490.62	563.78	621.11	713.72	770.53	892.68
13	287.42	324.88	376.39	390.49	452.40	496.56	575.29	628.63	728.29	786.25	910.90
14	287.42	324.88	376.39	390.49	452.40	496.56	575.29	628.63	728.29	786.25	910.90
16	268.53	303.53	351.65	396.27	459.10	508.18	588.75	623.03	721.81	776.02	891.73
17	268.53	303.53	351.65	396.27	459.10	508.18	588.75	623.03	721.81	776.02	891.73
18	283.53	320.48	371.29	388.27	449.83	510.30	591.20	621.23	719.72	771.13	893.38
19/20	302.43	341.84	396.04	414.16	479.81	544.32	630.61	662.65	767.70	822.54	952.94
21/22	302.43	341.84	396.04	414.16	479.81	544.32	630.61	662.65	767.70	822.54	952.94
23/24	295.28	331.86	381.34	426.24	489.80	546.61	628.12	670.15	770.08	829.80	961.35
25/26	295.28	331.86	381.34	426.24	489.80	546.61	628.12	670.15	770.08	829.80	961.35
27/28	296.01	334.59	387.63	416.52	482.56	545.35	631.81	662.65	767.70	822.54	952.94
29/30	296.01	334.59	387.63	416.52	482.56	545.35	631.81	662.65	767.70	822.54	952.94
31/32	300.72	337.97	388.37	426.24	489.80	546.61	628.12	670.15	770.08	827.92	959.17
33/34	292.05	330.11	382.45	417.18	483.31	535.90	620.86	657.74	762.02	819.53	941.73
35/36	292.66	328.90	377.95	415.65	477.63	533.94	613.55	655.34	753.05	809.89	930.65

型号FSP2L...FSP2K..FSP3K../实际传动比/Types FSP2L...FSP2K..FSP3K../Actual ratios

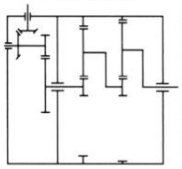
FSP2L..



i_N=31.5...100

规格 Size FSP2L..	实际传动比 Actual Ratios										
	31.5	35.5	40	45	50	56	63	71	80	90	100
9	32.5354	35.6114	39.5264	43.8820	50.4205	55.7279	60.4522	69.6116	79.0529	86.2395	98.217
10	32.5354	35.6114	39.5264	43.8820	50.4205	55.7279	60.4522	69.6116	79.0529	86.2395	98.217
11	32.8413	35.8344	39.6083	43.4178	50.5248	55.8432	60.5774	69.7558	79.9667	86.4181	98.420
12	31.7089	34.5987	38.2425	41.9206	48.7826	53.9176	58.4885	67.3504	77.2092	83.4381	95.026
13	31.6775	34.6724	38.4842	42.1855	49.0910	54.2584	62.3262	67.7760	77.6972	83.9655	95.627
14	31.6775	34.6724	38.4842	42.1855	49.0910	54.2584	62.3262	67.7760	77.6972	83.9655	95.627
16	31.4135	34.3835	38.1635	41.8340	48.6818	53.8062	61.8068	67.2113	77.0497	83.2657	94.830
17	31.4135	34.3835	38.1635	41.8340	48.6818	53.8062	61.8068	67.2113	77.0497	83.2657	94.830
18	31.4286	34.4000	38.1818	43.1490	49.0910	54.8663	62.3262	67.7760	77.6972	83.9655	95.627
19/20	33.5238	36.6933	40.7273	46.0255	52.3636	58.5241	66.4813	72.2944	82.8770	89.5631	102.002
21/22	33.5238	36.6933	40.7273	46.0255	52.3636	58.5241	66.4812	72.2944	82.8770	89.5631	102.002
23/24	33.8391	36.9231	40.8116	46.1208	52.4720	58.6452	66.6189	72.4441	83.0486	89.7486	102.213
25/26	33.8391	36.9231	40.8116	46.1208	52.1366	58.6452	66.6189	72.4441	83.0486	89.7486	102.213
27/28	33.5238	36.6933	40.7273	46.0255	52.0288	58.5241	66.4813	72.2944	82.8770	89.5631	102.002
29/30	33.5238	36.6933	40.7273	46.0255	52.0288	58.5241	66.4813	72.2944	82.8770	89.5631	102.002

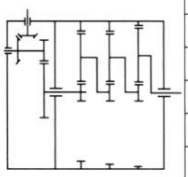
FSP2K..



i_N=112...500

规格 Size FSP2K..	实际传动比 Actual Ratios													
	112	125	140	160	180	200	225	250	280	320	360	400	450	500
9	111.25	125.75	145.69	157.28	175.77	203.53	223.22	242.15	278.84	316.65	345.44	393.42	442.27	487.63
10	111.25	125.75	145.69	157.28	175.77	203.53	223.22	242.15	278.84	316.65	345.44	393.42	442.27	487.63
11	111.83	125.68	144.42	155.27	173.52	200.92	220.36	239.04	275.26	312.60	341.01	388.38	436.6	481.38
12	107.97	121.35	139.44	149.91	167.54	193.99	212.76	230.80	265.77	301.82	329.25	374.98	421.54	464.78
13	107.76	121.80	141.11	151.19	167.85	192.86	213.16	231.23	266.26	302.38	329.86	375.68	422.33	465.64
14	107.76	121.80	141.11	151.19	167.85	192.86	213.16	231.23	266.26	302.38	329.86	375.68	422.33	465.64
16	108.47	122.60	142.04	153.05	167.77	195.23	215.79	234.08	269.55	309.00	333.93	380.31	427.53	471.38
17	108.47	122.60	142.04	153.05	167.77	195.23	215.79	234.08	269.55	309.00	333.93	380.31	427.53	471.38
18	107.76	121.80	141.11	151.19	165.73	192.86	213.16	244.85	266.26	305.24	329.86	375.68	422.33	465.64
19/20	114.94	129.92	150.52	161.27	176.78	205.71	227.37	261.18	284.01	325.59	351.86	400.72	450.48	496.68

FSP3K..

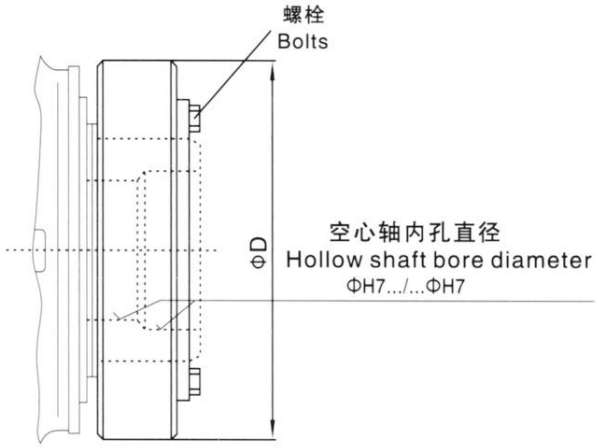


i_N=560...4000

规格 Size FSP3K..	实际传动比 Actual Ratios																	
	560	630	710	800	900	1000	1120	1250	1400	1600	1800	2000	2240	2500	2800	3150	3550	4000
9	566.22	640.02	700.53	777.54	878.88	982.19	1137.3	1247.3	1353.1	1558.1	1769.4	1930.3	2198.4	2471.3	2724.8	3105.0	3597.2	4167.5
10	566.22	640.02	700.53	777.54	878.88	982.19	1137.3	1247.3	1353.1	1558.1	1769.4	1930.3	2198.4	2471.3	2724.8	3105.0	3597.2	41.67.5
11	567.40	637.68	697.96	774.70	875.66	978.60	1133.1	1242.8	1348.1	1552.4	1762.9	1923.2	2190.3	2462.3	2714.8	3093.6	3584.1	4118.5
12	547.83	615.69	673.90	747.98	845.46	944.85	1094.0	1199.9	1301.6	1498.9	1702.1	1856.9	2114.8	2377.4	2621.2	2986.9	3460.5	3976.5
13	551.29	623.14	682.06	757.04	855.70	956.30	1107.3	1214.4	1317.4	1517..0	1722.8	1879.4	2140.4	2406.1	2652.9	3023.1	3502.4	4057.6
14	551.29	623.14	682.06	757.04	855.70	956.30	1107.3	1214.4	1317.4	1517.0	1722.8	1897.4	2140.4	2406.1	2652.9	3032.1	3502.4	4057.6
16	551.25	623.09	679.88	751.48	844.56	943.84	1092.9	1198.6	1300.2	1497.3	1700.3	1854.9	2112.5	2374.8	2618.4	2983.8	3428.7	39*72.2
17	551.25	623.09	679.88	751.48	844.56	943.84	1092.9	1198.6	1300.2	1497.3	1700.3	1854.9	2112.5	2374.8	2618.4	2983.8	3428.7	3972.2
18	544.28	615.21	673.37	747.40	844.81	937.90	1077.6	1191.1	1292.1	1487.8	1689.6	1843.2	2099.2	2359.9	2601.9	2965.0	3435.0	3979.6
19/20	580.56	656.22	718.27	797.23	901.13	1000.4	1149.5	1270.5	1378.2	1587.0	1802.3	1966.1	2239.2	2517.2	2775.4	3162.6	3664.0	4244.9
21/22	580.56	656.22	718.27	797.23	901.13	1000.4	1149.5	1270.5	1378.2	1587.0	1802.3	1966.1	2239.2	2517.2	2775.4	3162.6	3664.0	4244.9
23/24	593.88	667.44	730.55	810.87	916.54	1004.7	1169.1	1292.2	1401.8	1614.2	1850.4	1999.7	2277.5	2560.2	2822.8	3216.7	3726.7	4282.4
25/26	593.88	667.44	730.55	810.87	916.54	1004.7	1169.1	1292.2	1401.8	1614.2	1850.4	1999.7	2277.5	2560.2	2822.8	3216.7	3726.7	4282.4
27/28	580.56	656.22	718.27	797.23	901.13	987.80	1149.5	1270.5	1459.4	1587.0	1819.3	1966.1	2239.2	2517.2	2775.4	3126.6	3664.0	4244.9
29/30	580.56	656.22	718.27	797.23	901.13	987.80	1149.5	1270.5	1459.4	1587.0	1819.3	1966.1	2239.2	2517.2	2775.4	3126.6	3664.0	4244.9

规格 9...36 / 带胀紧盘空心输出轴 / Size 9...36 / Hollow Output Shaft for Shrink Disk

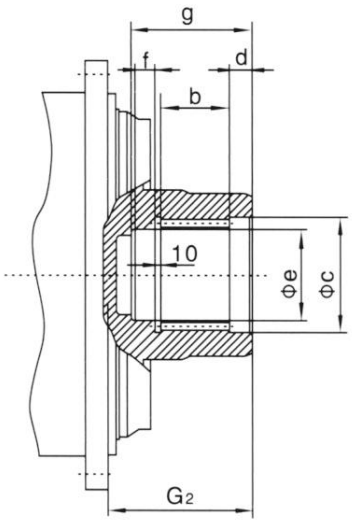
FSP..AZ



机座号 Size	输出扭矩 Output torque T_{2N} (N.m)	胀紧盘 Shrink disk			
		内径 Size	D	螺栓 Bolts	重量 Weight (kg)
9	22000	155	263	M12	15
10	31000	165	290	M16	22
11	42000	185	330	M16	37
12	60000	220	370	M16	54
13	83000	240	405	M20	67
14	117000	280	460	M20	102
16	160000	300	485	M20	118
17	202000	320	520	M20	131
18	244000	340	570	M20	186
19	295000	360	590	M20	204
20	354000	380	650	M24	250
21	392000	390	650	M24	250
22	450000	420	670	M24	300
23	513000	440	740	M24	400
24	592000	460	770	M24	420
25	684000	480	800	M24	500
26	763000	500	850	M27	570
27	852000	530	910	M27	740
28	950000	560	940	M27	770
29	1060000	560	940	M27	770
30	1200000	590	980	M27	900
31	1330000	590	980	M30	900
32	1500000	620	1020	M30	1080
33	1680000	660	1070	M33	1178
34	1920000	700	1140	M33	1345
35	2240000	750	1150	M33	1346
36	2600000	800	1230	M33	1646

规格 9...30 / 渐开线花键空心输出轴 / Size 9...30 / Hollow Output Shaft with Involute Spling

FSP..AH



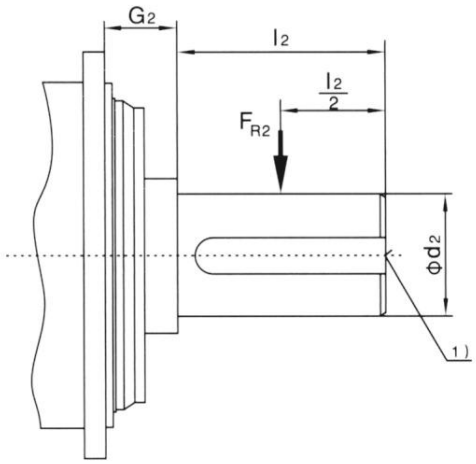
机座号 Size	输出扭矩 Output torque T_{2N} (N.m)	渐开线花键空心输出轴 Hollow output shaft with involute splines							
		内花键规格 Involute splines acc.to DIN 5480[1]	b	c H7	d	e H7	f	G_2	g
9	22000	120x5x30x22x9H	70	122	40	107	20	165	150
10	31000	130x5x30x24x9H	80	132	40	117	20	174	160
11	42000	140x5x30x26x9H	90	142	45	125	25	204	180
12	60000	160x5x30x30x9H	100	162	45	145	25	223	190
13	83000	180x5x30x34x9H	110	182	45	165	25	237	200
14	117000	210x5x30x40x9H	125	212	45	195	25	264	215
16	160000	240x8x30x28x9H	140	242	50	220	25	285	235
17	202000	250x8x30x30x9H	150	252	50	230	30	290	250
18	244000	260x8x30x31x9H	160	262	50	240	30	303	260
19	295000	280x8x30x34x9H	170	282	50	260	30	327.5	270
20	354000	300x8x30x36x9H	180	302	50	280	30	327.5	280
21	392000	310x8x30x37x9H	190	312	50	290	40	354	310
22	450000	330x8x30x40x9H	200	332	60	310	40	354	320
23	513000	340x8x30x41x9H	200	342	60	320	40	348	320
24	592000	360x8x30x44x9H	220	362	60	340	40	368	340
25	684000	380x8x30x46x9H	230	382	60	360	40	372	350
26	763000	400x8x30x48x9H	240	402	60	380	40	382	360
27	852000	440x8x30x54x9H	250	442	60	420	40	423	370
28	950000	450x8x30x55x9H	260	452	65	430	40	428	385
29	1060000	460x8x30x56x9H	270	462	65	440	45	433	400
30	1200000	480x8x30x58x9H	285	482	65	460	45	448	415

1) 可提供GB3478标准渐开线花键，如需要请联系我们

1) Involute splines GB3478 can be supplied ,please refer to us if required

规格 9...36 / 带平键实心输出轴 / Size 9...36 / Solid Output Shaft with Parallel Key

FSP..BS



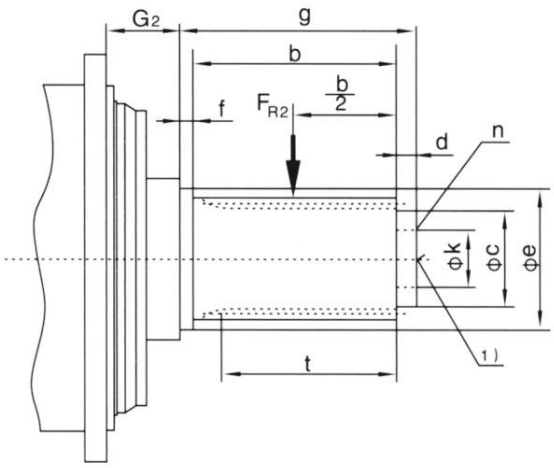
机座号 Size	输出扭矩 Output torque T_{2N} (N.m)	实心轴 Solid shaft			
		d_2 n6	l_2	G_2	F_{R2}
9	22000	120	210	95	请咨询 Please consultus
10	31000	130	210	95	
11	42000	150	240	109	
12	60000	160	270	106	
13	83000	180	310	118	
14	117000	210	350	139	
16	160000	230	350	142	
17	202000	250	400	139	
18	244000	260	400	134	
19	295000	280	450	148.5	
20	354000	300	500	148.5	
21	392000	310	500	158	
22	450000	330	500	158	
23	513000	350	550	175	
24	592000	360	590	175	
25	684000	380	590	182	
26	763000	400	650	182	
27	852000	430	690	196.5	
28	950000	450	790	196.5	
29	1060000	460	750	209	
30	1200000	480	790	209	
31	1330000	500	790	232	
32	1500000	510	850	232	
33	1680000	530	900	251	
34	1920000	570	950	251	
35	2240000	600	1000	267	
36	2600000	640	1000	267	

1）有关平键（符合GB/T1095-1979）与中心孔请参照Ⅲ页；

1）For parallel key (GB/T1095-1979)and centre hole see pageⅢ

规格 9...30 / 渐开线花键实心输出轴 / Size 9...30 / Solid Output Shaft with Involute Splin

FSP..BH



机座号 Size	输出扭矩 Output torque T_{2N} (N.m)	渐开线花键空心输出轴 Solid output shaft with involute splines											
		外花键规格 Involute splines acc.to DIN 5480 2)	t	b	c k6	d	e k6	f	g	k	n	G_2	FR2
9	22000	130x5x30x24x8m	70	80	110	20	132	20	120	80	3xM16x24	95	请咨询 Please consult us
10	31000	140x5x30x26x8m	80	90	120	20	142	20	130	90	3xM16x24	95	
11	42000	160x5x30x30x8m	90	100	140	25	162	25	150	110	3xM16x24	109	
12	60000	180x5x30x34x8m	100	110	90	25	182	25	160	130	3xM16x24	106	
13	83000	200x5x30x38x8m	110	120	100	30	202	25	175	140	3xM16x24	118	
14	117000	220x5x30x42x8m	125	135	120	30	222	30	195	160	3xM16x24	139	
16	160000	250x8x30x30x8m	140	155	140	35	252	30	220	185	3xM20x30	142	
17	202000	260x8x30x31x8m	150	165	155	40	262	35	240	200	3xM20x30	139	
18	244000	280x8x30x34x8m	160	175	170	40	282	35	250	215	3xM20x30	134	
19	295000	300x8x30x36x8m	170	185	180	40	302	35	260	225	3xM20x30	148.5	
20	354000	310x8x30x37x8m	180	195	190	40	312	35	270	235	6xM20x30	148.5	
21	392000	320x8x30x38x8m	190	205	200	40	322	35	280	250	6xM20x30	158	
22	450000	340x8x30x41x8m	200	215	210	40	342	35	290	265	6xM20x30	158	
23	513000	360x8x30x44x8m	200	215	230	40	362	35	290	275	6xM20x30	175	
24	592000	380x8x30x46x8m	220	235	245	40	382	35	310	290	6xM20x30	175	
25	684000	400x8x30x48x8m	230	245	260	40	402	35	320	310	6xM24x36	182	
26	763000	420x8x30x51x8m	240	255	280	40	422	35	330	330	6xM24x36	182	
27	852000	440x8x30x54x8m	250	265	310	40	442	35	340	370	6xM24x36	196.5	
28	950000	450x8x30x55x8m	260	275	330	45	452	40	360	380	6xM24x36	196.5	
29	1060000	460x8x30x56x8m	270	285	340	45	462	40	370	390	6xM24x36	209	
30	1200000	480x8x30x58x8m	285	300	360	45	482	40	385	410	6xM24x36	209	

1) 有关平键（符合GB/T1095-1979）与中心孔请参照Ⅲ页

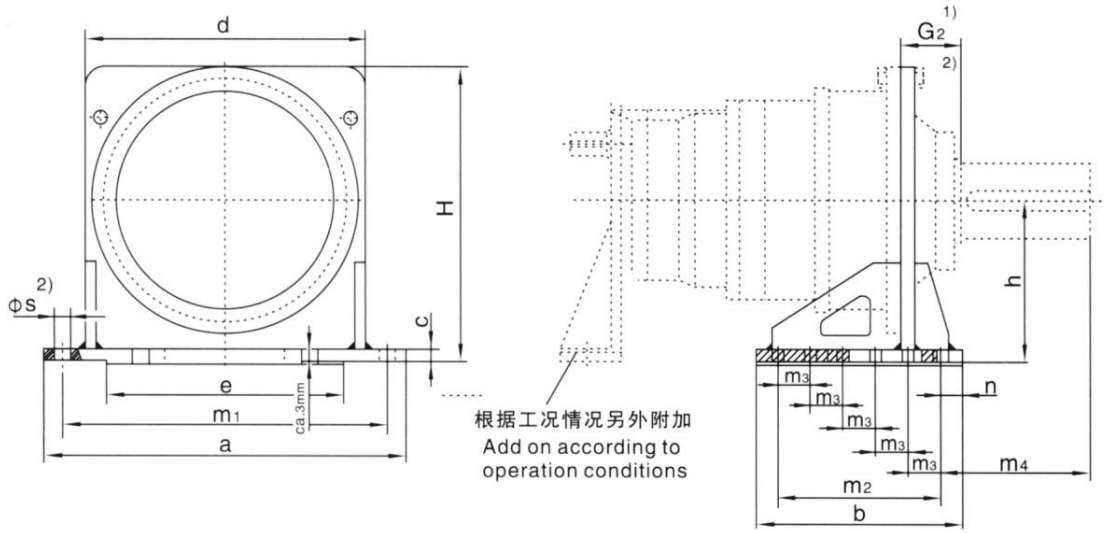
2) 可提供GB3478标准渐开线花键，如需要请联系我们

1) For parallel key (GB/T1095-1979)and centre hole see pageⅢ

2) Involute splines GB3478 can be supplied ,please refer to us if required

附　件 / Add-on Piece

减速器底座 / Gear Housing Base



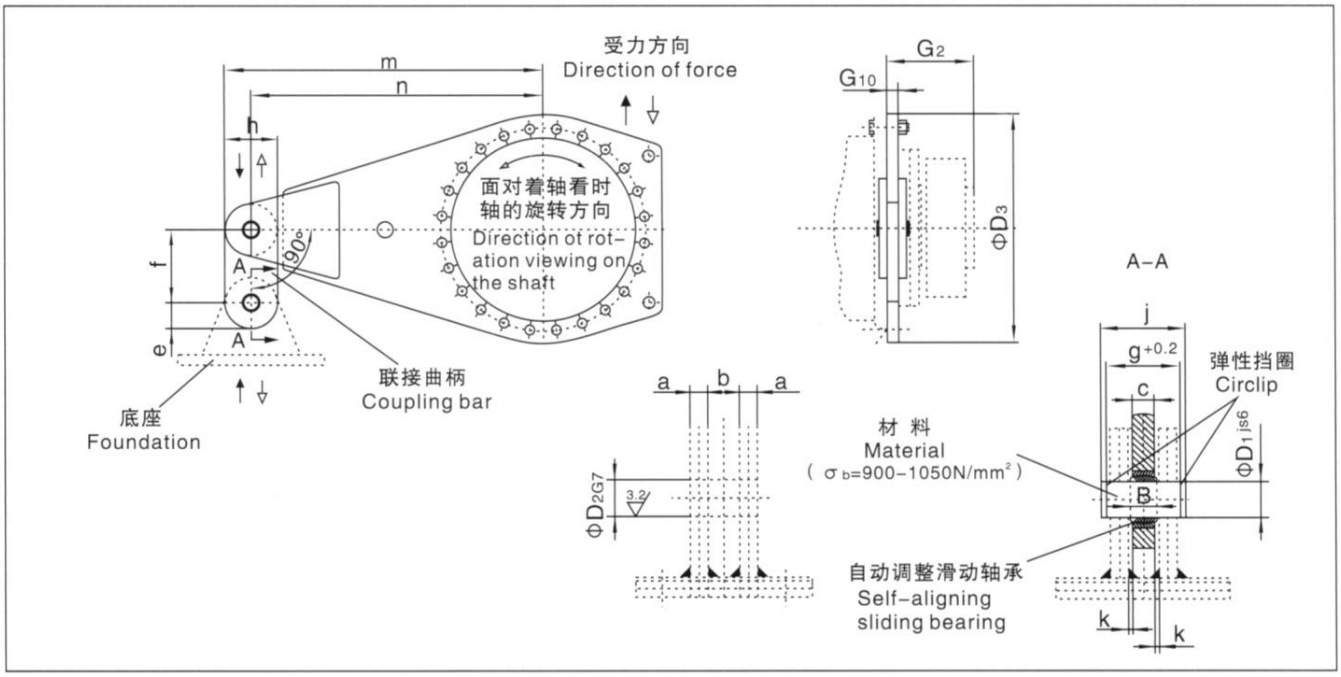
尺　寸　Dimensions															
机座号 Size	a	b	c	d	e	h	H	m_1	m_2	m_3	m_4	N	螺栓孔 Foundation bolt s	螺栓孔 Foundation bolt 数量 Qty	重量 Weight
9	580	330	20	450	380	260	480	520	260	130	240	35	26	2x3	56
10	630	360	25	500	430	280	525	570	290	145	240	35	26	2x3	82
11	680	400	30	550	480	315	585	620	330	110	274	35	26	2x4	122
12	760	450	30	630	560	360	670	700	380	95	292	35	26	2x5	157
13	820	490	35	680	610	390	720	750	420	105	334	35	26	2x5	213
14	920	560	35	760	680	430	800	840	480	120	380	40	33	2x5	270
16	980	580	40	820	700	470	865	900	500	125	374	40	33	2x5	350
17	1130	670	45	940	810	540	998	1040	580	145	405	45	39	2x5	520
18	1180	720	45	980	830	560	1035	1080	620	155	385	50	39	2x5	580
19	1260	760	50	1050	880	590	1090	1160	640	160	450	60	45	2x5	720
20	1260	760	50	1050	880	590	1090	1160	640	160	500	60	45	2x5	720
21	1440	840	55	1170	1020	660	1228	1320	700	175	513	70	52	2x5	940
22	1440	840	55	1170	1020	660	1228	1320	700	175	513	70	52	2x5	940
23	1540	910	60	1270	1100	730	1345	1420	750	150	567	80	52	2x6	1275
24	1540	910	60	1270	1100	730	1345	1420	750	150	607	80	52	2x6	1275
25	1700	1000	65	1400	1240	795	1465	1550	860	215	574	70	62	2x5	1670
26	1700	1000	65	1400	1240	795	1465	1550	860	215	634	70	62	2x5	1670
27	1850	1100	70	1550	1370	870	1610	1700	950	190	664	75	62	2x6	2170
28	1850	1100	70	1550	1370	870	1610	1700	950	190	724	75	62	2x6	2170
29	1980	1180	75	1640	1460	925	1715	1820	1000	250	731	90	70	2x5	2650
30	1980	1180	75	1640	1460	925	1715	1820	1000	250	771	90	70	2x5	2650
31	2150	1300	75	1750	1570	1000	1845	1950	1100	220	773	100	70	2x6	3100
32	2150	1300	75	1750	1570	1000	1845	1950	1100	220	833	100	70	2x6	3100
33	2230	1350	85	1850	1630	1050	1940	2050	1150	230	883	100	78	2x6	3850
34	2230	1350	85	1850	1630	1050	1940	2050	1150	230	933	100	78	2x6	3850
35+36	根据用户要求供货　On request														

1）输出轴的尺寸，见25页
2）见31页

1) For output shaft dimentions, see page 25
2) See page 31

附　件 / Add-on Piece

单侧扭矩支撑臂 / Torque Reaction Arm on One Side



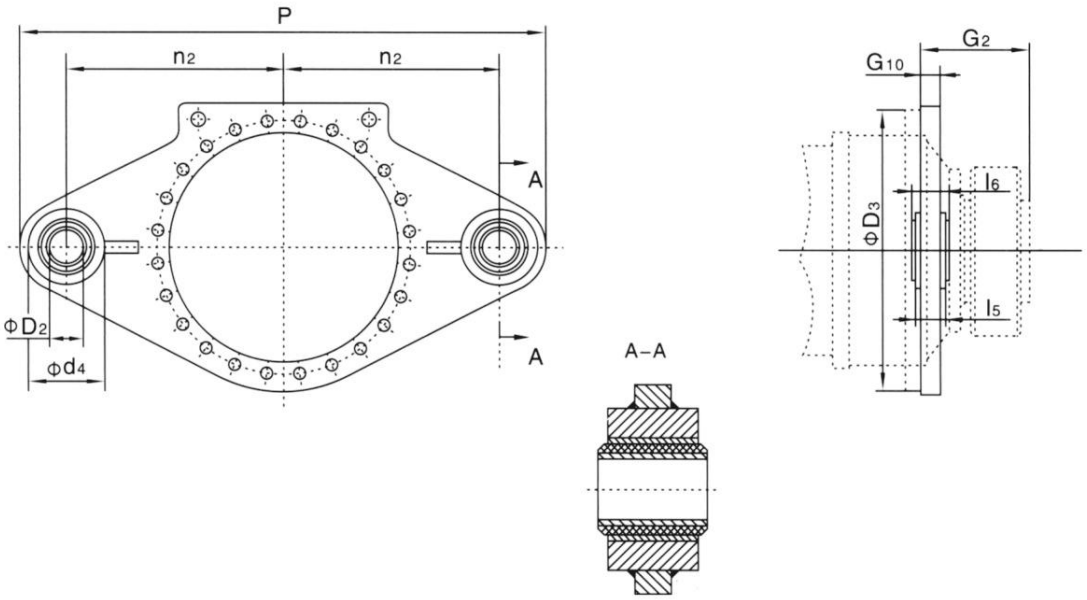
机座号 Size	输出扭矩 Output torque T_{2N} (N.m)	D_1 js6	D_2 G7	D_3	G_2	G_{10}	a min	b	B 1)	c	e	f	g +0.2	h	j	间隙 Clea-rance K	m	n	滑动轴承内径 Sliding bearing
9	22000	30		440	165	25	15	25	22	18	50	140	59.5	100	70	3.5	605	555	30
10	31000	35		485	174	30	15	30	25	20	52.5	140	64.5	105	75	5	667.5	615	35
11	42000	40		540	204	30	18	30	28	22	65	160	70.5	130	85	4	750	685	40
12	60000	40		620	224	30	18	30	28	22	65	160	70.5	130	85	4	850	785	40
13	83000	45		665	241	35	20	32	32	25	72.5	180	79.5	145	95	5	912.5	840	45
14	117000	50		740	278	40	20	40	35	30	72.5	200	85	145	100	5	1012.5	940	50
16	160000	60		790	285	50	25	50	44	35	77.5	240	105	155	120	7.5	1077.5	1000	60
17	202000	60		915	294	50	25	50	44	35	85	240	105	170	120	7.5	1250	1165	60
18	244000	70		955	303	55	30	55	49	40	105	280	120	210	135	7.5	1315	1210	70
19	295000	80		1005	327.5	60	30	60	55	45	105	320	125	210	145	7.5	1405	1300	80
20	354000	80		1005	327.5	60	30	60	55	45	105	320	125	210	145	7.5	1405	1300	80
21	392000	80		1140	354	60	30	60	55	45	113	320	125	225	145	7.5	1562.5	1450	80
22	450000	80		1140	354	60	30	60	55	45	113	320	125	225	145	7.5	1562.5	1450	80
23	513000	90		1235	380	65	30	65	60	50	125	360	130	250	150	7.5	1700	1575	90
24	592000	90		1235	380	65	30	65	60	50	125	360	130	250	150	7.5	1700	1575	90
25	684000	100		1350	407	75	35	75	70	55	138	400	150	275	170	10	1857.5	1720	100
26	763000	100		1350	407	75	35	75	70	55	138	400	150	275	170	10	1857.5	1720	100
27	852000	110		1490	453	75	35	75	70	55	150	440	150	300	175	10	2050	1900	110
28	950000	110		1490	453	75	35	75	70	55	150	440	150	300	175	10	2050	1900	110
29	1060000	110		1600	483	75	35	75	70	55	158	440	150	315	175	10	2192.5	2035	110
30	1200000	110		1600	483	75	35	75	70	55	158	440	150	315	175	10	2192.5	2035	110
31~36	根据用户要求供货 On request																		

1) 公称尺寸 B=22-35，公差-0.12
公称尺寸 B=44-55，公差-0.15
公称尺寸 B=60-70，公差-0.20

1) Nominal size B=22-35，tolerance-0.12
Nominal size B=44-55，tolerance-0.15
Nominal size B=60-70，tolerance-0.20

附　件 / Add-on Piece

带橡胶衬套的两侧扭矩支撑臂 / Torque Reaction Arm on Two Sides with Rubber Bushes

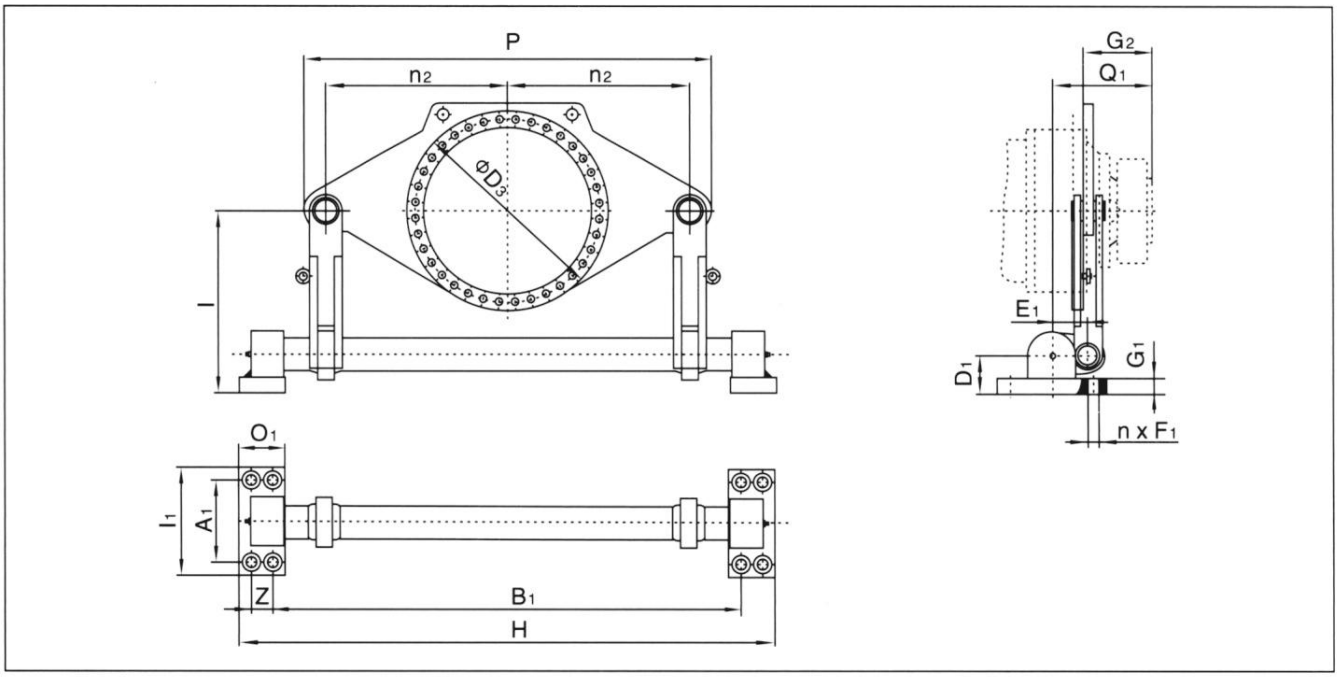


机座号 Size	输出扭矩 Output torque T_{2N} (N.m)	D2 •) H9	D3	d4	G2	G10	l5	l6	n2	P	重量 Weight
9	22000	50	440	115	165	30	100	110	500	1140	58
10	31000	50	485	115	174	30	100	110	550	1240	72
11	42000	100	540	180	204	30	110	120	575	1355	95
12	60000	100	620	180	224	35	110	120	625	1455	120
13	83000	110	665	210	241	35	170	180	600	1435	145
14	117000	110	740	210	278	40	170	180	650	1535	170
16	160000	124	790	240	285	40	220	230	700	1670	230
17	202000	124	915	240	288	40	220	230	750	1770	300
18	244000	124	955	240	303	50	220	230	900	2070	400

•) 销轴：Φh8　　•) Pin：Φh8

附　件 / Add-on Piece

扭力轴支撑架 / Torsion Shaft Support



机座号 Size	输出扭矩 Output torque T_{2N} (N.m)	A_1	B_1	D_3	D_1	E_1	F_1 2)	数量 Qty. n	G_1	G_2	H	l 1)	l_1	n_2	O_1	P	Q_1	Z	重量 Weight Kg
9	22000	250	1414	610	120	105	33	8	48.5	165	1619	560	330	550	140	1230	247.5	65	300
10	31000	250	1414	610	120	105	33	8	48.5	174	1619	560	330	550	140	1230	256.5	65	300
11	42000	250	1414	610	120	105	33	8	48.5	204	1619	560	330	550	140	1230	286.5	65	300
12	60000	250	1414	610	120	105	33	8	48.5	224	1619	560	330	550	140	1230	306.5	65	300
13	83000	280	1604	775	155	145	39	8	68.5	241	1837	620	380	650	158	1450	358.5	75	600
14	117000	280	1604	775	155	145	39	8	68.5	278	1837	620	380	650	158	1450	395.5	75	600
16	160000	280	1604	775	155	145	39	8	68.5	285	1837	620	380	650	158	1450	402.5	75	600
17	202000	315	1777	955	170	165	39	8	73.5	294	2041	700	400	750	180	1680	431.5	84	900
18	244000	315	1777	955	170	165	39	8	73.5	303	2041	700	400	750	180	1680	440.5	84	900
19	295000	350	2000	985	195	175	45	8	83.5	328	2300	860	450	850	200	1900	470.5	100	1400
20	354000	350	2000	985	195	175	45	8	83.5	328	2300	860	450	850	200	1900	470.5	100	1400
21	392000	400	2254	1120	210	190	45	8	88.5	354	2591	900	530	950	225	2110	506.5	113	1700
22	450000	400	2254	1120	210	190	45	8	88.5	354	2591	900	530	950	225	2110	506.5	113	1700
23	513000	450	2496	1215	235	220	45	8	98.5	380	2871	1060	590	1063	250	2385	562.5	125	2150
24	592000	450	2496	1215	235	220	45	8	98.5	380	2871	1060	590	1063	250	2385	562.5	125	2150
25	684000	500	2816	1350	275	245	52	8	118.5	407	3236	1200	650	1150	280	2600	614.5	140	2700
26	763000	500	2816	1350	275	245	52	8	118.5	407	3236	1200	650	1150	280	2600	614.5	140	2700
27	852000	530	2887	1490	300	255	52	8	128.5	453	3327	1250	700	1250	290	2820	670.5	150	3400
28	950000	530	2887	1490	300	255	52	8	128.5	453	3327	1250	700	1250	290	2820	670.5	150	3400
29	1060000	560	3200	1565	300	280	62	8	128.5	483	3673	1350	750	1360	315	3080	718	158	4350
30	1200000	560	3200	1565	300	280	62	8	128.5	483	3673	1350	750	1360	315	3080	718	158	4350
31	1330000	590	3408	1695	340	300	70	8	148.5	538	3906	1400	790	1450	330	3260	788	168	5500
32	1500000	590	3408	1695	340	300	70	8	148.5	538	3906	1400	790	1450	330	3260	788	168	5500
33	1680000	620	3588	1785	375	320	70	8	158.5	573	4116	1500	840	1550	350	3520	840.5	178	7000
34	1920000	620	3588	1785	375	320	70	8	158.5	573	4116	1500	840	1550	350	3520	840.5	178	7000
35+36	根据用户要求供货 On request																		

1）标准尺寸，整体高度可修正到2000mm

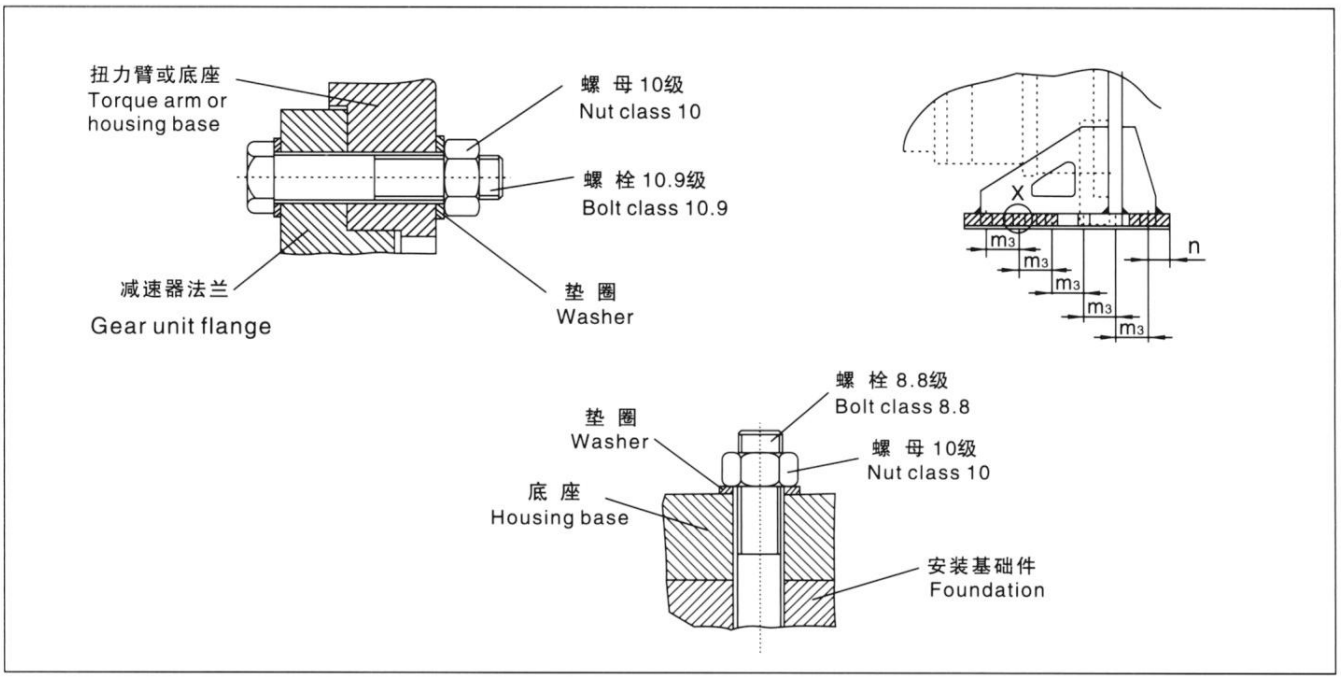
2）锁紧用螺栓强度不得低于6.8级

1) Standard dimension,overall height modifiable up to 2000mm

2)The bolts used for lock are not lower than class6.8

法兰联接及底座安装的螺母预紧扭矩

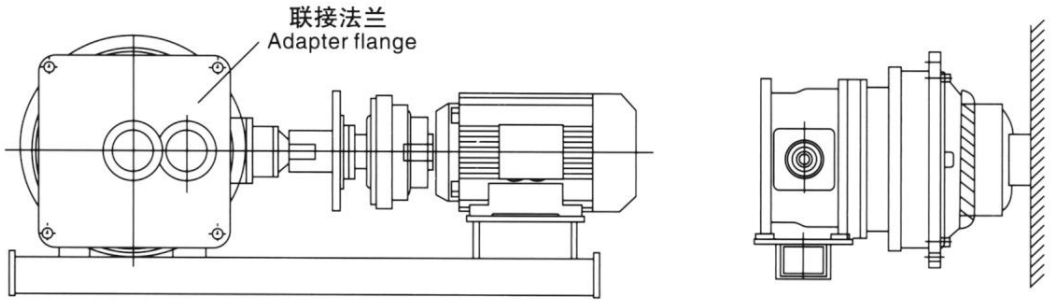
Tightening Torques for Flange Connections and Foot–mounted Design



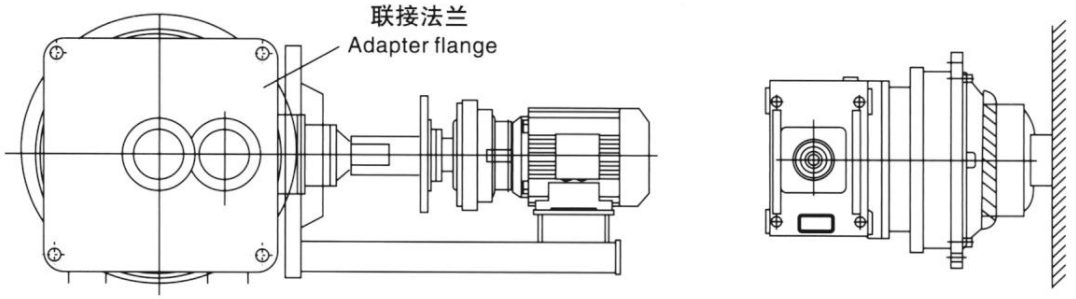
机座号 Size	法兰联接 Flange attachment		底座联接 Base attachment	
	螺栓 Thread (10.9)	预紧扭矩（N.m） Tightening torque	螺栓 Thread (8.8)	预紧扭矩（N.m） Tightening torque
9	M16	295	M24	710
10	M16	295	M24	710
11	M20	580	M24	710
12	M24	1000	M24	710
13	M24	1000	M24	710
14	M24	1000	M30	1450
16	M24	1000	M30	1450
17	M30	2000	M36	2530
18	M30	2000	M36	2530
19/20	M30	2000	M42	4070
21/22	M36	3560	M48	6140
23/24	M36	3560	M48	6140
25/26	M42	5720	M56	9840
27/28	M48	8640	M56	9840
29/30	M48	8640	M64	14300
31/32	M56	13580	M64	14300
33/34	M56	13580	M64	14300
35/36	M56	13580	M72x6	20800

电 机 安 装 支 架 / Motor Bracket

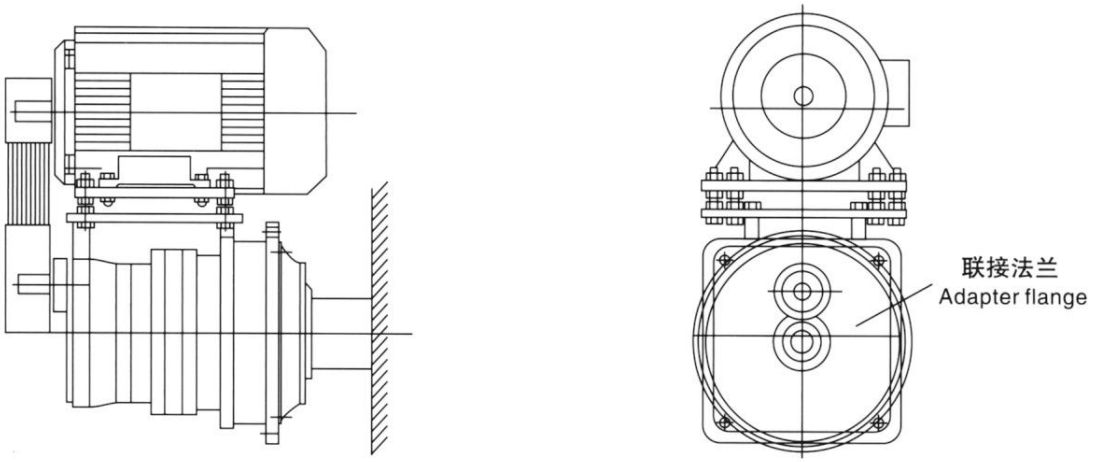
电机安装支架(附件代号-71)
Motor bracket (code of add-on piece-71)



电机安装支架(附件代号-71)
Motor bracket (code of add-on piece-71)



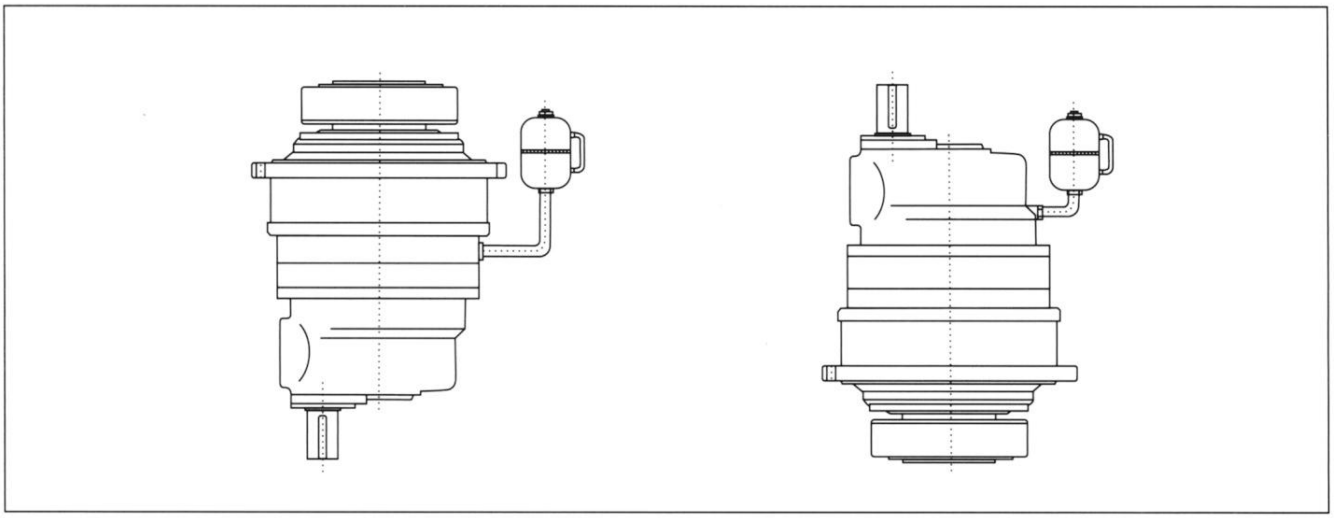
电机安装支架(附件代号-72)
Motor bracket (code of add-on piece-72)



如果不用钟形电机支座，可以采用法兰联接的电机支架，如上图所示。

In cases where no motor bell housings are provided we use an adapter flange to attach motor brackets,they are shown in the above drawings.

立式安装补偿油箱 / Oil Compensating Tank for Vertical Mounting Position



立式安装时，为保证上端的轴承得到可靠润滑必须相应的提高油位，油位通过加装的补偿油箱来加高和检查。补偿油箱上装有通气孔器，如上图所示。

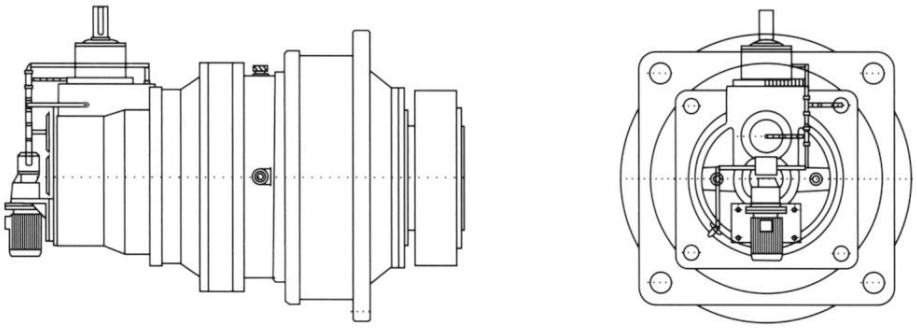
油箱可安装在减速器上，也可安装在客户的机器上。

In case of vertical mounting position,to ensure the lubrication of the upper bearing,the oil level is increased accordingly,the oillevel is increased and checked via an oil compensating tank fitted separately. The oil tank installs the breather valve, it's shown in the above drawings.

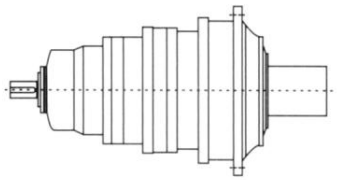
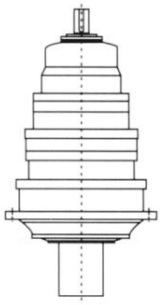
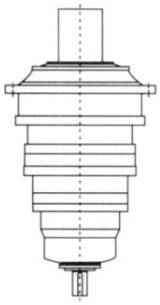
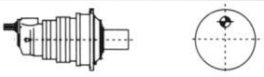
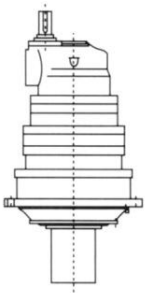
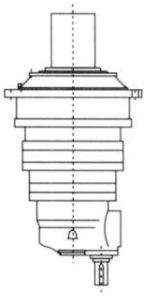
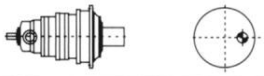
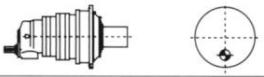
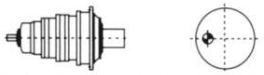
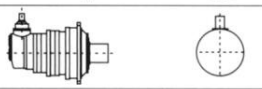
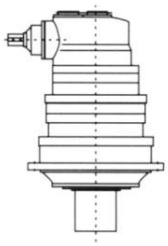
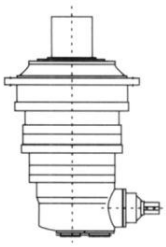
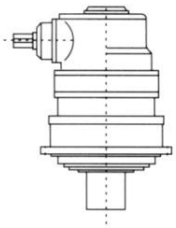
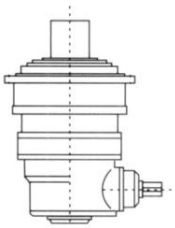
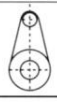
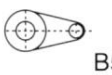
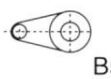
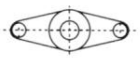
The oil tank can be attached either to the gear units, or to the customer's machine frame.

当安装布置方位为B511、B521、B531的卧式安装时需配备电动油泵强制润滑，
如下图：

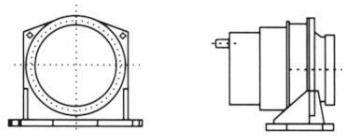
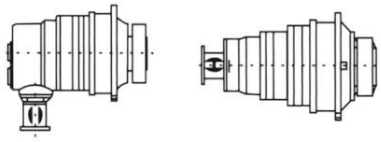
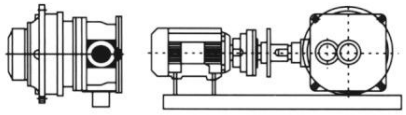
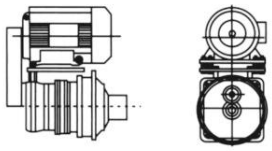
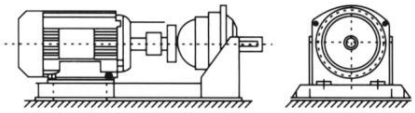
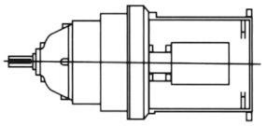
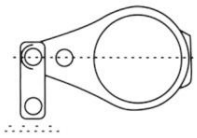
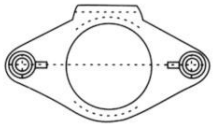
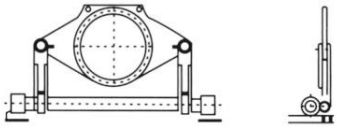
In case of mounting positions B511、B521、B531,horizontal,it needs to monut the motor pumps for forced lubrication,it's shown in the following drawings:



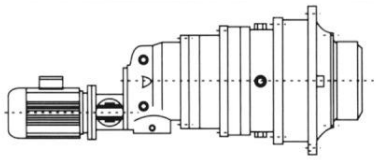
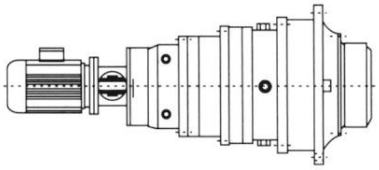
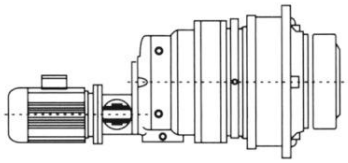
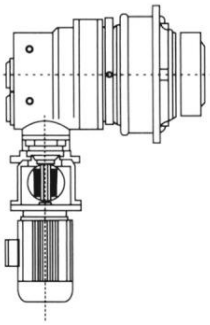
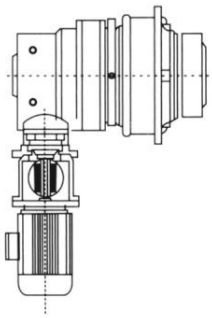
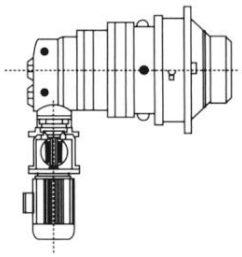
安装布置形式 / Mounting Position

水平安装 Horizontal gear unit position				立式安装 1) Vertical gear unit position	
同轴式行星减速器 Coaxial planetary gear units	0	P.N.	 B500	 V100	 V300
斜齿轮-行星减速器 Combined helical gear planetary gear units	1	P.S.	 1) B511	 V110	 V310
			 B512		
			 B513		
			 B514		
锥齿轮-斜齿轮-行星减速器 Combined bevel gear planetary gear units	2	P.K.	 1) B521	 V120	 V320
			B522		
			B523		
			B524		
锥齿轮-行星减速器 Combined bevel-helical gear planetary gear units	3	P.L.	1) B531	 V130	 V330
			B532		
			B533		
			B534		
扭矩支撑臂 Torque reaction arm	5		 B551  B552	1) 请注意B5*1、V1**、V3**安装布置形式时间滑方面有特殊要注。 1) Please notice that there are special requiements in tubrication when mounting positions B5*1、V1**、V3**	
			B553  B554		
			B555  B556		

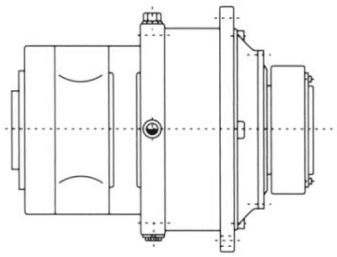
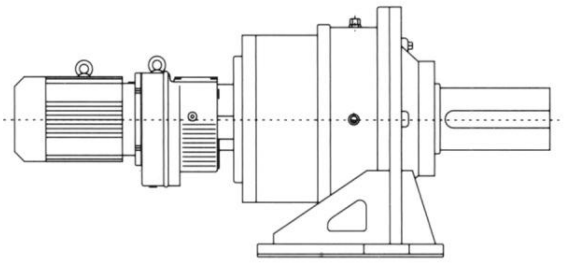
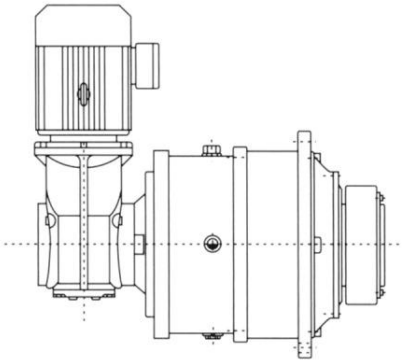
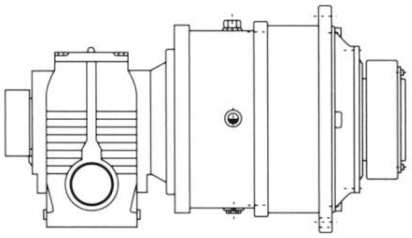
附　　件 / Add-on Piece

代号 Code	附　　件 Add-on piece		示　例 Representation
99	无附件 Without add-on piece		
96	减速器底座 Gear housing base	见 27 页 See page 27	
70	电机钟形支座 Motor bell housing	见36页 See page 36	
71	电机托架 Motor bracket	见32页 See page 32	
72	电机支架 Motor bracket	见32页 See page 32	
73	摆动底座 Motor swing-base		
74	钟形支座（输出） Bell housing(output)		
75	扭矩支撑臂（一端） Torque reaction arm(on one side)	见28页 See page 28	
76	扭矩支撑臂（二端） Torque reaction arm(on two sides)	见29页 See page 29	
77	扭力轴支撑 Torsion shaft support	见30页 See page 30	

电机、减速器直联方式 / Connection–directly Mode of Motor and Gear Unit

安装布置形式 Mounting position	类　型 Type	图　示
水平安装 Horizontal	P2S电机直联 P2S motor connect–directly	
水平安装 Horizontal	P3N电机直联 P3N motor connect–directly	
水平安装 Horizontal	P3S电机直联 P3S motor connect–directly	
水平安装 Horizontal	P2K电机直联 P2K motor connect–directly	
水平安装 Horizontal	P2L电机直联 P2L motor connect–directly	
水平安装 Horizontal	P3K电机直联 P3K motor connect–directly	

减速器组合例子 / Examples of Combinations

组合形式说明 Identifications of combinations	例　子 Exampler
单级空心轴行星减速器 带液压马达 Two stages solid shaft planetary gear units with hydraulic motor	
两级实心轴行星减速器 带FSR斜齿轮减速机、电机和底座 Two stages solid shaft planetary gear units with FSR helical gear units、motor and housing base	
两级空心轴行星减速器 带FSK锥齿轮减速机、电机 Two stages hollow shaft planetary gear units with FSK helical-bevel gear units、motor	
两级空心轴行星减速器 带FSS蜗轮蜗杆减速机、电机 Two stages hollow shaft planetary gear units with FSS helical-worm gear units、motor	
详情请与我们联系　Please refer to us for the details	

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