



致力于打造世界一流的中国传动品牌



致力于打造世界一流的中国传动品牌

R.F.K.S Series Gear Motor

CONTENTS

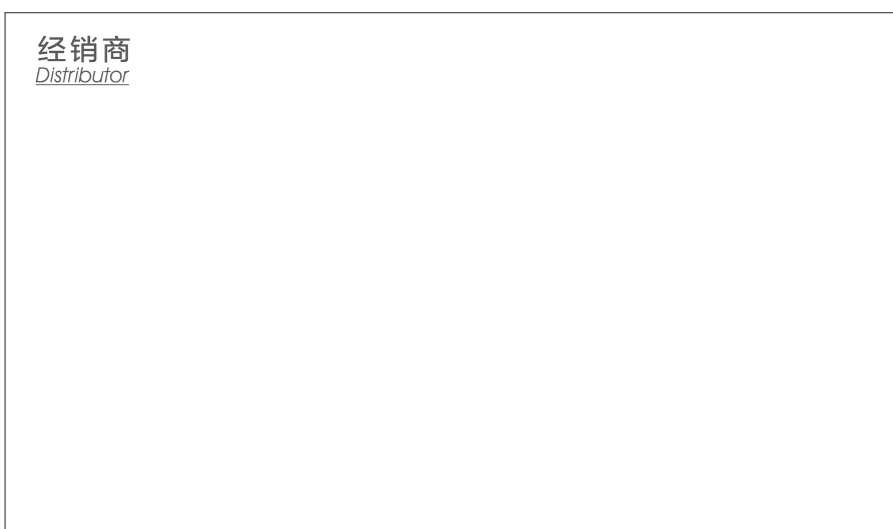
四大系列减速电机产品目录



Committed to building a world-class transmission brand

四大系列减速电机 R.F.K.S Series Gear Motor 2022年10月版

经销商
Distributor



万鑫精工

万鑫精工
COMMITTED TO BUILDING WORLD-CLASS
CHINA'S ELECTROMECHANICAL BRAND
致力于打造世界一流的机电品牌

万鑫精工(湖南)有限公司(简称万鑫精工)是集研发、生产、销售、服务于一体的专业化减速电机企业,主要生产精密减速电机,产品广泛应用于机器人、机床、立体停车库等轻工自动化设备。作为一家专注于减速电机的制造商及智能自动化全套方案提供商,万鑫精工引入国外先进加工设备,致力于为全球客户提供技术前沿、品质卓越的各类减速电机产品,是国内减速电机行业的优质品牌。

为满足国内外客户的需求,全面开启国际化战略布局,万鑫精工立志走“精鑫”强企强国之路,先后引入国内外多名高新技术人才加盟,更加重视现有产品的质量提升以及新产品的研发。在未来的发展中,万鑫精工将继续秉持着“致力于铸就世界一流的传动品牌”的信念与愿景,为助推世界工业智能化发展而奋斗!

WANSHSIN SEIKOU (HUNAN) CO., LTD. (hereafter referred to as "WANSHSIN") is professional gear motor manufacturer integrates R&D, production ,sales and service. WANSHSIN mainly manufactures high-precision gear motors which are widely used in robots, machine tools, solid garages and other industrial automation. As a gear motor manufacturer and complete intelligent automation solutions provider, WANSHSIN introduced advanced import processing equipment, adopted advanced technology, to meet the strict high quality requirement for worldwide customers. All efforts made WANSHSIN a reputable and high quality brand in domestic gear motor industry.

To satisfy domestic and foreign customers' requirements, WANSHSIN fully opened the international strategic layout, determined to follow the path of building a strong enterprise for a stronger country, WANSHSIN pays more attention to the quality improvement of current products and development of new products, and successively introduced high-tech talents, both domestic and international. In the future, WANSHSIN will continuously keep the faith that "Committed to building a world-class transmission brand" and strive to the development of the industrial intelligent system of the world.





产品图片 PRODUCT PICTURES



目录 CONTENTS

产品说明 Product Introduction	003/003
型号说明 Model Notes	004/009
减速机选型 Selection Of Gear Reducer	010/021
R斜齿轮减速机 R Helical Geared Motors	022/062
F系列平行轴—斜齿轮减速机 F Parallel shaft-Helical Geared Motor	063/101
K系列斜齿轮—伞齿轮减速机 K Helical-Bevel Geared Motor	102/144
S系列斜齿轮—蜗轮蜗杆减速机 S Helical-Worm Geared Motor	145/171
设计和装配注意事项 Important notes of design and mounting	172/193
安装位置 Mounting Position	194/213
尺寸信息 Information on dimension sheets	214/215



产品说明 Product Introduction

我公司硬齿面系列减速机是具有国际先进水平,包括R系列斜齿轮减速机、F系列平行轴—斜齿轮减速机、K系列斜齿轮—伞齿轮减速机、S系列斜齿轮—蜗轮蜗杆减速机等。

我公司减速机系列产品采用模块化产品优化设计理念,使用有限元分析软件,采用独特的低噪音齿轮齿形设计,确保设计的先进性;传动比分级精细,有数百万种不同的组合,可满足用户各种不同需求;从选料到制造单元加工,实现产品的高精度、免维护,可选范围广。

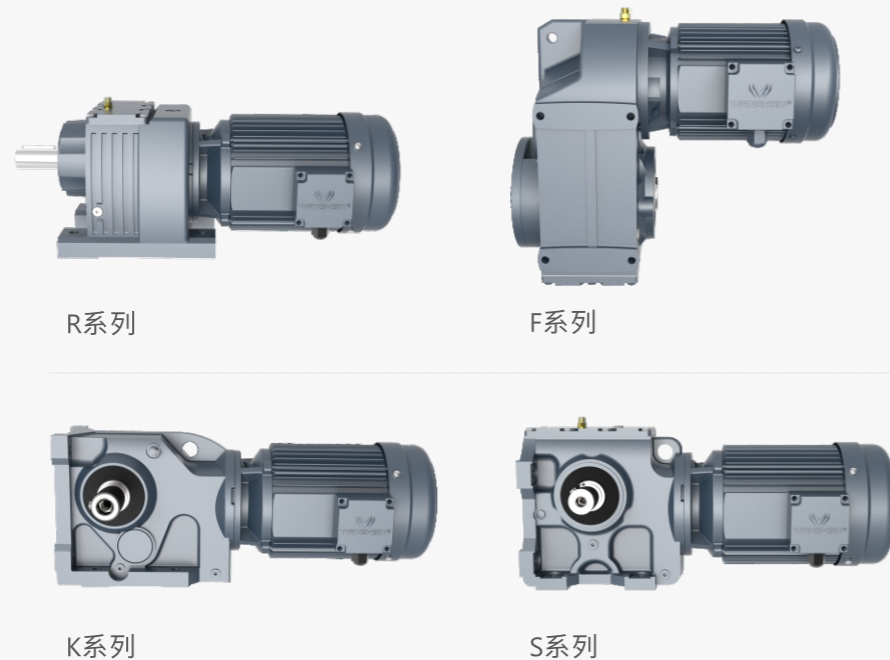
我公司还备有双联型减速机(输入端加装一个斜齿轮减速机)、锁紧盘、花盘空心轴、B14法兰等多种组合方式供客户选择,详情请向我公司咨询。

Our Hardened reducer series is with international advanced level, including the R series helical gear reducer, F series parallel to the axis of the-helical gear reducer, K series helical gears-bevel gear reducer, S series helical gear-worm reducer etc.

All our full series motor products follow the optimization design philosophy of modularization, adopt finite element analysis method and unique low noise technology in gear designing, to insure the progressiveness of the design. The ratio classification in high fineness, available for millions of different combinations, which could satisfy various requirements;from the selection of raw materials to the processing of manufacturing cell, to realize the high-precision and maintenance-free of product, and the selection range is very wide.

Our company also provides other product options such as double geared motors(add helical geared motor to the input end), shrink disk, spline hollow shaft, B14 flange etc different combinations for choices, please consult our company for further information.

产品展示 Product display



3.型号说明 Model Notes

3.1减速机符号说明 Gear Motor Introduction

R F 87 II WS S B 2.2KW -4 / TF / 124.97 / M1 / 90°

1 2 3 4 5 6 7 8 9 10 11 12 13

1 产品代码 R-斜齿轮减速机	2 装配型式 无代码-底脚安装 F-法兰安装	3 减速机规格号 87-减速机 规格号为87	4 法兰盘大小 I-无代码-无法兰, 或只有一种法兰, 或一种以上法兰中的最小法兰 II-两种法兰中的大法兰, 三种法兰中的法兰 III-三种法兰中的最大法兰	5 品牌 WS-代表Wanshsin, 万鑫品牌
6 电动机 S-三相异步电动机 SVP-三相变频调速异步电动机	7 刹车器 无代码-无刹车器 B-断电刹车器 AB-手动释放刹车器 (自动返回制动位置)	8 电机额定输出功率 2.2KW-该电机额定输出 功率为2.2KW	9 电机极数 2-2极电机 4-4极电机 6-6极电机 8-8极电机	10 电机热保护 无代码-无电机热保护 TF-热敏电阻保护装置 PTC热敏电阻 TH-恒温器保护装置 双金属片开关
11 减速机转动比 124.97-减速机 传动比为124.97	12 安装位置 M1-安装形式图中 M1位置	13 接线盒位置 无代码-安装形式 图中0°位置 90°-安装形式 图中90°位置		

R F 87 II WS S B 2.2KW -4 / TF / 124.97 / M1 / 90°

1 2 3 4 5 6 7 8 9 10 11 12 13

1 Code R-Helical Gear Motor	2 Assemble Type No Code-Foot Mounted F-Flange Mounted	3 Gear Unit Size 87-Gear Unit Size 87	4 Flange Size I-No flange, only one flange, or the smallest flange II-Second bigger flange III-Biggest flange	5 Brand WS- Wanshsin Brand
6 Electric Motor S- 3-phase asynchronous motor SVP- 3-phase variable-frequency speed regulating asynchronous motor	7 Brake No Code- Without Brake B-Power-off Brake AB-Manual Release Brake (Automatic return to braking position)	8 Motor Rated Power Motor rated power is 2.2KW	9 Pole Number 2 poles 4 poles 6 poles 8 poles	10 Thermistor No Code- Without Thermistor TF-Thermistor Protection PTC Thermistor TH-Thermostat Protection Bimetal Switch
11 Ratio Ratio is 124.97	12 Mounting Position M1-Mounting Position M1	13 Terminal Box Position No code-mounting position 0° 90° -mounting position 90°		



F A 87 / G WS S B 2.2KW -4 / TF / 123.29 / M1 / 90°

1 2 3 4 5 6 7 8 9 10 11 12 13

1 产品代码 F-平行轴-斜齿轮减速机	2 装配型式 无代码-底脚安装 F-法兰安装 A-空心轴安装 AF-法兰空心轴安装 H-锁紧盘输出轴	3 减速机规格号 87-减速机 规格号为87	4 扭矩臂 无代码-无扭矩臂 G-扭矩臂	5 品牌 WS-代表Wanshsin, 万鑫品牌
6 电动机 S-三相异步电动机 SVP-三相变频调速异步电动机	7 刹车器 无代码-无刹车器 B-断电刹车器 AB-手动释放刹车器 (自动返回制动位置)	8 电机额定输出功率 2.2KW-该电机额定输出 功率为2.2KW	9 电机极数 2-2极电机 4-4极电机 6-6极电机 8-8极电机	10 电机热保护 无代码-无电机热保护 TF-热敏电阻保护装置 PTC热敏电阻 TH-恒温器保护装置 双金属片开关
11 减速机转动比 123.29-减速机 传动比为123.29	12 安装位置 M1-安装形式图中 M1位置	13 接线盒位置 无代码-安装形式 图中0° 位置 90° -安装形式 图中90° 位置		

F A 87 / G WS S B 2.2KW -4 / TF / 123.29 / M1 / 90°

1 2 3 4 5 6 7 8 9 10 11 12 13

1 Code F-Parallel shaft, Helical Gear Motor	2 Assemble Type No Code-Foot Mounted F-Flange Mounted A-Hollow Shaft Mounted AF- Flange Mounted with Hollow Shaft H-Shrink Disk Output Shaft	3 Gear Unit Size 87-Gear Unit Size 87	4 Torque Arm No Code-No Torque Arm G-Torque Arm	5 Brand WS- Wanshsin Brand
6 Electric Motor S- 3-phase asynchronous motor SVP-3-phase variable-frequency speed regulating asynchronous motor	7 Brake No Code- Without Brake B-Power-off Brake AB-Manual Release Brake (Automatic return to braking position)	8 Motor Rated Power 2.2KW-Motor rated power is 2.2KW	9 Pole Number 2 poles 4 poles 6 poles 8 poles	10 Thermistor No Code- Without Thermistor TF-Thermistor Protection PTC Thermistor TH-Thermostat Protection Bimetal Switch
11 Ratio Ratio is 123.29	12 Mounting Position M1-Mounting Position M1	13 Terminal Box Position No Code-Terminal Box Position is 0° 90° -Terminal Box Position is 90°		



K A 87 / T WS S B 2.2KW -4 / TF / 115.82 / B / M1 / 90°

1 2 3 4 5 6 7 8 9 10 11 12 13 14

1 产品代码 K-斜齿轮-伞齿轮减速机	2 装配型式 无代码-底脚安装 F-法兰安装 A-空心轴安装 AF-法兰空心轴安装 H-锁紧盘输出轴	3 减速机规格号 87-减速机 规格号为87	4 扭矩臂 无代码-无扭矩臂 T-扭矩臂	5 品牌 WS-代表Wanshsin, 万鑫品牌
6 电动机 S-三相异步电动机 SVP-三相变频调速异步电动机	7 刹车器 无代码-无刹车器 B-断电刹车器 AB-手动释放刹车器 (自动返回制动位置)	8 电机额定输出功率 2.2KW-该电机额定输出 功率为2.2KW	9 电机极数 2-2极电机 4-4极电机 6-6极电机 8-8极电机	10 电机热保护 无代码-无电机热保护 TF-热敏电阻保护装置 PTC热敏电阻 TH-恒温器保护装置 双金属片开关
11 减速机转动比 115.82-减速机 传动比为115.82	12 轴指向 A-轴指向为A B-轴指向为B AB-双输出轴	13 安装位置 M1-安装形式图中 M1位置	14 接线盒位置 无代码-安装形式 图中0° 位置 90° -安装形式 图中90° 位置	

K A 87 / T WS S B 2.2KW -4 / TF / 115.82 / B / M1 / 90°

1 2 3 4 5 6 7 8 9 10 11 12 13 14

1 Code K-Helical Gear, Bevel Gear Motor	2 Assemble Type No Code-Foot Mounted F-Flange Mounted A-Hollow Shaft Mounted AF- Flange Mounted with Hollow Shaft H-Shrink Disk Output Shaft	3 Gear Unit Size 87-Gear Unit Size 87	4 Torque Arm No Code-Without Torque Arm G-Torque Arm	5 Brand WS- Wanshsin Brand
6 Electric Motor S- 3-phase asynchronous motor SVP-3-phase variable-frequency speed regulating asynchronous motor	7 Brake No Code- Without Brake B-Power-off Brake AB-Manual Release Brake (Automatic return to braking position)	8 Motor Rated Power 2.2KW-Motor rated power is 2.2KW	9 Pole Number 2 poles 4 poles 6 poles 8 poles	10 Thermistor No Code- Without Thermistor TF-Thermistor Protection PTC Thermistor TH-Thermostat Protection Bimetal Switch
11 Ratio Ratio is 115.82	12 Shaft Direction A-Shaft Direction is A B-shaft Direction is B AB-Dual Output Shaft	13 Mounting Position M1-Mounting Position M1	14 Terminal Box Position No Code-Terminal Box Position is 0° 90° -Terminal Box Position is 90°	



S A 87 / T W S S B 2.2KW - 4 / TF / 115.82 / D45 / B / M1 / 90°

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

1 产品代码 S-斜齿轮-蜗轮蜗杆减速机	2 装配型式 无代码-底脚安装 F-法兰安装 A-空心轴安装 AF-法兰空心轴安装 H-锁紧盘输出轴	3 减速机规格号 87-减速机 规格号为87	4 扭矩臂 无代码-无扭矩臂 T-扭矩臂	5 品牌 WS-代表Wanshin, 万鑫品牌
6 电动机 S-三相异步电动机 SVP-三相变频调速异步电动机	7 刹车器 无代码-无刹车器 B-断电刹车器 AB-手动释放刹车器 (自动返回制动位置)	8 电机额定输出功率 2.2KW-该电机额定输出 功率为2.2KW	9 电机极数 2-2极电机 4-4极电机 6-6极电机 8-8极电机	10 电机热保护 无代码-无电机热保护 TF-热敏电阻保护装置 PTC热敏电阻 TH-恒温器保护装置 双金属片开关
11 减速机转动比 110.4-减速机 传动比为110.4	12 空心轴孔径 D45-空心轴 孔径为45H7 (尺寸表中两种孔径选择一种)	13 轴指向 A-轴指向为A B-轴指向为B AB-双输出轴	14 安装位置 M1-安装形式图中 M1位置	15 接线盒位置 无代码-安装形式 图中0°位置 90°-安装形式 图中90°位置

S A 87 / T W S S B 2.2KW - 4 / TF / 115.82 / D45 / B / M1 / 90°

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

1 Code K-Helical Gear, Worm Gear Motor	2 Assemble Type No Code-Foot Mounted F-Flange Mounted A-Hollow Shaft Mounted AF- Flange Mounted with Hollow Shaft H-Shrink Disk Output Shaft	3 Gear Unit Size 87-Gear Unit Size 87	4 Torque Arm No Code-No Torque Arm G-Torque Arm	5 Brand WS- Wanshin Brand
6 Electric Motor S- 3-phase asynchronous motor/SVP- 3-phase variable -frequency speed regulating asynchronous motor	7 Brake No Code- Without Brake B-Power-off Brake AB-Manual Release Brake (Automatic return to braking position)	8 Motor Rated Power 2.2KW-Motor rated power is 2.2KW	9 Pole Number 2 poles 4 poles 6 poles 8 poles	10 Thermistor No Code- Without Thermistor TF-Thermistor Protection PTC Thermistor TH-Thermostat Protection Bimetal Switch
11 Ratio 110.4-Ratio is 110.4	12 Hollow Shaft Diameter D45-hollow shaft Diameter is 45H7 Select in the two aperture sizes	13 Shaft Direction A-Shaft Direction is A B-shaft Direction is B AB-Dual Output Shaft	14 Mounting Position M1-Mounting Position M1	15 Terminal Box Position No Code-Terminal Box Position is 0° 90° -Terminal Box Position is 90°

3.2减速机 and 减速制动电机供货型号 3.2 Type of gear motor and gear motor with brake

R、F、K、S
减速机
Gear motor

下表列出了可提供的斜齿轮(R)、平行轴(F)、斜齿轮-伞齿轮(K)和斜齿轮-蜗轮蜗杆(S)减速机型号。
There are the types of helical (R), parallel shaft helical (F), helical-bevel (K) and helical-worm (S) geared motors.
We supplied in the table.

型号 Model	减速机 Gear motor			
	斜齿轮 (R) Helical	平行轴 (F) Parallel shaft	斜齿轮-伞齿轮 (K) Helical bevel	斜齿轮-蜗轮蜗杆 (S) Helical worm
底脚安装 Foot mounted	●	●	●	●
B5法兰安装 B5 flange mounted	●	●	●	●
底脚/B5法兰安装 Foot/B5 flange mounted	●2)	●	—	—
带键空心轴安装 Hollow shaft mounted	—	●	●1)	●1)
带锁紧盘空心轴安装 Hollow shaft with shrink disk	—	●	●1)	●1)
带花键空心轴安装 Splined hollow shaft with shrink disk	—	●	●1)	—
带锁紧盘空心轴安装 Hollow shaft with shrink disk+foot mounted	—	●	●	—
带键空心轴安装+底脚安装 Hollow shaft with Key+foot mounted	—	●	●	—
带花键空心轴安装+底脚安装 Splined hollow shaft mounted+foot mounted	—	●	●	—
带键空心轴安装+B5法兰安装 Hollow shaft with Key+B5 flange mounted	—	●	●	●
带锁紧盘空心轴安装+B5法兰安装 Hollow shaft with shrink disk+B5 flange mounted	—	●	●	●
带花键空心轴安装+B5法兰安装 Splined hollow shaft mounted+B5 flange mounted	—	●	●	—
带键空心轴安装+B14法兰安装 Hollow shaft with Key+B14 flange mounted	—	●	●	●
带锁紧盘空心轴安装+B14法兰安装 Hollow shaft with shrink disk+B14 flange mounted	—	●	●	●
带花键空心轴安装+B14法兰安装 Splined hollow shaft mounted+B14 flange mounted	—	●	●	—

- 适用于标准型号 The normal type
- 不可用 Can't use
- 1) 也可带力矩臂 You can use torque arm
- 2) 仅用于 R37-R87 Only used by R37-R87

多级减速机 Multi-stage geared motor

通过多级减速器或多级减速电机, 可获得特别低的输出转速。就是在输入端安装一个斜齿减速机或减速电机作为第二级齿轮箱。此时, 要注意根据减速机最大许用的输出扭矩, 限制电机功率。

You can achieve the particularly low output speed by using multi-stage geared motor. The method is mounting a helical gear unit as a second gear units on the input end. At this moment, it is important to restrict the motor power according the maximum allowable output torque.

制动电机 Brake motors

根据需要可以把机械制动与电机及减速机合成一体提供, 制动器是由带直线圈的电磁盘式制动器, 通过电磁力打开, 弹簧力制动, 它的制动原理意味着断电制动, 满足了基本安全需要, 制动器如果安装手动释放, 可实现机械式释放。手动释放有手柄或平头螺丝两种形式, 手柄可自动弹回, 平头螺丝可锁在释放位置。制动器通过装在电机接线盒或电气柜的制动控制系统来驱动。

On request, motors and gear motors can be supplied with an integrated mechanical brake. The brake is an electromagnetic disk brake made by a DC line coil, it was released by electromagnetic force and brake with spring force. The brake principle is power-off brake, which can satisfy fundamental safety requirements. The brake can also be released mechanically if fitted with manual brake release. The manual release was supplied either with a handle or a flat head screw, the handle can spring back automatically, and the flat head screw could be locked in the position of release. The brake is driven by a brake control system, which installed in terminal box or in electric cabinet.



3.3 减速机及附件的名称

3.3 Unit designations gear units and options

斜齿轮减速机 Helical gear units

R..	底脚安装 Foot-mounted
RF..	法兰安装 Flange-mounted
R..F	底脚-法兰安装 Foot and flange-mounted
RM..	带加长轴承箱, 法兰安装 Flange-mounted with the extended bearing housing

平行轴减速机

Parallel shaft helical gear units

F..	底脚安装 Foot-mounted
FA..B	底脚安装, 空心轴 Flange mounted with hollow shaft
FH..B	底脚安装, 带锁紧盘空心轴 Foot mounted with hollow shaft and shrink disk
FV..B	底脚安装, 带花键空心轴 Foot mounted with splined hollow shaft
FF..	B5法兰安装 B5 flange mounted
FAF..	B5法兰安装, 空心轴 B5 flange mounted with hollow shaft
FHF..	B5法兰安装, 带锁紧盘空心轴 B5 flange mounted with hollow shaft and shrink disk
FVF..	B5法兰安装, 带花键空心轴 B5 flange mounted with spined hollow shaft disk
FA..	空心轴安装 Hollow shaft mounted
FH..	带锁紧盘空心轴安装 Hollow shaft with shrink disk
FV..	带花键空心轴安装 Splined hollow shaft mounted
FAZ..	B14法兰安装, 空心轴 B14 flange mounted with hollow shaft shrink disk
FHZ..	B14法兰安装, 带锁紧盘空心轴 B14 flange mounted with hollow shaft shrink disk
FVZ..	B14法兰安装, 带花键空心轴 B14 flange mounted with splined hollow shaft

斜齿轮-伞齿轮减速机

Helical-bevel gear units

K..	底脚安装 Foot mounted
KA..B	底脚安装, 空心轴 Foot mounted with hollow shaft
KH..B	底脚安装, 带锁紧盘空心轴 Foot mounted with hollow shaft and shrink disk
KV..B	底脚安装, 带花键空心轴 Foot mounted with splined hollow shaft
KF..	B5法兰安装 B5 flange mounted
KAF..	B5法兰安装, 空心轴 B5 flange mounted with hollow shaft
KHF..	B5法兰安装, 带锁紧盘空心轴 B5 flange mounted with hollow shaft and shrink disk
KVF..	B5法兰安装, 带花键空心轴 B5 flange mounted with spined hollow shaft disk
KA..	空心轴安装 Hollow shaft mounted
KH..	带锁紧盘空心轴安装 Hollow shaft with shrink disk
KV..	带花键空心轴安装 Splined hollow shaft mounted
KAZ..	B14法兰安装, 空心轴 B14 flange mounted with hollow shaft
KHZ..	B14法兰安装, 带锁紧盘空心轴 B14 flange mounted with hollow shaft shrink disk
KVZ..	B14法兰安装, 带花键空心轴 B14 flange mounted with spined hollow shaft

斜齿轮-蜗轮蜗杆减速机

Helical-worm gear units

S..	底脚安装 Foot-mounted
SF..	B5法兰安装 B5 flange mounted
SAF..	B5法兰安装, 空心轴 B5 flange mounted with hollow shaft
SHF..	B5法兰安装, 带锁紧盘空心轴 B5 flange mounted with hollow shaft and shrink disk
SA..	空心轴安装 Hollow shaft mounted
SH..	带锁紧盘空心轴安装 Hollow shaft with shrink disk
SAZ..	B14法兰安装, 空心轴 B14 flange mounted with hollow shaft
SHZ..	B14法兰安装, 带锁紧盘空心轴 B14 flange mounted with hollow shaft shrink disk

3.4 减速机及附件的名称

3.4 The name of AC motors and its accessories

双速交流电机型号

Pole-Changing AC motors with soft start

SD...	双速电机法兰安装 Pole-Changing flange mounted
-------	--

电机型号 Motor options

BMG	制动器 Brake
../HF	手动释放 (锁在制动释放位置) /..Manual release(lock in the brake release position)
../HR	手动释放 (自动返回制动位置) /..Manual release(automatic return to braking position)
/RS	逆止器/Backstop
/TF	热敏电阻保护装置 (PTC热敏电阻) /Thermistor sensor(PTC resistance)
/TH	恒温器保护装置 (双金属片开关) /Thermostat(bimetallic switch)
/U	机身冷却 (无通风) /motor body cooling(Non ventilated)
/V	强制冷风扇3x380-415VAC50HZ / Strong cooling fan.3x380-415VAC50HZ
/VS	强制冷风扇1x220-266VAC50HZ / Strong cooling fan.1x220-266VAC50HZ
/VR	强制冷风扇 / 1X24VDC Strong cooling fan.1X24VDC
/Z	高惯量飞轮风扇 / High inertia flywheel for Fan.
/C	风扇防雨罩 / Fan rainproof cover
-SRD	辊道电机 / Roller motor

编码器附件

Encoder on AC motor options

../H	增量编码器 Incremental encoder
../HR	绝对值编码器, MPS和sin/cos信号, 24VDC电源 Absolute encoder with solid shaft. MSI and sin/cos signals and 24VDCsupply
/RE	扩展轴编码器, TTL(RS-422)信号, 5VDC电源 Encoder with spread shaft, TTL(RS-422)signals and 5VDCsupply
/TF	扩展轴编码器, sin/cos信号, 24VDC电源 Encoder with spread shaft, sin/cos signals and 24VDCsupply
/TH	扩展轴编码器, TTL(RS-422)信号, 24VDC电源 Encoder with spread shaft, TTL(RS-422)signals and 24VDCsupply
/U	扩展轴编码器, HTL Encoder with spread shaft
/V	实心轴编码器, TTL(RS-422)信号, 5VDC电源 Encoder with solid shaft, TTL(RS-422)signals and 5VDCsupply
/VS	实心轴编码器, sin/cos信号, 24VDC电源 Encoder with solid shaft, sin/cos signals and 24VDCsupply
/VR	实心轴编码器, TTL(RS-422)信号, 24VDC电源 Encoder with solid shaft, TTL(RS-422)signals and 24VDCsupply
/Z	实心轴编码器, HTL Encoder with solid shaft. HTL
/C	接近开关, 带A通道, 24VDC电源 Proximity switch with A track and 24VDC supply
-SRD	接近开关, 带A、B通道, 24VDC电源 Proximity sensor with A/B track and 24VDCsupply

编码器安装附件

Mounting device for encoders on AC motor options

ES,,A	扩展轴安装 ..With spread shaft
EV1A	实心轴安装托架 ..With brackets for solid shaft





4. 减速机选型 Selection of gear reducer

4.1 传动装置选型数据

4.1 Drive selection data

准确地确定所需传动装置，下表所列的数据是必须的：

Certain data are essential to specify the components for your drive. There are.

传动装置选型数据		
n_{amin}	最小输出转速 Minimum output speed	[rpm]
n_{amak}	最大输出转速 Maximum output speed	[rpm]
$P_{aat\ n_{amak}}$	最低输出转速下的输出功率 Output power at minimum output speed	[kW]
$P_{aat\ n_{amak}}$	最高输出转速下的输出功率 Output power at maximum output speed	[kW]
$M_{aat\ n_{amak}}$	最低输出转速下的输出扭矩 Output torque at minimum output speed	[Nm]
$M_{aat\ n_{amak}}$	最高输出转速下的输出扭矩 Output torque at maximum output speed	[Nm]
F_R	FR输出轴径向力。假设载荷作用在轴伸的中点。 如果不一致，请确定径向力准确的作用点。 作用角度和轴旋转方向以便进行校核计算。 FR output shaft radial forces. Suppose to the load is applied at the midpoint of the axial extension. If not, please be sure the exact point at which the radial force is applied. Function angle and axis rotation direction for checking calculation.	[N]
F_A	输出轴轴向负载（拉力和压力） Axial Load of output shaft(tension and compression)	[N]
J_{load}	被驱动件的转动惯量 Rotational inertia of the driven device	[$10^{-4}kgm^2$]
R/F/K/S M1-M6	所需减速机类型和安装位置 Required gear reducer model# and its mounting position(→sec. Mounting positions, churning losses)	—
IP..	外壳防护等级 IP grade required	—
env	环境温度 Ambient temperature	[°C]
H	海拔高度 Altitude	[m above sealevel]
S,...%cdf	工作制和负载持续率cdf;也可给出精确的负载周期图 Working mode and Load duration Rate cdf: Exact load cycle diagram available for review.	—
Z	启停频率;也可给出精确的负载周期图 Start and stop frequency; alternatively, Exact load cycle diagram available for review.	[no.perh]
f_{mains}	电源频率 Power supply frequency	[Hz]
V_{mot}, V_{brake}	电机工作电压和制动器电压 Operating voltage of motor and brake	[V]
M_B	所需制动力矩 Required braking torque	[Nm]

4.2 选型流程图

4.2 Project planning sequence

例

Example

带有位置要求驱动方案的流程示意图，所涉及的减速电机由变频器控制

Below is a flow diagram of the drive with positioning requirements, the related gear motor was controlled by an inverter.

被驱动机的参数 -技术参数和环境条件 -位置精度要求 -速度范围（旋转精度） -循环时间的确定	Parameters of the device driven - Technical data and ambient conditions - Positioning accuracy - Speed setting range(Rotating accuracy) - Determination of the cycle time
计算机相关的应用参数 -所需的静态，动态功率及能耗制动的计算 -速度 -扭矩 -运行图	Computer application parameters - Calculation of static power, dynamic power, energy consumption for brake. - Speeds - Torque - Working diagram
减速机选择 -确定减速机的规格、速比和型号 -位置精度 -验算减速机负载能力 ($M_{amax} \geq M_a(t)$)	Gear unit selection - Definition if gear unit size, reduction ratio and type - Check for positioning accuracy - Check for gear unit load ability
控制系统选择的基本依据 -位置精度 -速度范围 -控制模式	Control System selection depending on - Positioning accuracy - Speed range - Control mode
变频器操作模式 -V/F控制方式（开环/闭环） -电压矢量模式（开环/闭环）VFC -电流矢量模式CFC	Inverter operation mode -V/F control(open cycle/closed cycle) -Voltage vector(open cycle/closed cycle)VFC -Current vector CFC
电机选择 -最大扭矩 -原动机正常转速下的扭矩 -最大速度 -对原动机的扭矩特性曲线 -热负载（设定范围、循环周期系数） -编码器选择 -电机附件（制动器、接线盒、热敏电阻传感器）	Motor selection - Maximum torque - Effective torque at medium speed - Maximum speed - In dynamic drives: torque curves - Thermal loading(setting range, cycle duration factor) - Selection of the correct encoder - Motor accessories(brake, terminal box, TF Thermal Resistance Sensors, etc.)
变频器选择 -变频功率选择 -VFC控制模式下的连续功率和尖峰功率 -CFC+伺服控制模式下的连续功率和尖峰功率	Inverter selection - Variable power selection - Continuous power and peak power under VFC control. - Continuous current and peak current under CFC+servo control
制动电阻选择 -根据能耗功率和工作循环周期确定制动电阻	Selecting the braking resistor - Brake resistance is determined according to energy consumption power and working cycle
其他选择 -电磁干扰的计算（EMC） -控制板/通讯板 -附加功能	Other options - EMC calculation - Operation/communication board - Additional functions
检查是否所有要求已满足	Check to see if all requirements have been met

图：选型应用流程图 Figure:Project planning process



4.3 减速机的效率

4.3 Efficiency of gear units

减速机的效率主要由齿轮啮合和轴承摩擦损失所决定的。

减速机运行初期的效率总是比正常运行时要低，尤其是斜齿轮蜗轮蜗杆更为明显。

The efficiency of gear reducer is mainly determined by gear meshing and bearing friction loss.

The efficiency of the working beginning is always lower than the normal operation, especially the helical gear worm and worm.

R.F.K系列减速机 / R.F.K gear units

斜齿轮、平行轴、斜齿轮-锥齿轮减速机的效率是根据减速级数确定，在94%(3级) - 98%(1级)之间。

The efficiency of helical, parallel shaft helical and helical-bevel gear units varies according to the number of gear stages, between 94%(3-stage) and 98%(1-stage).

S系列减速机 / S gear units

斜齿轮蜗轮蜗杆减速机由于产生高损失的滑动摩擦，所以它们比R.F.K减速机损失大、效率低，主要是由以下因素决定：

.斜齿轮蜗轮蜗杆级的传动比

.输入转速

.齿轮箱温度

设计的斜齿轮蜗轮蜗杆减速机比单级的蜗轮蜗杆减速机的效率有明显的提高，对于很大速比的斜齿轮蜗轮蜗杆才有可能其效率 $\eta < 0.5$ 。

Owing to high losses of sliding friction, S gear units have higher gearing losses while lower efficiency than R, F or K gear units. Reasons as following:

- Transmission ratio of helical gear worm gear and worm gear stage

- Input speed

- Gear unit temperature

The efficiency of the designed helical gear worm reducer is obviously improved compared with the single gear worm reducer, and it's possible on efficiency $\eta < 0.5$ for the helical gear worm reducer with high speed ratio.

自锁条件 / Self-locking condition

在斜齿轮—蜗轮蜗杆上加反向力矩会产生一个反向效率 $\eta = 2-1/\pi$ (反向效率)，其值明显小于正向效率 η ，如果正向效率 $\eta \leq 0.5$ ，那么斜齿轮蜗轮蜗杆减速机自锁。仅有少量大速比的斜齿轮蜗轮蜗杆减速机静态自锁。如果想利用自锁的制动效果特点请向厂方咨询。

There will be an reverse efficiency $\eta = 2-1/\pi$ when a reverse torque was added onto a helical-worm gear unit, and this reverse efficiency will be significantly smaller than forward efficiency η , if the forwards efficiency $\eta \leq 0.5$, a few helical-worm gear units with very big gear ratio are statically self-locking. Please contact us if you wish to make use of the braking characteristics of self-locking.

运行初始阶段 / Initial Running phase

由于新的斜齿轮蜗轮蜗杆减速机齿面不够光滑、摩擦角较大，所以效率较正常运行时要小，这种影响在大传动比时变得更加明显。

Because of the gear surface not smooth enough and friction angle a little big, initial running phase efficiency of a new helical-worm will be smaller than normal working phase, and this will be more obvious as the ratio going bigger.

在运行初试阶段，所给定的效率值应减去表中数值：

In the initial running phase, the given efficiency number should minus the corresponding value listed in the following table

	Helical-worm	速比i的范围
1start	approX.12%	approX.50-280
2start	approX.6%	approX.20-75
3start	approX.3%	approX.20-90
4start	-	-
5start	approX.3%	approX.6-25
6start	approX.2%	approX.7-25

经过连续24小时运行，斜齿轮蜗轮蜗杆满足以下条件可达到给出的额定功率：

.减速机经过充分的试运行

.减速机达到正常运行温度值

.加入推荐的润滑剂

减速机在额定的负载范围内工作

Normally after 24 hours' pilot run, Helical-worm gear units can achieve rated efficiency when:

-The gear unit was fully test run

-The gear unit has reached its normal operation temperature

-The recommended lubricant has been filled in

The gear unit is working within the rated load range



搅动损失 / Churning losses

在某些安装位置，第一级小齿轮完全浸在油中，对于大机座号减速机和有较高输入转速的减速机，搅动损失会急剧上升，不能忽视，因此，当遇到此类情况请向厂方咨询。如果可能，对于R、K和S系列减速机尽量使用M1安装位置以确保较小的搅动损失。

In certain mounting positions of gear units, the first reduction stage is completely immersed in the lubricant, and for some gear units with big base and high input speed, the churning losses could rise sharply which cannot be ignored, you would be required to contact our after-sales service when this happens. In order to make the churning loss as small as possible, please apply M1 mounting position as much as possible for R, S and K series.

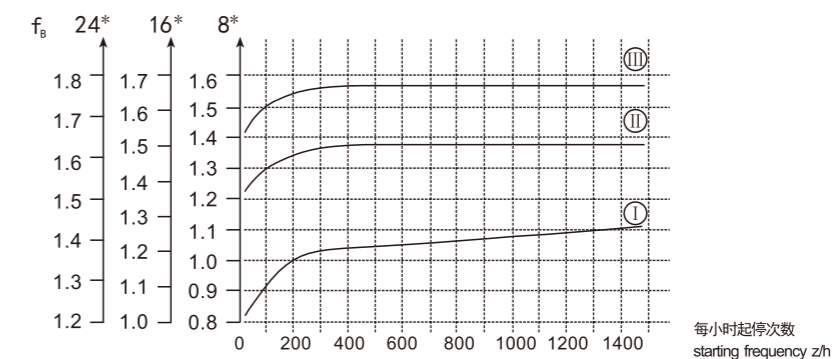
4.4 使用系数

4.4 Service factor

决定使用系数的因素 / Determining of the service factor

选用减速机要考虑一定的使用系数用f表示，使用系数f由每天的运行时间和起停频率所决定，根据惯量加速系数确定的三种负载类型也要考虑，可以从图中读取驱动方案的使用系数，从图中确定的使用系数一定要小于或等于从选型表中所给定的使用系数。

When doing selections of gear units, its Service Factor needs to be taken into consideration, referred as FB, which were determined by daily working time and start-stop frequency, moreover, those three load types which ascertained by Inertia acceleration coefficient, also needs to be considered, from below table you could get the service factor corresponding to the drive solution, the service factor from below table will be smaller or equals to the one given by gear units selection table.



图：使用系数 f_b

Fig: service factor f_b

*运行小时/天

**起停次数，包括所在的起停和制动过程，所括从低到高，从高到低变换过程。

Daily operating time in hours/day
Start-stop frequency Z: Include the process of start and stop with brake, as well as changes from low to high and high to low speed.

负载类型 / Load classification

三种负载类型：

- 1 均匀载荷，允许的惯性加速系数 ≤ 0.2
- 2 中等冲击载荷，允许的惯性加速系数 ≤ 3
- 3 强冲击载荷，允许的惯性加速系数 ≤ 10

Three load types:

- 1.Uniform load, allowable Inertial acceleration coefficient ≤ 0.2
- 2.Medium impact load, allowable Inertial acceleration coefficient ≤ 3
- 3.Strong impact load, allowable Inertial acceleration coefficient ≤ 10

惯性加速系数 / Inertial acceleration coefficient

惯性加速系数的计算方式：

The Inertial acceleration coefficient is calculated as follow:

$$\text{惯性加速系数} = \frac{\text{所有的外部转动惯量}}{\text{电动机的转动惯量}} \quad \text{Inertial acceleration coefficient} = \frac{\text{All external rotational inertia}}{\text{The moment of inertia for the electric motor}}$$

所有的外部转动惯量是指被驱动装置加上减速机相对于电机转速的转动惯量，运算公式如下： $J_x = j \cdot \left(\frac{n}{n_m}\right)^2$

"All external rotational inertia" means the rotational inertia of the driven device and the reducer in compared to motor rotating speed, the calculation formula as follow: $J_x = j \cdot \left(\frac{n}{n_m}\right)^2$

J_x = 相对于电机轴的外部转动惯量

J_x = External rotational inertia in compared to the motor shaft

J = 相对于减速机输出轴的外部转动惯量

J = External rotational inertia in compared to the output shaft of the gear unit

N = 减速机的输出转速

N = Output speed of the gear unit

N_m = 电机转速

N_m = Motor speed

电机的转动惯量是指电机转动惯量，若配有制动器和高惯量飞轮(Z风扇)则要相应增加所配部件的转动惯量。惯性加速系数大于10，要求传动部件高平稳性及大的径向负载时使用系数 f_b 就大于1.8,此类情况请向厂方咨询。

The rotational inertia of the components will be increased if the motor was equipped with brake and high inertia flywheel(Z fan), when the Inertial acceleration coefficient bigger than 10, it is required that the spare parts of transmission high stability, f_b will be bigger than 1.8 where there is big radial load. Please consult factory when such situations appear.

service factor: f_B

Ascertain maximum continuous working torque and then deriving the service factor $f_B = M_{max}/M_a$, which was thought to be as not standard, and this varies with different manufacturers. When $f_B=1$ and within fatigue strength range, the driven device capable of providing extremely high level of working safety and reliability(Exceptions: helical and worm gear motor.) Under some circumstances, it is not necessary to compare the service factor with the value of other gear motor manufacturer, for any questions, please ask the manufacture for detailed information special for some driving equipments.

举例

Example

惯性加速系数2.5 (II类载荷), 运行时间14小时/天(按16小时/天查图)和300次起停/小时, 使用系数在图中为 $f_B=1.51$, 根据选型表所选择的减速机 f_B 值要 ≥ 1.51 。

Inertial acceleration coefficient 2.5 (load classification II), 14 hours/day operating time (check the figure at 16h/d) and 300 cycles/hour produce a service factor $f_B=1.51$ as shown in Fig.2. According to the selection table, the selected motor must have an f_B Value of 1.51 or greater

斜齿轮蜗轮蜗杆减速机
Helical gear worm gear reducer

在斜齿轮蜗轮蜗杆减速机中, 除了已有图中的使用系数 f_B 外, 还有两个使用系数 f_{B1} , f_{B2} 要考虑

- f_{B1} =环境温度使用系数
- f_{B2} =负载持续系数

In the helical gear worm reducer, in addition to the existing coefficient f_B in the figure, there are two other used coefficients f_{B1} and f_{B2} to be considered

- f_{B1} = working coefficient of ambient temperature
- f_{B2} = load persistence coefficient

附加的使用系数 f_{B1} 、 f_{B2} 可通过下图确定, 确定 f_{B1} 时和确定 f_B 同样的方法考虑负载类型。

The additional working coefficients f_{B1} and f_{B2} can be determined by the following figure. When confirmed f_{B1} , load type can be considered in the same way as f_B .

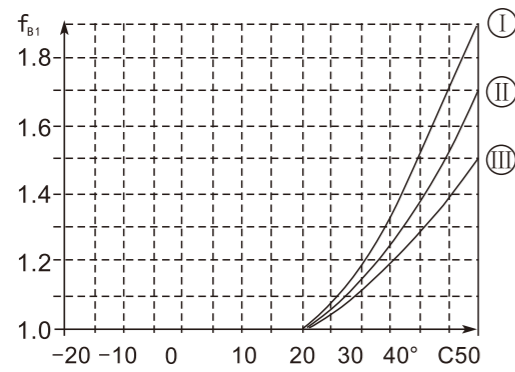


图: 附加使用系数 f_{B1} 和 f_{B2}
Additional service factors f_{B1} and f_{B2}

确定 f_{B1} 时, 环境温度低于 $-20^{\circ}C$ 请向厂方咨询

Please contact in case of temperatures below $-20^{\circ}C$ ($\rightarrow f_{B1}$)

斜齿轮蜗轮蜗杆减速机总的使用系数 f_{Btotal} 按下式计算: $F = f_B \cdot f_{B1} \cdot f_{B2}$

The total service factor for helical-worm gear units is calculated as follows: $F = f_B \cdot f_{B1} \cdot f_{B2}$

举例

Example

若前一个例子使用 $f_B=1.51$ 的减速机是斜齿轮蜗轮蜗杆减速机

If the geared motor with the service factor $f_B=1.51$ in the prevenient example is a helical-worm geared motor.

环境温度 $=40^{\circ}C \rightarrow f_{B1}=1.38$ (负载类型 II)

Ambient temperature $U=40^{\circ}C \rightarrow f_{B1}=1.38$ (read off at load classification II)

负载工作时间40分钟/小时 $cdf=66.7\%$ $f_{B2}=0.95$

Time under load $=40\text{min/h} \rightarrow cdf=66.7\%$ $f_{B2}=0.95$

根据选型表, 所选的斜齿轮蜗轮蜗杆减速机的 f_{Btotal} 则应 ≥ 1.98

According to the selection tables, the selected helical-worm geared motor must have a f_{Btotal} value of 1.98 or greater.

使用系数 (二)

Service factor(Two)

减速机是按载荷平稳, 每天工作时间一定和少量起停次数的情况设计的, 而在实际使用中往往不是出于此种理想状态, 因此必须按照实际情况的载荷类型、运行时间、启动频率来确定工作机系数 f , 原动机系数 f_1 , 启动系数 f_2 。使用小于或等于选型表中的使用系数 f , 即 $f \cdot f_1 \cdot f_2 \leq f$ 。或将工作机所需要的转矩乘以使用系数($f \cdot f_1 \cdot f_2$)应小于或等于减速机的许用转矩。

Gear units are designed under the circumstance of steady load, stated operating time per day and a small number of start and stop times. But the practical condition will be not as perfect as the designed circumstance. So we must confirm driven machine factor f_{B1} , prime mover factor f_{B2} , starting factor f_{B3} according to actual load type, operating time, starting frequency. Let it less than or equal to the service factor f of selection table, viz $f_{B1} \cdot f_{B2} \cdot f_{B3} \leq f_{B0}$. The needed torque of service machine multiply the service factor ($f_{B1} \cdot f_{B2} \cdot f_{B3}$) should less than or equal to gear units' permissible torque.

即 $M_a \geq M_d \cdot f_{B1} \cdot f_{B2} \cdot f_{B3}$

f_{B1} -工作机系数 (见表1) f_{B1} -driven machine factor(see table 1)

f_{B2} -原动机系数 (见表2) f_{B2} -prime mover factor(see table 2)

f_{B3} -启动系数 (见表3) f_{B3} -starting factor(see table 3)

M_d -工作机所需转矩 M_d -the need torque of driven machine

M_a -减速机许用转矩 M_a -gear units' permissible torque

表1 Table 1 工作机系数 Factor for driven machine		f_{B1}		
工作机 Driven machine		日工作小时数 The day work hours		
		$\leq 0.5h$	0.5-10h	$> 10h$
污水处理 Waste water treatment	浓缩器(中心传动) Thickeners(central drive)	-	-	1.2
	压滤器 Filter press	1.0	1.3	1.5
	絮凝器 Flocculator	0.8	1.0	1.3
	曝气机 Aerators	-	1.8	2.0
	搂集设备 Raking equipment	1.0	1.2	1.3
	纵向、回转组合搂集装置 Combined longitudinal and rotary rakes	1.0	1.3	1.5
	预浓缩器 Pre-thickeners	-	1.1	1.3
	螺杆泵 Screw pumps	-	1.3	1.5
	水轮机 Water turbines	-	-	2.0
	离心泵 Centrifugal pumps	1.0	1.2	1.3
挖泥机 Dredgers	1个活塞容积式泵 1piston positive-displacement pumps	1.3	1.4	1.8
	>1个活塞容积式泵 >1piston positive-displacement pumps	1.2	1.4	1.5
	斗式运输机 Bucker conveyors	-	1.6 ($> 10h$)	1.5
	倾卸装置 Dumping devices	-	1.3	1.5
	Cartepillar 行走机构 Carterpillar travelling gears	1.2	1.6	1.6
	斗轮式挖掘机(用于捡拾) Bucket wheel excavators as pick-up	-	1.7	1.7
	斗轮式挖掘机(用于粗料) Bucket wheel excavators for primitive material	-	2.2	2.2
化学工业 Chemical industry	切碎机 Cutter heads	-	2.2	2.2
	行走机构* Traversing gears'	-	1.4	1.8
	弯板机* Plate bending machines	-	1.0	1.0
	挤压机 Extnuders	-	-	1.6
	调浆机 Dough mills	-	1.8	1.8
	橡胶研光机 Rubber calenders	-	1.5	1.5
	冷却圆筒 Cooling drums	-	1.3	1.4
	混料机, 用于均匀介 Mixers for uniform media	1.0	1.3	1.4
	混料机, 用于非均匀介 Mixers for non-uniform media	1.4	1.6	1.7
	搅拌机, 用于密度均匀介质 Agitators for media with uniform density	1.0	1.3	1.5
搅拌机, 用于非均匀介质 Agitators for media with non-uniform density	1.2	1.4	1.6	
搅拌机, 用于不均匀气体吸收 Agitators for media with non-uniform gas absorption	1.4	1.6	1.8	
起重机械 Cranes	烘炉 Toasters	1.0	1.3	1.5
	离心机 Centrifuges	1.0	1.2	1.3
	回转机构 Slewing gears	2.5	2.5	3.0
	俯仰机构 Luffing gears	2.5	2.5	3.0
	行走机构 Travelling gears	2.5	3.0	3.0
	提升机构 Hoisting gears	2.5	2.5	3.0
转臂式起重机 Derricking jib cranes	2.5	2.5	3.0	



工作机 Driven machines		日工作小时数 The day work hours		
		≤0.5h	0.5-10h	>10h
金属加工设备 Metal working mills	翻板机 Plate titers	1.0	1.0	1.2
	推钢机 Ingot pushers	1.0	1.2	1.2
	线绕机 Winding machines	-	1.6	1.6
	冷床横移架 Cooling bed transfer frames	-	1.5	1.5
	辊式矫直机 Roller straighteners	-	1.6	1.6
	辊道(连续式) Roller tables continuous	-	1.5	1.5
	辊道(间歇式) Roller tables intermittent	-	2.0	2.0
	可逆式轧管机 Roller tables Reversing tube mills	-	1.8	1.8
	剪切机(连续式)* Shears continuous*	-	1.5	1.5
	剪切机(曲柄式)* Shears crank type*	1.0	1.0	1.0
	连铸机驱动装置 Continuous casting drivers	-	1.4	1.4
	可逆式开坯机 Reversing blooming mills	-	2.5	2.5
	可逆式板坯轧机 Reversing slabbing mills	-	2.5	2.5
	可逆式线材轧机 Reversing wire mills	-	1.8	1.8
	可逆式薄板轧机 Reversing sheet mills	-	2.0	2.0
可逆式中厚板轧机 Reversing plate mills	-	1.8	1.8	
辊缝调节驱动装置 Roll adjustment drives	0.9	1.0	-	
输送机械 Conveyors	斗式输送机 Bucket conveyors	-	1.2	1.5
	绞车 Hauling winches	1.4	1.6	1.6
	卷扬机 Hoists	-	1.5	1.8
	皮带输送机<150KW Belt conveyors <150KW	1.0	1.2	1.3
	皮带输送机≥150KW Belt conveyors ≥150KW	1.1	1.3	1.5
	货用电梯* Goods lifts*	-	1.2	1.5
	客用电梯* Passenger lifts*	-	1.5	1.8
	刮板式输送机 Apron conveyors	-	1.2	1.5
	自动扶梯 Escalators	-	1.2	1.4
	辊道行走机构 Rail travelling gears	-	1.5	-
变频装置 Frequency converters	-	1.8	2.0	
往复式压缩机 Reciprocating compressors	-	1.8	1.9	
冷却塔 Cooling towers	冷却塔风扇 Cooling tower fans	-	-	2.0
	风机(轴流和离心式) Blowers(axial and radial)	-	1.4	1.5
蔗糖生产 Cane sugar production	甘蔗切碎机* Cane knives*	-	-	1.7
	甘蔗碾磨机 Cane mills	-	-	1.7
甜菜糖生产 Beet sugar production	甜菜搅碎机 Beet cossettes macerators	-	-	1.2
	榨取机,机械制冷机,蒸煮机 Extraction plants, Mechanical refrigerators, Juice boilers	-	-	1.4
	甜菜清洗机 Sugar beet washing machines	-	-	1.5
造纸机械 Paper machines	甜菜切碎机 Sugar beet cutters	-	-	1.5
	各种类型** Of all-kind**	-	1.8	2.0
碎浆机驱动装置 Pulper drives	2.0	2.0	2.0	
离心式压缩机 Centrifugal compressors	-	1.4	1.5	
索道缆车 Cableways	货运索道 Material ropeways	-	1.3	1.4
	往返系统空中索道 To-and fro system aerial ropeways	-	1.6	1.8
	T型杆升降机 T-barlifts	-	1.3	1.4
	连续索道 Continuous ropeways	-	1.4	1.6
水泥工业 Cement industry	混凝土搅拌机 Concrete misers	-	1.5	1.5
	破碎机* Breakers*	-	1.2	1.4
	回转窑 Rotary kilns	-	-	2.0
	管式磨机 Tube mills	-	-	2.0
	选拌机 Separators	-	1.6	1.6
辊压机 Roll crushers	-	-	2.0	

电机, 液压马达, 汽轮机 Electric motors, hydraulic motors, turbines	1.0
4-6缸活塞发动机 Piston engines 4-6 cylinders	1.25
1-3缸活塞发动机 Piston engines 1-3 cylinders	1.5

起停次数/每小时 Number of starts and stop/hour	
<10	1
10< f_{B3} <100	1.15
100< f_{B3} <500	1.25

4.5 径向和轴向负载 4.5 Radial and axial loads

径向负载
The radial load

确定径向负载时, 要考虑安装在轴端传动部件的影响, 传动部件系数 f_z 列于表:
When determining the radial load, the type of transmission element mounted on the shaft end must be considered. The transmission element factors f_z are listed as follows:

传动部件 Transmission element	传动部件系数 f_z Transmission element factor f_z	备注 Comments
齿轮 Gears	1.15	>17齿 >17 teeth
链轮 Chain sprockets	1.40	>13齿 >13 teeth
链轮 Chain sprockets	1.25	>20齿 >20 teeth
窄V型带 Narrow V-belt pulleys	1.75	欲应力影响 Prestressing force influence
宽平皮带 Flat belt pullrys	2.50	欲应力影响 Prestressing force influence
齿型皮带 Toothed belt pulleys	2.5	欲应力影响 Prestressing force influence

作用在电机或减速机轴伸上的径向力按下式计算:
The radial load exerted on the motor or gearbox or motor shaft is the calculated as follows:

$$F_R = \frac{M_d \cdot 2000}{d_o} \cdot f_z$$

F_R 径向载荷(N) F_R Radial load in N
 M_d 力矩(N.m) M_d Torque in Nm
 D_o 节圆直径(mm) D_o Mean diameter of the mounted transmission element in mm
 f_z 传动部件系数 f_z Transmission element factor

许用的径向荷载 Permitted overhung load

根据耐磨轴承额定寿命 L_{H10} 来确定许用径向荷载。

对于特殊的运行条件, 许用径向荷载根据所要求的修正寿命 L_{na} 来确定。

对于地脚安装实心轴输出的减速机许用径向荷载列于减速电机的选型表中。对于其他安装形式可与工厂方联系。

According the rated service life L_{H10} of the anti-friction bearings to define the permitted radial loads. For the special operating conditions, the permitted radial loads can be determined by the modified service life L_{na} .

The permitted radial loads F_{Ra} for the output shafts of foot-mounted gear units with a sold shaft are listed in the selection tables for geared motors. Please contact in case of other types.

选型表中的径向力数值按照力作用于轴伸的中点(斜齿轮-伞齿轮减速机安装A端输出轴考虑)。

径向力作用角度 α 和旋转方向已经按最不利的条件给与考虑。

The data refer to the radial force acting midway on the shaft end(with right-angle gear units on the A-side output). Worst case conditions have been assumed for the force application angle α and the direction of rotation.

- 对于K和S系列减速机，M1安装位置前面与安装固定面连接时，许用径向载荷只是选型表中 F_{Ra} 数值的50%。
- 地脚/法兰安装斜齿轮减速机(R..F)：当通过法兰安装传递力矩时，许用径向载荷最大为选型表中 F_{Ra} 的50%。

-For K and S series gear units, mounting position M1, the permissible radial load is only 50% of the F_{Ra} value specified in the selection table.

-For foot and flange-mounted helical gear motors(R..F), when the transmission torque was mounted via flange, the maximum permissible radial load should be 50% of the value specified in the selection table.

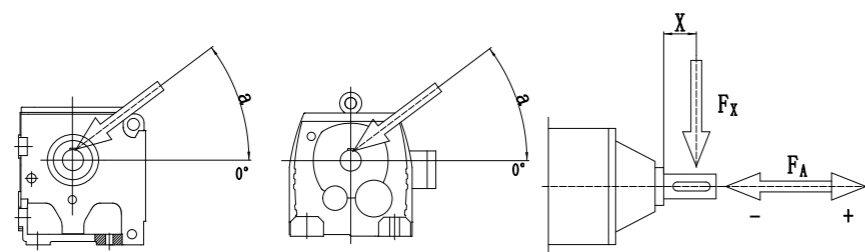
更高的许用径向载荷 Higher permissible radial load

对于R、F和K系列减速机安装重载轴承可提高许用径向载荷。另外，精确考虑选择方向和力作用角 α ，也可提高许用径向载荷，在此情况下，请和厂方联系。

For R, F and K gear motors, the permissible radial load can be increased properly when there heavy duty bearings being installed. In addition, the radial load can also be bigger when the force application angle α and the direction of rotation was precisely considered, and please contact the manufacturer in this situation.

所受力的定义 Definition of force application

所受力根据下图来定义
Force application is defined according to the following diagram:



F_x =在X点的许用径向载荷(N)

F_A =许用轴向载荷(N)

F_x = Approved radial load at point X [N]

F_A = Approved axial load [N]

许用轴向载荷 Permissible axial loads

如果没有径向载荷，那么轴向载荷 F_A (+表示拉力，-表示压紧力) 依据表中径向符合的50%给定是允许的，这适用于：

If there is no radial load, then an axial load F_A (+ means tension, - means compression) equals to 50% of the radial load given in the selection tables is workable. This also applies to the following geared motors:

- 平行轴斜齿轮减速机与斜齿轮-伞齿轮（实心轴）减速机（F97...除外）
- 实心轴斜齿轮涡轮杆减速机

-Parallel shaft and helical-bevel geared motors with solid shaft except for F97...
-Helical-worm geared motors with solid shaft

对于其他类型的减速机请于厂方咨询，以防过大的轴向载荷或轴向及径向的合成力。

Please contact for all other types of gear units and in the event of significantly greater axial loads or combinations of radial load and axial load.

偏离中心点的径向力 The off center radial load

对于受力点不在轴端中点的允许径向载荷要根据下面的公式计算。 F_{xL} 和 F_{xw} 中的较小值是在X点允许数值，

所计算的数值应用于 M_{amax}

The permissible radial loads given in the selection tables must be calculated using the following formulae in the event to force application not in the center of the shaft end. The smaller of the two values F_{xL} (according to bearing service life) and F_{xw} (according to shaft strength) is the permissible value for the radial load at point x. Moreover this formula also applies to the calculation of M_{amx} .

根据轴承寿命 F_{xL}

$$F_{xL} \text{ according to bearing service life } F_{xL} = F_{Ra} \cdot \frac{a}{b+x} \text{ [N]}$$

根据输出轴强度 F_{xw}

$$F_{xw} \text{ according to the shaft strength } F_{xw} = \frac{c}{f+x} \text{ [N]}$$

F_{Ra} =对于底脚安装齿轮箱的允许径向载荷(选型表中所列值)单位：N

Permissible radial load($z=1/2$) for foot-mounted gear units according to the selection tables in [N]

X =从轴肩到受力点的距离

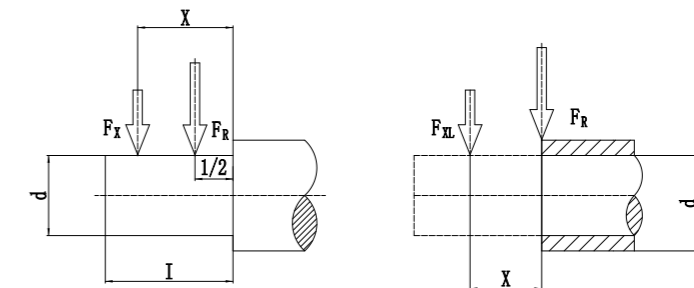
Distance from the shaft shoulder to the force application point in [mm]

a,b,f =对于径向负载转化的齿轮箱常量

Gear unit constants for radial load conversion [mm]

c =对于径向负载转化的齿轮箱常量

Gear unit constants for radial load conversion [Nmm]



图：偏离中心点的径向力 F_x

Fig: Radial load F_x for off-center force application



据径向负载/转化所得的/齿轮箱常量
Gear unit constants for radial load conversion

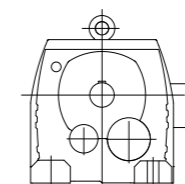
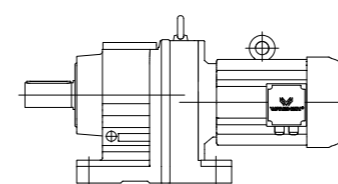
齿轮箱常量 Gear unit type	a [mm]	b [mm]	c [mm]	f [Nmm]	d [mm]	l [mm]
R37	118	93	1.24•10 ⁵	0	25	50
R47	137	107	2.44•10 ⁵	15	20	60
R57	147.5	112.5	3.77•10 ⁵	18	35	70
R67	168.5	133.5	2.51•10 ⁵	0	35	70
R77	173.7	133.7	3.97•10 ⁵	0	40	80
R87	216.7	166.7	8.47•10 ⁵	0	50	100
R97	255.5	195.5	1.19•10 ⁶	0	60	120
R107	285.5	215.5	2.06•10 ⁶	0	70	140
R137	343.5	258.5	6.14•10 ⁶	30	90	170
R147	402	297	8.65•10 ⁶	33	110	210
R167	450	345	1.26•10 ⁷	0	120	210
F37	123.5	98.5	1.07•10 ⁵	0	25	50
F47	153.5	123.5	1.78•10 ⁵	0	30	60
F57	170.7	135.7	5.49•10 ⁵	32	35	70
F67	181.3	141.3	4.12•10 ⁵	0	40	80
F77	215.8	165.8	7.87•10 ⁵	0	50	100
F87	263	203	1.19X10 ⁶	0	60	120
F97	350	280	2.09•10 ⁶	0	70	140
F107	373.5	288.5	4.23•10 ⁶	0	90	170
F127	442.5	337.5	9.49•10 ⁶	0	110	210
F157	512	407	1.05•10 ⁷	0	120	210
K37	123.5	98.5	1.41•10 ⁵	0	25	50
K47	153.5	123.5	1.78•10 ⁵	0	30	60
K57	169.7	134.7	6.8•10 ⁵	31	35	70
K67	181.3	141.3	4.12•10 ⁵	0	40	80
K77	215.8	165.8	7.69•10 ⁵	0	50	100
K87	252	192	1.64•10 ⁶	0	60	120
K97	319	249	2.8•10 ⁶	0	70	140
K107	373.5	288.5	5.53•10 ⁶	0	90	170
K127	443.5	338.5	8.31•10 ⁶	0	110	210
K157	509	404	1.18•10 ⁷	0	120	210
K167	621.5	496.5	1.88•10 ⁷	0	160	250
K187	720.5	560.5	3.04•10 ⁷	0	190	320
S37	118.5	98.5	6.0•10 ⁴	0	20	40
S47	130	105	1.33•10 ⁵	0	25	50
S57	150	120	2.14•10 ⁵	0	30	60
S67	184	149	3.04•10 ⁵	0	35	70
S77	224	179	5.26•10 ⁵	0	45	90
S87	281.5	221.5	1.68•10 ⁶	0	60	120
S97	356.3	256.3	2.54•10 ⁶	0	70	140

对于没有列出的类型的值据需要给定。
Values for types not listed are available on request.

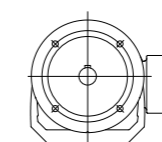
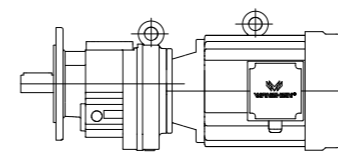
5. R 斜齿轮减速机 R Helical Geared Motors

5.1 设计方案 5.1 Versions of geared motors

斜齿轮减速机由以下设计方案:
The following types of helical-bevel motor can be supplied:



R..D..
底脚安装斜齿轮减速机
Foot-mounted helical geared motor



RF..D..
法兰安装斜齿轮减速机
Flange-mounted helical geared motor

5.2 可行的组合方式 5.2 Type of Combination

以下是斜齿轮减速机与交流（带制动）电机的组合列表。表中给出了每种组合的速比范围：
The following types of helical-bevel motor can be supplied:

减速机型号 Gear motor size	级 Stages	D63/71 (0.12-0.37KW)	D80 (0.55-0.75KW)	D90 (1.1-1.5KW)	D100 (2.2-3.0KW)	D112 (4.0KW)	D132S (5.5KW)	D132M (7.5KW)
R/RF37	2	3.41-28.32	3.41-22.27	3.41-19.31	3.41-15.60			
R/RF37	3	24.42-134.82	24.42-105.28	24.42-48.08 61.18-90.77	24.42-32.40 39.17 61.18 73.96			
R/RF47	2	4.85-7.76 10.15-33.79	3.38-26.74	3.38-23.26	3.83-16.22 19.27	3.83-16.22	3.83-6.00 8.01-12.54	3.83-6.00 8.01-12.54
R/RF47	3	29.88-176.88	23.59-139.99	23.59-121.87	23.59-47.75 56-73 76.23-84.90 100.86	23.59-47.75		23.59-36.93
R/RF57	2	6.41-9.06 11.88-26.31	5.05-26.31	4.39-26.31	4.39-21.93	4.39-18.60	4.39-7.97 9.35-14.77	4.39-7.97 9.35-14.77
R/RF57	3	30.18-186.89	26.97-147.92	26.97-128.77	26.97-48.23 57.29 80.55-89.71 106.58	26.97-48.23 80.55-89.71	26.97-37.30	26.97-37.30
R/RF67	2	6.27-7.79 12.70-28.13	4.93-7.79 10.00-28.13	4.93-28.13	4.29-23.44	4.29-19.89	4.29-15.79	4.29-15.79

R147/RF87,R167/RF97,R167/RF107

$n_a=1400$ r/min

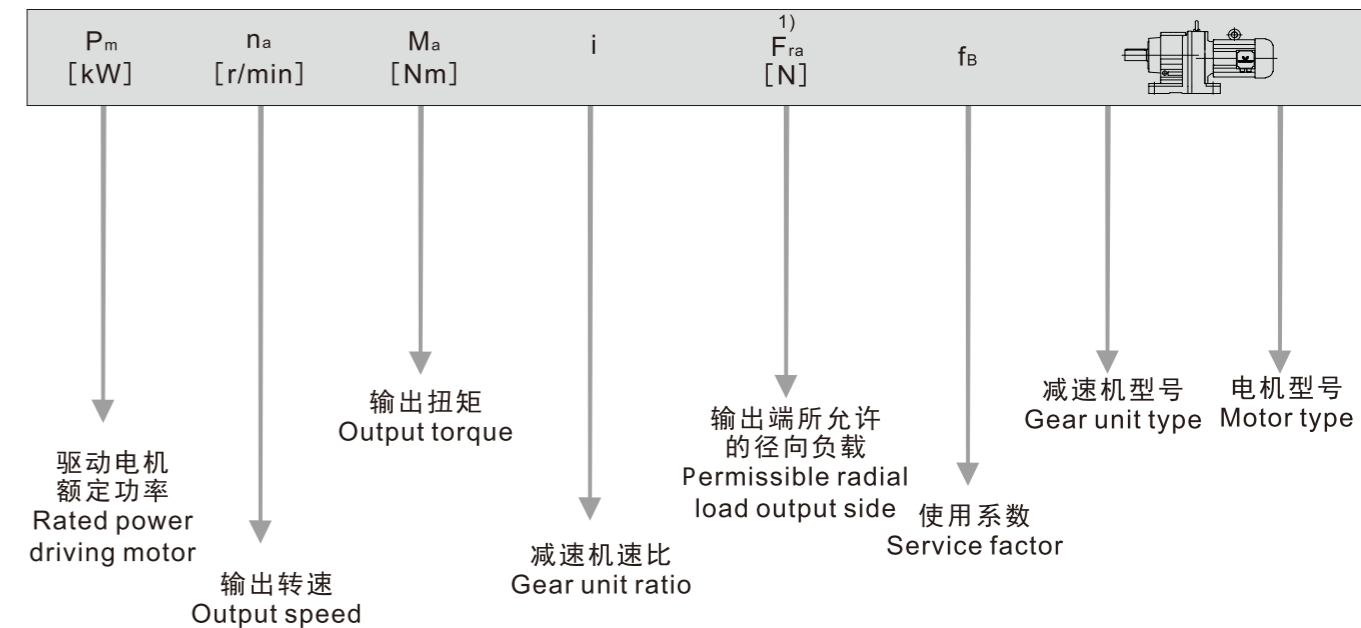
R147/RF87 13000Nm			
i	n_a [r/min]	M_{amax} [N.m]	F_{ra} [N]
533	2.6	13000	62700
462	3.0	13000	62700
426	3.3	13000	62700
368	3.8	13000	62700
326	4.3	13000	62700
280	5.0	13000	62700
247	5.7	13000	62700
214	6.5	13000	62700
189	7.4	13000	62700
159	8.8	13000	62700

R167/RF97 18000Nm			
i	n_a [r/min]	M_{amax} [N.m]	F_{ra} [N]
27001	0.05	18000	120000
22482	0.06	18000	120000
20002	0.07	18000	120000
17361	0.08	18000	120000
15446	0.09	18000	120000
14051	0.10	18000	120000
11812	0.12	18000	120000
10509	0.13	18000	120000
9631	0.15	18000	120000
7749	0.18	18000	120000
6894	0.20	18000	120000
6077	0.23	18000	120000
5407	0.26	18000	120000
4650	0.30	18000	120000
4129	0.34	18000	120000
3692	0.38	18000	120000
3099	0.45	18000	120000
2657	0.53	18000	120000
2333	0.60	18000	120000
2085	0.67	18000	120000
1877	0.75	18000	120000
1670	0.84	18000	120000
1438	0.97	18000	120000
1279	1.1	18000	120000
1123	1.2	18000	120000
999	1.4	18000	120000
861	1.6	18000	120000
760	1.8	18000	120000
656	2.1	18000	120000
579	2.4	18000	120000
503	2.8	18000	120000
432	3.2	18000	120000
376	3.7	18000	120000
335	4.2	18000	120000
303	4.6	18000	120000
279	5.0	18000	120000

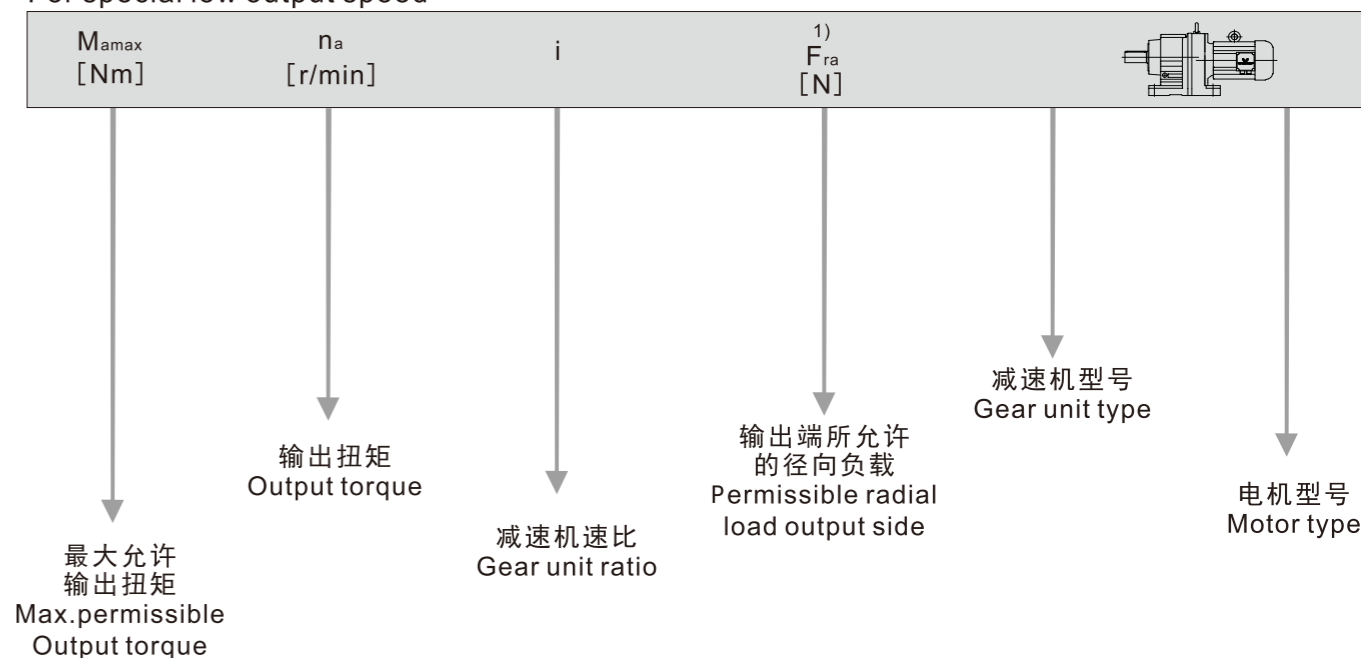
R167/RF107 18000Nm			
i	n_a [r/min]	M_{amax} [N.m]	F_{ra} [N]
3637	0.38	18000	120000
3330	0.42	18000	120000
2757	0.51	18000	120000
2436	0.57	18000	120000
2298	0.61	18000	120000
2066	0.68	18000	120000
1849	0.76	18000	120000
1674	0.84	18000	120000
1485	0.94	18000	120000
1342	1.0	18000	120000
1229	1.1	18000	120000
1111	1.3	18000	120000
950	1.5	18000	120000
860	1.6	18000	120000
763	1.8	18000	120000
690	2.0	18000	120000
585	2.4	18000	120000
511	2.7	18000	120000
446	3.1	18000	120000
399	3.5	18000	120000
361	3.9	18000	120000
349	4.0	18000	120000
328	4.3	18000	120000
295	4.7	18000	120000
291	4.8	18000	120000
270	5.2	18000	120000
264	5.3	18000	120000
229	6.1	18000	120000
227	6.2	18000	120000
200	7.0	18000	120000
198	7.1	18000	120000
169	8.3	18000	120000
168	8.3	18000	120000

5.4 选型表注释
5.4 Selection table

选型表的结构
Selection table for gear motors



对于特殊低输出转速
For special low output speed



图例 Cuttine

※也可用于EExe电机。 ※ EEXE motor also applicable.

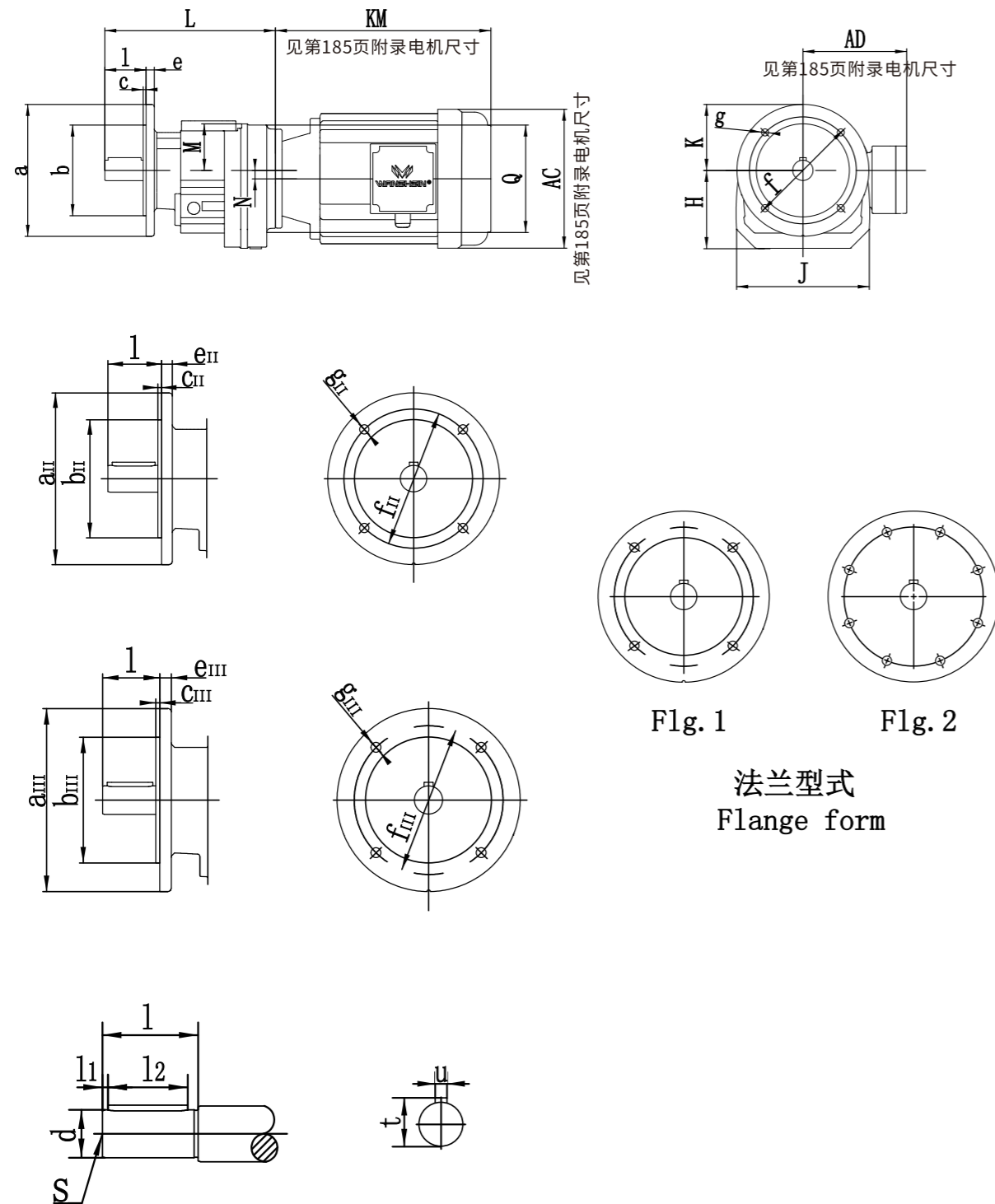
1) 实心轴底脚安装减速机的径向负荷

1) Radial load specified for foot-mounted gear unit with solid shaft

注意: Notice:

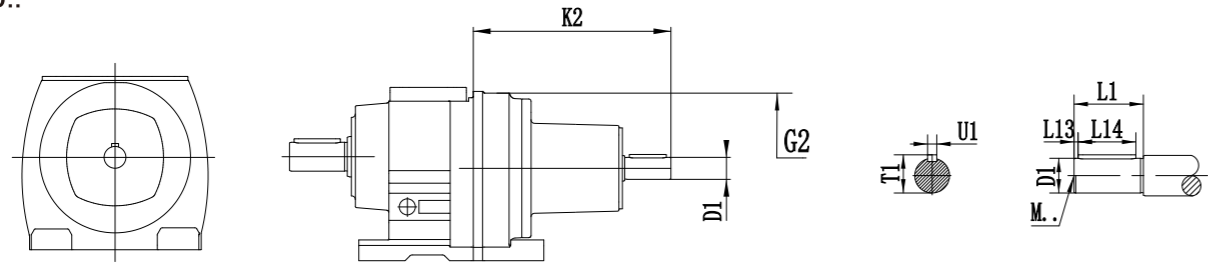
对于特殊低输出转速驱动(多级减速电机), 电机功率必须与减速机的最大允许输出扭矩相对应。
In drives for particularly low output speeds (multi-stage gear motor), the motor power must be limited according to maximum permitted output torque of the gear unit.

RF37..~RF167..



型号 Size	法兰尺寸 Flange dimension	a a _{II} a _{III}	b b _{II} b _{III}	c c _{II} c _{III}	e e _{II} e _{III}	f f _{II} f _{III}	g g _{II} g _{III}	H J K	L M N	Q	轴伸尺寸 Shaft dimension				
											d	l	l ₁ l ₂	s	t u
RF37..	Flg.1	120	80j6	3	8	100	6.6	94	207	120	25k6	50	3.5 40	M10	28 8
		160	110j6	3.5	10	130	9	161	61						
		200	130j6	3.5	12	165	11	/	10.1						
RF47..	Flg.1	140	95j6	3	10	115	9	118	235	160	30k6	60	3.5 50	M10	33 8
		160	110j6	3.5	10	130	9	178	72						
		200	130j6	3.5	12	165	11	/	14						
RF57..	Flg.1	160	110j6	3.5	10	130	9	121	257	160	35k6	70	7 56	M12	38 10
		200	130j6	3.5	12	165	11	202	72						
		250	180j6	4	15	215	13.5	/	11.2						
RF67..	Flg.1	200	130j6	3.5	12	165	11	134	280	160	35k6	70	7 56	M12	38 10
		250	180j6	4	15	215	13.5	215	82						
		/	/	/	/	/	/	113	20.7						
RF77..	Flg.1	250	180j6	4	15	215	13.5	144	300	200	40k6	80	5 70	M16	43 12
		300	230j6	4	18.5	265	13.5	235	88						
		/	/	/	/	/	/	129	15.9						
RF87..	Flg.1	300	230j6	4	16	265	13.5	184	372	250	50k6	100	10 80	M16	53.5 14
		350	250j6	5	18	300	17.5	297	115						
		/	/	/	/	/	/	165	12.6						
RF97..	Flg.1 Flg.1 /	350	250h6	5	18	300	17.5	230	440	300	60m6	120	5 110	M20	64 18
		450	350h6	5	22	400	17.5	348	144						
		/	/	/	/	/	/	193	10.2						
RF107..	Flg.1 Flg.1 /	350	250h6	5	20	300	17.5	255	495	350	70m6	140	7.5 125	M20	74.5 20
		450	350h6	5	22	400	17.5	409	158						
		/	/	/	/	/	/	224	20.4						
RF137..	Flg.2	450	350h6	5	22	400	17.5	320	589	400	90m6	170	5 160	M24	95 25
		550	450h6	5	25	500	17.5	458	180						
		/	/	/	/	/	/	247	25.1						
RF147..	Flg.2	450	350h6	5	22	400	17.5	361	695	450	110m6	210	15 180	M24	116 28
		550	450h6	5	25	500	17.5	540	210						
		/	/	/	/	/	/	285	33.4						
Rf167..	Flg.2	550	450h6	5	25	500	17.5	430	790	550	120m6	210	5 200	M24	127 32
		660	550h6	6	28	600	22	670	250						
		/	/	/	/	/	/	324	59.9						

R..AD..



		G2	K2	D1	L1	L13	L14	T1	U1	M
R..37	AD1	120	102	16	40	4	32	18	5	M5
	AD2		130	19	40	4	32	21.5	6	M6
R..47 R..57 R..67	AD2	160	123	19	40	4	32	21.5	6	M6
	AD3		159	24	50	5	40	27	8	M8
R..77	AD2	200	116	19	40	4	32	21.5	6	M6
	AD3		151	24	50	5	40	27	8	M8
	AD4		224	38	80	5	70	41	10	M12
R..87	AD2	250	111	19	40	4	32	21.5	6	M6
	AD3		156	28	60	5	50	31	8	M10
	AD4		219	38	80	5	70	41	10	M12
R..97	AD5	300	292	42	110	15	70	45	12	M16
	AD3		151	28	60	5	50	31	8	M10
	AD4		214	38	80	5	70	41	10	M12
R..107	Ad5	350	287	42	110	15	70	45	12	M16
	AD6		327	48	110	10	80	51.5	14	M16
	AD3		145	28	60	5	50	31	8	M10
R..137	AD4	400	208	38	80	5	70	41	10	M12
	AD5		281	42	110	15	70	45	12	M16
	AD6		321	48	110	10	80	51.5	14	M16
R..147	AD7	450	308	55	110	10	90	59	16	M20
	AD4		193	38	80	5	70	41	10	M12
	AD5		266	42	110	15	70	45	12	M16
	AD6		306	48	110	10	80	51.5	14	M16
R..167	AD7	550	300	55	110	10	90	59	16	M20
	AD8		383	70	140	15	110	74.5	20	M20
	AD5		258	42	110	15	70	45	12	M16
	AD6		298	48	110	10	80	51.5	14	M16
R..167	AD7	550	292	55	110	10	90	59	16	M20
	AD8		374	70	140	15	110	74.5	20	M20

R..AM..

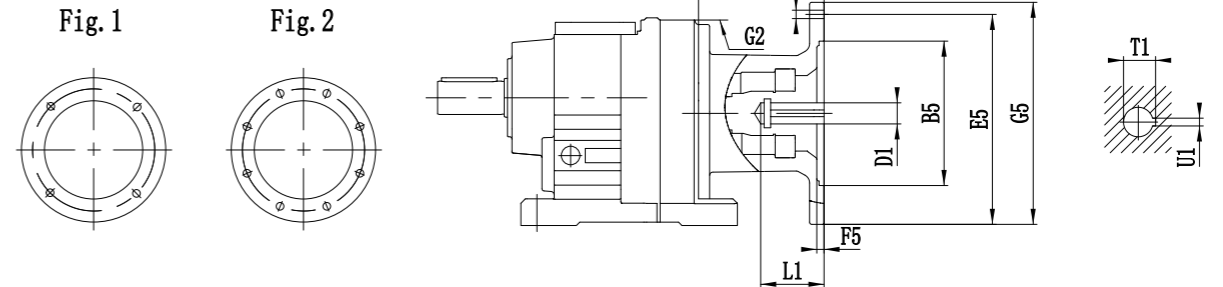


		Fig	B5	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
R..37	Am63	1	95	115	3.5	120	140	M8	72	11	23	12.8	4
	AM71		110	130			14			30	16.3	5	
	AM80		130	165	4.5		200	M10		19	40	21.8	6
	AM90						24			50	27.3	6	
R..47 R..57 R..67	AM63	1	95	115	3.5	160	140	M8	99	11	23	12.8	4
	AM71		110	130			14			30	16.3	5	
	AM80		130	165	4.5		200	M10		19	40	21.8	6
	AM90						24			50	27.3	8	
	AM100		180	215	5		250	M12		28	60	31.3	8
AM112													
R..77	AM63	1	95	115	3.5	200	140	M8	92	11	23	12.8	4
	AM71		110	130			14			30	16.3	5	
	AM80		130	165	4.5		200	M10		19	40	21.8	6
	AM90						24			50	27.3	8	
	AM100		180	215	5		250	M12		28	60	31.3	8
	AM112						300			179	38	80	41.3
	AM132S		230	265	5								
AM132M													
AM132ML													
R..87	AM80	1	130	165	4.5	250	200	M10	174	19	40	21.8	6
	AM90		180	215			24			50	27.3	8	
	AM100		180	215	5		250	M12		28	60	31.3	8
	AM112												
	AM132S		230	265	5		300	M12		38	80	41.3	10
	AM132M												
AM132ML													
R..97	AM160	1	250	300	6	300	350	M16	169	42	110	45.3	12
	AM180		250	300			48				51.8	14	
	AM100		180	215	5		250	M12		28	60	31.3	8
	AM112												
	AM132S		230	265	5		300	M12		38	80	41.3	10
	AM132M												
	AM132ML												
	AM160		250	300	6		350	M16		227	110	45.3	12
AM180	268	55				59.3	16						
Am200	300	350	7	400	M16	283	60	140	64.4	18			
AM225 ¹⁾	350	400	7	450									

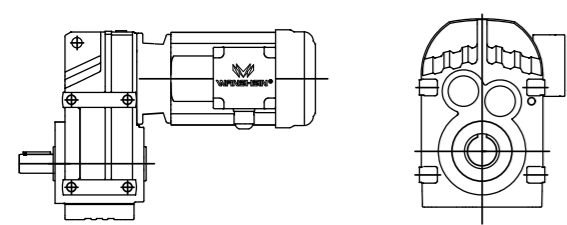
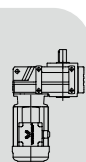
6.F系列平行轴—斜齿轮减速机 F Parallel shaft-Helical Geared Motor

6.1 设计方案

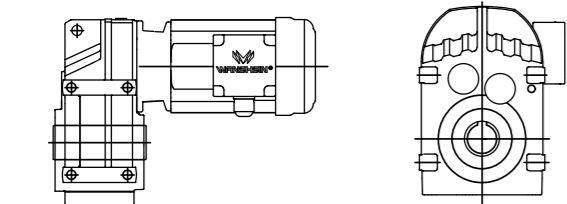
6.1 Versions geared motors

平行轴装式斜齿轮减速机有以下设计方案：

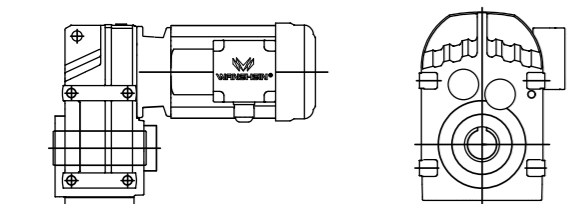
The following types of Parallel Shaft-Helical Geared Motor can be supplied:



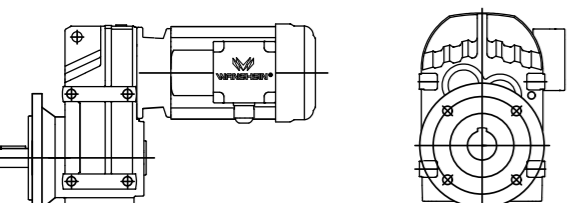
F..D..
底脚安装平行轴斜齿轮减速机
Solid shaft
Foot mount tapped holes



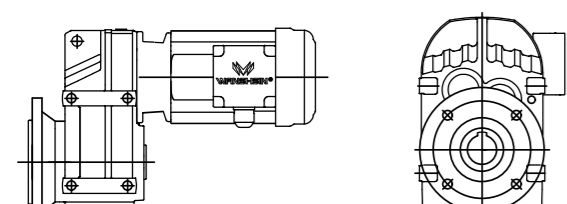
FA..BD..
底脚空心轴安装平行轴斜齿轮减速机
Foot mounted with Hollow shaft and tapped holes



FV..BD..
底脚花键空心轴安装平行轴斜齿轮减速机
Foot mounted with splined hollow shaft
and tapped holes

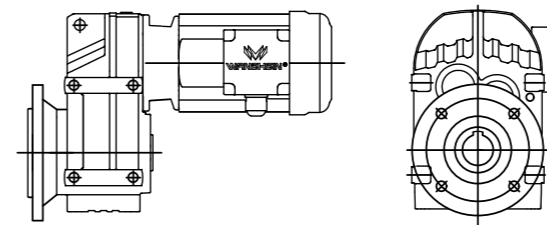


FF..D..
B5法兰安装平行轴斜齿轮减速机
Solid shaft
Flange mounted (D&B5 style flange with tapped holes)

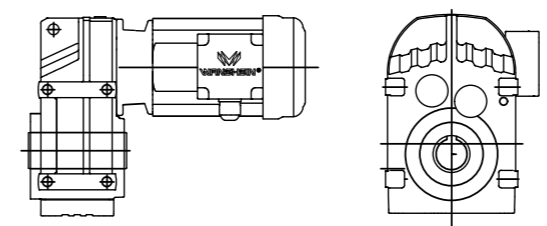


FAF..D..
B5法兰空心轴安装平行轴斜齿轮减速机
B5 Flange mounted with hollow shaft and tapped holes

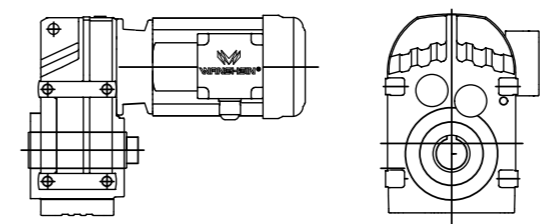
FVF..D..
B5法兰花键空心轴安装平行轴斜齿轮减速机
B5 flange mounted with splined hollow shaft and
tapped holes



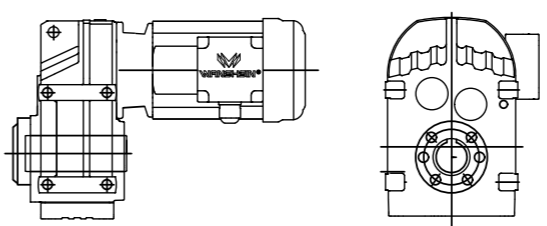
FHF..D..
B5法兰空心轴锁紧盘安装平行轴斜齿轮减速机
B5 flange mounted with hollow shaft and shrink disk



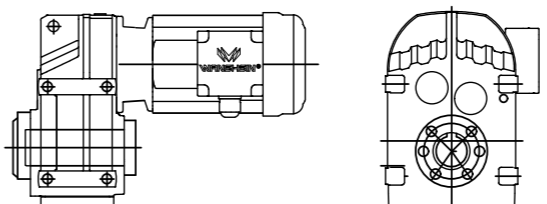
FA..D..
空心轴安装平行轴斜齿轮减速机
Splined hollow shaft with key
Shaft mount



FV..D..
花键空心轴安装平行轴斜齿轮减速机
Splined hollow shaft
Shaft mount

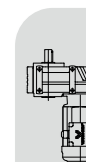


FAZ..D..
B14法兰空心轴安装平行轴斜齿轮减速机
Hollow shaft with key
Face mount (C & B14 style flange with tapped holes)



FVZ..D..
B14法兰花键空心轴安装平行轴斜齿轮减速机
Hollow shaft with key
Face mount (C&B14 style flange with tapped holes)

FHZ..D..
B14法兰空心轴锁紧盘安装平行轴斜齿轮减速机
Shrink disk hollow shaft
Face mount (C&B14 style flange with tapped holes)



6.2 可行的组合方式
6.2 Type of Combination

以下是平行轴斜齿轮减速机与交流（带制动）电机的组合列表。表中给出了每种组合的速比范围
The below is combination table between gear box and electro motor in each list the ratio range.

减速器型号 Gear unit size	级 Stages	D63/71 (0.12-0.37KW)	D80 (0.55-0.75KW)	D90 (1.1-1.5KW)	D100 (2.2-3.0KW)	D112 (4.0KW)	D132S (5.5KW)	D132M (7.5KW)
F/FF/FA/FAF37	2	4.22-7.44 8.97-23.63	3.77-23.63	3.77-20.57	3.77-6.74 8.01-14.33 17.03			
F/FF/FA/FAF37	3	23.88-128.51	23.88-100.36	23.88-51.70 58.32-86.53	23.88-31.69 38.31 51.70 58.32 70.50			
F/FF/FA/FAF47	2	6.34-8.96 13.93-30.86	4.99-30.86	4.99-30.86	4.99-25.72			
F/FF/FA/FAF47	3	28.88-190.76	28.88-150.06	28.88-130.07	28.88-56.49 68.09-105.09			
F/FF/FA/FAF57	2	6.58-9.31 13.52-40.13	5.18-34.24	5.18-29.94	5.18-24.96	5.18-21.17		
F/FF/FA/FAF57	3	30.15-199.70	30.15-157.09	30.15-136.16	30.15-58.97 83.46-110.01	30.15-50.10 83.46-93.47		
F/FF/FA/FAF67	2	7.53-9.08 18.29-36.30	5.95-9.08 14.46-36.30	3.97-36.30	3.97-32.08	3.97-27.41	3.97-22.05	3.97-22.05
F/FF/FA/FAF67	3	43.20-228.99	34.01-195.39	34.01-170.85	34.01-142.40	34.01-67.65 90.59-120.79	34.01-53.73 90.59-95.94	34.01-53.73 90.59-95.94
F/FF/FA/FAF77	2	21.43-36.58	8.26-9.30 17.49-36.58	5.76-9.30 12.20-36.58	4.28-36.58	4.28-31.51	4.28-25.50	4.28-25.50
F/FF/FA/FAF77	3	48.37-72.50 94.93-281.71	38.23-225.79	25.54-198.31	25.54-166.47	25.54-142.27	25.54-58.32 75.02-114.45	25.54-58.32 75.02-114.45
F/FF/FA/FAF87	2		23.68-33.92	7.35-8.29 17.12-33.92	5.63-8.29 13.12-33.92	5.63-8.29 13.12-33.92	4.12-33.92	4.12-33.92
F/FF/FA/FAF87	3		109.49-270.68	39.30-50.36 76.39-270.68	29.20-228.93	29.20-197.20	29.20-159.61	29.20-159.61
F/FF/FA/FAF97	2			9.06 22.11-43.28	7.07-9.06 17.25-43.28	7.07-9.06 17.25-43.28	4.57-43.28	4.57-43.28
F/FF/FA/FAF97	3			58.06-72.29 80.31 89.85-97.58 112.99-276.77	44.49-72.29 80.31-276.77	44.49-72.29 80.31-276.77	32.50-223.88	32.50-223.88
F/FF/FA/FAF107	2				21.76-33.79	21.76-33.79	7.40-9.69 14.67-33.79	7.40-9.69 14.67-33.79
F/FF/FA/FAF107	3				58.12-83.99 92.47-254.40	58.12-83.99 92.47-254.40	37.61-254.40	37.61-254.40
F/FF/FA/FAF127	2							7.88-8.86 14.55-26.86
F/FF/FA/FAF127	3							37.28-170.83

续表

减速器型号 Gear unit size	级 Stages	D132ML (9.2KW)	D160M (11KW)	D160L (15KW)	D180 (18.5KW)	D200 (30KW)
F/FF/FA/FAF77	2	4.28-19.70	4.28-19.70			
F/FF/FA/FAF77	3	25.54-43.58	25.54-43.58			
F/FF/FA/FAF87	2	4.12-26.50	4.12-26.50	4.12-26.50	4.12-21.32	
F/FF/FA/FAF87	3	29.20-123.29	29.20-123.29	29.20-123.29	29.20-50.36	
F/FF/FA/FAF97	2	4.57-33.91	4.57-33.91	4.57-33.91	4.57-27.44	
F/FF/FA/FAF97	3	32.50-89.85 102.16-174.87	32.50-89.85 102.16-174.87	32.50-89.85 102.16-174.87	32.50-75.63 86.59 102.16-140.71	
F/FF/FA/FAF107	2	6.22-9.69 12.33-33.79	6.22-9.69 12.33-33.79	6.22-9.69 12.33-33.79	6.22-33.79	
F/FF/FA/FAF107	3	31.80-199.31	31.80-199.31	31.80-199.31	31.80-161.28	31.80-161.28
F/FF/FA/FAF127	2	6.80-8.86 12.54-26.86	6.80-8.86 12.54-26.86	6.80-8.86 12.54-26.86	5.52-26.86	4.86-26.86
F/FF/FA/FAF127	3	31.33-170.83	31.33-170.83	31.33-170.83	25.30-153.67	25.30-125.37
F/FF/FA/FAF157	2		16.85-53.55	16.85-53.55	13.96-43.94	11.92-35.75
F/FF/FA/FAF157	3		40.06-267.43	40.06-267.43	32.55-217.62	27.60-178.20

减速器型号 Gear unit size	级 Stages	D225 (37-45KW)	D250M (55KW)	D280 (75-90KW)	D315/ (110-132KW)	D315-A/B (160-200KW)
F/FF/FA/FAF107	2	6.22-27.57				
F/FF/FA/FAF107	3	31.80-74.52 88.49 101.38-129.97				
F/FF/FA/FAF127	2	4.68-26.86	4.68-21.38	4.68-21.38		
F/FF/FA/FAF127	3	25.30-125.37	25.30-55.31 75.41-98.95	25.30-55.31 75.41-98.95		
F/FF/FA/FAF157	2	11.92-35.75	11.92-28.60	11.92-28.60	11.92-22.16	11.92-16.85
F/FF/FA/FAF157	3	27.60-178.20	27.60-68.28 96.53-141.80	27.60-68.28 96.53-141.80	27.60-52.24 96.53-108.49	27.60-40.06

6.3 速比与最大扭矩 6.3 Ratio and Max. Torque

F37-57 n_a=1400 r/min

Table for F37-57 n_a=1400 r/min, 200Nm. Columns: F37, i, n_a, M_max, F_ra, AD. Rows: 3-stage, 2-stage.

Table for F47 n_a=1400 r/min, 400Nm. Columns: F47, i, n_a, M_max, F_ra, AD. Rows: 3-stage, 2-stage.

Table for F57 n_a=1400 r/min, 600Nm. Columns: F57, i, n_a, M_max, F_ra, AD. Rows: 3-stage, 2-stage.

F67-87 n_a=1400 r/min

Table for F67 n_a=1400 r/min, 820Nm. Columns: F67, i, n_a, M_max, F_ra, AD. Rows: 3-stage, 2-stage.

Table for F77 n_a=1400 r/min, 1500Nm. Columns: F77, i, n_a, M_max, F_ra, AD. Rows: 3-stage, 2-stage.

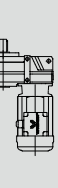
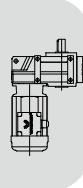
Table for F87 n_a=1400 r/min, 3000Nm. Columns: F87, i, n_a, M_max, F_ra, AD. Rows: 3-stage, 2-stage.

Table for 0.25kW and 0.37kW models. Columns: Output speed (r/min), Output torque (N·m), Ratio, Permitted overhung load (N), Service factor, Model. Includes sub-sections for 0.25kW and 0.37kW.

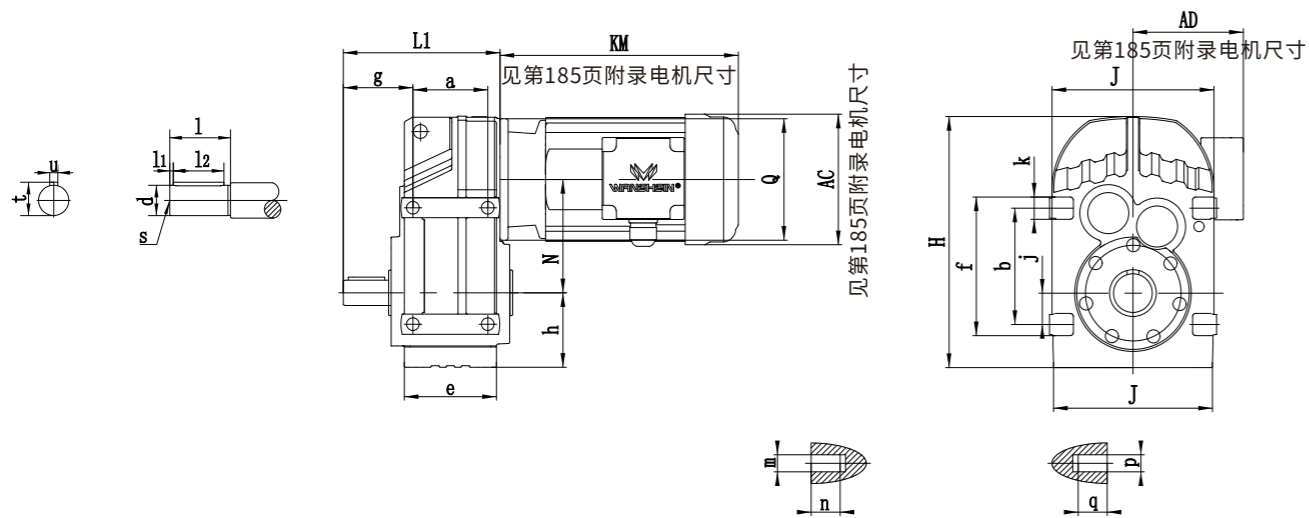
Table for 0.37kW models. Columns: Output speed (r/min), Output torque (N·m), Ratio, Permitted overhung load (N), Service factor, Model. Includes model identifiers like FA 67, FAF 67, F 67, FF 67.

Table for 0.37kW and 0.55kW models. Columns: Output speed (r/min), Output torque (N·m), Ratio, Permitted overhung load (N), Service factor, Model. Includes model identifiers like FA 157, FAF 157, F 157, FF 157.

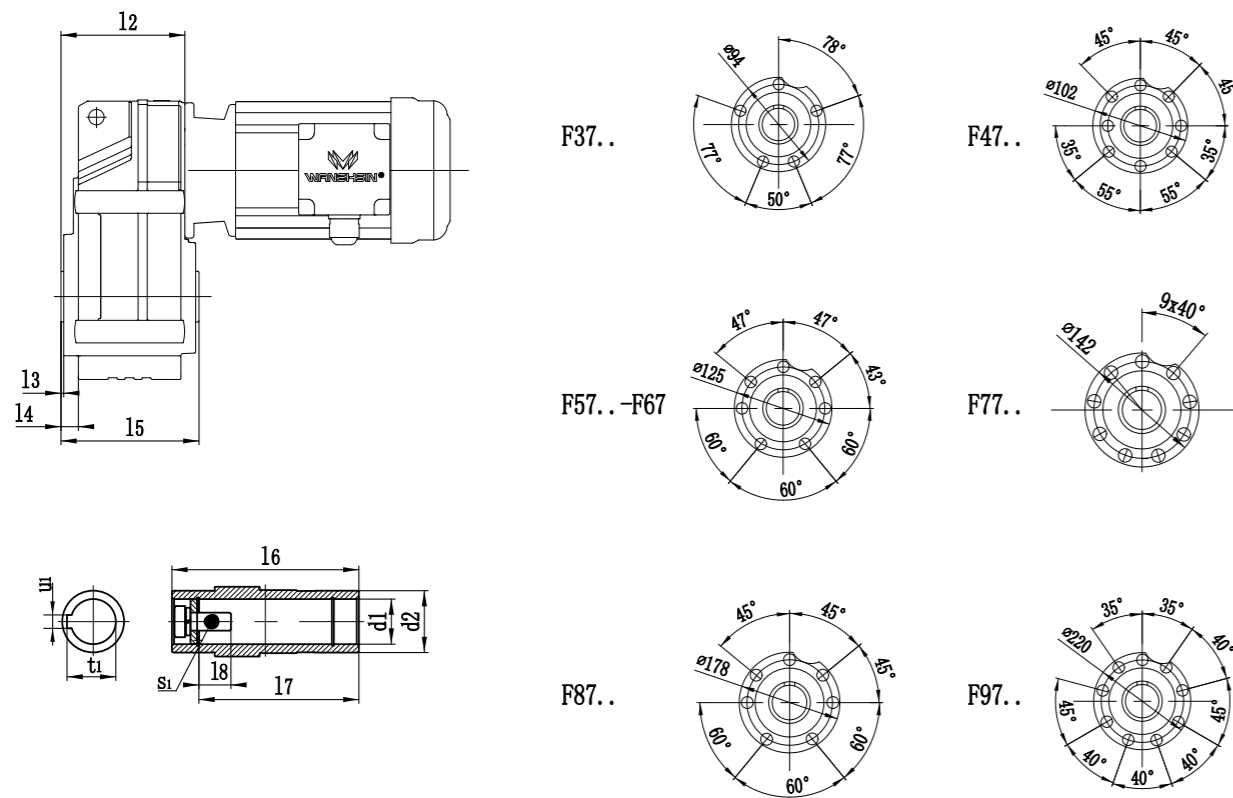
Table for 0.55kW models. Columns: Output speed (r/min), Output torque (N·m), Ratio, Permitted overhung load (N), Service factor, Model. Includes model identifiers like FA 87, FAF 87, F 87, FF 87.



F37..~F157..



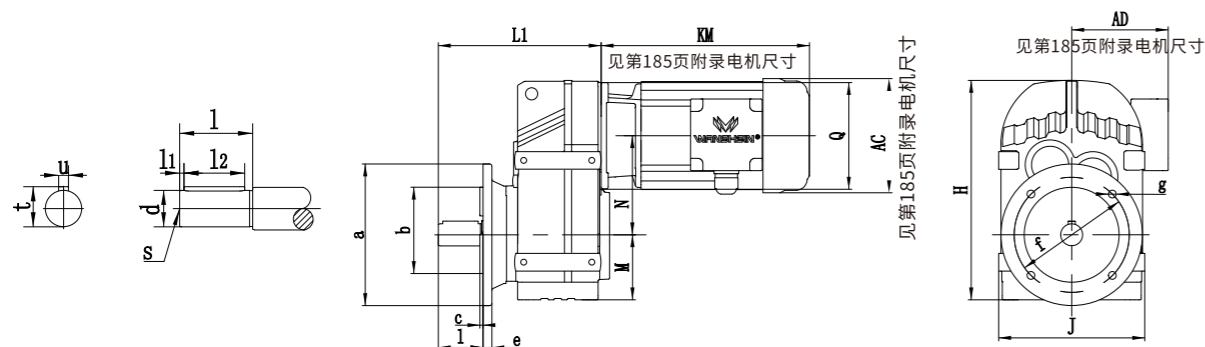
FA37B..~FA157B..



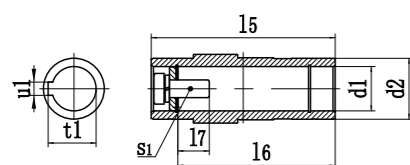
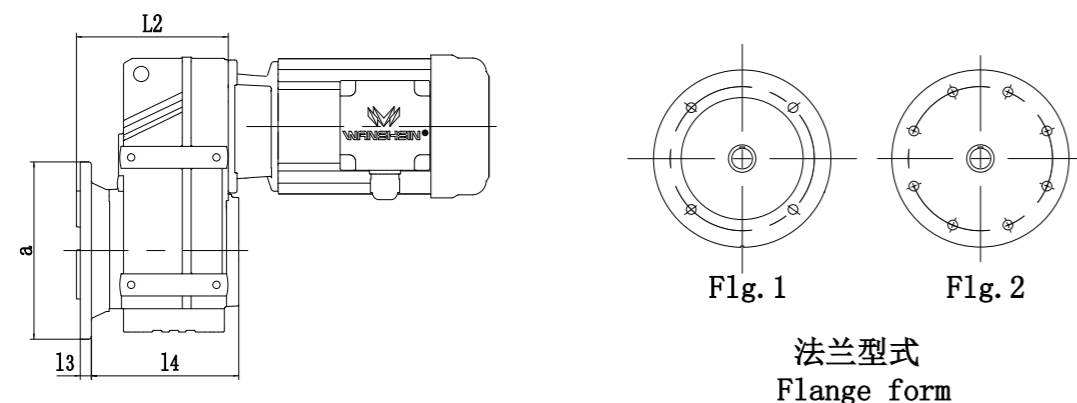
型号 Model	a b	e f	g	h	j	k	m n	p q	轴伸尺寸 Shaft dimension				
									d	l	l1 l2	s	t u
F37.. FA37B..	77 115	95 135	72.5	76	31	20	M8 11	M8 11	25k6	50	5 40	M10	28 8
F47.. FA47B..	93 145	109 165	91	77	43	20	M8 11	M10 15	30k6	60	3.5 50	M10	33 8
F57.. FA57B..	102 170	126 195	104.5	93	55	25	M12 17	M12 17	35k6	70	7 56	M12	38 10
F67.. FA67B..	112 190	131 215	118.5	97	60	25	M12 17	M12 17	40k6	80	5 70	M16	43 12
F77.. FA77B..	140 240	165 275	137.5	121	70	35	M12 17	M16 26	50k6	100	10 80	M16	53.5 14
F87.. FA87B..	165 310	195 350	163	152	100	40	M16 26	M16 26	60m6	120	5 110	M20	64 18
F97.. FA97B..	205 350	240 400	190.5	178	120	50	M16 26	M20 28	70m6	140	7.5 125	M20	74.5 20
F107.. FA107B..	220 400	260 460	241.5	200	125	60	/ /	M24 36	90m6	170	5 160	M24	95 25
F127.. FA127B..	270 450	316 520	291	236	142	70	/ /	M30 45	110m6	210	15 180	M24	116 28
F157.. FA157B..	310 540	364 620	325	286	170	80	/ /	M36 55	120m6	210	5 200	M24	127 32

型号 Model	空心伸尺寸 Hollow Shaft dimension								H J	L1	L2	N	Q
	d1	d2	l3 l4	l5	l6 l7	l8	s1	l1 u1					
F37.. FA37B..	30H7	45	2.5 22.5	123	120 105	17	M10X25	33.3 8	252 165	160	110	112	120
F47.. FA47B..	35H7	50	3 31	153	150 132	22	M10X25	38.3 10	269 180	193	133	128.1	120
F57.. FA57B..	40H7	55	3 33.5	170	166 142	29	M16X40	43.3 12	317 200	221	150	136	160
F67.. FA67B..	40H7	55	3.5 37	184	180 156	29	M16X40	43.3 12	343 212	242	161	159.5	160
F77.. FA77B..	50H7	70	4 36.5	213	210 183	32	M16X45	53.8 14	426 270	294	193	200	200
F87.. FA87B..	60H7	85	4 43	243	240 210	36	M20X50	64.4 18	531 330	344	224	246.7	250
F97.. FA97B..	70H7	95	4 48.5	303	300 270	34	M20X50	74.9 20	623 400	416	274	285	300
F107.. FA107B..	90H7	118	2.5 69.5	353	350 313	40	M24X60	95.4 25	717 450	484	312	332.4	350
F127.. FA127B..	100H7	135	2.5 79.25	413	410 373	38	M24X60	106.4 28	856 530	585	373	382.6	450
F157.. FA157B..	120H7	155	7 118	503	500 460	36	M24X60	127.4 32	1021 660	662	455	447	550

FF37..~FF157..



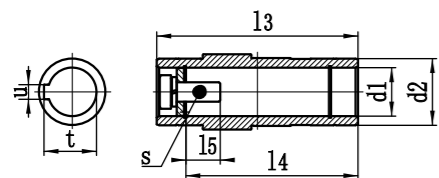
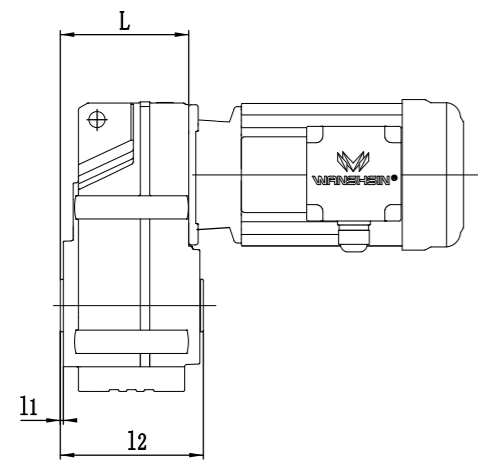
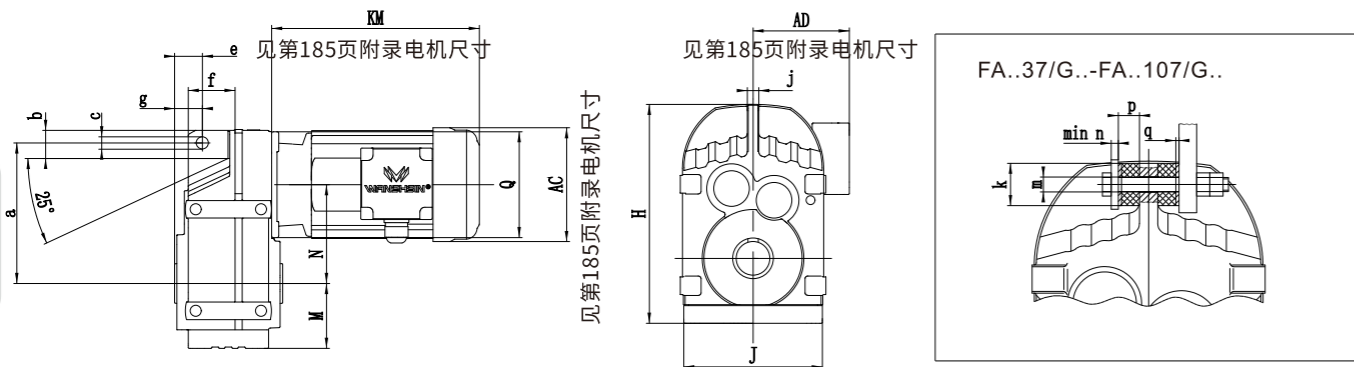
FAF37..~FAF157..



型号 Model	法兰型式 Flange form	a	c	f	轴伸尺寸 Shaft dimension								H	L1	M	N	Q
					d	l1	s	t	d1	l3	l5	l7					
FF37.. FAF37..	Fig.1	160 110j6	3.5 10	130 9	25k6 50	5 40	M10	28 8	30H7 45	24 123	120 105	17 M10X25	33.3 8	252 165	184 138	76 112 120	
FF47.. FAF47..	Fig.1	200 130j6	3.5 12	165 11	30k6 60	3.5 50	M10	33 8	35H7 50	25 153	150 132	22 M10X25	38.3 10	269 180	218 162	77 128.1 120	
FF57.. FAF57..	Fig.1	250 180j6	4 15	215 13.5	35k6 70	7 56	M12	38 10	40H7 55	23.5 170	166 142	29 M16X40	43.3 12	317 200	243 177	93 136 160	
FF67.. FAF67..	Fig.1	250 180j6	4 15	215 13.5	40k6 80	5 70	M16	43 12	40H7 55	23 184	180 156	29 M16X40	43.3 12	343 212	264 188	97 159.5 160	
FF77.. FAF77..	Fig.1	300 230h6	4 16	265 13.5	50k6 100	10 80	M16	53.5 14	50H7 70	37 213	210 183	32 M16X45	53.8 14	426 270	330 234	121 200 200	
FF87.. FAF87..	Fig.1	350 250h6	5 18	300 17.5	60m6 120	5 110	M20	64 18	60H7 85	30 243	240 210	36 M20X50	64.4 18	531 330	374 259	152 246.7 250	
FF97.. FAF97..	Fig.2	450 350h6	5 22	400 17.5	70m6 140	7.5 125	M20	74.5 20	70H7 95	41.5 303	300 270	34 M20X50	74.9 20	623 400	456 321	178 285 300	
FF107.. FAF107..	Fig.2	450 350h6	5 22	400 17.5	90m6 170	5 160	M24	95 25	90H7 118	41 353	350 313	40 M24X60	95.4 25	717 450	523 358	200 332.4 350	
FF127.. FAF127..	Fig.2	550 450h6	5 25	500 17.5	110m6 210	15 180	M24	116 28	100H7 135	51 413	410 373	36 M24X60	106.4 28	856 530	634 426	236 382.6 450	
FF157.. FAF157..	Fig.2	660 450h6	6 28	600 22	120m6 210	5 200	M24	127 32	120H7 155	60 503	500 460	36 M24X60	127.4 32	1021 660	725 521	286 447 550	

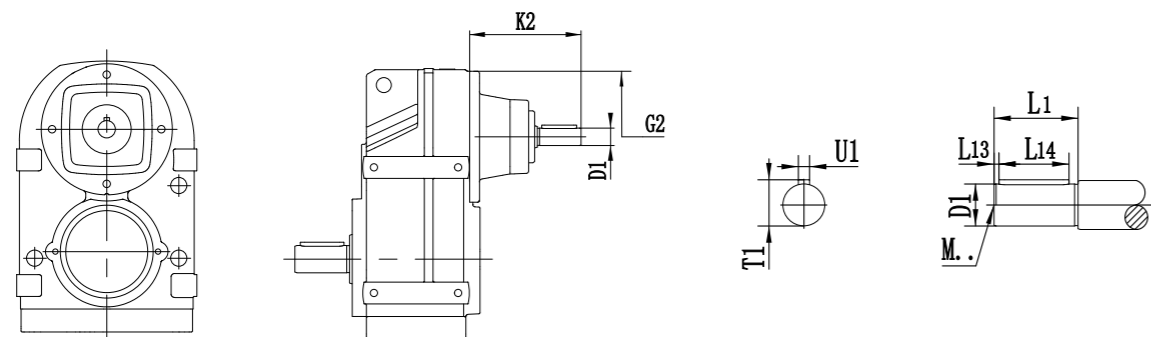


FA37...~FA157...



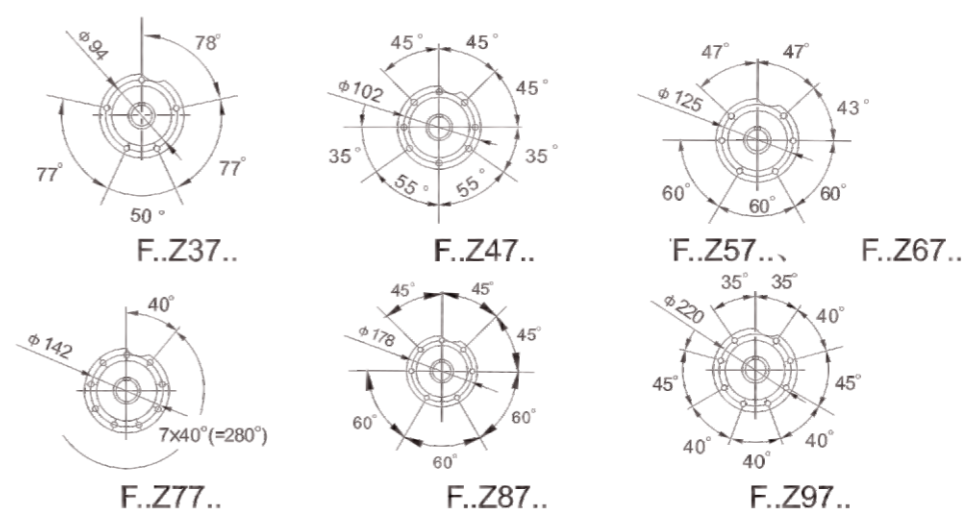
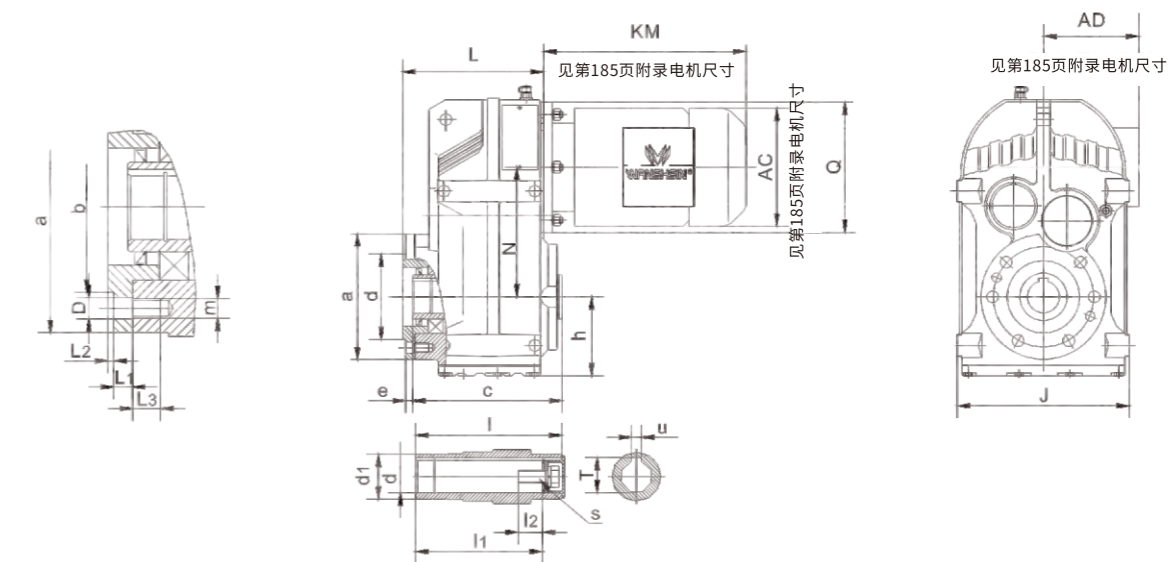
型号 Model	a b	c e	f g	空心轴尺寸 Hollow Shaft Dimension					扭矩臂尺寸 Torque arm form		H J j	L	M	N Q
				d1 d2	l1 l2	l3 l4	l5 s	t u	K M N	p q				
FA37.. FA..37/G..	158 30	14 31.5	46 15	30H7 45	0.5 123	120 105	17 M10X25	33.3 8	40 12.5 5	20 1	252 172 12	110	76	112 120
FA47.. FA..47/G..	170 22	14 32	64 12	35H7 50	1 153	150 132	22 M10X25	38.3 10	40 12.5 5	20 1.8	269 189 12	133	77	128.1 120
FA57.. FA..57/G..	198 31	14 40.5	60 19.5	40H7 55	1 170	166 142	29 M16X40	43.3 12	40 12.5 5	20 2.4	317 210 14	150	93	136 160
FA67.. FA..67/G..	218 40	14 41	65 21	40H7 55	1 184	180 156	29 M16X40	43.3 12	40 12.5 5	20 3	343 223 16	161	97	159.5 160
FA77.. FA..77/G..	278 49	22 50	69 28	50H7 70	1 213	210 183	32 M16X45	53.8 14	60 21 10	30 3.2	426 282 20	193	121	200 200
FA87.. FA..87/G..	346 57	22 62	79 32	60H7 85	1 243	240 210	36 M20X50	64.4 18	60 21 10	30 4.5	531 336 26	224	152	246.7 250
FA97.. FA..97/G..	395 88	26 70	104 34	70H7 95	1 303	300 270	34 M20X50	74.9 20	80 25 12	40 5	623 414 30	274	178	285 300
FA107.. FA..107/G..	485 108	26 88	100 57	90H7 118	2.5 353	350 313	40 M24X60	95.4 25	80 25 12	40 6	717 456 36	312	200	332.4 350
FA127.. FA..127/G..	550 138	33 110	125 66	100H7 135	2.5 413	410 373	38 M24X60	106.4 28	100 32 15	60 9	856 530 40	373	236	382.6 450
FAa157.. FAa..157/G..	660 170	33 150	140 98	120H7 155	7 503	500 460	36 M24X60	127.4 32	120 32 15	60 9	1021 660 45	455	286	447 550

F..AD..

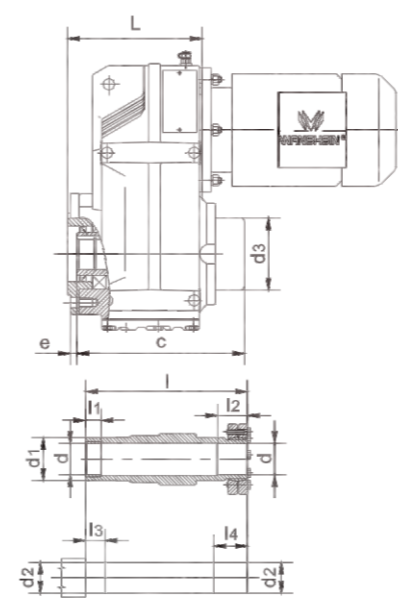


		G2	K2	D1	L1	L13	L14	T1	U1	M
F..37 F..47	AD1	120	102	16	40	4	32	18	5	M5
	AD2		130	19	40	4	32	21.5	6	M6
F..57 F..67	AD2	160	123	19	40	4	32	21.5	6	M6
	AD3		159	24	50	5	40	27	8	M8
F..77	AD2	200	116	19	40	4	32	21.5	6	M6
	AD3		151	24	50	5	40	27	8	M8
	AD4		224	38	80	5	70	41	10	M12
F..87	AD2	250	111	19	40	4	32	21.5	6	M6
	AD3		156	28	60	5	50	31	8	M10
	AD4		219	38	80	5	70	41	10	M12
	AD5		292	42	110	10	70	45	12	M16
F..97	AD3	300	151	28	60	5	50	31	8	M10
	AD4		214	38	80	5	70	41	10	M12
	AD5		287	42	110	10	70	45	12	M16
	AD6		327	48	110	10	80	51.5	14	M16
F..107	AD3	350	145	28	60	5	50	31	8	M10
	AD4		208	38	80	5	70	41	10	M12
	AD5		281	42	110	10	70	45	12	M16
	AD6		321	48	110	10	80	51.5	14	M16
F..127	AD4	450	193	38	80	5	70	41	10	M12
	AD5		266	42	110	10	70	45	12	M16
	AD6		306	48	110	10	80	51.5	14	M16
	AD7		300	55	110	10	90	59	16	M20
	AD8		383	70	140	15	110	74.5	20	M20
F..157	AD5	550	258	42	110	10	70	45	12	M16
	AD6		298	48	110	10	80	51.5	14	M16
	AD7		292	55	110	10	90	59	16	M20
	AD8		374	70	140	15	110	74.5	20	M20

FAZ37..~FAZ157..



FAZ37..~FAZ157..





F..AM..

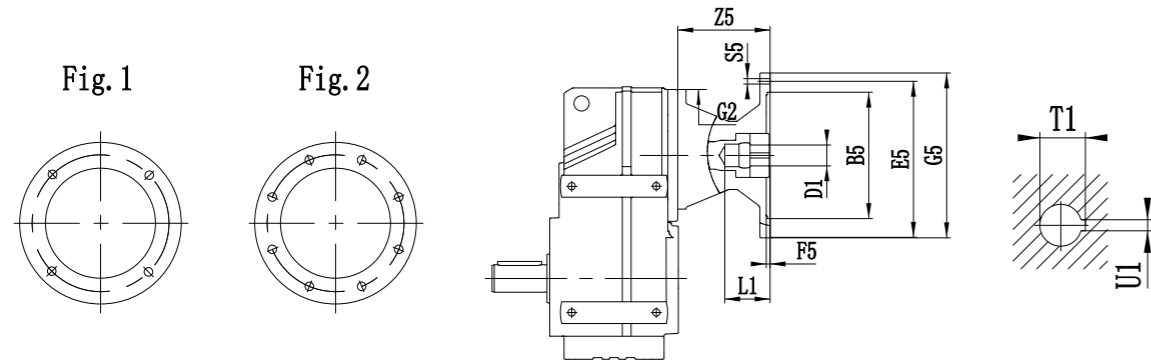


		Fig.	B5	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
F..37 F..47	AM63	1	95	115	3.5	120	140	M8	72	11	23	12.8	4
	AM71		110	130			14			30	16.3	5	
	AM80		130	165	4.5		200	M10	106	19	40	21.8	6
	AM90						24			50	27.3	8	
F..57 F..67	AM63	1	95	115	3.5	160	140	M8	66	11	23	12.8	4
	AM71		110	130			14			30	16.3	5	
	AM80		130	165	4.5		200	M10	99	19	40	21.8	6
	AM90						24			50	27.3	8	
	AM100		180	215	5		250	M12	134	28	60	31.3	8
	AM112												
F..77	AM63	1	95	115	3.5	200	140	M8	60	11	23	12.8	4
	AM71		110	130			14			30	16.3	5	
	AM80		130	165	4.5		200	M10	92	19	40	21.8	6
	AM90						24			50	27.3	8	
	AM100		180	215	5		250	M12	126	28	60	31.3	8
	AM112												
	AM132S AM132M		230	265	5		300	M12	179	38	80	41.3	10
AM132ML													
F..87	AM80	1	130	165	4.5	250	200	M10	87	19	40	21.8	6
	AM90									24	50	27.3	8
	AM100		180	215	5		250	M12	121	28	60	31.3	8
	AM112												
	AM132S AM132M		230	265	5		300	M12	174	38	80	41.3	10
	AM132ML												
	AM160		250	300	6		350	M16	232	42	110	45.3	12
	AM180						48			51.8		14	
F..97	AM100	1	180	215	5	300	250	M12	116	28	60	31.3	8
	AM112												
	AM132S AM132M		230	265	5		300	M12	169	38	80	41.3	10
	AM132ML												
	AM160		250	300	6		350	M16	227	42	110	45.3	12
	AM180						48			51.8		14	
	AM200		300	350	7		400	M16	268	55	140	59.3	16
	AM225 ¹⁾						450			283		60	140

F..AM..

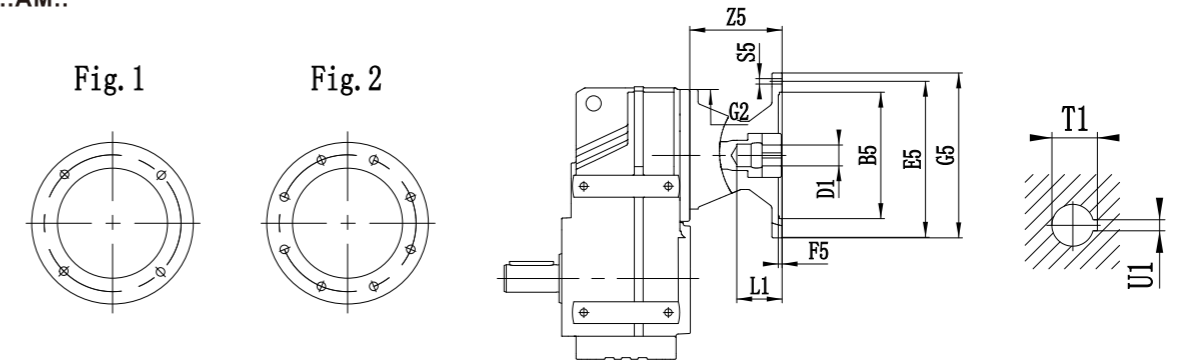
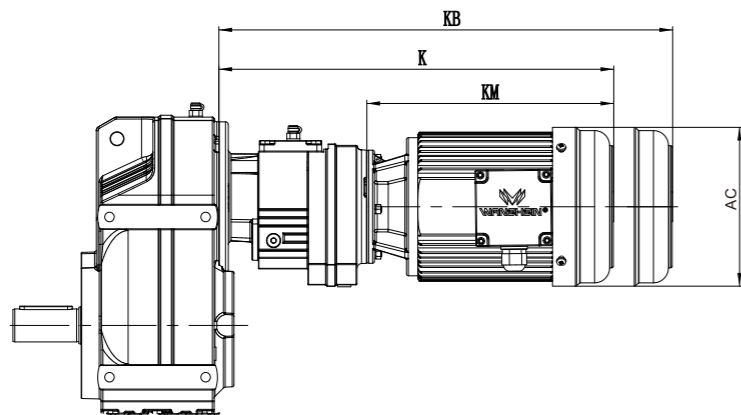


		Fig.	B5	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
F..107	AM100	1	180	215	5	350	250	M12	110	28	60	31.3	8
	AM112												
	AM132S AM132M		230	265	6		300	M16	163	38	80	41.3	10
	AM132ML												
	AM160		250	300	7		350	M16	221	42	110	45.3	12
	AM180						48						
AM200	300	350	7	400	M16	262	55	140	59.3	16			
AM225				450							277	60	140
F..127	AM132S AM132M	1	230	265	5	450	300	M12	148	38	80	41.3	10
	AM132ML												
	AM160		250	300	6		350	M16	206	42	110	45.3	12
	AM180						48						
	AM200		300	350	7		400	M16	247	55	140	59.3	16
	AM225						450						
AM250	450	500	7	550	M16	336	65	140	69.4	20			
AM280				75							79.9	20	
F..157	AM160	1	250	300	6	550	350	M16	198	42	110	45.3	12
	AM180												
	AM200		300	350	7		400	M16	239	55	140	59.3	16
	AM225						450						
	AM250		450	500	7		550	M16	328	65	140	69.4	20
	AM280						75						

F..R..



型号组合	功率(KW)	AC	K	KB	KM
F..57R37	0.18	129	371.5	408	206.5
	0.25-0.37	129	372/384.5	407.5/421	207/219.5
	0.55-0.75	169	411.5/412	456.5/457	246.5/247
F..67R37	0.18	129	371.5	408	206.5
	0.25-0.37	129	372/384.5	407.5/421	207/219.5
	0.55-0.75	169	411.5/412	456.5/457	246.5/247
	1.1-1.5	192	463	508.5	298
F..77R37	0.18	129	363.5	400	206.5
	0.25-0.37	129	364/367.5	399.5/413	207/219.5
	0.55-0.75	169	403.5/404	448.5/449	246.5/247
	1.1-1.5	192	455	500.5	298
F..87R57	0.18	129	422.5	459	206.5
	0.25-0.37	129	423/433.5	458.5/472	207/219.5
	0.55-0.75	169	462.5/463	507.5/508	246.5/247
	1.1-1.5	192	514	559.5	298
	2.2	219	538.5	600.5	322.5
F..97R57	0.18	129	417.5	454	206.5
	0.25-0.37	129	418/430.5	453.5/467	207/219.5
	0.55-0.75	169	475.5/458	502.5/503	246.5/247
	1.1-1.5	192	509	554.5	298
	2.2	219	533.5	595.5	322.5
	3	219	533.5	595.5	322.5
F..107R77	0.18	129	453.5	490	206.5
	0.25-0.37	129	454/466.5	489.5/503	207/219.5
	0.55-0.75	169	493.5/494	538.5/539	246.5/247
	1.1-1.5	192	545	590.5	298
	2.2	219	569.5	631.5	322.5
	3	219	569.5	631.5	322.5
	4	219	585.5	647.5	338.5
	5.5	257	656	724	409
	7.5	257	699	767	452
	9.2	257	699	767	452
11-15	318	755	855	508	

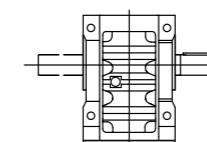
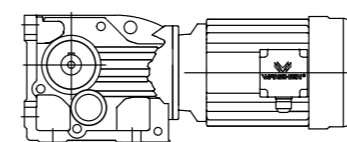
型号组合	功率(KW)	AC	K	KB	KM
F..127R77	0.18	129	438.5	475	206.5
	0.25-0.37	129	439/451.5	474.5/488	207/219.5
	0.55-0.75	169	478.5/479	523.5/524	246.5/247
	1.1-1.5	192	530	575.5	298
	2.2	219	554.5	616.5	322.5
	3	219	554.5	616.5	322.5
	4	219	570.5	632.5	338.5
	5.5	257	641	709	409
	7.5	257	684	752	452
	9.2	257	684	752	452
F..127R87	1.1-1.5	192	578	623.5	298
	2.2	219	602.5	664.5	322.5
	3	219	602.5	664.5	322.5
	4	219	618.5	680.5	338.5
	5.5	257	689	757	409
	7.5	257	732	800	452
	9.2	257	732	800	452
	11	318	788	888	508
	15	318	788	888	508
	18.5	380	844	944	564
F..157R97	0.55-0.75	169	571.5/572	616.5/617	246.5/247
	1.1-1.5	192	623	668.5	298
	2.2	219	647.5	709.5	322.5
	3	219	647.5	709.5	322.5
	4	219	663.5	725.5	338.5
	5.5	257	734	802	409
	7.5	257	777	845	452
	9.2	257	777	845	452
	11	318	833	933	508
	15	318	833	933	508
18.5	380	889	989	564	

注:上表中电机尺寸为参考尺寸,因空间限制对电机尺寸有严格要求时请向我公司咨询。
Notes:The dimension of motor in the above table is only reference.If you have special requirement, Please consult us.

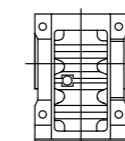
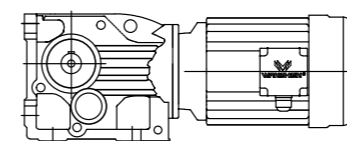
7. K系列斜齿轮-伞齿轮减速机 K Helical-Bevel Geared Motor

7.1设计方案 7.1 Versions of geared motors

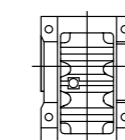
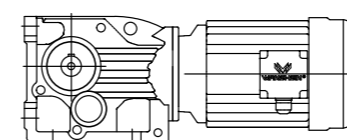
斜齿轮-伞齿轮减速机有以下设计方案:
The following types of helical-bevel geared motor can be supplied:



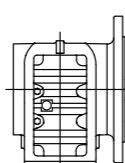
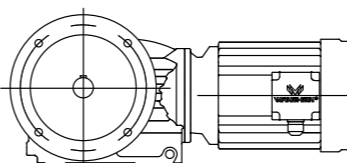
K..D..
底脚安装斜齿轮-伞齿轮减速机
Foot-mounted helical-bevel geared motor



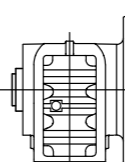
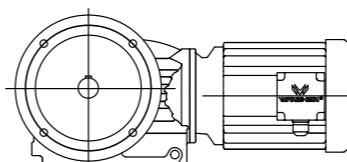
KA..BD..
底脚空心轴安装斜齿轮-伞齿轮减速机
Foot-mounted helical-bevel geared motor with hollow shaft.



KV..BD..
底脚花键空心轴(DIN5480)安装斜齿轮-伞齿轮减速机
Foot-mounted helical-bevel geared motor with hollow shaft and splined hollow shaft to DIN5480.



KH..BD..
底脚空心轴锁紧盘安装斜齿轮-伞齿轮减速机
Foot-mounted helical-bevel geared motor with hollow shaft and shrink disk.

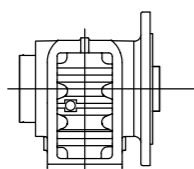
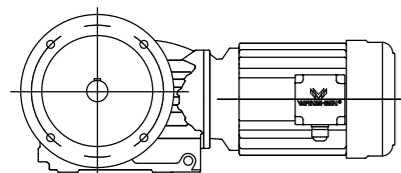


KF..D..
B5法兰安装斜齿轮-伞齿轮减速机
Helical-bevel geared motor in B5 flange-mounted version.



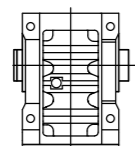
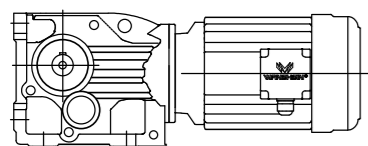
KAF..D..
B5法兰空心轴安装斜齿轮-伞齿轮减速机
Helical-bevel geared motor in B5 flange-mounted version with hollow shaft.

KVF..D..
B5法兰花键空心轴(DIN5480)安装斜齿轮-伞齿轮减速机
Helical-bevel geared motor in B5 flange-mounted version with hollow shaft and splined hollow shaft to DIN 5480.



KHF..D..

B5法兰空心轴锁紧盘安装斜齿轮-伞齿轮减速电机
Helical-bevel geared motor in B5 flange-mounted version with hollow shaft and shrink disk.

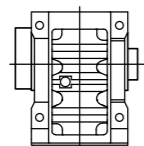
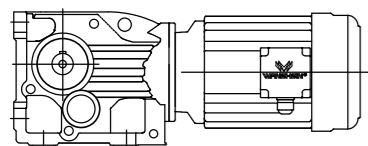


KA..D..

空心轴安装斜齿轮-伞齿轮减速电机
Helical-bevel geared motor with hollow shaft.

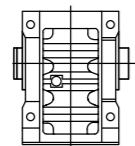
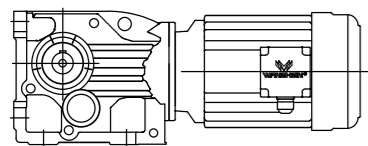
KV..D..

花键空心轴 (DIN5480) 安装斜齿轮-伞齿轮减速电机
Helical-bevel geared motor with splined hollow shaft to DIN 5480.



KH..D..

空心轴锁紧盘安装斜齿轮-伞齿轮减速电机
Helical-bevel geared motor with hollow shaft and shrink disk.

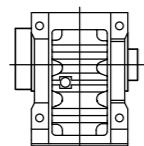
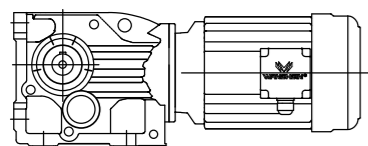


KAZ..D..

B14法兰空心轴安装斜齿轮-伞齿轮减速电机
Helical-bevel geared motor in B14 flange-mounted version with hollow shaft.

KVZ..D..

B14法兰花键空心轴 (DIN 5480) 安装斜齿轮-伞齿轮减速电机
Helical-bevel geared motor in B14 flange-mounted version with splined hollow shaft to DIN 5480.



KHZ..D..

B14法兰空心轴锁紧盘安装斜齿轮-伞齿轮减速电机
Helical-bevel geared motor in B14 flange-mounted version with hollow shaft and shrink disk.

7.2 可行的组合方式
7.2 Type of Combination

以下是斜齿轮-伞齿轮减速机与交流（带制动）电机的组合列表。表中给出了每种组合的速比范围。
The below is combination table between gear box and electro motor in each list the ratio range.

减速器型号 Gear unit size	级 Stages	D63/71 (0.12-0.37KW)	D80 (0.55-0.75KW)	D90 (1.1-1.5KW)	D100 (2.2-3.0KW)	D112 (4.0KW)	D132S (5.5KW)	D132M (7.5KW)
K/KF/KA/KAF37	3	5.36-106.38	5.36-83.69	5.36-24.99 29.96-72.54	5.36-10.49 13.08-20.19 29.96-58.60			
K/KF/KA/KAF47	3	7.36-11.77 13.65-31.30 39.61-131.87	5.81-104.37	5.81-90.86	5.81-21.18 25.91 35.39-63.30 75.20			
K/KF/KA/KAF57	3	9.59-11.92 19.34-35.70 48.89-145.14	7.55-11.92 15.22-123.85	6.57-108.29	6.57-90.26	6.57-30.28 38.49-76.56		
K/KF/KA/KAF67	3	10.63-12.48 19.30-35.62 48.77-144.79	8.37-12.48 15.19-123.54	7.28-108.03	7.28-90.04	7.28-30.22 38.39-76.37	7.28-24.00 38.39-60.66	7.28-24.00 38.39-60.66
K/KF/KA/KAF77	3	25.62-38.39 64.75-192.18	10.84-12.36 20.25-38.39 51.18-154.02	7.24-135.28	7.24-113.56	7.24-97.05	7.24-30.89 40.04-78.07	7.24-30.89 40.04-78.07
K/KF/KA/KAF87	3		16.00 27.88-31.39 70.46-197.37	11.17 16.00 19.45-31.39 49.16-174.19	8.29-11.17 14.45-147.32	8.29-11.17 14.45-126.91	7.21-102.71	7.21-102.71
K/KF/KA/KAF97	3			24.75-38.30 62.55-176.05	18.96-38.30 47.93-176.05	18.96-38.30 47.93-153.21	8.71-123.93	8.71-123.93
K/KF/KA/KAF107	3				13.43 22.62-29.00 32.69 57.17-143.47	13.43 22.62-29.00 32.69 57.17-143.47	8.69-29.00 32.69-143.47	8.69-29.00 32.69-143.47
K/KF/KA/KAF127	3							12.79 21.15-36.25 47.82-146.07

减速器型号 Gear unit size	级 Stages	D132ML (9.2KW)	D160M (11KW)	D160L (15KW)	D180 (18.5KW)	D200 (30KW)
K/KF/KA/KAF77	3	7.24-23.08 40.04-58.34	7.24-23.08 40.04-58.34			
K/KF/KA/KAF87	3	7.21-79.34	7.21-79.34	7.21-79.34	7.21-14.45 17.42-24.92 36.52-63.00	
K/KF/KA/KAF97	3	8.71-96.80	8.71-96.80	8.71-96.80	8.71-30.82 41.87-77.89	8.71-24.75 41.87-62.55
K/KF/KA/KAF107	3	8.69-112.41	8.69-112.41	8.69-112.41	8.69-90.96	8.69-31.28 37.00-73.30
K/KF/KA/KAF127	3	10.74-12.79 17.77-136.14	10.74-12.79 17.77-136.14	10.74-12.79 17.77-136.14	8.68-110.18	8.68-89.89
K/KF/KA/KAF157	3		18.37-31.30 46.79-150.41	18.37-31.30 46.79-150.41	14.92-122.39	12.65-100.22
K/KH167	3		24.52-32.25 51.77-164.50	24.52-32.25 51.77-164.50	20.32-32.25 42.89-134.99	17.34-109.83
K/KH187	3		33.23-42.51 88.00-179.86	33.23-42.51 88.00-179.86	27.92-42.51 73.96-179.86	17.18-179.86

减速器型号 Gear unit size	级 Stages	D225 (37-45KW)	D250M (55KW)	D280 (75-90KW)	D315 (110-132KW)	D315M_A/B (160-200KW)
K/KF/KA/KAF107	3	8.69-31.28 37.00-73.30				
K/KF/KA/KAF127	3	8.68-89.89	8.68-31.37 40.19-70.95	8.68-31.37 40.19-70.95		
K/KF/KA/KAF157	3	12.65-100.22	12.65-79.75	12.65-79.75	12.65-23.95 38.02-61.02	12.65-18.37 38.02-46.79
K/KH167	3	17.34-109.83	17.34-87.86	17.34-87.86	17.34-68.07	17.34-24.52 36.61-51.77
K/KH187	3	17.18-179.86	17.18-144.59	17.18-144.59	17.18-112.60	17.18-33.23 45.50-88.00

7.3 速比与最大扭矩
7.3 Ratio and Max. Torque
K37-57 $n_a=1400r/min$

K37 200Nm					
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]	AD	
106.38	13	200	5640	AD ₁	
97.81	14	200	5640		
83.69	17	200	5640		
72.54	19	200	5520		
67.80	21	200	5360		
58.60	24	200	5020		
49.79	28	200	4660		
44.46	31	200	4420		
37.97	37	200	4100		
35.57	39	200	3970		
29.96	47	200	3650		AD ₂
28.83	49	200	3580		
24.99	56	200	3330		
23.36	60	195	3260		
20.19	69	185	3110		
17.15	82	180	2900		
15.31	91	175	2780		
13.08	107	165	2650		
12.14	115	160	2600		
10.49	133	160	2410		
8.91	157	160	2200		
7.96	176	155	2110		
6.80	206	150	1980		
6.37	220	145	1950		
5.36	261	140	1810		

K47 400Nm				
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]	AD
131.87	11	400	5920	AD ₂
121.48	12	400	5920	
104.37	13	400	5920	
90.86	15	400	5920	
85.12	16	400	5920	
75.20	19	400	5920	
69.84	20	400	5920	
63.30	22	400	5920	
56.83	25	400	5920	
48.95	29	400	5920	
46.03	30	400	5920	
39.61	35	400	5920	
35.39	40	400	5920	
31.30	45	400	5700	
29.32	48	400	5520	
25.91	54	400	5170	
24.06	58	400	4970	
21.81	64	400	4710	
19.58	72	400	4440	
16.86	83	380	4230	
15.86	88	380	4080	
13.65	103	360	3890	
12.19	115	350	3720	
11.77	119	280	4060	
10.56	133	280	3830	
9.10	154	280	3540	
8.56	164	270	3500	AD ₃
7.36	190	250	3390	
6.58	213	240	3270	
5.81	241	230	3140	

K57 600Nm				
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]	AD
145.14	9.6	600	7470	AD ₂
123.85	11	600	7470	
108.29	13	600	7470	
102.88	14	600	7470	
90.26	16	600	7470	
76.56	18	600	7470	
69.12	20	600	7470	
60.81	23	600	7470	
57.42	24	600	7470	
48.89	29	600	7470	
44.43	32	600	7470	
38.49	36	600	7470	
35.70	39	600	7470	
30.28	46	600	7310	
27.34	51	600	6930	
24.05	58	600	6480	
22.71	62	600	6280	
19.34	72	575	5910	
17.57	80	555	5740	
15.22	92	535	5430	AD ₃
13.25	106	510	5190	
11.92	117	415	5150	
11.26	124	415	4990	
9.59	146	405	4650	
8.71	161	390	4520	
7.55	185	365	4360	
6.57	213	345	4190	

K 97/127 $n_a=1400 r/min$

K97 4300Nm					
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]	AD	
176.05	8.0	4300	40000	AD3	
153.21	9.1	4300	40000		
140.28	10	4300	40000		
123.93	11	4300	40000		
105.13	13	4300	40000		
96.80	14	4300	40000		
86.52	16	4300	38800		
77.89	18	4300	37100		
70.54	20	4300	35600		
62.55	22	4300	33800		AD4
56.55	25	4300	32300		
47.93	29	4300	30000		
41.87	33	4300	28300		
38.30	37	4300	27100	AD5	
34.23	41	4300	25700		
30.82	45	4300	24500		
27.91	50	4300	23300		
24.75	57	4300	22000		
22.37	63	4300	20900		
18.96	74	4300	19100		
16.56	85	4300	17800		
13.85	101	4300	16100		AD6
11.99	117	3890	16200		
10.41	134	2870	16400		AD5
8.71	161	2660	15800		AD6

K107 8000Nm					
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]	AD	
143.47	9.8	8000	65000	AD4	
121.46	12	8000	61700		
112.41	12	8000	59700		
100.75	14	8000	57000		
90.96	15	8000	54600		
82.61	17	8000	52400		
73.30	19	8000	49700		
66.52	21	8000	47600		
57.17	24	8000	44400		
49.90	28	7840	42200		
42.33	33	7360	40500		AD5
37.00	38	7200	38500		
32.69	43	7200	36300		
31.28	45	6800	36700		
29.00	48	7200	34000	AD5	
26.32	53	7200	32000		
22.62	62	7200	28900		
19.74	71	7200	26100		
16.75	84	7050	23600		
14.64	96	6890	21900		
13.43	104	4300	29200		
11.73	119	4300	27500		
9.94	141	4190	25800		
8.69	161	4070	24600		

K127 13000Nm				
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]	AD
146.07	9.6	13000	79200	AD4
136.14	10	13000	79200	
122.48	11	13000	79200	
110.18	13	13000	79200	
89.89	16	13000	75100	AD5
81.98	17	13000	72100	
70.95	20	13000	67700	
62.60	22	13000	64000	
54.07	26	13000	59900	
47.82	29	13000	56500	
40.19	35	13000	52000	AD6
36.25	39	13000	49400	AD7
31.37	45	13000	45900	
27.68	51	13000	43000	
23.91	59	13000	39800	
21.15	66	13000	37200	AD8
17.77	79	13000	33600	
14.35	98	12100	31800	
12.79	109	8530	35400	
10.74	130	8000	33900	
8.68	161	7230	32500	

K 67-87 $n_a=1400 r/min$

K67 820Nm				
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]	AD
144.79	9.7	820	10300	AD ₂
123.54	11	820	10300	
108.03	13	820	10300	
102.62	14	820	10300	
90.04	16	820	10300	
76.37	18	820	10300	
68.95	20	820	10300	
60.66	23	820	10300	
57.28	24	820	10300	
48.77	29	820	10300	
44.32	32	820	10300	
38.39	36	820	10300	
35.62	39	820	10300	
30.22	46	820	10300	AD ₃
27.28	51	820	10300	
24.00	58	800	10500	
22.66	62	780	10700	
19.30	73	760	10800	
17.54	80	740	11000	
15.19	92	700	11300	
13.22	106	670	11500	
12.48	112	530	12300	
10.63	132	500	11800	
9.66	145	480	11500	
8.37	167	440	11100	
7.28	192	420	10700	

K77 1550Nm				
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]	AD
192.18	7.3	1450	16100	AD ₂
179.37	7.8	1450	16100	
154.02	9.1	1550	15400	
135.28	10	1550	15400	
128.52	11	1550	15400	
113.56	12	1550	15400	
97.05	14	1550	15400	
88.97	16	1550	15400	
78.07	18	1550	15400	
73.99	19	1550	15400	
64.75	22	1550	15400	
58.34	24	1550	15400	
51.18	27	1550	15400	
45.16	31	1550	15400	
40.04	35	1550	15400	AD ₃
38.39	36	1550	15400	
35.20	40	1550	15400	
30.89	45	1550	15400	
29.27	48	1550	15400	
25.62	55	1550	15400	
23.08	61	1550	15400	
20.25	69	1550	15700	
17.87	78	1450	16100	
15.84	88	1400	15500	
13.52	104	1340	14800	
12.36	113	1000	15100	
10.84	129	990	14400	
9.56	146	940	13900	
8.48	165	890	13500	
7.24	193	820	13100	

K87 2700Nm					
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]	AD	
197.37	7.1	2700	27300	AD ₂	
174.19	8.0	2700	27300		
164.34	8.5	2700	27300		
147.32	9.5	2700	27300		
126.91	11	2700	27300		
115.82	12	2700	27300		
102.71	14	2700	27300		
86.34	16	2700	27300		
79.34	18	2700	27300		AD ₃
70.46	20	2700	27300		
63.00	22	2700	26200		
56.64	25	2700	25000		
49.16	28	2700	23500		
44.02	32	2600	22800		
36.52	38	2500	21400		
31.39	45	2700	19200	AD ₄	
27.88	50	2600	18500		
24.92	56	2500	18000		
22.41	62	2300	17900		
19.45	72	2300	16800		
17.42	80	2200	16300		
16.00	87	1800	16000		
14.45	97	2100	15300		
12.56	111	2000	14800		
11.17	125	1500	14900		
10.00	140	1500	14200		AD ₅
8.29	169	1400	13500		
7.21	194	1300	13200		

K 157-187 $n_a=1400 r/min$

K157 18000Nm					
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]	AD	
150.41	9.3	18000	112200	AD5	
122.39	11	18000	106500		
100.22	14	18000	98000		
91.65	15	18000	94400		
79.75	18	18000	88900		
70.38	20	18000	84200		
61.02	23	18000	79000		
54.29	26	18000	74900		AD6
46.79	30	18000	70000		AD7
38.02	37	18000	63300		
31.30	45				



K47/57/67RF37 $n_a=1400$ r/min

K47/RF37		400Nm	
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]
10138	0.14	400	5920
8534	0.16	400	5920
7662	0.18	400	5920
6826	0.21	400	5920
5983	0.23	400	5920
5159	0.27	400	5920
4601	0.30	400	5920
3940	0.36	400	5920
3477	0.40	400	5920
3043	0.46	400	5920
2733	0.51	400	5920
2354	0.59	400	5920
2063	0.68	400	5920
1819	0.77	400	5920
1586	0.88	400	5920
1388	1.0	400	5920
1222	1.1	400	5920
1097	1.3	400	5920
945	1.5	400	5920
831	1.7	400	5920
718	1.9	400	5920
639	2.2	400	5920
552	2.5	400	5920
495	2.8	400	5920
426	3.3	400	5920
375	3.7	400	5920
327	4.3	400	5920
289	4.8	400	5920
256	5.5	400	5920
225	6.2	400	5920
198	7.1	400	5920
171	8.2	400	5920
153	9.2	400	5920
131	11	400	5920
112	13	400	5920
99	14	400	5920
94	15	400	5920

K57/RF37		600Nm	
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]
12169	0.12	600	7470
11162	0.13	600	7470
9503	0.15	600	7470
8547	0.16	600	7470
7277	0.19	600	7470
6478	0.22	600	7470
5662	0.25	600	7470
5033	0.28	600	7470
4340	0.32	600	7470
3854	0.36	600	7470
3390	0.41	600	7470
2924	0.48	600	7470
2593	0.54	600	7470
2249	0.62	600	7470
1986	0.70	600	7470
1743	0.80	600	7470
1539	0.91	600	7470
1354	1.0	600	7470
1174	1.2	600	7470
1036	1.4	600	7470
906	1.5	600	7470
806	1.7	600	7470
699	2.0	600	7470
615	2.3	600	7470
544	2.6	600	7470
473	3.0	600	7470
421	3.3	600	7470
362	3.9	600	7470
319	4.4	600	7470
280	5.0	600	7470
246	5.7	600	7470
215	6.5	600	7470
192	7.3	600	7470
166	8.4	600	7470
145	9.7	600	7470
129	11	600	7470
111	13	600	7470
97	14	600	7470

K67/RF37		820Nm	
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]
12139	0.12	820	10300
11134	0.13	820	10300
9479	0.15	820	10300
8173	0.17	820	10300
7259	0.19	820	10300
6462	0.22	820	10300
5648	0.25	820	10300
4846	0.29	820	10300
4329	0.32	820	10300
3750	0.37	820	10300
3315	0.42	820	10300
2917	0.48	820	10300
2532	0.55	820	10300
2244	0.62	820	10300
1981	0.71	820	10300
1739	0.81	820	10300
1535	0.91	820	10300
1351	1.0	820	10300
1171	1.2	820	10300
1034	1.4	820	10300
903	1.6	820	10300
793	1.8	820	10300
697	2.0	820	10300
613	2.3	820	10300
542	2.6	820	10300
471	3.0	820	10300
420	3.3	820	10300
361	3.9	820	10300
323	4.3	820	10300
279	5.0	820	10300
246	5.7	820	10300
217	6.5	820	10300
191	7.3	820	10300
166	8.4	820	10300
144	9.7	820	10300
122	11	820	10300

K 77RF37 ,K87/97RF57 $n_a=1400$ r/min

K77/RF37		1550Nm	
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]
15310	0.09	1550	15400
14043	0.10	1550	15400
11955	0.12	1550	15400
10217	0.14	1550	15400
8809	0.16	1550	15400
7528	0.19	1550	15400
6606	0.21	1550	15400
5774	0.24	1550	15400
5089	0.28	1550	15400
4489	0.31	1550	15400
3961	0.35	1550	15400
3485	0.40	1550	15400
2901	0.48	1550	15400
2717	0.52	1550	15400
2370	0.59	1550	15400
2050	0.68	1550	15400
1772	0.79	1550	15400
1514	0.92	1550	15400
1388	1.0	1550	15400
1218	1.1	1550	15400
1053	1.3	1550	15400
924	1.5	1550	15400
815	1.7	1550	15400
709	2.0	1550	15400
622	2.3	1550	15400
552	2.5	1550	15400
485	2.9	1550	15400
428	3.3	1550	15400
367	3.8	1550	15400
328	4.3	1550	15400
290	4.8	1550	15400
252	5.6	1550	15400
221	6.3	1550	15400
195	7.2	1550	15400
175	8.0	1550	15400
154	9.1	1550	15400

K87/RF57		2700Nm	
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]
14829	0.09	2700	27300
13168	0.11	2700	27300
11737	0.12	2700	27300
10217	0.14	2700	27300
9073	0.15	2700	27300
7854	0.18	2700	27300
6832	0.20	2700	27300
5930	0.24	2700	27300
5240	0.27	2700	27300
4562	0.31	2700	27300
4037	0.35	2700	27300
3609	0.39	2700	27300
3107	0.45	2700	27300
2728	0.51	2700	27300
2371	0.59	2700	27300
2088	0.67	2700	27300
1854	0.76	2700	27300
1657	0.84	2700	27300
1415	0.99	2700	27300
1229	1.1	2700	27300
1078	1.3	2700	27300
951	1.5	2700	27300
837	1.7	2700	27300
726	1.9	2700	27300
638	2.2	2700	27300
562	2.5	2700	27300
474	3.0	2700	27300
426	3.3	2700	27300
373	3.8	2700	27300
330	4.2	2700	27300
294	4.8	2700	27300
250	5.6	2700	27300
236	5.9	2700	27300
201	7.0	2700	27300
183	7.7	2700	27300
159	8.8	2700	27300
141	9.9	2700	27400

K97/RF57		4300Nm	
i	n_a [r/min]	M_{amax} [N/m]	F_{ra} [N]
18091	0.08	4300	40000
16666	0.08	4300	40000
14897	0.09	4300	40000
13182	0.11	4300	40000
11677	0.12	4300	40000
10317	0.14	4300	40000
9083	0.15	4300	40000
8054	0.17	4300	40000
6970	0.20	4300	40000
6027	0.23	4300	40000
5391	0.26	4300	40000
4669	0.30	4300	40000
4082	0.34	4300	40000
3583	0.39	4300	40000
3108	0.45	4300	40000
2757	0.51	4300	40000
2419	0.58	4300	40000
2123	0.66	4300	40000
1856	0.75	4300	40000
1625	0.86	4300	40000
1430	0.98	4300	40000
1261	1.1	4300	40000
1102	1.3	4300	40000
957	1.5	4300	40000
855	1.6	4300	40000
743	1.9	4300	40000
652	2.1	4300	40000
573	2.4	4300	40000
504	2.8	4300	40000
437	3.2	4300	40000
382	3.7	4300	40000
342	4.1	4300	40000
305	4.6	4300	40000
258	5.4	4300	40000
232	6.0	4300	40000
199	7.0	4300	40000



Table for 0.25kW geared motor specifications. Columns: Output speed, Output torque, Ratio, Permitted overhung load, Service factor, Model. Rows list various gear ratios and corresponding motor models like 57/RF37WSS0.25KW-4.

Table for 0.37kW geared motor specifications. Columns: Output speed, Output torque, Ratio, Permitted overhung load, Service factor, Model. Rows list various gear ratios and corresponding motor models like 127/RF77WSS0.37KW-4.

Table for 0.37kW geared motor specifications. Columns: Output speed, Output torque, Ratio, Permitted overhung load, Service factor, Model. Rows list various gear ratios and corresponding motor models like 67/RF37WSS0.37KW-4.

Table for 0.55kW geared motor specifications. Columns: Output speed, Output torque, Ratio, Permitted overhung load, Service factor, Model. Rows list various gear ratios and corresponding motor models like 187/RF97WSS0.55KW-4.

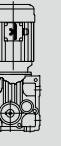
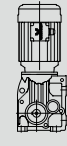


Table with 7 columns: Output speed (n_a), Output torque (M_a), Ratio (i), Permitted overhung load (F_ra), Service factor (f_b), Model, and Model. Rows include 1.5kW, 2.2kW, and 3.0kW power ratings.

Table with 7 columns: Output speed (n_a), Output torque (M_a), Ratio (i), Permitted overhung load (F_ra), Service factor (f_b), Model, and Model. Rows include 1.5kW, 2.2kW, and 3.0kW power ratings.

Table with 7 columns: Output speed (n_a), Output torque (M_a), Ratio (i), Permitted overhung load (F_ra), Service factor (f_b), Model, and Model. Rows include 2.2kW, 3.0kW, and 4.0kW power ratings.

Table with 7 columns: Output speed (n_a), Output torque (M_a), Ratio (i), Permitted overhung load (F_ra), Service factor (f_b), Model, and Model. Rows include 2.2kW, 3.0kW, and 4.0kW power ratings.

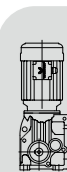
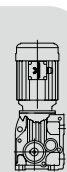


Table with 6 columns: Output speed (r/min), Output torque (N·m), Ratio, Permitted overhung load (N), Service factor, and Model. It lists specifications for 3.0kW and 4.0kW motor models.

Table with 6 columns: Output speed (r/min), Output torque (N·m), Ratio, Permitted overhung load (N), Service factor, and Model. It lists specifications for 3.0kW and 4.0kW motor models.

Table with 6 columns: Output speed (r/min), Output torque (N·m), Ratio, Permitted overhung load (N), Service factor, and Model. It lists specifications for 3.0kW and 4.0kW motor models.

Table with 6 columns: Output speed (r/min), Output torque (N·m), Ratio, Permitted overhung load (N), Service factor, and Model. It lists specifications for 4.0kW and 5.0kW motor models.

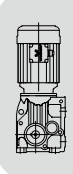
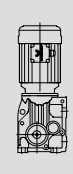


Table with 8 columns: Output speed (na), Output torque (Ma), Ratio (i), Permitted load (FRa), Service factor (fb), and Model. It lists specifications for 22kW and 30kW gear motors across various models like WSS22KW-4 and WSS30KW-4.

Table with 8 columns: Output speed (na), Output torque (Ma), Ratio (i), Permitted load (FRa), Service factor (fb), and Model. It lists specifications for 30kW and 37kW gear motors across various models like WSS30KW-4 and WSS37KW-4.

Table with 8 columns: Output speed (na), Output torque (Ma), Ratio (i), Permitted load (FRa), Service factor (fb), and Model. It lists specifications for 37kW and 45kW gear motors across various models like WSS37KW-4 and WSS45KW-4.

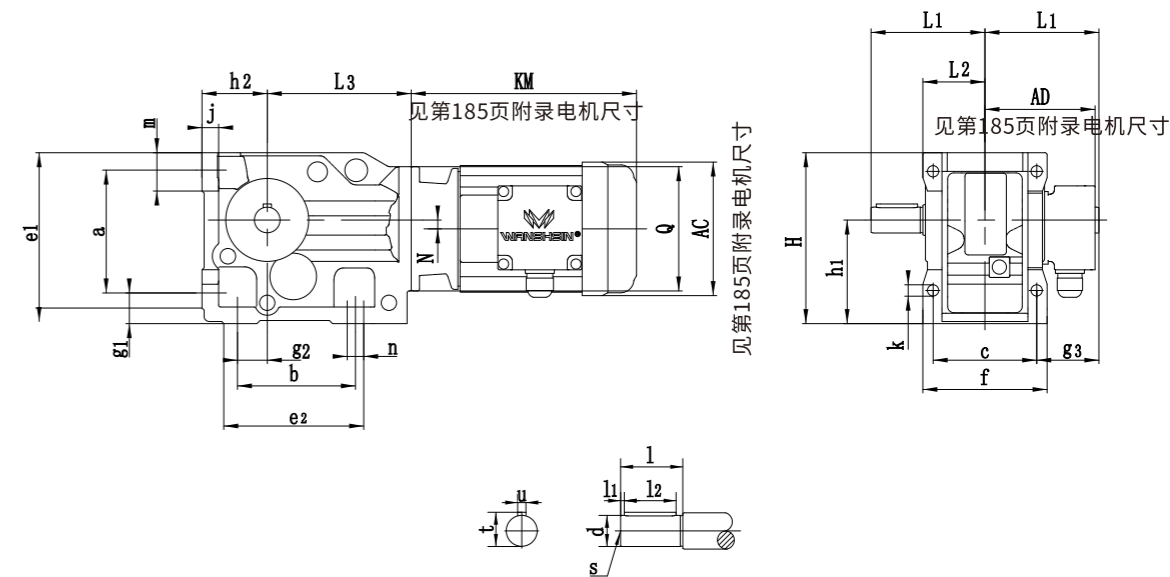
Table with 8 columns: Output speed (na), Output torque (Ma), Ratio (i), Permitted load (FRa), Service factor (fb), and Model. It lists specifications for 45kW, 55kW, and 75kW gear motors across various models like WSS45KW-4, WSS55KW-4, and WSS75KW-4.



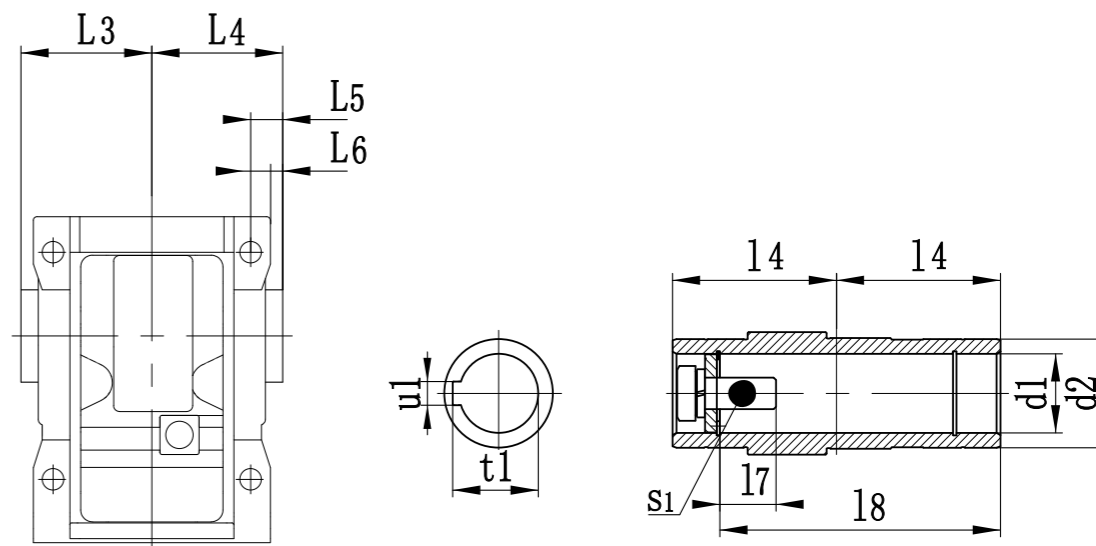
输出转速 Output speed n_a [r/min]	输出转矩 Output torque M_a [N·m]	传动比 Ratio i	径向负荷 Permitted load F_{Ra} [N]	使用系数 Service factor f_b	机型号 Model	
90kW						
14	59300	102.16	151300	0.85	K 187 WSS90KW-4	
17	51100	88.00	153400	0.95		
20	42900	73.96	154200	1.10		
23	37200	64.04	153800	1.25		
28	31000	53.36	152200	1.60		
33	26400	45.50	149900	1.90		
35	24700	42.51	148700	2.0		
38	22400	38.57	146900	2.2		
22	39500	68.07	115100	0.80	K 167 WSS90KW-4	
24	35300	60.74	116600	0.90		
29	30100	51.77	117600	1.05		
35	24900	42.89	117600	1.30		
40	21300	36.61	116700	1.50		
46	18700	32.25	115500	1.70		
51	16700	28.77	114200	1.90		
60	14200	24.52	111900	2.2		
73	11800	20.32	108800	2.7		
85	10100	17.34	106000	3.2		
39	22100	38.02	52700	0.80		K 157 WSS90KW-4
47	18200	31.30	55500	1.00		
54	16000	27.62	56700	1.10		
62	13900	23.95	57500	1.30		
69	12400	21.31	57900	1.45		
81	10700	18.37	57900	1.70		
99	8670	14.92	57400	2.1		
117	7350	12.65	56600	2.3		
62	13900	23.91	36400	0.95	K 127 WSS90KW-4	
70	12300	21.15	37800	1.05		
83	10300	17.77	39200	1.25		
103	8330	14.35	40200	1.45		
116	7420	12.79	37600	1.15		
138	6240	10.74	38000	1.30		
171	5040	8.68	38000	1.45		
110kW						
17	62300	88.00	136000	0.80	K 127 WSS110KW-4	
20	52300	73.96	139500	0.95		
23	45300	64.04	141000	1.10		
28	37700	53.36	141500	1.30		
33	32200	45.50	140800	1.55		
35	30100	42.51	140200	1.65		
39	27300	38.57	139100	1.85		
45	23500	33.23	137000	2.1		
53	19800	27.92	134000	2.5		
29	36600	51.77	105500	0.85		K 167 WSS110KW-4
35	30300	42.89	107500	1.05		
41	25900	36.61	108100	1.25		
46	22800	32.25	107900	1.40		
52	20400	28.77	107400	1.55		
61	17300	24.52	106100	1.85		
73	14400	20.32	104000	2.2		
86	12300	17.34	101800	2.6		
62	16900	23.95	50800	1.05	K 157 WSS110KW-4	
70	15100	21.31	51900	1.20		
81	13000	18.37	52700	1.40		
100	10600	14.92	53100	1.70		
117	8950	12.65	53000	1.90		
132kW						
20	62800	73.96	123300	0.80		K 187 WSS110KW-4
23	54400	64.04	127000	0.90		
28	45300	53.36	129800	1.10		
33	38600	45.50	130800	1.30		
35	36100	42.51	130900	1.40		
39	32700	38.57	130700	1.55		
45	28200	33.23	129800	1.75		
53	23700	27.92	127900	2.1		
61	20500	24.18	125900	2.3		
74	17100	20.15	122800	2.6		
86	14600	17.18	119700	2.8		
35	36400	42.89	96400	0.90	K 167 WSS110KW-4	
41	31100	36.61	98600	1.05		
46	27400	32.25	99600	1.15		
52	24400	28.77	99900	1.30		
61	20800	24.52	99800	1.55		
73	17200	20.32	98700	1.85		
86	14700	17.34	97300	2.2		
62	20300	23.95	43400	0.90		K 157 WSS132KW-4
70	18100	21.31	45300	1.00		
81	15600	18.37	47000	1.15		
100	12700	14.92	48500	1.40		
117	10700	12.65	49100	1.60		

输出转速 Output speed n_a [r/min]	输出转矩 Output torque M_a [N·m]	传动比 Ratio i	径向负荷 Permitted load F_{Ra} [N]	使用系数 Service factor f_b	机型号 Model	
160kW						
28	54900	53.36	114900	0.90	K 187 WSS60KW	
33	46800	45.50	118100	1.05		
45	34200	33.23	120500	1.45		
53	28700	27.92	120100	1.75		
61	24900	24.18	119100	1.90		
74	20700	20.15	117200	2.1		
86	17700	17.18	114900	2.3		
41	37700	36.61	86500	0.85		K 167 WSS160KW-4
61	25200	24.52	91700	1.25		
73	20900	20.32	92000	1.55		
86	17800	17.34	91600	1.80		
81	18900	18.37	39800	0.95	K 157 WSS160KW-4	
100	15400	14.92	42600	1.15		
117	13000	12.65	44100	1.30		
200kW						
33	58500	45.50	100000	0.85		K 187 WSS200KW-4
45	42700	33.23	107300	1.15		
53	35900	27.92	109000	1.40		
61	31100	24.18	109500	1.55		
74	25900	20.15	109100	1.70		
86	22100	17.18	108100	1.85		
61	31500	24.52	80100	1.00	K 167 WSS200KW-4	
73	26100	20.32	82400	1.20		
86	22300	17.34	83400	1.45		
100	19200	14.92	34200	0.95		K 157 WSS200KW-4
117	16300	12.65	36900	1.05		

K37..~K157..



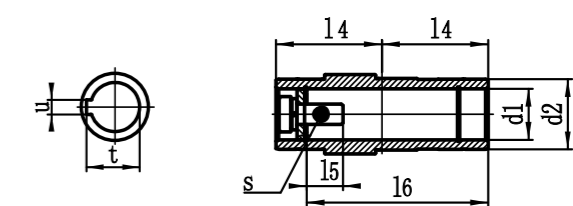
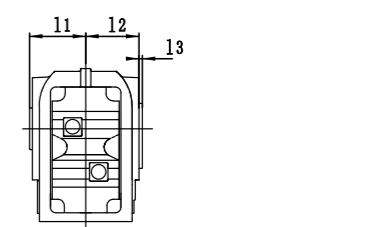
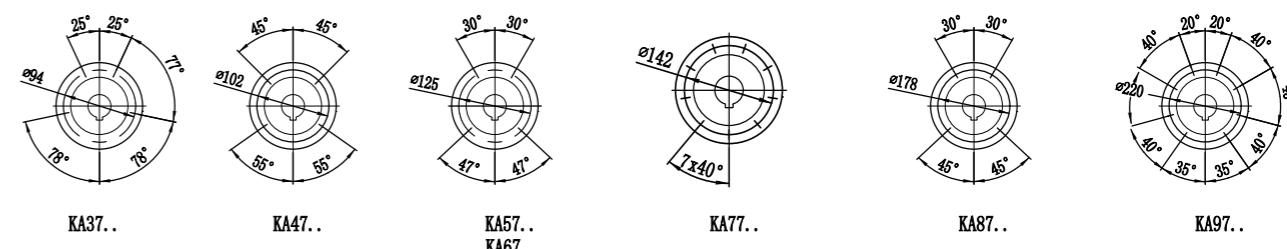
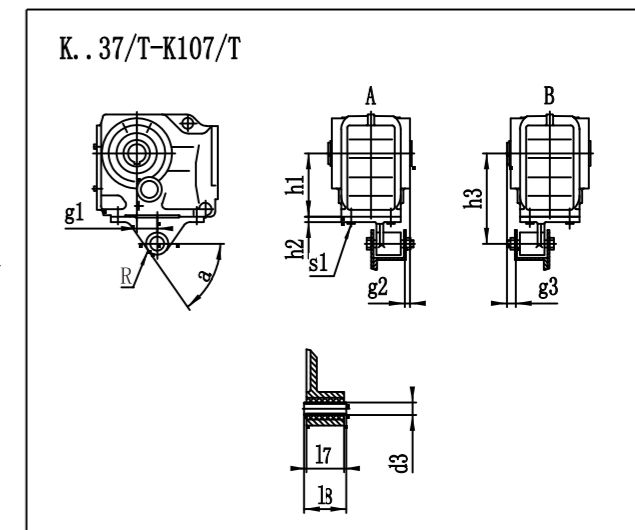
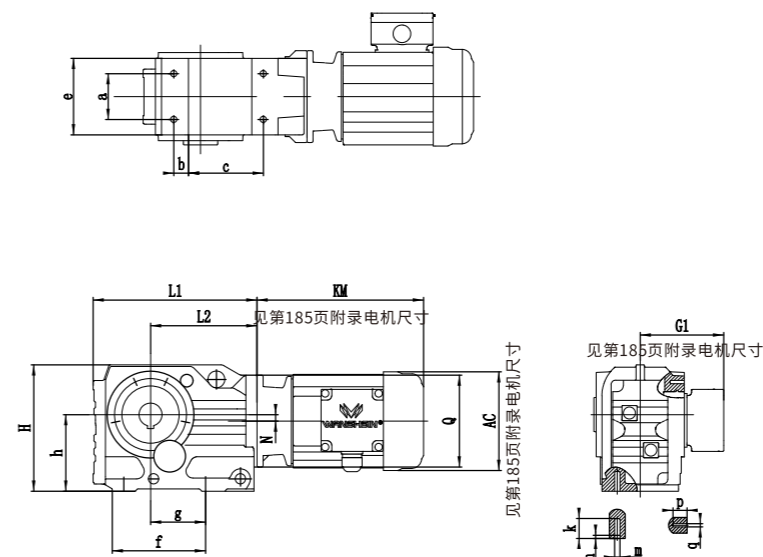
KA37B..~KA157B..



型号 Size	a b c	e1 e2 f	g1 g2 g3	h1 h2	j	k	m n	轴伸尺寸 Shaft dimension				
								d	l	l1 l2	s	t u
K37.. KA37B..	115 110 100	150 143 120	32 28 60	100 ^{-0.5} 63 ^{-0.5}	16	11	37 38	25k6	50	5 40	M10	28 8
K47.. KA47B..	130 130 120	170 162 145	37 35 75	112 ^{-0.5} 71 ^{-0.5}	18	11	37 32	30k6	60	3.5 50	M10	33 8
K57.. KA57B..	150 130 130	190 172 157	45 30 88	132 ^{-0.5} 80 ^{-0.5}	21	13.5	43 30	35k6	70	7 56	M12	38 10
K67.. KA67B..	160 120 140	203 170 170	45 30 101	140 ^{-0.5} 90 ^{-0.5}	24	13.5	43 45	40k6	80	5 70	M16	43 12
K77.. KA77B..	200 150 165	263 208 200	55 40 123.5	180 ^{-0.5} 112 ^{-0.5}	27	17.5	55 55	50k6	100	10 80	M16	53.5 14
K87.. KA87B..	233 180 180	305 260 230	70 55 150	212 ^{-0.5} 132 ^{-0.5}	32	22	67 75	60m6	120	5 110	M20	64 18
K97.. KA97B..	295 240 240	372 294 290	75 75 171	265 ⁻¹ 160 ^{-0.5}	36	26	82 60	70m6	140	7.5 125	M20	74.5 20
K107.. KA107B..	360 280 270	448 380 340	95 95 212	315 ⁻¹ 200 ^{-0.5}	40	33	98 100	90m6	170	5 160	M24	95 25
K127.. KA127B..	420 350 330	526 440 400	110 115 253	375 ⁻¹ 225 ^{-0.5}	45	39	111 100	110m6	210	15 180	M24	116 28
K157.. KA157B..	500 380 420	634 480 500	130 140 247	450 ⁻¹ 280 ^{-0.5}	50	39	130 100	120m6	210	5 200	M24	127 32

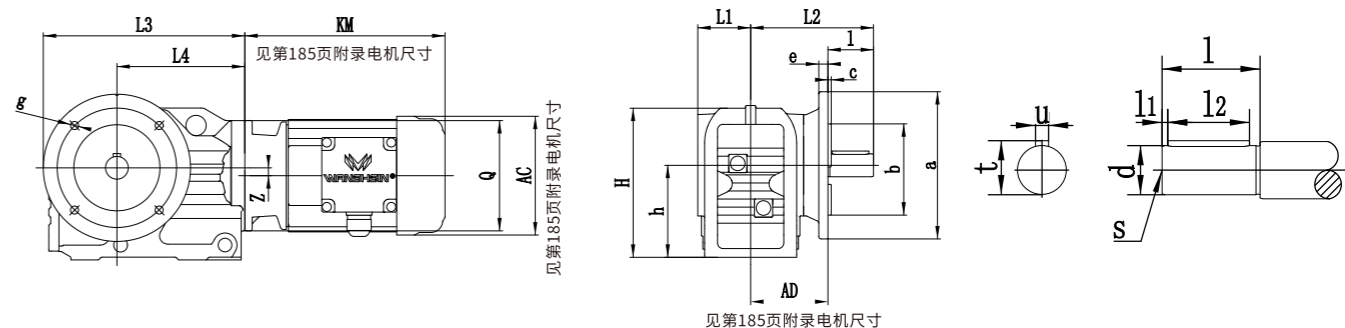
型号 Size	空心轴尺寸 Hollow shaft dimension							H	L1 L2	L3	N	Q
	d1	d2	l3 l4	l5 l6	l7 l8	s1	t1 u1					
K37.. KA37B..	-	-	-	-	-	-	-	165	110 60	139	8.5	120
K47.. KA47B..	35 ^{H7}	50	78 75	15 3	22 132	M12X30	38.3 10	185	135 72	166	7.2	160
K57.. KA57B..	40 ^{H7}	55	86 83	18 3	29 142	M16X40	43.3 12	217	153 80	173	13.1	160
K67.. KA67B..	40 ^{H7}	55	93 90	20 3.5	29 156	M16X40	43.3 12	228	171 86.5	179	20	160
K77.. KA77B..	50 ^{H7}	70	108 105	22.5 4	32 183	M16X45	53.8 14	288	206 101	202	31.3	200
K87.. KA87B..	60 ^{H7}	85	123 120	30 4	36 210	M20X50	64.4 18	340	240 116	257	25.9	250
K97.. KA97B..	70 ^{H7}	95	153 150	30 4	34 270	M20X50	74.9 20	417	291 146	277	32.3	300
K107.. KA107B..	90 ^{H7}	118	178 175	40 2.5	40 313	M24X60	95.4 25	503	347 175	341	52	350
K127.. KA127B..	100 ^{H7}	135	208 205	40 2.5	38 373	M24X60	106.4 28	592	418 203	390	53	450
K157.. KA157B..	120 ^{H7}	155	253 250	40	36 460	M24X60	127.4 32	705	457 250	426	71.7	550

KA37/T..~KA107

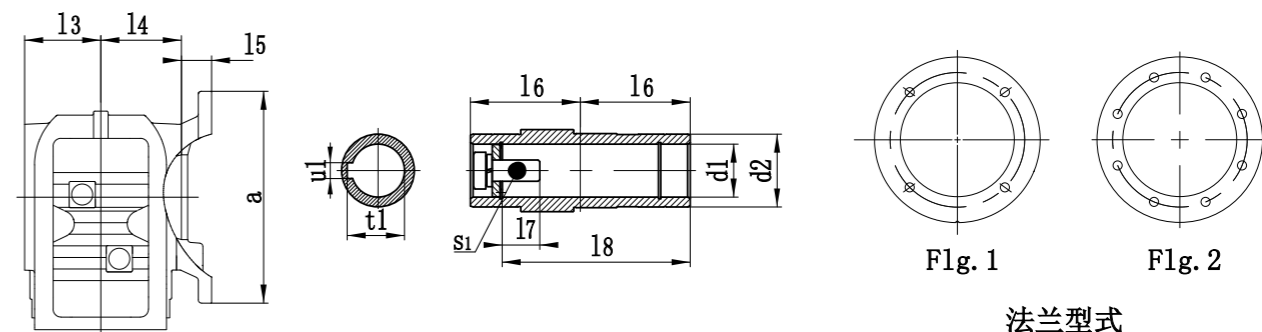


型号 Size	a b c	e f g	h	k m n	p q	空心轴尺寸 Hollow shaft dimension				扭矩臂尺寸 Torque arm form				H L ₂ L ₃	N Q
						d ₁ d ₂	l ₁ l ₂	l ₄ l ₅ l ₆	s t u	g ₁ g ₂ g ₃	h ₁ h ₂ h ₃	d ₃ l ₇ l ₈	r s ₁ s _c		
KA 37.. K..37/T..	60 35 82	100 147 97	100-0.5	20 M10 4	12 M8	30 ^{+0.17} 45	63 60 2.5	60 17 105	M10 33.3 8	23.5 20 20	100-0.5 10 140 ^{+0.2} _{-0.7}	10.4±0.1 31 36-0.3	22.5 M10X25 60°	164 210 139	8.5 120
KA 47.. K..47/T..	70 40 100	110 170 115	112-0.5	20 M10 4	12 M8	35 ^{+0.17} 50	78 75 3	75 22 132	M12 38.3 10	30 20 20	112-0.5 12 160 ^{+0.2} _{-0.7}	10.4±0.1 31 36-0.3	22.5 M10X30 55°	185 243 166	7.2 160
KA 57.. K..57/T..	88 47 105	122 182 120	132-0.5	25 M12 5	20 M12	40 ^{+0.17} 55	86 83 3	83 29 142	M16 43.3 12	40 18 18	132-0.5 13 192 ^{+0.2} _{-0.7}	16.4±0.08 54 60-0.3	29 M12X35 55°	215 269 173	13.1 160
KA 67.. K..67/T..	88 42 110	130 182 125	140-0.5	25 M12 5	20 M12	40 ^{+0.17} 55	94 90 3.5	90 29 156	M16 43.3 12	45 25 25	140-0.5 13 200 ^{+0.2} _{-0.7}	16.4±0.08 54 60-0.3	29 M12X35 55°	226 274 179	20 160
KA 77.. K..77/T..	102 48 122	154 204 139	180-0.5	32 M16 6	20 M12	50 ^{+0.17} 70	108 105 4	105 32 183	M16 53.8 14	52.5 25 25	180-0.5 14 250 ^{+0.2} _{-0.7}	16.4±0.08 54 60-0.3	29 M16X40 60°	286 312 202	31.3 200
KA 87.. K..87/T..	118 65 160	170 280 190	212-0.5	32 M16 6	26 M16	60 ^{+0.17} 85	123 120 4	120 36 4	M20 64.4 18	60 30 30	212-0.5 16 300 ^{+0.2} _{-0.7}	25±0.08 72 80-0.3	41 M16X45 60°	338 390 257	25.9 250
KA 97.. K..97/T..	160 83 165	226 298 190	265-1	36 M20 6	26 M16	70 ^{+0.17} 95	153 150 4	150 34 270	M20 74.9 20	70 40 40	265-1 17 350 ^{+0.2} _{-1.2}	25±0.08 92 100-0.3	41 M20X50 50°	414 435 277	32.3 300
KA 107.. K..107/T..	190 100 190	266 370 230	315-1	44 M24 8	- -	90 ^{+0.17} 118	178 175 2.5	175 40 313	M24 95.4 25	74 45 45	315-1 20 450 ^{+0.5} _{-1.5}	25±0.08 92 100-0.3	41 M24X60 55°	500 537 341	52 350

KF37..~KF157..



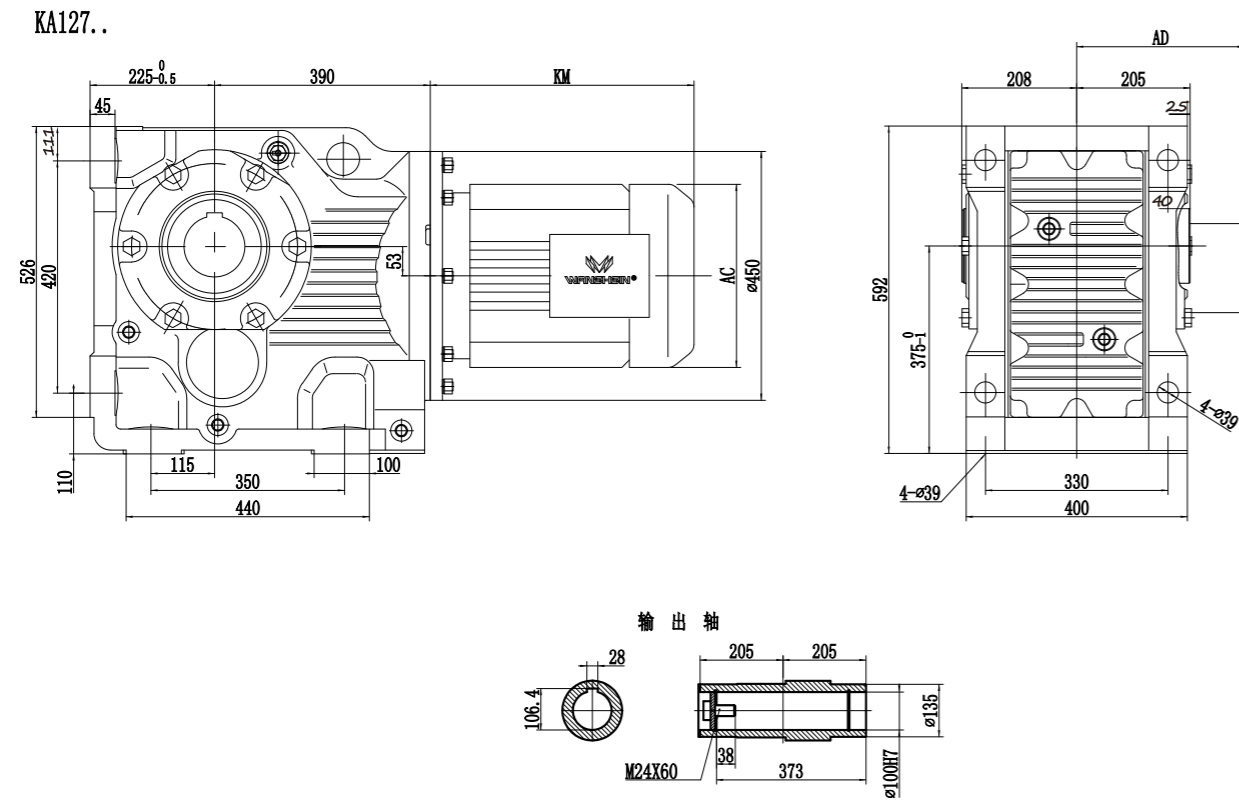
KAF37..~KAF157..



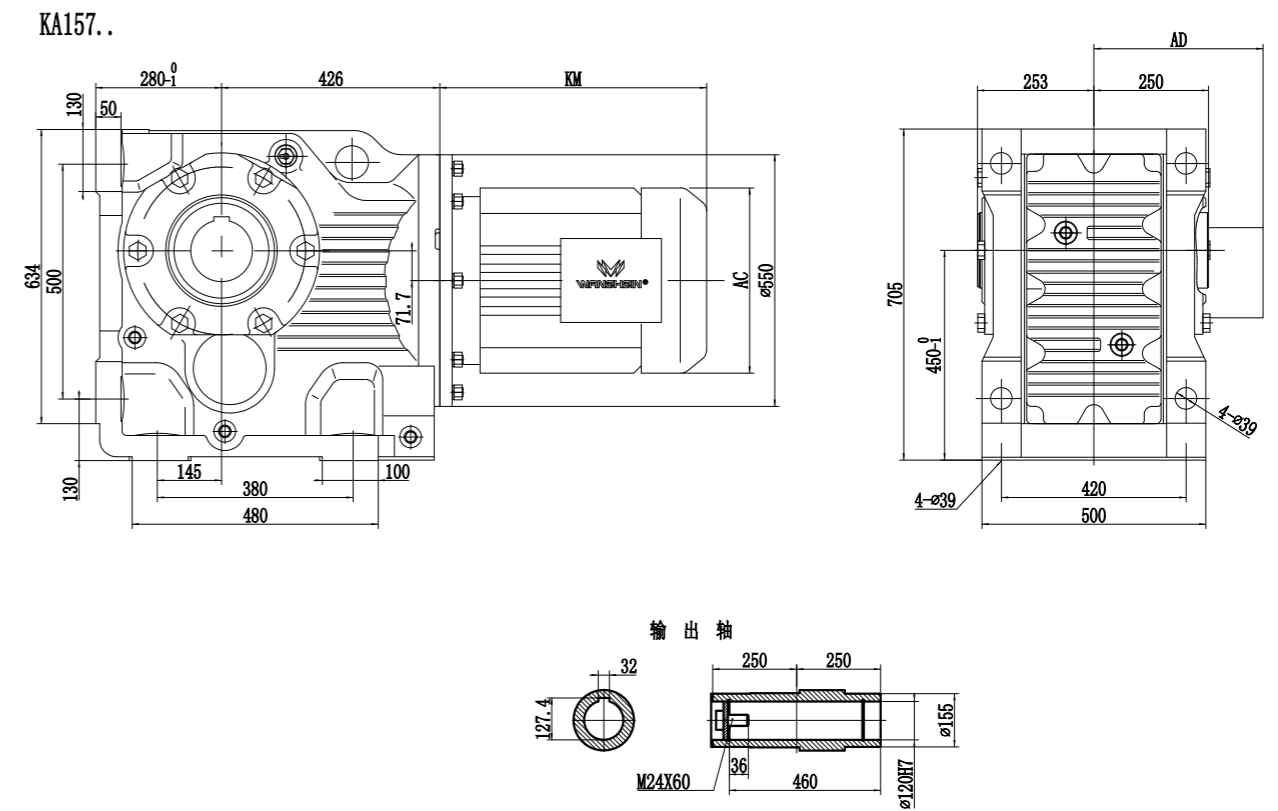
法兰型式
Flange form

型号 Size	a b c	e m D	D ₁ D ₂ L	L ₁ L ₂ L ₃	L ₄ f n	l	l ₁	l ₂	l ₃	l ₄	l ₅	l ₆	d	d ₁	d ₂	d ₃	u	T	s
KF37.. KHZ37..	3 11.5 12	9 M8 80j6	110 9 139	210 97 147	60 94 8.5	60	17	105	63	-	-	-	30H7	45	-	-	8	33.3	M10*25
KF47.. KHZ47..	3 11 12	8.5 M8 80j6	120 9 166	243 115 170	75 102 7.2	75	22	132	78	-	-	-	35H7	50	-	-	10	38.3	M12*25
KF57.. KHZ57..	3.5 12 20	9 M12 105j6	155 13.9 173	269 120 182	90 125 13.1	83	29	142	86	-	-	-	40H7	55	-	-	12	43.3	M16*40
KF67.. KHZ67..	3.5 12 20	8.5 M12 105j6	155 13.5 179	274 125 182	105 125 20	90	29	156	94	-	-	-	40H7	55	-	-	12	43.3	M16*40
KF77.. KHZ77..	3.5 14 20	10 M12 125j6	170 13.5 202	312 139 204	105 142 31.3	105	32	183	108	-	-	-	50H7	70	-	-	14	53.8	M16*45
KF87.. KHZ87..	4 15 26	11 M16 155j6	215 17.5 257	390 190 280	120 178 25.9	120	36	210	123	-	-	-	60H7	85	-	-	18	64.4	M20*50
KF97.. KHZ97..	4 18 26	14 M16 180j6	260 17.5 277	435 190 298	150 260 32.5	150	34	270	153	-	-	-	70H7	95	-	-	20	74.9	M20*50
KF107.. KHZ107..	4 22 30	-12 M20 210j6	304 22 341	537 230 370	175 260 52	175	40	313	178	-	-	-	90H7	118	-	-	25	95.4	M24*50
KF127.. KHZ127..	5 30 28	0 M20 250h6	350 22 390	615 288 440	205 300 53	205	38	373	208	-	-	-	100H7	135	-	-	28	106.4	M24*60
KF157.. KHZ157..	5 28 36	-14 M24 290h6	400 26 426	706 298 480	250 340 71.7	250	36	460	253	-	-	-	120H7	155	-	-	32	127.4	-
						330	250	90	80	100	90	370	125H7	155	125h6	315	-	-	-

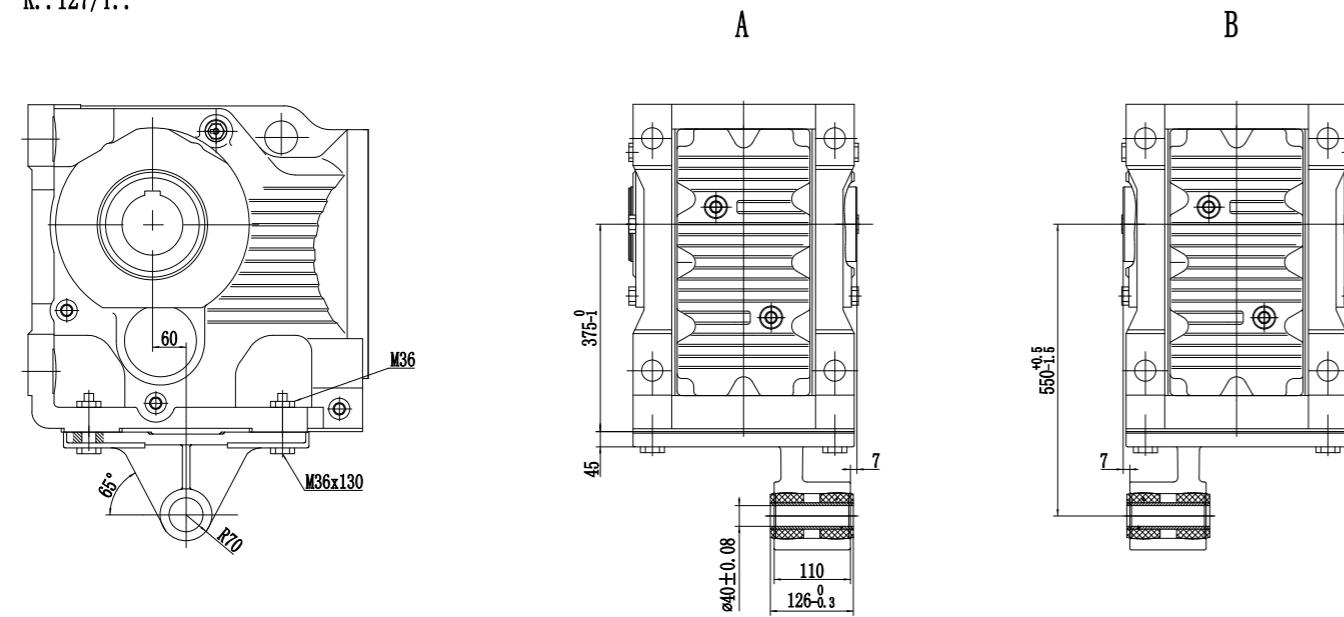
KA127..



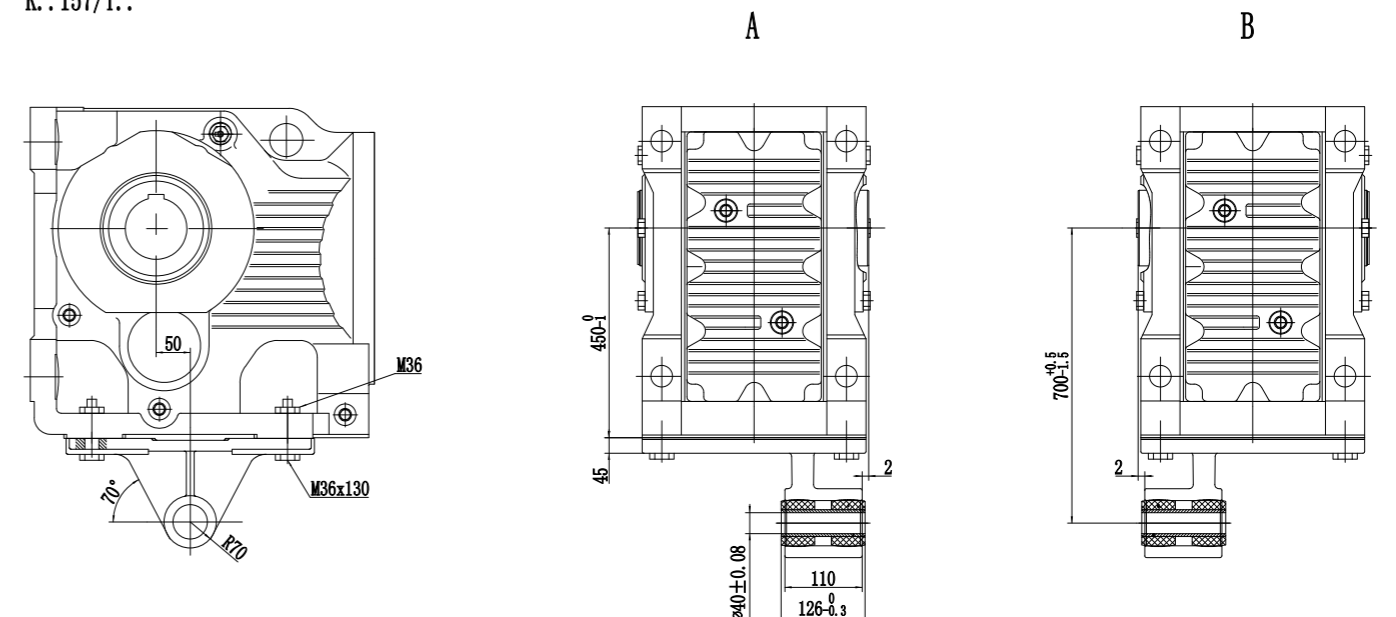
KA157..



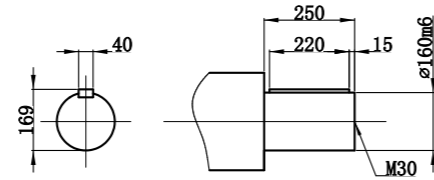
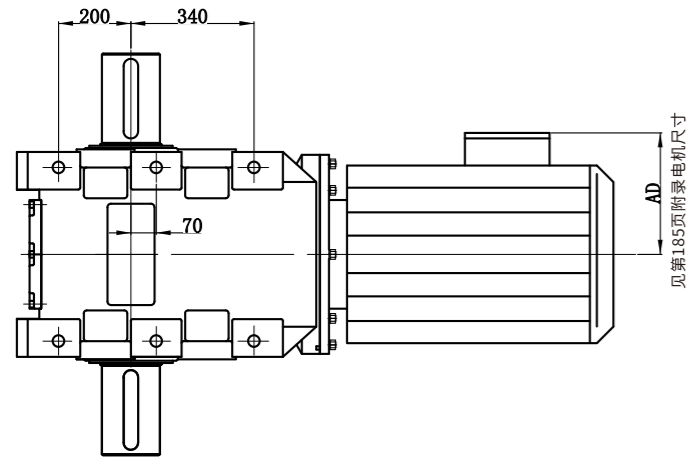
K..127/T..



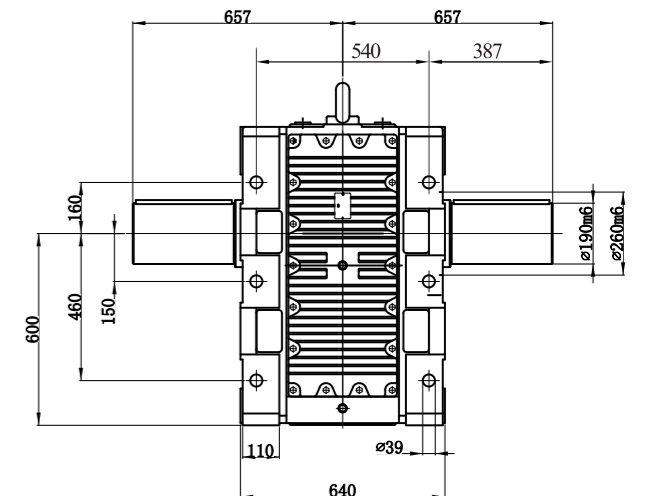
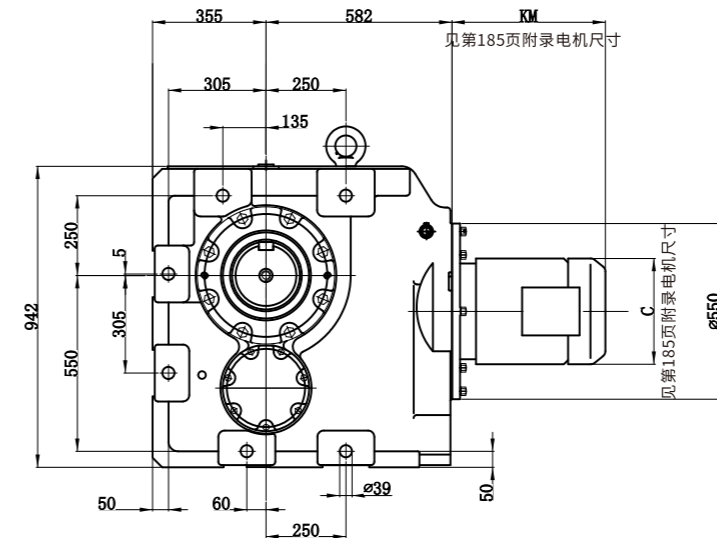
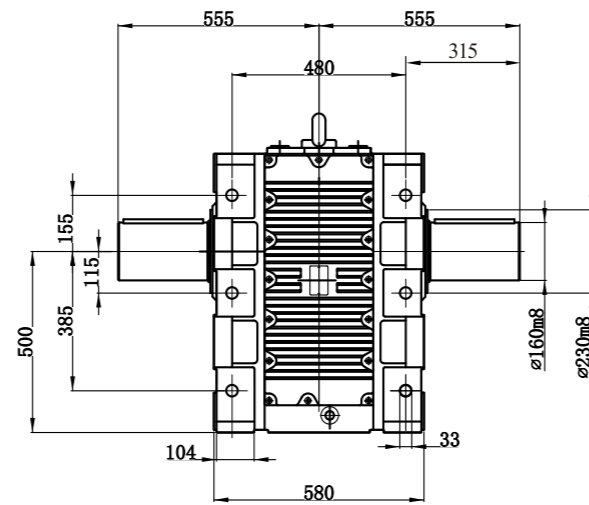
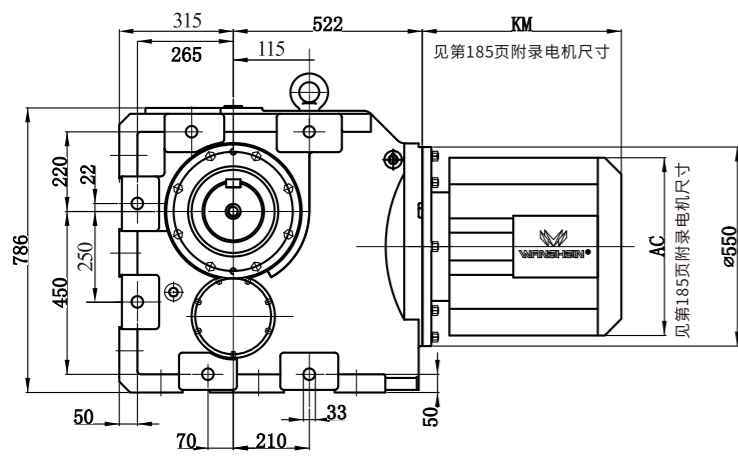
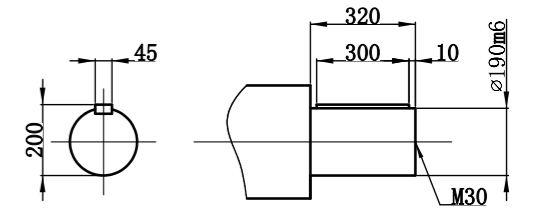
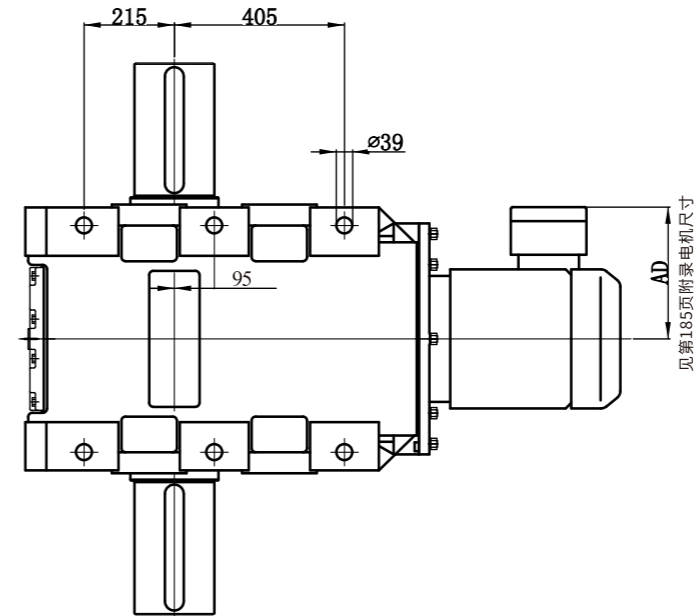
K..157/T..



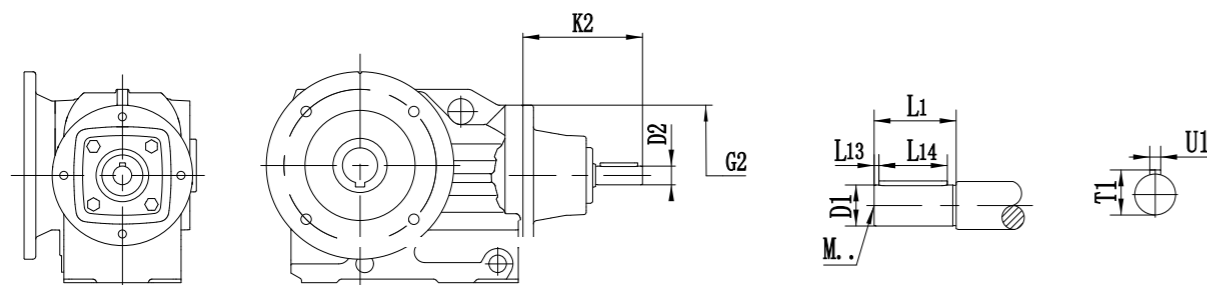
KA167..



KA187..



K..AD..



		G2	K2	D1	L1	L13	L14	T1	U1	M
K..37	AD1	120	102	16	40	4	32	18	5	M5
	AD2		130	19	40	4	32	21.5	6	M6
K..47 K..57 K..67	AD2	160	123	19	40	4	32	21.5	6	M6
	AD3		159	24	50	5	40	27	8	M8
K..77	AD2	200	116	19	40	4	32	21.5	6	M6
	AD3		151	24	50	5	40	27	8	M8
	AD4		224	38	80	5	70	41	10	M12
K..87	AD2	250	111	19	40	4	32	21.5	6	M6
	AD3		156	28	60	5	50	31	8	M10
	AD4		219	38	80	5	70	41	10	M12
	AD5		292	42	110	10	70	45	12	M16
K..97	AD3	300	151	28	60	5	50	31	8	M10
	AD4		214	38	80	5	70	41	10	M12
	AD5		287	42	110	10	70	45	12	M16
K..107	AD6	350	327	48	110	10	80	51.5	14	M16
	AD3		145	28	60	5	50	31	8	M10
	AD4		208	38	80	5	70	41	10	M12
K..127	AD5	450	281	42	110	10	70	45	12	M16
	AD6		321	48	110	10	80	51.5	14	M16
	AD4		193	38	80	5	70	41	10	M12
	AD5		266	42	110	10	70	45	12	M16
K..157 K..167 K..187	AD6	550	306	48	110	10	80	51.5	14	M16
	AD7		300	55	110	10	90	59	16	M20
	AD8		383	70	140	15	110	74.5	20	M20
	AD5		258	42	110	10	70	45	12	M16
K..157 K..167 K..187	AD6	550	298	48	110	10	80	51.5	14	M16
	AD7		292	55	110	10	90	59	16	M20
	AD8		374	70	140	15	110	74.5	20	M20
	AD5		258	42	110	10	70	45	12	M16

K..AM..

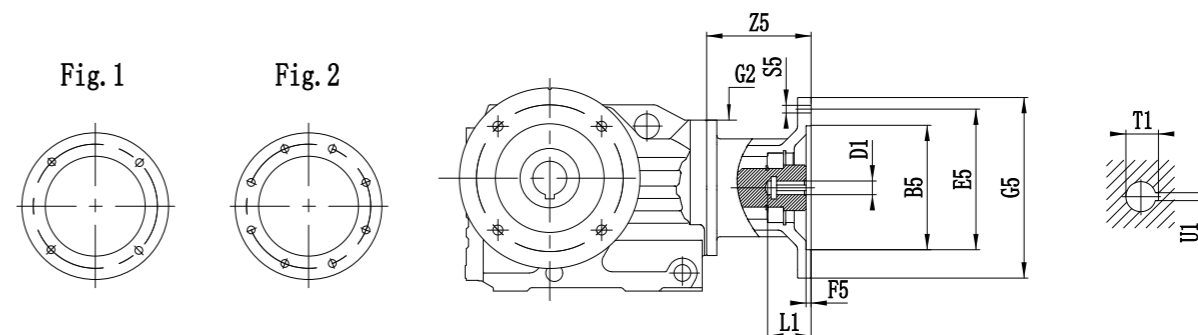


		Fig	B5	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1	
K..37	AM63	Fig1	95	115	3.5	120	140	M8	72	11	23	12.8	4	
	AM71"	1	110	130			14			30	16.3	5		
	AM80"		130	165	4.5		200	M10	106	19	40	21.8	6	
	AM90"		24	50	27.3		8							
K..47 K..57 K..67	AM63	1	95	115	3.5	160	140	M8	66	11	23	12.8	4	
	AM71		110	130			14			30	16.3	5		
	AM80		130	165	4.5		200	M10	99	19	40	21.8	6	
	AM90		24	50	27.3		8							
	AM100"		180	215	5		250	M12	134	28	60	31.3	8	
K..77	AM112"	1	95	115	3.5	200	140	M8	60	11	23	12.8	4	
	AM71		110	130			14			30	16.3	5		
	AM80		130	165	4.5		200	M10	92	19	40	21.8	6	
	AM90		24	50	27.3		8							
	AM100"		180	215	5		250	M12	126	28	60	31.3	8	
	AM112"		230	265	5		300		179	38	80	41.3	10	
	AM132S"		1	230	265		5	250	M12	174	38	80	41.3	10
AM132M"														
AM132ML														
K..87	AM80	1	130	165	4.5	250	200	M10	87	19	40	21.8	6	
	AM90		24	50	27.3		8							
	AM100		180	215	5		250	M12	121	28	60	31.3	8	
	AM112		230	265			300		174	38	80	41.3	10	
	AM132S		1	230	265		5	250	M12	174	38	80	41.3	10
	AM132M													
	AM132ML													
AM160"	1	250	300	6	350	M16	232	42	110	45.3	12			
AM180"								48		51.8	14			
K..97	AM100	1	180	215	5	300	250	M12	116	28	60	31.3	8	
	AM112		230	265			300			169	38	80	41.3	10
	AM132S		1	230	265		5	250	M12	174	38	80	41.3	10
	AM132M													
	AM132ML													
	AM160		1	250	300		6	350	M16	227	42	110	45.3	12
	AM180										48		51.8	14
AM200"	1	300	350	6	400	M16	268	55	110	59.3	16			
AM225"								2		350	400	7	450	283

1). 如果安装右K系列，底脚安装方式的减速机上，请检查尺寸G5/2，它可能已突出安装平面。



K..AM..

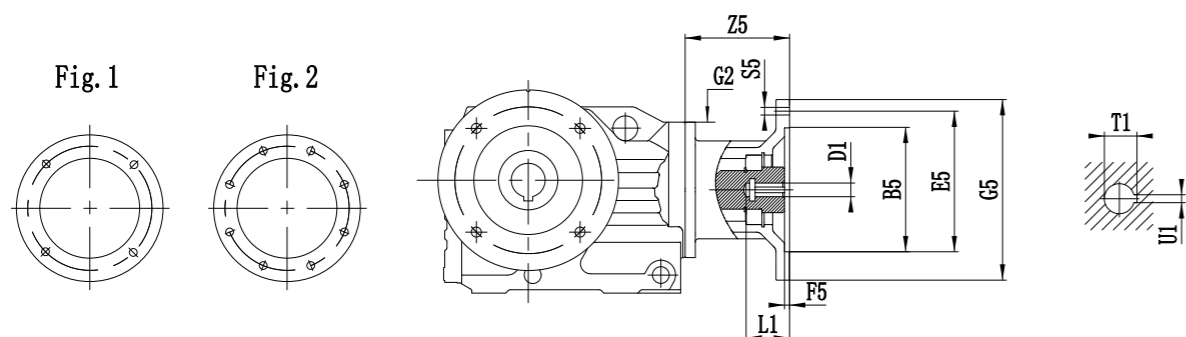
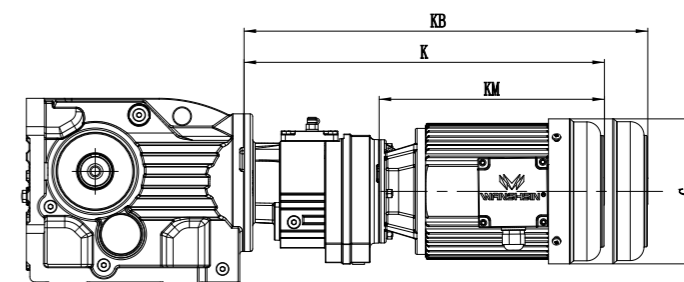


		Fig	B5	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1								
K..107	AM100	1	180	215	5	350	250	M12	110	28	60	31.3	8								
	AM112																				
	AM132S																				
	AM132M																				
	AM132ML	2	230	265	6		350	M16	221	42	110	45.3	12								
	AM160																				
	AM180																				
	Am200																				
Am225	2	300	350	7	400	M16	262	55	140	59.3	16										
Am225																					
Am225		2	350									400	7	450	M16	277	60	140	64.4	18	
Am225																					
Am225	2		450	500	7	550	M16	336	65	140	79.9	20									
Am280																					
AM132S		1	230	265									5	450	300	M12	148	38	80	41.3	10
AM132M																					
AM132ML																					
AM160																					
AM180	2	250	300	6	350	M16	206	42	110	45.3	12										
AM200																					
AM225																					
AM250																					
AM280	2	300	350	7	400	M16	247	55	140	59.3	16										
AM225																					
AM250																					
AM280																					
AM225	2	350	400	7	550	M16	262	60	140	64.4	18										
AM250																					
AM280																					
AM280		2	450									500	7	550	M16	336	65	140	79.9	20	
AM280																					
AM280	2		450	500	7	550	M16	328	65	140	69.4	18									
AM280																					
AM280																					
AM280																					

K..R..



型号组合	功率 (KW)	AC	K	KB	KM	型号组合	功率 (KW)	AC	K	KB	KM
K..47R37 K..57R37	0.18	129	371.5	408	206.5	K..127R87	1.1-1.5	192	578	623.5	298
	0.25-0.37	129	372/384.5	407.5/421	207/219.5		2.2	219	602.5	664.5	322.5
	0.55-0.75	169	411.5/412	456.5/457	246.5/247		3	219	602.5	664.5	322.5
K..67R37	0.18	129	371.5	408	206.5		4	219	618.5	680.5	338.5
	0.25-0.37	129	372/384.5	407.5/421	207/219.5		5.5	257	689	757	409
	0.55-0.75	169	411.5/412	456.5/457	246.5/247		7.5	257	732	800	452
K..77R37	1.1-1.5	192	463	508.5	298		9.2	257	732	800	452
	0.18	129	363.5	400	206.5		11	318	788	888	508
	0.25-0.37	129	364/367.5	399.5/413	207/219.5		15	318	788	888	508
K..87R57	0.55-0.75	169	403.5/404	448.5/449	246.5/247		18.5	380	844	944	564
	1.1-1.5	192	422.5	459	206.5		K..157R97 K..167R97 K..187R97	0.55-0.75	169	571.5/572	616.5/617
	0.25-0.37	129	423/433.5	458.5/472	207/219.5	1.1-1.5		192	623	668.5	298
0.55-0.75	169	462.5/463	507.5/508	246.5/247	2.2	219		647.5	709.5	322.5	
K..97R57	1.1-1.5	192	514	559.5	298	3		219	647.5	709.5	322.5
	0.18	129	417.5	454	206.5	4		219	663.5	725.5	338.5
	0.25-0.37	129	418/430.5	453.5/467	207/219.5	5.5		257	734	802	409
K..107R77	0.55-0.75	169	475.5/458	502.5/503	246.5/247	7.5		257	777	845	452
	1.1-1.5	192	509	554.5	298	9.2		257	777	845	452
	2.2	219	533.5	595.5	322.5	11		318	833	933	508
K..157R107 K..167R107 K..187R107	3	219	533.5	595.5	322.5	15		318	833	933	508
	4	219	549.5	611.5	338.5	18.5		380	889	989	564
	0.18	129	453.5	490	206.5	2.2	219	704.5	766.5	322.5	
	0.25-0.37	129	454/466.5	489.5/503	207/219.5	3	219	704.5	766.5	322.5	
	0.55-0.75	169	493.5/494	538.5/539	246.5/247	4	219	720.5	782.5	338.5	
	1.1-1.5	192	545	590.5	298	5.5	257	791	859	409	
	2.2	219	569.5	631.5	322.5	7.5	257	834	902	452	
	3	219	569.5	631.5	322.5	9.2	257	834	902	452	
	4	219	585.5	647.5	338.5	11	318	890	990	508	
	5.5	257	656	724	409	15	318	890	990	508	
	7.5	257	699	767	452	18.5	380	946	1046	564	
9.2	257	699	767	452							
11	318	755	855	508							

注:上表中电机尺寸为参考尺寸,因空间限制对电机尺寸有严格要求时请向我公司咨询。
Notes:The dimension of motor in the above table is only reference.If you have special requirement, Please consult us.



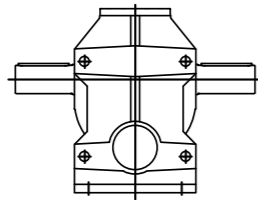
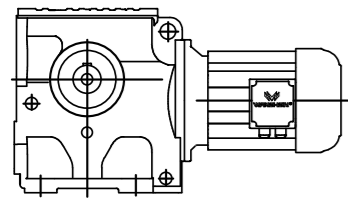
8.S系列斜齿轮—蜗轮蜗杆减速机 8.S Helical-Worm Geared Motor

8.1 设计方案

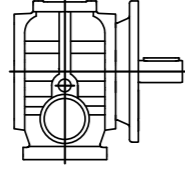
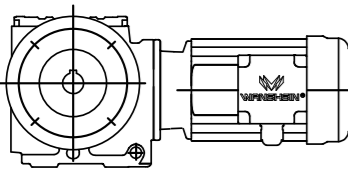
8.1 Versions geared motors

斜齿轮-蜗轮蜗杆齿轮减速电机有以下设计方案：

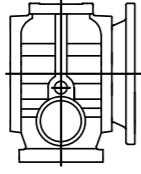
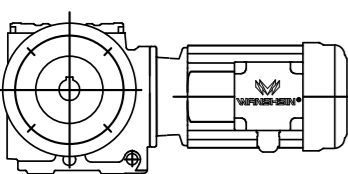
The following types of helical-worm gearmotor can be supplied:



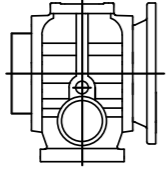
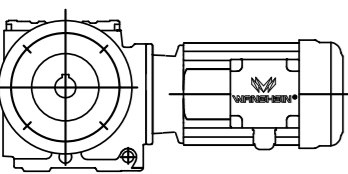
S..D..
底脚安装斜齿轮—蜗轮蜗杆齿轮减速电机
Foot-mounted helical-worm gear motor



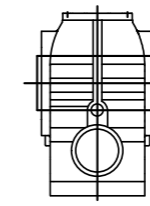
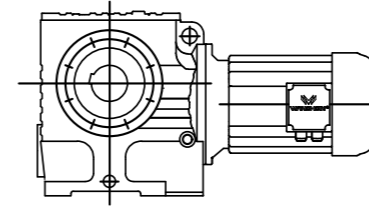
SF..D..
法兰安装斜齿轮—蜗轮蜗杆齿轮减速电机
Helical-worm gear motor flange-mounted
version



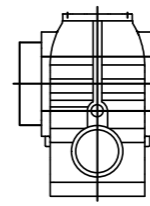
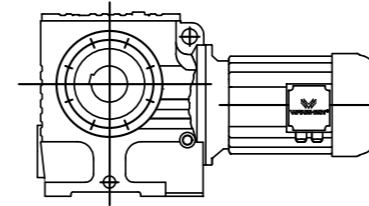
SAF..D..
B5法兰空心轴安装斜齿轮—蜗轮蜗杆齿轮减速电机
Helical-worm gear motor in B5 flange-mounted
version with hollow shaft.



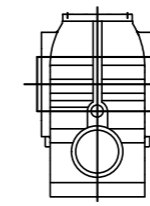
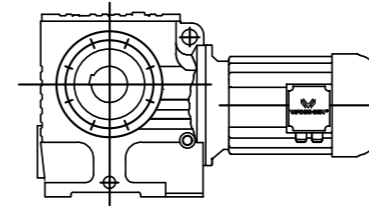
SHF..D..
B5法兰空心轴锁紧盘安装斜齿轮—蜗轮蜗杆齿轮减速电机
Helical-worm gear motor in B5 flange-mounted
version with hollow shaft and shrink disk.



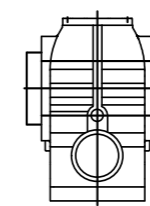
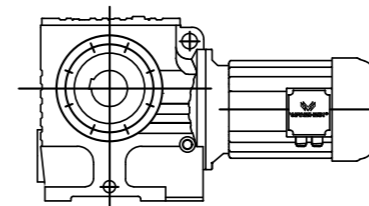
SA..D..
空心轴安装斜齿轮—蜗轮蜗杆齿轮减速电机
Helical-worm gear motor with hollow shaft.



SH..D..
空心轴锁紧盘安装斜齿轮—蜗轮蜗杆齿轮减速电机
Helical-worm gear motor with hollow shaft and
shrink disk.



SAZ..D..
B14法兰空心轴安装斜齿轮—蜗轮蜗杆齿轮减速电机
Helical-worm gear motor in B14 flange-mounted
version with hollow shaft.



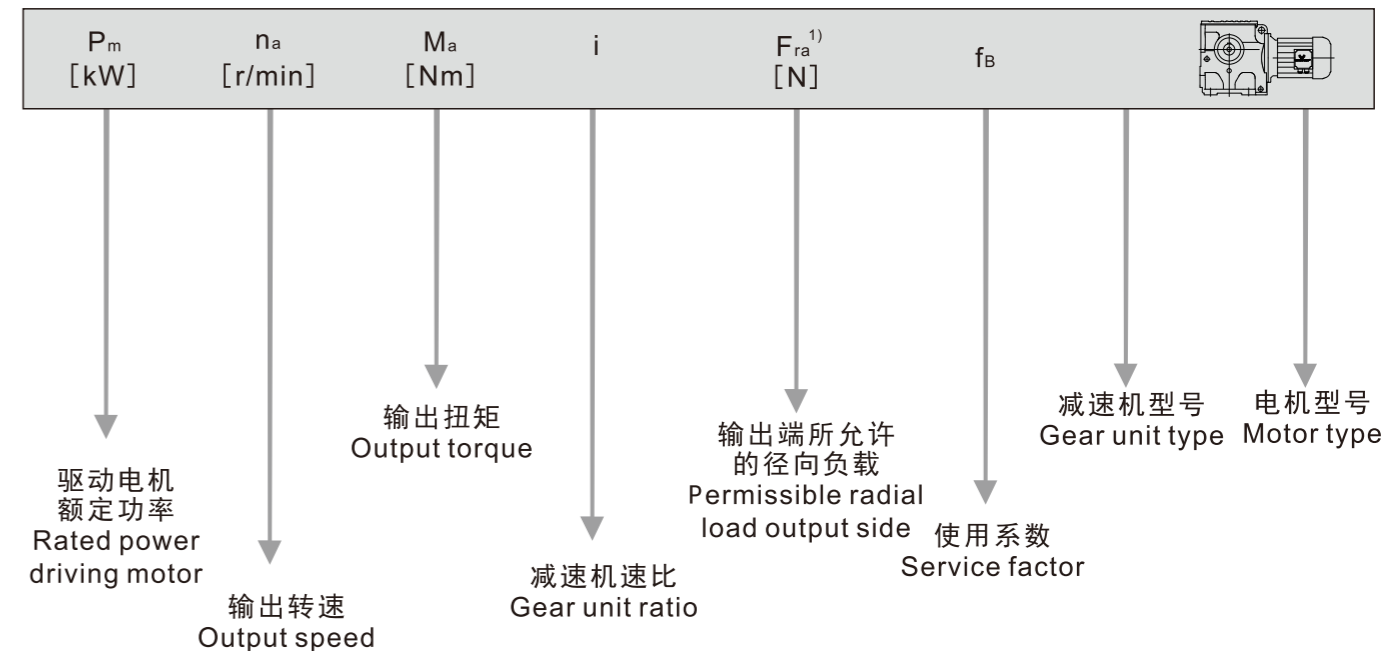
SHZ..D..
B14法兰空心轴锁紧盘安装斜齿轮—蜗轮蜗杆齿轮减速电机
Helical-worm gear motor in B14 flange-mounted
version with hollow shaft and shrink disk.

S 87/97R57 $n_a=1400$ r/min

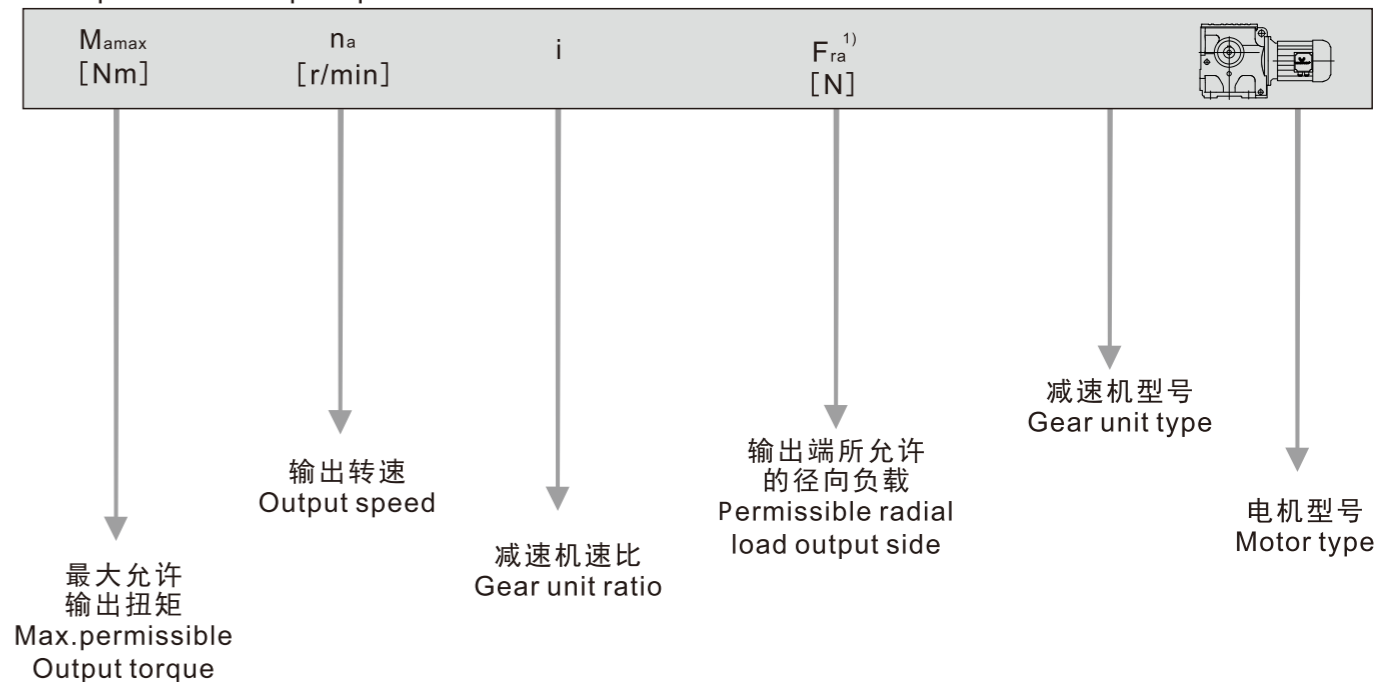
S87R57 2500Nm				S97R57 4200Nm			
i	n_a [r/min]	M_{amax} [Nm]	F_{ra} [N]	i	n_a [r/min]	M_{amax} [Nm]	F_{ra} [N]
25987	0.05	2500	27500	33818	0.04	4200	34200
23940	0.06	2500	27500	31154	0.04	4200	34200
20568	0.07	2500	27500	27847	0.05	4200	34200
18265	0.08	2500	27500	24641	0.06	4200	34200
16774	0.08	2500	27500	21537	0.07	4200	34200
14820	0.09	2500	27500	18749	0.07	4200	34200
13160	0.11	2500	27500	16233	0.09	4200	34200
11200	0.12	2500	27500	14576	0.10	4200	34200
9904	0.14	2500	27500	12752	0.11	4200	34200
8549	0.16	2500	27500	11267	0.12	4200	34200
7643	0.18	2500	27500	10078	0.14	4200	34200
6706	0.21	2500	27500	8608	0.16	4200	34200
5875	0.24	2500	27500	7554	0.19	4200	34200
5187	0.27	2500	27500	6640	0.21	4200	30600
4606	0.30	2500	27500	5780	0.24	4200	30600
3872	0.36	2500	27500	4937	0.28	4200	30600
3475	0.40	2500	27500	4444	0.32	4200	30600
2905	0.48	2500	27500	4017	0.35	4200	30600
2586	0.54	2500	27500	3453	0.41	4200	30600
2335	0.60	2500	27500	3108	0.45	4200	30600
2054	0.68	2500	27500	2654	0.53	4200	30600
1824	0.77	2500	27500	2329	0.60	4200	30600
1631	0.86	2500	27500	2081	0.67	4200	30600
1332	1.1	2500	27500	1860	0.75	4200	30600
1191	1.2	2500	27500	1574	0.89	4200	30600
1032	1.4	2500	27500	1394	1.0	4200	30600
930	1.5	2500	27500	1223	1.1	4200	30600
831	1.7	2500	27500	1070	1.3	4200	30600
719	1.9	2500	27500	928	1.5	4200	30600
624	2.2	2500	27500	824	1.7	4200	30600
558	2.5	2500	27500	714	2.0	4200	34400
485	2.9	2500	27500	626	2.2	4200	30600
435	3.2	2450	27600	538	2.6	4200	30600
378	3.7	2450	27600	484	2.9	4200	30700
323	4.3	2400	27700	420	3.3	4200	30700
281	5.0	2400	27700	376	3.7	4200	30800
255	5.5	1980	28400	327	4.3	4200	30800
222	6.3	1980	28400	287	4.9	4200	30900
205	6.8	1980	28400	252	5.6	4200	31000
				219	6.4	4200	31000
				205	6.8	4200	31000

8.4 选型表注释
8.4 Selection table

选型表的结构
Selection table for gear motors



对于特殊低输出转速
For special low output speed



图例 Cuttine

※也可用于Eexe电机。 ※ EEXE motor also applicable.

1) 实心轴底脚安装减速机的径向负荷

1) Radial load specified for foot-mounted gear unit with solid shaft

注意: Notice:

对于特殊低输出转速驱动(多级减速电机), 电机功率必须与减速机的最大允许输出扭矩相对应。
In drives for particularly low output speeds (multi-stage gear motor), the motor power must be limited according to maximum permitted output torque of the gear unit.

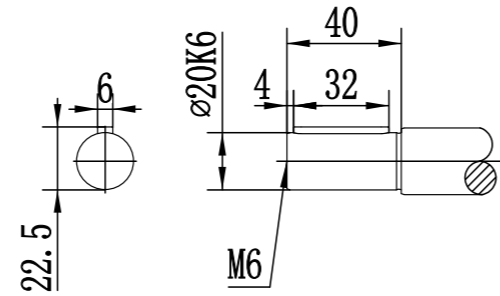
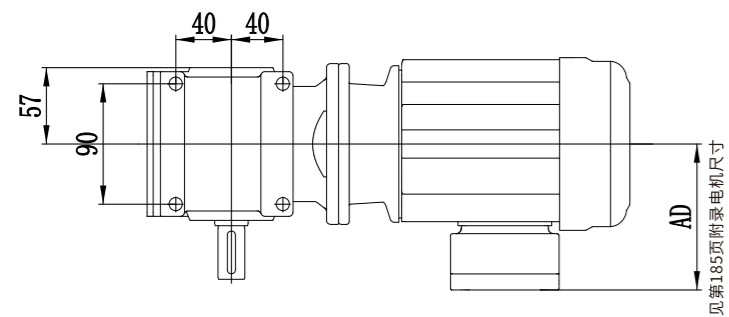
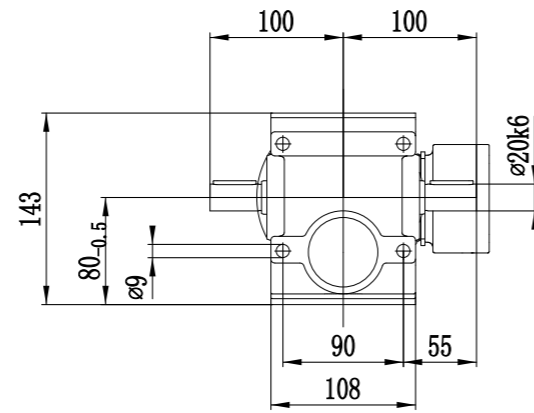
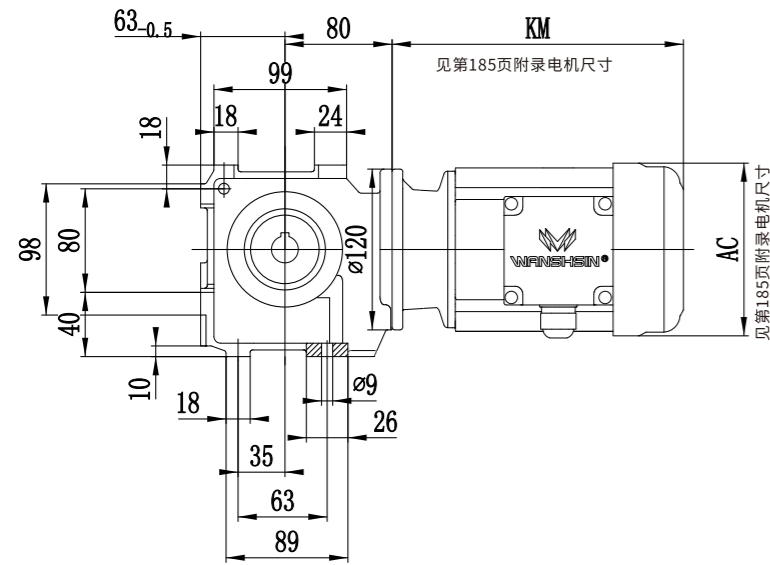
Table with 6 columns: Output speed, Output torque, Ratio, Permitted overhung load, Service factor, Model. Data includes 1.5kW, 2.2kW, and 3.0kW series.

Table with 6 columns: Output speed, Output torque, Ratio, Permitted overhung load, Service factor, Model. Data includes 2.2kW, 3.0kW, and 4.0kW series.

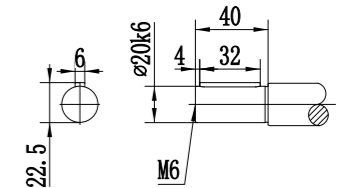
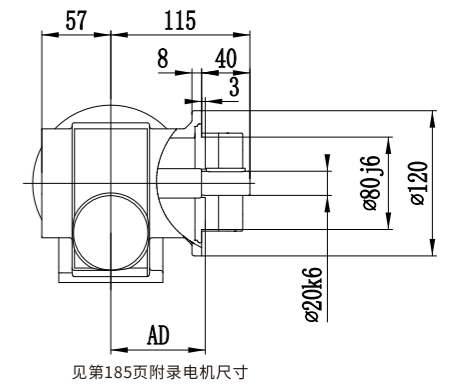
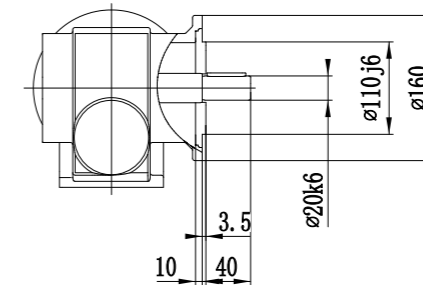
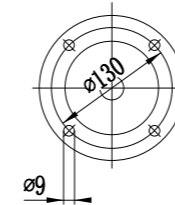
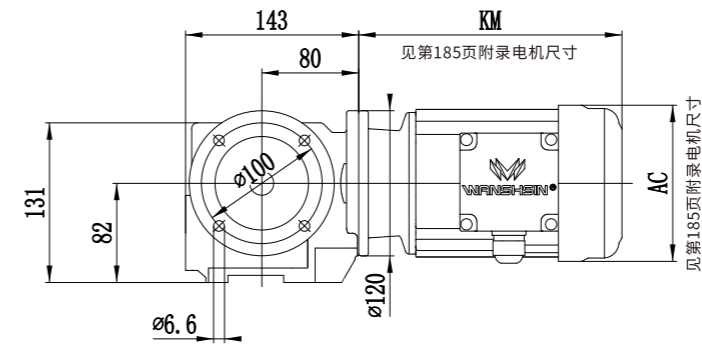
Table with 6 columns: Output speed, Output torque, Ratio, Permitted overhung load, Service factor, Model. Data includes 3.0kW, 4.0kW, and 5.5kW series.

Table with 6 columns: Output speed, Output torque, Ratio, Permitted overhung load, Service factor, Model. Data includes 4.0kW, 5.5kW series.

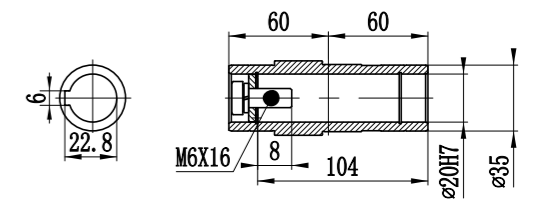
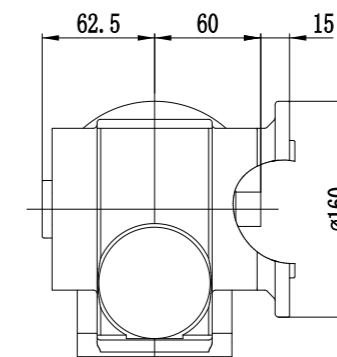
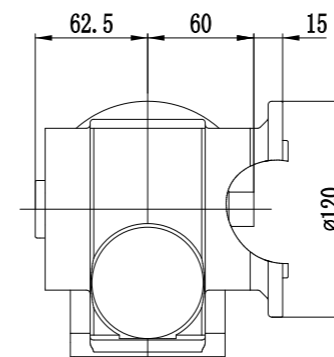
S37..



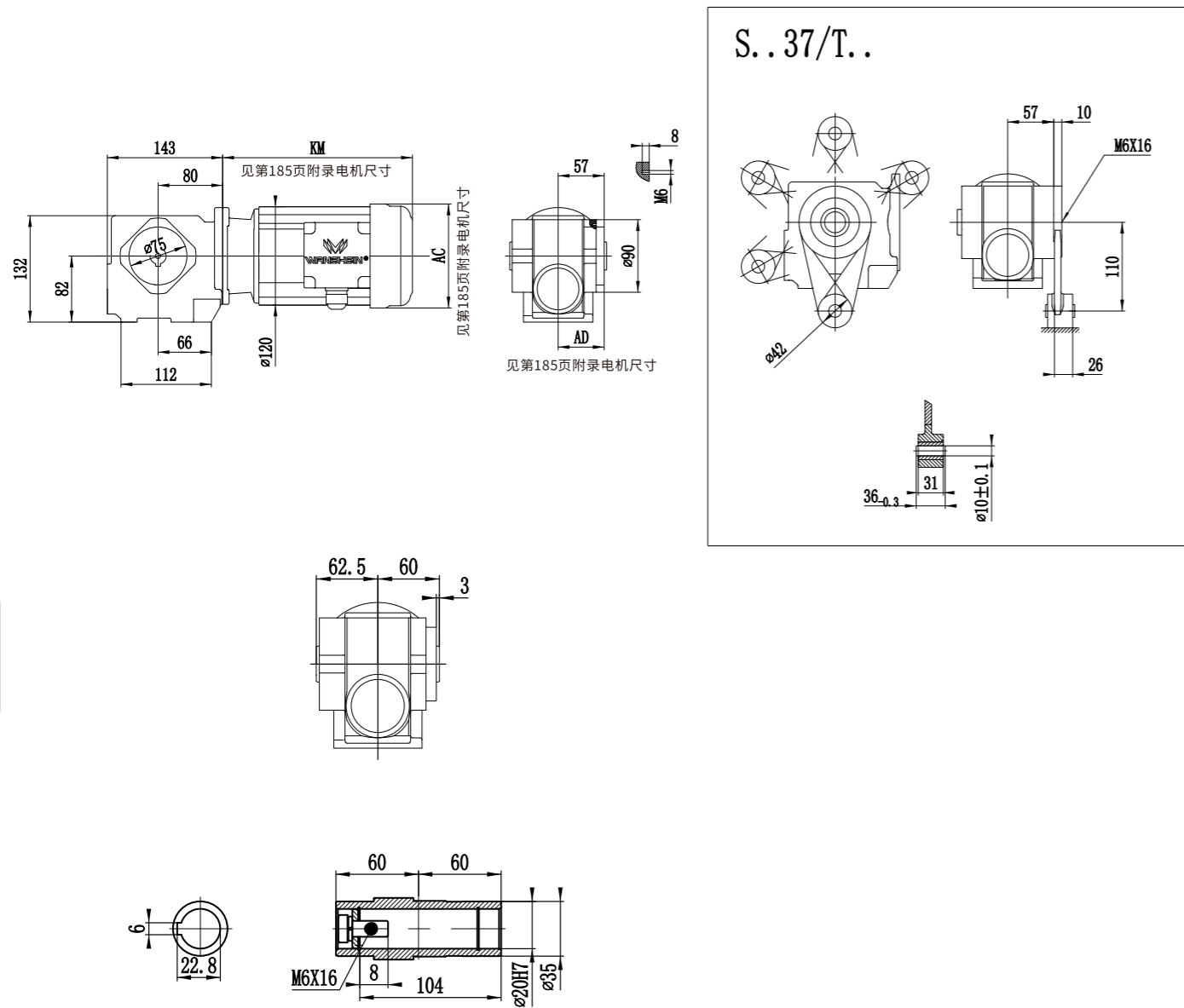
SF37..



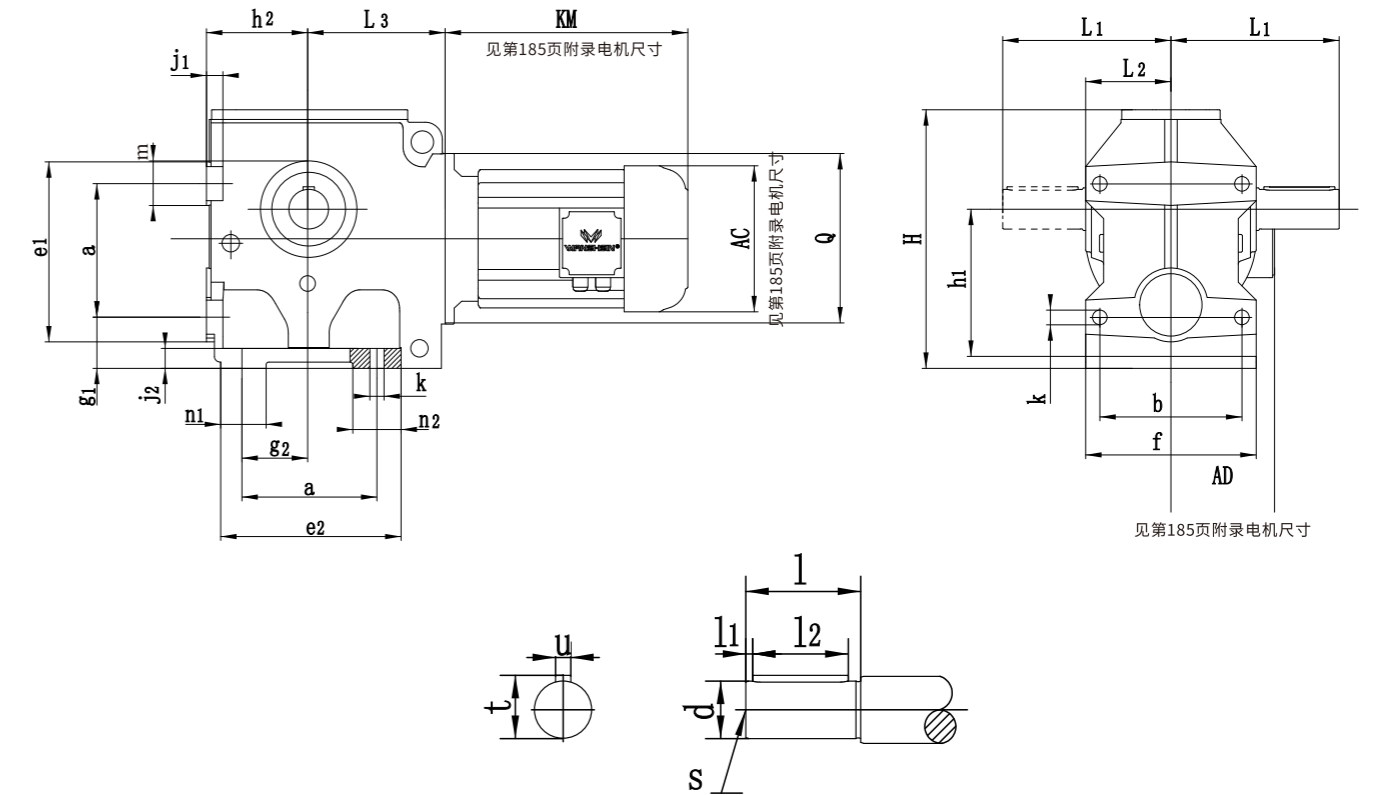
SAF37..



SA37..

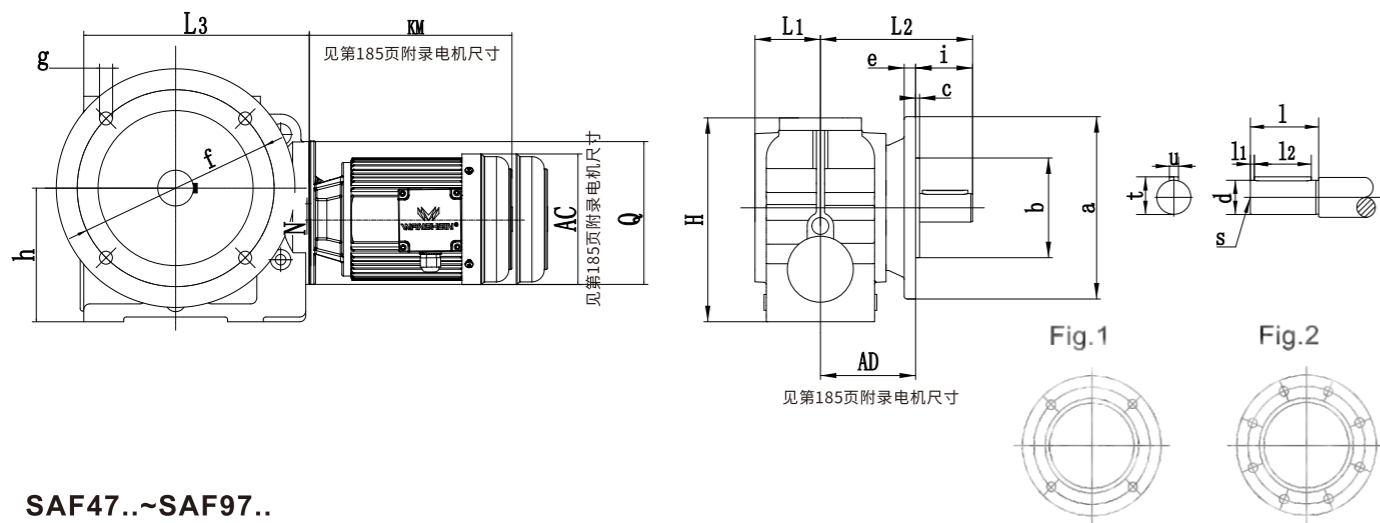


S47..~S97..

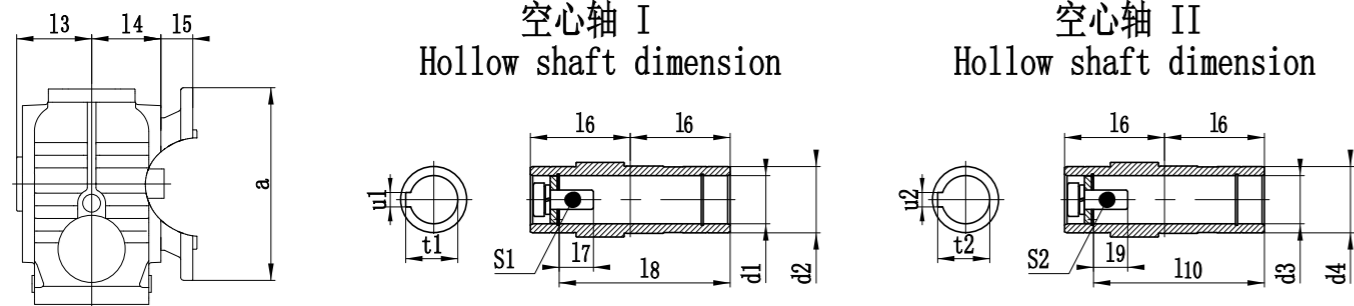


型号 Model	a b	e ₁ e ₂ f	g ₁ g ₂	h ₁ h ₂	j ₁ j ₂ k	m n ₁ n ₂	轴伸尺寸 Shaft dimension				L ₁ L ₂ L ₃	H	N Q
							d l	l ₁ l ₂	s	t u			
S47..	80	105	35	100 ^{-0.5}	12	25	25k6	5	M10	28	115	165	8
	100	112	35	75 ^{-0.5}	15	30	50	40		8			
S57..	100	130	35	112 ^{-0.5}	12	30	30k6	3.5	M10	33	134	189	20
	110	130	45	80 ^{-0.5}	15	30	60	50		8			
S67	130	170	40	140 ^{-0.5}	15	40	35k6	7	M12	38	160	236	22
	130	175	60	106 ^{-0.5}	20	45	70	56		10			
S77	135	177	70	180 ^{-0.5}	25	42	45k6	5	M16	48.5	195	301	34
	150	204	75	125 ^{-0.5}	25	50	90	80		14			
S87	180	230	82	225 ^{-0.5}	30	50	60m6	5	M20	64	255	368	37.5
	200	247	92	150 ^{-0.5}	30	60	120	110		18			
S97	235	295	90	280 ^{-0.5}	35	60	70m6	7.5	M20	74.5	295	455	52
	250	320	115	180 ^{-0.5}	35	80	140	125		20			

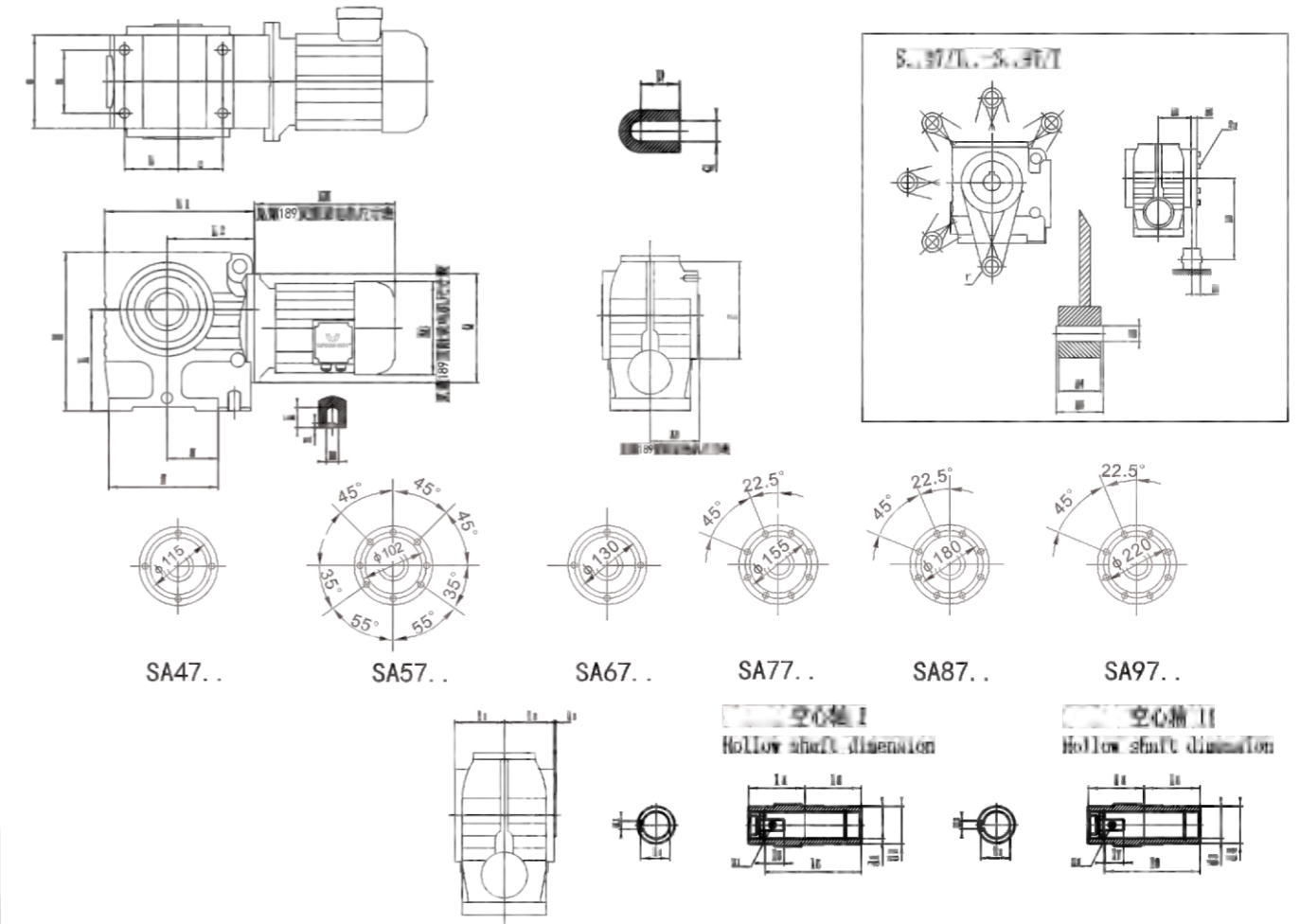
SF47..~SF97..



SAF47..~SAF97..



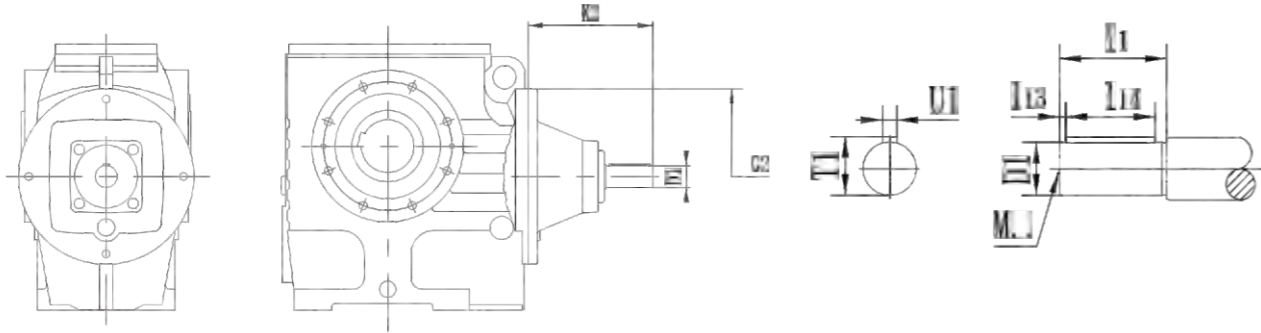
SA47..~SA97..



型号 Model	法兰 型式 Flange form	a b	c e	f g h	轴伸尺寸 Shaft dimension			空心轴 I 尺寸 Hollow shaft I dimension				空心轴 II 尺寸 Hollow shaft II dimension			H	L1 L2	L3 L4	N Q
					d l	l1 l2	s t u	d1 d2	l3 l4 l5	l6 l7 l8	s1 t1 u1	d3 d4	l9 l10	s2 t2 u2				
SF47.. SAF47..	Flg.1	160 110j6	3.5 10	130 9 100	25k6 50	5 40	M10 28 8	30 ^{H7} 45	63 60 24	60 17 105	M10X25 33.3 8	25 ^{H7} 45	17 105	M10X25 28.3 8	179	57.5 133.5	171 96	8 120
SF57.. SAF57..	Flg.1	200 130j6	3.5 12	165 11 112	30k6 60	3.5 50	M10 33 8	35 ^{H7} 50	78 75 25	75 22 132	M12X30 38.3 10	30 ^{H7} 50	17 132	M10X25 33.3 8	189	72 160	187 107	20 120
SF67.. SAF67..	Flg.1	200 130j6	3.5 12	165 11 140	35k6 70	7 56	M12 38 10	45 ^{H7} 65	87 84 42.5	84 29 144	M16X40 48.8 14	40 ^{H7} 65	29 144	M16X40 43.3 12	236	80.5 190	242 135	22 160
SF77.. SAF77..	Flg.1	250 180j6	4 15	215 13.5 180	45k6 90	5 80	M16 48.5 14	60 ^{H7} 80	108 105 45.5	105 37 180	M20X50 64.4 18	50 ^{H7} 80	32 183	M16X45 53.8 14	301	121 232	287 162	34 200
SF87.. SAF87..	Flg.1	350 250h6	5 18	300 17.5 225	60m6 120	5 110	M20 64 18	70 ^{H7} 95	128 125 52.5	125 34 220	M20X50 74.9 20	60 ^{H7} 95	36 220	M20X50 64.4 18	368	145 290	340 190	37.5 250
SF97.. SAF97..	Flg.2	450 350h6	5 22	400 17.5 280	70m6 140	7.5 125	M20 74.5 20	90 ^{H7} 120	149 145 60	145 41 255	M24X60 95.4 25	70 ^{H7} 120	34 260	M20X50 74.9 20	455	165 340	420 240	52 300

型号 Model	a b c	e f g	h	k m n	p q	空心轴 I 尺寸 Hollow shaft I dimension				空心轴 II 尺寸 Hollow shaft II dimension			扭矩臂尺寸 Torque arm form			H L1 L2	N Q
						d1 d2	l1 l2 l3	l4 l5 l6	s1 t1 u1	d3 d4	l7 l8	s2 t2 u2	g1 g2 g3	g4 g5 h1	d5 r s3		
SA47.. S..47/T..	60 35 52	94 127 67	100	20 M10 4	12 M8	30 ^{H7} 45	63 60 2.5	60 17 105	M10X25 33.3 8	25 ^{H7} 45	17 105	M10X25 28.3 8	57.5 15 20.5	31 36 ^{-0.3} 130	10.4±0.1 21 M8X25	179 171 96	8 120
SA57.. S..57/T..	60 58.5 58.5	100 146 73	112	20 M10 4	12 M8	35 ^{H7} 50	78 75 3	75 22 132	M12X30 38.3 10	30 ^{H7} 50	17 132	M10X25 33.3 8	72 15 18.5	31 36 ^{-0.3} 160	10.4±0.1 21 M8X25	189 187 107	20 120
SA67.. S..67/T..	88 71.5 80.5	128 182 95.5	140	25 M12 5	20 M12	45 ^{H7} 65	87 84 3.5	84 29 144	M16X40 48.8 14	40 ^{H7} 65	29 144	M16X40 43.3 12	80.5 18 19.5	31 36 ^{-0.3} 200	10.4±0.1 21 M12X35	236 242 135	22 160
SA77.. S..77/T..	102 85 85	154 204 104	180	32 M16 6	20 M12	60 ^{H7} 80	108 105 4	105 37 180	M20X50 64.4 18	50 ^{H7} 80	32 183	M16X45 53.8 14	101 18 32.5	54 60 ^{-0.3} 250	16.4±0.08 30 M12X35	307 281 162	34 200
SA87.. S..87/T..	118 115 110	194 260 125	225	32 M16 6	26 M16	70 ^{H7} 95	128 125 5	125 34 220	M20X50 74.9 20	60 ^{H7} 95	36 220	M20X50 64.4 18	120 24 25.5	54 60 ^{-0.3} 310	16.4±0.08 30 M16X45	368 340 190	37.5 250
SA97.. S..97/T..	160 135 113	236 301 140	280	36 M20 6	26 M16	90 ^{H7} 120	149 145 5	145 41 255	M24X60 95.4 25	70 ^{H7} 120	34 260	M20X50 74.9 20	140 26 33	72 80 ^{-0.5} 380	25±0.08 40 M16X50	455 420 240	52 300

S..~AD..



		G2	K2	D1	L1	L13	L14	T1	U1	M
S..37 S..47 S..57	AD1	120	102	16	40	4	32	18	5	M5
	AD2		130	19	40	4	32	21.5	6	M6
S..67	AD2	160	123	19	40	4	32	21.5	6	M6
	AD3		159	24	50	5	40	27	8	M8
S..77	AD2	200	116	19	40	4	32	21.5	6	M6
	AD3		151	24	50	5	40	27	8	M8
	AD4		224	38	80	5	70	41	10	M12
S.87	AD2	250	111	19	40	4	32	21.5	6	M6
	AD3		156	28	60	5	50	31	8	M10
	AD4		219	38	80	5	70	41	10	M12
	AD5		292	42	110	10	70	45	12	M16
S.97	AD3	300	151	28	60	5	50	31	8	M10
	AD4		214	38	80	5	70	41	10	M12
	AD5		287	42	110	10	70	45	12	M16
	AD6		327	48	110	10	80	51.5	14	M16

S..AM..

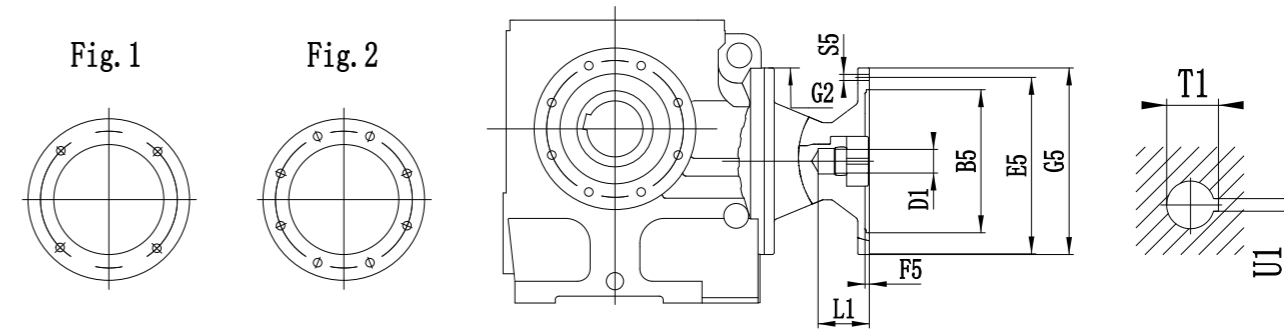
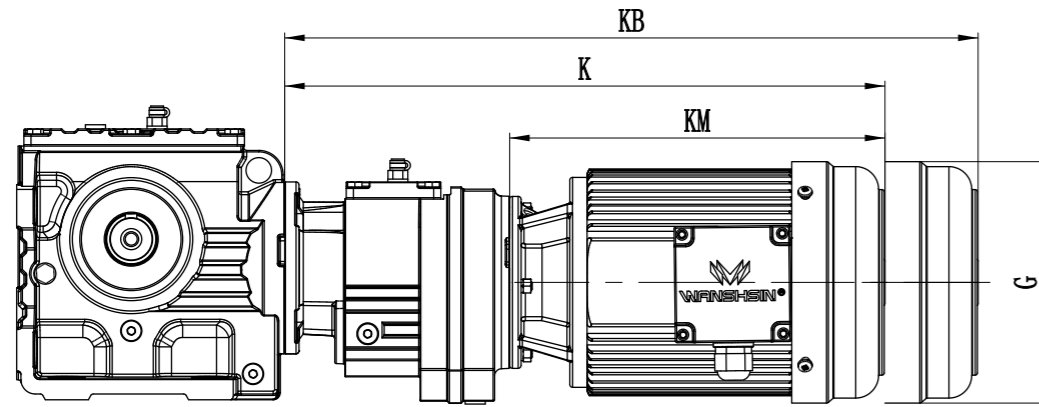


		Fig1	B5	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
S..37 S..47 S..57	AM63	1	95	115	3.5	120	140	M8	72	11	23	12.8	4
	AM71 ¹⁾		110	130			14			30	16.3	5	
	AM80 ¹⁾		130	165	4.5		200	M10	106	19	40	21.8	6
	AM90 ¹⁾									24	50	27.3	8
S..67	AM63	1	95	115	3.5	160	140	M8	66	11	23	12.8	4
	AM71		110	130			14			30	16.3	5	
	AM80		130	165	4.5		200	M10	99	19	40	21.8	6
	AM90									24	50	27.3	8
	AM100 ¹⁾		180	215	5		250	M12	134	28	60	31.3	8
	AM112 ¹⁾									28	60	31.3	8
S..77	AM63	1	95	115	3.5	200	140	M8	60	11	23	12.8	4
	AM71		110	130			14			30	16.3	5	
	AM80		130	165	4.5		200	M10	92	19	40	21.8	6
	AM90									24	50	27.3	8
	AM100 ¹⁾		180	215	5		250	M12	126	28	60	31.3	8
	AM112 ¹⁾									28	60	31.3	8
	AM132S ¹⁾		230	265	5		300	M12	179	38	80	41.3	10
	AM132M ¹⁾									38	80	41.3	10
AM132ML ¹⁾	38	80	41.3	10									
S..87	AM80	1	130	165	4.5	250	200	M10	87	19	40	21.8	6
	AM90		24	50			27.3			8			
	AM100		180	215	5		250	M12	121	28	60	31.3	8
	AM112									28	60	31.3	8
	AM132S		230	265	5		300	M12	174	38	80	41.3	10
	AM132M									38	80	41.3	10
	AM132ML		250	300	6		350	M16	232	42	110	45.3	12
	AM160 ¹⁾									48		51.8	14
AM180 ¹⁾	48	51.8	14										
S..97	AM100	1	180	215	5	300	250	M12	116	28	60	31.3	8
	AM112		28	60			31.3			8			
	AM132S		230	265	5		300	M12	169	38	80	41.3	10
	AM132M									38	80	41.3	10
	AM132ML		250	300	6		350	M16	227	42	110	45.3	12
	AM160									48		51.8	14
	AM180		300	350	7		400	M16	268	55	110	59.3	16
	AM200 ¹⁾									55		59.3	16
AM225 ¹⁾	2	350	400	7	450	283	60	140	64.4	18			

1)如果安装在S系列脚安装方式的减速机上, 请检查尺寸G5/2,它可能已突出安装平面
Dimension G5/2 May protrude past tooth mounting surface if mounted on BS foot-mounted gear unit, please check.

S..~R..



型号组合	功率 (KW)	AC	K	KB	KM
S..47R37 S..57R37	0.18	129	371.5	408	206.5
	0.25-0.37	129	372/384.5	407.5/421	207/219.5
	0.55-0.75	169	411.5/412	456.5/457	246.5/247
S..67R37	0.18	129	371.5	408	206.5
	0.25-0.37	129	372/384.5	407.5/421	207/219.5
	0.55-0.75	169	411.5/412	456.5/457	246.5/247
S..77R37	0.18	129	363.5	400	206.5
	0.25-0.37	129	364/367.5	399.5/413	207/219.5
	0.55-0.75	169	403.5/404	448.5/449	246.5/247
S..87R57	0.18	129	422.5	459	206.5
	0.25-0.37	129	423/433.5	458.5/472	207/219.5
	0.55-0.75	169	462.5/463	507.5/508	246.5/247
S..97R57	0.18	129	417.5	454	206.5
	0.25-0.37	129	418/430.5	453.5/467	207/219.5
	0.55-0.75	169	475.5/458	502.5/503	246.5/247
S..97R57	1.1-1.5	192	509	554.5	298
	2.2	219	533.5	595.5	322.5
	3	219	533.5	595.5	322.5
	4	219	549.5	611.5	338.5

注：上表中电机尺寸为参考尺寸，因空间限制对电机尺寸有严格要求时请向我公司咨询。
Notes: The dimension of motor in the above table is only reference. If you have special requirement, please consult us.

9.设计和装配注意事项 Important notes of design and mounting

9.1 拆装单键空心轴减速机 9.1 Installation/removal of gear units with hollow shafts and keys

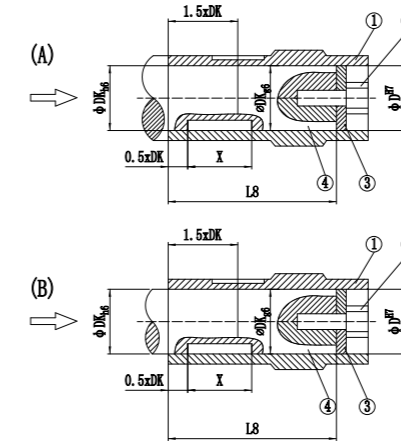
重要提示
Installation
· 在装配过程中一定要使用所供应的润滑剂。它的作用是防止接触腐蚀和便于拆卸。
The lubricant supplied must be used during the assembly process. Its function is to prevent contact corrosion and facilitate disassembly
· 键的尺寸X是由用户确定，但X必须 > Dk。
The Key dimension X is defined by the customer, however X must be > Dk.

安装
Customer shaft
推荐两种方法将用户轴安装到单键空心轴上。
Recommends two methods for mounting gear unit with hollow shafts and keys onto the input shaft of the driven machine (=customer shaft):
1. 用提供的固定件进行装配
Install with supplied fastening elements
2. 用可选件：装卸工具进行装配
Install using the optional installation/removal kit

9.1.1 提供的固定件 9.1.1 Fastening elements

标准产品提供下列固定件：
The following fastening elements are supplied as standard:

- 带垫片的紧固螺栓 Retaining screw with washer ①
- 孔用挡圈 Circlip ②



带轴肩的附用户轴
用户轴的安装长度必须为L8-1 (mm) (图)
Installation length of customer shaft with contact shoulder (A) must be L8-1mm

用户轴不带轴肩
安装长度必须等于L8 (图)
Installation length of customer shaft with contact shoulder (B) must be equal to L8

紧固螺栓要拧紧到MS所示拧紧矩值
The retaining screw ② must be tightened to the retaining torque MS listed the following table

- ① 空心轴 Hollow shaft
- ② 带垫片的紧固螺栓 Retaining screw with washer
- ③ 孔用挡圈 Circlip
- ④ 用户轴 Customer shaft

图：带轴间附用户轴 (A) 和不带轴间附用户轴 (B)
User shaft (A) with and without shaft attached user shaft (B)

减速器型号 Gear unit type	D ^H [mm]	D K[MM]	L8[MM]	MS[Nm]
SA..37	20	20	84, 106, 104	8
SA..47	25	25	105	20
FA..37, KA..37, SA..47, SA..57	30	30	105 132	20
FA..47, KA..47, SA..57	35	35	132	20
FA..57, KA..57 FA..67, KA..67 SA..67	40	40	142 156 144	40
SA..67	45	45	144	40
FA..77, KA..77, SA..77	50	50	183	40
FA..87, KA..87 SA..77, SA..87	60	60	210 180, 220	80
FA..97, KA..97 SA..87, SA..97	70	70	270 220, 260	80
FA..107, KA..107, SA..97	90	90	313, 313, 255	200
FA..127, KA..127	100	100	373	200
FA..157, KA..157	120	120	460	200

9.1.2 拆装工具

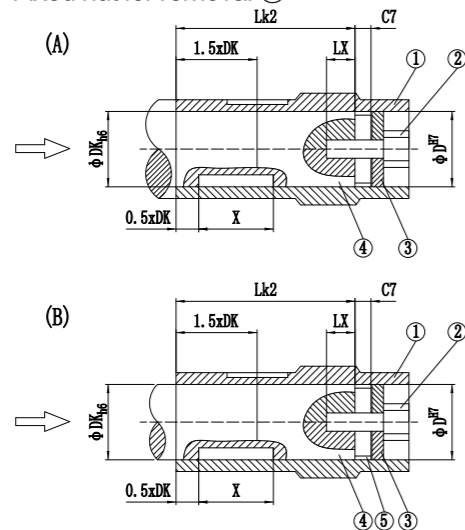
9.1.2 Installation /removal kit

可使用的选件：拆装工具进行装配。可以通过表中输出的零件号订购减速机的拆装工具。拆装工具包含以下零件：

- 对没有轴肩的用户轴装配所用的轴套
- 拆卸用的压盘
- 装配用的紧固螺栓
- 拆卸用的锁母

You can use the optional installation/removal kit for installation. The kit can be ordered for the specific gear unit types by quoting the part numbers in the table below. The accessories of the tools including:

- Distance piece for installation without contact shoulder⑤
- Retaining screw for installation ②
- Removal washer for installation ⑦
- Fixed nut for removal ⑧



带轴肩的用户轴
安装长度LK2【→图A】不使用轴套
The installation length of the customer shaft must be Lk2. The distance piece must not be used if the customer shaft does have a contact shoulder(A).

不带轴肩的用户轴
安装长度LK2【→图B】不使用轴套
The installation length of the customer shaft must be Lk2. The distance piece must not be used if the customer shaft does have a contact shoulder(A).

- ①空心轴
- ②带垫片的紧固螺栓
- ③孔用挡圈
- ④用户轴
- ⑤轴套
- ①Hollow shaft
- ②Retaining screw with washer
- ③Circlip
- ④Customer shaft
- ⑤Distance piece

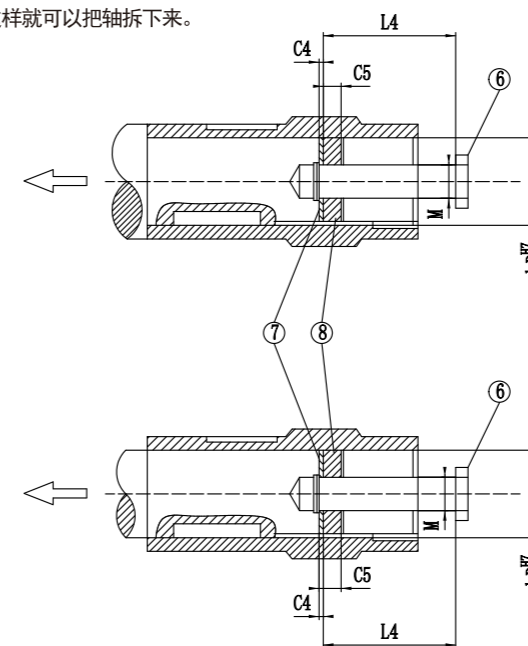
图：带轴肩附用户轴（A）和不带轴肩附用户轴（B）
Fig:Customer shaft with contact shoulder(A) and without contact shoulder (B)

减速器型号 Gear unit type	D ^{H7} [mm]	DK[MM]	LK2[mm]	LX ² [MM]	C7[Nm]	MS[Nm]
SA..37	20	20	92	16	12	8
SA..47	25	25	89	22	16	20
FA..37,KA..37,SA..47 SA..57	30	30	89,116	22	16	20
FA..47,KA..47,SA..57	35	35	114	28	18	20
FA..57,KA..57 FA..67,KA..67 SA..67	40	40	124,138,126	36	18	40
SA..67	45	45	126	36	18	40
FA..77,KA..77,SA..77	50	50	165	36	18	40
FA..87,KA..87 SA..77,SA..87	60	60	188,158,198	42	22	80
FA..97,KA..97 SA..87,SA..97	70	70	248,198,38	42	22	80
FA..107,KA..107,SA..97	90	90	287,229	50	26	200
FA..127,KA..127	100	100	247	50	26	200
FA..157,KA..157	120	120	434	50	26	200

拆卸 Removal

用的拆装工具进行装配，须按以下步骤进行拆卸

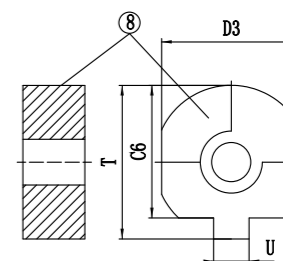
1. 拆下紧固螺栓⑥
 2. 拆下挡圈③，若使用了轴套⑤也一并拆下
 3. 在用户轴④和挡圈③之间按图13装上压盘⑦和锁母⑧
 4. 重新装上挡圈③
 5. 重新装上紧固螺栓⑥
- 这样就可以把轴拆下来。



- ⑥ 螺栓 Retaining screw
- ⑦ 压盘 Removal washer
- ⑧ 拆卸用锁母 Fixed nut for removal

Apply installation/removal kit and operating according to the following steps. Proceed as follows for removal:

- 1.Remove the retaining screw⑥
2. Remove the Circlip ③ and if used, the distance piece⑤
3. Insert the removal washer ⑦ and the fixed nut ⑧ between the customer shaft ④ and circlip ③ according to Fig.
- 4.Re-insert the circlip③.
5. Re-insert the retaining screw ⑥. You can now push the gear unit off the shaft.



图：空心轴拆卸示意图
Fig. Removal

型号 Model	D ^{H7} [mm]	M	C4 [mm]	C5 [mm]	C6 [mm]	U ^{-0.5} [mm]	T ^{-0.5} [mm]	D3 ^{-0.5L4} [mm]	拆装工具零件号 Installation/removal kit partnumber
SA..37	20	M6	5	6	15.5	5.5	22.5	19.7	25
SA..47	25	M10	5	10	20	7.5	28	24.7	35
FA..37,KA..37,SA..57	30	M10	5	10	25	7.5	33	29.7	35
FA..47,SA..57	35	M12	5	12	29	9.5	38	34.7	45
FA..57,KA..57,FA..67,KA..67,SA..67	40	M16	5	12	34	11.5	41.9	39.7	50
SA..67	45	M16	5	12	38.5	13.5	48.5	44.7	50
FA..77,KA..77,SA..77	50	M16	5	12	43.5	13.5	53.5	49.7	50
FA..87,KA..87,SA..77,SA..87	60	M20	5	16	56	17.5	64	59.7	60
FA..97,KA..97,SA..97	70	M20	5	16	65.5	19.5	74.5	69.7	60
FA..107,KA..107,SA..97	90	M24	5	20	80	24.5	95	89.7	70

9.2 带轴阶的空心轴和锁紧盘选件

9.2 Shouldered hollow shaft with shrink disk (optional components)

带空心轴锁紧盘的减速机 (FH/FHF/FHZ37-175) 平行轴减速机KH/KHF/KHZ37-157 斜齿轮-锥齿轮减速机和SH/SHF47-97斜齿轮蜗轮蜗杆减速机, 可提供较大的轴孔直径D'作为选件 D=D' 为标准产品

Gear units with hollow shaft and shrink disk(FH/FHF/FHZ37-157), parallel shaft gear units (KH/KHF/KHZ37-157), helical-bevel gear unit and helical-worm gear units (SH/SHF47-97) can be supplied with an optional larger hole diameter D'

The standard is D'=D

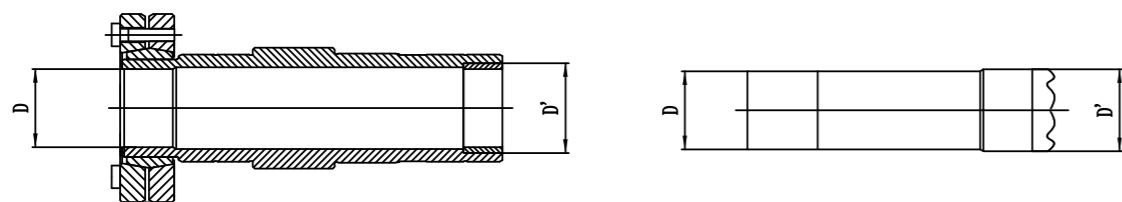


图: 选件轴孔直径D'

Fig: Optional hole diameter D'

减速器型号 Gear unit size	孔径 D / D' Hole diameter
FH/FHF/FHZ37,KH/KHF/KHZ37,SH/SHF/SHZ47	30/32
FH/FHF/FHZ47,KH/KHF/KHZ47,SH/SHF/SHZ57	35/35
FH/FHF/FHZ57,KH/KHF/KHZ57	40/42
FH/FHF/FHZ67,KH/KHF/KHZ67,SH/SHF/SHZ67	40/42
FH/FHF/FHZ77,KH/KHF/KHZ77,SH/SHF/SHZ77	50/52
FH/FHF/FHZ87,KH/KHF/KHZ87,SH/SHF/SHZ87	65/66
FH/FHF/FHZ97,KH/KHF/KHZ97,SH/SHF/SHZ97	75/76
FH/FHF/FHZ107,KH/KHF/KHZ107	95/96
FH/FHF/FHZ127,KH/KHF/KHZ127	105/106
FH/FHF/FHZ157,KH/KHF/KHZ157	125/126

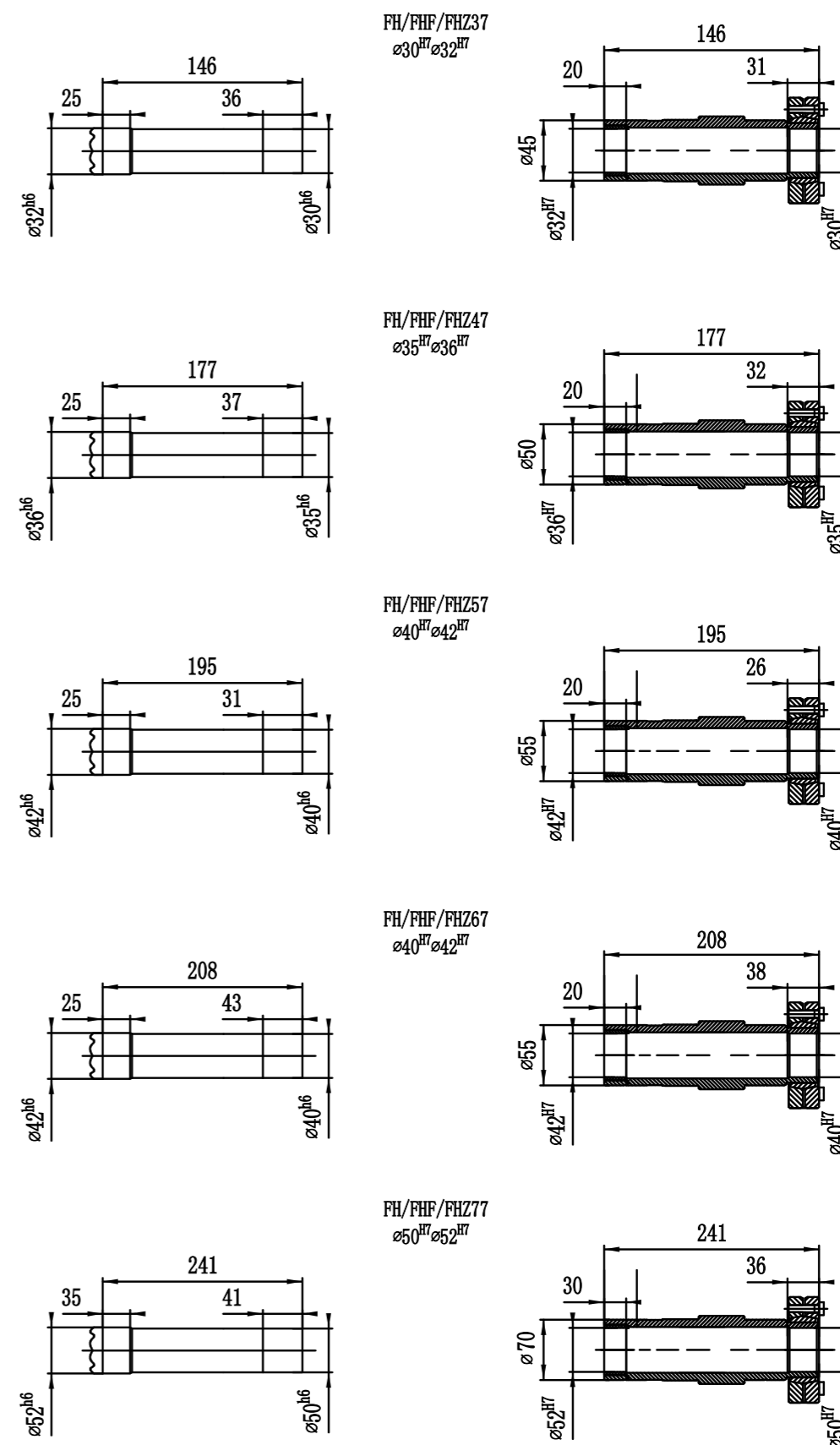
订购带轴阶的空心轴减速机 (可选轴孔直径D') 必须注明D/D' 尺寸。

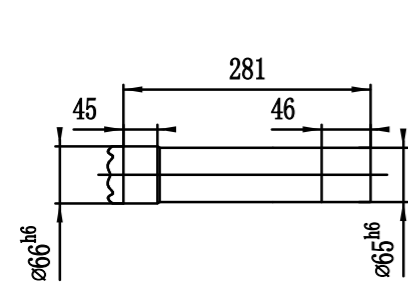
例如: FH37 D80N4 30/32

Diameter D/D' must be specified when ordering gear units with a shouldered hollow shaft (optional hole diameter D').

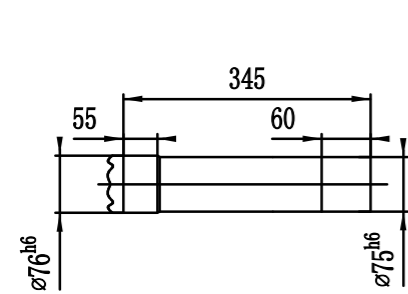
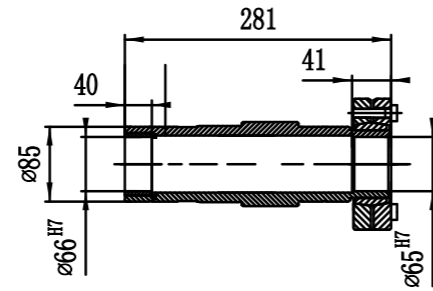
带轴阶空心轴和锁紧盘的平行轴减速电机

Parallel shaft helical gear unit with shouldered hollow shaft

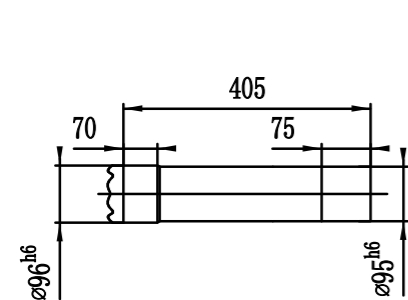
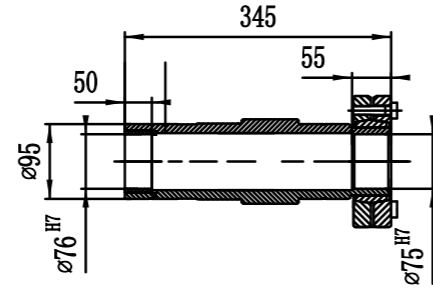




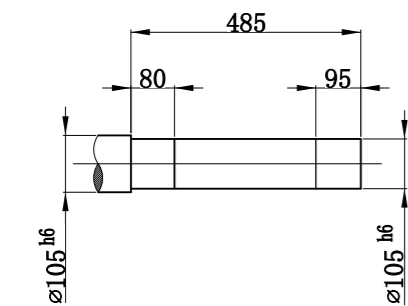
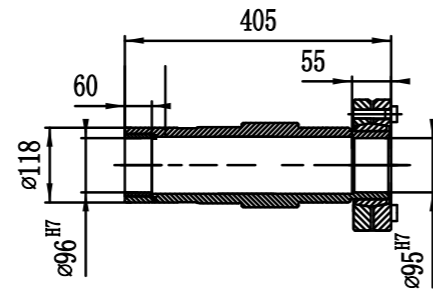
FH/FHF/FHZ87
 $\varnothing 65^{H7} \varnothing 66^{H7}$



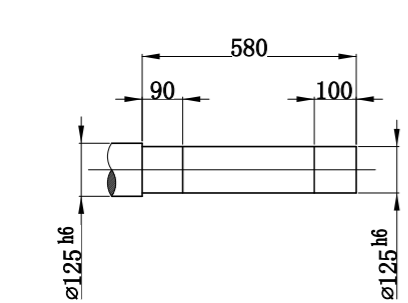
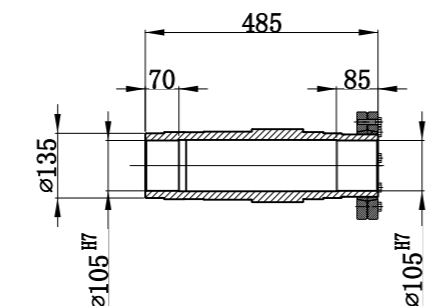
FH/FHF/FHZ97
 $\varnothing 75^{H7} \varnothing 76^{H7}$



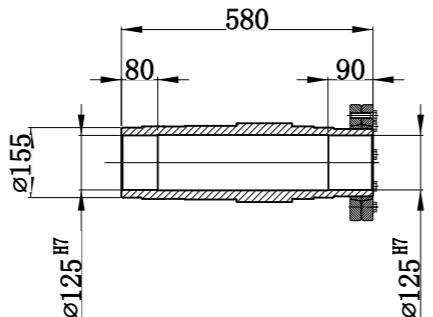
FH/FHF/FHZ107
 $\varnothing 95^{H7} \varnothing 96^{H7}$



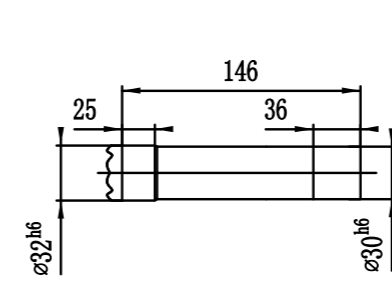
FH/FHF/FHZ127



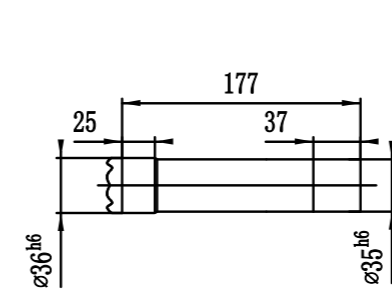
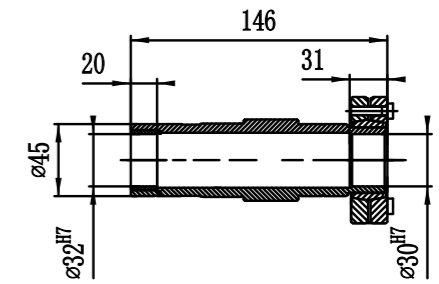
FH/FHF/FHZ157



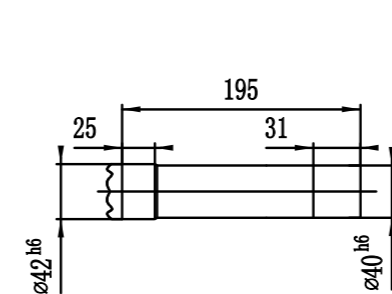
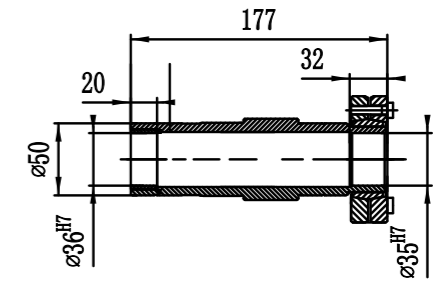
带轴阶空心轴和锁紧盘的斜齿轮—锥齿轮减速电机
Helical-bevel gear unit with shouldered hollow shaft and shrink disk



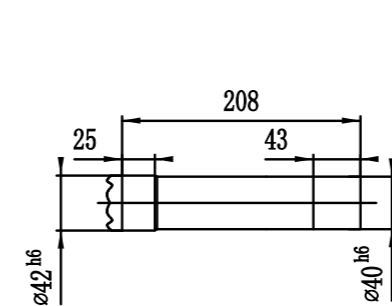
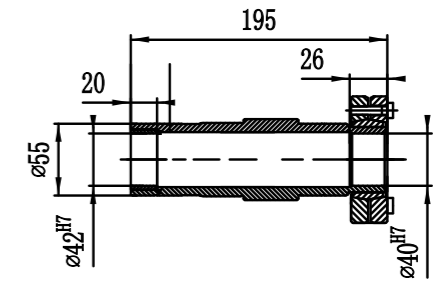
KH/KHF/KHZ37
 $\varnothing 30^{H7} \varnothing 32^{H7}$



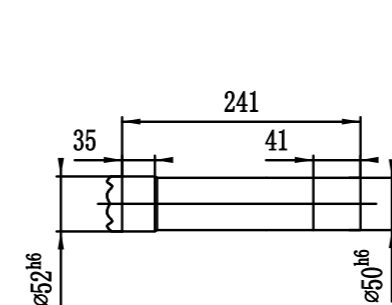
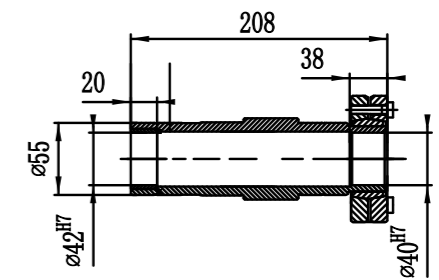
KH/KHF/KHZ47
 $\varnothing 35^{H7} \varnothing 36^{H7}$



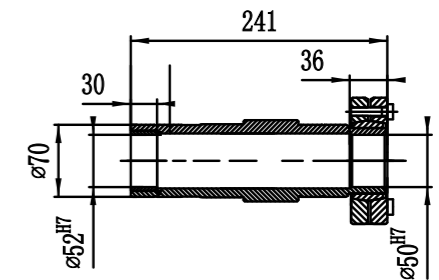
KH/KHF/KHZ57
 $\varnothing 40^{H7} \varnothing 42^{H7}$

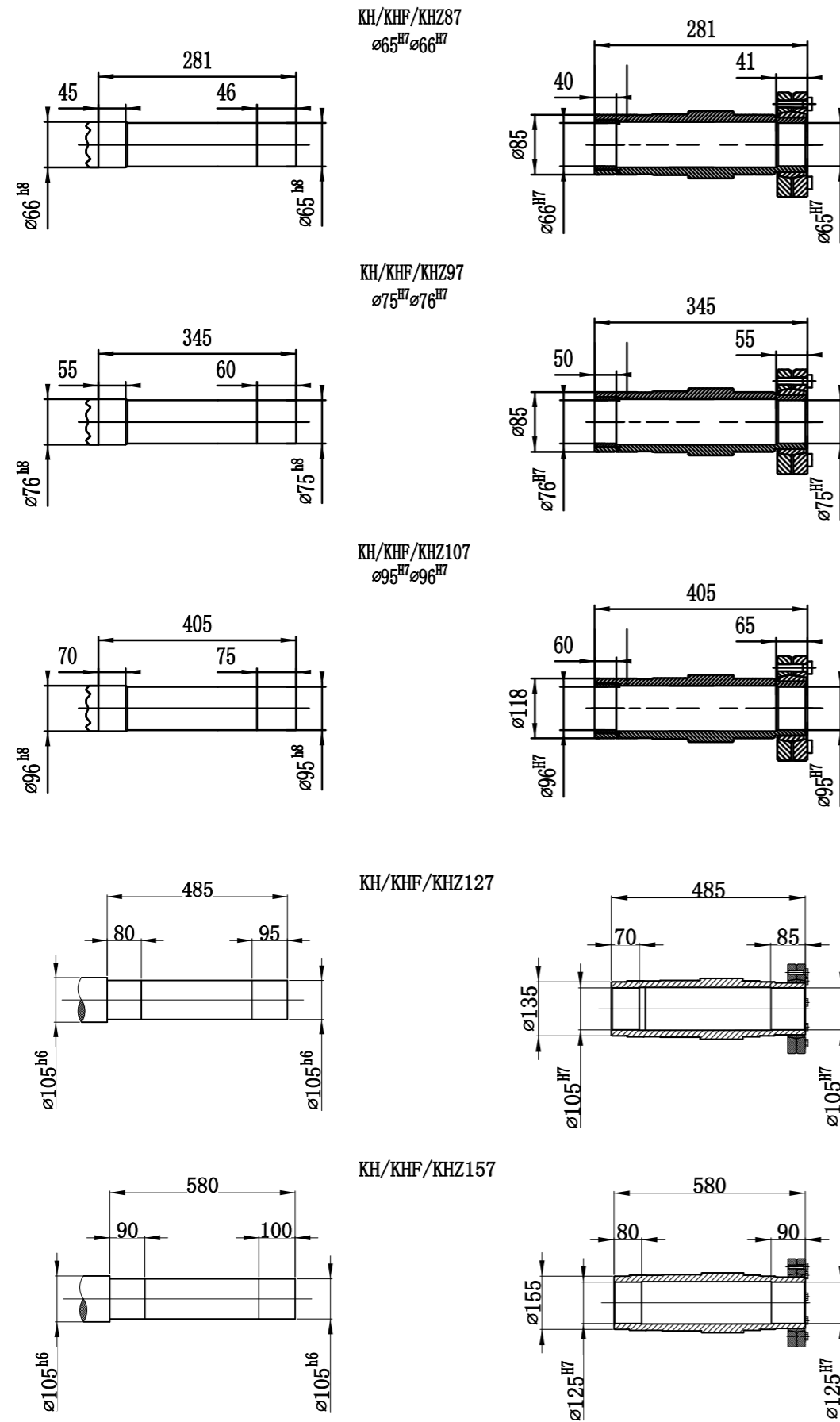


KH/KHF/KHZ67
 $\varnothing 40^{H7} \varnothing 42^{H7}$

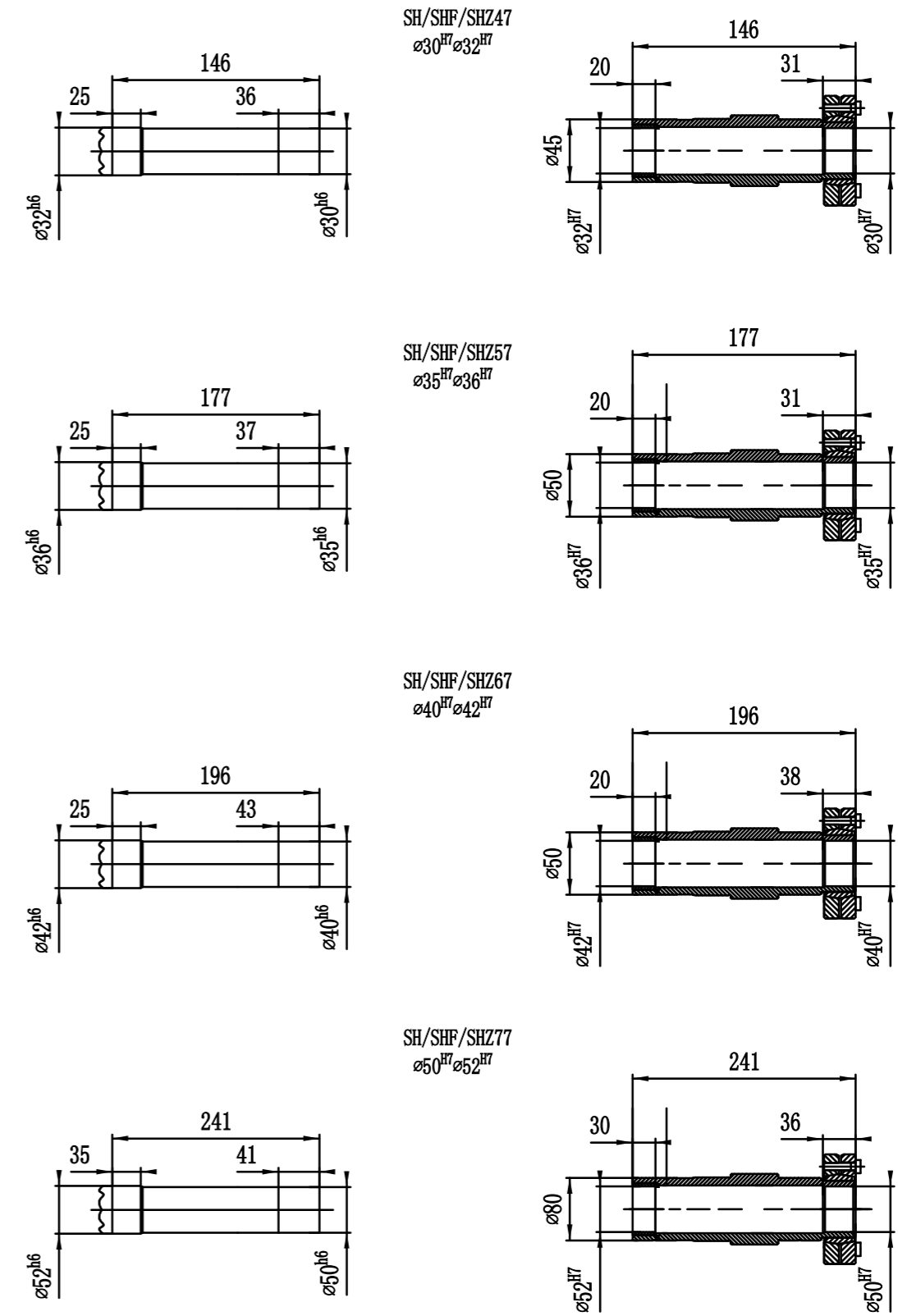


KH/KHF/KHZ77
 $\varnothing 50^{H7} \varnothing 52^{H7}$



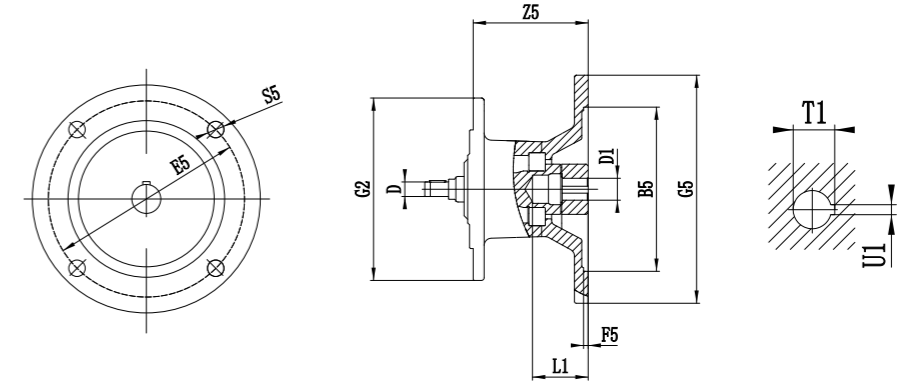
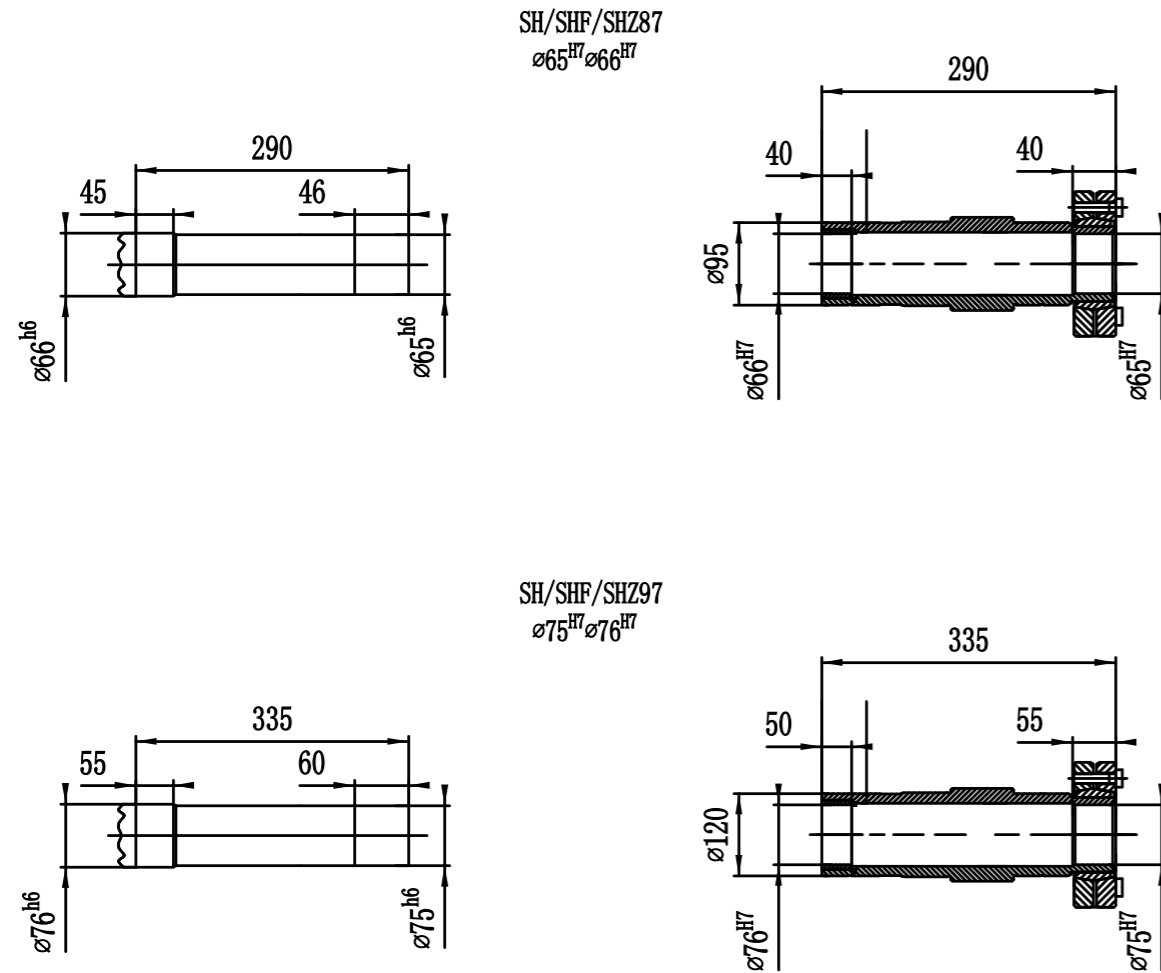


带轴阶空心轴和锁紧盘的斜齿轮—蜗杆减速电机
Helical-worm gear unit with shouldered hollow shaft and shrink disk

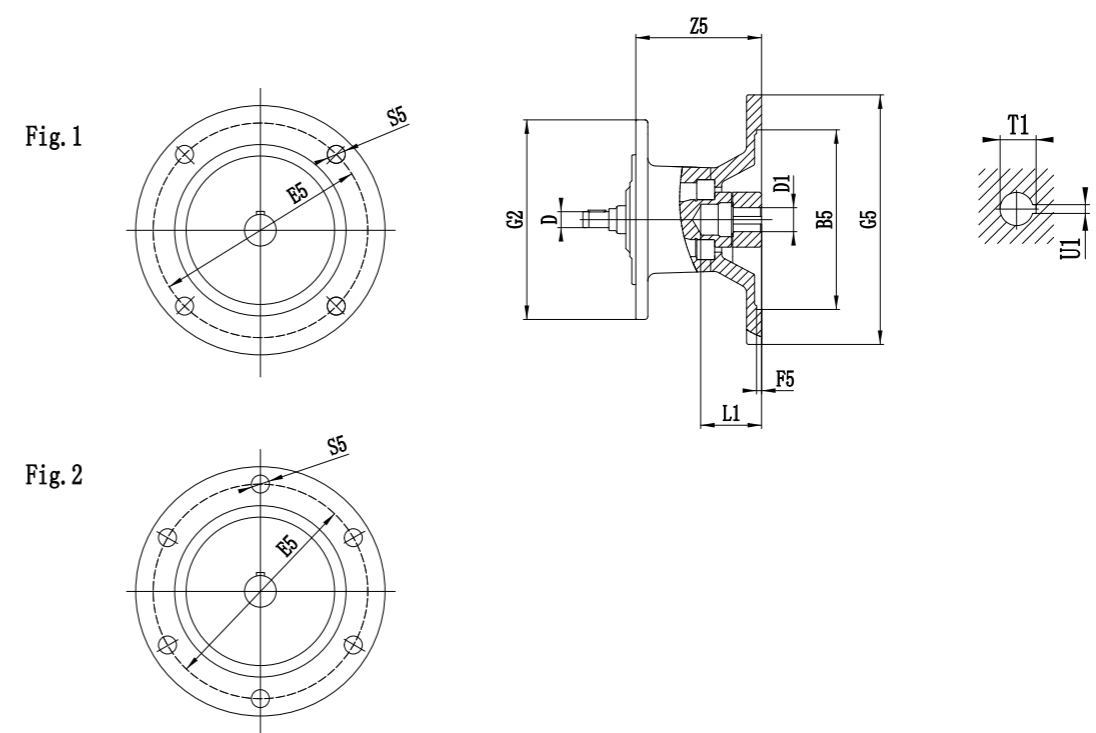
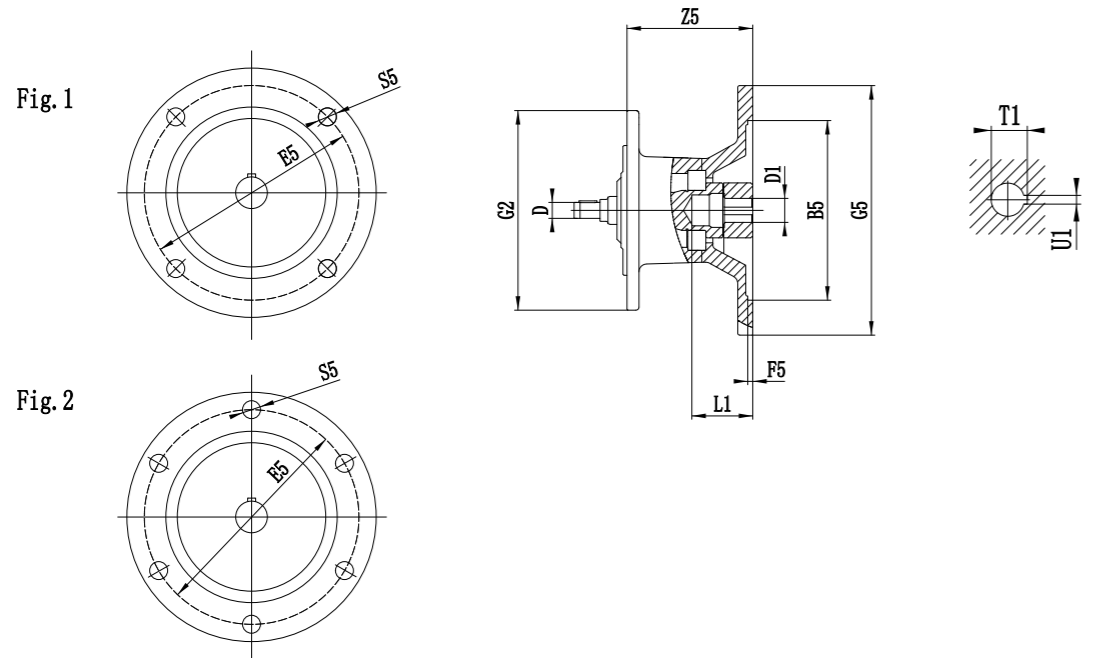




9.3 用于安装 IEC 标准电机的联轴器 9.3 Coupling for mounting of IEC motors



减速箱规格 Gear unit type	联轴器规格 Coupling type	B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
R..37 F..37,F..47 K..37 S..37,S..47,S..57	AM63	95	10	115	3.5	120	140	M8	72	11	23	12.8	4
	AM71 ¹⁾	110		130			160			14	30	16.3	5
	AM80 ¹⁾	130	12	165	4.5		200	M10	106	19	40	21.8	6
	AM90 ¹⁾		14							24	50	27.3	8
R..47,R..57,R..6 F..57,F..67 K..47,K..57,K..67 S..67	AM63	95	10	115	3.5	160	140	M8	66	11	23	12.8	4
	AM71	110		130			160			14	30	16.3	5
	AM80	130	12	165	4.5		200	M10	99	19	40	21.8	6
	AM90		14							24	50	27.3	8
	AM110 ¹⁾	180	16	215	5		250	M12	134	28	60	31.3	8
	AM112 ¹⁾	18	28							60	31.3	8	
R..77 F..77 K..77 S..77	AM63	95	10	115	3.5	200	140	M8	60	11	23	12.8	4
	AM71	110		130			160			14	30	16.3	5
	AM80	130	12	165	4.5		200	M10	92	19	40	21.8	6
	AM90		14							24	50	27.3	8
	AM100 ⁰⁾	180	16	215	5		250	M12	126	28	60	31.3	8
	AM112 ²⁾	18	28							60	31.3	8	
	AM132S ¹⁾	230	22	265	5		300	M12	179	38	80	41.3	10
	AM132M ¹⁾		28							80	41.3	10	
AM132ML ¹⁾	28		80			41.3				10			
R..87 F..87 K..87 S..87	AM80	130	12	165	4.5	250	200	M10	87	19	40	21.8	6
	AM90		14							24	50	27.3	8
	AM100	180	16	215	5		250	M12	121	28	60	31.3	8
	AM112		18							28	60	31.3	8
	AM132S	230	22	265	5		300	M12	174	38	80	41.3	10
	AM132M		28							80	41.3	10	
	AM132ML		28							80	41.3	10	
	AM160 ¹⁾	250	28	300	6		350	M16	232	42	110	45.3	12
AM180 ¹⁾	32		48			51.8				14			

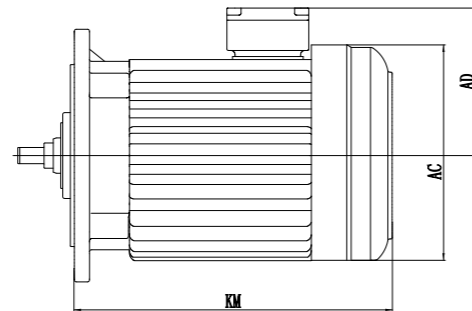


减速箱规格 Gear unit type	联轴器规格 Coupling type	Fig.	B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1	
R..97 F..97 K..97 S..97	AM100	1	180	16	215	5	300	250	M12	116	28	60	31.3	8	
	AM112			18											
	AM132S AM132M		230	22	265			300		M16	227	42	110	45.3	12
	AM132ML			28								51.8			
	AM160		250	28	300			6		350	268	55	140	59.3	16
	AM180			32								64.4			
	Am200		300	38	350			7		400	283	60	140	64.4	18
Am225	350	38		400		450									
R..107 F..107 K..107	AM100	1	180	16	215	5	350	250	M12	110	28	60	31.3	8	
	AM112			18											
	AM132S AM132M		230	22	265			300		M16	221	42	110	45.3	12
	AM132ML			28								51.8			
	AM160		250	28	300			6		350	262	55	140	59.3	16
	AM180			32								64.4			
	Am200		300	38	350			7		400	277	60	140	64.4	18
Am225	350	38		400		450									
R..137	AM132S AM132M	1	230	22	265	5	400	300	M12	156	38	80	41.3	10	
	AM132ML			28											
	AM160	250	28	300	6	350	214	42	110	45.3	12				
	AM180		32					51.8				14			
	AM200	300	38	350	7	400	255	55	140	59.3	16				
	AM225		350					38				400	450	270	60

减速箱规格 Gear unit type	联接盘规格 Motor adcopator	Fig.	B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
R..147 F..127 K..127	AM132S AM132M	1	230	22	265	5	450	300	M12	148	38	80	41.3	10
	AM132ML			28										
	AM160			250										
	AM180	2	300	38	350	7	550	M16	247	55	110	59.3	16	
	AM200			350										32
	AM225	2	450	48	500	7	550	M16	336	65	140	69.4	18	
AM250	75			79.9										20
AM280	450	48	500	550	328	65	140	69.4	18					
R..167 F..157 K..187	AM160	1	250	28	300	6	550	350	M16	198	42	110	45.3	12
	AM180			32										
	AM200	2	300	38	350	7	450	M16	239	55	110	59.3	16	
	AM225			350										38
	AM250	2	450	48	500	7	550	M16	328	65	140	69.4	18	
AM280	75			79.9										20

1) 如果安装在R, K和S系列脚底安装方式的减速机上, 请检查尺寸G5/2, 它可能已突出安装平面。
If it is installed on gear units with foot-mounted R, K and S series, please check the dimension of G5/2 as it may have protruded above surface.

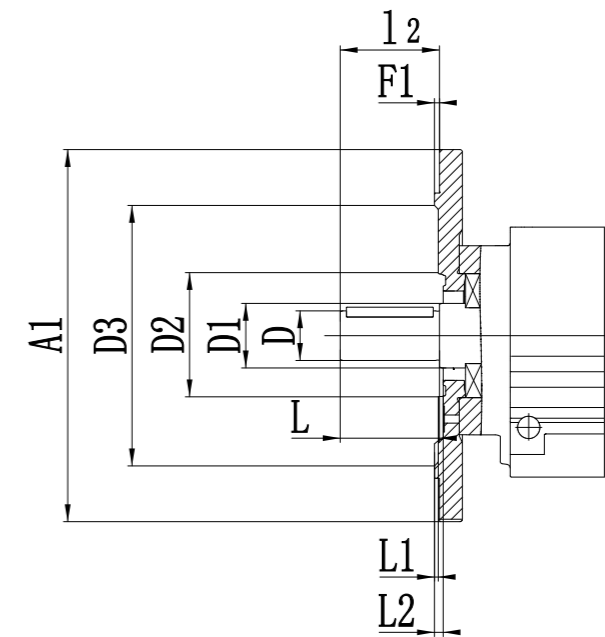
9.5 电机尺寸表
9.5 The size of motor



电机型号	外型尺寸			电机型号	外型尺寸			电机型号	外型尺寸		
	AC	AD	KM		AC	AD	KM		AC	AD	KM
WSS0.12KW-4	129	108	186.5	WSSAB0.75KW-4	169	125	292	WSSVPB4.0KW-4	219	145	483.5
WSSB0.12KW-4	129	111	222	WSSVP0.75KW-4	169	125	352	WSSVPAB4.0KW-4	219	145	483.5
WSSAB0.12KW-4	129	111	222	WSSVPB0.75KW-4	169	125	392	WSS5.5KW-4	257	188	409
WSSVP0.12KW-4	129	111	304	WSSVPAB0.75KW-4	169	125	392	WSSB5.5KW-4	257	191	477
WSSVPB0.12KW-4	129	111	334	WSS1.1KW-4	192	133	298	WSSAB5.5KW-4	257	191	477
WSSVPAB0.12KW-4	129	111	334	WSSB1.1KW-4	192	136	343.5	WSSVP5.5KW-4	257	191	477
WSS0.18KW-4	129	108	206.5	WSSAB1.1KW-4	192	136	343.5	WSSVPB5.5KW-4	257	191	522
WSSB0.18KW-4	129	111	243	WSSVP1.1KW-4	192	136	388.5	WSSVPAB5.5KW-4	257	191	522
WSSAB0.18KW-4	129	111	243	WSSVPB1.1KW-4	192	136	443.5	WSS7.5KW-4	257	188	452
WSSVP0.18KW-4	129	111	325	WSSVPAB1.1KW-4	192	136	443.5	WSSB7.5KW-4	257	191	520
WSSVPB0.18KW-4	129	111	355	WSS1.5KW-4	192	133	298	WSSAB7.5KW-4	257	191	520
WSSVPAB0.18KW-4	129	111	355	WSSB1.5KW-4	192	136	343.5	WSSVP7.5KW-4	257	191	520
WSS0.25KW-4	129	108	207	WSSAB1.5KW-4	192	136	343.5	WSSVPB7.5KW-4	257	191	565
WSSB0.25KW-4	129	111	242.5	WSSVP1.5KW-4	192	136	388.5	WSSVPAB7.5KW-4	257	191	565
WSSAB0.25KW-4	129	111	242.5	WSSVPB1.5KW-4	192	136	443.5	WSS11KW-4	318	195	508
WSSVP0.25KW-4	129	111	324.5	WSSVPAB1.5KW-4	192	136	443.5	WSSB11KW-4	318	195	608
WSSVPB0.25KW-4	129	111	354.5	WSS2.2KW-4	219	142	322.5	WSSAB11KW-4	318	195	608
WSSVPAB0.25KW-4	129	111	354.5	WSSB2.2KW-4	219	145	384.5	WSSVP11KW-4	318	195	558
WSS0.37KW-4	129	108	219.5	WSSAB2.2KW-4	219	145	384.5	WSSVPB11KW-4	318	195	643
WSSB0.37KW-4	129	111	256	WSSVP2.2KW-4	219	145	422.5	WSSVPAB11KW-4	318	195	643
WSSAB0.37KW-4	129	111	256	WSSVPB2.2KW-4	219	145	467.5	WSS15KW-4	318	195	508
WSSVP0.37KW-4	129	111	338	WSSVPAB2.2KW-4	219	145	467.5	WSSB15KW-4	318	195	608
WSSVPB0.37KW-4	129	111	368	WSS3.0KW-4	219	142	322.5	WSSAB15KW-4	318	195	608
WSSVPAB0.37KW-4	129	111	368	WSSB3.0KW-4	219	145	384.5	WSSVP15KW-4	318	195	558
WSS0.55KW-4	169	122	246.5	WSSAB3.0KW-4	219	145	384.5	WSSVPB15KW-4	318	195	643
WSSB0.55KW-4	169	125	291.5	WSSVP3.0KW-4	219	145	422.5	WSSVPAB15KW-4	318	195	643
WSSAB0.55KW-4	169	125	291.5	WSSVPB3.0KW-4	219	145	467.5	WSS18.5KW-4	380	285	564
WSSVP0.55KW-4	169	125	351.5	WSSVPAB3.0KW-4	219	145	467.5	WSSB18.5KW-4	380	285	664
WSSVPB0.55KW-4	169	125	391.5	WSS4.0KW-4	219	142	338.5	WSSAB18.5KW-4	380	285	664
WSSVPAB0.55KW-4	169	125	391.5	WSSB4.0KW-4	219	145	400.5	WSSVP18.5KW-4	380	285	614
WSS0.75KW-4	169	122	247	WSSAB4.0KW-4	219	145	400.5	WSSVPB18.5KW-4	380	285	699
WSSB0.75KW-4	169	125	292	WSSVP4.0KW-4	219	145	438.5	WSSVPAB18.5KW-4	380	285	699

注：上表中的电机尺寸为部分铁心长度电机的参考尺寸，具体尺寸根据铁心长度与联接法兰尺寸确定，因空间限制对电机尺寸有要求时请向我公司咨询。
Notice: The data in the above table is only for reference. Actual size will be determined by the length of iron and the size connecting flange. If you have any special requirements, please contact us.

9.6 RF..和R..F减速机法兰外形图
9.6 Flange contours of RF and R..F gear units



选择和安装输出零件时请注意L1和L2尺寸
Check dimensions L1 and L2 for selection and installation of output elements

规格 Type	A1	D	D1	D2		D3	F1	12	L	L1		L2
				RF	R..F					RF	R..F	
RF37	120	25	35	60	63	70	3	50	50	5	4	7
	160				-	96	3.5			1	-	7.5
	200				-	119	3.5			1	-	7.5
RF47	140	30	35	72	64	82	3	60	60	4	1	6
	160				-	96	3.5			0.5	-	6.5
	200				-	116	3.5			0.5	-	6.5
RF57	160	35	40	76	75	96	3.5	70	70	4	2.5	5
	200				-	116	3.5			0	-	5
	250				-	160	4			0.5	-	5.5
RF67	200	35	50	90	90	118	3.5	70	70	2	4	7
	250				-	160	4			1	-	7.5
RF77	250	40	52	112	100	160	4	80	80	0.5	2.5	7
	300				-	210	4			0.5	-	7
RF87	300	50	62	123	122	210	4	100	100	0	1.5	8
	350				-	226	5			1	-	9
RF97	350	60	72	136	236	5	120	120	0			9
	450				320							
RF107	350	70	82	157	232	5	140	140	0			11
	450				316							
RF137	450	90	108	180	316	5	170	170	0			10
	550				416							
RF147	450	110	125	210	316	5	210	210	0			10
	550				416							
RF167	550	120	145	290	416	5	210	210	1			10
	650				517							6



9.7 减速机安装 安装减速机和减速机时一定要使用8.8级螺栓
9.7 Gear unit mounting Always use bolts quality 8.8 for mounting gear units and geared motors

例外
Exception 当传递样本上所给定的额定扭矩时，下面几种法兰安装（RF..）和地脚/法兰安装（RF..）的斜齿轮减速机，法兰和用户安装单元固定时一定要用10.9级的螺栓。

- RF37
- RF47
- RF57

When the rated torque specified in the catalogue is transmitted, for the following flange-mounted(RF..) helical gear motors and foot/flange mounted helical motor, it is required to use 10.9 quality bolts for fastening the flange to the customer supplied unit:

- RF37
- RF47
- RF57

对于减速机KH167..和KH187..作为标准配置，一般不提供扭矩臂。如果需要，请和厂方联系，我们将给出推荐的安装位置和尺寸。
As stand ard,there are no torqye arms availble for gear unit sizes KH167.. and KH187..
Please contact if you require torque arms for these gear units . We will submit the configuration of recommendations.

KH167..,KH187
的力矩臂

9.8 润滑 9.8 Lubricants

概述
General information 除非特别要求，所提供的减速电机均按其减速机规格注了油。订货时，所规定的安装位置对注油量的多少是一个决定性因素。对于安装位置的调整必须相应地调节注油量。（按190页注油量表）。

Unless there is a special requirement, always supplies the gear unit with lubricant according to its specification. The decisive factor of oil injection quantity is the mounting position specified when ordering. The oil injection quantity must be adjusted accordingly should if the mounting position was adjusted afterwards.(Please refer to the table of lubricant injection quantity on Page 190.)

润滑油的等级和粘度类型
Lubricating oil grade and Viscosity Grade 推荐使用的润滑油见P189页润滑油表其等级和粘度指标见下表
Recommended lubricant oil refer to Page 189.The grade and conglutination index in the following.

DIN(ISO,SAE)标准润滑油 Normal lubricating	粘度指标 conglutination index	环境温度℃ Ambient temperature	减速机型号 Gear unit type
Mineral oil CLp(cc)	ISOVG 220	-10→+40	R系列, F系列 K系列减速机
	ISOVG 680	0→+40	S系列减速机

特殊应用场合必须使用特殊润滑油，比如要求长使用寿命润滑油。若需要可提供用于食品行业和生物降解润滑油。

The special lubricant oil. must be used in special situation. For example requesting use the oil with long life-span.If you want, we can afford lubricant for biological degradation industry and food industry.

DIN(ISO,SAE)标准润滑油 Normal lubricating	粘度指标 conglutination index	环境温度℃ Ambient temperature	减速机型号 Gear unit type
Mineral oil CLp(cc)	ISOVG 100	-20→+25	R系列, F系列 K系列减速机
Synthetic fluid, clp pg	ISOVG 220	-25→+80	R系列, F系列 K系列减速机
Synthetic fluid, CLP HC	ISOVG 460	-30→+80	S系列减速机

耐磨轴承用润滑油
Anti-friction bearing greases

下列润滑脂用于减速机和电机的耐磨轴承润滑
The following grease applies to the reducer and the anti-friction bearing of the motor

DIN(ISO,SAE)标准润滑油 Normal lubricating	环境温度℃ Ambient temperature	减速机型号 Gear unit type
矿物轴承润滑脂K32N/K2K mineral bearing lubricating K32N/K2K	-30→+60	正常型式：减速机、电机 Normal type: motor reducer
合成轴承润滑脂KHC 2R-40 synthetic bearing lubricating KHC 2R-40	-40→+80	减速机加注合成润滑油 Reducers need to inject the synthetic lubricant
矿物轴承润滑脂K3N-30 mineral bearing lubricating K3N-30	-25→+80	特殊型式：按应用场合确定的电机 Special type: select the motor in different situation
合成轴承润滑脂K2S-50 synthetic bearing lubricating K2S-50	-45→-25	特殊型式：按应用场合确定的电机 Special type: select the motor in different situation

传动装置润滑油表
Lubricant table

减速机型号 Gear unit type	环境温度 Ambient temperature 0°C +50 +100		润滑油 类型 DIN/ISO	ISO粘度与 NLGI相应	品牌	品牌	品牌	品牌	品牌						
	-10	标准								+40					
R K F R	-10	标准	+40	CLP (CC)	VG 220	Mobilgear 630	Shell Omrala 220	Kubersynth GEM 1-225	Aral Degol Bg220	BP Energol GR-Xp220	Tribol 1100/220	Meropa 220	Optigear Bm220	Renolin CLP 220	
	-25		+80	CLP (PG)	VG 220	Mobil Glygoyle 30	Shell Twela VVB	Kubersynth GH 6-220	BP Energol Bs220	BP Energol SR-Xp220	Tribol 800/220	Synlube CLP 220	Optiflex A 220		
	-40		+80	CLP (HC)	VG 220	Mobil SHC 630	Shell Omrala 220 HD	Kubersynth GEM 4-220	Aral Degol PAS220			Tribol 1510/200	Pinnacle EP220	Optigear Syn-thetic A220	Renolin Unisyn CLP 220
	-40		+40	CLP (HC)	VG 150	Mobil SHC 629		Kubersynth GEM 4-150							Renolin CLP 150
	-20		+25	CLP (CC)	VG 150	Mobilgear 629	Shell Tellus T15	Kuberoil GEM 1-150	Aral Degol Bg100	BP Energol GR-Xp100	Tribol 1100/100	Meropa 150	Optigear Bm 100	Renolin CLP 680	
	-30		+10	CLP (CC)	VG 68-46	Mobil D.TE 15M	Shell Tellus T32	Kuberoil GEM 1-68	Aral Degol Bg46			Tribol 1100/68	Anubia EP 46	Optigear 32	Renolin B 46 HVl
	-40		+10	CLP (HC)	VG 32	Mobil SHC 624		Kubersynth GEM 4-32					Celus PAO 46		
	-40			HLIP (HM)	VG 22	Mobil D.TE 11M	Shell Tellus T15	ISOFLIX MT 30 ROT					Aircraft Hydr.Oil 15		
	-20			CLP (CC)	VG 680	Mobilgear 636	Shell Omrala 680	Kuberoil GEM 1-680	Aral Degol Bg680	BP Energol GR-Xp680	Tribol 1100/680	Meropa 680	Optigear BM 680		
	0	标准	+40	CLP (CC)	VG 680	Mobilgear 636	Shell Omrala 680	Kubersynth Gh 6-680	BP Energol SR-Xp680	Tribol 800/680	Synlube CLP 680				
S	-40		+10	CLP (HC)	VG 460	Mobil SHC 634	Shell Omrala 460 HD	Kubersynth GEM 4-460							
	-30		+80	CLP (HC)	VG 150	Mobil SHC 629		Kubersynth GEM 4-150							
	-20		+10	CLP (CC)	VG 150	Mobil D.TE 18M	Shell Omrala 100	Kuberoil GEM 1-150	Aral Degol Bg100	BP Energol GR-Xp100	Tribol 1100/100	Meropa 100	Optigear BM 100	Renolin CLP 150	
	-25		+20	CLP (PG)	VG 220	Mobil Glygoyle 30		Kubersynth GH 6-220				Tribol 800/220	Synlube CLP 220	Optiflex A 220	
	-40		0	CLP (HG)	VG 32	Mobil SHC 624		Kubersynth GEM 4-32					Celus PAO 46	Optileb GT 460	
RK F/S	-30		+40	HCE	VG 460	Shell Cassida Fluid GL 460	Kuberoil 4U11-460	Aral Eural Bear 460					Optisyn BS 460		
	-20	标准	+40	E	VG 460		Kuberbio CA2-460								

K1

加油量
Lubricant fill quantities
斜齿轮减速机 (R..)
Helical gear units (R..)

规定的注油量是参考值。精确的注油量随着减速机的级数和速比的不同而变化。注油时，最有效时检查油位塞因为它指示精确注油量。
The specified lubricant fill quantity only for ref. Actual fill quantity varies when the number of stages or the ratio changes. When filling, best way to checking is to check the oil level plug since it indicates the fill quantity most precisely.

下表按安装位置M1-M6,给出了注油量的参考值。
The following tables gives the reference lubricant fill quantity value in relation to the mounting position M1-M6.

减速机型号 Gear unit type	注油量(升) Fill quantity(L)					
	M1 ¹⁾	M2 ¹⁾	M3	M4	M5	M6
R37	0.3/1	0.9	1	1.1	0.8	1
R47	0.7/1.5	1.6	1.5	1.7	1.5	1.5
R57	0.8/1.7	1.9	1.7	2.1	1.7	1.7
R67	1.1/2.3	2.6/3.5	2.8	3.2	1.8	2
R77	1.2/3	3.8/4.3	3.6	4.3	2.5	3.4
R87	2.3/6	6.7/8.4	7.2	7.7	6.3	6.5
R97	4.6/9.8	11.7/14	11.7	13.4	11.3	11.7
R107	6/13.7	16.3	16.9	19.2	13.2	15.9
R137	10/25	28	29.5	31.5	25	25
R147	15.4/40	46.5	48	52	39.5	41
R167	27/70	82	78	88	66	69

减速机型号 Gear unit type	注油量(升) Fill quantity(L)					
	M1 ¹⁾	M2 ¹⁾	M3	M4	M5	M6
RF37	0.4/1	0.9	1	1.1	0.8	1
RF47	0.7/1.5	1.6	1.5	1.7	1.5	1.5
RF57	0.8/1.7	1.8	1.7	2	1.7	1.7
RF67	1.2/2.5	2.7/3.6	2.7	3.1	1.9	2.1
RF77	1.2/2.6	3.8/4.1	3.3	4.1	2.4	3
RF87	2.4/6	6.8/7.9	7.1	7.7	6.3	6.4
RF97	5.1/10.2	11.9/14	11.2	14	11.2	11.8
RF107	6.3/14.9	15.9	17	19.2	13.1	15.9
RF137	9.5/25	27	29	32.5	25	25
RF147	16.4/42	47	48	52	42	42
RF167	26/70	82	78	88	65	71

1) 多级减速机中较大的减速机须注较多的油量。
1)The bigger one of a multi-stage gear unit must be filled with the larger oil quantity.

■ =合成润滑油 Synthetic lubricant
 □ =矿物润滑油 Mineral lubricant
 1) Please contact with when the Helical-worm geared motors use PG oil.
 2) Small conglutination index oil, other types of reducers. Please contact with DAI/FUSI.
 3) Food or beverage industry used oil.
 4) biological degradation oil.
 --High requirement when start-up in low temperature.

1) 用PG油时,请选用低凝点润滑油和
 2) 低粘油,其他型号减速机用油和
 3) 食品级行业用油(食品级油)
 4) 生物降解油(用于农业、林业和工业)
 *低温启动要求高

CLP PG=聚二脲类
 CLP HC=低氢化合物类
 E=二元磺醚合成油
 HCE=碳水化合物十二脂油

CLP=矿物油
 HLP=液压油
 CLP:Petrolatam oil
 HLP:Hydraulic pressure oil
 KBTS/Ga/VI



平行轴斜齿轮减速器 (F..)
Parallel shaft helical gear units (F..)

F..,FA..,FH..,FV..B

减速器型号 Gear unit type	注油量 (升) Fill quantity (L)					
	M1	M2	M3	M4	M5	M6
F37	1	1.2	0.7	1.2	1	1.1
F47	1.5	1.8	1.1	1.9	1.5	1.7
F57	2.6	3.7	2.1	3.5	2.8	2.9
F67	2.7	3.8	1.9	3.8	2.9	3.2
F77	5	7.3	4.3	8	6	6.3
F87	10	13.0	7.7	13.8	10.8	11
F97	18.5	22.5	12.6	25.2	18.5	20
F107	24.5	32	19.5	37.5	27	27
F127	40.5	55	34	61	46.5	47
F157	69	104	63	105	86	78

FF..

减速器型号 Gear unit type	注油量 (升) Fill quantity (L)					
	M1	M2	M3	M4	M5	M6
FF37	1	1.2	0.7	1.3	1	1.1
FF47	1.6	1.9	1.1	1.9	1.5	1.7
FF57	2.8	3.8	2.1	3.7	2.9	3
FF67	2.7	3.8	1.9	3.8	2.9	3.2
FF77	5.1	7.3	4.3	8.1	6	6.3
FF87	10.3	13.2	7.8	14.1	11	11.2
FF97	19	22.5	12.6	25.5	18.9	20.5
FF107	25.5	32	19.5	38.5	27.5	28
FF127	41.5	56	34	63	46.5	49
FF157	72	105	64	106	87	79

FA..,FH..,FV..,FAF..,FHF..,FVF..,FAZ..,FHZ..,FVZ..

减速器型号 Gear unit type	注油量 (升) Fill quantity (L)					
	M1	M2	M3	M4	M5	M6
F..37	1	1.2	0.7	1.2	1	1.1
F..47	1.5	1.8	1.1	1.9	1.5	1.7
F..57	2.7	3.8	2.1	3.6	2.9	3
F..67	2.7	3.8	1.9	3.8	2.9	3.2
F..77	5	7.3	4.3	8	6	6.3
F..87	11	13.0	7.7	13.8	10.8	11
F..97	18.5	22.5	12.6	25.0	18.5	20
F..107	24.5	32	19.5	37.5	27	27
F..127	39	55	34	61	45	46.5
F..157	68	103	62	104	85	77

斜齿轮-锥齿轮减速器 (K..)
Helical-bevel gear unit (K..)

K..,KA..,KH..,KV

减速器型号 Gear unit type	注油量 (升) Fill quantity (L)					
	M1	M2	M3	M4	M5	M6
K..37	0.5	1	1	1.3	1	1
K..47	0.8	1.3	1.5	2	1.6	1.6
K..57	1.2	2.3	2.5	3	2.6	2.6
K..67	1.1	2.4	2.6	3.4	2.6	2.6
K..77	2.2	4.1	4.4	5.2	4.2	4.4
K..87	3.7	8	8.7	10.4	7.8	8
K..97	7	14	15.7	20	15.7	15.5
K..107	10	21	25.5	33.5	24	24
K..127	21	41.5	44	51	40	41
K..157	31	62	65	90	58	62
K..167	35	100	100	125	85	82
K..187	60	170	170	205	130	130

KF..

减速器型号 Gear unit type	注油量 (升) Fill quantity (L)					
	M1	M2	M3	M4	M5	M6
KF37	0.5	1.1	1.1	1.5	1	1
KF47	0.8	1.3	1.7	2.2	1.6	1.6
KF57	1.3	2.3	2.7	3	2.9	2.7
KF67	1.1	2.4	2.8	3.6	2.7	2.7
KF77	2.1	4.1	4.4	6	4.5	4.5
KF87	3.7	8.2	9	11.9	8.4	8.4
KF97	7	14.7	17.3	21.5	15.7	16.5
KF107	10	22	26	35	25	25
KF127	21	41.5	46	55	41	41
KF157	31	66	69	92	62	62

KA..,KH..,KV..,KAF..,HF..,KVF..,KAZ..,KHZ..,KVZ..

减速器型号 Gear unit type	注油量 (升) Fill quantity (L)					
	M1	M2	M3	M4	M5	M6
K..37	0.5	1	1	1.4	1	1
K..47	0.8	1.3	1.6	2.1	1.6	1.6
K..57	1.3	2.3	2.7	3	2.9	2.7
K..67	1.1	2.4	2.7	3.6	2.6	2.4
K..77	2.1	4.1	4.6	6	4.4	4.4
K..87	3.7	8.2	8.8	11.1	8	8
K..97	7	14.7	15.7	20	15.7	15.7
K..107	10	20.5	24	32	24	24
K..127	21	41.5	43	51	40	40
K..157	31	66	67	87	62	62
K..167	35	100	100	125	85	85
K..187	60	170	170	205	130	130

斜齿轮-涡轮蜗杆减速机 (S..)
Helical-worm gear units (S..)

S..

减速器型号 Gear unit type	注油量 (升) Fill quantity (L)					
	M1	M2	M3 ¹⁾	M4	M5	M6
S37	0.25	0.4	0.5	0.6	0.4	0.4
S47	0.35	0.8	0.7	1.1	0.8	0.8
S57	0.5	1.2	1	1.5	1.3	1.3
S67	1	2.0	2.2/3.1	3.2	2.6	2.6
S77	1.9	4.2	3.7/5.4	6	4.4	4.4
S87	3.3	8.1	6.9/10.4	12	8.4	8.4
S97	6.8	15	13.4/18	22.5	17	17

1) 多级减速箱中较大的减速机须注较多的油量。
1)The bigger one of a multi-stage gear unit must be filled with the larger oil quantity.

SF..

减速器型号 Gear unit type	注油量 (升) Fill quantity (L)					
	M1	M2	M3 ¹⁾	M4	M5	M6
SF37	0.25	0.4	0.5	0.6	0.4	0.4
SF47	0.4	0.9	0.9	1.2	1.0	1.0
SF57	0.5	1.2	1	1.6	1.4	1.4
SF67	1	2.2	2.3/3	3.2	2.7	2.7
SF77	1.9	4.1	3.9/5.8	6.5	4.9	4.9
SF87	3.8	8	7.1/10.1	12	9.1	9.1
SF97	7.4	15	13.8/18.8	23.6	18	18

1) 多级减速箱中较大的减速机须注较多的油量。
1)The bigger one of a multi-stage gear unit must be filled with the larger oil quantity.

SA..,SH..,SAF..,SHF..,SAZ..,SHZ..

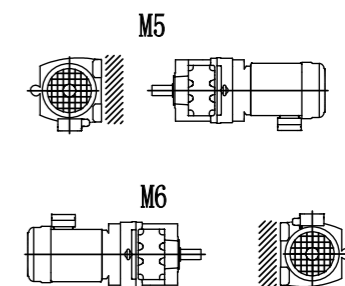
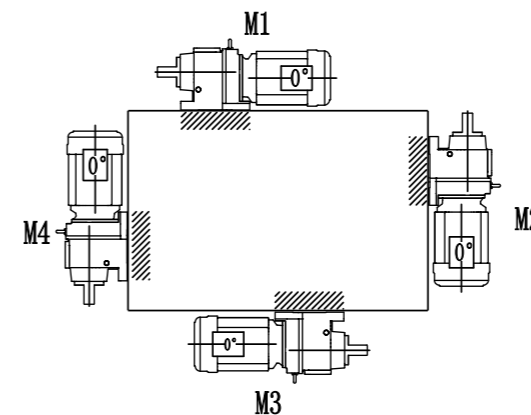
减速器型号 Gear unit type	注油量 (升) Fill quantity (L)					
	M1	M2	M3 ¹⁾	M4	M5	M6
S..37	0.25	0.4	0.5	0.6	0.4	0.4
S..47	0.4	0.8	0.7	1.1	0.8	0.8
S..57	0.5	1.1	1	1.6	1.2	1.2
S..67	1	2	1.8/2.6	2.9	2.5	2.5
S..77	1.8	3.9	3.6/5	5.9	4.5	4.5
S..87	3.8	7.4	6/8.7	11.2	8	8
S..97	7	14	11.4/16	21	15.7	15.7

1) 多级减速箱中较大的减速机须注较多的油量。
1)The bigger one of a multi-stage gear unit must be filled with the larger oil quantity.

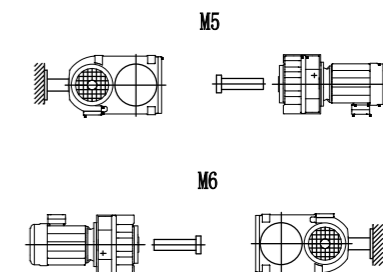
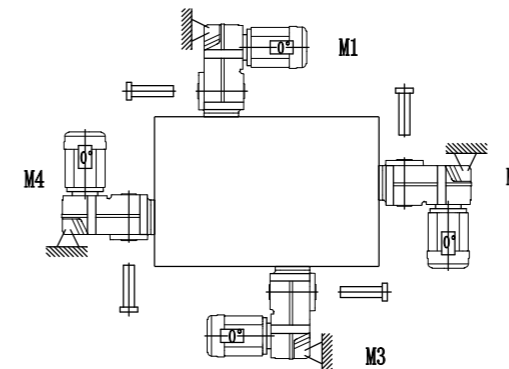
10. 安装位置
Mounting Position

10.1 安装位置概述
10.1 Mounting Position designation

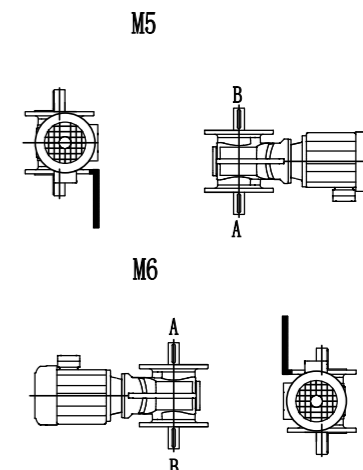
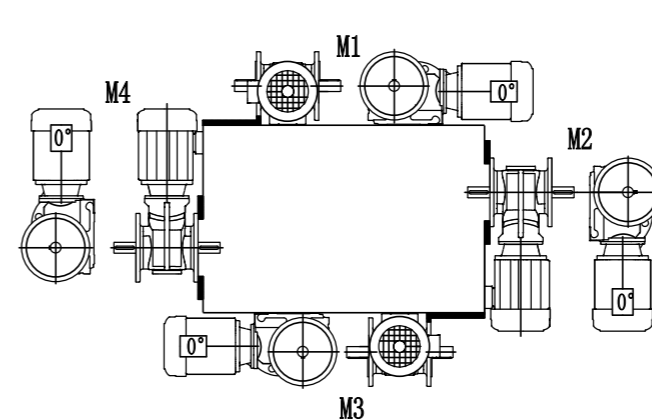
安装位置说明：减速电机有M1..M6共6种安装位置。
下面的图标说明了减速器安装位置M1..M6的空间排列。
differences between six mounting position M1-M6 for geared motors. The following pictures shows the spatial arrangement of the gear units in mounting positions M1-M6.



R..



F..



S..
K..

重要的订货信息
Important information for order
除了安装位置以外，下面订货资料也是必需的，以便精确描述所要求的减速电机外形。
Except the mounting position, the following informations for exactly depicting the shape of gear unit are necessary.
电机接线盒位置
电机接线上出线口位置
对直角轴减速机：输出方向
对直角轴型带收缩盘轴装式减速机：连接端带或不带法兰
Unit exactly are necessary
Position of the motor terminal box
For the right-angel shaft reducers: output shaft connection.
For the right-angrl shaft reducers: with shrink-disk:with or without flange.

电机接线盒和出线嘴位置
Position of the motor terminal box cable entry

电机接线盒从电机风扇罩看(如图), 位置分别表示为0°, 90°, 180°或270°
出线嘴的位置也可以进行选择(如图), 分别表示为“Normal”, “1”, “2”或“3”
Possible positions of the terminal box are 0°, 90°, 180° or 270° as see from the fan guard side
In addition, the position of the cable entry can be selected. The possibilities are “X” (=normal position), “1”, “2” or “3”

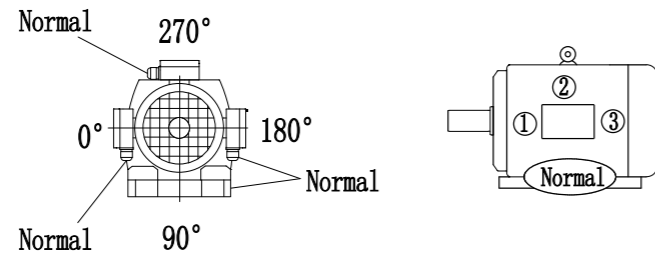


图: 接线盒与出线嘴的位置
Fig: Position of the terminal box and cable entry

对于接线盒, 除非给出了详细信息, 否则接线盒按0°, 出线嘴按“Normal”供货。
我们建议安装位置在M3时, 应选择出线嘴位置为“2”。
注意:
D71..BMG接线盒位置为90°时, 出线嘴位置不能标为“2”。
D71..When the BMG junction box position is 90°, the outlet nozzle position cannot be marked as "2".

减速电机的旋转方向
The rotation direction of the reducer

规定出减速电机转方向是很必要的。按下列标识:
从输出轴看: 顺时针 (CW) 为向右旋转逆时针 (CCW) 为向左旋转
It's necessary to specify the turning direction of reducer. Please follow the identification below:
From the output shaft: clockwise (CW) is the right rotation and counterclockwise (CCW) is the left rotation.

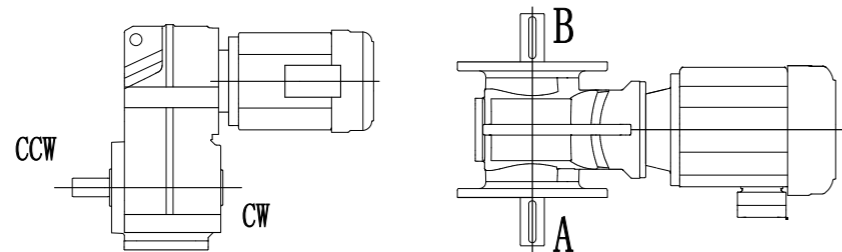


图: 输出轴的旋转方向
Fig: Rotating direction of gear unit with a backstop
对于直角轴型式减速电机, 规定出给定的旋转方向是从A端看还是从B端看的, 这是非常必要的。
In right-angle gear units, it is necessary to indicate of rotation is given where be looked from the A or B end.

输出轴的位置
Position of the output shaft

对于直角轴型减速机, 规定出轴方向是必要的: A或B, 还是A+B (见图)
In right-angle gear units, it is necessary to stipulate the direction of the output shaft and output flange: A or B or A+B

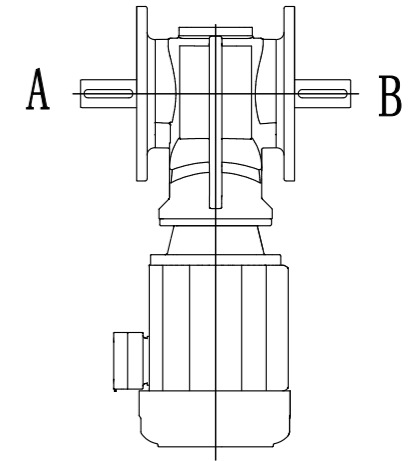


图: 出轴方向
Fig: Position of the Output shaft

带锁紧盘的轴装直角减速机
Shaft mounted right-angle gear units with shrink disk

对于轴装式带锁紧盘的直角轴型式减速电机, 规定出A端还是B端为连接端并且连接端是否有法兰是必要的。在图中, A端是连接端, 锁紧盘在连接端对面。
For the rectangular shaft type reducer with locking disc, specify the end A or the end B as the connecting end, if it's necessary with flanges. In the figure, end A is the connecting end, and the locking plate is opposite to the connecting end.

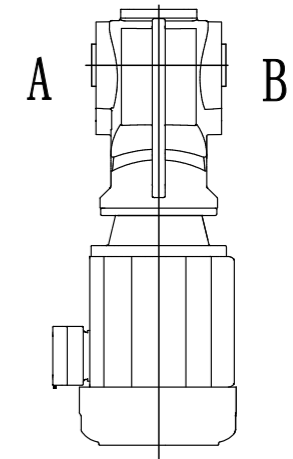


图: 连接端的位置
Fig: position of the connection end

订购实例:
Sample orders

对于K167/K187来讲, 安装为M5和M6时, 连接端只能是在底部连接。
Connection end at bottom only is possible with K167/K187 helical-bevel gear units in mounting positions M5 and M6.

类型 Type	安装位置 Mounting position	连接端 Shaft with	锁紧盘位置 Position of shrink disk	法兰 Flange	接线位置 Position of terminal box	出线嘴位置 Position of cable entry	旋转方向 Rotation direction	出轴方向 Output shaft direction
KF47-WSS0.37KW-4	M5	A	-	B	0°	“Normal”	CW	A
SF97-WSS18.5KW-4	M2	A+B	-	A+B	180°	“2”	-	A+B
KH107-WSS15KW-4	M1	-	B	-	270°	“3”	-	-

所有符号的含义
Symbols used

下表列出，在安装位置上的符号及其含义
The following table shows the symbols used in the mounting position sheets and what they mean:

符号 Symbol	含义 Meaning
	通气器 Breather valve
	油标 Oil level plug
	放油螺塞 Oil drain plug
	进线位置 In the plug

搅油损失
Churning losses

在某些安装位置可能增加搅油损失，在下列结构中请向厂方咨询
The churning losses may arise in some mounting positions,
please contact manufacturer in case of the following combinations.

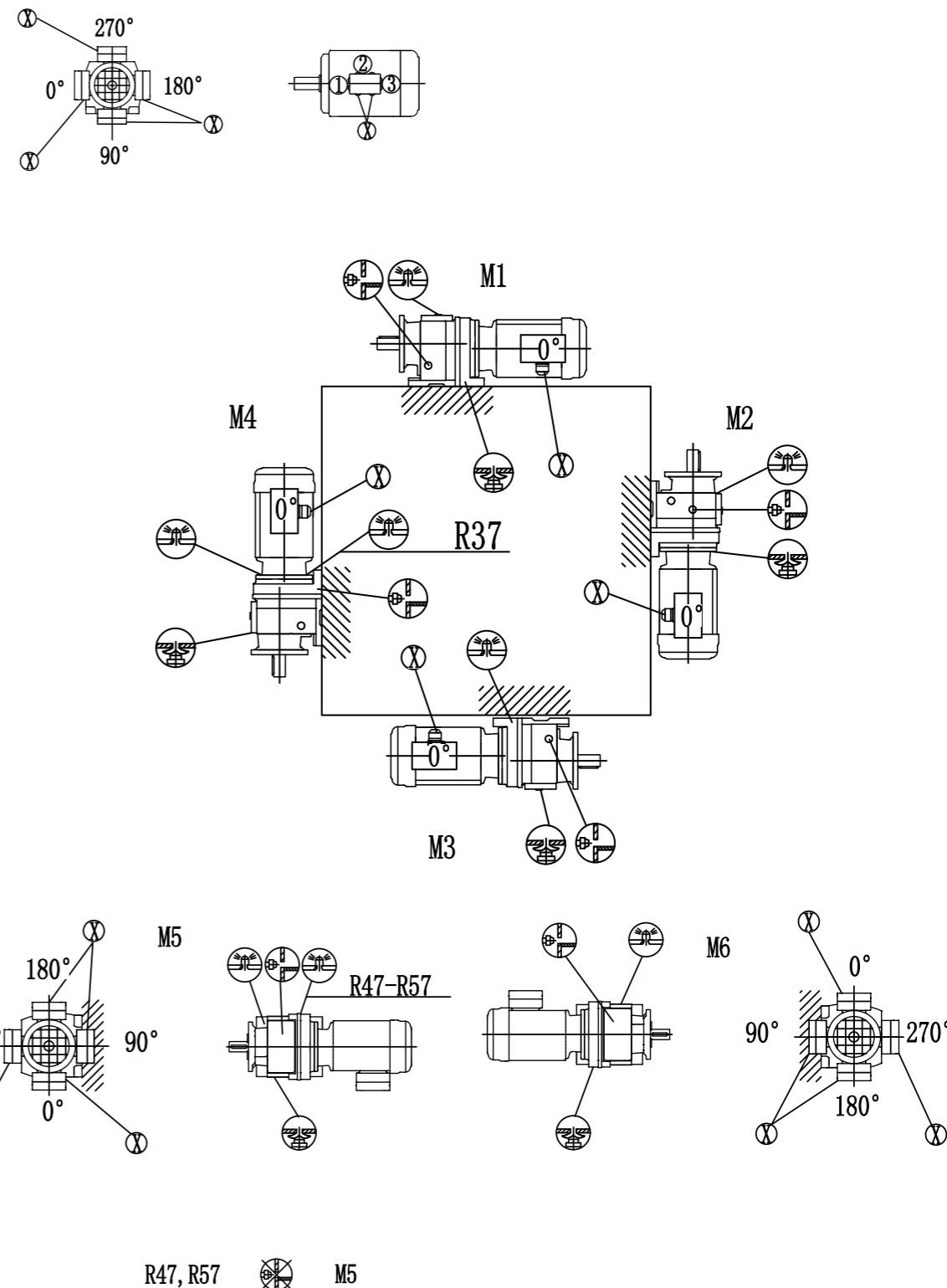
安装位置 Mounting position	减速器型号 Gear unit type	减速器规格 Gear unit size	输入速度(rpm) Input speed
M2,M4	R	97-107	>2500
		>107	>1500
M2,M3,M4,M5,M6	F	97-107	>2500
		>107	>1500
	K	77-107	>2500
		>107	>1500
S	77-97	>2500	

润滑油检查和维护周期
Lubricant inspection and maintenance period

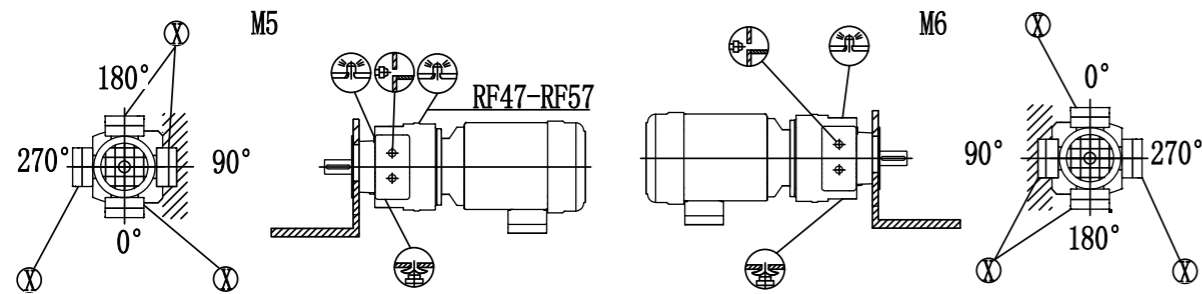
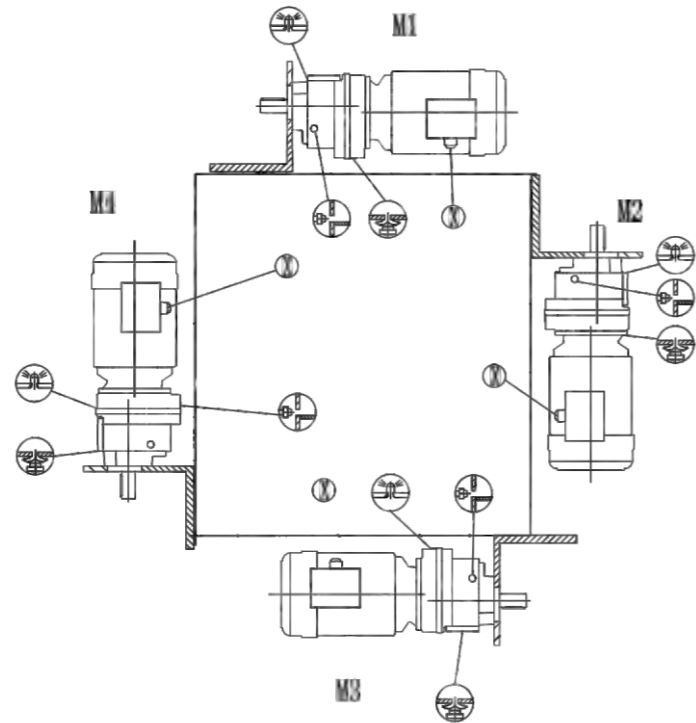
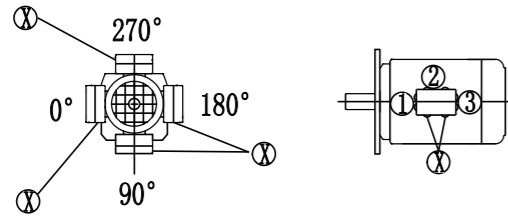
维护周期 Maintenance Period	内容 Content
首次运行300小时 First running for 300 hours	箱体清洗干净后换油 Replace the lubricant after clean the box body
每六个月或工作3000小时 Check once a month or every 3000 working hours	检查油 Check the lubricant
取决于运行条件，检查周期不得长于3年 Depending on operating condition, lubricant inspecting period should not longer than 3 years	更换矿物油 Change to mineral lubricant
	更换耐磨轴承润滑油 Change lubricant for anti-friction bearing


10.2 斜齿轮减速电机安装位置
10.2 Mounting position of Helical gear unit

R37-R167

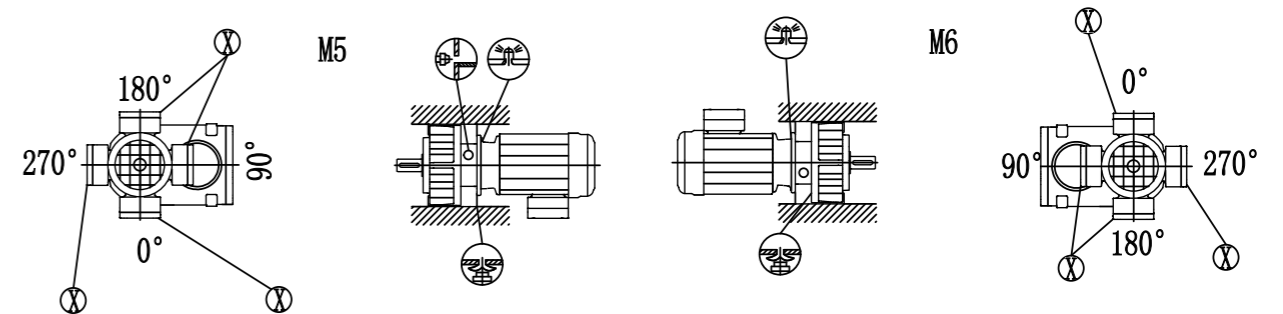
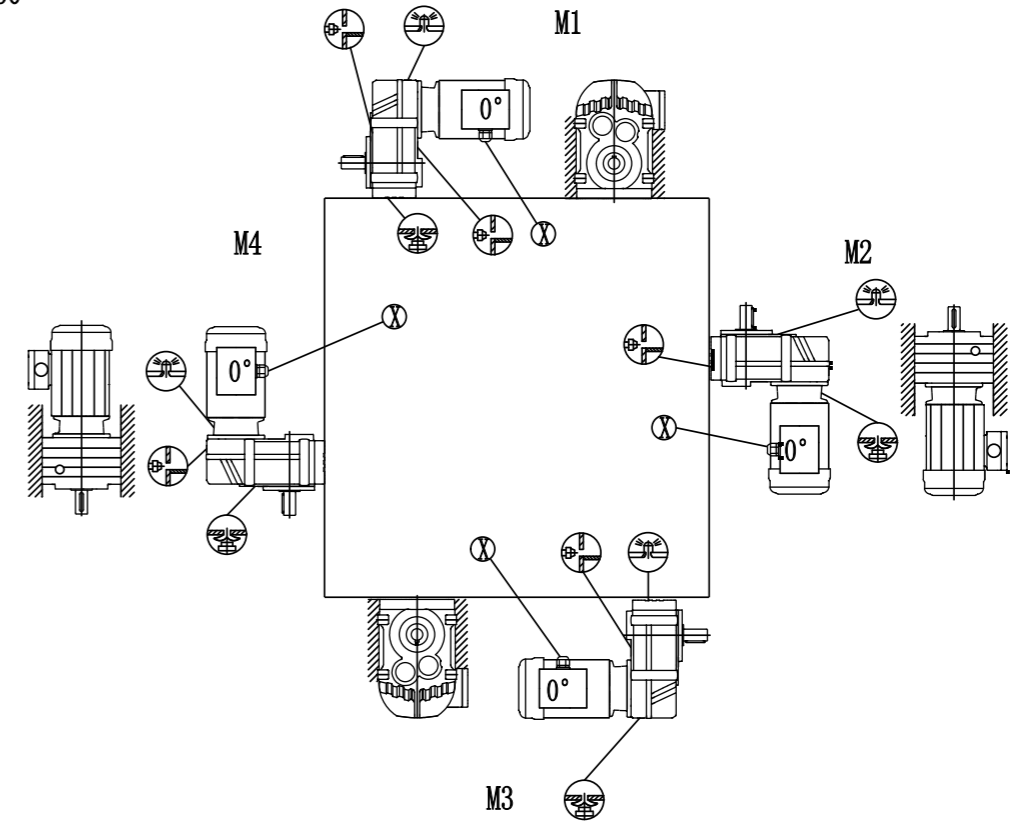
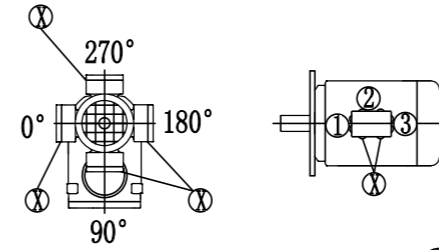


RF37-RF167



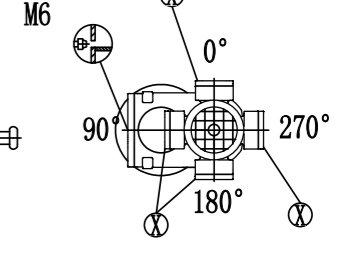
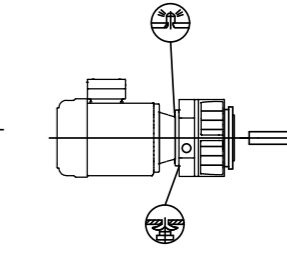
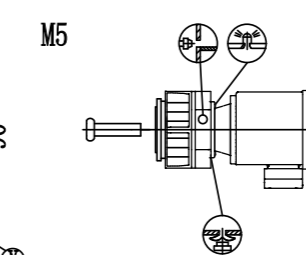
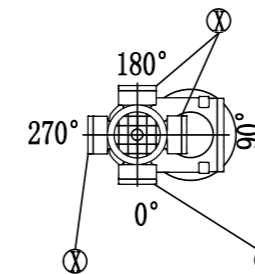
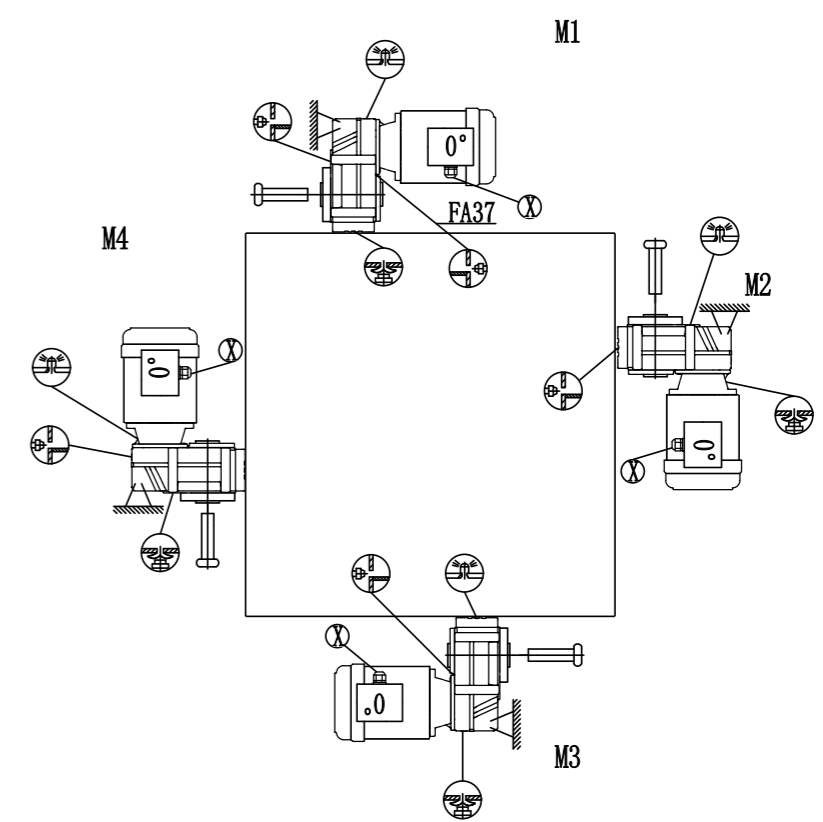
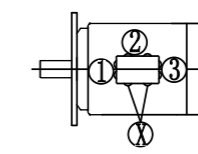
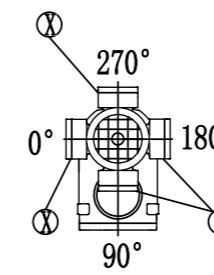
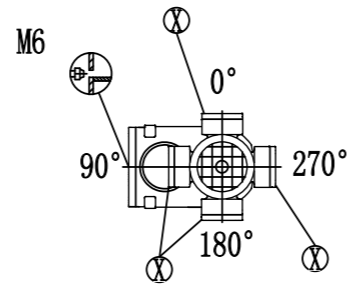
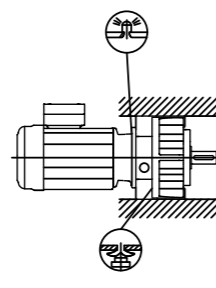
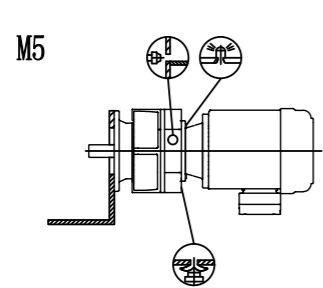
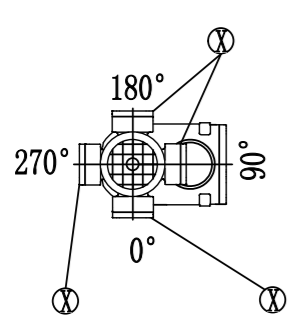
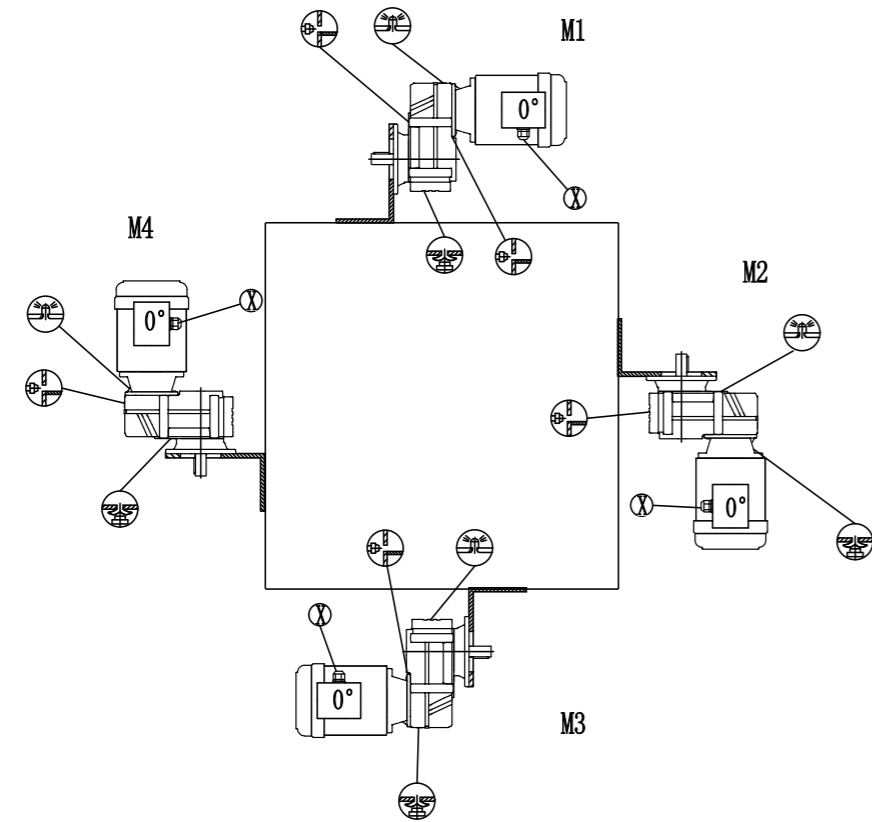
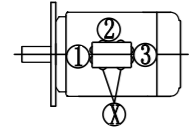
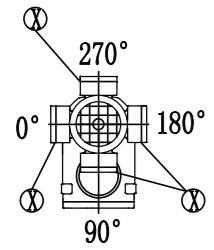
RF47, RF57  M5

10.3 平行轴斜齿轮减速电机安装位置
10.3 Mounting position of parallel shaft helical Gear unit
F/FA..B/FH37B-157B,FV37B-157B



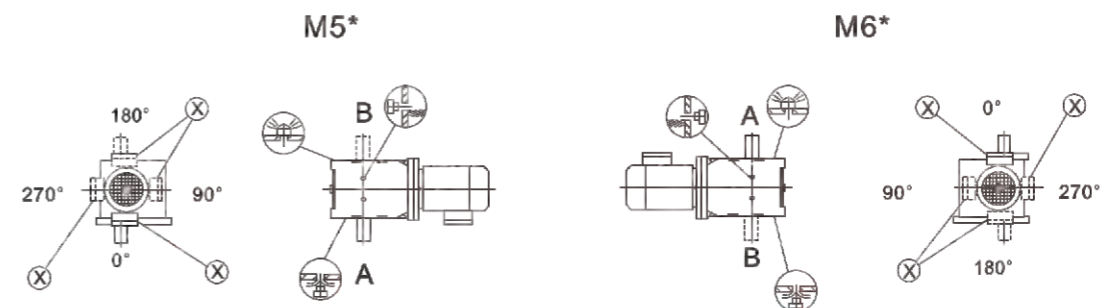
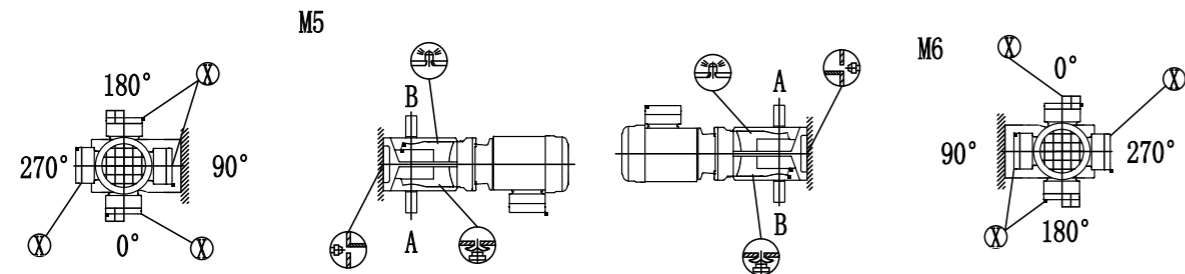
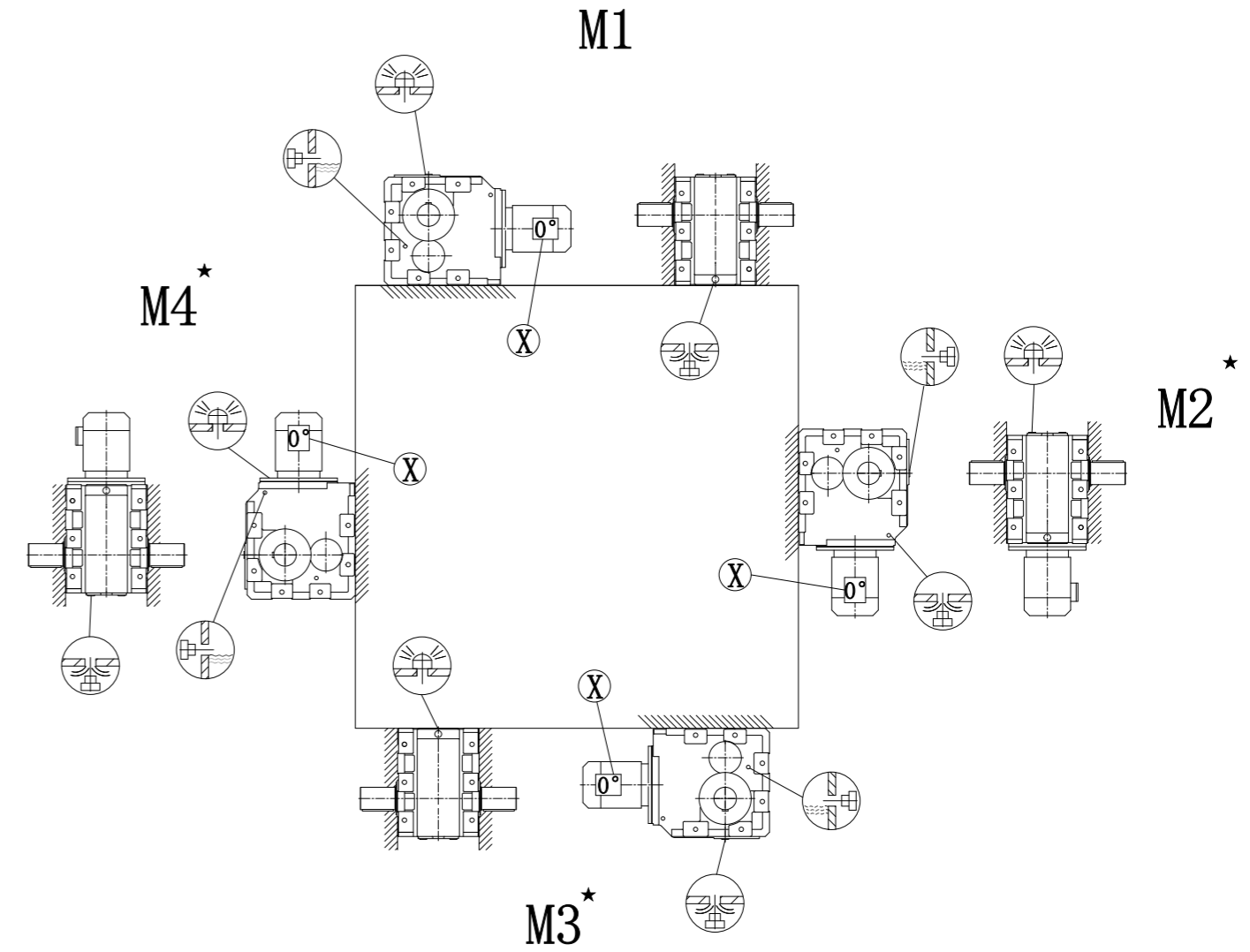
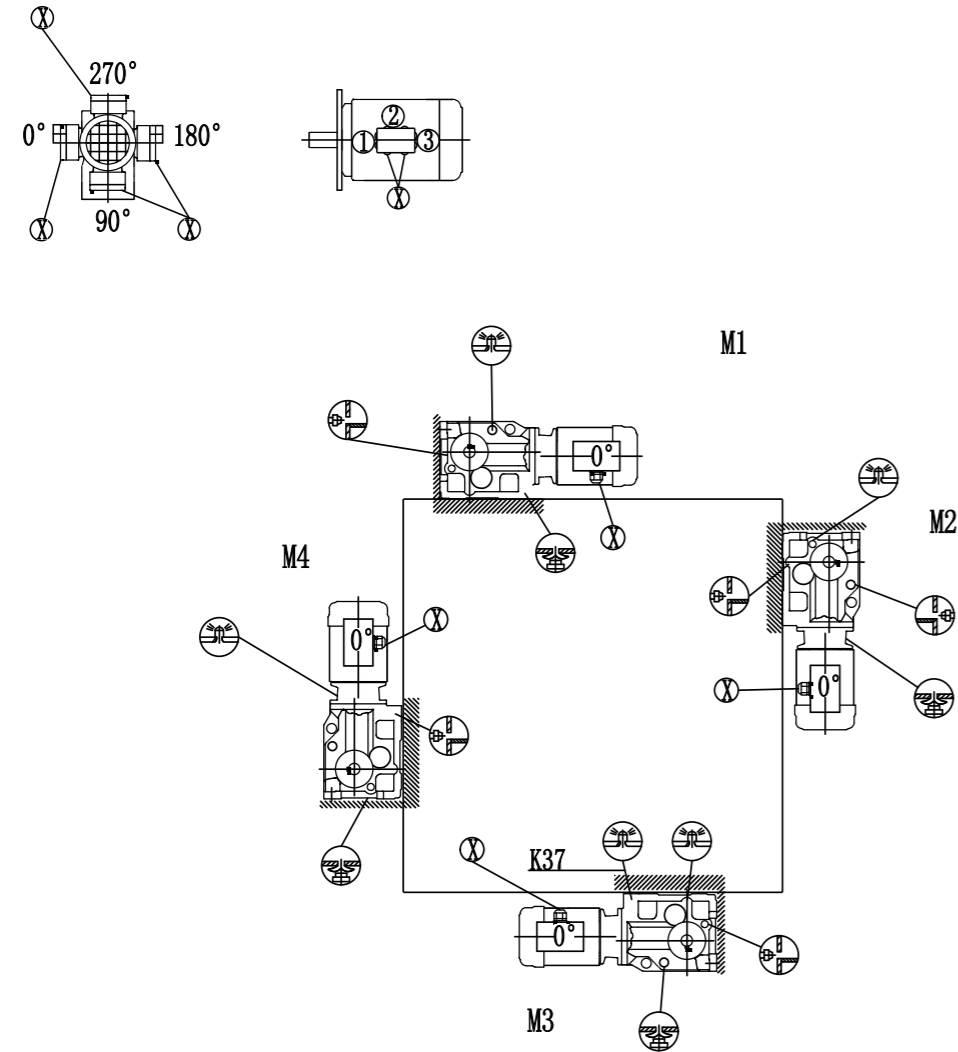
FF/FAF/FHF/FAZ/FHZ37-157,FVF/FVZ37-107

FA/FH37-157,FV37-107



10.4 斜齿轮-伞齿轮减速电机安装位置
Mounting position of helical/bevel Gear unit
K/KA..B/KH37B-157B,KV37B-107B

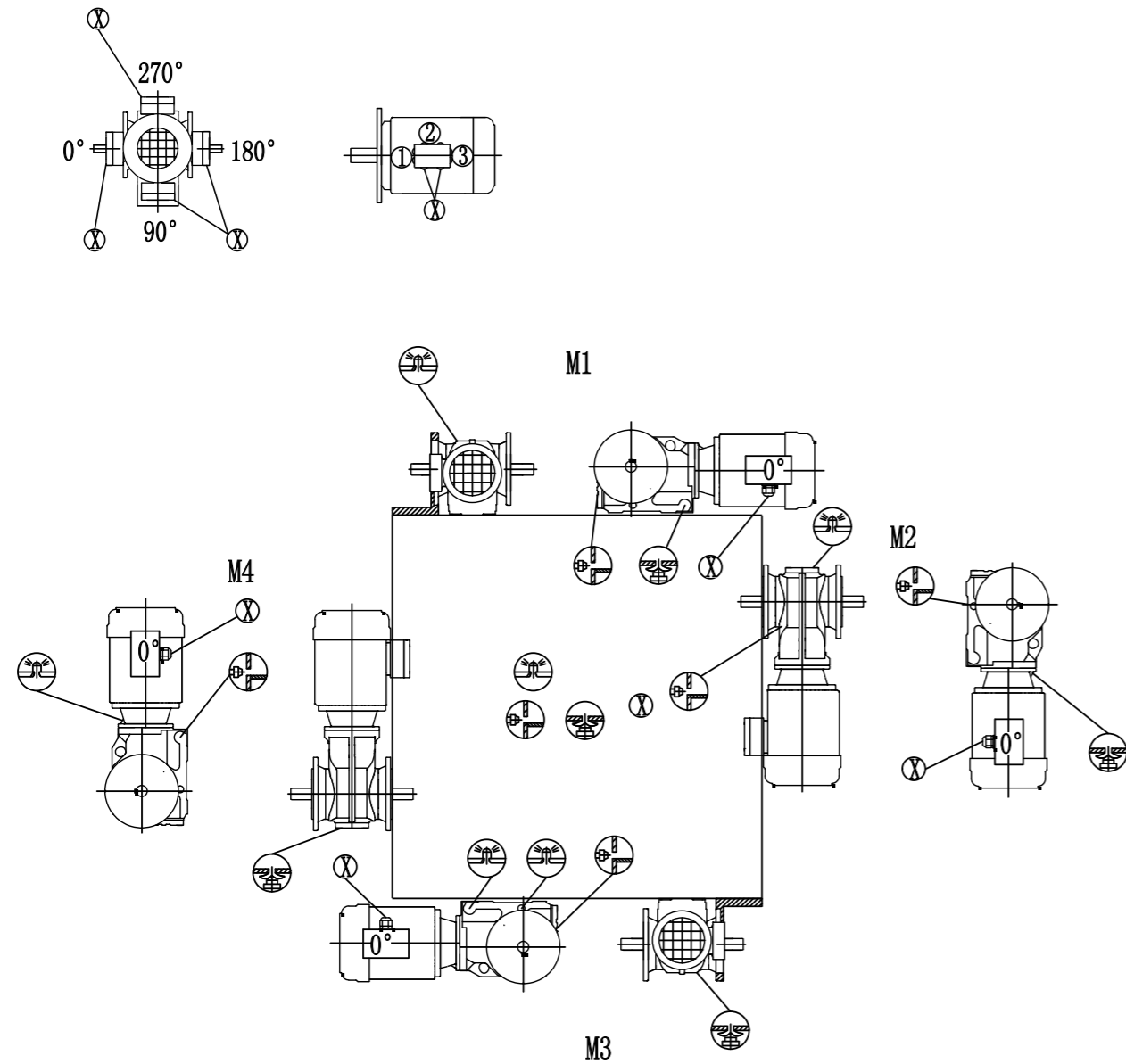
K167-187,KH167B-187B



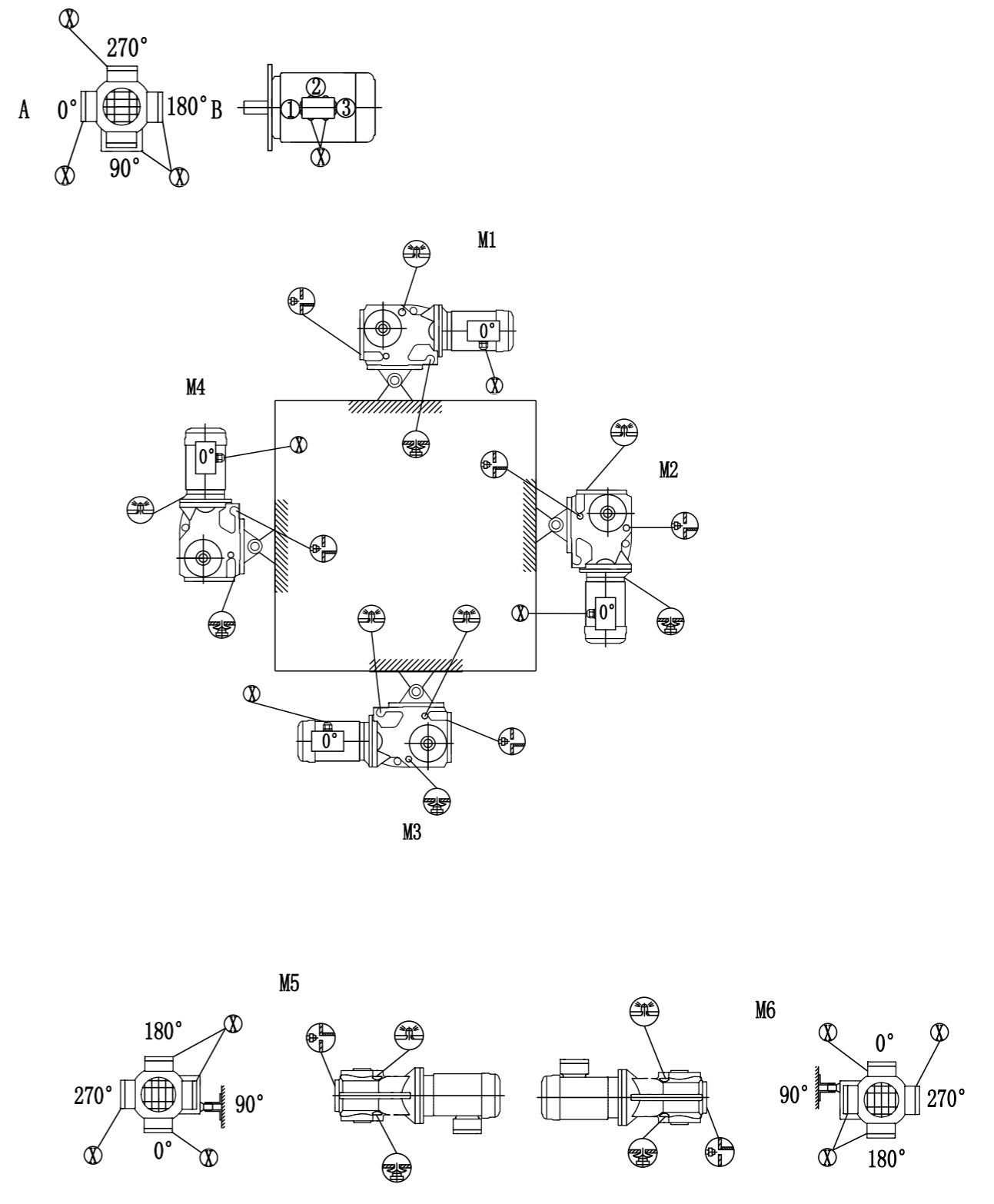
重要：请参见“减速器选型”中“径向和轴向负载”部分（P21）
Important: Please refer to the information in the “Geared Motors” catalog. Optional Planning for gear units Ouerhung and axial loads part (P21)

重要：请参见“减速器选型”中“径向和轴向负载”部分（P21）
Important: Please refer to the information in the “Geared Motors” catalog. Optional Planning for gear units Ouerhung and axial loads part (P21)

KF/KAF/KAZ/KHZ37-157,KVF/KVZ37-107



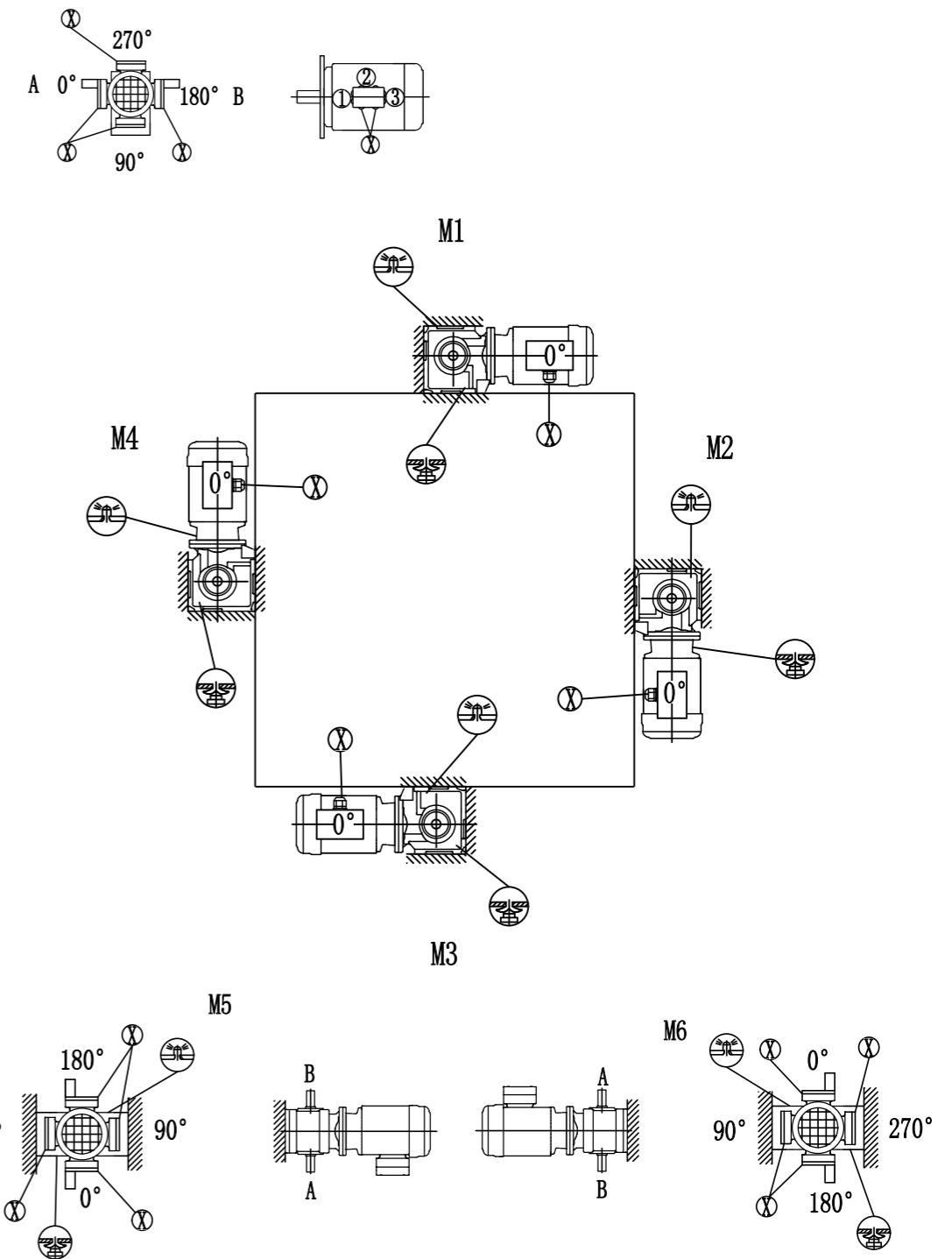
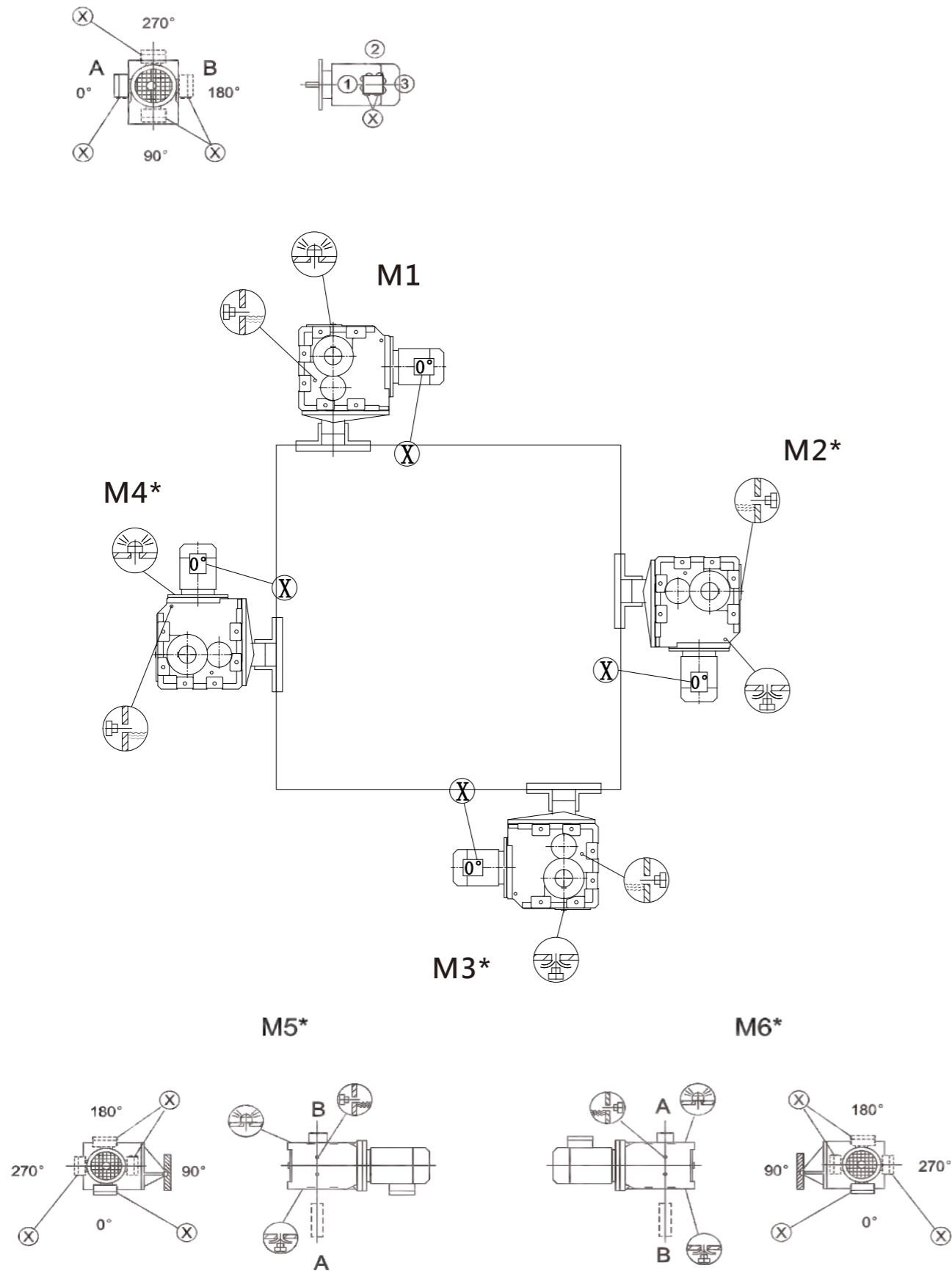
KH/KH37-157,KV37-107





KH167-187

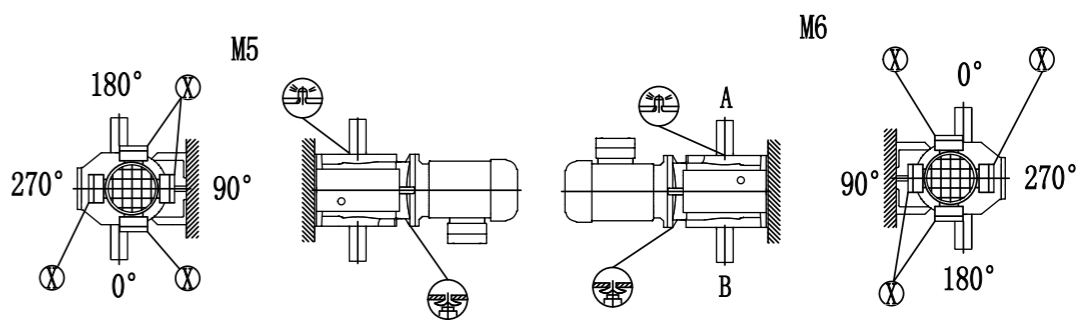
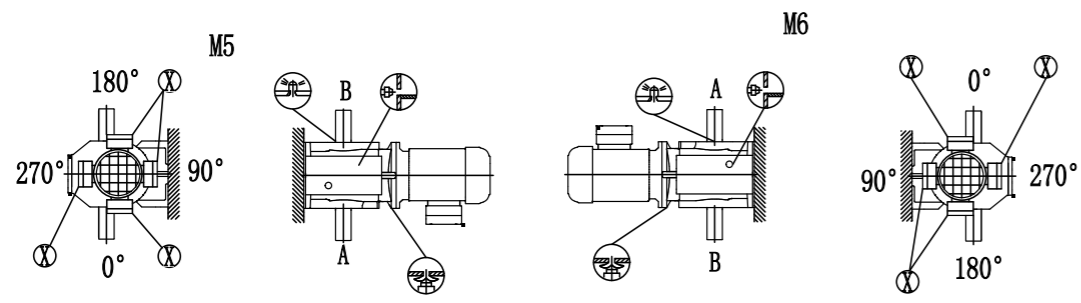
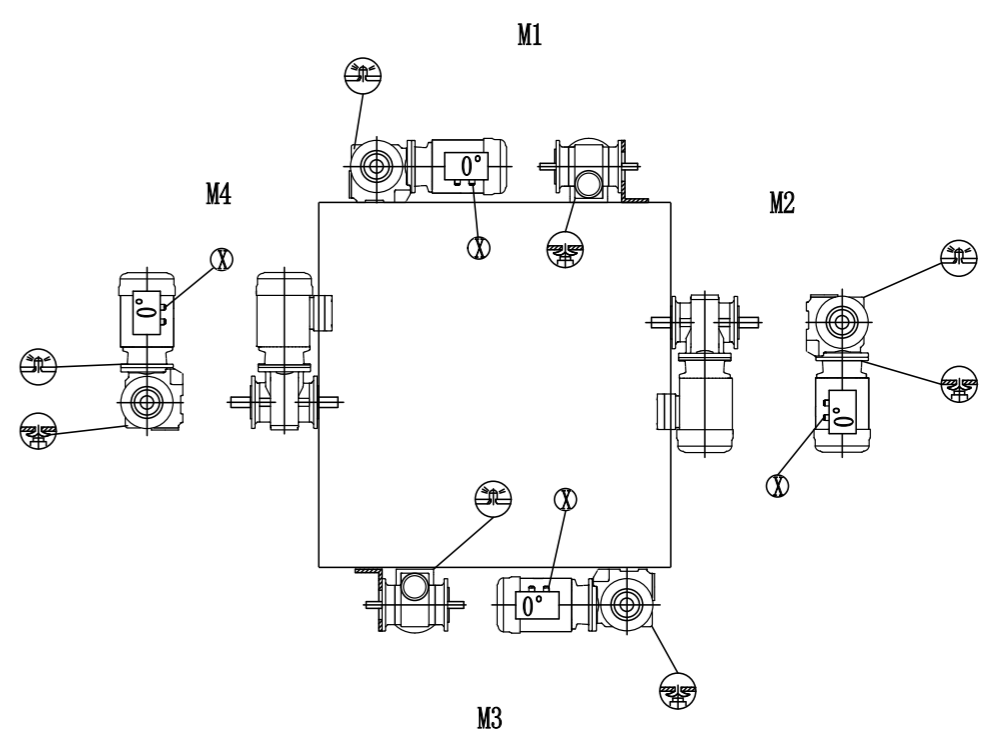
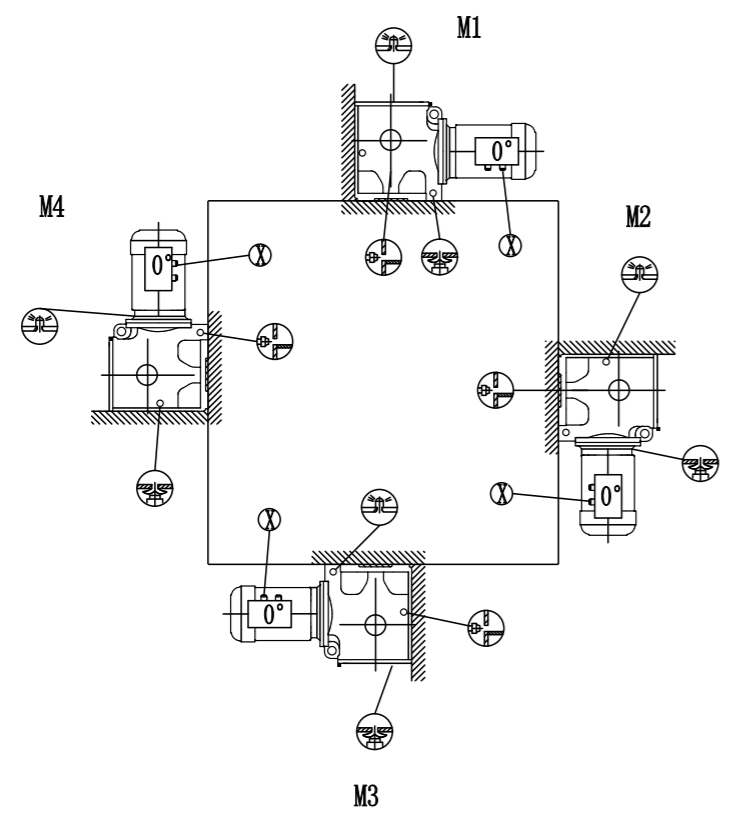
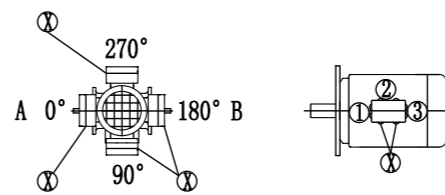
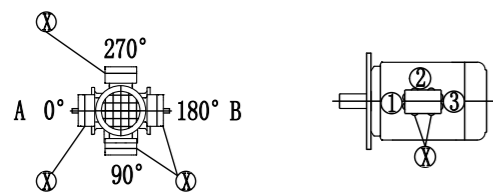
10.5 斜齿轮-蜗杆减速电机安装位置
10.5 Mounting position of Helical-worm Gear motor
S37



重要：请参见“减速器选型”中“径向和轴向负载”部分（P21）
Important: Please refer to the information in the “Geared Motors” catalog. Optional Planning for gear units Ouerhung and axial loads part (P21)

S47-S97

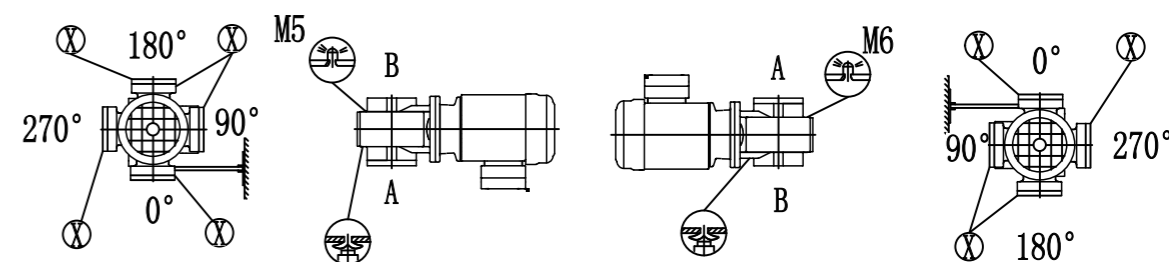
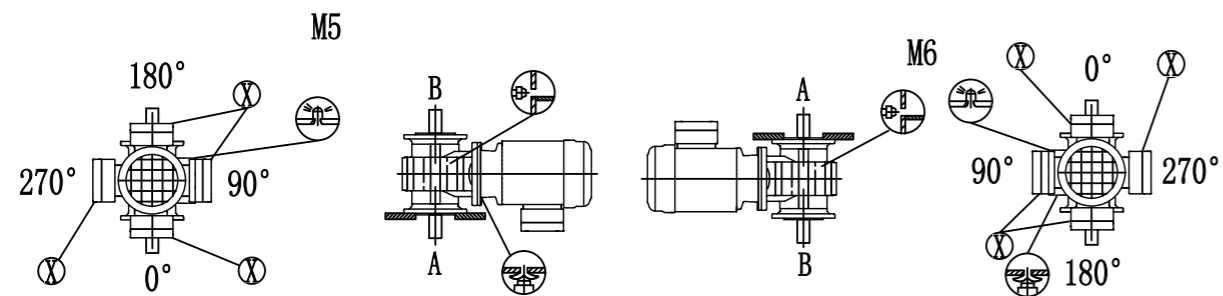
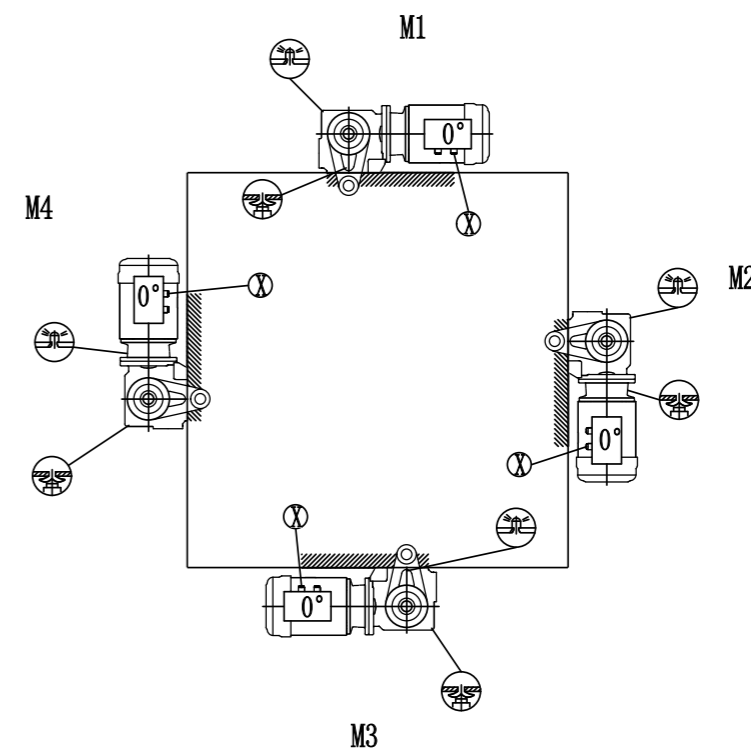
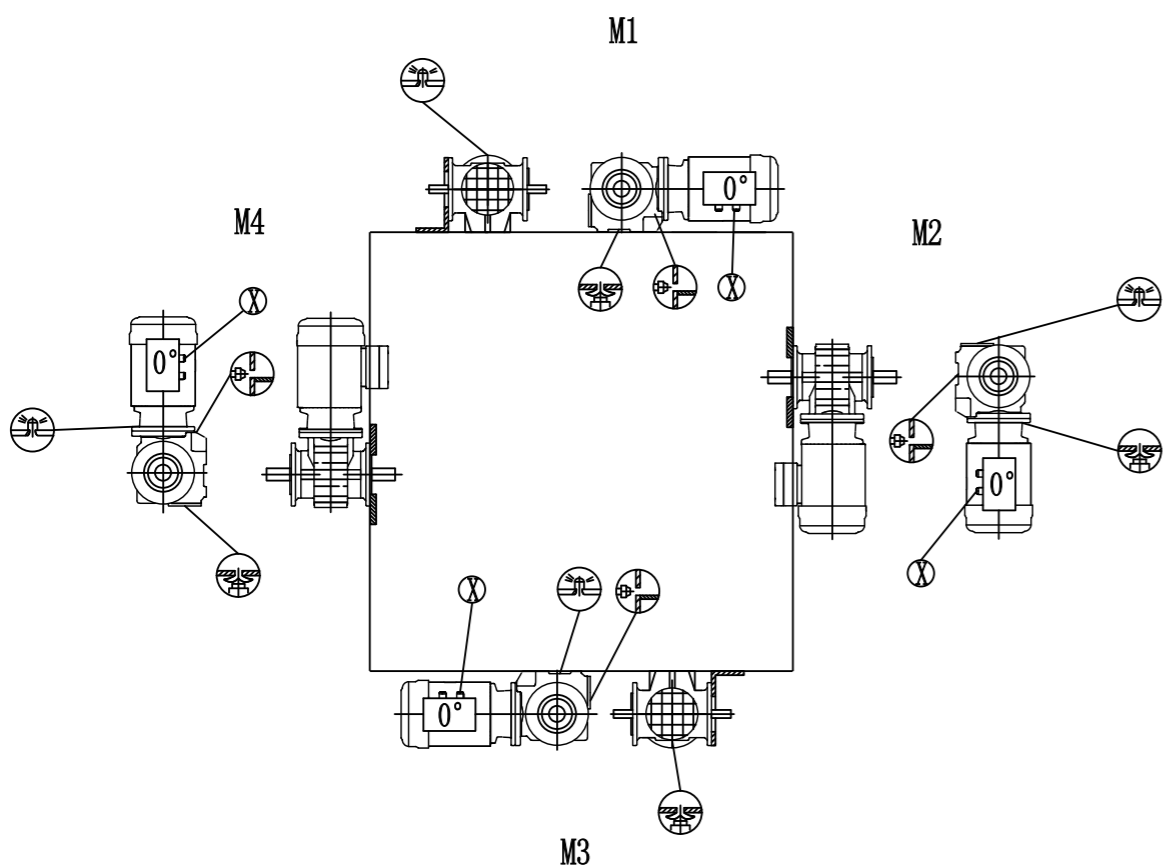
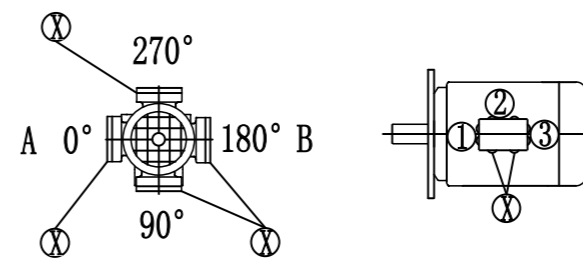
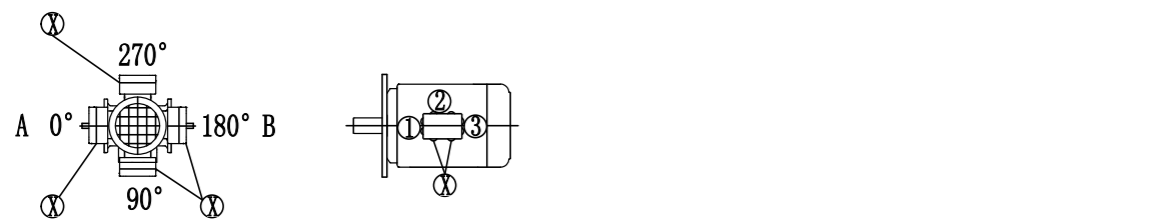
SF/SAF/SHF37



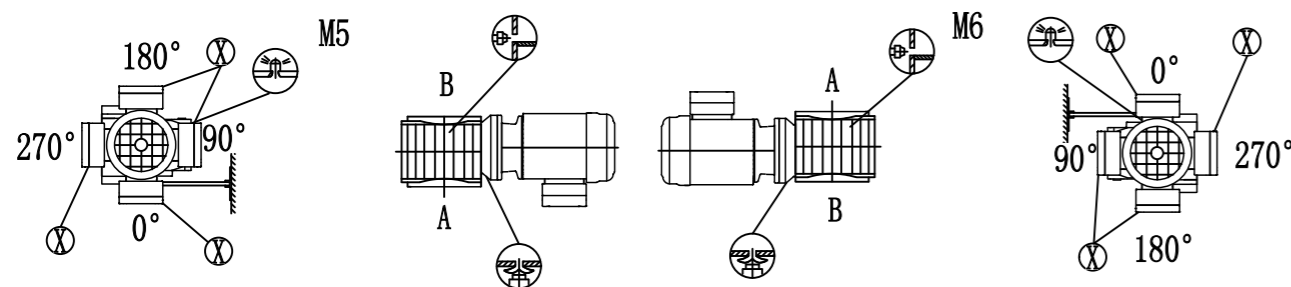
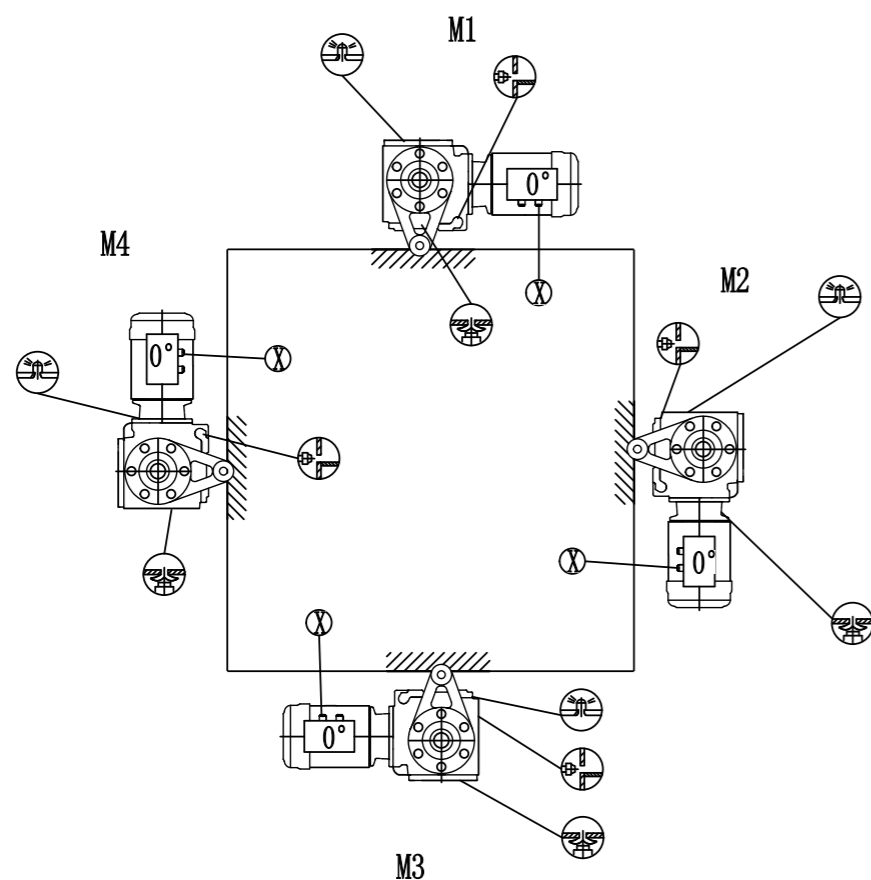
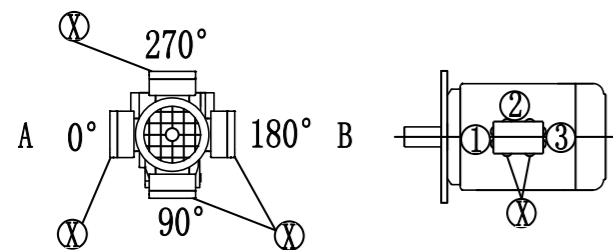
重要：请参见“减速器选型”中“径向和轴向负载”部分（P21）
Important: Please refer to the information in the “Geared Motors” catalog. Optional Planning for gear units Ouerhung and axial loads part (P21)

SF/SAF/SHF/SAZ/SHZ47...-97..

SA/SH37



SA/SH47...-97..



11. 尺寸信息 Information on dimension sheets

范围的分
Scope classification

- =作为标准部件提供
Standard parts supplied by
- =不作为标准部件提供
Standard parts unsupplied by

中心高公差
Shaft heights tolerances

- $h \leq 250\text{mm} \rightarrow -0.5\text{mm}$
- $h > 250\text{mm} \rightarrow -1\text{mm}$

地脚安装减速机: 当配有电机时, 电机可能已凸出到安装平面以下请注意检查。
Foot-mounted gear unit: The motor may protrude above the mounting surface when fitting, please check.

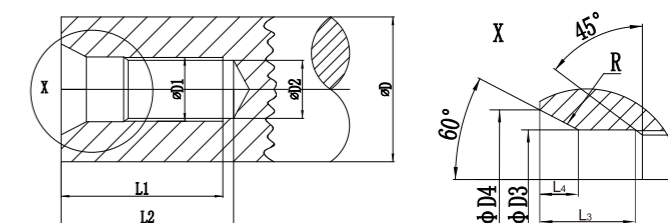
轴公差
Shaft tolerance

直径公差 Diameter tolerance

- $\phi \leq 50\text{mm} \rightarrow \text{ISO}k6$
- $\phi > 50\text{mm} \rightarrow \text{ISO}m6$

按照DIN332标准有DR型中心孔:

Center holes in accordance with DIN332.shape DR



输出轴直径 ϕD Diameter or Output shaft	D ₁	D ₂	D ₃	D ₄	R	L ₁ +2	L ₂ min	L ₃	L ₄ ≈
$\phi D=7-10\text{mm}$	M3	2.5	3.2	5.3	4.0	9.0	12.0	2.6	1.8
$\phi D>10-13\text{mm}$	M4	3.3	4.3	6.7	5.0	10.0	14.0	3.2	2.1
$\phi D>13-16\text{mm}$	M5	4.2	5.3	8.1	6.3	12.5	17.0	4.0	2.4
$\phi D>16-21\text{mm}$	M6	5.0	6.4	9.6	8.0	16.0	21.0	5.0	2.8
$\phi D>21-24\text{mm}$	M8	6.8	8.4	12.2	10.0	19.0	25.0	6.0	3.3
$\phi D>24-30\text{mm}$	M10	8.5	10.5	14.9	16.0	22.0	30.0	7.5	3.8
$\phi D>30-38\text{mm}$	M12	10.2	13.0	18.1	20.0	28.0	37.0	9.5	4.4
$\phi D>38-50\text{mm}$	M16	14.0	17.0	23.0	25.0	36.0	45.0	12.0	5.2
$\phi D>50-85\text{mm}$	M20	17.5	21.0	28.4	31.5	42.0	53.0	15.0	6.4
$\phi D>85-130\text{mm}$	M24	21.0	25.0	34.2	40.0	50.0	63.0	18.0	8.0
$\phi D>130\text{mm}$	M30	26.5	31.0	42.6	50.0	63.0	85.0	20.0	10.0

空心轴
Hollow shaft

键: 根据DIN6885确定(圆头平键)

keys: In accordance with DIN6885(domd type)

直径公差

Diameter tolerance

$\phi \rightarrow \text{ISO}H7$ 塞规测量

ISOH7 measured with plug gauge

法兰
Flange

止口公差 Rabbet tolerance

- φ ≤230mm(flange size A120-A300)→ISOj6
- φ >230mm(flange size A350-A660)→ISOh6

对于每个规格的斜齿轮减速机\交流(制动)电机和防爆(制动)电机最多可提供三种不同尺寸的法兰, 每种法兰的尺寸见相关尺寸表。

Up to three different flange dimensions are available for each size of helical gear units AC (brake) motor and explosion-proof AC(brake) motor. The possible flanges per size are indicted in the relevant dimension sheets.

起吊螺栓及吊耳
Lifting eyebolts, suspension eye lugs

电机机座号小于100的减速电机没有配备专门的运输吊装工具、其它的减速机和电机配有铸造的吊装孔, 用螺栓固定在机体上的吊耳或吊环。

Motors up to DV 100 and Spiroplan geared motors are delivered without specialreansport fixtures. Otherwise, the gear units and motors are equipped with cast-on suspension eye lugs, screw-on suspension eye lugs or sceew-on lifting eyebolts

减速机/电机规格 Gear unit/motor type	吊环/吊耳 Screw-on lifting eyebolts /suspension eye lugs	铸造吊装孔 Cast-on suspension eye lugs
R/RF37-57	•	—
≥R67	•	—
F37-107	—	•
K37-107	—	•
S37-47	•	—
S57-97	—	•
≥DV112	•	—

通气阀
Breather valves

减速机尺寸图总是显示为螺塞, 相应的螺塞在出厂前按照其定货要求的安装位置更换为通气阀。这意味着减速机的外形尺寸图稍有不同。

The gear unit dimension drawings are always shown with screw plugs. The corresponding screw plug is replaced by a breather valve at the factory depending on with mounting position M1-M6 is ordered. This means the contour dimensions may be slightly different.

锁紧盘连接
Shrink disk connection

对于锁紧盘连接的空心轴减速机: 若需要可向厂方索要关于锁紧盘的详细数据表。
Hollow shaft gear unit with shrink disk connection: If required please request a detailed data sheet on shrink disks form, data sheet no.33 753..95.

制动电机
Brake motors

配制动电机时, KB代K
When automatic motor, KB for K

电机附件
Motor accessory

电机的尺寸因不同的电机附件而不同, 请参考电机选择的尺寸图。
The motor dimensions may different as a result of motor accessory Please refer to the dimensions of the more accseeory.

特殊应用
Special applications

接线盒的尺寸, 在特殊应用如KS或CSA时与标准形式的尺寸不同。
The dimensions of the terminal box on special applications such as KS or CSA may different form the standard dimensions.