



FABMODA REDUCER



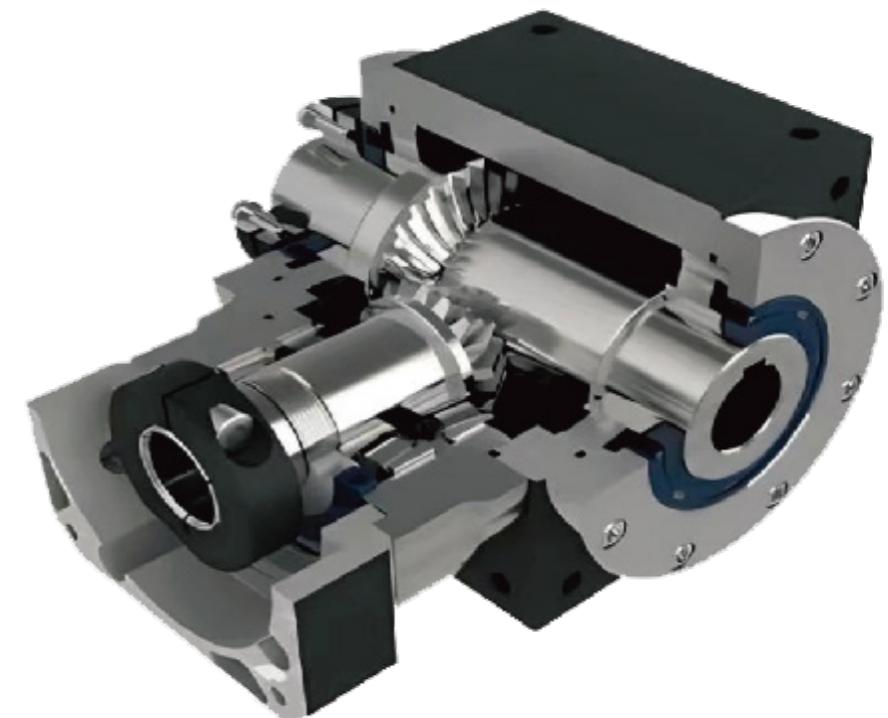
东莞利得机电有限公司

DONGGUAN LEADER MECHANICAL & ELECTRICAL ., LTD

高精度减速机产品手册

High precision reducer product manual

【2024】



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专业传动设备解决方案供应商

东莞利得机电有限公司

DONGGUAN LEADER MECHANICAL&ELECTRICAL.,LTD

公司简介

COMPANY PROFILE



飞宝减速机——坐落于有“世界工厂”之美称的城市——东莞。

工厂生产减速机已有 18 年之久，是一家集减速机研发、制造和营销为一体的技术型企业，公司拥有经验丰富的设计团队、先进的生产设备、生产规模，核心配件自制率以及生产减速机种类在国内名列前茅。

公司始终以“勤、诚、信”的经营理念，致力于高精度减速机、十字转向器、中空平台齿轮减速机及蜗轮减速机的产销，产品使用领域涉及军工企业、机器人制造、智能仓储物流玻璃加工制造、医疗器械等先进自动化设备。

公司面向全球工业自动化提供标准产品，并提供特殊减速机开发及订制服务。

未来我们将继续秉持“缔造精品，追求卓越”的理念，着重为客户开发定制化产品研发服务，以独有的核心技术，带动产业链上下游乃至中国高精度减速机产业的提升，助力中国智能制造，力争成为有社会责任感的“中国制造 2025”示范性企业。

FEIBAO GEARBOX IS LOCATED IN DONGGUAN, A CITY KNOWN AS THE "WORLD FACTORY".

THE FACTORY HAS BEEN PRODUCING REDUCERS FOR 18 YEARS. IT IS A TECHNOLOGY-BASED ENTERPRISE THAT INTEGRATES RESEARCH AND DEVELOPMENT, MANUFACTURING, AND MARKETING OF REDUCERS. THE COMPANY HAS AN EXPERIENCED DESIGN TEAM, ADVANCED PRODUCTION EQUIPMENT, PRODUCTION SCALE, CORE PARTS SELF-MADE RATE, AND PRODUCTION TYPES OF REDUCERS, WHICH ARE AMONG THE TOP IN CHINA.

THE COMPANY ALWAYS ADHERES TO THE BUSINESS PHILOSOPHY OF "DILIGENCE, SINCERITY, AND TRUSTWORTHINESS" AND IS COMMITTED TO THE PRODUCTION AND SALES OF HIGH-PRECISION REDUCERS, CROSS STEERING GEARS, HOLLOW PLATFORM GEAR REDUCERS, AND WORM GEAR REDUCERS. THE PRODUCT USES ADVANCED AUTOMATION EQUIPMENT SUCH AS MILITARY ENTERPRISES, ROBOT MANUFACTURING, INTELLIGENT WAREHOUSING AND LOGISTICS GLASS PROCESSING AND MANUFACTURING, MEDICAL EQUIPMENT, ETC. THE COMPANY PROVIDES STANDARD PRODUCTS FOR GLOBAL INDUSTRIAL AUTOMATION AND SPECIAL REDUCER DEVELOPMENT AND CUSTOMIZATION SERVICES.

IN THE FUTURE, WE WILL CONTINUE TO UPHOLD THE CONCEPT OF "CREATING HIGH-QUALITY PRODUCTS AND PURSUING EXCELLENCE", FOCUSING ON DEVELOPING CUSTOMIZED PRODUCT RESEARCH AND DEVELOPMENT SERVICES FOR CUSTOMERS. WITH UNIQUE CORE TECHNOLOGIES, WE WILL DRIVE THE IMPROVEMENT OF THE UPSTREAM AND DOWNSTREAM OF THE INDUSTRIAL CHAIN AND EVEN THE HIGH-PRECISION REDUCER INDUSTRY IN CHINA, ASSIST IN CHINA'S INTELLIGENT MANUFACTURING, AND STRIVE TO BECOME A SOCIALLY RESPONSIBLE "MADE IN CHINA 2025" DEMONSTRATION ENTERPRISE.

精密行星减速机
PRECISION PLANETARY REDUCER

01



**FAB
FAB-A
SERIES**

精密行星减速机
HIGH PRECISION PLANETARY
REDUCER

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精密行星减速机
PRECISION PLANETARY REDUCER

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**FNB
SERIES**

精密行星减速机
HIGH PRECISION PLANETARY
REDUCER

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精密行星减速机
PRECISION PLANETARY REDUCER

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**FABT
SERIES**

精密螺旋伞齿行星减速机
HIGH PRECISION SPIRAL BEVEL GEAR
PLANETARY REDUCER

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精密行星减速机
PRECISION PLANETARY REDUCER

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**FABL
FABL-A
SERIES**

精密螺旋伞齿行星减速机
HIGH PRECISION SPIRAL BEVEL GEAR
PLANETARY REDUCER

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精密行星减速机
PRECISION PLANETARY REDUCER

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**FSD
SERIES**

精密行星减速机
HIGH PRECISION PLANETARY
REDUCER

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精密行星减速机
PRECISION PLANETARY REDUCER

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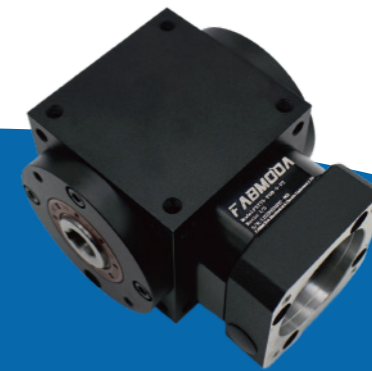
**FSDL
SERIES**

高精度螺旋伞齿轮减速机
HIGH PRECISION SPIRAL BEVEL GEAR
REDUCER

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精密行星减速机
PRECISION PLANETARY REDUCER

07



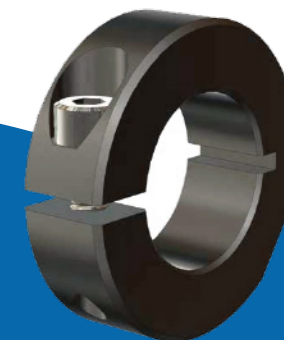
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SERIES**

高精度螺旋伞齿轮减速机
HIGH PRECISION SPIRAL BEVEL GEAR
REDUCER

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精密行星减速机
PRECISION PLANETARY REDUCER

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FITTINGS

精密行星减速机配件
PRECISION PLANETARY REDUCER
ACCESSORIES

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FAB 系列 精密行星减速机

FAB SERIES

PRECISION PLANETARY REDUCER

01



PRECISION PLANETARY
REDUCER

FAB系列精密行星减速机 FAB Series



FAB	62	10	□	P1	MOTOR
减速机机型 Type	型号 Model	速比 Ratio	出力轴键槽 Output Bearing	背隙等级 Backlash Class	电机型号 Moyor Type
FAB	44/A44	单段1-Stage:	标准品, 有键槽 Standard (Keyway)	单段1-Stage:	马达制造商及型号
FAB-A	62/A62	3,4,5,6,7,8,10		P0 ≤ 3弧分(arcmin)	Motor Brand &
	90/A90			P1 ≤ 5弧分(arcmin)	Model No
	120/A120	双段2-Stage:	N: 实心轴无键槽 Solig Output Shaft (No Keyway)	P2 ≤ 7弧分(arcmin)	
	142/A142	15,20,25,30,35,40,50,60,70		双段2-Stage:	
	180/A180	,80,100		P0 ≤ 5弧分(arcmin)	
	220/A220			P1 ≤ 7弧分(arcmin)	
				P2 ≤ 9弧分(arcmin)	

FAB系列产品特性 Features of FAB Series

静音
Quiet operation

使用斜齿轮实现顺畅安静地运转。
Helical gears contribute to reduce vibration and noise.

高效率
High efficiency

单段式在97%以上, 双段式在94%以上。
Efficiency for 1-stage model exceeds 97%, 2-stage model exceeds 94%.

电机连接板的模块化设计
Modular design of mot

独特的电机连接板模块化设计, 适用于任何厂牌法兰型式的伺服电机。
The special modular design of motor connection plate is suitable for any flangemounting servomotors.

无润滑脂泄露, 维护方便
No grease leakage,
Maintenance-free

使用高粘度、不易分离的润滑脂, 有效防润滑脂泄露。在产品寿命期内无需更换润滑脂, 安装更便捷。
Perfect solution using high viscosity anti-separation grease. No need to replace the grease during product life, Convenient installation is the advantage.

FAB系列产品性能 Characteristic Of FAB Series

一体式螺旋内齿轮箱
One-piece Helical Gear Box

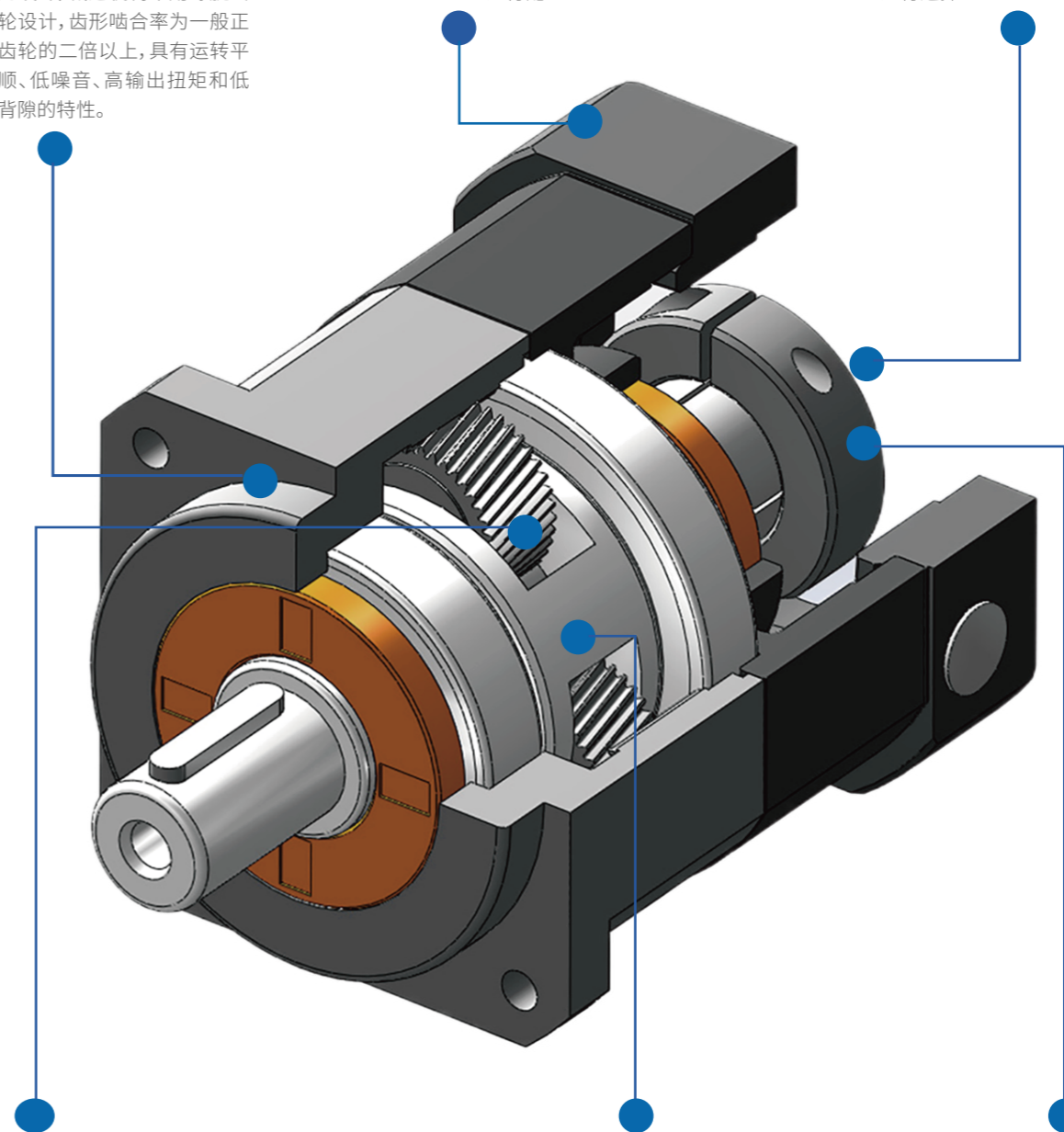
齿轮箱和内环齿轮采一体式的设计, 减速机构采用螺旋齿轮设计, 齿形啮合率为一般正齿轮的二倍以上, 具有运转平顺、低噪音、高输出扭矩和低背隙的特性。

输入法兰
Flange

可根据不同厂家不同尺寸法兰进行配置

输入轴
Input Shaft

减速机输入孔径可根据不同规格进行选择



满针滚针轴承设计
Full Needle Roller Bearings Design

行星齿轮的传动接口采用不含保持器之满针滚针轴承, 增加接触面积以提高结构刚性及使用寿命。

一体式行星臂架及双悬臂设计
Integrated Planetary Arm Bracket

行星臂架与输出轴采一体式的结构设计, 以确保提高扭转刚性及精确度。

筒夹式连结机构
Collet Locking Mechanism

输入端与马达的连结采用筒夹式的锁紧机构, 并经动平衡分析, 以确保在高输入转速下结合接口的同心度和平衡度, 及零背隙的动力传递。

FAB 系列行星相关参数 FAB series of parameters(1-Stage)

RATIO:3.4.5.6.7.8.10 (单段1-Stage)

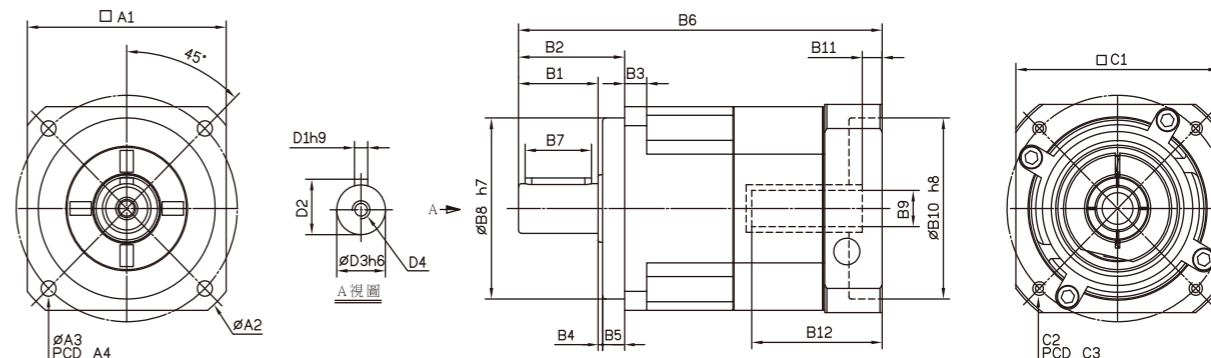


规格 Model No.	单位 Unit	段数	速比 Ratio	FAB 44	FAB 62	FAB 90	FAB 120	FAB 142	FAB 180	FAB 220
额定输出扭矩 Rated Output Torque	Nm	1-Stage	3	19	59	165	335	625	1,206	2,030
			4	16	51	146	300	555	1,069	1,804
			5	16	48	160	333	618	1,189	2,010
			6	15	45	151	311	583	1,118	1,911
			7	15	45	149	309	573	1,108	1,870
			8	14	43	143	298	553	1,070	1,824
			10	14	43	141	294	549	1,059	1,779
最大加速扭矩 Max. Acceleration Torque	Nm	1-Stage	1.8 倍额定输出力矩 1.8 Times of Rated Output Torque							
最大输出扭矩 Max. Output Torque	Nm	1-Stage	3 倍额定输出力矩 3 Times of Rated Output Torque							
急停扭矩 Emergency Stop Torque	Nm	1-Stage	3 倍额定输出力矩 3 Times of Rated Output Torque							
额定输入转速/Rated Input Speed	rpm	1-Stage	3~10	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大输入转速/Max. Input Speed	rpm	1-Stage	3~10	6,000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash P0	arcmin	1-Stage	3~10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P1	arcmin	1-Stage	3~10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P2	arcmin	1-Stage	3~10	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
扭转刚性 /Torsional Rigidity	Nm/arcmin	1-Stage	3~10	3	6	14	14	60	140	240
容许径向力 /Max. Radial Force	N	1-Stage	3~10	380	1,180	3,200	6,800	9,300	15,600	51,000
容许轴向力/Max. Axial Force	N	1-Stage	3~10	190	590	1,600	3,400	4,650	7,800	25,500
使用寿命/Service Life	hr	1-Stage	3~10	S5 周期运转 : >30,000 (S1 连续运转 : >15,000 hrs) S5 Cycle Operation : >30,000 (S1 Continuous Operation : >15,000 hrs)						
效率 / Efficiency	%	1-Stage	3~10	≥97%						
使用温度/Operating Temperature	°C	1-Stage	3~10	-25°C ~ +90°C						
润滑 / Lubrication		1-Stage	3~10	全合成润滑油脂 Synthetic Grease						
防护等级/Protection Class		1-Stage	3~10	IP65						
安装方向 /Mounting Position		1-Stage	3~10	任意方向 Any						
噪音值 / Noise Level	dB	1-Stage	3~10	≤56	≤58	≤60	≤63	≤65	≤67	≤70
重量 / Weight ±3%	kg	1-Stage	3~10	0.6	1.28	3.6	8	14.3	28.3	43.5

转动惯量 Mass Moments of Inertia (kg.cm²)

速比 Ratio	44	62	90	120	142	180	220
3	0.03	0.16	0.61	3.25	9.21	28.98	59.61
4	0.03	0.14	0.48	2.74	7.54	23.67	54.37
5	0.03	0.13	0.47	2.71	7.42	23.29	53.27
6	0.03	0.13	0.45	2.65	7.25	22.75	51.27
7	0.03	0.13	0.45	2.62	7.14	22.48	50.97
8	0.03	0.13	0.44	2.58	7.07	22.59	50.84
10	0.03	0.13	0.44	2.57	7.03	22.51	50.56

FAB系列行星尺寸 FAB series of outline(1-Stage)



Model Code	FAB 44	FAB 62	FAB 90	FAB 120	FAB 142	FAB 180	FAB 220
A1	44	62	90	120	142	180	220
A2	58	80	116	148	186	238	288
A3	4.5	5.5	6.8	9	11	13	17
A4	50	70	100	130	165	215	250
B1	20	28	36	50	74	82	104
B2	26	36	48	65	92	106	139
B3	5	8	10	12	15	16	20
B4	1	1	2	3	3	4	5
B5	5	7	10	12	15	20	30
B6	95	115, 123	164.5, 179	205, 215	260.5	323.5, 325.5	367.5
B7	15	20	30	40	65	70	90
B8	35	50	80	110	130	160	180
B9	8, 9, 11	11, 14, 16, 19	16, 19, 22, 24	22, 24, 28, 32	28, 32, 35, 38	35, 38, 42, 48, 55	38, 42, 48, 55
B10	30, 40, 50	50, 60, 70	70, 80, 95, 110	95, 110, 130	110, 130, 180	114.3, 180, 230, 250	114.3, 230, 250
B11	5	6	9, 23.5	10, 20	10	11.5, 14.5	12.5, 14.5
B12	26, 30.5	33.5, 41.5	59, 73.5	67, 77	84.5	114.5, 117.5	117.5, 119.5
C1	46, 55	64, 70, 80	92, 110, 130	122, 130, 150	146, 150, 190	182, 200, 250, 265	222, 250, 265
C2	M3, M4, M5	M4, M5, M6	M5, M6, M8	M6, M8, M10	M8, M10, M12	M10, M12, M16	M12, M16
C3	46, 60, 63	70, 75, 90	90, 100, 115, 145	115, 145, 165	145, 165, 215	200, 215, 265, 300	200, 265, 300
D1	5	5	6	10	12	16	20
D2	15	18	24.5	35	43	59	79.5
D3	13	16	22	32	40	55	75
D4	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0	M16×P2.0

FAB 系列行星相关参数 FAB series of parameters(2-Stage)



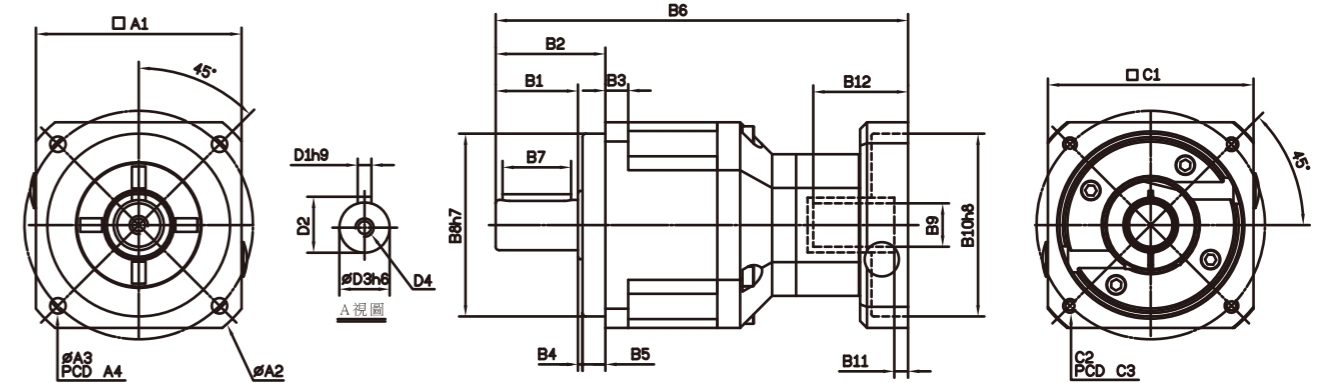
RATIO:15.20.25.30.35.40.
50.60.70.80.100
(双段2-Stage)

规格 Model No.	单位 Unit	段数	速比 Ratio	FAB 62	FAB 90	FAB 120	FAB 142	FAB 180	FAB 220
额定输出扭矩 Rated Output Torque	Nm	2-Stage	15	59	165	335	625	1,206	2,030
			20	51	146	300	555	1,069	1,804
			25	48	160	333	618	1,189	2,010
			30	45	151	311	583	1,118	1,911
			35	45	149	309	573	1,108	1,870
			40	43	143	298	553	1,070	1,824
			50	48	160	333	618	1,189	2,010
			60	45	151	311	583	1,118	1,911
			70	45	149	309	573	1,108	1,870
			80	43	143	298	553	1,070	1,824
100	43	141	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	Nm	2-Stage	1.8 倍额定输出力矩 1.8 Times of Rated Output Torque						
最大输出扭矩 Max. Output Torque	Nm	2-Stage	3 倍额定输出力矩 3 Times of Rated Output Torque						
急停扭矩 Emergency Stop Torque	Nm	2-Stage	3 倍额定输出力矩 3 Times of Rated Output Torque						
额定输入转速/Rated Input Speed	rpm	2-Stage	15~100	3,000	3,000	3,000	3,000	3,000	2,000
最大输入转速/Max. Input Speed	rpm	2-Stage	15~100	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash P0	arcmin	2-Stage	15~100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P1	arcmin	2-Stage	15~100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P2	arcmin	2-Stage	15~100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
扭转刚性 /Torsional Rigidity	Nm/arcmin	2-Stage	15~100	6	14	27	60	140	240
容许径向力 /Max. Radial Force	N	2-Stage	15~100	1,180	3,200	6,800	9,300	15,600	51,000
容许轴向力/Max. Axial Force	N	2-Stage	15~100	590	1,600	3,400	4,650	7,800	25,500
使用寿命/Service Life	hr	2-Stage	15~100	S5 周期运转 : >30,000 (S1 连续运转 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)					
效率 / Efficiency	%	2-Stage	15~100	≥ 94%					
使用温度/Operating Temperature	°C	2-Stage	15~100	-25°C ~ +90°C					
润滑 / Lubrication		2-Stage	15~100	全合成润滑油Synthetic Grease					
防护等级 /Protection Class		2-Stage	15~100	IP65					
安装方向 /Mounting Position		2-Stage	15~100	任意方向Any					
噪音值 / Noise Level	dB	2-Stage	15~100	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 / Weight ±3%	Kg	2-Stage	15~100	1.73	4.6	9.42	17.2	34.1	57.3

转动惯量 Mass Moments of Inertia (kg.cm2)

速比Ratio	62	90	120	142	180	220
15	0.03	0.14	0.46	2.63	7.3	22.79
20	0.03	0.14	0.46	2.63	7.3	22.79
25	0.03	0.14	0.46	2.63	7.1	22.79
30	0.03	0.14	0.46	2.43	7.1	22.59
35	0.03	0.14	0.44	2.43	7.1	22.59
40	0.03	0.14	0.44	2.43	6.92	22.59
50	0.03	0.14	0.44	2.43	6.92	22.59
60	0.03	0.14	0.43	2.39	6.72	21.83
70	0.03	0.14	0.43	2.39	6.72	21.83
80	0.03	0.14	0.43	2.39	6.72	21.83
100	0.03	0.14	0.40	2.39	6.72	21.60

FAB 系列行星尺寸 FAB series of outline(2-Stage)



Model Code	FAB 62	FAB 90	FAB 120	FAB 142	FAB 180	FAB 220
A1	62	90	120	142	180	220
A2	80	116	148	186	238	288
A3	5.5	6.8	9	11	13	17
A4	70	100	130	165	215	250
B1	28	36	50	74	82	104
B2	36	48	65	92	106	139
B3	8	10	12	15	16	20
B4	1	2	3	3	4	5
B5	7	10	12	15	20	30
B6	139.5	172.5、180.5	241、255.5	298.5、308.5	358.5	446.5
B7	20	30	40	65	70	90
B8	50	80	110	130	160	180
B9	8、9、11	11、14、16、19	16、19、22、24	22、24、28、32	28、32、35、38	35、38、42、48、55
B10	30、40、50	50、60、70	70、80、95、110	70、95、110、130	110、130、180	114.3、180、230
B11	5	6	9、23.5	10、20	10	11.5、13.5
B12	26、30.5	33.5、41.5	59、73.5	67、77	84.5	114.5、116.5
C1	46、55	64、70、80	92、110、130	122、130、150	146、180、190	182、200、250
C2	M3、M4、M5	M4、M5、M6	M5、M6、M8、M10	M6、M8、M10	M8、M10、M12	M10、M12
C3	46、60、63	70、75、90	90、100、115、145	115、145、165	145、165、215	200、215、265
D1	5	6	10	12	16	20
D2	18	24.5	35	43	59	79.5
D3	16	22	32	40	55	75
D4	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0	M16×P2.0

FAB-A系列行星相关参数 FAB-A series of parameters(2-Stage)

RTIO:15.20.25.30.35.40.
50.60.70.80.100
(双段2-Stage)

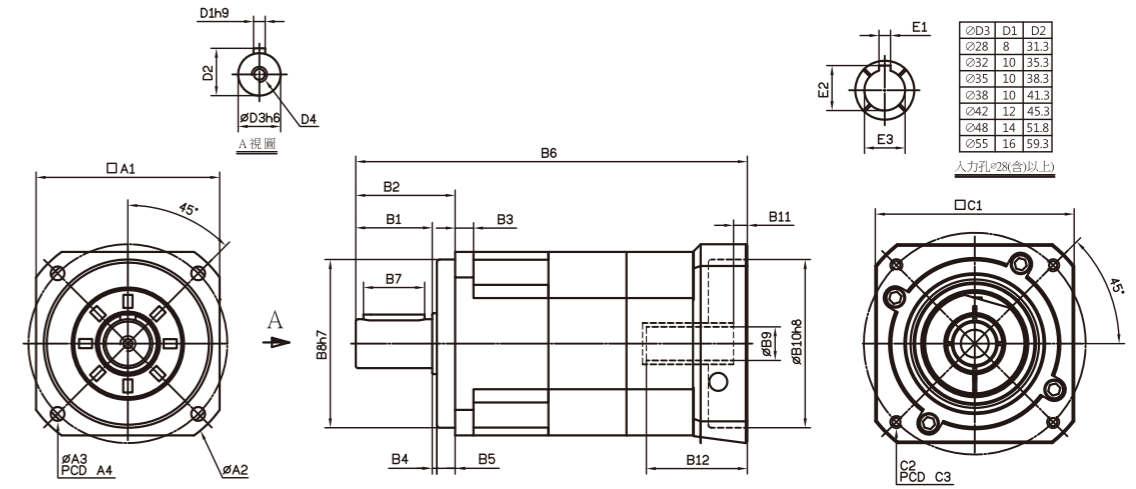


规格 Model No.	单位 Unit	速比 Ratio	FAB 44A	FAB 62A	FAB 90A	FAB 120A	FAB 142A	FAB 180A	FAB 220A
额定输出扭矩 Rated Output Torque	Nm	15	19	59	165	335	625	1,206	2,030
		20	16	51	146	300	555	1,069	1,804
		25	16	48	160	333	618	1,189	2,010
		30	15	45	151	311	583	1,118	1,911
		35	15	45	149	309	573	1,108	1,870
		40	14	43	143	298	553	1,070	1,824
		50	16	48	160	333	618	1,189	2,010
		60	15	45	151	311	583	1,118	1,911
		70	15	45	149	309	573	1,108	1,870
		80	14	43	143	298	553	1,070	1,824
100	14	43	141	294	549	1,059	1,779		
最大加速扭矩 Max. Acceleration Torque	Nm	15~100	1.8 倍额定输出力矩 1.8 Times of Rated Output Torque						
最大输出力矩/Max. Output Torque	Nm	15~100	3 倍额定输出力矩 3 Times of Rated Output Torque						
急停扭矩 Emergency Stop Torque	Nm	15~100	3 倍额定输出力矩 3 Times of Rated Output Torque						
额定输入转速/Rated Input Speed	rpm	15~100	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大输入转速/Max. Input Speed	rpm	15~100	6,000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash P0	arcmin	15~100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P1	arcmin	15~100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P2	arcmin	15~100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
扭转刚性/Torsional Rigidity	Nm/arcmin	15~100	3	6	14	27	60	140	240
容许径向力/Max. Radial Force	N	15~100	380	1,180	3,200	6,800	9,300	15,600	51,000
容许轴向力/Max. Axial Force	N	15~100	190	590	1,600	3,400	4,650	7,800	25,500
使用寿命/Service Life	hr	15~100	S5 周期运转: >30,000 (S1 连续运转: >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000)						
效率/Efficiency	%	15~100	≥94%						
使用温度/Operating Temperature	°C	15~100	-25°C ~ +90°C						
润滑/Lubrication		15~100	全合成润滑油脂 Synthetic Grease						
防护等级/Protection Class		15~100	IP65						
安装方向/Mounting Position		15~100	任意方向 Any						
噪音值/Noise Level	dB	15~100	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量/Weight ±3%	Kg	15~100	0.6	2	5.5	11	21	42	59

转动惯量 Mass Moments of Inertia (kg.cm²)

速比 Ratio	44A	62A	90A	120A	142A	180A	220A
15	0.03	0.14	0.46	2.63	7.30	22.79	56.98
20	0.03	0.14	0.46	2.63	7.30	22.79	56.98
25	0.03	0.14	0.46	2.63	7.10	22.79	56.98
30	0.03	0.14	0.46	2.43	7.10	22.59	56.48
35	0.03	0.14	0.44	2.43	7.10	22.59	56.48
40	0.03	0.14	0.44	2.43	6.92	22.59	56.48
50	0.03	0.14	0.44	2.43	6.92	22.59	56.48
60	0.03	0.14	0.43	2.39	6.72	21.83	54.58
70	0.03	0.14	0.43	2.39	6.72	21.83	54.58
80	0.03	0.14	0.43	2.39	6.72	21.83	54.58
100	0.03	0.14	0.43	2.39	6.72	21.83	54.58

FAB-A系列行星尺寸 FAB-A series of outline(2-Stage)



Model Code	FAB 44A	FAB 62A	FAB 90A	FAB 120A	FAB 142A	FAB 180A	FAB 220A
A1	44	62	90	120	142	180	220
A2	58	80	116	148	186	238	288
A3	4.5	5.5	6.8	9	11	13	17
A4	50	70	100	130	165	215	250
B1	20	28	36	50	74	82	104
B2	26	36	48	65	92	106	139
B3	5	8	10	12	15	16	20
B4	1	1	2	3	3	4	5
B5	5	7	10	12	15	20	30
B6	121	148.8	208、222.5	261、271	327	404.5	460.5
B7	15	20	30	40	65	70	90
B8	35	50	80	110	130	160	180
B9	8、9、11	11、14、16、19	16、19、22、24	22、24、28、32	28、32、35、38	35、38、42、48、55	38、42、48、55
B10	30、40、50	50、60、70	70、80、95、110	95、110、130	110、130、180	114.3、180、230	114.3、230、250
B11	5	6	9、23.5	10、20	10	11.5、13.5	12.5、14.5
B12	26、30.5	33.5	59、73.5	67、77	84.5	114.5、116.5	117.5、119.5
C1	46、55	64、70、80	92、110、130	122、130、150	146、150、190	182、200、250	222、250、265
C2	M3、M4、M5	M4、M5、M6	M5、M6、M8	M6、M8、M10	M8、M10、M12	M10、M12	M12、M16
C3	46、60、63	70、75、90	90、100、115、145	115、145、165	145、165、215	200、215、265	200、265、300
D1	5	5	6	10	12	16	20
D2	15	18	24.5	35	43	59	79.5
D3	13	16	22	32	40	55	75
D4	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0	M16×P2.0

FNB系列精密行星减速机 FNB Series



- 全系系列单段背隙 ≤ 5弧分
1-Stage Backlash ≤ 5弧分arcmin
- 全系系列双段背隙 ≤ 7弧分
2-Stage Backlash ≤ 7弧分arcmin

FNB	120	15	□	MOTOR
减速机机型 Type	型号 Model	速比 Ratio	出力轴键槽 Output Bearing	电机型号 Motor Type
FNB	62 90 120 142	单段1-Stage 3,4,5,7,10(62#142#) 单段1-Stage 4,5,7,10(90# 120#) 双段2-Stage 15,20,25,30,35,40,50,70,100 (62#142#) 双段2-Stage 20,25,35,40,50,70,100 (90#120#)	标准品, 有键槽Standard (Keyway) N:实心轴无键槽Solig Output Shaft(No Keyway)	马达制造商及型号 Motor Brand& Model No

FNB系列产品特性 Features of FNB Series

- 静音 Quiet operation**
使用斜齿轮实现顺畅安静地运转。
Helical gears contribute to reduce vibration and noise.
- 高效率 High efficiency**
单段式在97%以上, 双段式在94%以上。
Efficiency for 1-stage model exceeds 97%, 2-stage model exceeds 94%.
- 电机连接板的模块化设计 Modular design of mot**
独特的电机连接板模块化设计, 适用于任何厂牌法兰型式的伺服电机。
The special modular design of motor connection plate is suitable for any flangemounting servomotors.
- 无润滑脂泄露、维护方便 No grease leakage, Maintenance-free**
使用高粘度、不易分离的润滑脂, 有效防润滑脂泄露。在产品寿命期内无需更换润滑脂, 安装更便捷。
Perfect solution using high viscosity anti-separation grease. No need to replace the grease during product life, Convenient installation is the advantage.

FNB系列产品性能 Characteristic Of FNB Series



一体式行星臂架
Integrated Planetary Arm Bracket

行星臂架与输出轴采一体式的结构设计, 以确保提高扭转刚性及精确度。

The planetary arm bracket and the output shaft are one-piece constructed to increase torsional rigidity and accuracy.



满针滚针轴承设计
Full Needle Roller Bearings Design

行星齿轮的传动介面采用不含保持器之满针滚针轴承, 增加接触面积以提高结构刚性及使用寿命。

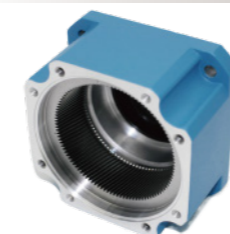
The planetary gear transmission employs full needle roller bearings without retainer to increase the contact surface, which greatly upgrades structural rigidity and service life.



筒夹式连结机构
Collet Locking Mechanism

输入端与马达的连结采用筒夹式的锁紧机构, 并经动平衡分析, 以确保在高输入转速下结合界面的同心度和平衡度, 及零背隙的动力传递。

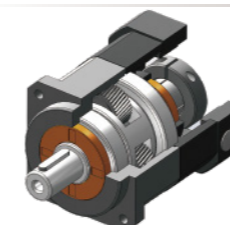
The input-end and the motor are coupled through a collet locking mechanism. It has passed dynamical balance analysis to assure concentricity and balance on the connection and no backlash for power transmission while running at high speed.



一体式齿轮箱本
One-piece Gear Box & Advanced surface Treatment

输入端与马达的连结采用筒夹式的锁紧机构, 并经动平衡分析, 以确保在高输入转速下结合介面的同心度和平衡度, 及零背隙的动力传递。

The input-end and the motor are coupled through a collet locking mechanism. It has passed dynamical balance analysis to assure concentricity and balance on the connection and no backlash for power transmission while running at high speed.



螺旋齿轮设计及高精度齿轮加工
Spiral gear design and high-precision gear machining urface Treatment

减速机机构采用螺旋齿轮设计, 齿形啮合率为一般正齿轮的二倍以上, 具有运转平顺、低噪音、高输出扭矩和低背隙的特性。

材料采用高级镍铬钼合金钢(SNCM220), 切削加工后, 经渗碳热处理至硬度57-60HRC, 再进行齿面研磨, 确保齿轮精度DIN6级以内。

Helical Gear Design
The speed reduction mechanism employs helical gears, which provides two times meshing rate of teeth when comparing with regular spur gears. In addition, it also features extremely smooth running, low noise, high torque output and low backlash.

High Precision Gear Machining
Manufactured from high quality Ni-Cr-Mo alloy steel (SNCM220), precision achined and carburized to hardness 57-60 HRC. Precision teeth grinding sure gear accuracy reaches DIN6 class.

FNB 系列行星相关参数 FNB series of parameters(1-Stage)

(单段1-Stage)

RATIO:3.4.5.7.10 (62#142#)

(单段1-Stage)

RATIO:4.5.7.10 (90#120#)

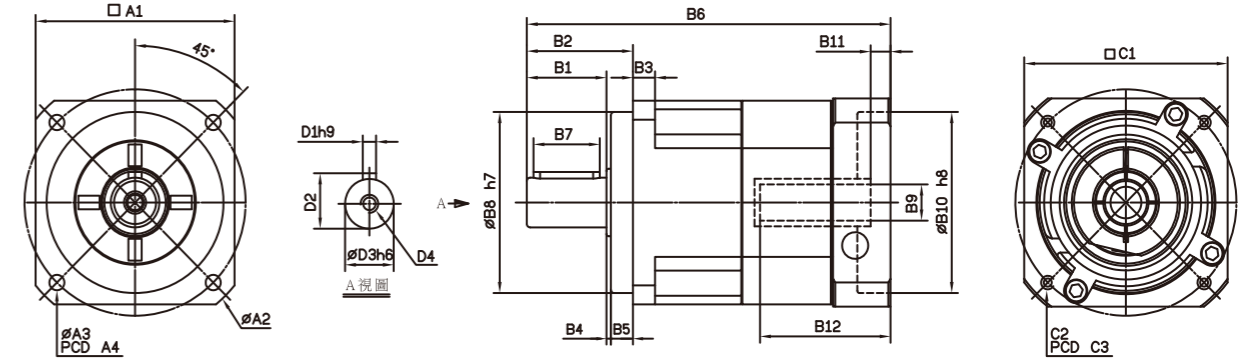


规格 Model No.	单位 Unit	段数	速比 Ratio	FNB 62	FNB 90	FNB 120	FNB 142
额定输出扭矩 Rated Output Torque	Nm	1-Stage	3	54	-	-	301
			4	48	128	269	491
			5	45	132	278	510
			7	41	123	258	473
			10	40	116	246	452
最大加速扭矩 Max. Acceleration Torque	Nm	1-Stage	1.8 倍额定输出力矩 1.8 Times of Rated Output Torque				
最大输出扭矩 Max. Output Torque	Nm	1-Stage	3 倍额定输出力矩 3 Times of Rated Output Torque				
急停扭矩 Emergency Stop Torque	Nm	1-Stage	3 倍额定输出力矩 3 Times of Rated Output Torque				
额定输入转速/Rated Input Speed	rpm	1-Stage	3~10	3,000	3,000	3,000	3,000
最大输入转速/Max. Input Speed	rpm	1-Stage	3~10	6,000	6,000	5,000	5,000
扭转刚性/Torsional Rigidity	Nm/arcmin	1-Stage	3~10	6	14	27	60
容许径向力/Max. Radial Force	N	1-Stage	3~10	1,120	3,040	6,460	8,830
容许轴向力/Max. Axial Force	N	1-Stage	3~10	560	1,520	3,230	4,410
使用寿命/Service Life	hr	1-Stage	3~10	S5 周期运转: >30,000 (S1 连续运转: >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)			
效率/Efficiency	%	1-Stage	3~10	≥97%			
使用温度/Operating Temperature	°C	1-Stage	3~10	-25°C ~ +90°C			
润滑/Lubrication		1-Stage	3~10	全合成润滑油脂Synthetic Grease			
防护等级/Protection Class		1-Stage	3~10	IP65			
安装方向/Mounting Position		1-Stage	3~10	任意方向Any			
噪音值/Noise Level	dB	1-Stage	3~10	≤58	≤60	≤63	≤65
重量/Weight ±3%	Kg	1-Stage	3~10	1.35	3.69	8.63	14.55

转动惯量 Mass Moments of Inertia (kg.cm²)

速比Ratio	62	90	120	142
3	0.16	-	-	9.21
4	0.14	0.48	2.74	7.54
5	0.13	0.47	2.74	2.42
7	0.13	0.45	2.62	7.14
10	0.13	0.44	2.57	7.03

FNB系列行星尺寸 FNB series of outline(1-Stage)



Model Code	FNB62	FNB90	FAB120	FAB142
A1	62	90	120	142
A2	80	116	148	186
A3	5.5	6.8	9	11
A4	70	100	130	165
B1	28	36	50	74
B2	36	48	65	92
B3	8	10	12	15
B4	1	2	3	3
B5	7	10	12	15
B6	115、123	164.5、179	205、215	260.5
B7	20	30	40	65
B8	50	80	110	130
B9	11、14、16、19	16、19、22、24	22、24、28、32	28、32、35、38
B10	50、60、70	70、80、95、110	95、110、130	110、130、180
B11	6	9、23.5	10、20	10
B12	33.5、41.5	59、73.5	67、77	84.5
C1	64、70、80	92、110、130	122、130、150	146、150、190
C2	M4、M5、M6	M5、M6、M8	M6、M8、M10	M8、M10、M12
C3	70、75、90	90、100、115、145	115、145、165	145、165、215
D1	5	6	10	12
D2	18	24.5	35	43
D3	16	22	32	40
D4	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75

FNB 系列行星相关参数 FNB series of parameters(2-Stage)



(双段2-Stage)

RATIO:15.20.25.30.35.40.50.70.100(62#142#)

(双段2-Stage)

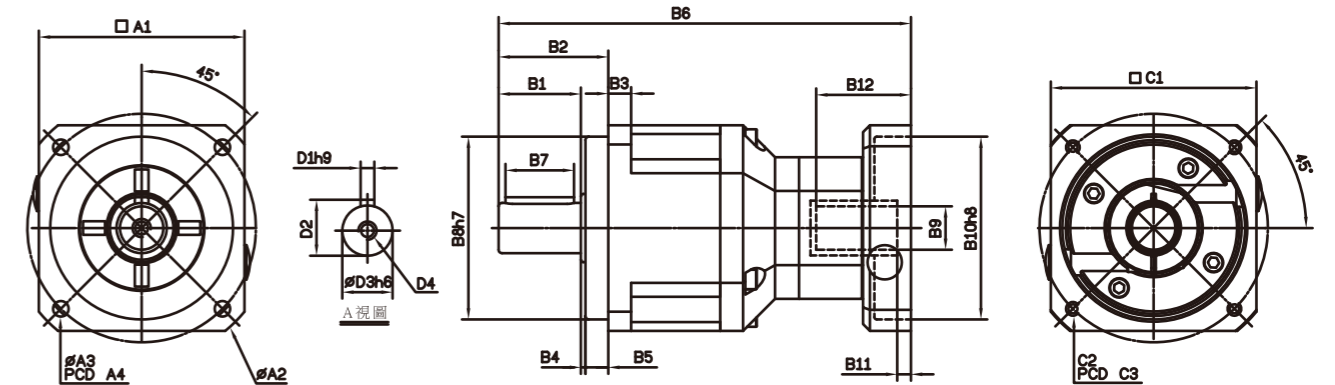
RATIO:20.25.35.40.50.70.100(90#120#)

规格 Model No.	单位 Unit	段数	速比 Ratio	FNB 62	FNB 90	FNB 120	FNB 142
额定输出扭矩 Rated Output Torque	Nm	2-Stage	15	54	-	-	553
			20	48	128	269	491
			25	45	132	278	510
			30	41	-	-	466
			35	41	123	258	473
			40	39	115	241	442
			50	45	132	278	510
			70	41	123	258	473
100	40	116	246	452			
最大加速扭矩 Max. Acceleration Torque	Nm	2-Stage	1.8 倍额定输出力矩 1.8 Times of Rated Output Torque				
最大输出扭矩 Max. Output Torque	Nm	2-Stage	3 倍额定输出力矩 3 Times of Rated Output				
急停扭矩 Emergency Stop Torque	Nm	2-Stage	3 倍额定输出力矩 3 Times of Rated Output				
额定输入转速/Rated Input Speed	rpm	2-Stage	15~100	3,000	3,000	3,000	3,000
最大输入转速/Max. Input Speed	rpm	2-Stage	15~100	6,000	6,000	5,000	5,000
扭转刚性 /Torsional Rigidity	Nm/arcmin	2-Stage	15~100	6	14	27	60
容许径向力 /Max. Radial Force	N	2-Stage	15~100	1,120	3,040	6,460	8,830
容许轴向力/Max. Axial Force	N	2-Stage	15~100	560	1,520	3,230	4,410
使用寿命/Service Life	hr	2-Stage	15~100	S5 周期运转 : >30,000 (S1 连续运转 : >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)			
效率 / Efficiency	%	2-Stage	15~100	≥94%			
使用温度/Operating Temperature	°C	2-Stage	15~100	-25°C ~ +90°C			
润滑 / Lubrication		2-Stage	15~100	全合成润滑油脂 Synthetic Grease			
防护等级 /Protection Class		2-Stage	15~100	IP65			
安装方向 /Mounting Position		2-Stage	15~100	任意方向 Any			
噪音值 / Noise Level	dB	2-Stage	15~100	≤58	≤60	≤63	≤65
重量 / Weight ±3%	Kg	2-Stage	15~100	1.6	4.04	9.49	17

转动惯量 Mass Moments of Inertia (kg.cm²)

速比 Ratio	62	90	120	142
15	0.03	-	-	2.63
20	0.03	0.14	0.46	2.63
25	0.03	0.14	0.46	2.63
30	0.03	-	-	2.43
35	0.03	0.14	0.44	2.43
40	0.03	0.14	0.44	2.43
50	0.03	0.14	0.44	2.43
70	0.03	0.14	0.43	2.39
100	0.03	0.14	0.40	2.39

FNB 系列行星尺寸 FNB series of outline(2-Stage)



Model Code	FNB62	FNB90	FNB120	FNB142
A1	62	90	120	142
A2	80	116	148	186
A3	5.5	6.8	9	11
A4	70	100	130	165
B1	28	36	50	74
B2	36	48	65	92
B3	8	10	12	15
B4	1	2	3	3
B5	7	10	12	15
B6	139.5	172.5, 180.5	241, 255.5	298.5, 308.5
B7	20	30	40	65
B8	50	80	110	130
B9	8, 9, 11	11, 14, 16, 19	16, 19, 22, 24	22, 24, 28, 32
B10	30, 40, 50	50, 60, 70	70, 80, 95, 110	70, 95, 110, 130
B11	5	6	9, 23.5	10, 20
B12	26, 30.5	33.5, 41.5	59, 73.5	67, 77
C1	46, 55	64, 70, 80	92, 110, 130	122, 130, 150
C2	M3, M4, M5	M4, M5, M6	M5, M6, M8, M10	M6, M8, M10
C3	46, 60, 63	70, 75, 90	90, 100, 115, 145	115, 145, 165
D1	5	6	10	12
D2	18	24.5	35	43
D3	16	22	32	40
D4	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75

FABT 系列精密行星减速机 FABT Series

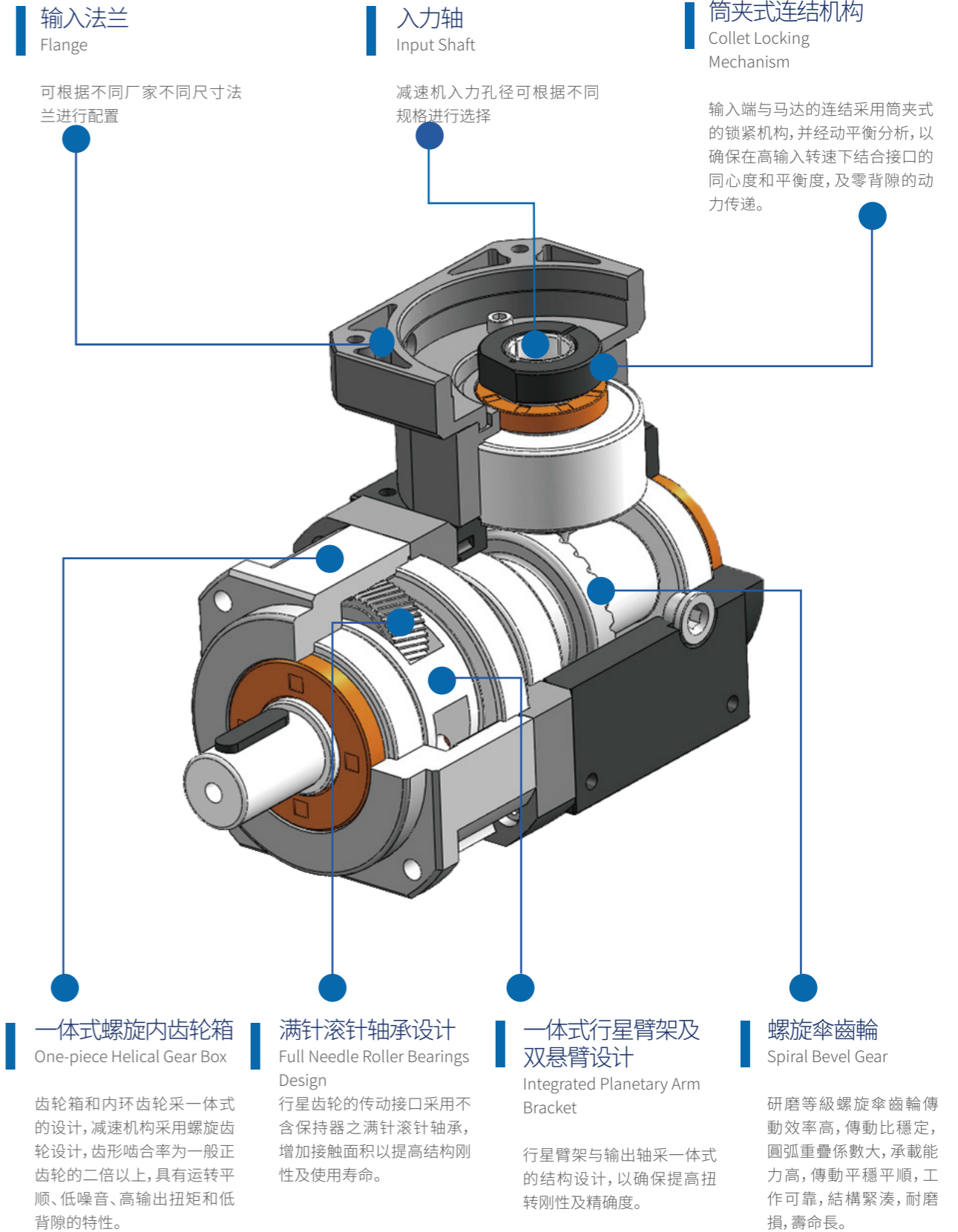


FABT	62	10		P2	MOTOR
减速机机型 Type	型号 Model	速比 Ratio	出力轴键槽 Output Bearing	背隙等级 Backlash Class	电机型号 Motor Type
FABT	44 62 90 120 142 180 220	单段1-Stage: 3,4,5,6,7,8,10,15, 20,25,30,35,40, 45,50	标准品, 有键槽Standard (Keyway) N:实心轴 无键槽Solig Output Shaft(No Keyway)	单段1-Stage: P0≤4弧分(arcmin) P1≤6弧分(arcmin) P2≤8弧分(arcmin)	马达制造商及型号 Motor Brand& Model No

FABT系列产品特性 Features of FABT Series

- 静音 Quiet operation**
 使用斜齿轮实现顺畅安静地运转。
 Helical gears contribute to reduce vibration and noise.
- 高效率 High efficiency**
 单段式在95%以上, 二段式在92%以上。
 Efficiency for 1-stage model exceeds 95%, 2-stage model exceeds 92%.
- 电机连接板的模块化设计 Modular design of mot**
 独特的电机连接板模块化设计, 适用于任何厂牌法兰型式的伺服电机。
 The special modular design of motor connection plate is suitable for any flangemounting servomotors.
- 无润滑脂泄露, 维护方便 No grease leakage, Maintenance-free**
 使用高粘度、不易分离的润滑脂, 有效防润滑脂泄露。在产品寿命期内无需更换润滑脂, 安装更便捷。
 Perfect solution using high viscosity anti-separation grease. No need to replace the grease during product life, Convenient installation is the advantage.

FABT系列产品性能 Characteristic Of FABT Series



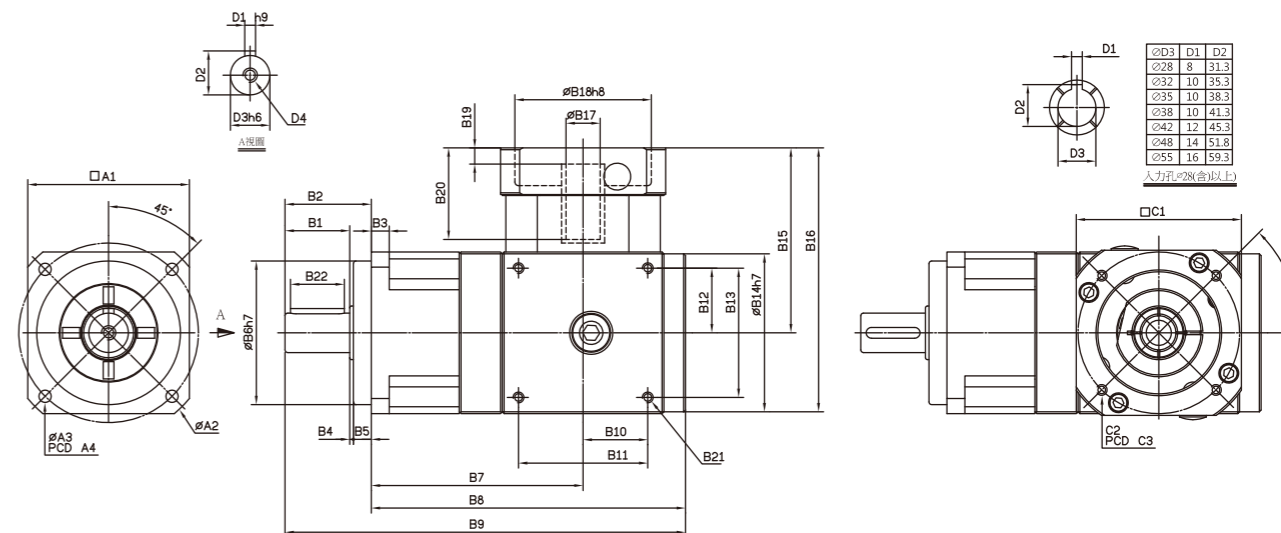
FABT 系列行星相关参数 FABT Series of parameters

RATIO:3,4,5,6,7,8,9,10,15,20,25,30,35,40,45,50



规格 Model No.	代号	单位 Unit	速比 Ratio	44	62	90	120	142	180	220	
额定输出扭矩 Rated Output Torque (Nominal output torque)	T2N	Nm	3	19	59	165	335	625	1,206	2,030	
			4	16	51	146	300	555	1,069	1,804	
			5	16	48	160	333	618	1,189	2,010	
			6	15	45	151	311	583	1,118	1,911	
			7	15	45	149	309	573	1,108	1,870	
			8	14	43	143	298	553	1,070	1,824	
			10	16	48	160	333	618	1,189	2,030	
			15	16	48	160	333	618	1,189	2,030	
			20	16	48	160	333	618	1,189	2,030	
			25	16	48	160	333	618	1,189	2,030	
			30	15	45	151	311	583	1,118	1,911	
35	15	45	149	309	573	1,108	1,870				
40	14	43	143	298	553	1,070	1,824				
45	13	44	145	278	516	993	1,694				
50	14	43	141	294	549	1,059	1,779				
最大加速扭矩 Max. Acceleration Torque	T2B	Nm	3~50	1.8倍额定输出扭矩 1.8 Times of Rated Output Torque							
最大输出扭矩/Max. Output Torque	T2NOT	Nm	3~50	3倍额定输出扭矩 3 Times of Rated Output Torque							
急停扭矩 Emergency Stop Torque											
额定输入转速/ Rated Input Speed	n1N	rpm	3~50	3,000	3,000	3,000	2,500	2,500	2,000	2,000	
最大输入转速 / Max. Input Speed	n1B	rpm	3~50	6,000	6,000	5,500	4,500	3,500	3,000	3,000	
背隙 Backlash P0		arcmin	3~50	≤4	≤4	≤4	≤4	≤4	≤4	≤4	
背隙/ Backlash P1		arcmin	3~50	≤6	≤6	≤6	≤6	≤6	≤6	≤6	
背隙/ Backlash P2		arcmin	3~50	≤8	≤8	≤8	≤8	≤8	≤8	≤8	
扭转刚性/ Torsional Rigidity		Nm/arcmin	3~50	3	6	14	27	60	140	240	
容许径向力/ Max. Radial Force	F2rB	N	3~50	380	1,180	3,200	6,800	9,300	15,600	51,000	
容许轴向力/ Max. Axial Force	F2aB	N	3~50	190	590	1,600	3,400	4,650	7,800	25,500	
使用寿命/Service Life	LH	hr	3~50	S5 周期运转: >30,000 (S1 连续运转: >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000)							
效率/Efficiency	η	%	3~50	≥95%							
使用温度 / Operating Temperature		°C	3~50	-25°C ~ +90°C							
润滑 / Lubrication			3~50	全合成润滑油脂 Synthetic Grease							
防护等级 / Protection Class			3~50	IP65							
安装方向/ Mounting Position			3~50	任意方向 Any							
噪音值/Noise Level		dB	3~50	≤65	≤68	≤70	≤72	≤74	≤76	≤76	
重量 / Weight ±3%		Kg	3~50	1.2	2	7	13	24	48	78	

FABT 系列行星尺寸 FABT Series of outline



Model Code	44	62	90	120	142	180	220
A1	44	62	90	120	142	180	220
A2	58	80	116	148	186	238	288
A3	4.5	5.5	6.8	9	11	13	17
A4	50	70	100	130	165	215	250
B1	20	28	36	50	74	82	104
B2	26	36	48	65	92	106	139
B3	5	8	10	12	15	16	20
B4	1	1	2	3	3	4	5
B5	5	7	10	12	15	20	30
B6	35	50	80	110	130	160	180
B7	67.5	87.5	118	145	175	207	237
B8	99.5	128	175	215	260	307	360
B9	125.5	164	223	280	352	413	499
B10	-	26	36	44	55	67	85
B11	-	52	72	88	110	134	170
B12	-	26	36	44	55	67	85
B13	-	52	72	88	110	134	170
B14	48	62	88	106	135	164	205
B15	57	77	103,117	122,136	154	189	252,254
B16	82	110	148,162	182,196	225	279	362,364
B17	8	11,14	19,24	22,24	28,32,35	35,38	42,48,55
B18	30	50,60,70	70,80,95,110	70,80,95,110	95,110,130	110,130,180	114.3,180,230
B19	5	7	9,23.5	9,23.5	10	9.5	14,16
B20	26	36	51,65.5	51,65.5	68	84.5	117,119
B21	-	M5×P0.8	M6×P1.0	M8×P1.25	M10×P1.5	M12×P1.75	M16×P2.0
B22	15	20	30	40	65	70	90
C1	42	64,70,80	92,110,130	92,110,130	122,130,150	146,150,190	182,200,250
C2	M4	M4,M5,M6	M5,M6,M8	M5,M6,M8	M6,M8,M10	M8,M10,M12	M10,M12,M16
C3	46	70,75,90	90,100,115,145	90,100,115,145	115,145,165	145,165,215	200,215,265
D1	5	5	6	10	12	16	20
D2	15	18	24.5	35	43	59	79.5
D3	13	16	22	32	40	55	75
D4	M4×P0.7	M5×P0.8	M8×P1.25	M10×P1.5	M12×P1.75	M14×P2.0	M16×P2.0

转动惯量 Mass Moments of Inertia (kg.cm²)

速比 Ratio	44	62	90	120	142	180	220
3	0.09	0.36	2.28	6.85	23.5	68.2	135
4	0.09	0.36	2.28	6.85	23.5	68.2	135
5	0.09	0.36	2.28	6.85	23.5	68.2	135
6	0.09	0.36	2.28	6.85	23.5	68.2	135
7	0.09	0.36	2.28	6.85	23.5	68.2	135
8	0.09	0.36	2.28	6.85	23.5	68.2	135
10	0.09	0.36	2.28	6.85	23.5	68.2	135
15	0.06	0.22	2.05	6.21	21.2	61.3	135
20	0.06	0.22	2.05	6.21	21.2	61.3	135
25	0.06	0.22	2.05	6.21	21.2	61.3	135
30	0.06	0.22	2.05	6.21	21.2	61.3	135
35	0.06	0.22	2.05	6.21	21.2	61.3	135
40	0.06	0.22	2.05	6.21	21.2	61.3	135
45	0.06	0.22	2.05	6.21	21.2	61.3	135
50	0.06	0.22	2.05	6.21	21.2	61.3	135

行星减速机搭配伞齿轮减速机型号及速比一览表 The Model & Ratio Table of Precision Planetary Reducer Assembly Bevel Gear Reducer

型号 Model	减速比 Ratio	法兰盘框号 Flange Model	伞齿轮减速机 Bevel Gear Reducer Model
44	3, 4, 5, 6, 7, 8, 10, 15, 20, 25, 30, 35, 40, 45, 50	44	-
62		62	FST65
90		90	FST90
120		90	FST110
142		120	FST140
180		142	FST170
220		180	FST210

FABL系列精密行星减速机 FABL Series



FABL	62	10	□	P1	MOTOR
减速机机型 Type	型号 Model	速比 Ratio	出力轴键槽 Output Bearing	背隙等级 Backlash Class	电机型号 Moyor Type
FABL:FABL FABL-A:FABL-A	44/A44 62/A62 90/A90 120/A120 142/A142 180/A180 220/A220	单段1-Stage: 3,4,5,6,7,8,10, 12,14,16,18,20 双段2-Stage: 15,20,25,30,35,40,50,60,70 ,80,100,120,140 160,180,200	□ 标准品, 有键槽Standard (Keyway) N:实心轴无键槽Solig Output Shaft(No Keyway)	单段1-Stage: P0≤4弧分(arcmin) P1≤6弧分(arcmin) P2≤8弧分(arcmin) 双段2-Stage: P0≤7弧分(arcmin) P1≤9弧分(arcmin) P2≤12弧分(arcmin)	马达制造商及型号 Motor Brand& Model No

FABL系列产品特性 Features of FABL Series

- 静音 Quiet operation**
 使用斜齿轮实现顺畅安静地运转。
 Helical gears contribute to reduce vibration and noise.
- 高效率 High efficiency**
 单段式在95%以上, 双段式在92%以上。
 Efficiency for 1-stage model exceeds 95%, 2-stage model exceeds 92%.
- 电机连接板的模块化设计 Modular design of mot**
 独特的电机连接板模块化设计, 适用于任何厂牌法兰型式的伺服电机。
 The special modular design of motor connection plate is suitable for any flangemounting servomotors.
- 无润滑脂泄露、维护方便 No grease leakage, Maintenance-free**
 使用高粘度、不易分离的润滑脂, 有效防润滑脂泄露。在产品寿命期内无需更换润滑脂, 安装更便捷。
 Perfect solution using high viscosity anti-separation grease. No need to replace the grease during product life, Convenient installation is the advantage.

FABL系列产品特性 Features of FABL Series

- 输入法兰 Flange**
 可根据不同厂家不同尺寸法兰进行配置
- 输入轴 Input Shaft**
 减速机输入孔径可根据不同规格进行选择
- 筒夹式连结机构 Collet Locking Mechanism**
 输入端与马达的连结采用筒夹式的锁紧机构, 并经动平衡分析, 以确保在高输入转速下结合接口的同心度和平衡度, 及零背隙的动力传递。
- 一体式螺旋内齿轮箱 One-piece Helical Gear Box**
 齿轮箱和内环齿轮采一体式的设计, 减速机采用螺旋齿轮设计, 齿形啮合率为一般正齿轮的二倍以上, 具有运转平顺、低噪音、高输出扭矩和低背隙的特性。
- 满针滚针轴承设计 Full Needle Roller Bearings Design**
 行星齿轮的传动接口采用不含保持器之满针滚针轴承, 增加接触面积以提高结构刚性及使用寿命。
- 一体式行星臂架及双悬臂设计 Integrated Planetary Arm Bracket**
 行星臂架与输出轴采一体式的结构设计, 以确保提高扭转刚性及精确度。
- 螺旋伞齿輪 Spiral Bevel Gear**
 研磨等級螺旋傘齒輪傳動效率高, 傳動比穩定, 圓弧重疊係數大, 承載能力高, 傳動平穩平順, 工作可靠, 結構緊湊, 耐磨損, 壽命長。

FABL系列行星相关参数 FABL Series FABL Series of parameters (单段1-Stage)

RATIO:3, 4, 5, 6, 7, 8, 10, 12, 14, 16, 18, 20

(单段1-Stage)

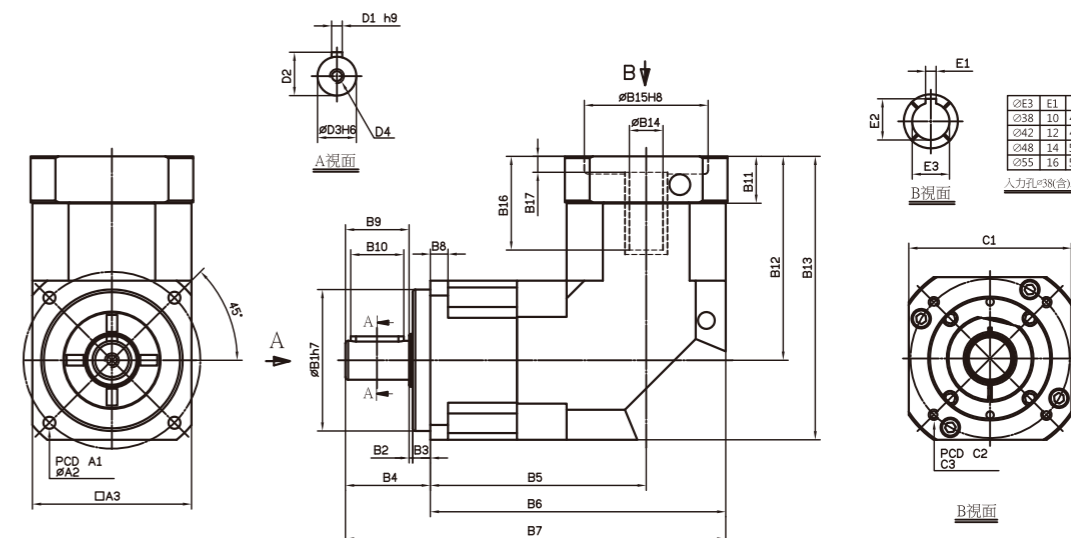


规格 Model No.	代号	单位 Unit	速比 Ratio	44	62	90	120	142	180	220
额定输出扭矩 Rated Output Torque	T2N	Nm	3	19	59	165	335	625	1,206	2,030
			4	16	51	146	300	555	1,069	1,804
			5	16	48	160	333	618	1,189	2,010
			6	15	45	151	311	583	1,118	1,911
			7	15	45	149	309	573	1,108	1,870
			8	14	43	143	298	553	1,070	1,824
			10	14	43	141	294	549	1,059	1,779
			12	15	45	151	311	583	1,118	1,911
			14	15	45	149	309	573	1,108	1,870
			16	14	43	143	298	553	1,070	1,824
18	13	44	145	278	516	993	1,694			
20	14	43	141	294	549	1,059	1,779			
最大出力矩/Max. Output Torque	T2B	Nm	3~20	1.8倍额定输出扭矩 1.8 Times of Rated Output Torque						
最大输出扭矩/Max. Output Torque 急停扭矩 / Emergency Stop Torque	T2NOT	Nm	3~20	3倍额定输出扭矩 3 Times of Rated Output Torque						
额定输入转速 / Rated Input Speed	n1N	rpm	3~20	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大输入转速 / Max. Input Speed	n1B	rpm	3~20	6,000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash P0		arcmin	3~20	≤4	≤4	≤4	≤4	≤4	≤4	≤4
背隙 Backlash P1		arcmin	3~20	≤6	≤6	≤6	≤6	≤6	≤6	≤6
背隙 Backlash P2		arcmin	3~20	≤8	≤8	≤8	≤8	≤8	≤8	≤8
扭转刚性 / Torsional Rigidity		Nm/arcmin	3~20	3	6	14	27	60	140	240
容许径向力 / Max. Radial Force	F2rB	N	3~20	380	1180	3,200	6,800	9,300	15,600	51,000
容许轴向力 / Max. Axial Force	F2aB	N	3~20	190	590	1,600	3,400	4,650	7,800	25,500
使用寿命 / Service Life	LH	hr	3~20	S5 周期运转: >30,000 (S1 连续运转: >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 / Efficiency	η	%	3~20	≥95%						
使用温度 / Operating Temperature		°C	3~20	-25°C ~ +90°C						
润滑 / Lubrication			3~20	全合成润滑油脂 Synthetic Grease						
防护等级 / Protection Class			3~20	IP65						
安装方向 / Mounting Position			3~20	任意方向 Any						
噪音值 / Noise Level		dB	3~20	≤65	≤68	≤70	≤72	≤74	≤76	≤78
重量 / Weight ±3%		Kg	3~20	1	2.3	6.6	13.2	22.3	50	75.2

转动惯量 Mass Moments of Inertia (kg.cm2)

Ratio	44	62	90	120	142	180	220
3	0.09	0.36	2.28	6.85	23.5	68.2	135
4	0.09	0.36	2.28	6.85	23.5	68.2	135
5	0.09	0.36	2.28	6.85	23.5	68.2	135
6	0.09	0.36	2.28	6.85	23.5	68.2	135
7	0.09	0.36	2.28	6.85	23.5	68.2	135
8	0.09	0.36	2.28	6.85	23.5	68.2	135
10	0.09	0.36	2.28	6.85	23.5	68.2	135
12	0.03	0.08	1.88	6.2	21.8	65.5	119.2
14	0.03	0.08	1.88	6.2	21.8	65.5	119.2
16	0.03	0.08	1.88	6.2	21.8	65.5	119.2
18	0.03	0.08	1.88	6.2	21.8	65.5	119.2
20	0.03	0.08	1.88	6.2	21.8	65.5	119.2

FABL系列行星尺寸 FABL Series of outline (单段1-Stage)



Model Code	44	62	90	120	142	180	220
A1	50	70	100	130	165	215	250
A2	4.5	5.5	6.8	9	11	13	17
A3	44	62	90	120	142	180	220
B1	35	50	80	110	130	160	180
B2	1	1	2	3	3	4	5
B3	5	7	10	12	15	20	30
B4	26	36	48	65	92	106	139
B5	76	84.5	122.1	148	165.5	223.6	231.6
B6	98	115.5	167.1	208	236.5	313.6	341.6
B7	124	151.5	215	273	328.5	419.6	480.6
B8	5	8	10	12	15	16	20
B9	20	28	36	50	74	82	104
B10	15	20	30	40	65	70	90
B11	16	21.5	26.5, 41	35.5, 45.5	35.5	45.5, 47.5	45.5, 47.5
B12	61	77, 85	115.3, 129.8	141, 151	165.7	235, 237	235, 237
B13	83	108, 116	160.3, 174.8	201, 211	236.7	325, 327	345, 347
B14	8, 11	11, 14, 16, 19	16, 19, 22, 24	24, 28, 32	28, 32, 35, 38	35, 38, 42, 48, 55	38, 42, 48, 55
B15	30, 40, 50	50, 60, 70	70, 80, 95, 110	95, 110, 130	110, 130, 180	114.3, 180, 230	114.3, 230, 250
B16	27	33.5, 42	53, 58, 67.5	67, 77	67, 84	117, 119	117, 119
B17	6	6	9, 23.5	10, 20	10	12.5, 14.5	12.5, 14.5
C1	46, 55	64, 70, 80	92, 110, 130	122, 130, 150	146, 150, 190	182, 200, 250	220, 250, 265
C2	46, 60, 63	70, 75, 90	90, 110, 115, 145	115, 145, 165	145, 165, 215	200, 215, 265	200, 265, 300
C3	M3, M4, M5	M4, M5, M6	M5, M6, M8	M6, M8, 10	M8, M10, M12	M10, M12, M16	M12, M16
D1	5	5	6	10	12	16	20
D2	15	18	24.5	35	43	59	79.5
D3	13	16	22	32	40	55	75
D4	M4×P0.7	M5×P0.8	M6×P1.0	M8×P1.25	M10×P1.5	M10×P1.5	M10×P1.5

FABL系列行星相关参数 FABL Series

FABL Series of parameters (双段2-Stage)

RATIO:15、20、25、30、35、40、50、60、70、

80、100、120、140、160、180、200

(双段2-Stage)

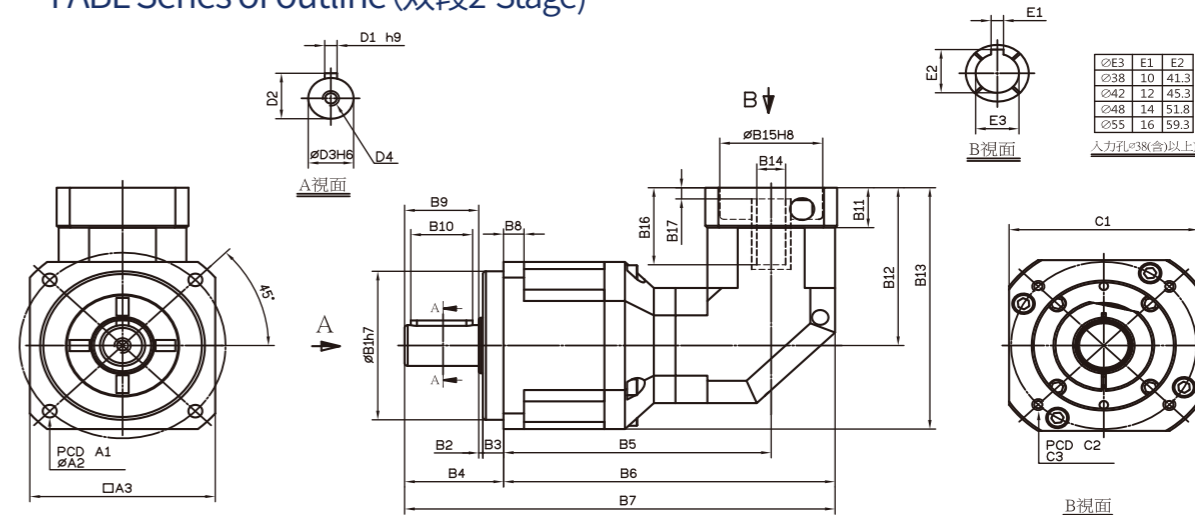


规格 Model No.	代号	单位 Unit	速比 Ratio	62	90	120	142	180	220
额定输出扭矩 Rated Output Torque	T2N	Nm	15	59	165	335	625	1,206	2,030
			20	51	146	300	555	1,069	1,804
			25	48	160	333	618	1,189	2,010
			30	45	151	311	583	1,118	1,911
			35	45	149	309	573	1,108	1,870
			40	43	143	298	553	1,070	1,824
			50	48	160	333	618	1,189	2,010
			60	45	151	311	583	1,118	1,911
			70	45	149	309	573	1,108	1,870
			80	43	143	298	553	1,070	1,824
			100	43	141	294	549	1,059	1,779
			120	45	151	311	583	1,118	1,911
			140	45	149	309	573	1,108	1,870
160	43	143	298	553	1,070	1,824			
180	44	145	278	516	993	1,694			
200	43	141	294	549	1,059	1,779			
最大出力矩/Max. Output Torque	T _{2B}	Nm	15 ~ 200	1.8倍额定输出扭矩 1.8 Times of Rated Output Torque					
最大输出扭矩/Max. Output Torque 急停扭矩 / Emergency Stop Torque	T _{2NOT}	Nm	15 ~ 200	3倍额定输出力矩 3 Times of Rated Output Torque					
额定输入转速 / Rated Input Speed	n _{1N}	rpm	15 ~ 200	3,000	3,000	3,000	3,000	3,000	2,000
最大输入转速 / Max. Input Speed	n _{1B}	rpm	15 ~ 200	6,000	6,000	5,000	5,000	4,000	4,000
背隙 Backlash P0		arcmin	15 ~ 200	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P1		arcmin	15 ~ 200	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P2		arcmin	15 ~ 200	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
扭转刚性 / Torsional Rigidity		Nm/arcmin	15 ~ 200	6	14	27	60	140	240
容许径向力 / Max. Radial Force	F _{2rB}	N	15 ~ 200	1,180	3,200	6,800	9,300	15,600	51,000
容许轴向力 / Max. Axial Force	F _{2aB}	N	15 ~ 200	590	1,600	3,400	4,650	7,800	25,500
使用寿命 / Service Life	LH	hr	15 ~ 200	S5 周期运转: >30,000 (S1连续运转: >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)					
效率 / Efficiency	η	%	15 ~ 200	≥ 92%					
使用温度 / Operating Temperature		°C	15 ~ 200	-25°C ~ +90°C					
润滑 / Lubrication			15 ~ 200	全合成润滑油脂 Synthetic Grease					
防护等级 / Protection Class			15 ~ 200	IP65					
安装方向 / Mounting Position			15 ~ 200	任意方向 Any					
噪音值 / Noise Level		dB	15 ~ 200	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 78
重量 / Weight ±3%		Kg	15 ~ 200	2	5.5	12.5	23.2	44.4	79.5

转动惯量 Mass Moments of Inertia (kg.cm²)

Ratio	62	90	120	142	180	220
15	0.09	0.36	2.28	6.85	26.2	70.1
20	0.09	0.36	2.28	6.85	26.2	70.1
25	0.09	0.36	2.28	6.85	23.1	68.2
30	0.09	0.36	2.28	6.85	23.1	68.2
35	0.09	0.36	2.28	6.85	23.1	68.2
40	0.09	0.36	2.28	6.85	23.1	68.2
50	0.09	0.36	2.28	6.85	23.1	68.2
60	0.09	0.36	2.28	6.85	23.1	68.2
70	0.09	0.36	2.28	6.85	23.1	68.2
80	0.09	0.36	2.28	6.85	23.1	68.2
100	0.09	0.36	2.28	6.85	23.1	68.2
120	0.03	0.10	1.88	6.20	21.2	65.1
140	0.03	0.10	1.88	6.20	21.2	65.1
160	0.03	0.10	1.88	6.20	21.2	65.1
180	0.03	0.10	1.88	6.20	21.2	65.1
200	0.03	0.10	1.88	6.20	21.2	65.1

FABL系列行星尺寸 FABL Series of outline (双段2-Stage)



Model Code	62	90	120	142	180	220
A1	70	100	130	165	215	250
A2	5.5	6.8	9	11	13	17
A3	62	90	120	142	180	220
B1	50	80	110	130	160	180
B2	1	2	3	3	4	5
B3	7	10	12	15	20	30
B4	36	48	65	92	106	139
B5	110.5	130	181.6	214.5	249.5	313.6
B6	132.5	161	266.6	274.5	320.5	403.6
B7	168.5	209	291.6	366.5	426.5	542.6
B8	8	10	12	15	16	20
B9	28	36	50	74	82	104
B10	20	30	40	65	70	90
B11	16	21.5	26.5、41	35.5、45.5	35.5	45.5、47.5
B12	61	77、85	115.3、129.8	141、151	165.7	235、237
B13	92	122、130	175.3、189.8	212、222	255.7	345、347
B14	8、11	11、14、16、19	16、19、22、24	24、28、32	28、32、35、38	35、38、42、48、55
B15	30、40、50	50、60、70	70、80、95、110	95、110、130	110、130、180	114.3、180、230
B16	27	33.5、42	53、58、67.5	67、77	67、84	117、119
B17	6	6	9、23.5	10、20	10	12.5、14.5
C1	46、55	64、70、80	92、110、130	122、130、150	146、150、190	182、200、250
C2	46、60、63	70、75、90	90、110、115、145	115、145、165	145、165、215	200、215、265
C3	M3、M4、M5	M4、M5、M6	M5、M6、M8、M10	M6、M8、M10	M8、M10、M12	M10、M12、M16
D1	5	6	10	12	16	20
D2	18	24.5	35	43	59	79.5
D3	16	22	32	40	55	75
D4	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0

FABL-A系列行星相关参数 FABL Series FABL -A Series of parameters (双段2-Stage)

RATIO:15、20、25、30、35、40、50、60、70、

80、100、120、140、160、180、200

(双段2-Stage)

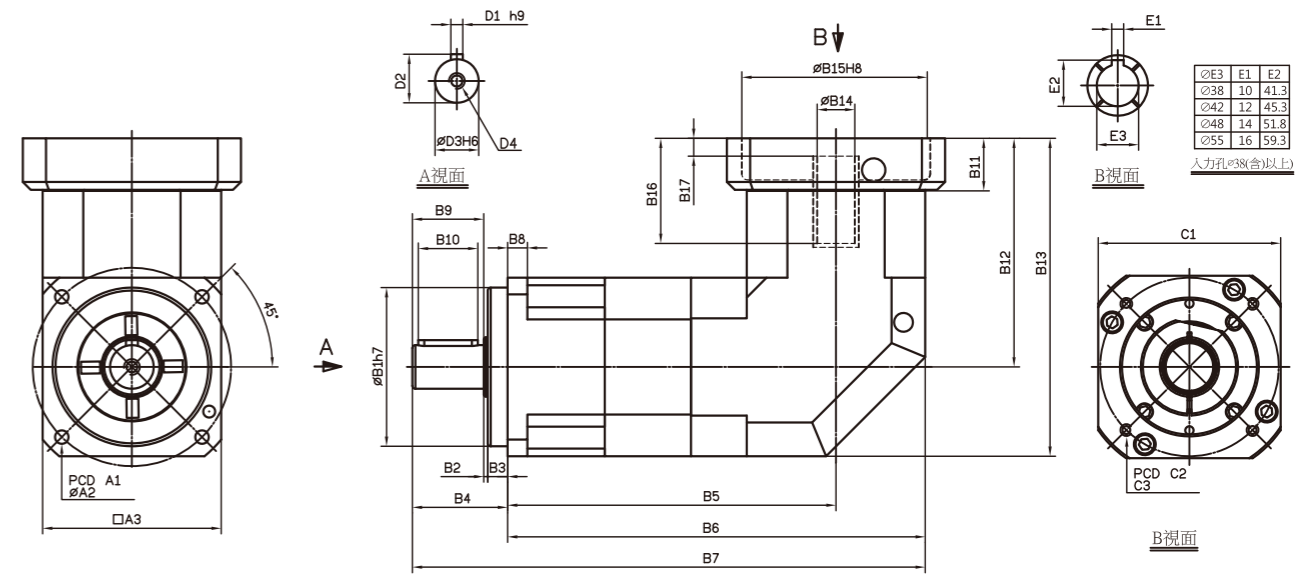


规格 Model No.	代号	单位 Unit	速比 Ratio	44A	62A	90A	120A	142A	180A	220A
额定输出扭矩 Rated Output Torque	T2N	Nm	15	19	59	165	335	625	1,206	2,030
			20	16	51	146	300	555	1,069	1,804
			25	16	48	160	333	618	1,189	2,010
			30	15	45	151	311	583	1,118	1,911
			35	15	45	149	309	573	1,108	1,870
			40	14	43	143	298	553	1,070	1,824
			50	16	48	160	333	618	1,189	2,010
			60	15	45	151	311	583	1,118	1,911
			70	15	45	149	309	573	1,108	1,870
			80	14	43	143	298	553	1,070	1,824
			100	14	43	141	294	549	1,059	1,779
			120	15	45	151	311	583	1,118	1,911
140	15	45	149	309	573	1,108	1,870			
160	14	43	143	298	553	1,070	1,824			
180	13	44	145	278	516	993	1,694			
200	14	43	141	294	549	1,059	1,779			
最大输出力矩/Max. Output Torque	T2B	Nm	15 ~ 200	1.8倍额定输出扭矩 1.8 Times of Rated Output Torque						
最大输出扭矩/Max. Output Torque 急停扭矩 / Emergency Stop Torque	T2NOT	Nm	15 ~ 200	3倍额定输出力矩 3 Times of Rated Output Torque						
额定输入转速/ Rated Input Speed	n1N	rpm	15 ~ 200	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大输入转速 / Max. Input Speed	n1B	rpm	15 ~ 200	6,000	6,000	6,000	5,000	5,000	4,000	3,000
背隙 Backlash P0		arcmin	15 ~ 200	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P1		arcmin	15 ~ 200	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P2		arcmin	15 ~ 200	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
扭转刚性/ Torsional Rigidity		Nm/arcmin	15 ~ 200	3	6	14	27	60	140	240
容许径向力/ Max. Radial Force	F2rB	N	15 ~ 200	380	1,180	3,200	6,800	9,300	15,600	51,000
容许轴向力/ Max. Axial Force	F2aB	N	15 ~ 200	190	590	1,600	3,400	4,650	7,800	25,500
使用寿命/Service Life	LH	hr	15 ~ 200	S5 周期运转: >30,000 (S1连续运转: >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率/Efficiency	η	%	15 ~ 200	≥ 92%						
使用温度 / Operating Temperature		°C	15 ~ 200	-25°C ~ +90°C						
润滑 / Lubrication			15 ~ 200	全合成润滑油脂 Synthetic Grease						
防护等级 / Protection Class			15 ~ 200	IP65						
安装方向/ Mounting Position			15 ~ 200	任意方向 Any						
噪音值/Noise Level		dB	15 ~ 200	≤ 65	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 76
重量 / Weight ±3%		kg	15 ~ 200	1.2	3	8.2	12.5	23.2	52.4	94.5

轉動慣量 Mass Moments of Inertia (kg.cm²)

Ratio	44	62	90	120	142	180	220
15	0.09	0.36	2.28	6.85	23.45	55.2	80.2
20	0.09	0.36	2.28	6.85	23.45	55.2	80.2
25	0.09	0.36	2.28	6.85	23.45	50.4	76.5
30	0.09	0.36	2.28	6.85	23.45	50.4	76.5
35	0.09	0.36	2.28	6.85	23.45	50.4	76.5
40	0.09	0.36	2.28	6.85	23.45	50.4	76.5
50	0.09	0.36	2.28	6.85	23.45	50.4	76.5
60	0.09	0.36	2.28	6.85	23.45	50.4	76.5
70	0.09	0.36	2.28	6.85	23.45	50.4	76.5
80	0.09	0.36	2.28	6.85	23.45	50.4	76.5
100	0.09	0.36	2.28	6.85	23.45	50.4	76.5
120	0.03	0.08	1.88	6.2	21.8	48.7	74.2
140	0.03	0.08	1.88	6.2	21.8	48.7	74.2
160	0.03	0.08	1.88	6.2	21.8	48.7	74.2
180	0.03	0.08	1.88	6.2	21.8	48.7	74.2
200	0.03	0.08	1.88	6.2	21.8	48.7	74.2

FABL-A 系列行星尺寸 FABL-A Series of outline (双段2-Stage)



Model Code	44A	62A	90A	120A	142A	180A	220A
A1	50	70	100	130	165	215	250
A2	4.5	5.5	6.8	9	11	13	17
A3	44	62	90	120	142	180	220
B1	35	50	80	110	130	160	180
B2	1	1	2	3	3	4	5
B3	5	7	10	12	15	20	30
B4	26	36	48	65	92	106	139
B5	102	118.3	165.6	204	232	304.6	324.6
B6	124	149.3	210.6	264	303	394.6	434.6
B7	150	185.3	258.6	329	395	500.6	573.6
B8	5	8	10	12	15	16	20
B9	20	28	36	50	74	82	104
B10	15	20	30	40	65	70	90
B11	16	21.5	26.5、41	35.5、45.5	35.5	45.5、47.5	45.5、47.5
B12	61	77	115.3、129.8	141、151	165.7	235、237	235、237
B13	83	108	160.3、174.8	201、211	236.7	325、327	345、347
B14	8、11	11、14、16、19	16、19、22、24	24、28、32	28、32、35、38	35、38、42、48、55	38、42、48、55
B15	30、40、50	50、60、70	70、80、95、110	95、110、130	110、130、180	114.3、180、230	114.3、230、250
B16	27	33.5、42	53、58、67.5	67、77	67、84	117、119	117、119
B17	6	6	9、23.5	10、20	10	12.5、14.5	12.5、14.5
C1	46、55	64、70、80	92、110、130	122、130、150	146、150、190	182、200、250	220、250、265
C2	46、60、63	70、75、90	90、110、115、145	115、145、165	145、165、215	200、215、265	200、265、300
C3	M3、M4、M5	M4、M5、M6	M5、M6、M8	M6、M8、M10	M8、M10、M12	M10、M12、M16	M12、M16
D1	5	5	6	10	12	16	20
D2	15	18	24.5	35	43	59	79.5
D3	13	16	22	32	40	55	75
D4	M4 x P0.7	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M14 x P2.0	M16 x P2.0

FSD系列精密行星减速机 FSD Series



FSD	64	10	□	P1	MOTOR
减速机机型 Type	型号 Model	速比 Ratio	出力轴键槽 Output Bearing	背隙等级 Backlash Class	电机型号 Motor Type
FSD:FSD	47/47# 64/64# 90/90# 110/110# 140/140# 200/200# 255/255#	单段1-Stage: 4, 5, 7, 10 双段2-Stage: 20, 25, 35, 40, 50, 70, 100	□標準品, 滚珠轴承 Standard (Ball Bearing) (47#~255#) T: 滚锥轴承 Taper Bearing (90#~255#)	单段1-Stage: P0 ≤ 3弧分(arcmin) P1 ≤ 5弧分(arcmin) P2 ≤ 7弧分(arcmin) 双段2-Stage: P0 ≤ 5弧分(arcmin) P1 ≤ 7弧分(arcmin) P2 ≤ 9弧分(arcmin)	马达制造商及型号 Motor Brand & Model No

FSD系列产品特性 Features of FSD Series

静音
Quiet operation

使用斜齿轮实现顺畅安静地运转。
Helical gears contribute to reduce vibration and noise.

高效率
High efficiency

单段式在97%以上, 双段式在94%以上。
Efficiency for 1-stage model exceeds 97%, 2-stage model exceeds 94%.

电机连接板的模块化设计
Modular design of motor connection plate

独特的电机连接板模块化设计, 适用于任何厂牌法兰型式的伺服电机。
The special modular design of motor connection plate is suitable for any flangemounting servomotors.

无润滑脂泄露, 维护方便
No grease leakage,
Maintenance-free

使用高粘度、不易分离的润滑脂, 有效防润滑脂泄露。在产品寿命期内无需更换润滑脂, 安装更便捷。
Perfect solution using high viscosity anti-separation grease. No need to replace the grease during product life, Convenient installation is the advantage.

FSD系列产品性能 Characteristic Of FSD Series

一体式螺旋内齿轮箱
One-piece Helical Gear Box

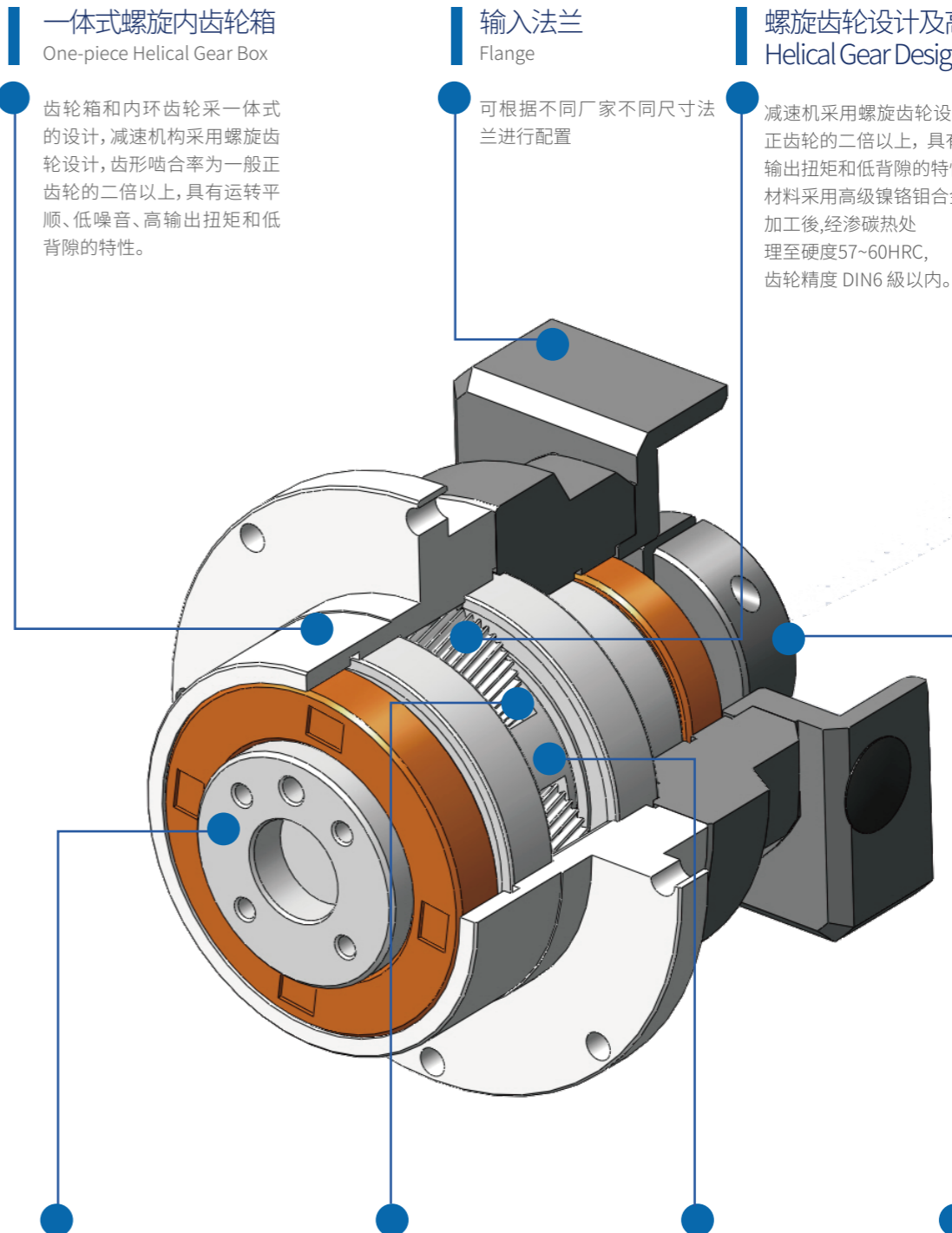
齿轮箱和内环齿轮采一体式设计, 减速机采用螺旋齿轮设计, 齿形啮合率为一般正齿轮的二倍以上, 具有运转平顺、低噪音、高输出扭矩和低背隙的特性。

输入法兰
Flange

可根据不同厂家不同尺寸法兰进行配置

螺旋齿轮设计及高精度齿轮加工
Helical Gear Design

减速机采用螺旋齿轮设计, 齿形咬合率为一般正齿轮的二倍以上, 具有运转平顺、低噪音、高输出扭矩和低背隙的特性。材料采用高级镍铬钼合金钢 (SNM220), 切削加工后, 经渗碳热处理至硬度57~60HRC, 再进行齿面研磨, 确保齿轮精度 DIN6 级以内。



输出法兰
Output Flange

直接输出法兰连接, 强度相对更好

满针滚针轴承设计
Full Needle Roller Bearings Design

行星齿轮的传动接口采用不含保持器之满针滚针轴承, 增加接触面积以提高结构刚性及使用寿命。

一体式行星臂架及双悬臂设计
Integrated Planetary Arm Bracket

行星臂架与输出轴采一体式的结构设计, 以确保提高扭转刚性及精确度。

筒夹式连结机构
Collet Locking Mechanism

输入端与马达的连结采用筒夹式的锁紧机构, 并经动平衡分析, 以确保在高输入转速下结合接口的同心度和平衡度, 及零背隙的动力传递。

FSD 系列行星相关参数

FSD Series of parameters (单段1-Stage)

RATIO:4、5、7、10



(单段1-Stage)

减速比 Ratio	代号	单位 Unit	速比 Ratio	47	64	90	110	140	200	255
额定输出扭矩/ Rated Output Torque	T _{2N}	Nm	4	22	60	160	335	650	1,200	2,020
			5	20	50	155	333	618	1,189	2,010
			7	19	47	142	309	573	1,108	1,870
			10	16	43	136	294	549	1,059	1,779
最大加速扭矩 Max. Acceleration Torque	T _{2B}	Nm	4~10	1.8 倍额定输出力矩 1.8 Times of Rated Output Torque						
最大输出扭矩 Max. Output Torque	T _{2NOT}	Nm	4~10	3 倍额定输出力矩 3 Times of Rated Output Torque						
急停扭矩 Emergency Stop Torque										
额定输入转速 Rated Input Speed	n _{1N}	rpm	4~10	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大输入转速 Max. Input Speed	n _{1B}	rpm	4~10	6,000	6,000	6,000	6,000	5,000	4,000	3,000
背隙 Backlash P0		arcmin	4~10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
背隙 Backlash P1		arcmin	4~10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P2		arcmin	4~10	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
扭转刚度 Torsional Rigidity		Nm/arcmin	4~10	6	14	30	86	155	450	1126
容许径向力 Max. Radial Force	F _{2rB}	N	4~10	2,040	2,520	8,460	12,720	14,070	35,200	39,600
滚珠轴承 Ball Bearing										
容许轴向力 Max. Axial Force	F _{2aB}	N	4~10	1,020	1,260	4,230	6,360	7,035	17,600	19,800
滚珠轴承 Ball Bearing										
容许径向力 Max. Radial Force	F _{2rB}	N	4~10	-	-	14,660	23,000	37,200	73,600	107,200
滚锥轴承 Taper Bearing										
容许轴向力 Max. Axial Force	F _{2aB}	N	4~10	-	-	7,330	11,500	18,600	36,800	53,600
滚锥轴承 Taper Bearing										
最大倾斜力矩 Max. Tilting Moment	M _{2K}	Nm	4~10	31	98	185	320	940	2,200	4,300
滚珠轴承 Ball Bearing ※										
最大倾斜力矩 Max. Tilting Moment	M _{2K}	Nm	4~10	-	-	280	480	1,400	3,300	6,480
滚锥轴承 Taper Bearing ※										
使用寿命 Service Life	L _H	hr	4~10	S5 周期运转: >30,000 (S1 连续运转: >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	4~10	≥97%						
使用温度 Operating Temperature		°C	4~10	-25°C~+90°C						
润滑 Lubrication			4~10	全合成润滑油脂 Synthetic Grease						
防护等级 Protection Class			4~10	IP 65						
安装方向 Mounting Position			4~10	任意方向 Any						
噪音值 Noise Level		dB	4~10	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	4~10	0.7	1.4	4.2	7.4	13.9	32.4	55

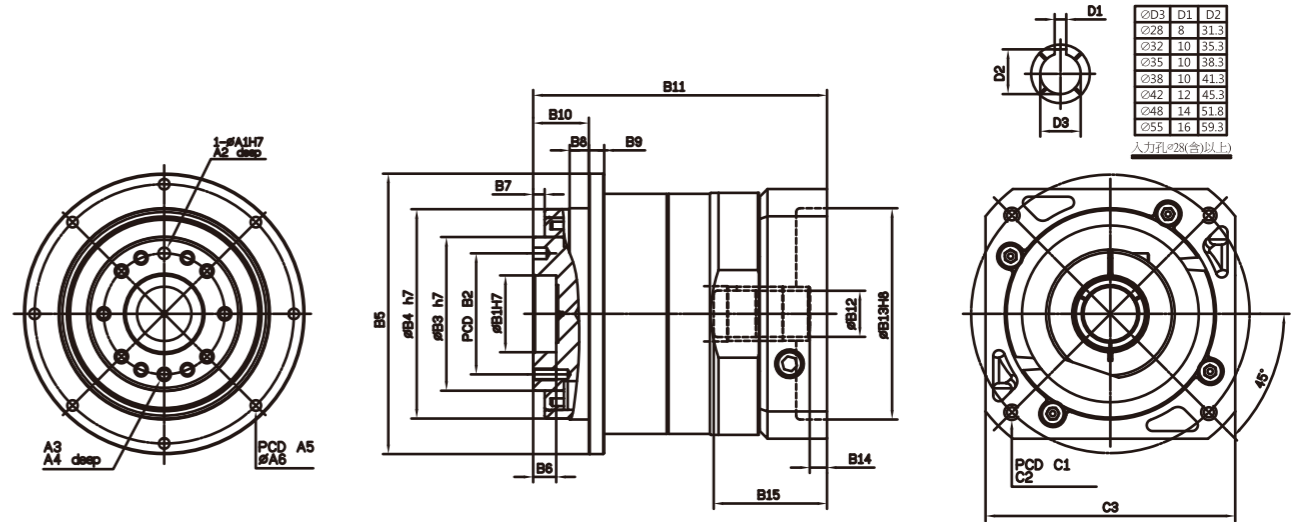
※Applied to the output shaft center at 100 rpm.

转动惯量 Mass Moments of Inertia (kg.cm²)

Ratio	47	64	90	110	140	200	255
4	0.03	0.13	0.47	2.75	7.46	24	55
5	0.03	0.12	0.45	2.7	7.41	23.23	53.19
7	0.03	0.12	0.45	2.64	7.12	22.11	50.78
10	0.03	0.12	0.43	2.56	7.01	22.21	50.5

FSD系列行星尺寸

FSD Series of outline (单段1-Stage)



Model Code	47	64	90	110	140	200	255
A1	3	5	6	6	8	10	12
A2	4	6	6	7	7	10	10
A3	4 - M3 x P0.5	7 - M5 x P0.8	7 - M6 x P1.0	11 - M6 x P1.0	11 - M8 x P1.25	11 - M10 x P1.5	12 - M16 x P2.0
A4	6.5	8	12	12	16	22	32
A5	67	79	109	135	168	233	280
A6	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
B1	12	20	31.5	40	50	80	100
B2	20	31.5	50	63	80	125	140
B3	28	40	63	80	100	160	180
B4	47	64	90	110	140	200	255
B5	72	86	118	146	179	248	300
B6	5	7	12	12	12	16	20
B7	3	4	6	6	6	8	12
B8	5	6	10	10	15	15	20
B9	4	5	7	8	10	12	18
B10	19.5	19.5	30	29	38	50	66
B11	74.7	84.5、92.5	133、147.5	153、173	186.5	250.5、252.5	263、265
B12	8、11	11、14、16、19	16、19、22、24	24、28、32、35	28、32、35、38	35、38、42、48、55	38、42、48、55
B13	30、40、50	50、60、70	70、80、95、110	95、110、130	110、130、180	114.3、180、230	114.3、230、250
B14	5	6	9、23.5	10、20	10	11.5、13.5	10.5、12.5
B15	32	34、41.5	58.5、73	67、82	84.5	114.5、116.5	115.5、117.5
C1	46、60、63	70、75、90	90、100、115、145	115、145、165	145、165、215	200、215、265	200、265、300
C2	M3、M4、M5	M4、M5、M6	M5、M6、M8	M6、M8、M10	M8、M10、M12	M10、M12、M16	M12、M16
C3	46、55	64、70、80	92、110、130	122、130、150	146、150、190	182、200、250	222、250、265

FSD 系列行星相关参数 FSD Series of parameters (双段2-Stage)

RATIO:20、25、35、40、50、70、100

(双段2-Stage)



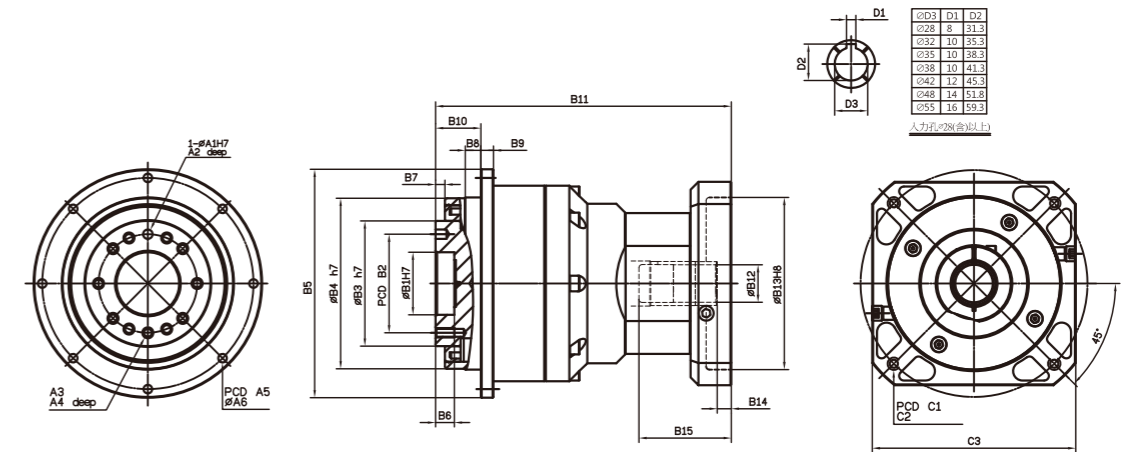
减速比 Ratio	代号	单位 Unit	速比 Ratio	47	64	90	110	140	200	255
额定输出扭矩/ Rated Output Torque	T _{2N}	Nm	20	22	60	160	335	650	1,200	2,020
			25	20	50	155	333	618	1,189	2,010
			35	19	47	142	309	573	1,108	1,870
			40	22	60	160	335	650	1,200	2,020
			50	20	50	155	333	618	1,189	2,010
			70	19	47	142	309	573	1,108	1,870
100	16	43	136	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T _{2B}	Nm	20 ~ 100	1.8 倍额定输出力矩 1.8 Times of Rated Output Torque						
最大输出扭矩 Max. Output Torque	T _{2NOT}	Nm	20 ~ 100	3 倍额定输出力矩 3 Times of Rated Output Torque						
急停扭矩 Emergency Stop Torque										
额定输入转速 Rated Input Speed	n _{1N}	rpm	20 ~ 100	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大输入转速 Max. Input Speed	n _{1B}	rpm	20 ~ 100	6,000	6,000	6,000	6,000	5,000	4,000	3,000
背隙 Backlash P0		arcmin	20 ~ 100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
背隙 Backlash P1		arcmin	20 ~ 100	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P2		arcmin	20 ~ 100	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
扭转刚性 Torsional Rigidity		Nm/arcmin	20 ~ 100	6	14	30	86	155	450	1,126
容许径向力 Max. Radial Force	F _{2rB}	N	4 ~ 10	2,040	2,520	8,460	12,720	14,070	35,200	39,600
滚珠轴承 Ball Bearing										
容许轴向力 Max. Axial Force	F _{2aB}	N	4 ~ 10	1,020	1,260	4,230	6,360	7,035	17,600	19,800
滚珠轴承 Ball Bearing										
容许径向力 Max. Radial Force	F _{2rB}	N	4 ~ 10	-	-	14,660	23,000	37,200	73,600	107,200
滚锥轴承 Taper Bearing										
容许轴向力 Max. Axial Force	F _{2aB}	N	4 ~ 10	-	-	7,330	11,500	18,600	36,800	53,600
滚锥轴承 Taper Bearing										
最大倾斜力矩 Max. Tilting Moment	M _{2K}	Nm	4 ~ 10	31	98	185	320	940	2,200	4,300
滚珠轴承 Ball Bearing *										
最大倾斜力矩 Max. Tilting Moment	M _{2K}	Nm	4 ~ 10	-	-	280	480	1,400	3,300	6,480
滚锥轴承 Taper Bearing *										
使用寿命 Service Life	L _H	hr	20 ~ 100	S5 周期运转: >30,000 (S1连续运转: >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	20 ~ 100	≥ 94%						
使用温度 Operating Temperature		°C	20 ~ 100	- 25°C ~ +90°C						
润滑 Lubrication			20 ~ 100	全合成润滑油脂 Synthetic Grease						
防护等级 Protection Class			20 ~ 100	IP 65						
安装方向 Mounting Position			20 ~ 100	任意方向 Any						
噪音值 Noise Level		dB	20 ~ 100	≤ 56	≤ 58	≤ 60	≤ 63	≤ 65	≤ 67	≤ 70
重量 Weight ±3%		Kg	20 ~ 100	1	1.9	4.8	9.4	16.7	40.12	64

*Applied to the output shaft center at 100 rpm.

转动惯量 Mass Moments of Inertia (kg·cm²)

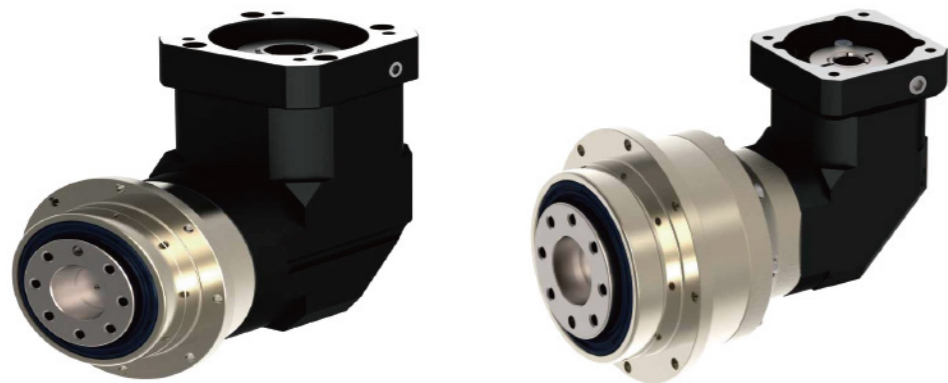
Ratio	47	64	90	110	140	200	255
20	0.03	0.03	0.15	0.45	2.7	7.22	23.22
25	0.03	0.03	0.15	0.45	2.7	7.22	23.22
35	0.03	0.03	0.15	0.45	2.7	7.22	23.22
40	0.03	0.03	0.15	0.45	2.7	7.22	23.22
50	0.03	0.03	0.14	0.4	2.6	7.05	23.07
70	0.03	0.03	0.14	0.4	2.6	7.05	23.07
100	0.03	0.03	0.14	0.4	2.6	7.01	22.67

FSD 系列行星尺寸 FSD Series of outline (双段2-Stage)



Model Code	47	64	90	110	140	200	255
A1	3	5	6	6	8	10	12
A2	4	6	6	7	7	10	10
A3	4 - M3 x P0.5	7 - M5 x P0.8	7 - M6 x P1.0	11 - M6 x P1.0	11 - M8 x P1.25	11 - M10 x P1.5	12 - M16 x P2.0
A4	6.5	8	12	12	16	22	32
A5	67	79	109	135	168	233	280
A6	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
B1	12	20	31.5	40	50	80	100
B2	20	31.5	50	63	80	125	140
B3	28	40	63	80	100	160	180
B4	47	64	90	110	140	200	255
B5	72	86	118	146	179	248	300
B6	5	7	12	12	12	16	20
B7	3	4	6	6	6	8	12
B8	5	6	10	10	15	15	20
B9	4	5	7	8	10	12	16
B10	19.5	19.5	30	29	38	50	66
B11	100.7	109	144.5、152.5	189、203.5	224.5、234.5、244.5	290.5	349、351
B12	8、11	8、11	11、14、16、19	16、19、22、24	22、24、28、32、35	28、32、35、38	35、38、42、48
B13	30、40、50	30、40、50	50、60、70	70、80、95、110	95、110、30	110、130、180	114.3、180、230
B14	5	5	6	9、23	10、20	10	11.5、13.5
B15	26	26、30.5	33.5、41.5	59、73.5	67、77、82	84.5	114.5、116.5
C1	46、60、63	46、60、63	70、75、90	90、100、115、145	115、145、165	145、165、215	200、215、265
C2	M3、M4、M5	M3、M4、M5	M4、M5、M6	M5、M6、M8	M6、M8、M10	M8、M10、M12	M10、M12、M16
C3	46、55	46、55	64、70、80	92、110、130	122、130、150	146、150、190	182、200、250

FSDL系列精密行星减速机 FSDL Series



FSDL	90	10		P1	MOTOR
减速机机型 Type	型号 Model	速比 Ratio	出力轴键槽 Output Bearing	背隙等级 Backlash Class	电机型号 Moyor Type
FSDL:FSDL	47/44# 64/64# 90/90# 110/110# 140/140# 200/200# 255/255#	单段1-Stage: 4,5,7,10,14,20 双段2-Stage: 20,25,35,40,50, 70,100,140,200	标准品, 滚珠轴承 Standard (Ball Bearing) (47#~255#) T:滚锥轴承Taper Bearing (90#~255#)	单段1-Stage: P0 ≤ 4弧分(arcmin) P1 ≤ 6弧分(arcmin) P2 ≤ 8弧分(arcmin) 双段2-Stage: P0 ≤ 7弧分(arcmin) P1 ≤ 9弧分(arcmin) P2 ≤ 12弧分(arcmin)	马达制造商及型号 Motor Brand & Model No

FSDL系列产品特性 Features of FSDL Series

静音
Quiet operation

使用斜齿轮实现顺畅安静地运转。
Helical gears contribute to reduce vibration and noise.

高效率
High efficiency

单段式在97%以上, 双段式在94%以上。
Efficiency for 1-stage model exceeds 97%, 2-stage model exceeds 94%.

电机连接板的模块化设计
Modular design of mot

独特的电机连接板模块化设计, 适用于任何厂牌法兰式式的伺服电机。
The special modular design of motor connection plate is suitable for any flangemounting servomotors.

无润滑脂泄露, 维护方便
No grease leakage,
Maintenance-free

使用高粘度、不易分离的润滑脂, 有效防润滑脂泄露。在产品寿命期内无需更换润滑脂, 安装更便捷。
Perfect solution using high viscosity anti-separation grease. No need to replace the grease during product life, Convenient installation is the advantage.

FSDL系列产品特性 Features of FSDL Series

一体式螺旋内齿轮箱
One-piece Helical Gear Box

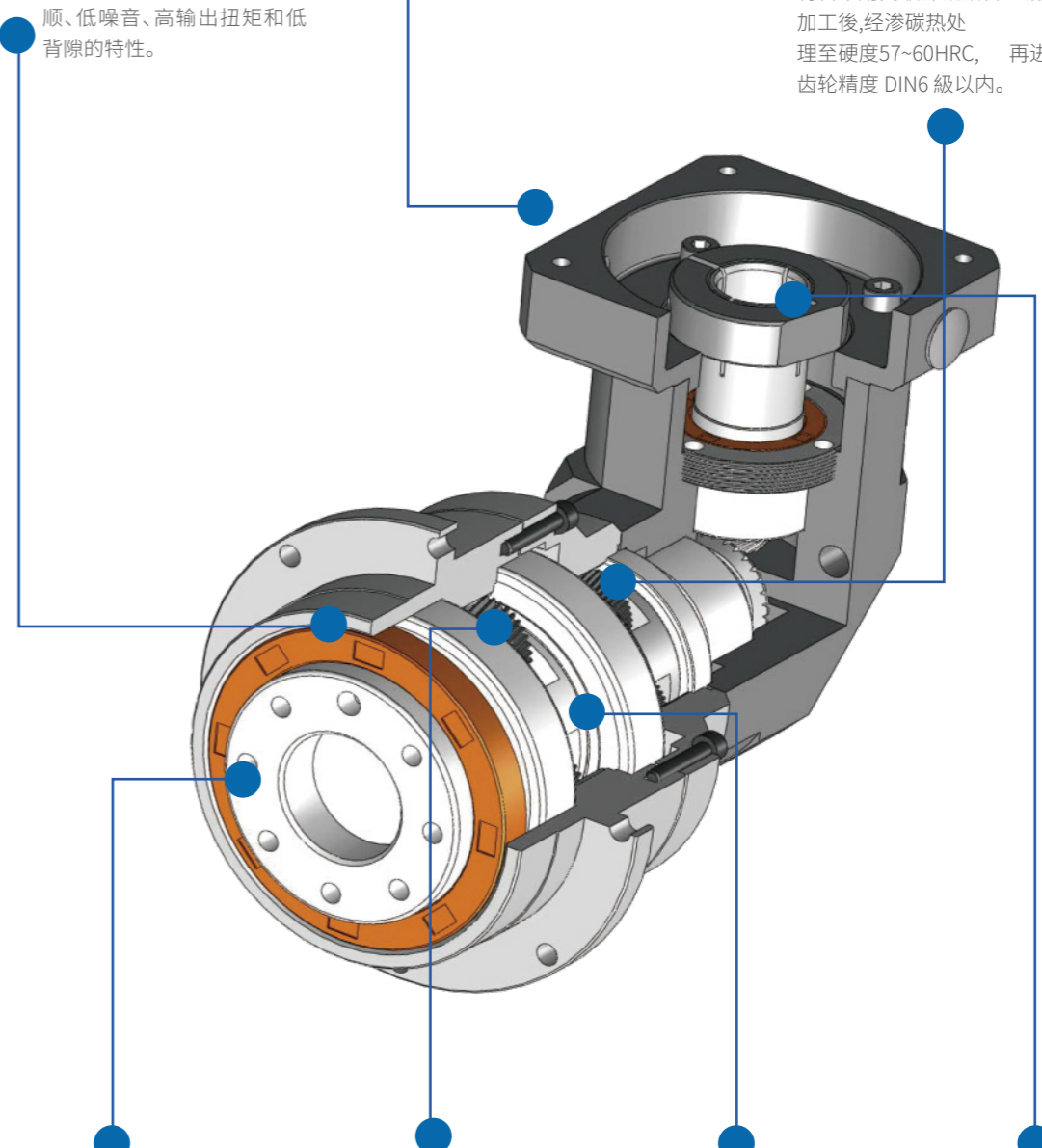
齿轮箱和内环齿轮采一体式的设计, 减速机构采用螺旋齿轮设计, 齿形啮合率为一般正齿轮的二倍以上, 具有运转平顺、低噪音、高输出扭矩和低背隙的特性。

输入法兰
Flange

可根据不同厂家不同尺寸法兰进行配置

螺旋齿轮设计及高精度齿轮加工
Helical Gear Design

减速机采用螺旋齿轮设计, 齿形咬合率为一般正齿轮的二倍以上, 具有运转平顺、低噪音、高输出扭矩和低背隙的特性。
材料采用高级镀铬钼合金钢 (SNM220), 切削加工后, 经渗碳热处理至硬度57~60HRC, 再进行齿面研磨, 确保齿轮精度 DIN6 级以内。



输出法兰
Output Flange

直接输出法兰连接, 强度相对更好

满针滚针轴承设计
Full Needle Roller Bearings Design

行星齿轮的传动接口采用不含保持器之满针滚针轴承, 增加接触面积以提高结构刚性及使用寿命。

一体式行星臂架及双悬臂设计
Integrated Planetary Arm Bracket

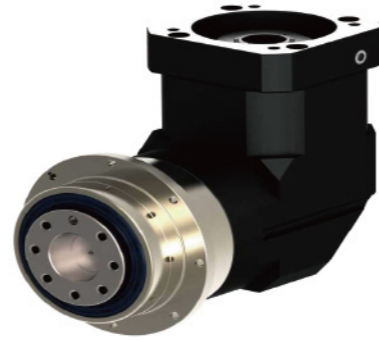
行星臂架与输出轴采一体式的结构设计, 以确保提高扭转刚性及精确度。

筒夹式连结机构
Collet Locking Mechanism

输入端与马达的连结采用筒夹式的锁紧机构, 并经动平衡分析, 以确保在高输入转速下结合接口的同心度和平衡度, 及零背隙的动力传递。

FSDL 系列行星相关参数 FSDL Series of parameters (单段1-Stage)

RATIO:4、5、7、10、14、20
(单段1-Stage)

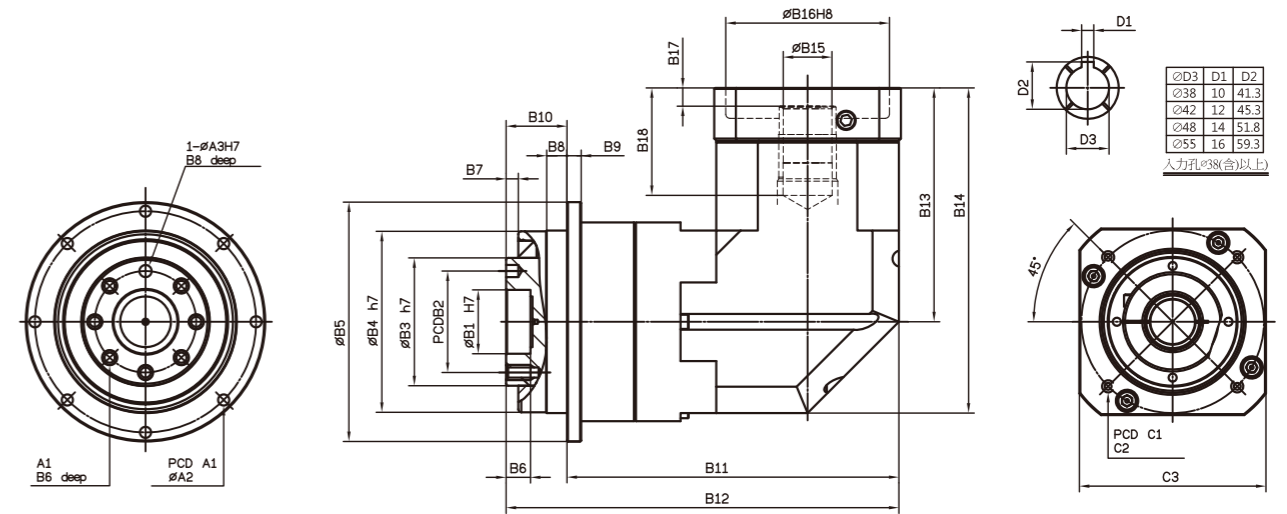


减速比 Ratio	代号	单位 Unit	速比 Ratio	47	64	90	110	140	200	255
额定输出扭矩 / Rated Output Torque	T _{2N}	Nm	4	22	60	160	335	650	1,200	2,020
			5	20	50	155	333	618	1,189	2,010
			7	19	47	142	309	573	1,108	1,870
			10	20	50	136	294	549	1,059	1,779
			14	19	47	142	309	573	1,108	1,870
			20	16	43	136	294	549	1,059	1,779
最大加速扭矩 Max. Acceleration Torque	T _{2B}	Nm	4~20	1.8 倍额定输出力矩 1.8 Times of Rated Output Torque						
最大输出扭矩 Max. Output Torque	T _{2NOT}	Nm	4~20	3 倍额定输出力矩 3 Times of Rated Output Torque						
急停扭矩 Emergency Stop Torque										
额定输入转速 Rated Input Speed	Π _{1N}	rpm	4~20	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大输入转速 Max. Input Speed	Π _{1B}	rpm	4~20	6,000	6,000	6,000	6,000	5,000	4,000	3,000
背隙 Backlash P0		arcmin	4~20	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
背隙 Backlash P1		arcmin	4~20	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
背隙 Backlash P2		arcmin	4~20	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
扭转刚性 Torsional Rigidity		Nm/arcmin	4~20	6	14	30	86	155	450	1,126
容许径向力 Max. Radial Force	F _{2rB}	N	4~10	2,040	2,520	8,460	12,720	14,070	35,200	39,600
滚珠轴承 Ball Bearing										
容许轴向力 Max. Axial Force	F _{2aB}	N	4~10	1,020	1,260	4,230	6,360	7,035	17,600	19,800
滚珠轴承 Ball Bearing										
容许径向力 Max. Radial Force	F _{2rB}	N	4~10	-	-	14,660	23,000	37,200	73,600	107,200
滚锥轴承 Taper Bearing										
容许轴向力 Max. Axial Force	F _{2aB}	N	4~10	-	-	7,330	11,500	18,600	36,800	53,600
滚锥轴承 Taper Bearing										
最大倾斜力矩 Max. Tilting Moment	M _{2K}	Nm	4~10	31	98	185	320	940	2,200	4,300
滚珠轴承 Ball Bearing *										
最大倾斜力矩 Max. Tilting Moment	M _{2K}	Nm	4~10	-	-	280	480	1,400	3,300	6,480
滚锥轴承 Taper Bearing *										
使用寿命 Service Life	L _H	hr	4~20	S5 周期运转: >30,000 (S1 连续运转: >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	4~20	≥ 95%						
使用温度 Operating Temperature		°C	4~20	-25°C~+90°C						
润滑 Lubrication			4~20	全合成润滑油脂 Synthetic Grease						
防护等级 Protection Class			4~20	IP 65						
安装方向 Mounting Position			4~20	任意方向 Any						
噪音值 Noise Level		dB	4~20	≤ 65	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 78
重量 Weight ±3%		Kg	4~20	1.1	2.3	6.9	13.4	23	80	90

转动惯量 Mass Moments of Inertia (kg.cm²)

Ratio	47	64	90	110	140	200	255
4	0.09	0.36	2.28	6.85	23.5	68.1	134.8
5	0.09	0.36	2.28	6.85	23.5	68.1	134.8
7	0.09	0.36	2.28	6.85	23.5	68.1	134.8
10	0.09	0.36	2.28	6.85	23.5	68.1	134.8
14	0.03	0.08	1.88	6.2	21.8	66.5	120.2
20	0.03	0.08	1.88	6.2	21.8	66.3	118.8

FSDL 系列行星尺寸 FSDL Series of outline (单段1-Stage)



Model Code	47	64	90	110	140	200	255
A1	67	79	109	135	168	233	280
A2	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
A3	28	40	63	80	100	160	180
A4	47	64	90	110	140	200	255
A5	6	6	9、23.5	10、20	10	12.5、14.5	12.5、14.5
A6	12	20	31.5	40	50	80	100
A7	72	86	118	146	179	248	300
A8	20	31.5	50	63	80	125	140
A9	4 - M3 x P0.5	7 - M5 x P0.8	7 - M6 x P1.0	11 - M6 x P1.0	11 - M8 x P1.25	11 - M10 x P1.5	12 - M16 x P2.0
A10	3	5	6	6	8	10	12
B1	59	70	98	125	156	212	255
B2	19.5	19.5	30	29	38	50	66
B3	5	7	12	12	12	16	20
B4	3	4	6	6	6	8	12
B5	5	6	10	10	15	15	20
B6	6.5	8	12	12	16	22	32
B7	4	5	7	8	10	12	18
B8	4	6	6	7	7	10	10
B9	84.2	105.5	163.6	203	227.5	313	332.5
B10	103.7	125	193.6	232	265.5	363	398.5
C1	46、60、63	70、75、90	90、110、115、145	115、145、165	145、165、215	200、215、265	200、265、300
C2	M3、M4、M5	M4、M5、M6	M5、M6、M8	M6、M8、M10	M8、M10、M12	M10、M12、M16	M12、M16
C3	8、9、11	11、14、19	16、19、22、24	24、28、32	32、35、38	35、38、42、48、55	38、42、48、55
C4	27	33.5、42	53、67.5	67、77	85	132、134	132、134
C5	30、40、50	50、60、70	70、80、95、110	95、110、130	110、130、180	114.3、180、230	220、250、265
C6	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	M10 x P1.5
C7	46、55	64、70、80	92、110、130	92、110、130	146、150、190	182、200、250	222、250、265
C8	61	77、85	115.3、129.8	115.3、129.8	165.7	235、237	235、273
C9	90.5	112、120	164.3、178.8	164.3、178.8	243.7	341.343	362.364

FSDL 系列行星相关参数

FSDL Series of parameters (双段2-Stage)

RATIO:20、25、35、40、50、70、100、140、200
(双段2-Stage)



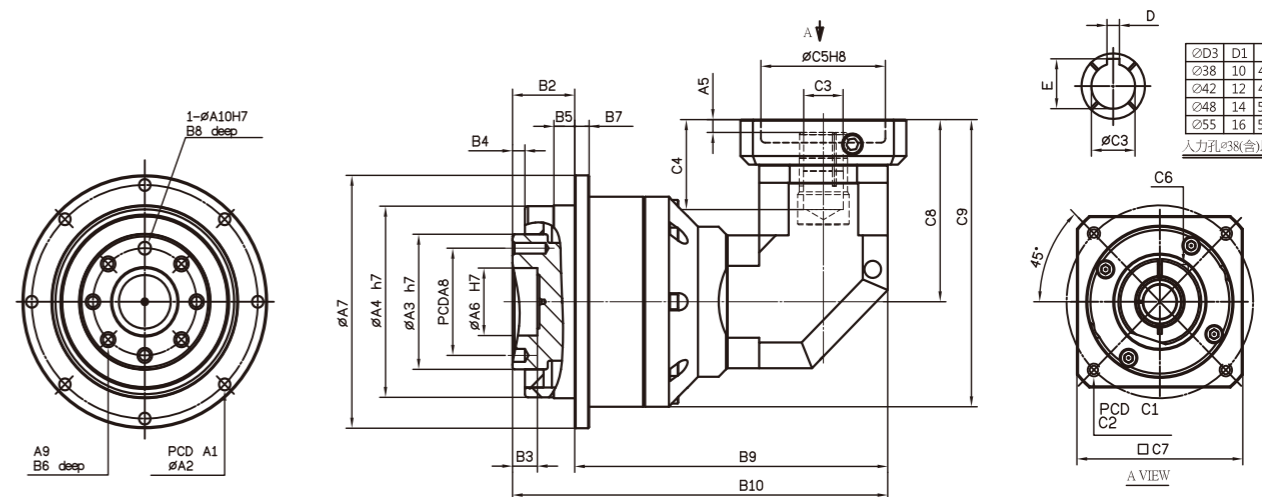
减速比 Ratio	代号	单位 Unit	速比 Ratio	47	64	90	110	140	200	255
额定输出扭矩/ Rated Output Torque	T _{2N}	Nm	20	22	60	160	335	650	1,200	2,020
			25	20	50	155	333	618	1,189	2,010
			35	19	47	142	309	573	1,108	1,870
			40	22	60	160	335	650	1,200	2,020
			50	20	50	155	333	618	1,189	2,010
			70	19	47	142	309	573	1,108	1,870
			100	16	43	136	294	549	1,059	1,779
			140	19	47	142	309	573	1,108	1,870
200	16	43	136	294	549	1,059	1,779			
最大加速扭矩 Max. Acceleration Torque	T _{2B}	Nm	20 ~ 200	1.8 倍额定输出力矩 1.8 Times of Rated Output Torque						
最大输出扭矩 Max. Output Torque	T _{2NOT}	Nm	20 ~ 200	3 倍额定输出力矩 3 Times of Rated Output Torque						
急停扭矩 Emergency Stop Torque										
额定输入转速 Rated Input Speed	π _{1N}	rpm	20 ~ 200	3,000	3,000	3,000	3,000	3,000	3,000	2,000
最大输入转速 Max. Input Speed	π _{1B}	rpm	20 ~ 200	6,000	6,000	6,000	6,000	6,000	4,000	3,000
背隙 Backlash P0		arcmin	20 ~ 200	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 Backlash P1		arcmin	20 ~ 200	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
背隙 Backlash P2		arcmin	20 ~ 200	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12	≤ 12
扭转刚性 Torsional Rigidity		Nm/arcmin	20 ~ 200	6	14	30	86	155	450	1,126
容许径向力 Max. Radial Force	F _{2rB}	N	4 ~ 10	2,040	2,520	8,460	12,720	14,070	35,200	39,600
滚珠轴承 Ball Bearing										
容许轴向力 Max. Axial Force	F _{2aB}	N	4 ~ 10	1,020	1,260	4,230	6,360	7,035	17,600	19,800
滚珠轴承 Ball Bearing										
容许径向力 Max. Radial Force	F _{2rB}	N	4 ~ 10	-	-	14,660	23,000	37,200	73,600	107,200
滚锥轴承 Taper Bearing										
容许轴向力 Max. Axial Force	F _{2aB}	N	4 ~ 10	-	-	7,330	11,500	18,600	36,800	53,600
滚锥轴承 Taper Bearing										
最大倾斜力矩 Max. Tilting Moment	M _{2K}	Nm	4 ~ 10	31	98	185	320	940	2,200	4,300
滚珠轴承 Ball Bearing *										
最大倾斜力矩 Max. Tilting Moment	M _{2K}	Nm	4 ~ 10	-	-	280	480	1,400	3,300	6,480
滚锥轴承 Taper Bearing *										
使用寿命 Service Life	L _H	hr	20 ~ 200	S5 周期运转: >30,000 (S1 连续运转: >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 Efficiency	η	%	20 ~ 200	≥ 92%						
使用温度 Operating Temperature		°C	20 ~ 200	- 25°C ~ +90°C						
润滑 Lubrication			20 ~ 200	全合成润滑油 Synthesic Grease						
防护等级 Protection Class			20 ~ 200	IP 65						
安装方向 Mounting Position			20 ~ 200	任意方向 Any						
噪音值 Noise Level		dB	20 ~ 200	≤ 65	≤ 68	≤ 70	≤ 72	≤ 74	≤ 76	≤ 78
重量 Weight ±3%		Kg	20 ~ 200	1.4	2	6	11.8	22.3	48.5	97.5

转动惯量 Mass Moments of Inertia (kg.cm²)

Ratio	47	64	90	110	140	200	255
20	0.09	0.36	2.28	6.85	23.5	22.8	68.2
25	0.09	0.36	2.28	6.85	23.5	22.8	68.2
35	0.09	0.36	2.28	6.85	23.5	22.8	68.2
40	0.09	0.36	2.28	6.85	23.5	22.8	68.2
50	0.09	0.36	2.28	6.85	23.5	22.8	68.2
70	0.09	0.36	2.28	6.85	23.5	22.8	68.2
100	0.09	0.36	2.28	6.85	23.5	22.8	68.2
140	0.03	0.08	1.88	6.2	21.8	21.1	64.9
200	0.03	0.08	1.88	6.2	21.8	21.1	64.9

FSDL 系列行星尺寸

FSDL Series of outline (双段2-Stage)



型号 代号	47	64	90	110	140	200	255
A1	67	79	109	135	168	233	280
A2	8-3.4	8-4.5	8-5.5	8-5.5	12-6.6	12-9.0	16-13.5
A3	28	40	63	80	100	160	180
A4	47	64	90	110	140	200	255
A5	6	6	9.23	9.23.5	10	12.5	12.5、14.5
A6	12	20	31.5	40	50	80	100
A7	72	86	118	146	179	248	300
A8	20	31.5	50	63	80	125	140
A9	4 - M3 x P0.5	7 - M5 x P0.8	7 - M6 x P1.0	11 - M6 x P1.0	11 - M8 x P1.25	11 - M10 x P1.5	12 - M16 x P2.0
A10	3	5	6	6	8	10	12
B1	59	70	98	125	156	212	255
B2	19.5	19.5	30	29	38	50	66
B3	5	7	12	12	12	16	20
B4	3	4	6	6	6	8	12
B5	5	6	10	10	15	15	20
B6	6.5	8	12	12	16	22	32
B7	4	5	7	8	10	12	16
B8	4	6	6	7	7	10	10
B9	110.2	118.5	151	210.6	254.5	308.5	379.1
B10	129.7	138	181	239.6	292.5	358.5	445.1
C1	46、60、63	46、60、63	70、75、90	90、110、115、145	115、145、165	145、165、215	200、215、265
C2	M3、M4、M5	M3、M4、M5	M4、M5、M6	M5、M6、M8、M10	M6、M8、M10	M8、M10、M12	M10、M12、M16
C3	8、9、11	8、9、11	14、16、19	16、19、22、24	24、28、32	35、38	35、38、42、48、55
C4	27	27	33.5、42	53、67.5	67、77	85	117、119
C5	30、40、50	30、40、50	50、60、70	70、80、95、110	95、110、130	110、130、180	114.3、180、230
C6	M4 x P0.7	M4 x P0.7	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
C7	46、55	46、55	64、70、80	92、110、130	122、130、150	146、150、190	182、200、250
C8	61	61	77、85	115.3、129.8	141、151	165.7	235、237
C9	90.5	96	126、134	177.8、192.3	219、229	271.7	362.5、364.5

FST Series Indication of Model Numbers

FST 系列機種型号表示



FST	65	F	O	B	2	L	P1
减速机机型 Type	机型 Model	输入表示 Input	输出表示 Output	轴承形式 Bearing	速比 Ratio	轴向 Shaft Direction	背隙等级 Backlash Class
FST	65	F:入力法兰 Input Flange	O:中空轴 Hollow Shaft	B:滚珠轴承 Ball bearing (65#~210#) (Ratio:1~5)	单段1-Stage 1,2,3,4,5	L:左轴 Left Shaft	P0
	75	R:44减速机 Reducer	N:单边免键轴套(有键槽) Single Clamping (Kwyway)	T:角接触轴承 Angular contact bearing (75#~210#) (Ratio:2~5)	R:右轴 Right Shaft	P1
	90	1-Stage: R44、R62	M:单边免键轴套(无键槽) Single Clamping (No Kwyway)		搭配单段 行星减速机	P2
	110	2-Stage: R62S...			With 1-Stage	1. 出力形式 N、S可选 择轴向	
	140	2-Stage(A-Type) R44、R62A...	D:单入力轴心(有键槽) Single Input Shaft (Keyway)		Planetary Reducer	Shaft direction is optional for output type N、S.	
	170		D1:单入力轴心(无键槽) Single Input Shaft (No Keyway)		10~50		
	210		Y:双入力轴心(有键槽) Double Input Shaft (Keyway)	S:单出力轴心(有键槽) Single Output Shaft (Keyway)	搭配单段 行星减速机	2. 出力形式P 为R轴向	
			Y1:双入力轴心(无键槽) Double Input Shaft (No Keyway)	S1:双出力轴心(无键槽) Single Output Shaft (No Keyway)	With 2-Stage Planetary Reducer	Output type P only for R shaft.	
				V:双出力轴心(有键槽) Double Output Shaft (Keyway)	75~500		
				V1:双出力轴心(无键槽) Double Output Shaft (No Keyway)			

伞齿轮减速机搭配行星减速机型号及速比一览表

The Model & Ratio Table of Bevel Gear Reducer Assembly Planetary Reducer

型号 Model	减速比 Ratio	法兰盘框号 Flange Model	行星减速机框号 Planetary Reducer Model	单段行星减速机减速比 Ratio of 1-Stage Planetary Reducer 5、10	双段行星减速机减速比 Ratio of 2-Stage Planetary Reducer 25、50、100
65		62	44		
75	1	62	44		
90	2	90	62	搭配单段行星减速机减速比	搭配单段行星减速机减速比
110	3	90	80	Ratio of Bevel Gear Recucer Fitted	Ratio of Bevel Gear Recucer Fitted with 1-Stage Planetary Reducer
140	4	120	90		75、100、125、150、200、 250、300、400、500
170	5	142	120		
210		180	142	10、15、20、25、30、40、50	

产品样式选择 Selection of Type

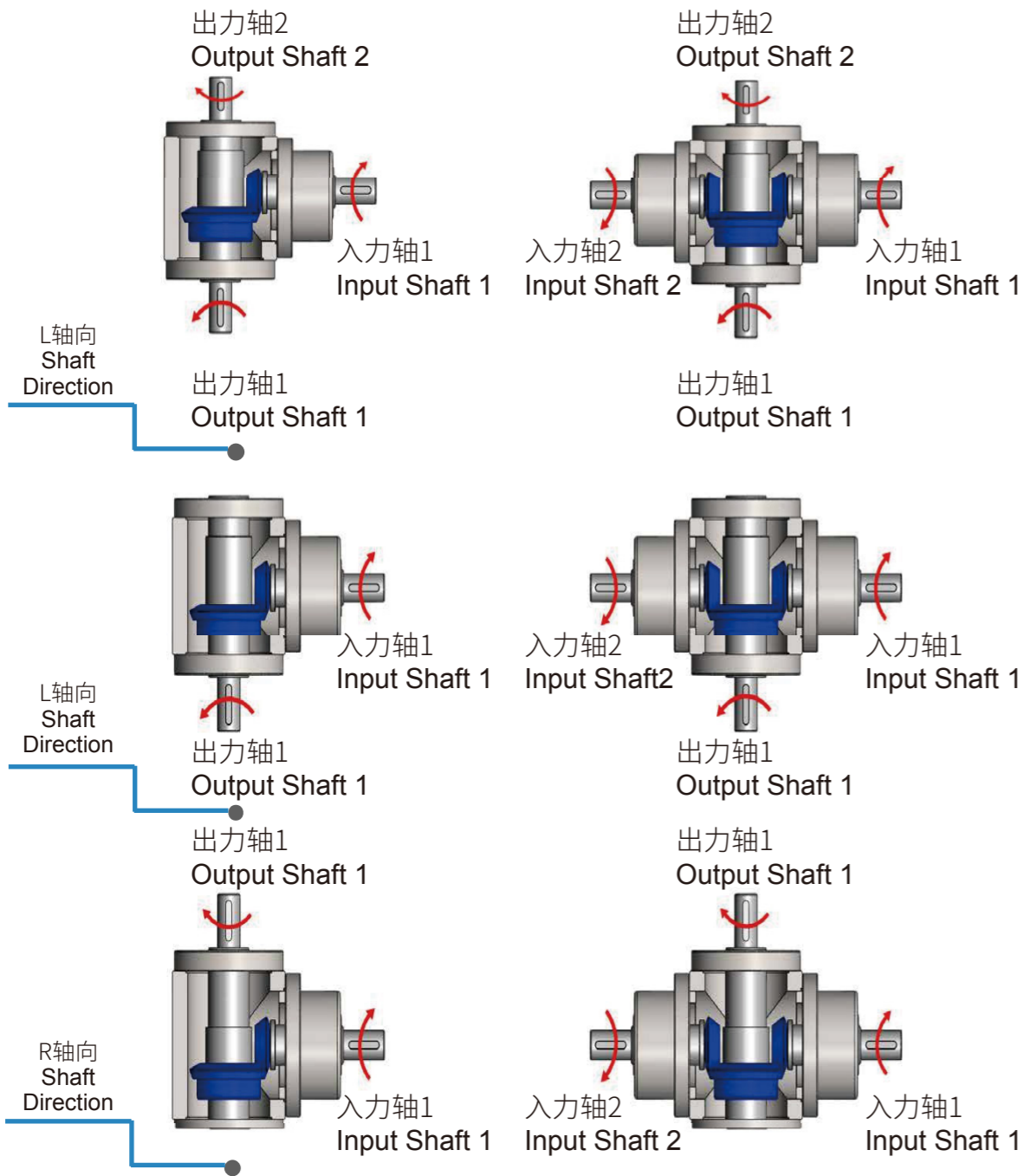
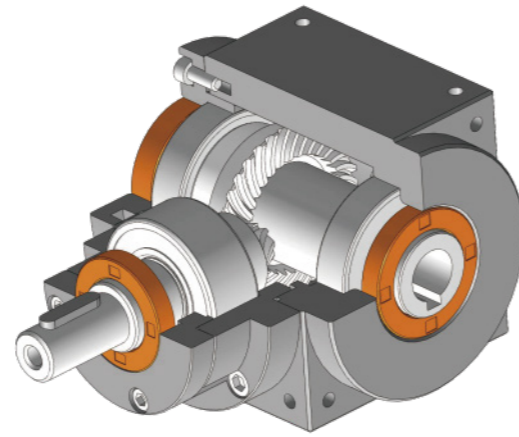
入力形式 Input Type

	F 入力法兰 Input Flange	R 减速机 Reducer	D 单入力轴心 Single Input Shaft	Y 双入力轴心 Double Input
O 出力中空轴 Hollow Output Shaft	FO	RO	DO	YO
N 单边免键轴套 Single Clamping	FN	RN	DN	YN
M 双边免键轴套 Double Clamping	FM	RM	DM	YM
S 单出力轴心 Single Output Shaft	FS	RS	DS	YS
V 双出力轴心 Double Output Shaft	FV	RV	DV	YV

出力形式 Output Type

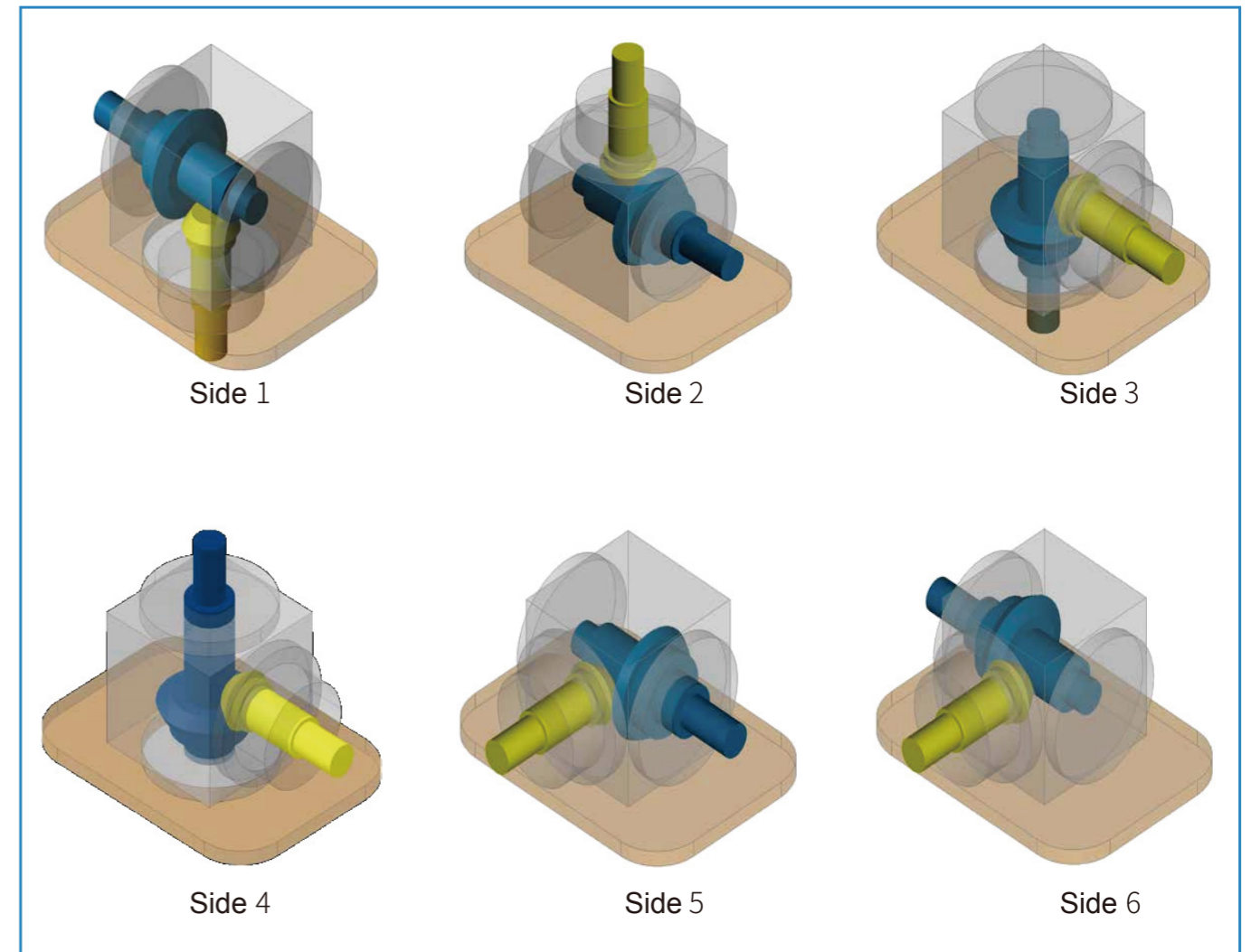
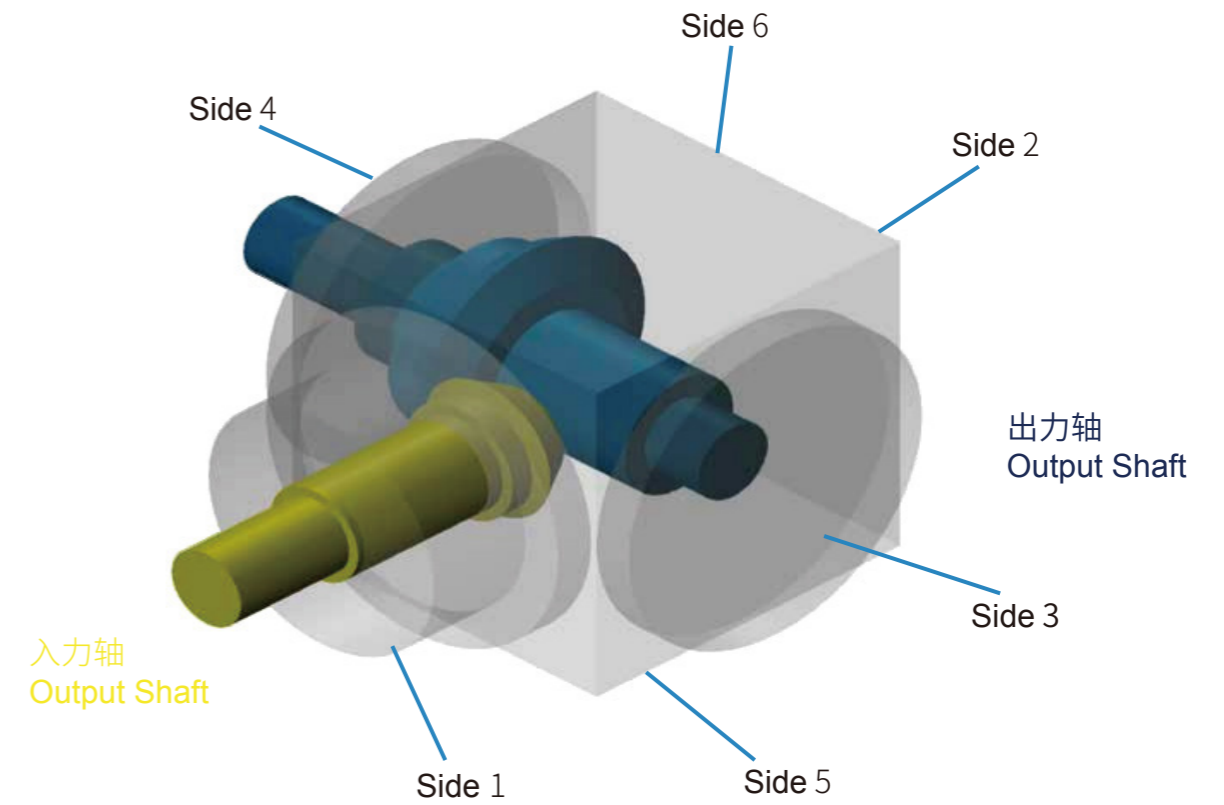
1. 出力形式N,S可以选择轴向。Shaft direction is optional for output type N, S.
2. 出力形式P为R轴向。Output type P only for R shaft.
3. 出厂时均配透气阀, 机台装配后请更换上新的透气阀。When the factory is equipped with air permeability valve, machine installation, please replace the new air permeability valve.

旋转方向说明 Rotating Direction



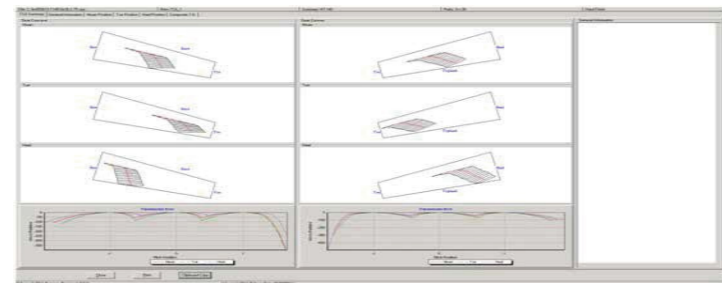
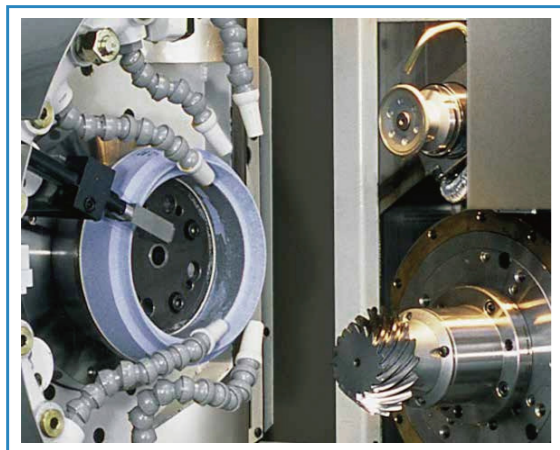
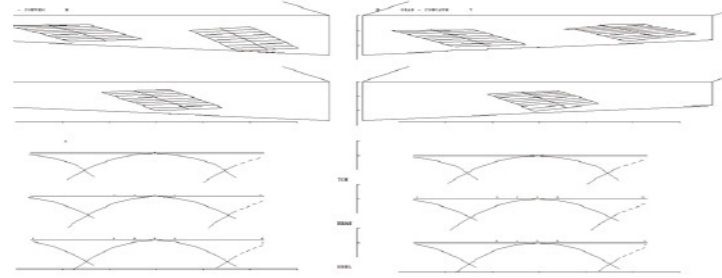
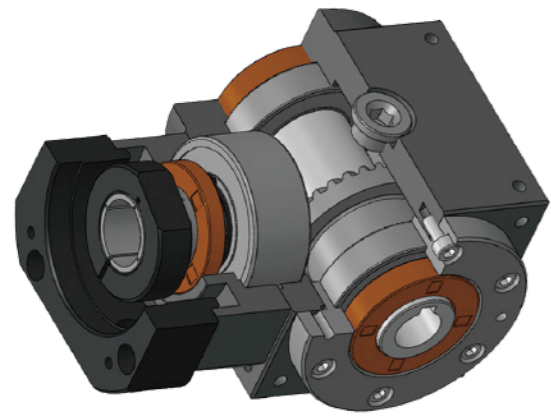
本公司出厂标准品使用「标准轴向」, R轴向请于订单上注明。
Standard product is L shaft direction, R shaft direction is optional.

安装方向选择 Selection Direction of Installation



FAB
FAB-A
FNB
FABT
FABL
FABL-A
FSD
FSDL
FST
FITTINGS

FST系列产品特点Features of ST Series



高强度、高精度螺旋伞齿轮

- 齿轮采用高强度渗碳合金钢，研磨精密度符合AGMA12级标准以内。

High precision grinded and carburized spiral bevel gears

- High precision grinded and carburized spiral bevel gears to meet standard AGMA12.

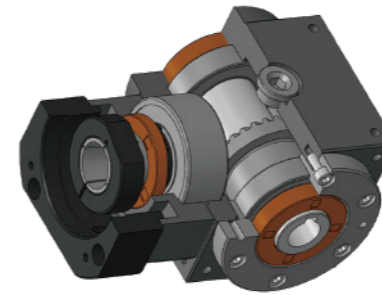
最优化的设计及CAE分析技术

- 采用Gleason参数齿轮设计软件，得到最佳化接面积的齿印参数，保证了最高扭矩以及最小噪音。
- 并利用3D-CAE软件的设计分析技术，对减速机整体强度及螺旋伞齿轮进行分析，增加齿轮系及减速机的使用寿命。

Optimized Design and CAE Analysis

- Use Gleason's design software to design new spiral bevel gears. Through the ideal gear contact pattern for application, achieve high permissible output torque.
- Employs 3D-CAE software for analysis and design, the software allows for analyzing the strength of the entire gear reducer and helical teeth. Increasing the service life of gears and the gear reducer.

FST系列產品特點Features of ST Series



更高的減速比

- 高精度研磨的蜗线伞齿轮组结合最佳化设计的行星式齿轮组可以达到500:1的減速比。

More High Gear Ratio

- High precision grinded and carburized spiral bevel gears with optimal designed planetary gear can do ratio 500: 1.

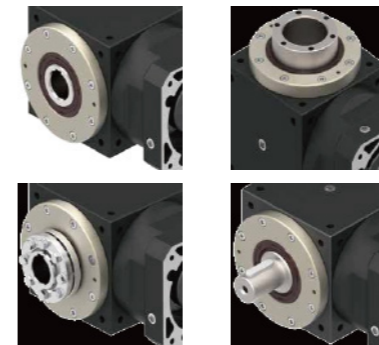


低背隙

- 使用Gleason参数齿轮加工设备，加工研磨等级的螺旋伞齿轮，确保低背隙、低噪音。背隙最小可达2弧分以内。

Low Backlash

- Using Gleason high precision CNC grinding machine to grinding the spiral bevel gears. Torsional backlash depending on design up to <2 arcmin.



安裝位置

- 多重精密加工表面易于组装，适用于任意安装方向。入出力轴的设计可以适用于各种工业上应用的需求。

Mounting Position

- Multiple precision machined surface is easy for assembly, suitable for any optional mounting orientation.
- Output shaft and input shaft are designed to suit for various industries applications.



免保养

- 免保养无须更换润滑油，运转寿命长。

No Maintenance

- It features no maintenance and long service life.

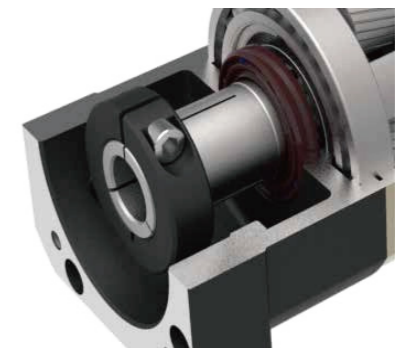


高扭矩密度

- 一体式齿箱本体确保最大刚性与耐腐蚀性。结构紧凑，富有刚性的设计保证了在小体积，重量轻的情况下能够达到最高扭矩及较大的減速比。

High Output Torque

- The gear box is one-piece constructed to ensure the high rigidity and corrosion-resistant capability.



筒夾式连接机构

- 输入端与马达的连接采用筒夹式的锁紧机构，并经动平衡分析，以确保在高输入转速下结合介面的同心度和平衡度，及零背隙的动力专递。

Collet Locking Mechanism

- The input-end and the motor are coupled through a collet locking mechanism. It has passed dynamical balance analysis to assure concentricity and balance on the connection and no backlash for power transmission while running at high speed.

FST系列产品特性Characteristic of ST Series

单段减速机 1-Stage



规格 Model No.	代号	单位 Unit	速比 Ratio	65	75	90	110	140	170	210
额定输出扭矩 / Rated Output Torque (Nominal output torque)	T _{2N}	Nm	1	25	45	78	150	360	585	1,300
			2	24	42	68	150	330	544	1,220
			3	18	33	54	120	270	450	1,020
			4	13	28	52	100	224	376	860
			5	12	25	40	85	196	320	740
最大加速扭矩 / Max. Acceleration Torque	T _{2B}	Nm	1~5	1.5倍额定输出力矩 1.5 Times of Rated Output Torque						
最大输出扭矩 / Max. Output Torque	T _{2NOT}	Nm	1~5	3倍额定输出力矩 3 Times of Rated Output Torque						
急停扭矩 / Emergency Stop Torque										
额定输入转速 / Rated Input Speed	n _{1N}	rpm	1~5	3,000	3,000	3,000	2,500	2,500	2,000	2,000
最大输入转速 / Max. Input Speed	n _{1B}	rpm	1~5	6,000	6,000	5,500	4,500	3,500	3,000	3,000
背隙 / Backlash		arcmin	P0	-	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
背隙 / Backlash		arcmin	P1	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
背隙 / Backlash		arcmin	P2	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9	≤ 9
容许径向力 / Max. Radial Force	F _{2rB}	N	1~5	700	1,050	1,500	2,360	3,080	4,800	6,400
角接触轴承 Angular contact bearing										
容许轴向力 / Max. Axial Force	F _{2aB}	N	1~5	350	255	750	1,180	1,540	2,400	3,200
角接触轴承 Angular contact bearing										
容许径向力 / Max. Radial Force	F _{2rB}	N	2~5	-	2,400	3,200	5,000	6,500	9,100	13,000
角接触轴承 Angular contact bearing										
容许轴向力 / Max. Axial Force	F _{2aB}	N	2~5	-	1,200	1,600	2,500	3,250	4,550	6,500
角接触轴承 Angular contact bearing										
使用寿命 / Service Life	L _H	hr	1~5	S5 周期运转 : >30,000 (S1 连续运转: >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 / Efficiency	η	%	1~5	94% ~ 98%						
使用温度 / Operating Temperature		°C	1~5	-30°C ~ +100°C						
润滑 / Lubrication			1~5	全合成润滑油 Synthetic Oil						
噪音值 / Noise Level		dB	1~5	≤ 65	≤ 67	≤ 71	≤ 73	≤ 74	≤ 75	≤ 77

转动惯量 Mass Moments of Inertia (kg.cm²)

速比Ratio	65	75	90	110	140	170	210
1	0.51	1.79	4.93	12.5	36.8	85.9	287
2	0.44	0.95	2.78	7.41	15.6	39.3	123
3	0.43	0.78	2.34	6.18	10.9	28.5	84.1
4	0.43	0.72	2.18	5.71	9.19	24.5	69.9
5	0.43	0.69	2.10	5.48	8.32	22.6	62.7

FST系列产品特性Characteristic of ST Series

双段减速机 2-Stage



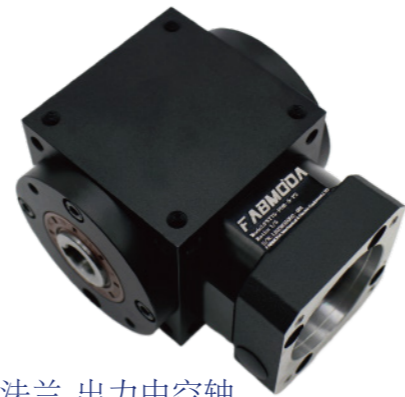
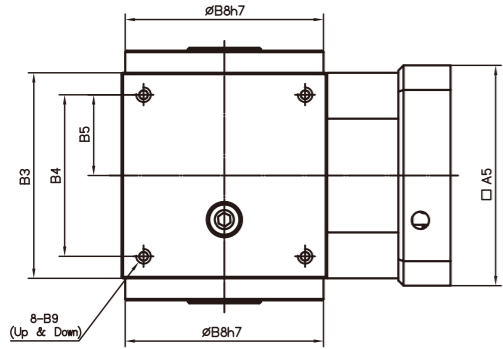
规格 Model No.	代号	单位 Unit	速比 Ratio	65	75	90	110	140	170	210
额定输出扭矩 / Rated Output Torque (Nominal output torque)	T _{2N}	Nm	10	24	42	68	150	330	544	1,220
			15	18	33	54	120	270	450	1,020
			20	13	28	52	100	224	376	860
			25	12	25	40	85	196	320	740
			30	18	33	54	120	270	450	1,020
			40	13	28	52	100	224	376	860
50	12	25	40	85	196	320	740			
最大加速扭矩 / Max. Acceleration Torque	T _{2B}	Nm	10~50	1.5倍额定输出力矩 1.5 Times of Rated Output Torque						
最大输出扭矩 / Max. Output Torque	T _{2NOT}	Nm	10~50	3倍额定输出力矩 3 Times of Rated Output Torque						
急停扭矩 / Emergency Stop Torque										
额定输入转速 / Rated Input Speed		rpm	10~50	3,000	3,000	3,000	3,000	3,000	3,000	3,000
最大输入转速 / Max. Input Speed		rpm	10~50	6,000	6,000	6,000	6,000	6,000	5,000	5,000
背隙 / Backlash		arcmin	P0	-	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4	≤ 4
背隙 / Backlash		arcmin	P1	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7	≤ 7
背隙 / Backlash		arcmin	P2	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10
容许径向力 / Max. Radial Force	F _{2rB}	N	10~50	700	1,050	1,500	2,360	3,080	4,800	6,400
角接触轴承 Angular contact bearing										
容许轴向力 / Max. Axial Force	F _{2aB}	N	10~50	350	525	750	1,180	1,540	2,400	3,200
角接触轴承 Angular contact bearing										
容许径向力 / Max. Radial Force	F _{2rB}	N	10~50	-	2,400	3,200	5,000	6,500	9,100	13,000
角接触轴承 Angular contact bearing										
容许轴向力 / Max. Axial Force	F _{2aB}	N	10~50	-	1,200	1,600	2,500	3,250	4,550	6,500
角接触轴承 Angular contact bearing										
使用寿命 / Service Life	L _H	hr	10~50	S5 周期运转 : >30,000 (S1 连续运转: >15,000 hrs) S5 Cycle Operation: >30,000 (S1 Continuous Operation: >15,000 hrs)						
效率 / Efficiency	η	%	10~50	90% ~ 94%						
使用温度 / Operating Temperature		°C	10~50	-30°C ~ +100°C						
润滑 / Lubrication			10~50	全合成润滑油 Synthetic Oil						
噪音值 / Noise Level		dB	10~50	≤ 68	≤ 69	≤ 73	≤ 74	≤ 75	≤ 76	≤ 78

转动惯量 Mass Moments of Inertia (kg.cm²)

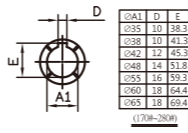
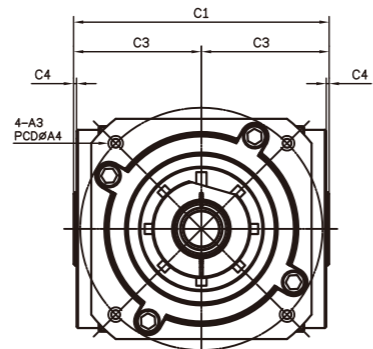
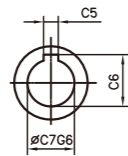
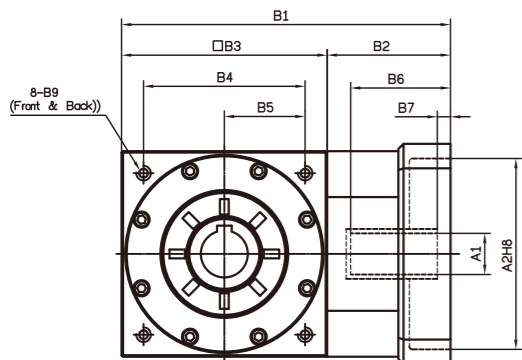
速比Ratio	65	75	90	110	140	170	210
10	0.05	0.15	0.18	0.41	0.56	3.25	8.9
15	0.05	0.15	0.18	0.41	0.56	3.25	8.9
20	0.05	0.15	0.18	0.41	0.56	3.25	8.9
25	0.05	0.15	0.18	0.41	0.56	3.25	8.9
30	0.05	0.15	0.16	0.38	0.53	3.09	8.4
40	0.05	0.15	0.16	0.38	0.53	3.09	8.4
50	0.05	0.15	0.16	0.38	0.53	3.09	8.4

FST-FO series

RATIO : 1.2.3.4.5 (单段1-Stage)



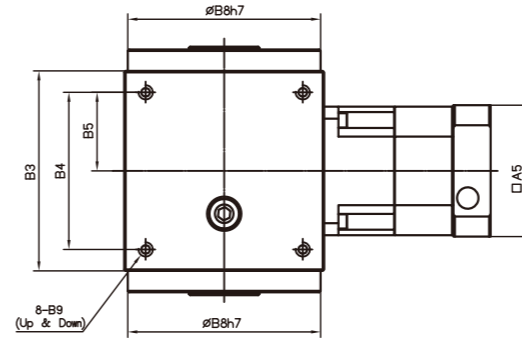
入力法兰-出力中空轴
Input Flange - Hollow Output Shaft



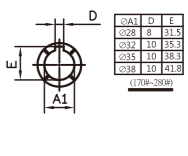
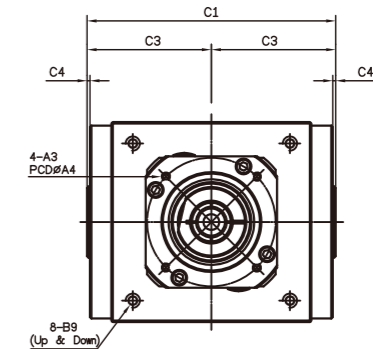
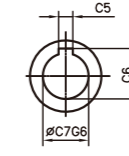
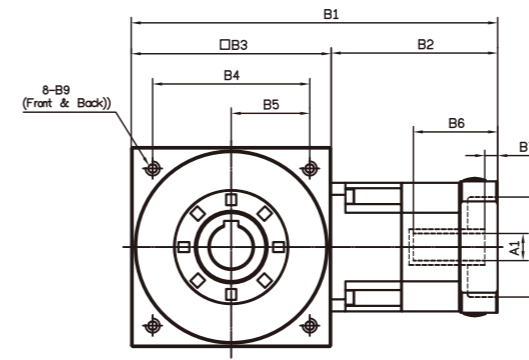
Model Code	65	65(1:1)	75	90	110	140	170	210
A1	9, 11, 14	14, 19	16, 19, 22, 24	19, 22, 24	24, 28, 32, 35	35, 38	35, 38, 42, 48, 55	
A2	50, 60, 70	50, 60, 70	70, 80, 95, 110	70, 80, 95, 110	95, 110, 130	110, 130, 180	114.3, 180, 230	
A3	M4, M5, M6	M4, M5, M6	M5, M6, M8	M5, M6, M8	M6, M8, M10	M8, M10, M12	M10, M12, M16	
A4	70, 75, 90	70, 75, 90	90, 100, 115, 145	90, 100, 115, 145	115, 145, 165	145, 165, 200	200, 215, 265	
A5	64, 70, 80	64, 70, 80	92, 110, 130	92, 110, 130	122, 130, 150	146, 150, 190	182, 200, 250	
A6	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	
B1	110	115, 122	148, 162	177, 191	224, 238	274	357, 359	
B2	45	40	58, 72	67, 81	84, 98	104	147	
B3(B3')	65	75(74)	90	110	140	170	210	
B4	52	60	72	88	110	134	170	
B5	26	30	36	44	55	67	85	
B6	36	36, 43	51, 65.5	51, 65.5	68, 81	84.5	117, 119	
B7	7	7, 13	9, 23.5	9, 23.5	9, 10	9.5	14, 16	
B8	62	64	73	88	106	135	205	
B9	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	84	89	100	118	144	174	204	250
C2	42	44.5	50	59	72	87	102	125
C3	42	44.5	50	59	72	87	102	125
C4	2	2	2	2	2	2	2	2
C5	5	5	5	6	8	10	12	14
C6	16.3	16.3	16.3	20.8	25.3	35.3	43.3	53.3
C7	14	14	14	18	22	32	40	50
重量	1.7	1.7	2.4	4.3	7.1	14.9	24.5	46

FST-ROseries

RATIO : 10.15.20.30.40.50 (双段2-Stage)

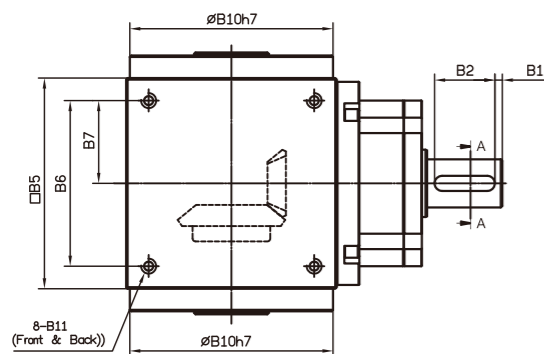


搭配行星減速機-出力中空軸
Fitted with Planetary Reducer - Hollow Output Shaft

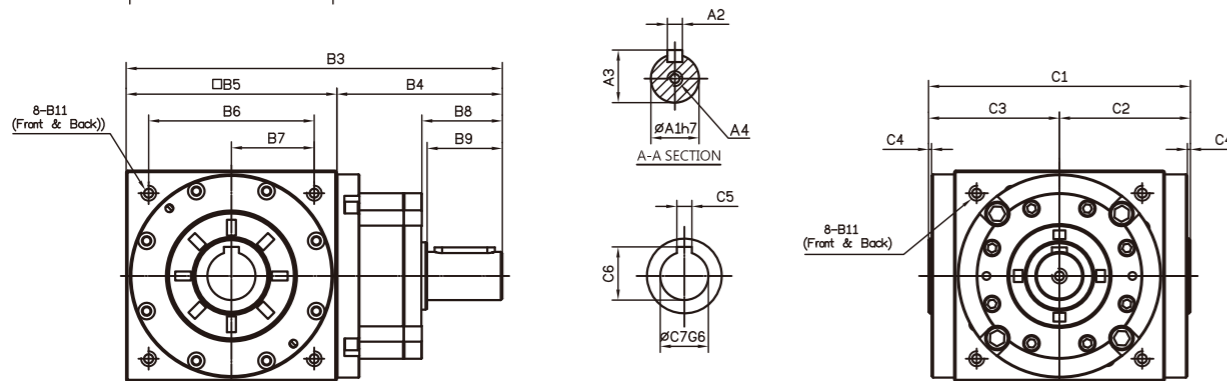


Model Code	65	75	90	110	140	170	210	
A1	8, 9, 11	8, 9, 11	11, 14, 16, 19	11, 14, 16, 19	(14), 16, 19	16, 19, 22, 24	22, 24, 28, 32, 35	28, 32, 35, 38
A2	30, 40, 50	30, 40, 50	50, 60, 70	50, 60, 70	50, 70, 80, 95	70, 80, 95, 110	95, 110, 130	110, 130, 180
A3	M3, M4, M5	M3, M4, M5	M4, M5, M6	M4, M5, M6	M5, M6	M5, M6, M8	M6, M8, M10	M8, M10, M12
A4	46, 60, 63	46, 60, 63	70, 75, 90	70, 75, 90	70, 90, 100, 115	90, 100, 115, 145	115, 145, 165	145, 165, 200
A5	46, 55	46, 55	64, 70, 80	64, 70, 80	80, 92, 110	92, 110, 130	122, 130, 150	146, 150, 190
A6	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5
B1	132	137	149, 157	165, 173	(191), 203	260	313, 334	399
B2	67	62	74, 82	75, 83	(81), 93	120	143, 164	189
B3(B3')	65	75(74)	75(74)	90	110	140	170(168)	210
B4	52	60	60	72	88	110	134	170
B5	26	30	30	36	44	55	67	85
B6	26	26	33.5, 41.5	33.5, 41.5	(33.5), 45.5	59	67, 83	85
B7	5	5	6	6	(6), 10	9	10, 11	10
B8	62	73	73	88	106	135	164	205
B9	M5 x P0.8	M6 x P1.0	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	84	100	100	118	144	174	204	250
C2	42	50	50	59	72	87	102	125
C3	42	50	50	59	72	87	102	125
C4	2	2	2	2	2	2	2	2
C5	5	5	5	6	8	10	12	14
C6	16.3	16.3	16.3	20.8	25.3	35.3	43.3	53.3
C7	14	14	14	18	22	32	40	50
重量	1.9	3.6	3.4	4.8	8.5	14.2	24	52

FST-DO series RATIO : 1.2.3.4.5 (单段1-Stage)

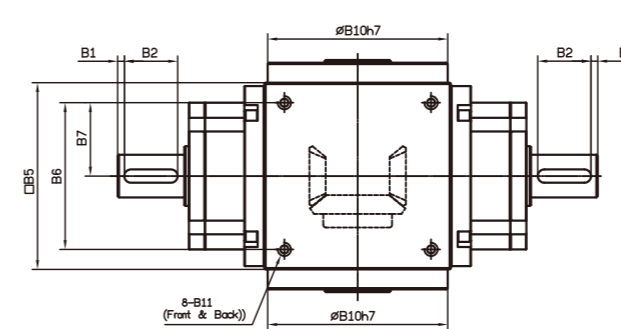


单入力轴心-出力中空轴
Single Input Shaft - Hollow Output Shaft

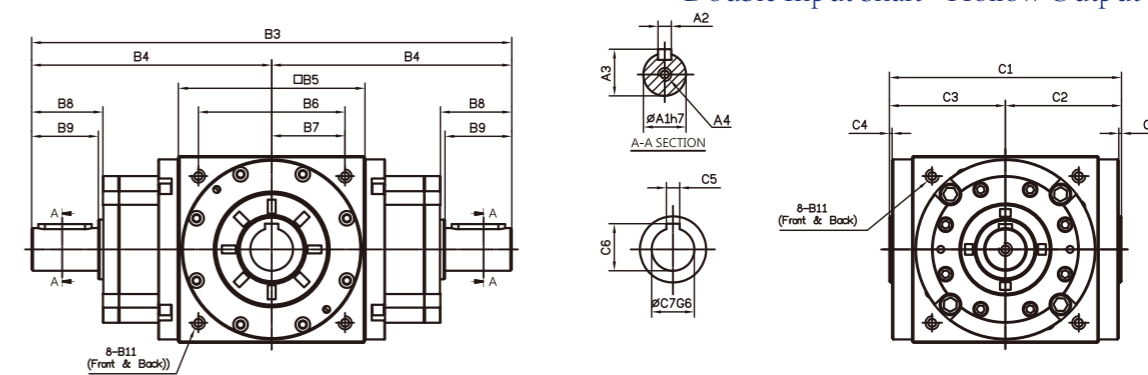


Model Code	65	65(1:1)	75	90	110	140	170	210
A1	14		16	18	22	32	40	50
A2	5		5	6	6	10	12	14
A3	16		18	20.5	24.5	35	43	53.5
A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
B1	2.5		2.5	5	5	5	5	5
B2	15		25	25	30	40	50	65
B3	127.5		143	168.5	207	250	300	375
B4	62.5		68	78.5	97	110	130	165
B5(B5')	65		75 (74)	90	110	140	170	210
B6	52		60	72	88	110	134	170
B7	26		30	36	44	55	67	85
B8	22		32	38	43	53.5	64	77
B9	20		30	35	40	50	60	75
B10	62	64	73	88	106	135	164	205
B11	M5 x P0.8	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	84	89	100	118	144	87	204	250
C2	42	44.5	50	59	72	87	102	125
C3	42	44.5	50	59	72	72	102	125
C4	2	2	2	2	2	2	2	2
C5	5	5	5	6	8	10	12	14
C6	16.3	16.3	16.3	20.8	25.3	35.3	43.3	53.3
C7	14	14	14	18	22	32	40	50
重量	2.1	2.1	2.8	4.9	9	15.5	25	53

FST-YO series RATIO : 10.15.20.30.40.50 (双段2-Stage)



双入力轴心-出力中空轴
Double Input Shaft - Hollow Output Shaft



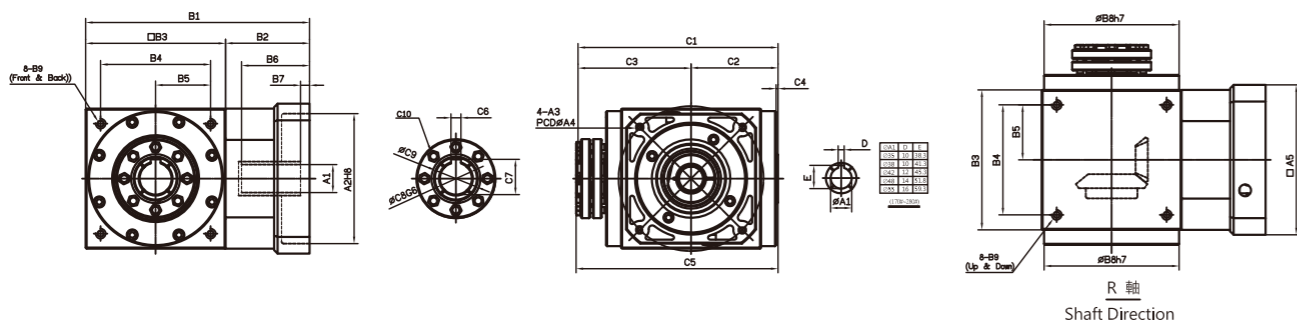
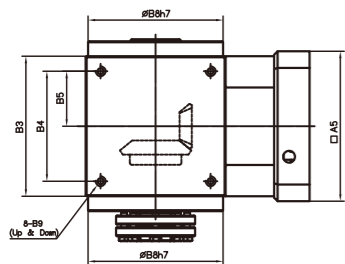
Model Code	65	65(1:1)	75	90	110	140	170	210
A1	14		16	18	22	32	40	50
A2	5		5	6	6	10	12	14
A3	16		18	20.5	24.5	35	43	53.5
A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
B1	2.5		2.5	5	5	5	5	5
B2	15		25	25	30	40	50	65
B3	190		210	247	304	360	430	540
B4	95		105	123.5	152	180	215	270
B5(B5')	65		75(74)	90	110	140	170	210
B6	52		60	72	88	110	134	170
B7	26		30	36	44	55	67	85
B8	22		32	38	43	53.5	64	77
B9	20		30	35	40	50	60	75
B10	62	64	73	88	106	135	164	205
B11	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	84	89	100	118	144	174	204	250
C2	42	44.5	50	59	72	87	102	125
C3	42	44.5	50	59	72	87	102	125
C4	2	2	2	2	2	2	2	2
C5	5	5	5	6	8	10	12	14
C6	16.3	16.3	16.3	20.8	25.3	35.3	43.3	53.3
C7	14	14	14	18	22	32	40	50
重量	2.85	2.85	3.6	6.2	11.5	18	28	57

FST-FN series

RATIO : 1.2.3.4.5 (单段1-Stage)



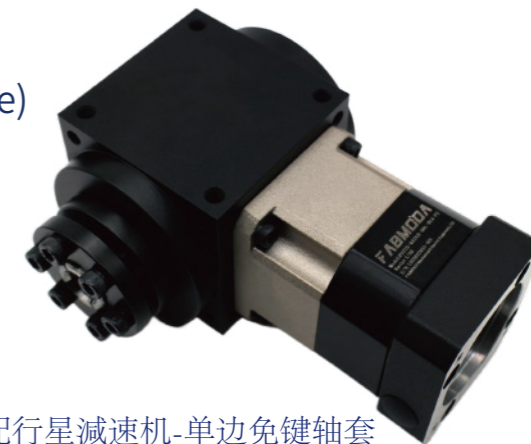
入力法兰-单边免键轴套
Input Flange - Single Clamping



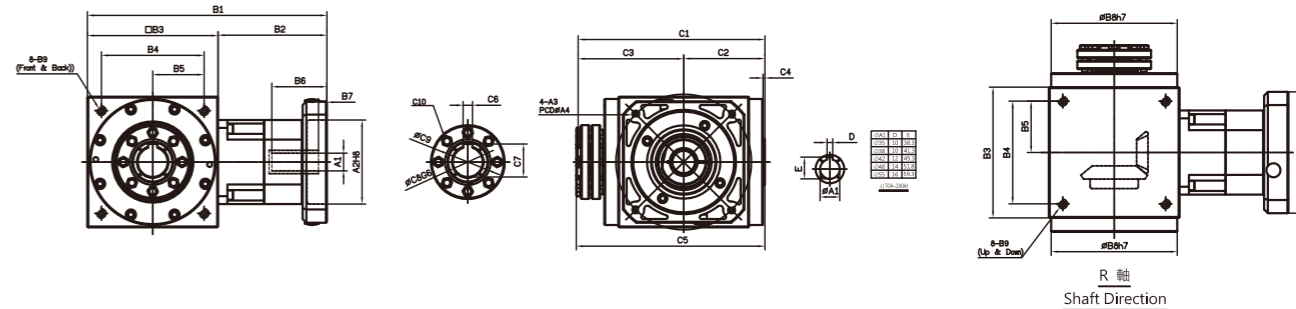
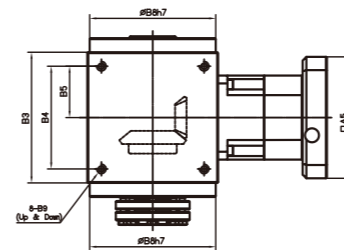
Model Code	65	65(1:1)	75	90	110	140	170	210
A1	9, 11, 14		14, 19	16, 19, 22, 24	19, 22, 24	24, 28, 32, 35	35, 38	35, 38, 42, 48, 55
A2	50, 60, 70		50, 60, 70	70, 80, 95, 110	70, 80, 95, 110	95, 110, 130	110, 130, 180	114.3, 180, 230
A3	M4, M5, M6		M4, M5, M6	M5, M6, M8	M5, M6, M8	M6, M8, M10	M8, M10, M12	M10, M12, M16
A4	70, 75, 90		70, 75, 90	90, 100, 115, 145	90, 100, 115, 145	115, 145, 165	145, 165, 200	200, 215, 265
A5	64, 70, 80		64, 70, 80	92, 110, 130	92, 110, 130	122, 130, 150	146, 150, 190	182, 200, 250
A6	M5 x P0.8		M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
B1	110		115, 122	148, 162	177, 191	224, 238	274	357, 359
B2	45		40	58, 72	67, 81	84, 98	104	147
B3(B3')	65		75(74)	90	110	140	170	210
B4	52		60	72	88	110	134	170
B5	26		30	36	44	55	67	85
B6	36		36, 43	51, 65.5	51, 65.5	68, 81	84.5	117
B7	7		7, 13	9, 23.5	9, 23.5	9, 10	9.5	14, 16
B8	62	64	73	88	106	135	164	205
B9	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	104	109	120	138	169	202	240	285
C2	42	44.5	50	59	72	87	102	125
C3	62	64.5	70	79	97	115	138	160
C4	2	2	2	2	2	2	2	2
C5	110	113	124	142	171	202	242	288
C6	5	5	5	6	8	10	12	14
C7	16.3	16.3	16.3	20.8	25.3	35.3	43.3	53.3
C8	14	14	14	18	22	32	40	50
C9	22	22	22	28	34	44	52	65
C10	6-M6	6-M6	6-M6	6-M6	8-M6	8-M6	8-M8	8-M8
重量	1.7	1.7	2.4	4.3	7.1	14.9	24.8	46

FST-RN series

RATIO : 10.15.20.30.40.50 (双段2-Stage)



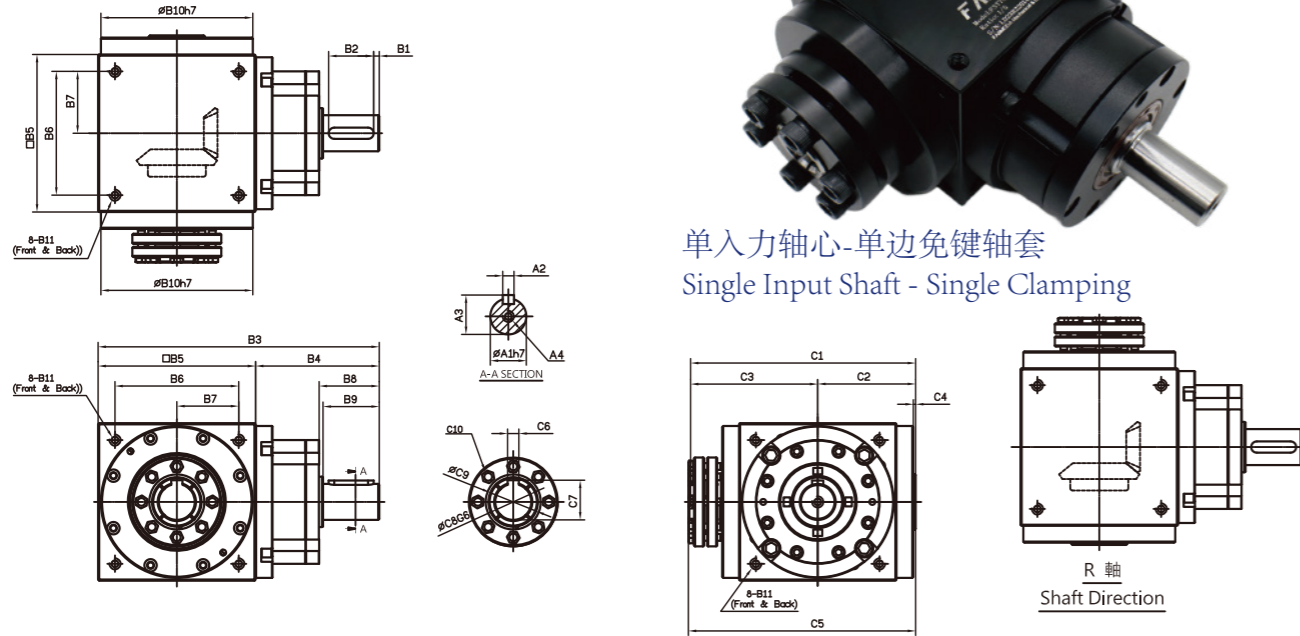
搭配行星减速机-单边免键轴套
Fitted with Planetary Reducer - Single Clamping



Model Code	65	75	90	110	140	170	210	
A1	8, 9, 11, 14	8, 9, 11, 14	11, 14, 16, 19	11, 14, 16, 19	(14), 16, 19	16, 19, 22, 24	22, 24, 28, 32, 35	28, 32, 35, 38
A2	30, 40, 50	30, 40, 50	50, 60, 70	50, 60, 70	50, 70, 80, 95	70, 80, 95, 110	95, 110, 130	110, 130, 180
A3	M3, M4, M5	M3, M4, M5	M4, M5, M6	M4, M5, M6	M5, M6	M5, M6, M8	M6, M8, M10	M8, M10, M12
A4	46, 60, 63	46, 60, 63	70, 75, 90	70, 75, 90	70, 90, 100, 115	90, 100, 115, 145	115, 145, 165	145, 165, 200
A5	46, 55	46, 55	46, 70, 80	46, 70, 80	80, 92, 110	92, 110, 130	122, 130, 150	146, 150, 190
A6	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5
B1	132	137	149, 157	165, 173	(191), 203	260	313, 334	399
B2	67	62	74, 82	75, 83	(81), 93	120	143, 164	189
B3(B3')	65	75(74)	75(74)	90	110	140	170	210
B4	52	60	60	72	88	110	134	170
B5	26	30	30	36	44	55	67	85
B6	26	26	33.5, 41.5	33.5, 41.5	(33.5), 45.5	59	67, 83	85
B7	5	5	6	6	(6), 10	9	10, 11	10
B8	62	73	73	88	106	135	164	205
B9	M5 x P0.8	M6 x P1.0	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	104	120	120	138	169	200	240	285
C2	42	50	50	59	72	87	102	125
C3	62	70	70	79	97	113	138	160
C4	2	2	2	2	2	2	2	2
C5	118	124	124	142	171	202	242	288
C6	5	5	5	6	8	10	12	14
C7	16.3	16.3	16.3	20.8	25.3	35.3	43.3	53.3
C8	14	14	14	18	22	32	40	50
C9	22	22	22	28	34	44	52	65
C10	6-M6	6-M6	6-M6	6-M6	8-M6	8-M6	8-M8	8-M8
重量	1.9	3.6	3.4	4.8	8.5	14.2	24	52

FST-DN series

RATIO : 1.2.3.4.5 (单段1-Stage)



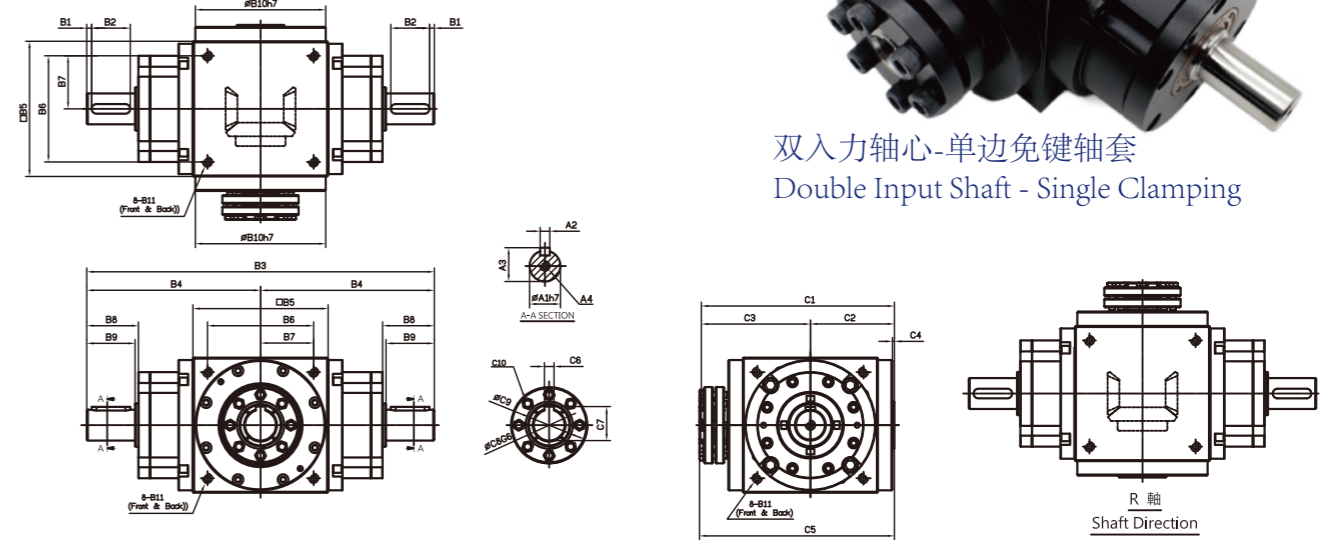
单入力轴心-单边免键轴套
Single Input Shaft - Single Clamping

R 轴
Shaft Direction

Model Code	65	65(1:1)	75	90	110	140	170	210
A1	14		16	18	22	32	40	50
A2	5		5	6	6	10	12	14
A3	16		18	20.5	24.5	35	43	53.5
A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
B1	2.5		2.5	5	5	5	5	5
B2	15		25	25	30	40	50	65
B3	127.5		143	168.5	207	250	300	375
B4	62.5		68	78.5	97	110	130	165
B5(B5')	65		75(74)	90	110	140	170	210
B6	52		60	72	88	110	134	170
B7	26		30	36	44	55	67	85
B8	22		32	38	43	53.5	64	77
B9	20		30	35	40	50	60	75
B10	62	64	73	88	106	135	164	205
B11	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	104	109	120	138	169	202	240	285
C2	42	44.5	50	59	72	87	102	125
C3	62	64.5	70	79	97	115	138	160
C4	2	2	2	2	2	2	2	2
C5	110	113	124	142	171	202	242	288
C6	5	5	5	6	8	10	12	14
C7	16.3	16.3	16.3	20.8	25.3	35.3	43.3	53.3
C8	14	14	14	18	22	32	40	50
C9	22	22	22	28	34	44	52	65
C10	6-M6	6-M6	6-M6	6-M6	8-M6	8-M6	8-M8	8-M8
重量	2.1	2.1	2.8	4.9	8.59	15.5	25	53

FST-YN series

RATIO : 1.2.3.4.5 (单段1-Stage)

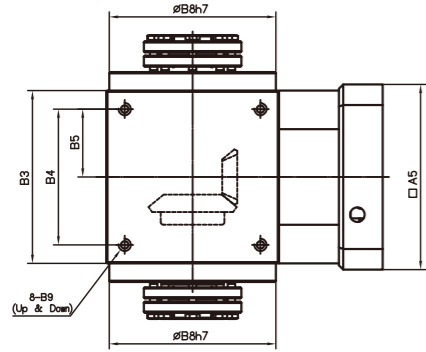


双入力轴心-单边免键轴套
Double Input Shaft - Single Clamping

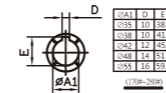
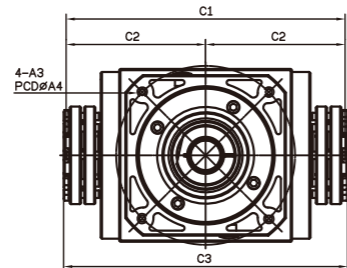
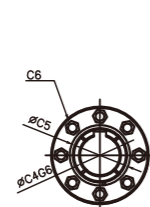
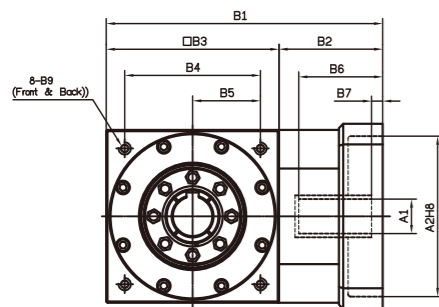
R 轴
Shaft Direction

Model Code	65	65(1:1)	75	90	110	140	170	210
A1	14		16	18	22	32	40	50
A2	5		5	6	6	10	12	14
A3	16		18	20.5	24.5	35	43	53.5
A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
B1	2.5		2.5	5	5	5	5	5
B2	15		25	25	30	40	50	65
B3	190		210	247	304	360	430	540
B4	95		105	123.5	152	180	215	270
B5(B5')	65		75(74)	90	110	140	170	210
B6	52		60	72	88	110	134	170
B7	26		30	36	44	55	67	85
B8	22		32	38	43	53.5	64	77
B9	20		30	35	40	50	60	75
B10	62	64	73	88	106	135	164	205
B11	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	104	109	120	138	169	200	240	285
C2	42	44.5	50	59	72	87	102	125
C3	62	64.5	70	79	97	113	138	160
C4	2	2	2	2	2	2	2	2
C5	110	113	124	142	171	202	242	288
C6	5	5	5	6	8	10	12	14
C7	16.3	16.3	16.3	20.8	25.3	35.3	43.3	53.3
C8	14	14	14	18	22	32	40	50
C9	22	22	22	28	34	44	52	65
C10	6-M6	6-M6	6-M6	6-M6	8-M6	8-M6	8-M8	8-M8
重量	2.85	2.85	3.6	6.2	11.5	18	28	57

FST-FM series RATIO : 1.2.3.4.5 (单段1-Stage)

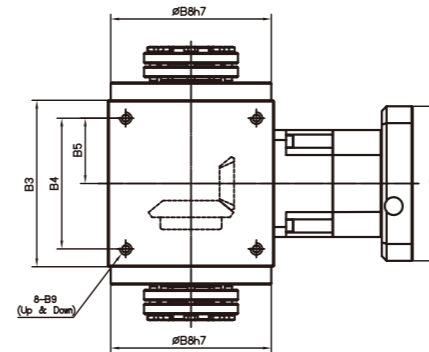


入力法兰-双边免键轴套
Input Flange - Double Clamping

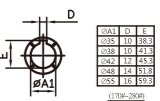
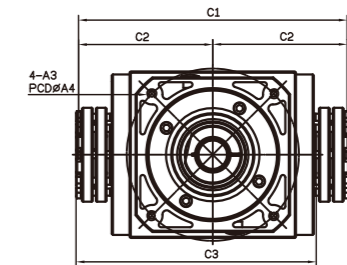
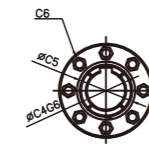
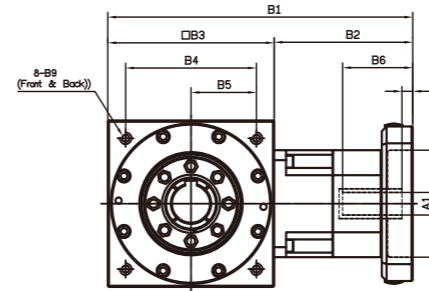


Model Code	65	65(1:1)	75	90	110	140	170	210
A1	9, 11, 14	14, 19	16, 19, 22, 24	19, 22, 24	24, 28, 32, 35	35, 38	35, 38, 42, 48, 55	
A2	50, 60, 70	50, 60, 70	70, 80, 95, 110	70, 80, 95, 110	95, 110, 130	110, 130, 180	114, 3, 180, 230	
A3	M4, M5, M6	M4, M5, M6	M5, M6, M8	M5, M6, M8	M6, M8, M10	M8, M10, M12	M10, M12, M16	
A4	70, 75, 90	70, 75, 90	90, 100, 115, 145	90, 100, 115, 145	115, 145, 165	145, 165, 200	200, 215, 265	
A5	64, 70, 80	64, 70, 80	92, 110, 130	92, 110, 130	122, 130, 150	146, 150, 190	182, 200, 250	
A6	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	
B1	110	115, 122	148, 162	177, 191	224, 238	274	357, 359	
B2	45	40	58, 72	67, 81	84, 98	104	147	
B3(B3')	65	75(74)	90	110	140	170	210	
B4	52	60	72	88	110	134	170	
B5	26	30	36	44	55	67	85	
B6	36	36, 43	51, 65.5	51, 65.5	68, 81	84.5	117	
B7	7	7, 13	9, 23.5	9, 23.5	9, 10	9.5	14, 16	
B8	62	64	73	88	106	135	205	
B9	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	124	129	140	158	194	230	276	320
C2	62	64.5	70	79	97	115	138	160
C3	136	138	150	166	198	232	280	327
C4	14	14	14	18	22	32	40	50
C5	22	22	22	28	34	44	52	65
C6	6-M6	6-M6	6-M6	6-M6	8-M6	8-M6	8-M8	8-M8
重量	1.7	2.1	2.4	4.3	7.1	14.9	24.5	46

FST-RM series RATIO : 10.15.20.30.40.50 (双段2-Stage)



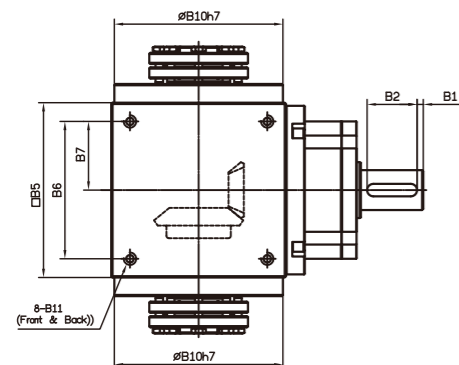
搭配行星减速机-双边免键轴套
Fitted with Planetary Reducer - Double Clamping



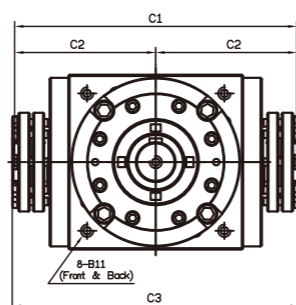
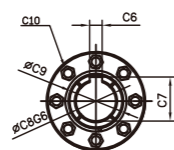
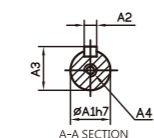
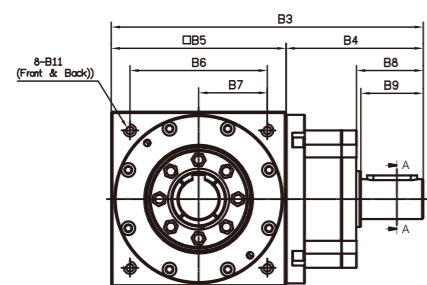
Model Code	65	75	90	110	140	170	210	
A1	8, 9, 11, 14	8, 9, 11, 14	11, 14, 16, 19	11, 14, 16, 19	(14), 16, 19	16, 19, 22, 24	22, 24, 28, 32, 35	28, 32, 35, 38
A2	30, 40, 50	30, 40, 50	50, 60, 70	50, 60, 70	50, 70, 80, 95	70, 80, 95, 110	95, 110, 130	110, 130, 180
A3	M3, M4, M5	M3, M4, M5	M4, M5, M6	M4, M5, M6	M5, M6	M5, M6, M8	M6, M8, M10	M8, M10, M12
A4	46, 60, 63	46, 60, 63	70, 75, 90	70, 75, 90	70, 90, 100, 115	90, 100, 115, 145	115, 145, 165	145, 165, 200
A5	46, 55	46, 55	64, 70, 80	64, 70, 80	80, 92, 110	92, 110, 130	122, 130, 150	146, 150, 190
A6	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5
B1	132	137	149, 157	165, 173	(191), 203	260	313, 334	399
B2	67	62	74, 82	75, 83	(81), 93	120	143, 164	189
B3(B3')	65	75(74)	75(74)	90	110	140	170	210
B4	52	60	60	72	88	110	134	170
B5	26	30	30	36	44	55	67	85
B6	26	26	33.5, 41.5	33.5, 41.5	(33.5), 45.5	59	67, 83	85
B7	5	5	5	6	(6), 10	9	10, 11	10
B8	62	73	73	88	106	135	164	205
B9	M5 x P0.8	M6 x P1.0	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	124	140	140	158	194	230	276	320
C2	62	70	70	79	97	115	138	160
C3	136	150	150	166	198	232	280	327
C4	14	14	14	18	22	32	40	50
C5	22	22	22	28	34	44	52	65
C6	6-M6	6-M6	6-M6	6-M6	8-M6	8-M6	8-M8	8-M8
重量	1.9	3.6	3.4	3.4	8.5	14.2	24	52

FST-DM series

RATIO : 1.2.3.4.5 (单段1-Stage)



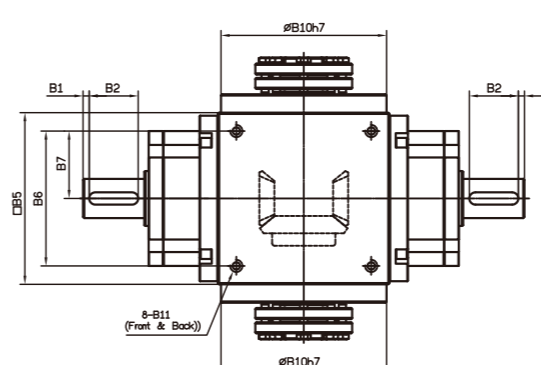
单入力轴心-双边免键轴套
Single Input Shaft - Double Clamping



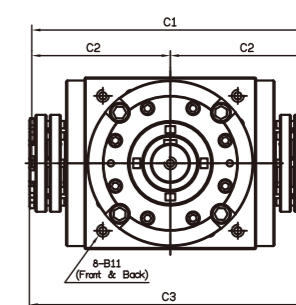
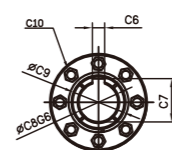
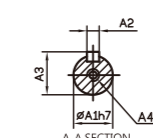
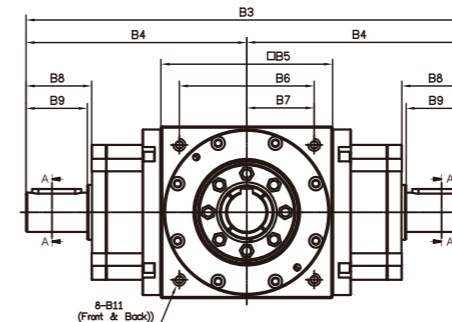
Model Code	65	65(1:1)	75	90	110	140	170	210
A1	14		16	18	22	32	40	50
A2	5		5	6	6	10	12	14
A3	16		18	20.5	24.5	35	43	53.5
A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
B1	2.5		2.5	5	5	5	5	5
B2	15		25	25	30	40	50	65
B3	127.5		143	168.5	207	250	300	375
B4	62.5		68	78.5	97	110	130	165
B5(B5')	65		75(74)	90	110	140	170	210
B6	52		60	72	88	110	134	170
B7	26		30	36	44	55	67	85
B8	22		32	38	43	53.5	64	77
B9	20		30	35	40	50	60	75
B10	62	64	73	88	106	135	164	205
B11	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	124	129	140	158	194	230	276	320
C2	62	64.5	70	79	97	115	138	160
C3	136	138	150	166	198	232	280	327
C4	14	14	14	18	22	32	40	50
C5	22	22	22	28	34	44	52	65
C6	6-M6	6-M6	6-M6	6-M6	8-M6	8-M6	8-M8	8-M8
重量	2.1	2.1	2.8	4.9	8.59	15.5	25	53

FST-YM series

RATIO : 1.2.3.4.5 (单段1-Stage)



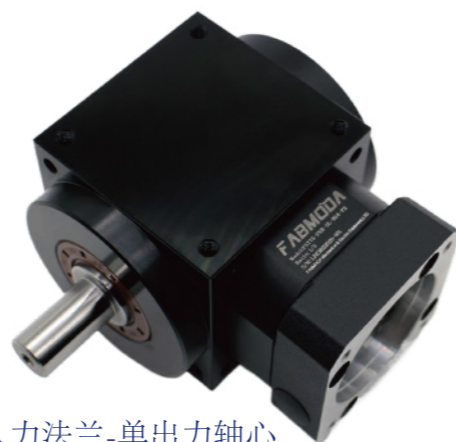
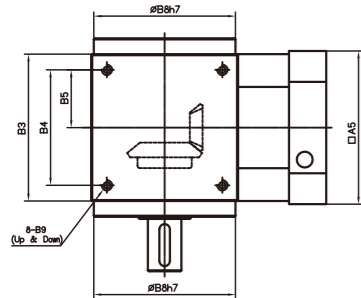
双入力轴心-双边免键轴套
Double Input Shaft - Double Clamping



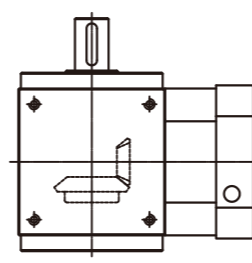
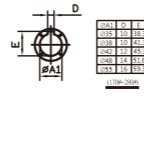
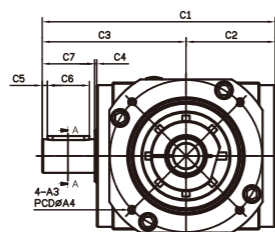
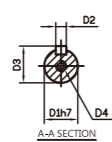
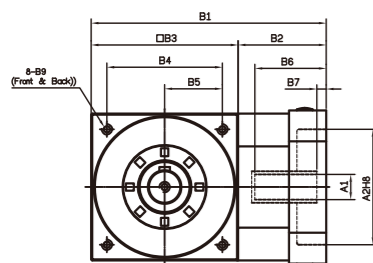
Model Code	65	65(1:1)	75	90	110	140	170	210
A1	14		16	18	22	32	40	50
A2	5		5	6	6	10	12	14
A3	16		18	20.5	24.5	35	43	53.5
A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
A5	2.5		2.5	5	5	5	5	5
A6	15		25	25	30	40	50	65
B1	190		210	247	304	360	430	540
B2	95		95	123.5	152	180	215	270
B3(B3')	65		75(74)	90	110	140	170	210
B4	52		60	72	88	110	134	170
B5	26		30	36	44	55	67	85
B6	22		32	38	43	53.5	64	77
B7	20		30	35	40	50	60	75
B8	62	64	73	88	106	135	164	205
B9	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	124	129	140	158	194	230	276	320
C2	62	64.5	70	79	97	115	138	160
C3	136	138	150	166	198	232	280	327
C4	14	14	14	18	22	32	40	50
C5	22	22	22	28	34	44	52	65
C6	6-M6	6-M6	6-M6	6-M6	8-M6	8-M6	8-M8	8-M8
重量	2.85	2.85	3.6	6.2	11.5	18	28	57



FST-FS series
RATIO : 1.2.3.4.5 (单段1-Stage)



入力法兰-单出力轴心
Input Flange - Single Output Shaft

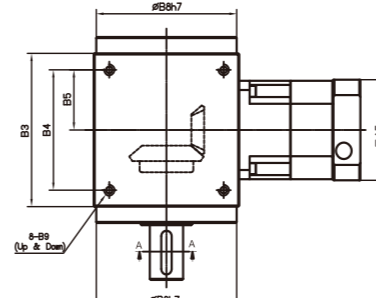


R 軸
Shaft Direction

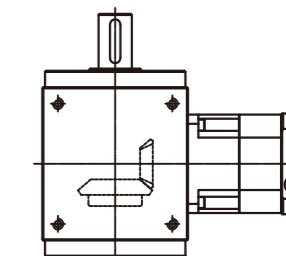
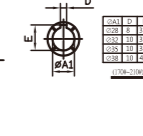
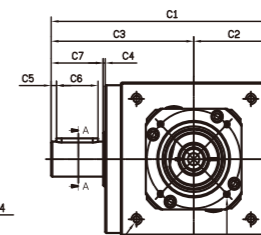
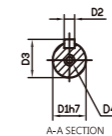
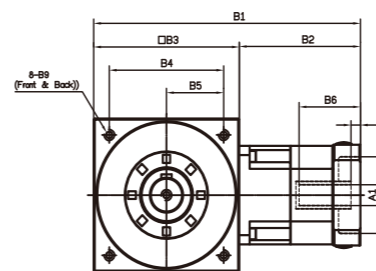
Model Code	65	65(1:1)	75	90	110	140	170	210
A1	9, 11, 14		14, 19	16, 19, 22, 24	19, 22, 24	24, 28, 32, 35	35, 38	35, 38, 42, 48, 55
A2	50, 60, 70		50, 60, 70	70, 80, 95, 110	70, 80, 95, 110	95, 110, 130	110, 130, 180	114.3, 180, 230
A3	M4, M5, M6		M4, M5, M6	M5, M6, M8	M5, M6, M8	M6, M8, M10	M8, M10, M12	M10, M12, M16
A4	70, 75, 90		70, 75, 90	90, 100, 115, 145	90, 100, 115, 145	115, 145, 165	145, 165, 200	200, 215, 265
A5	64, 70, 80		64, 70, 80	92, 110, 130	92, 110, 130	122, 130, 150	146, 150, 190	182, 200, 250
A6	M5 x P0.8		M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5
B1	110		110	148, 162	177, 191	224, 238	274	357, 359
B2	45		45	58, 72	67, 81	84, 98	104	147
B3(B3')	65		65	90	110	140	170	210
B4	52		52	72	88	110	134	170
B5	26		26	36	44	55	67	85
B6	36		36	51, 65.5	51, 65.5	68, 81	84.5	117
B7	7		7	9, 23.5	9, 23.5	9, 10	9.5	14, 16
B8	62	64	64	88	106	135	164	205
B9	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	102	107	128	151	182	222	262	323
C2	40	42.5	48	57	70	85	100	123
C3	62	64.5	80	94	112	137	162	200
C4	2	2	2	2	2	2	2	2
C5	2.5	2.5	2.5	5	5	5	5	5
C6	15	15	25	25	30	40	50	65
C7	20	20	30	35	40	50	60	75
D1	14	14	16	18	22	32	40	40
D2	5	5	5	6	6	10	12	14
D3	16	16	18	20.5	24.5	35	43	53.5
D4	M5 x P0.8	M5 x P0.8	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
重量	1.7	1.7	2.4	4.3	7.1	14.9	24.5	46



FST-RS series
RATIO : 10.15.20.25.30.40.50 (双段2-Stage)



搭配行星减速机-单出力轴心
Fitted with Planetary Reducer - Single Output Shaft

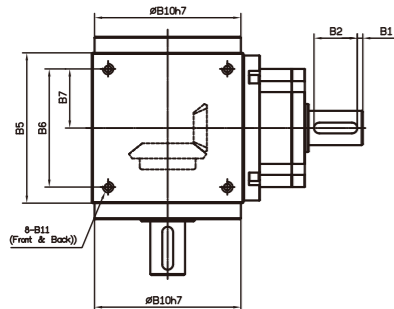


R 軸
Shaft Direction

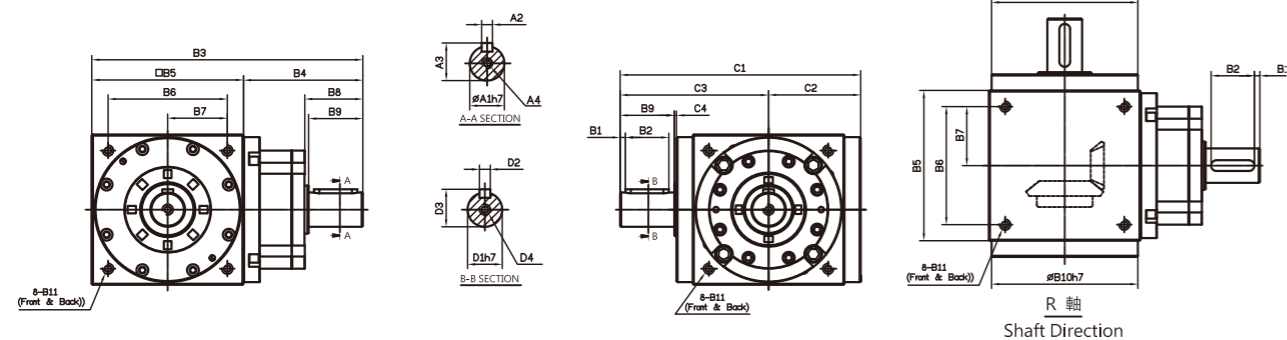
Model Code	65	75	90	110	140	170	210	
A1	8, 9, 11, 14	8, 9, 11, 14	11, 14, 16, 19	11, 14, 16, 19	(14), 16, 19	16, 19, 22, 24	22, 24, 28, 32, 35	28, 32, 35, 38
A2	30, 40, 50	30, 40, 50	50, 60, 70	50, 60, 70	50, 70, 80, 95	70, 80, 95, 110	95, 110, 130	110, 130, 180
A3	M3, M4, M5	M3, M4, M5	M4, M5, M6	M4, M5, M6	M5, M6	M5, M6, M8	M6, M8, M10	M8, M10, M12
A4	45, 60, 63	45, 60, 63	70, 75, 90	70, 75, 90	70, 90, 100, 115	90, 100, 115, 145	115, 145, 165	145, 165, 200
A5	46, 55	46, 55	64, 70, 80	64, 70, 80	80, 92, 110	92, 110, 130	122, 130, 150	146, 150, 190
A6	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5
B1	132	137	149, 157	165, 173	191	260	313, 334	399
B2	67	62	74, 82	75, 83	81	120	143, 164	189
B3(B3')	65	75(74)	75(74)	90	110	140	170	210
B4	52	60	60	72	88	110	134	170
B5	26	30	30	36	44	55	67	85
B6	26	26	33.5, 41.5	33.5, 41.5	33.5	59	67, 83	85
B7	5	5	5	6	6	9	10, 11	10
B8	62	73	73	88	106	135	164	205
B9	M5 x P0.8	M6 x P1.0	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	102	128	128	151	182	222	262	323
C2	40	48	48	57	70	85	100	123
C3	62	80	80	94	112	137	162	200
C4	2	2	2	2	2	2	2	2
C5	2.5	2.5	2.5	5	5	5	5	5
C6	15	25	25	25	30	40	50	65
C7	20	30	30	35	40	50	60	75
D1	14	16	16	18	22	32	40	50
D2	5	5	5	6	6	10	12	14
D3	16	18	18	20.5	24.5	35	43	53.5
D4	M5 x P0.8	M5 x P0.8	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
重量	1.9	3.6	3.4	4.8	8.5	14.2	24	52

FST-DS series

RATIO : 1.2.3.4.5 (单段1-Stage)



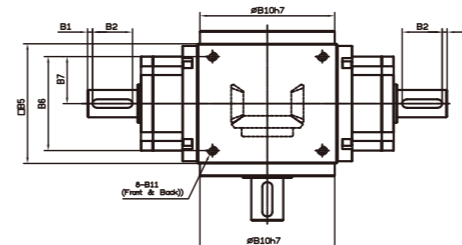
单入力轴心-单出力轴心
Single Input Shaft - Single Output Shaft



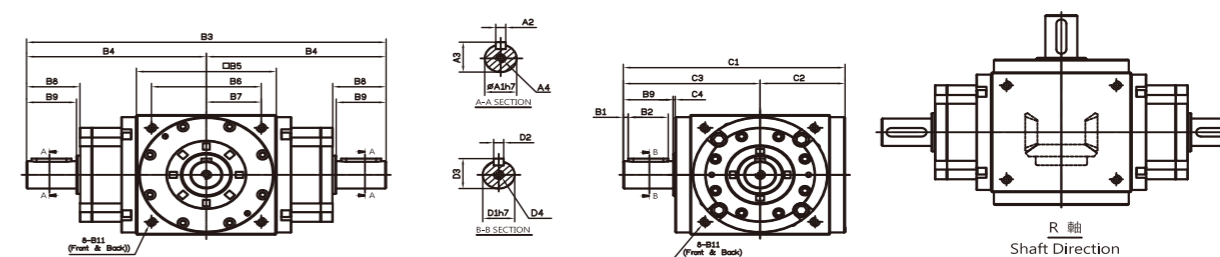
Model Code	65	65(1:1)	75	90	110	140	170	210
A1	14		16	18	22	32	40	50
A2	5		5	6	6	10	12	14
A3	16		18	20.5	24.5	35	43	53.5
A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
B1	2.5		2.5	5	5	5	5	5
B2	15		25	25	30	40	50	65
B3	127.5		143	168.5	207	250	300	375
B4	62.5		68	78.5	97	110	130	165
B5(B5')	65		75(74)	90	110	140	170	210
B6	52		60	72	88	110	134	170
B7	26		30	36	44	55	67	85
B8	22		32	38	43	53.5	64	77
B9	20		30	35	40	50	60	75
B10	62	64	73	88	106	135	164	205
B11	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	102	107	128	151	182	222	262	323
C2	40	42.5	48	57	70	85	100	123
C3	62	64.5	80	94	112	137	162	200
C4	2	2	2	2	2	2	2	2
D1	14	14	16	18	22	32	40	50
D2	5	5	5	6	6	10	12	14
D3	16	16	18	20.5	24.5	35	43	53.5
D4	M5 x P0.8	M5 x P0.8	M5 x P0.8	M5 x P0.8	M5 x P0.8	M10 x P1.5	M12 x P1.75	M12 x P1.75
重量	2.1	2.1	2.8	2.8	4.9	15.5	25	53

FST-YS series

RATIO : 1.2.3.4.5 (单段1-Stage)



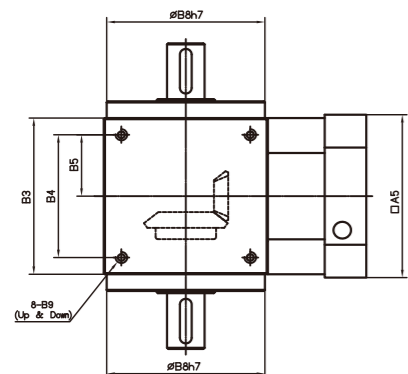
双入力轴心-单出力轴心
Double Input Shaft - Single Output Shaft



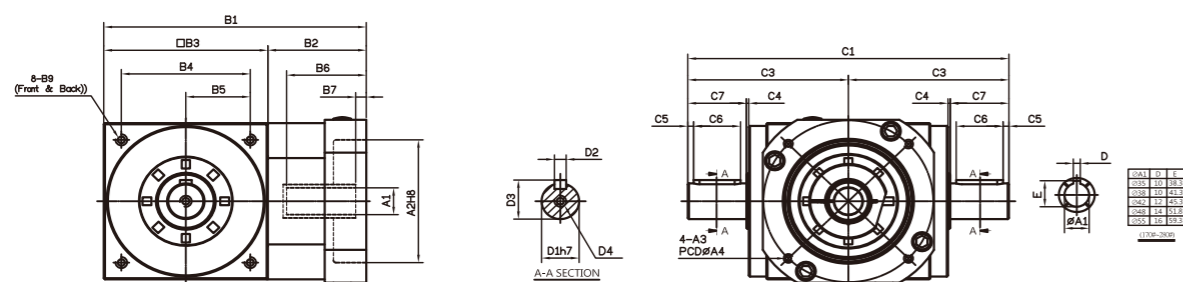
Model Code	65	65(1:1)	75	90	110	140	170	210
A1	14		16	18	22	32	40	50
A2	5		5	6	6	10	12	14
A3	16		18	20.5	24.5	35	43	53.5
A4	M5 x P0.8		M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
B1	2.5		2.5	5	5	5	5	5
B2	15		25	25	30	40	50	65
B3	190		210	247	304	360	430	540
B4	95		105	123.5	152	180	215	270
B5(B5')	65		75(74)	90	110	140	170	210
B6	52		60	72	88	110	134	170
B7	26		30	36	44	55	67	85
B8	22		32	38	43	53.5	64	77
B9	20		30	35	40	50	60	75
B10	62	64	73	88	106	135	164	205
B11	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	102	107	128	151	182	222	262	323
C2	40	42.5	48	57	70	85	100	123
C3	62	64.5	80	94	112	137	162	200
C4	2	2	2	2	2	2	2	2
D1	14	14	16	18	22	32	40	50
D2	5	5	5	6	6	10	12	14
D3	16	16	18	20.5	24.5	35	43	53.5
D4	M5 x P0.8	M5 x P0.8	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
重量	2.85	2.85	3.6	6.2	11.5	18	28	57

FST-FV series

RATIO : 1.2.3.4.5 (单段1-Stage)

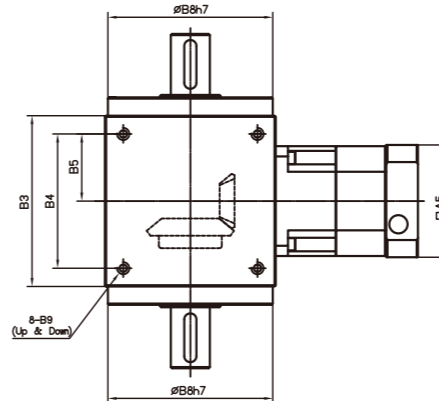


入力法兰-双出力轴心
Input Flange - Double Output Shaft

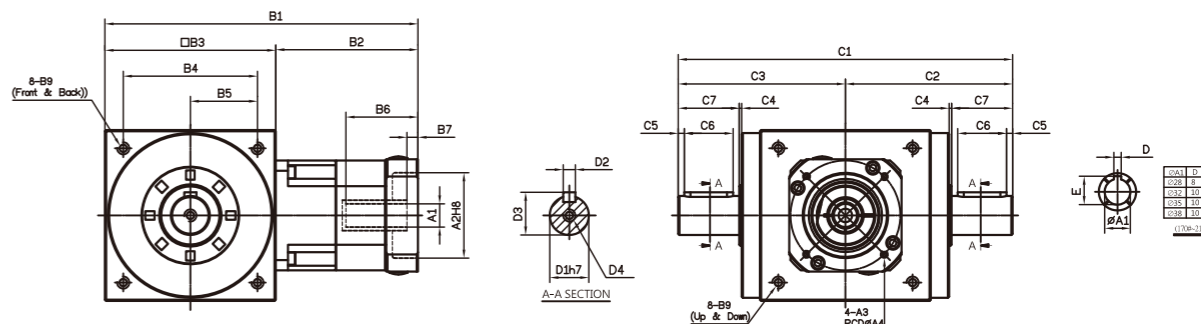


FST-RV series

RATIO : 10.15.20.25.30.40.50 (双段2-Stage)



搭配行星减速机-双出力轴心
Fitted with Planetary Reducer - Double Output Shaft

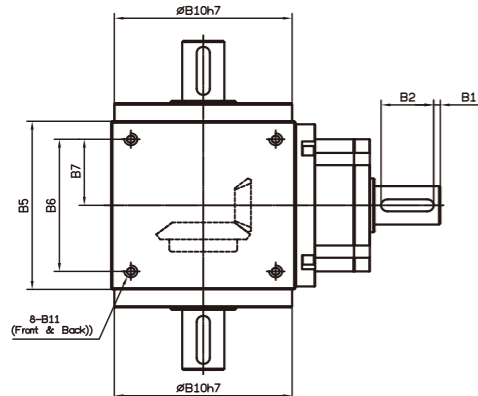


Model Code	65	65(1:1)	75	90	110	140	170	210
A1	9, 11, 14	14, 19	16, 19, 22, 24	19, 22, 24	24, 28, 32, 35	35, 38	35, 38, 42, 48, 55	
A2	50, 60, 70	50, 60, 70	70, 80, 95, 110	70, 80, 95, 110	95, 110, 130	110, 130, 180	114.3, 180, 230	
A3	M4, M5, M6	M4, M5, M6	M5, M6, M8	M5, M6, M8	M6, M8, M10	M8, M10, M12	M10, M12, M16	
A4	70, 75, 90	70, 75, 90	90, 100, 115, 145	90, 100, 115, 145	115, 145, 165	145, 165, 200	200, 215, 265	
A5	64, 70, 80	64, 70, 80	92, 110, 130	92, 110, 130	122, 130, 150	146, 150, 190	182, 200, 250	
A6	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M10 x P1.5	
B1	110	115, 122	148, 162	177, 191	224, 238	274	357, 359	
B2	45	40	58, 72	67, 81	84, 98	104	147	
B3(B3')	65	75(74)	90	110	140	170	210	
B4	52	60	72	88	110	134	170	
B5	26	30	36	44	55	67	85	
B6	36	36, 43	51, 65.5	51, 65.5	68, 81	84.5	117	
B7	7	7, 13	9, 23.5	9, 23.5	9, 10	9.5	14, 16	
B8	62	64	73	88	106	135	164	205
B9	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	124	129	160	188	224	274	324	400
C2	62	64.5	80	94	112	137	162	200
C3	62	64.5	80	94	112	137	162	200
C4	2	2	2	2	2	2	2	2
C5	2.5	2.5	2.5	5	5	5	5	5
C6	15	15	25	25	30	40	50	65
C7	20	20	30	35	40	50	60	75
D1	14	14	16	18	22	32	40	50
D2	5	5	5	6	6	10	12	14
D3	16	16	18	20.5	24.5	35	43	53.5
D4	M5 x P0.8	M5 x P0.8	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
重量	1.7	1.7	2.4	4.3	7.1	14.9	24.5	46

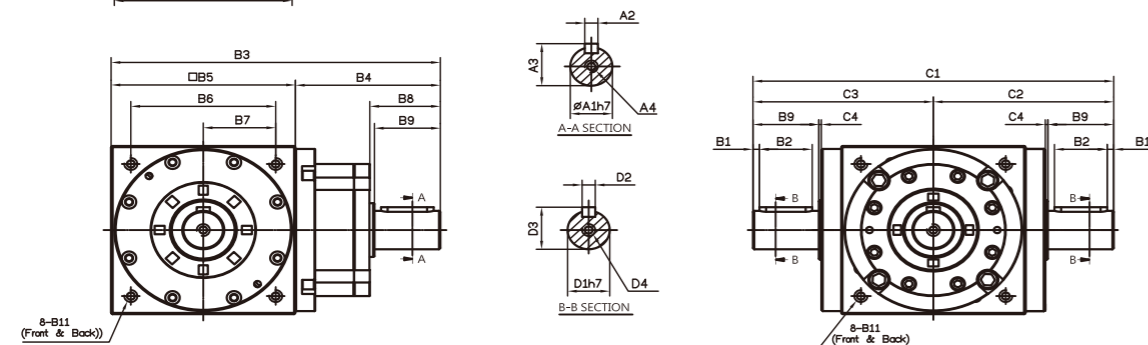
Model Code	65	75	90	110	140	170	210	
A1	8, 9, 11, 14	8, 9, 11, 14	11, 14, 16, 19	11, 14, 16, 19	(14), 16, 19	16, 19, 22, 24	22, 24, 28, 32, 35	28, 32, 35, 38
A2	30, 40, 50	30, 40, 50	50, 60, 70	50, 60, 70	50, 70, 80, 95	70, 80, 95, 110	95, 110, 130	110, 130, 180
A3	M3, M4, M5	M3, M4, M5	M4, M5, M6	M4, M5, M6	M5, M6	M5, M6, M8	M6, M8, M10	M8, M10, M12
A4	45, 60, 63	45, 60, 63	70, 75, 90	70, 75, 90	70, 90, 100, 115	90, 100, 115, 145	115, 145, 165	145, 165, 200
A5	46, 55	46, 55	64, 70, 80	64, 70, 80	80, 92, 110	92, 110, 130	122, 130, 150	146, 150, 190
A6	M4 x P0.7	M4 x P0.7	M5 x P0.8	M5 x P0.8	M5 x P0.8	M6 x P1.0	M8 x P1.25	M10 x P1.5
B1	132	137	149, 157	165, 173	191	260	313, 334	399
B2	67	62	74, 82	75, 83	81	120	143, 164	189
B3(B3')	65	75(74)	75(74)	90	110	140	170	210
B4	52	60	60	72	88	110	134	170
B5	26	30	30	36	44	55	67	85
B6	26	26	33.5, 41.5	33.5, 41.5	33.5	59	67, 83	85
B7	5	5	5	6	6	9	10, 11	10
B8	62	73	73	88	106	135	164	205
B9	M5 x P0.8	M6 x P1.0	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	124	160	160	188	224	274	324	400
C2	62	80	80	94	112	137	162	200
C3	62	80	80	94	112	137	162	200
C4	2	2	2	2	2	2	2	2
C5	2.5	2.5	2.5	5	5	5	5	5
C6	15	25	25	25	30	40	50	65
C7	20	30	30	35	40	50	60	75
D1	14	16	16	18	22	32	40	50
D2	5	5	5	6	6	10	12	14
D3	16	18	18	20.5	24.5	35	43	53.5
D4	M5 x P0.8	M5 x P0.8	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
重量	1.9	3.6	3.4	4.8	8.5	14.2	24	52

FST-DV series

RATIO : 1.2.3.4.5 (单段1-Stage)

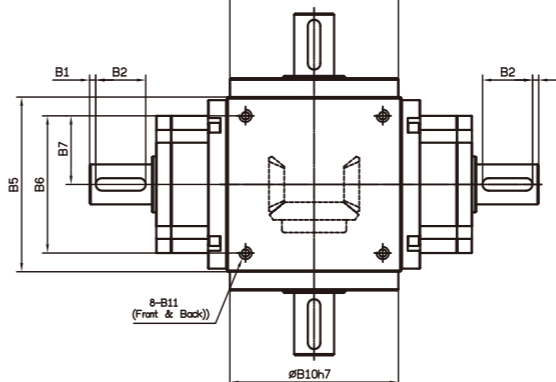


单入力轴心-双出力轴心
Single Input Shaft - Double Output Shaft

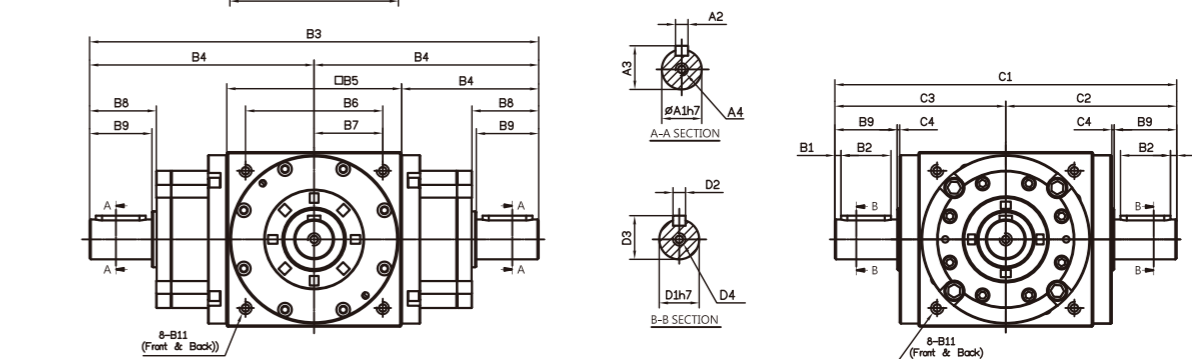


FST-YV series

RATIO : 1.2.3.4.5 (单段1-Stage)



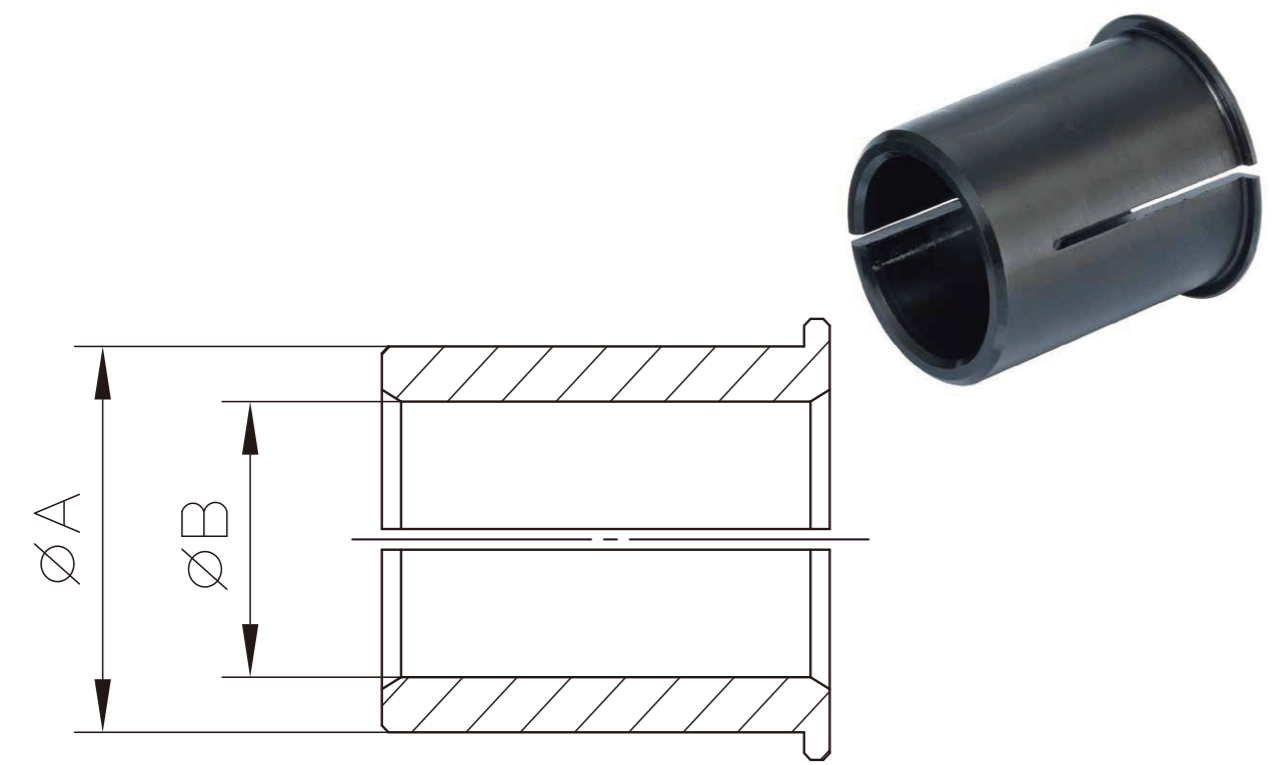
双入力轴心-双出力轴心
Double Input Shaft - Double Output Shaft



Model Code	65	65(1:1)	75	90	110	140	170	210
A1	14	16	18	22	32	40	50	
A2	5	5	6	6	10	12	14	
A3	16	18	20.5	24.5	35	43	53.5	
A4	M5 x P0.8	M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	
B1	2.5	2.5	5	5	5	5	5	
B2	15	25	25	30	40	50	65	
B3	127.5	143	168.5	207	250	300	375	
B4	62.5	68	78.5	97	110	130	165	
B5(B5')	65	75(74)	90	110	140	170	210	
B6	52	60	72	88	110	134	170	
B7	26	30	36	44	55	67	85	
B8	22	32	38	43	53.5	64	77	
B9	20	30	35	40	50	60	75	
B10	62	64	73	88	106	135	164	205
B11	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	124	129	160	188	224	274	324	400
C2	62	64.5	80	94	112	137	162	200
C3	62	64.5	80	94	112	137	162	200
C4	2	2	2	2	2	2	2	2
D1	14	14	16	18	22	32	40	50
D2	5	5	5	6	6	10	12	14
D3	16	16	18	20.5	24.5	35	43	53.5
D4	M5 x P0.8	M5 x P0.8	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
重量	2.1	2.1	2.8	4.9	8.59	15.5	25	53

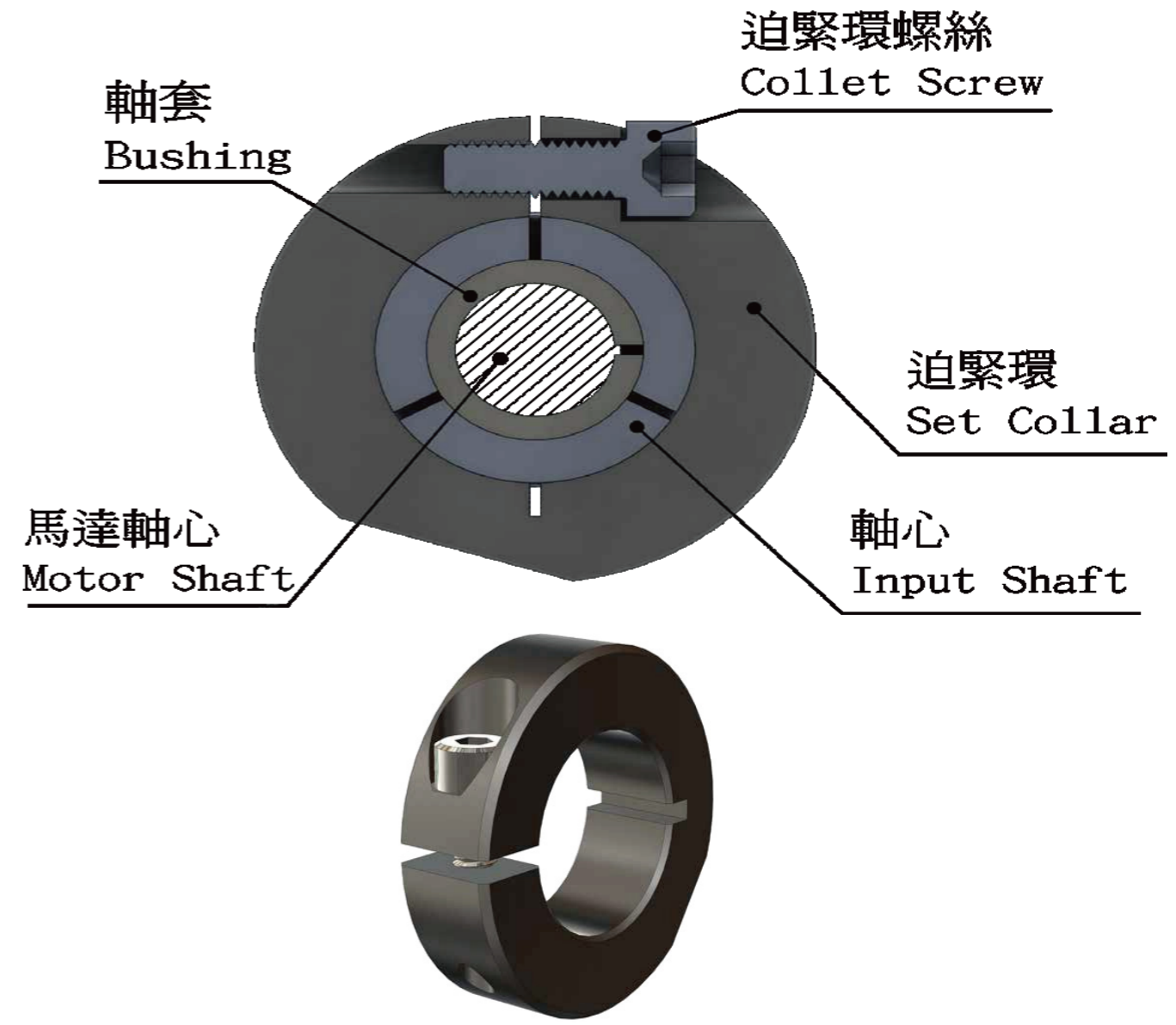
Model Code	65	65(1:1)	75	90	110	140	170	210
A1	14	16	18	22	32	40	50	
A2	5	5	6	6	10	12	14	
A3	16	18	20.5	24.5	35	43	53.5	
A4	M5 x P0.8	M5 x P0.8	M8 x P1.25	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75	
B1	2.5	2.5	5	5	5	5	5	
B2	15	25	25	30	40	50	65	
B3	190	143	168.5	207	250	300	375	
B4	95	68	78.5	97	110	130	165	
B5(B5')	65	75(74)	90	110	140	170	210	
B6	52	60	72	88	110	134	170	
B7	26	30	36	44	55	67	85	
B8	22	32	38	43	53.5	64	77	
B9	20	30	35	40	50	60	75	
B10	62	64	73	88	106	135	164	205
B11	M5 x P0.8	M5 x P0.8	M6 x P1.0	M6 x P1.0	M8 x P1.25	M10 x P1.5	M12 x P1.75	M16 x P2.0
C1	124	129	160	188	224	274	324	400
C2	62	64.5	80	94	112	137	162	200
C3	62	64.5	80	94	112	137	162	200
C4	2	2	2	2	2	2	2	2
D1	14	14	16	18	22	32	40	50
D2	5	5	5	6	6	10	12	14
D3	16	16	18	20.5	24.5	35	43	53.5
D4	M5 x P0.8	M5 x P0.8	M5 x P0.8	M5 x P0.8	M8 x P1.25	M10 x P1.5	M12 x P1.75	M12 x P1.75
重量	2.85	2.85	2.8	4.9	8.59	15.5	25	53

轴套 Bushing



连接轴_孔径 Bushing Bore	ØB 轴套_孔径 Bushing Bore	ØA	8	11	14	19	22	24	28	35	38	42	48
5			●										
5.65				●									
6			●	●	●								
6.35			●		●								
8				●	●								
9				●	●								
9.5						●							
10					●	●							
11					●	●							
12					●	●							
12.7					●	●							
14						●		●					
16					●		●	●					
19							●	●	●				
22								●	●	●			
22.22											●		
24									●	●			
25									●				
28										●		●	
32										●	●		
35											●	●	
38												●	
42													●

筒夹式连接机构 Collet Locking Mechanism

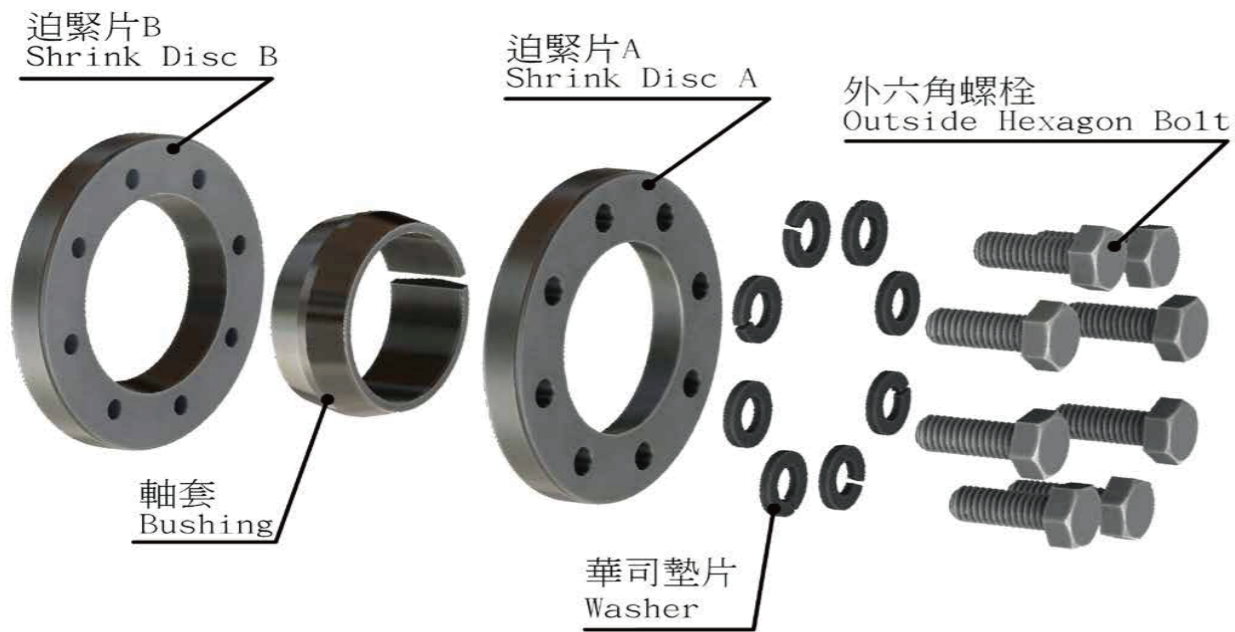


迫紧环螺丝及迫紧环扭矩表 Collet Screw & Collar Torque Table

型号 MODEL						迫紧环螺丝规格	螺丝强度等级	螺丝锁紧扭矩	迫紧扭矩
FAB	FABT	FABL	FSD	FSDL	FST	Spec of Collet Screw	Screw Grade	Tighten Torque(Nm)	Clench Torque(Nm)
44	44	44	47	47	65	M4 x P0.7	12.9	4.83	87
62	62	62	64	64	75	M5 x P0.8	12.9	10	164
90	90	90	90	90	90	M6 x P1.0	12.9	16.3	233
120	120	120	110	110	110	M8 x P1.25	12.9	41	423
142	142	142	140	140	140	M10 x P1.5	12.9	81	678
180	180	180	200	200	170	M10 x P1.5	12.9	81	678
220	220	220	255	255	210	M10 x P1.5	12.9	81	678

※ 马达扭矩超过迫紧环扭矩时, 可能导致打滑。It will cause slip when motor torque exceed clench torque.

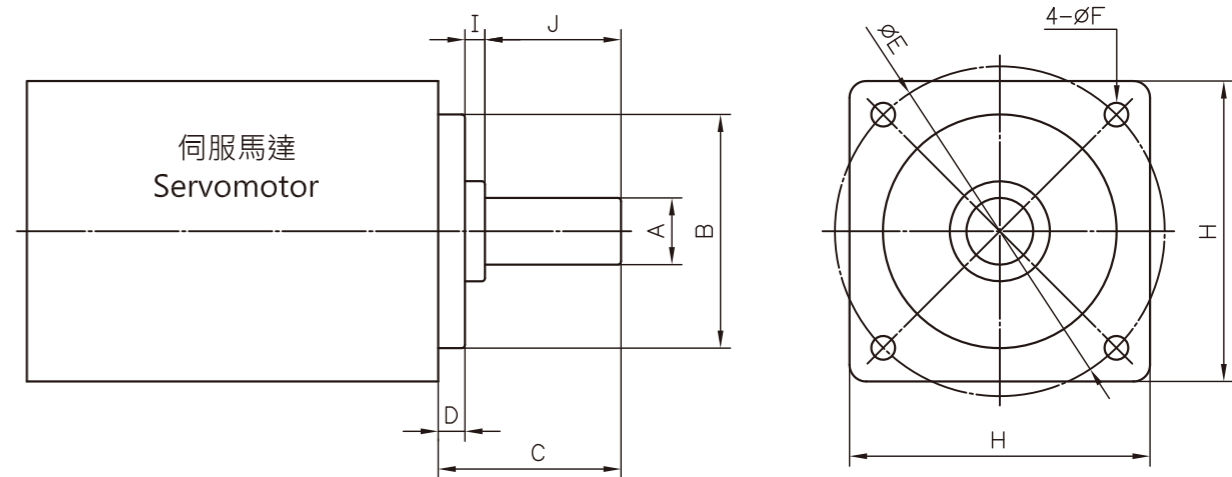
免键式轴套组 Clamping Sets



免键式轴套组 Clamping sets

型号 MODEL	出力轴孔径	螺丝规格	螺丝强度等级	螺丝锁紧扭矩	迫紧扭矩	螺丝数量
FST	Output Bore(mm)	Spec of Screw	Screw Grade	Tighten Torque(Nm)	Clench Torque(Nm)	Quantity of Screw
65	Ø14	M6 x P1.0	12.9	16.3	127.53	6
75	Ø14	M6 x P1.0	12.9	16.3	127.53	6
90	Ø18	M6 x P1.0	12.9	16.3	196.3	6
110	Ø22	M6 x P1.0	12.9	16.3	353.6	8
140	Ø32	M6 x P1.0	12.9	16.3	735.75	8
170	Ø40	M8 x P1.25	12.9	41	882	8
210	Ø50	M8 x P1.25	12.9	41	1400	8

顾客询问资料 Inquiry Information



① 伺服电机安装尺寸 Installation size of the servo motor

A	B	C	D	E	F	H	I	J

② 行星减速机订购型号 Order model of erducer

减速机型号	型号	速比	出力轴键槽	背隙等级	马达型号
Type	Model	Ratio	Output ShaftKeyway	Backlash Class	MOTOR NO.

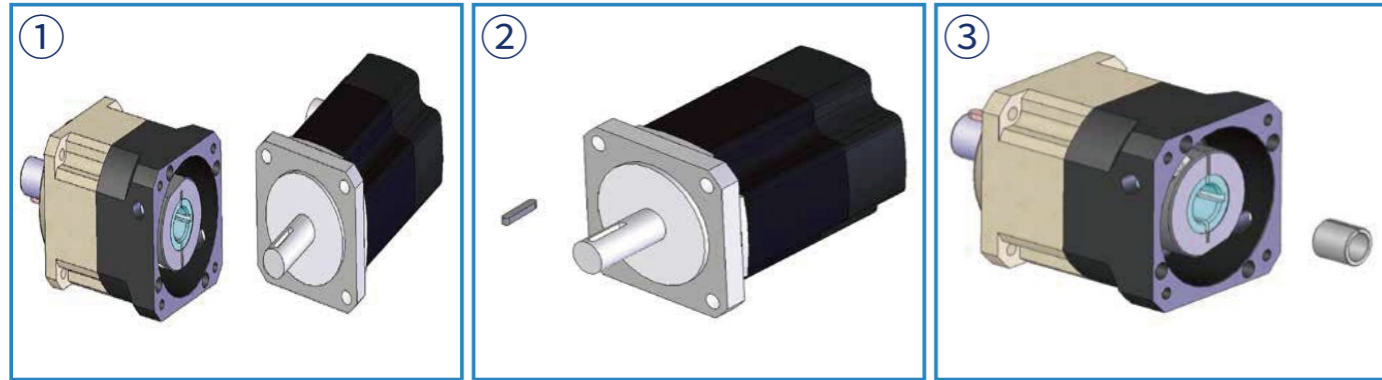
订货须知:

- ◆ 机种、型号、马力
- ◆ 减速比或每分钟回转速
- ◆ 荷重状况及联络方式
- ◆ 数量及被安装的机械名称
- ◆ 入力方式和入力转速
- ◆ 马达厂牌型号或法兰及马达轴尺寸

General Notices:

- ◆ Type, model and horsepower
- ◆ Speed ratio or R.P.M of output shaft
- ◆ Method of connection and loading
- ◆ Quantity and applied mechanism
- ◆ Input connection method and input speed
- ◆ Motor brand Model no or frame & motor shaft dimension

行星减速机与马达安装指南 Planetary Gearbox and Motor Mounting Instructions



① 核对马达型号与减速机规格是否正确。並將配合面擦拭干净。
Confirm the motor, and gearbox size. Clean up the mounting surface.

② 如马达轴径在 $\phi 35$ 以下, 请将马达轴上的键拿掉。
Remove the motor key if the diameter of motor shaft is under $\phi 35$.

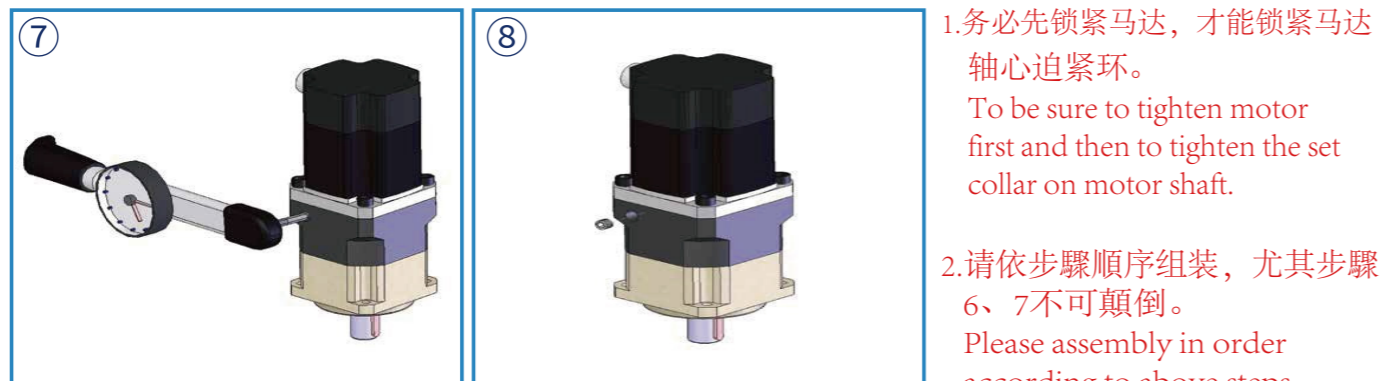
③ 检查马达出力轴尺寸, 如需轴套, 请先装进入力孔内。
Check motor shaft size and insert bushing into input bore if necessary.



④ 取出塞頭, 使用六角扳手將迫紧环螺丝松开。並將螺丝对准孔位。
Remove the plug on the adapter plate. Rotate the set collar till the bolt is line up.

⑤ 将马达垂直装入减速机
Put the motor into the gearbox vertically.

⑥ 依序1~4使用扭力扳手锁上外六角螺丝。
Tighten the mounting bolt in 1~4 order with torque wrench.



⑦ 使用扭力扳手將迫紧环螺丝锁紧。
Tighten the set collar bolt with torque wrench.

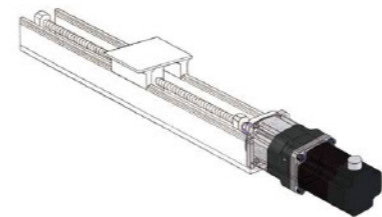
⑧ 装回塞头。
Tighten back the screw plug.

1. 务必先锁紧马达, 才能锁紧马达轴心迫紧环。
To be sure to tighten motor first and then to tighten the set collar on motor shaft.
2. 请依步骤顺序组装, 尤其步骤6、7不可颠倒。
Please assembly in order according to above steps, especially for step 6 and step 7.

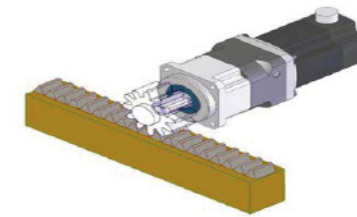
Applications 减速机应用范例

○线性动作机构 Linear Action

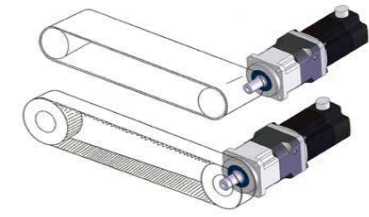
● 滚珠螺杆传动
Ball Screw



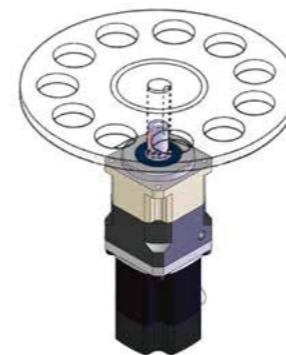
● 齿条转动
Rack



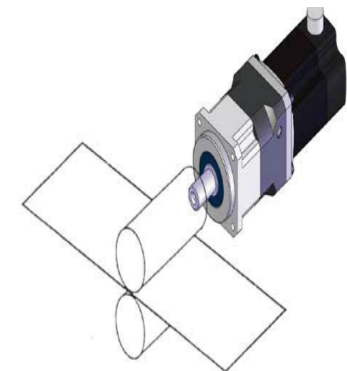
● 滚轮 / 滚筒 / 皮带
Roller / Belt



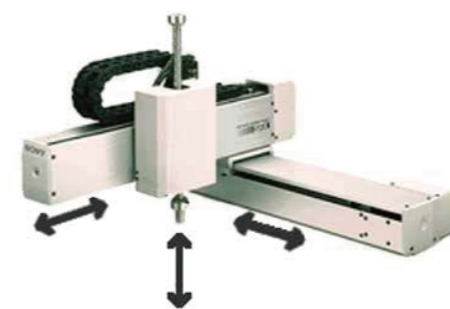
● 分度盘 Index



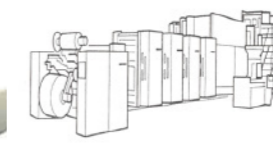
○ 其他机构 Others



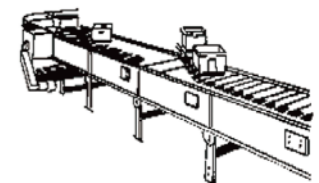
● 机器手壁 Robot



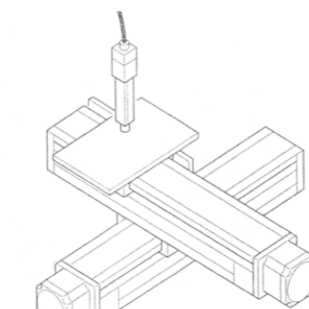
● 印刷机
Printing Machine



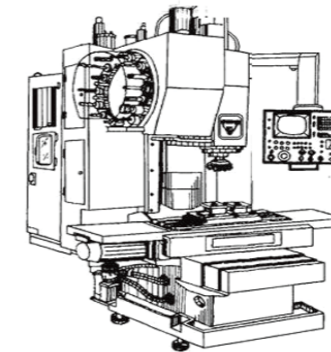
● 输送机
Conveyor



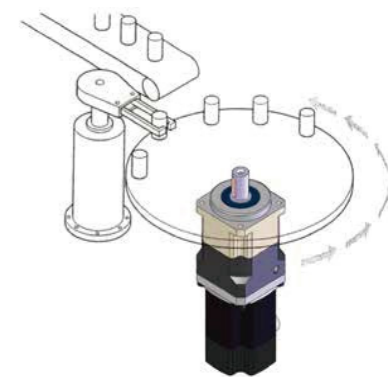
● 工作台
Working Table



● CNC主轴
CNC Spindle



● 分割器 Index



2024年4月版

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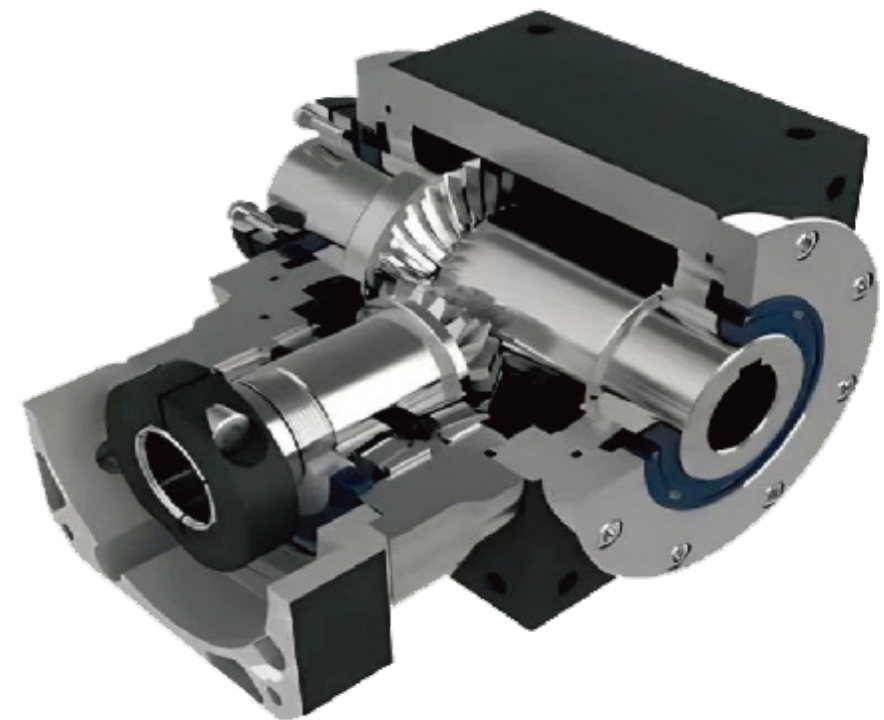
东莞利得机电有限公司

DONGGUAN LEADER MECHANICAL & ELECTRICAL ., LTD

高精度减速机产品手册

High precision reducer product manual

【2024】



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