



SHANIT GLOBAL

四大系列减速电机产品目录

R1FK1S SERIES GEARMOTOR CATALOGUE



官方抖音号



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致力于打造世界一流的中国机电品牌

COMMITTED TO BUILDING A WORLD-CLASS CHINA ELECTROMECHANICAL BRAND

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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



R系列

F系列

K系列

S系列

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 制动器 无代码-无制动器 B-断电制动器 AB-手动释放制动器 (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- 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 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 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		

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 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	

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- 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 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 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- 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 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-底座安装 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 减速机传动比 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
 3.2Type 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 (R) Helical worm
底座安装 Foot mounted	●	●	●	●
B5法兰安装 B5 flange mounted	●	●	●	●
底座/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+底座安装 Hollow shaft with Key+foot mounted	—	●	●	—
带花键空心轴安装+底座安装 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

根据需求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 / 1X24VDCstrong 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]
$P_{aat\ namak}$	最低输出转速下的输出功率 Output power at minimum output speed	[kW]
$P_{aat\ namak}$	最高输出转速下的输出功率 Output power at maximum output speed	[kW]
$Maat\ namak$	最低输出转速下的输出扭矩 Output torque at minimum output speed	[Nm]
$Maat\ namak$	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图示意图，所涉及的减速机由变频器控制

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 $\pi < 0.5$ 。

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 $\pi < 0.5$ 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 $\pi = 2-1/\pi$ (反向效率)，其值明显小于正向效率 π ，如果正向效率 $\pi < 0.5$ ，那么斜齿轮蜗轮蜗杆减速机会自锁。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 $\pi = 2-1/\pi$ when a reverse torque was added onto a helical-worm gear unit, and this reverse efficiency will be significantly smaller than forward efficiency π , if the forwards efficiency $\pi < 0.5$, 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.

在运行初始阶段，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.

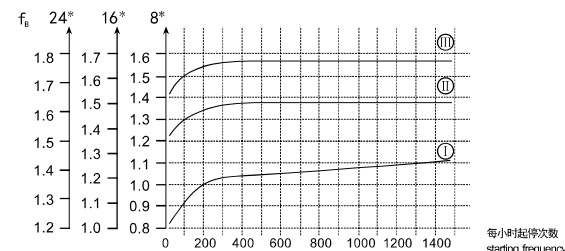
4.4 使用系数

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_b 表示，使用系数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 f_b , 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，包括所有的起停和制动过程，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:

$$\text{惯性加速系数} = \frac{\text{所有的外部转动惯量}}{\text{电动机的转动惯量}}$$

$$\text{Inertial acceleration coefficient} = \frac{\text{All external rotational inertia}}{\text{The moment of inertia for the electric motor}}$$

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： $J_e = j \cdot \left(\frac{n}{n_m}\right)^2$

"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: $J_e = j \cdot \left(\frac{n}{n_m}\right)^2$

J_e = 相对于电机轴的外部转动惯量

J_e = 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 gearunit

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.

使用系数-f₁

确定最大持续运行扭矩Mamax和由此推导出的使用系数f₁=Mamax/Ma是不标准的,并且不同的制造商之间有很多不同。使用系数f₁=1时,驱动设备在疲劳强度范围内能提供相当高的工作安全性和可靠性(除斜齿轮蜗轮蜗杆减速机的涡轮之外)。在一定条件下,使用系数不必和其他减速机制造商所给出的进行比较。如有疑问,请和厂家联系索取针对特殊驱动设备详细资料。

service factor:

Ascertain maximum continuous working torque and then deriving the service factor f₁=Mamax/Ma, which was thought to be as not standard, and this varies with different manufacturers. When f₁=1 and within fatigue strength range, the driven device capable of providing extremely high level of working safety and reliability(Expection: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

惯性加速度系数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=1.51,根据选型表所选择的减速机f₁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 f₁=1.51 as shown in Fig.2. According to the selection table, the selected motor must have a f₁ 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f₁外,还有两个使用系数f₂,f₃要考虑

f₂=环境温度使用系数

f₃=负载持续系数

In the helical gear worm reducer, in addition to the existing coefficient f₁ in the figure, there are two other used coefficients f₂ and f₃ to be considered

f₂= working coefficient of ambient temperature

f₃= load persistence coefficient

附加的使用系数f₂、f₃可通过下图确定,确定f₂时和确定f₁同样的方法考虑负载类型。

The additional working coefficients f₂ and f₃ can be determined by the following figure. When confirmed f₂, load type can be considered in the same way as f₁.

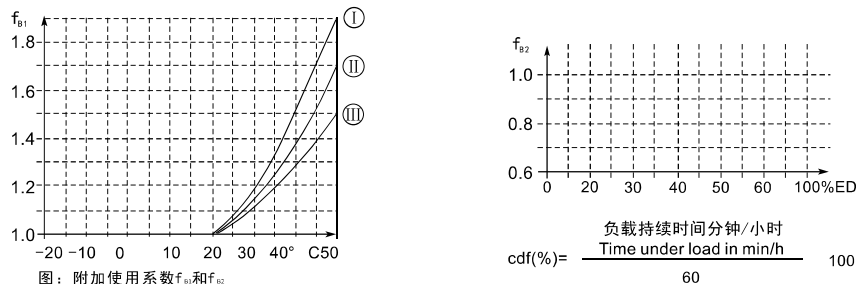


图: 附加使用系数f₂和f₃
Additional service factors f₂ and f₃

确定f₂时,环境温度低于-20°C请向厂方咨询
Please contact in case of temperatures below -20°C(→f₂)

斜齿轮蜗轮蜗杆减速机总的的使用系数F₁,按下式计算: F = f₁·f₂·f₃

The total service factor for helical-worm gear units is calculated as follows: F = f₁·f₂·f₃

举例/ Example

若前一个例子使用f=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 f₁=1.51 in the previous example is a helical-worm geared motor.

环境温度=40°C→f₂=1.38(负载类型 II)
Ambient temperature U=40°C→f₂=1.38(read off at load classification II)

负载工作时间40分钟/小时cdf=66.7% f₃=0.95
Time under load=40min/h→cdf=66.7% f₃=0.95

根据选型表,所选的斜齿轮蜗轮蜗杆减速机的f₁则应≥1.98

According to the selection tables, the selected helical-worm geared motor must have a f₁ 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f₁,原动机系数f₂,启动系数f₃。使用小于或等于选型表中的使用系数f₁,即f₁·Xf₂·Xf₃≤f₁,或将工作机所需要的转矩乘以使用系数(f₁·Xf₂·Xf₃)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 f₁, prime mover factor f₂, starting factor f₃ according to actual load type, operating time, starting frequency. Let it less than or equal to the service factor f of selection table, viz f₁·Xf₂·Xf₃≤f₁. The needed torque of service machine multiply the service factor (f₁·Xf₂·Xf₃) should less than or equal to gear units' permissible torque.

即M_s≥M_d·Xf₁·Xf₂·Xf₃

f₁-工作机系数(见表1) f₁-driven machine factor(see table 1)

f₂-原动机系数(见表2) f₂-prime mover factor(see table 2)

f₃-启动系数(见表3) f₃-starting factor(see table 3)

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

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

表1 Table 1 工作机系数 Factor for driven machine		f _{B1}		
		≤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
	捞集设备 Raking equipment	1.0	1.2	1.3
	纵向、回转组合接集装置 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
	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
挖泥机 Dredgers	斗式输送机 Bucker conveyors	-	1.6 (>10h)	1.5
	倾卸装置 Dumping devices	-	1.3	1.5
	Carteypillar 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
	切碎机 Cutter heads	-	2.2	2.2
	行走机构* Traversing gears'	-	1.4	1.8
化学工业 Chemical industry	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 Agitators for media with uniform density	1.0	1.3	1.5
	搅拌机,用于非均匀介 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
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
冷却塔 Cooling towers		往复式压缩机 Reciprocating compressors	-	1.8
	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
索道缆车 Cableways	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
	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
水泥工业 Cement industry	T型杆升降梯 T-barlifts	-	1.3	1.4
	连续索道 Continuous ropeways	-	1.4	1.6
	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

表2 Table 2 原动机系数 Factor for prime mover f_{pe}

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

表3 Table 3 启动系数 Start factor f_{sa}

起停次数/每小时 Number of starts and stop/hour	
<10	1
10< f_{sa} <100	1.15
100< f_{sa} <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 pulleys	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_{n10} 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机电机的选型表中。对于其他安装形式可与工厂方联系。

According the rated service life L_{n10} 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.

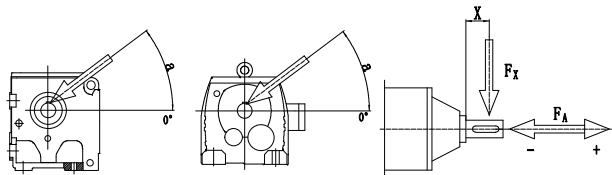
更高的许用径向载荷 Higher permissible radial load

对于R、F和K系列减速机电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FA(+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_{amax} .

根据轴承寿命 F_{xL}

F_{xL} 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} 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]

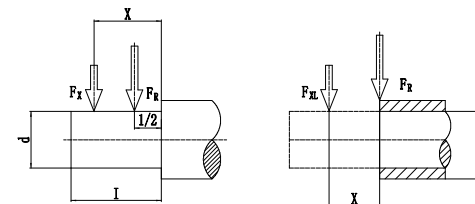


图: 偏离中心点的径向力 F_x
 Fig: Radial load F_x for off-center force application

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

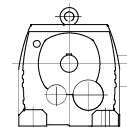
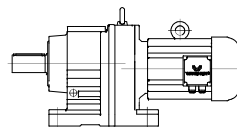
齿轮箱常量 Gear unit type	a [mm]	b [mm]	c [mm]	f [Nmm]	d [mm]	l [mm]
R37	118	93	1.24•10 ⁵	0	25	50
R47	137	107	2.44•10 ⁵	15	20	60
R57	147.5	112.5	3.77•10 ⁵	18	35	70
R67	168.5	133.5	2.51•10 ⁵	0	35	70
R77	173.7	133.7	3.97•10 ⁵	0	40	80
R87	216.7	166.7	8.47•10 ⁵	0	50	100
R97	255.5	195.5	1.19•10 ⁶	0	60	120
R107	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.

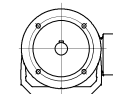
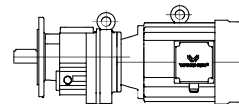
5. R 斜齿轮减速机 R Helical Geared Motors

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

续表

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/RF67	3	32.27-199.81	28.83-158.14	28.83-137.67	28.83-51.56 61.26-95.91 113.94	28.83-51.56 69.75-95.91	28.83-39.88 69.75-74.17	28.83-39.88 69.75-74.17
R/RF77	2	8.59 15.60-23.37	6.79-8.59 12.33-23.37	5.31-23.37	5.31-23.37	5.31-23.37	5.31-18.80	5.31-18.80
R/RF77	3	36.83-195.24	29.00-166.59	25.23-145.67	25.23-121.42	25.23-102.99	25.23-45.81 65.77-81.80	25.23-45.81 65.77-81.80
R/RF87	2		19.10-34.40	7.13-9.14 13.33-34.40	5.30-34.40	5.30-34.40	5.30-27.84	5.30-27.84
R/RF87	3		41.74-246.54	27.88-216.54	27.88-181.77	27.88-155.34	27.88-63.68 81.92-124.97	27.88-63.68 81.92-124.97
R/RF97	2		22.37-32.05	9.29 16.17-32.05	7.12-9.26 12.39-32.05	7.12-9.29 12.39-32.05	4.53-32.05	4.53-32.05
R/RF97	3		53.21-65.21 103.44-289.74	37.13-255.71	27.58-216.28	27.58-150.78	27.58-150.78	27.58-150.78
R/RF107	2				15.65-30.77	10.13-30.77 5.82-7.86	5.82-7.86 10.13-30.77	5.82-7.86 10.13-30.77
R/RF107	3					40.37-251.15	29.49-203.16	29.49-203.16
R/RF137	2						7.59 12.83-29.57	7.59 12.83-29.57
R/RF137	3						32.91-222.60	32.91-222.60

续表

减速机型号 Gear motor size	级 Stages	D132ML (9.2KW)	D160M (11KW)	D160L (15KW)	D180 (18.5KW)	D200 (0000KW)	D225 (0000KW)	D250 (0000KW)
R/RF77	2	5.31-7.74 9.64-14.05	5.31-7.74 9.64-14.05					
R/RF77	3	25.31-7.47	25.31-7.74			30KW	37KW	45KW
R/RF87	2	5.30-21.51	5.30-21.51	5.30-21.51	5.30-17.08			
R/RF87	3	27.88-47.58 81.92-93.38	27.88-47.58 81.92-93.38	27.88-47.58 81.92-93.38	27.88-36.84			
R/RF97	2	4.50-25.03	4.50-25.03	4.50-25.03	4.50-20.14	4.50-16.17		
R/RF97	3	27.85-59.92 72.17-116.48	27.85-59.92 72.17-116.48	27.85-59.92 72.17-116.48	27.58-47.58 72.17-92.48	27.58-37.13 72.17		
R/RF107	2	4.92-30.77	4.92-30.77	4.92-30.77	4.92-24.90	4.92-20.07	4.92-20.07	
R/RF107	3	29.49-158.68	29.49-158.68	29.49-158.68	29.49-65.60 78.57-127.68	29.49-52.68	78.57-102.53	
R/RF137	2	6.38-7.59 10.79-29.57	6.38-7.59 10.79-29.57	6.38-7.59 10.79-29.57	5.15-29.57	5.15-24.12	5.15-24.12	5.15-19.04
R/RF137	3	27.83-174.40	27.83-174.40	28.83-174.40	27.83-141.12	27.83-65.20 88.70-113.72	27.83-65.20 88.70-113.72	27.83-50.86 88.70
R/RF147	2	7.25 11.99-20.44	7.25 11.99-20.44	7.25 11.99-20.44	5.89-7.25 9.74-20.44	5.00-20.44	5.00-20.44	5.00-20.44
R/RF147	3	29.95-163.31	29.95-163.31	29.95-163.31	24.19-146.91	24.19-119.86	24.19-119.86	72.09-94.60
R/RF167	2		14.48-46.00	14.48-46.00	11.99-37.74	10.24-30.71	10.24-30.71	10.24-24.57
R/RF167	3		34.41-229.71	34.41-229.71	27.96-186.93	23.71-153.07	23.71-153.07	23.71-58.65 82.91-121.81

5.3 速比与最大扭矩
5.3 Ratio and max torque

R37-57 n_a=1400 r/min

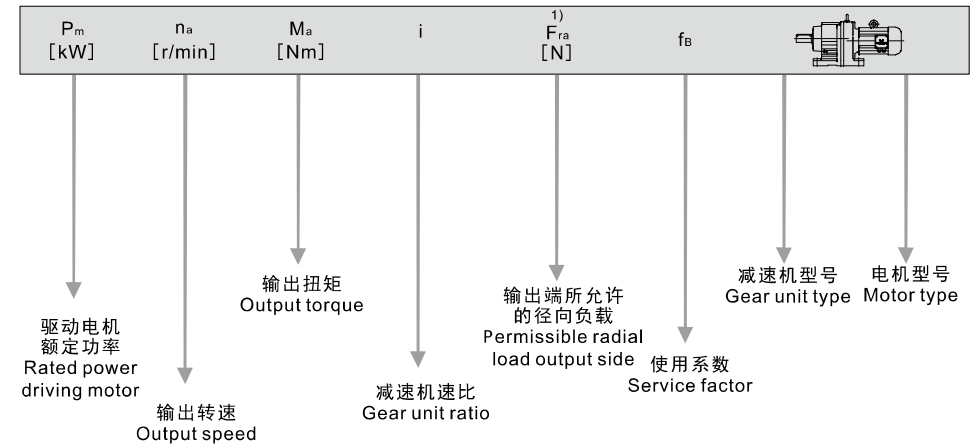
R37 200Nm					R47 300Nm					R57 450Nm				
i	n _a [r/min]	M _{amax} [N.m]	F _{ra} [N]	AD	i	n _a [r/min]	M _{amax} [N.m]	F _{ra} [N]	AD	i	n _a [r/min]	M _{amax} [N.m]	F _{ra} [N]	AD
3-stage					3-stage					3-stage				
134.82	10	200	4950	AD1	176.88	7.9	300	5420	AD2	186.89	7.5	450	7110	AD2
123.66	11	200	4950		162.94	8.6	300	5420		172.17	8.1	450	7110	
105.28	13	200	4950		139.99	10	300	5420		147.92	9.5	450	7110	
90.77	15	200	4950		121.87	11	300	5420		128.77	11	450	7110	
84.61	17	200	4950		114.17	12	300	5420		120.63	12	450	7110	
73.96	19	200	4950		100.86	14	300	5420		106.58	13	450	7110	
69.33	20	200	4950		93.68	15	300	5420		98.99	14	450	7110	
61.18	23	200	4950		84.90	16	300	5420		89.71	16	450	7110	
55.76	25	200	4950		76.23	18	300	5420		80.55	17	450	7110	
48.08	29	200	4950		68.54	20	300	5420		69.23	20	450	7110	
44.81	31	200	4950	64.21	22	300	5420	64.85	22	450	6980			
39.17	36	200	4760	56.73	25	300	5420	57.29	24	450	6630			
36.72	38	200	4540	52.69	27	300	5420	53.22	26	450	6430			
32.40	43	200	4120	47.75	29	300	5150	48.23	29	450	6170			
28.73	49	200	3740	42.87	33	300	4930	43.30	32	450	5900			
24.43	57	200	3240	36.93	38	300	4630	37.30	38	450	5530			
				34.73	40	300	4520	35.07	40	450	5390			
				29.88	47	300	4240	30.18	46	450	5050			
				26.70	52	300	4050	26.97	52	450	4800			
				23.59	59	300	3840							
2-stage					2-stage					2-stage				
28.32	49	200	3690	AD2	33.79	41	240	4690	AD2	26.31	53	450	4750	AD3
26.03	54	185	3860		31.12	45	220	4610		24.99	56	450	4640	
22.27	63	200	2970		26.74	52	300	4050		21.93	64	450	4370	
19.31	73	200	2570		23.28	60	300	3820		18.60	75	450	4050	
18.05	78	200	2390		21.81	64	300	3710		16.79	83	450	3860	
15.60	90	200	2010		19.27	73	295	3530		14.77	95	435	3690	
13.25	106	190	1880		17.89	78	290	3390		13.95	100	430	3610	
11.83	118	183	1810		16.22	86	275	3350		11.88	118	405	3430	
10.11	138	170	1820		14.56	96	265	3230		10.79	130	390	3330	
9.47	148	167	1760		12.54	112	250	3080		9.35	150	370	3180	
7.97	176	156	1720	11.79	119	245	3020	9.06	155	375	2010			
6.67	210	144	1000	10.15	138	230	2890	7.97	176	355	2020			
5.67	247	142	760	9.07	154	220	2780	7.53	186	350	1950			
5.06	277	135	790	8.01	175	205	2690	6.41	218	335	1770			
4.32	324	126	820	7.76	180	163	2720	5.82	241	320	1820			
4.05	346	122	850	6.96	201	159	2620	5.05	277	305	1730			
3.41	411	112	900	6.00	233	156	2740	4.39	319	280	1900			
				5.64	248	155	2410							
				4.85	289	150	2280							
				4.34	323	146	2190							
				3.83	366	144	2090							

R147/RF87,R167/RF97,R167/RF107 $n_a=1400$ r/min

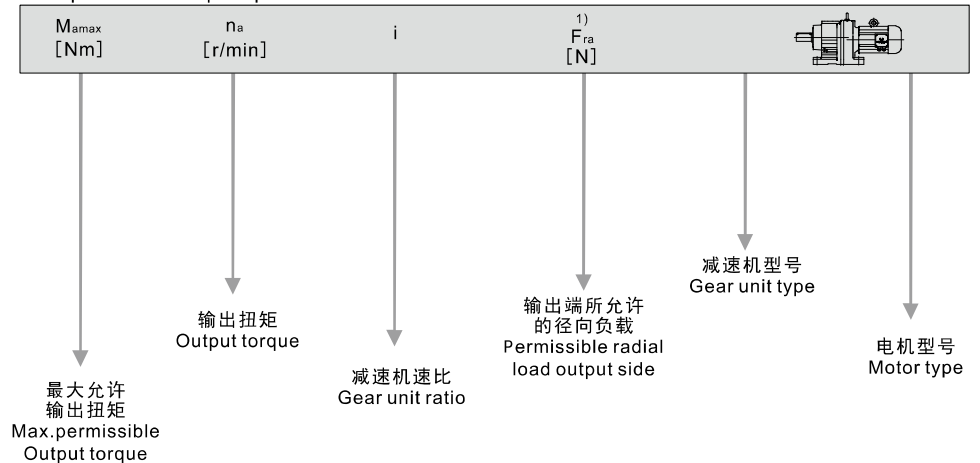
R147/RF87 13000Nm				R167/RF97 18000Nm				R167/RF107 18000Nm			
i	n_a [r/min]	M_{amax} [N.m]	F_{ra} [N]	i	n_a [r/min]	M_{amax} [N.m]	F_{ra} [N]	i	n_a [r/min]	M_{amax} [N.m]	F_{ra} [N]
533	2.6	13000	62700	27001	0.05	18000	120000	3637	0.38	18000	120000
462	3.0	13000	62700	22482	0.06	18000	120000	3330	0.42	18000	120000
426	3.3	13000	62700	20002	0.07	18000	120000	2757	0.51	18000	120000
368	3.8	13000	62700	17361	0.08	18000	120000	2436	0.57	18000	120000
326	4.3	13000	62700	15446	0.09	18000	120000	2298	0.61	18000	120000
280	5.0	13000	62700	14051	0.10	18000	120000	2066	0.68	18000	120000
247	5.7	13000	62700	11812	0.12	18000	120000	1849	0.76	18000	120000
214	6.5	13000	62700	10509	0.13	18000	120000	1674	0.84	18000	120000
189	7.4	13000	62700	9631	0.15	18000	120000	1485	0.94	18000	120000
159	8.8	13000	62700	7749	0.18	18000	120000	1342	1.0	18000	120000
				6894	0.20	18000	120000	1229	1.1	18000	120000
				6077	0.23	18000	120000	1111	1.3	18000	120000
				5407	0.26	18000	120000	950	1.5	18000	120000
				4650	0.30	18000	120000	860	1.6	18000	120000
				4129	0.34	18000	120000	763	1.8	18000	120000
				3692	0.38	18000	120000	690	2.0	18000	120000
				3099	0.45	18000	120000	585	2.4	18000	120000
				2657	0.53	18000	120000	511	2.7	18000	120000
				2333	0.60	18000	120000	446	3.1	18000	120000
				2085	0.67	18000	120000	399	3.5	18000	120000
				1877	0.75	18000	120000	361	3.9	18000	120000
				1670	0.84	18000	120000	349	4.0	18000	120000
				1438	0.97	18000	120000	328	4.3	18000	120000
				1279	1.1	18000	120000	295	4.7	18000	120000
				1123	1.2	18000	120000	291	4.8	18000	120000
				999	1.4	18000	120000	270	5.2	18000	120000
				861	1.6	18000	120000	264	5.3	18000	120000
				760	1.8	18000	120000	229	6.1	18000	120000
				656	2.1	18000	120000	227	6.2	18000	120000
				579	2.4	18000	120000	200	7.0	18000	120000
				503	2.8	18000	120000	198	7.1	18000	120000
				432	3.2	18000	120000	169	8.3	18000	120000
				376	3.7	18000	120000	168	8.3	18000	120000
				335	4.2	18000	120000				
				303	4.6	18000	120000				
				279	5.0	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:

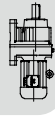
对于特殊低输出转速驱动(多级减速机), 电机功率必须与减速机的最大允许输出扭矩相对应。
In drives for particularly low output speeds (multi-stage gear motor), the motor power must be limited according to maximum permitted output torque of the gear unit.

Technical table for R Helical Geared Motors, 0.75kW to 6.7kW. Columns: Output speed, Output torque, Ratio, Permitted load, Service factor, Model.

Technical table for R Helical Geared Motors, 1.1kW to 5.2kW. Columns: Output speed, Output torque, Ratio, Permitted load, Service factor, Model.

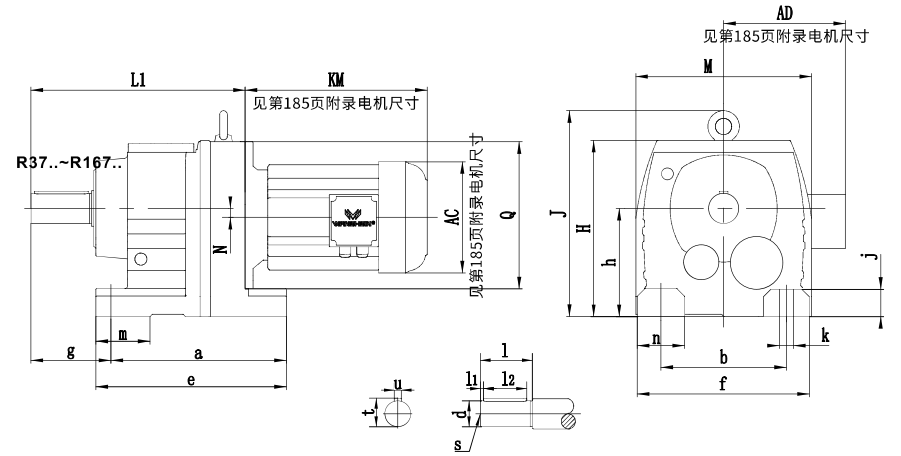
Technical table for R Helical Geared Motors, 1.1kW to 2.3kW. Columns: Output speed, Output torque, Ratio, Permitted load, Service factor, Model.

Technical table for R Helical Geared Motors, 1.5kW to 3.8kW. Columns: Output speed, Output torque, Ratio, Permitted load, Service factor, Model.



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 _s	机型号 Model
55kW					
60	8750	24.57	120000	1.60	R 167 WSS55KW-4
68	7780	21.85	120000	1.65	RF 167 WSS55KW-4
77	6780	19.03	120000	2.4	
87	6050	16.98	120000	2.5	R 167 WSS55KW-4
102	5150	14.48	120000	3.5	RF 167 WSS55KW-4
123	4270	11.99	120000	4.0	
32	16600	46.65	26600	0.80	
37	14300	40.29	58200	0.90	R 147 WSS55KW-4
41	12700	35.64	63300	1.00	RF 147 WSS55KW-4
49	10700	29.95	66800	1.20	
61	8610	24.19	69600	1.40	
72	7280	20.44	71100	1.65	
82	6420	18.04	71900	1.65	R 147 WSS55KW-4
94	5570	15.64	72500	2.3	RF 147 WSS55KW-4
106	4950	13.91	73000	2.5	
123	4270	11.99	73400	3.0	
151	3470	9.74	73800	3.8	R 147 WSS55KW-4
203	2580	7.25	74200	3.4	RF 147 WSS55KW-4
250	2100	5.89	72500	4.1	
77	6780	19.04	47800	1.20	R 137 WSS55KW-4
88	5980	16.80	48500	1.35	RF 137 WSS55KW-4
102	5170	14.51	48900	1.55	
115	4570	12.83	49000	1.75	
137	3840	10.79	48800	2.1	R 137 WSS55KW-4
169	3100	8.71	48000	2.5	RF 137 WSS55KW-4
194	2700	7.59	48100	1.90	
231	2270	6.38	46900	2.2	
286	1830	5.15	45200	2.5	
75kW					
33	21700	44.87	120000	0.85	
37	19300	39.92	120000	0.95	R 167 WSS75KW-4
43	16700	34.41	120000	1.10	RF 167 WSS75KW-4
53	13500	27.96	120000	1.35	
62	11500	23.71	120000	1.55	
60	11900	24.57	120000	1.20	R 167 WSS75KW-4
68	10600	21.85	120000	1.25	RF 167 WSS75KW-4
78	9210	19.03	120000	1.75	
87	8220	16.98	120000	1.85	R 167 WSS75KW-4
102	7000	14.48	120000	2.6	RF 167 WSS75KW-4
123	5800	11.99	116600	2.9	
145	4950	10.24	112800	3.4	
49	14500	29.95	56500	0.90	R 147 WSS75KW-4
61	11700	24.19	65100	1.00	RF 147 WSS75KW-4
72	9890	20.44	67900	1.20	
82	8730	18.04	69500	1.20	R 147 WSS75KW-4
95	7570	15.64	70800	1.70	RF 147 WSS75KW-4
106	6730	13.91	71600	1.85	
123	5800	11.99	72400	2.2	
152	4710	9.74	73100	2.8	
179	4000	8.26	73500	3.2	R 147 WSS75KW-4
204	3510	7.25	73100	2.5	RF 147 WSS75KW-4
251	2850	5.89	70100	3.0	
296	2420	5.00	67600	3.6	
90kW					
37	23200	39.72	120000	0.80	
43	20000	34.41	120000	0.90	R 167 WSS90KW-4
53	16200	27.96	120000	1.10	RF 167 WSS90KW-4
62	13800	23.71	120000	1.30	

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 _s	机型号 Model
90kW					
60	14300	24.57	120000	1.00	R 167 WSS90KW-4
68	12700	21.85	120000	1.00	RF 167 WSS90KW-4
78	11100	19.03	120000	1.45	
87	9860	16.98	120000	1.50	
102	8410	14.48	117300	2.1	R 167 WSS90KW-4
123	6960	11.99	113500	2.4	RF 167 WSS90KW-4
145	5940	10.24	110100	2.9	
72	11900	20.44	64800	1.00	
82	10500	18.04	67100	1.00	R 147 WSS90KW-4
95	9080	15.64	69000	1.45	RF 147 WSS90KW-4
106	8080	13.91	70200	1.55	
123	6960	11.99	71400	1.85	
152	5660	9.74	72500	2.3	
179	4800	8.26	73000	2.7	R 147 WSS90KW-4
204	4210	7.25	70900	2.1	RF 147 WSS90KW-4
251	3420	5.89	68300	2.5	
296	2900	5.00	66100	3.0	
110kW					
53	19800	27.96	117100	0.95	R 167 WSS110KW-4
63	16800	23.71	116900	1.05	RF 167 WSS110KW-4
78	13500	19.03	115500	1.20	
87	12000	16.98	114300	1.25	R 167 WSS110KW-4
103	10200	14.48	112200	1.75	RF 167 WSS110KW-4
124	8480	11.99	109300	2.0	
145	7240	10.24	106500	2.3	
132kW					
63	20100	23.71	107900	0.90	R 167 WSS132KW-4
					RF 167 WSS132KW-4
78	16200	19.03	108300	1.00	
87	14400	16.98	107800	1.05	R 167 WSS132KW-4
103	12300	14.48	106700	1.45	RF 167 WSS132KW-4
124	10200	11.99	104700	1.65	
145	8690	10.24	102600	1.95	
160kW					
103	14900	14.48	99700	1.20	R 167 WSS160KW-4
124	12300	11.99	98900	1.40	RF 167 WSS160KW-4
145	10500	10.24	97600	1.60	



型号 Size	a	b	e	f	g	h	j	k	m	n	轴伸尺寸 Shaft dimension					H	J	L ₁	M	N	Q		
											d	l	l ₁	l ₂	s							t	u
R37..	130	110	160	145	75	90 _{-0.5}	18	9	40	35	25k6	50	3.5	40	M10	28	8	151	/	201	145	10.1	120
R47..	165	135	195	170	90	115 _{-0.5}	24	13.5	50	42	30k6	60	3.5	50	M10	33	8	187	/	235	178	14	160
R57..	165	135	200	190	100	115 _{-0.5}	24	13.5	60	55	35k6	70	7	56	M12	38	10	187	/	257	202	11.2	160
R67..	195	150	235	210	100	130 _{-0.5}	30	14	60	60	35k6	70	7	56	M12	38	10	212	243	280	215	20.7	160
R77..	205	170	245	230	115	140 _{-0.5}	30	17.5	60	60	40k6	80	5	70	M16	43	12	228	269	300	235	15.9	200
R87..	260	215	310	290	140	180 _{-0.5}	45	17.5	90	75	50k6	100	10	80	M18	53.5	14	295	345	372	297	12.6	250

型号 Size	a	b	e	f	g	h	j	k	m	n	轴伸尺寸 Shaft dimension					H	J	L ₁	M	N	Q		
											d	l	l ₁	l ₂	s							t	u
R97..	310	250	365	340	160	225 _{-0.5}	55	22	100	90	60m6	120	5	110	M20	64	18	368	418	440	348	10.2	300
R107..	370	290	440	400	185	250 _{-0.5}	65	26	125	110	70m6	140	7.5	125	M20	74.5	20	408	475	495	409	20.4	350
R137..	410	340	490	450	220	315 ₋₁	70	33	130	110	90m6	170	5	160	M24	95	25	495	562	589	458	25.1	400
R147..	500	380	590	530	260	335 ₋₁	80	39	150	150	110m6	210	15	180	M24	116	28	565	637	695	540	33.4	450
R167..	580	500	670	660	270	455 ₋₁	100	39	160	160	120m6	210	5	200	M24	127	32	675	749	790	670	59.9	550

RF37...~RF167..

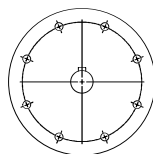
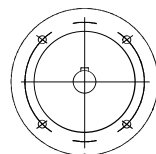
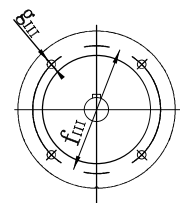
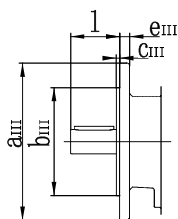
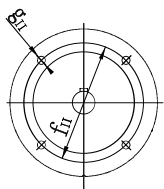
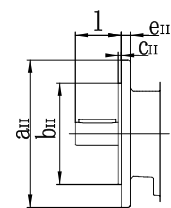
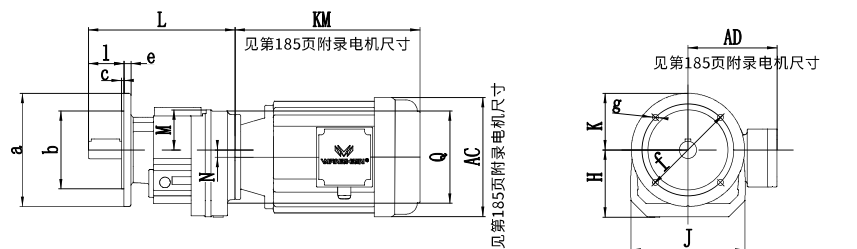
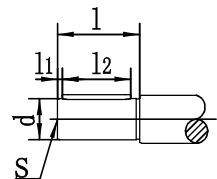


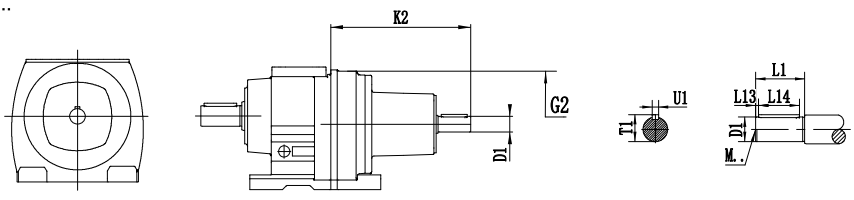
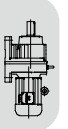
Fig. 1 Fig. 2

法兰型式
Flange form



型号 Size	法兰 尺寸 Flange dimension	a aIII	b bIII	c cIII	e eIII	f fIII	g gIII	H J K	L M N	Q	轴伸尺寸 Shaft dimension				
											d	l	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						
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
	AD5		292	42	110	15	70	45	12	M16
R..97	AD3	300	151	28	60	5	50	31	8	M10
	AD4		214	38	80	5	70	41	10	M12
	AD5		287	42	110	15	70	45	12	M16
R..107	AD3	350	145	28	60	5	50	31	8	M10
	AD4		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..137	AD4	400	201	38	80	5	70	41	10	M12
	AD5		274	42	110	15	70	45	12	M16
	AD6		314	48	110	10	80	51.5	14	M16
	AD7		308	55	110	10	90	59	16	M20
R..147	AD4	450	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
	AD7		300	55	110	10	90	59	16	M20
R..167	AD5	550	258	42	110	15	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

R..AM..

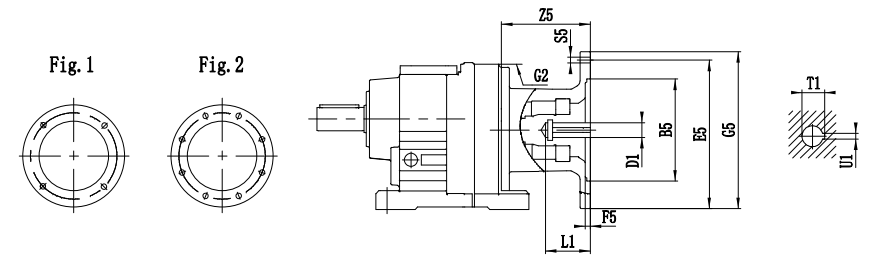
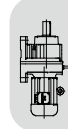


		Fig	B5	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1			
R..37	Am63	1	95	115	3.5	120	140	M8	72	11	23	12.8	4			
	Am71		110	130			14			30	16.3	5				
	Am80		130	165	4.5		200	M10		19	40	21.8	6			
	Am90						24	50		27.3	6					
R..47 R..57 R..67	Am63	1	95	115	3.5	160	140	M8	99	11	23	12.8	4			
	Am71		110	130			14			30	16.3	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															
	Am132S		230	265	5		300	M12		38	80	41.3	10			
Am132ML	126	28				60	31.3		8							
R..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	28	60	31.3
	Am112															
	Am132S		230	265	5		300	M12		174	38	80	41.3	10		
	Am132ML															
	Am160		250	300	6		350	M16		42	110	45.3	12			
Am180	48	110				51.8	14									
R..97	Am100	1	180	215	5	300	250	M12	116	28	60	31.3	8			
	Am112															
	Am132S						230			265	5	300	M12	169	38	80
	Am132ML															
	Am160		250	300	6		350	M16		42	110	45.3	12			
	Am180						48			110		51.8	14			
	Am200		300	350	7		400	M16		227	55	59.3	16			
	Am225 ¹⁾						283			60	140	64.4	18			

R..AM..

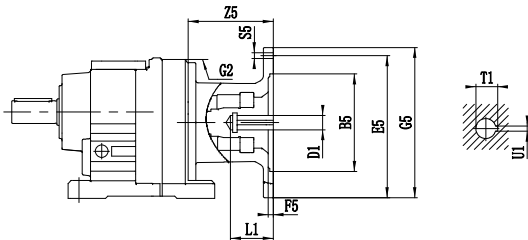
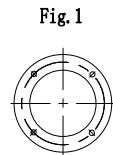
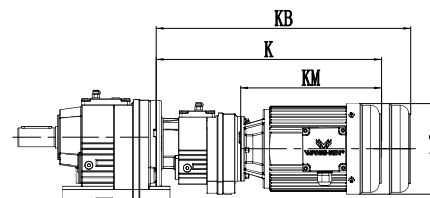


		Fig	B5	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1	
R..107	Am100	1	180	215	5	350	250	M12	110	28	60	31.3	8	
	AM112													
	AM132S													
	AM132M													
	AM132ML													
	AM160	2	230	265	6	300	M16	163	38	80	41.3	10		
	AM180													
	AM200													
	AM225													
R..137	AM132S	1	230	265	5	400	300	M12	156	38	80	41.3	10	
	AM132M													
	AM132ML													
	AM160													
	AM180													
	AM200	2	250	300	6	350	M16	214	42	110	45.3	12		
	AM225													
	AM250													
	AM280													
R..147	AM132S	1	230	265	5	450	300	M12	148	38	80	41.3	10	
	AM132M													
	AM132ML													
	AM160													
	AM180													
	AM200	2	250	300	6	350	M16	206	42	110	45.3	12		
	AM225													
	AM250													
	AM280													
	R..167	AM160	1	250	300	6	550	350	M16	198	42	110	45.3	12
		AM180												
AM200														
AM225														
AM250		2		300	350			7		400	M16	239	55	140
AM280														
AM225														
AM250														
R..177		AM160	1	250	300	6	550	350	M16	198	42	110	45.3	12
		AM180												
		AM200												
	AM225													
	AM250	2		300	350			7		400	M16	239	55	140
	AM280													
	AM225													
	AM250													

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

R..R..



型号组合	功率(KW)	AC	K	KB	KM
R..47R37 R..57R37 R..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
R..77R37	0.18	129	363.5	400	206.5
	0.25-0.37	129	364/376.5	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
	2.2	219	538.5	600.5	322.5
R..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
	3	219	538.5	600.5	322.5
	0.18	129	417.5	454	206.5
R..97R57	0.25-0.37	129	418/430.5	453.5/467	207/219.5
	0.55-0.75	169	457.5/458	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
	0.18	129	453.5	454	206.5
R..107R77	0.25-0.37	129	454/466.5	489.5/503	207/219.5
	0.55-0.75	169	493.5/494.5	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
R..137R77	0.18	129	446.5	483	206.5
	0.25-0.37	129	447/459.5	482.5/496	207/219.5
	0.55-0.75	169	486.5/487	531.5/532	246.5/247
	1.1-1.5	192	538	583.5	298
	2.2	219	562.5	624.5	322.5
	3	219	562.5	624.5	322.5
	4	219	578.5	640.5	338.5
	5.5	257	649	717	409
	7.5	257	692	760	452
	9.2	257	692	760	452
	11-15	318	748	848	508
R..147R77	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
	11-15	318	740	840	508
R..147R87	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
	R..167R77	0.55-0.75	169	571.5/572	616.5/617
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
R..167R97		18.5	380	889	989
	2.2	219	704.5	766.5	322.5
	3	219	704.5	766.5	322.5
	4	219	720.5	782.5	338.5
	5.5	257	791	859	409
	7.5	257	834	902	452
	9.2	257	834	902	452
	11	318	890	990	508
	15	318	890	990	508
	18.5	380	946	1046	564

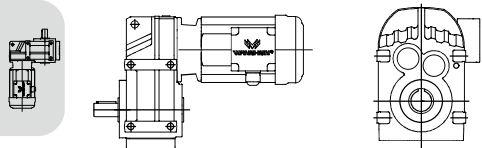
注: 上表中电机尺寸参考尺寸, 因空间限制对电机尺寸有严格要求时, 向我公司咨询。
 Motor size in the table as a reference size, due to space limitations have strict requirements on the motor size, to consult with my company.

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

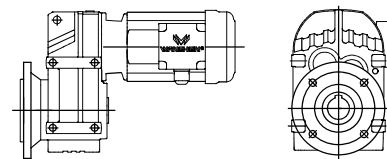
6.1 设计方案 6.1 Versions geared motors

平行轴装式斜齿轮减速机有以下设计方案：

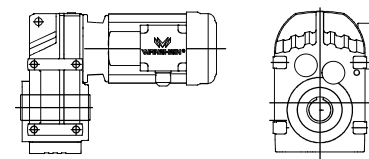
The following types of Parallel Shaft-Helical Geared Motor can be supplied:



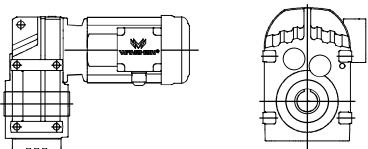
F..D..
底脚安装平行轴斜齿轮减速机
Solid shaft
Foot mount tapped holes



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

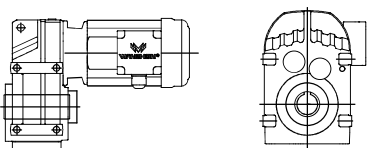


FA..D..
空心轴安装平行轴斜齿轮减速机
Splined hollow shaft with key
Shaft mount

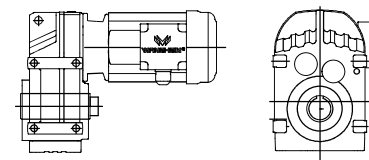


FA..BD..
底脚空心轴安装平行轴斜齿轮减速机
Foot mounted with Hollow shaft and tapped holes

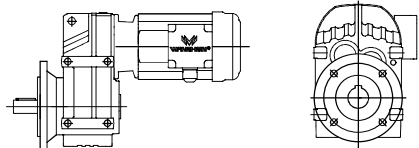
FV..D..
花键空心轴安装平行轴斜齿轮减速机
Splined hollow shaft
Shaft mount



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



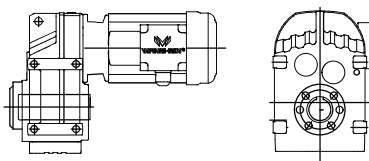
FH..D..
空心轴锁紧盘安装平行轴斜齿轮减速机
Shrink disk hollow shaft
Shaft mount



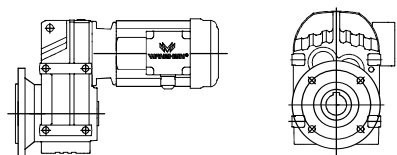
FH..BD..
底脚空心轴锁紧盘安装平行轴斜齿轮减速机
Foot mounted with hollow shaft,
shrink disk and tapped holes

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)

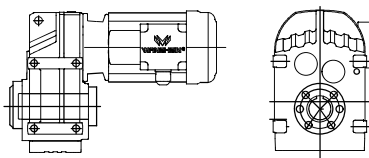
FF..D..
B5法兰安装平行轴斜齿轮减速机
Solid shaft
Flange mounted (D&B5 style flange with tapped holes)



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)



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



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)

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

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

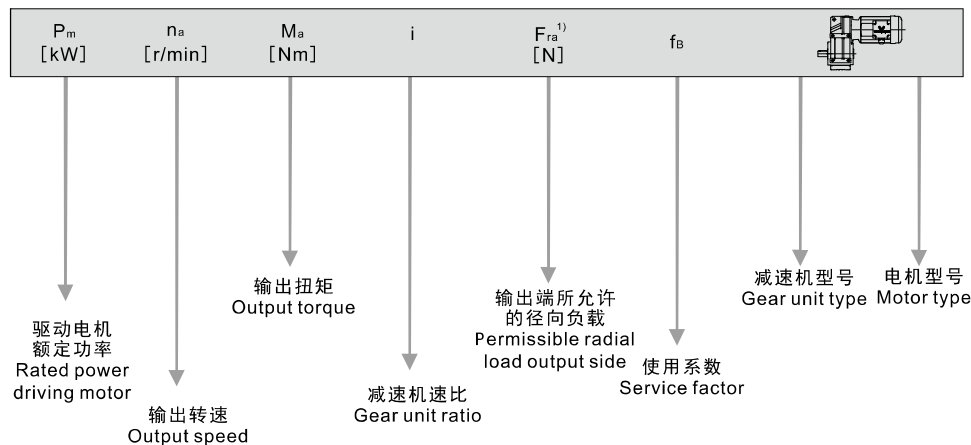
续表

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

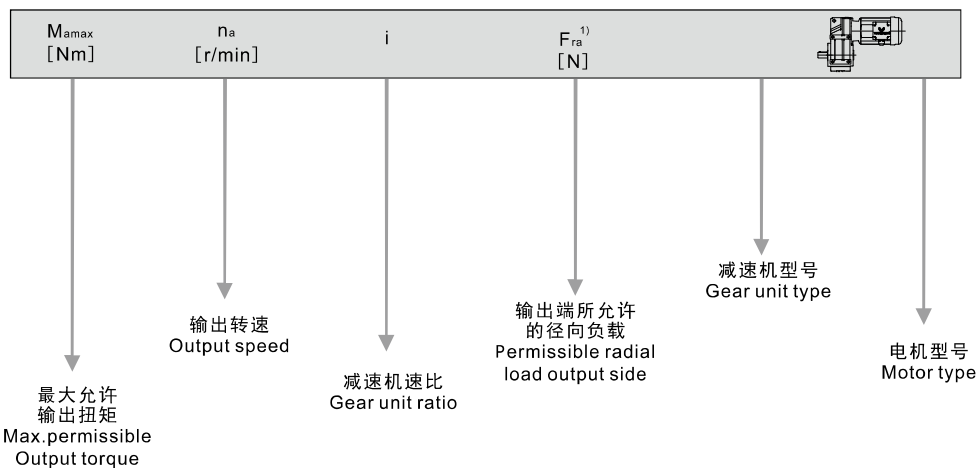
减速器型号 Gear unit size	级 Stages	D225 (37-45KW)	D250M (55KW)	D280 (75-90KW)	D315/ (110-132KW)	D315-A/B (160-200KW)
F/FF/FA/FAF107	2	6.22-27.57				
F/FF/FA/FAF107	3	31.80-74.52 88.49 101.38-129.97				
F/FF/FA/FAF127	2	4.68-26.86	4.68-21.38	4.68-21.38		
F/FF/FA/FAF127	3	25.30-125.37	25.30-55.31 75.41-98.95	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

6.4 选型表注释
6.4 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 Cutoff

- * 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.

输出转速 Output speed n _a [r/min]	输出扭矩 Output torque M _a [N·m]	传动比 Ratio i	径向负荷 Permitted overhung load F _{ra} [N]	使用系数 Service factor f _b	机型号 Model
0.12kW					
0.06	15000	22323	84600	0.80	
0.07	12600	19048	89300	0.95	FA127/RF77 WSS0.12KW-4
0.08	10800	16656	90000	1.10	FAF127/RF77 WSS0.12KW-4
0.09	9870	14722	90000	1.20	FAF127/RF77 WSS0.12KW-4
0.11	7980	12912	90000	1.50	F127/RF77 WSS0.12KW-4
0.12	7090	11656	90000	1.70	FF127/RF77 WSS0.12KW-4
0.14	6300	10191	90000	1.90	
0.09	9590	14767	44400	0.80	
0.12	7610	11348	50000	1.00	
0.14	5890	10039	54300	1.30	
0.16	4880	8548	56600	1.55	FA107/RF77 WSS0.12KW-4
0.18	4740	7674	56900	1.60	FAF107/RF77 WSS0.12KW-4
0.20	4120	6767	58200	1.85	F107/RF77 WSS0.12KW-4
0.23	3530	5954	59400	2.2	FF107/RF77 WSS0.12KW-4
0.26	3070	5223	60300	2.5	FF107/RF77 WSS0.12KW-4
0.30	2890	4567	60600	2.7	
0.39	2140	3521	61900	3.6	
0.19	4800	7328	23100	0.90	FA 97/RF57 WSS0.12KW-4
0.21	4040	6469	30700	1.05	FAF 97/RF57 WSS0.12KW-4
0.25	3680	5615	31600	1.15	FAF 97/RF57 WSS0.12KW-4
0.28	3200	4961	32800	1.35	F 97/RF57 WSS0.12KW-4
0.32	2800	4333	33800	1.55	FF 97/RF57 WSS0.12KW-4
0.35	2550	3906	34300	1.70	FA 97/RF57 WSS0.12KW-4
0.41	2210	3352	35000	1.95	FAF 97/RF57 WSS0.12KW-4
0.47	1820	2907	36700	2.4	F 97/RF57 WSS0.12KW-4
0.54	1670	2553	36000	2.6	FF 97/RF57 WSS0.12KW-4
0.28	3250	4954	3640	0.90	FA 87/RF57 WSS0.12KW-4
0.33	2690	4245	24100	1.10	FAF 87/RF57 WSS0.12KW-4
0.37	2200	3721	25800	1.35	F 87/RF57 WSS0.12KW-4
					FF 87/RF57 WSS0.12KW-4
0.43	2140	3244	26000	1.40	
0.48	1900	2881	26700	1.60	
0.54	1700	2576	27300	1.75	
0.63	1440	2199	28000	2.1	FA 87/RF57 WSS0.12KW-4
0.72	1240	1930	28400	2.4	FAF 87/RF57 WSS0.12KW-4
0.81	1120	1709	28700	2.7	F 87/RF57 WSS0.12KW-4
0.92	980	1493	29000	3.0	FF 87/RF57 WSS0.12KW-4
1.1	785	1300	29400	3.8	
1.2	710	1148	29500	4.2	
0.53	1750	2613	13800	0.85	FA 77/RF57 WSS0.12KW-4
0.60	1520	2284	15600	1.00	FAF 77/RF57 WSS0.12KW-4
0.68	1340	2029	16700	1.10	F 77/RF57 WSS0.12KW-4
					FF 77/RF57 WSS0.12KW-4
0.80	1130	1728	17800	1.35	
0.89	1040	1544	18200	1.45	
1.0	910	1354	18600	1.65	FA 77/RF57 WSS0.12KW-4
1.1	810	1200	19000	1.85	FAF 77/RF57 WSS0.12KW-4
1.3	710	1053	19200	2.1	F 77/RF57 WSS0.12KW-4
1.5	605	910	19500	2.5	FF 77/RF57 WSS0.12KW-4
1.7	510	810	19700	2.9	
1.9	445	710	19800	3.4	
0.97	920	1429	9270	0.90	
1.1	830	1271	10200	1.00	
1.2	700	1102	11300	1.15	
1.4	615	970	11800	1.35	FA 67/RF37 WSS0.12KW-4
1.6	540	858	12200	1.50	FAF 67/RF37 WSS0.12KW-4
1.8	475	755	12500	1.95	FAF 67/RF37 WSS0.12KW-4
2.2	405	641	12800	2.0	F 67/RF37 WSS0.12KW-4
2.4	375	572	12900	2.2	FF 67/RF37 WSS0.12KW-4
2.7	320	509	13000	2.6	
3.2	275	437	13000	3.0	

输出转速 Output speed n _a [r/min]	输出扭矩 Output torque M _a [N·m]	传动比 Ratio i	径向负荷 Permitted overhung load F _{ra} [N]	使用系数 Service factor f _b	机型号 Model
0.12kW					
1.4	655	967	5860	0.90	
1.6	585	851	9320	1.05	
1.9	500	738	9920	1.20	FA 57/RF37 WSS0.12KW-4
2.1	435	646	10400	1.40	FAF 57/RF37 WSS0.12KW-4
2.5	370	558	10700	1.60	F 57/RF37 WSS0.12KW-4
2.7	330	506	11000	1.80	FF 57/RF37 WSS0.12KW-4
3.0	285	452	11200	2.1	
3.2	295	426	11200	2.0	FA 57/RF37 WSS0.12KW-4
3.6	260	382	11300	2.3	FAF 57/RF37 WSS0.12KW-4
4.2	225	330	11500	2.7	F 57/RF37 WSS0.12KW-4
4.6	200	298	11500	3.0	FF 57/RF37 WSS0.12KW-4
5.3	177	262	11500	3.1	
3.9	290	228.99	13000	2.8	FA 67 WSS0.12KW-6
4.6	250	195.39	13000	3.3	FAF 67 WSS0.12KW-6
5.3	220	170.85	13000	3.8	F 67 WSS0.12KW-6
5.6	205	162.31	13000	4.0	FF 67 WSS0.12KW-6
6.3	181	142.40	13000	4.5	
4.5	255	199.70	11400	2.4	FA 57 WSS0.12KW-6
4.9	235	183.60	11500	2.6	FAF 57 WSS0.12KW-6
5.7	200	157.09	11500	3.0	F 57 WSS0.12KW-6
6.6	173	136.16	11500	3.5	FF 57 WSS0.12KW-6
7.1	162	127.27	11500	3.7	
6.9	166	199.70	11500	3.6	FA 57 WSS0.12KW-4
7.5	153	183.60	11500	3.9	FAF 57 WSS0.12KW-4
8.8	130	157.09	11500	4.6	F 57 WSS0.12KW-4
10	113	136.16	11500	5.3	FF 57 WSS0.12KW-4
4.7	245	190.76	7510	1.65	
5.1	225	175.38	7640	1.80	
6.0	191	150.06	7820	2.1	FA 47 WSS0.12KW-6
6.9	166	130.07	7940	2.4	FAF 47 WSS0.12KW-6
7.4	155	121.57	7990	2.6	F 47 WSS0.12KW-6
8.6	134	105.09	8070	3.0	FF 47 WSS0.12KW-6
10	114	89.29	8130	3.5	
11	102	79.72	8160	3.9	
7.2	158	190.76	7970	2.5	FA 47 WSS0.12KW-4
7.9	146	175.38	8020	2.8	FAF 47 WSS0.12KW-4
9.2	125	150.06	8100	3.2	F 47 WSS0.12KW-4
11	108	130.07	8150	3.7	FF 47 WSS0.12KW-4
7.0	164	128.51	4740	1.20	FA 37 WSS0.12KW-6
7.6	150	117.88	4880	1.35	FAF 37 WSS0.12KW-6
9.0	128	100.36	5070	1.55	F 37 WSS0.12KW-6
10	110	86.53	5190	1.80	FF 37 WSS0.12KW-6
11	103	80.65	5240	1.95	
11	107	128.51	5220	1.85	
12	98	117.88	5270	2.0	
14	83	100.36	5340	2.4	
16	72	86.53	5400	2.8	
17	67	80.65	5410	3.0	
20	59	70.50	5440	3.4	
21	55	66.09	5460	3.6	
24	48	58.32	5470	4.1	FA 37 WSS0.12KW-4
25	45	54.54	5480	4.4	FAF 37 WSS0.12KW-4
27	43	51.70	5490	4.7	F 37 WSS0.12KW-4
29	39	47.02	5500	5.1	FF 37 WSS0.12KW-4
31	36	43.83	5500	5.5	
36	32	38.31	5510	6.3	
38	30	35.91	5520	6.7	
44	26	31.69	5520	7.6	
49	23	28.09	5520	8.6	
58	20	23.88	5270	10	



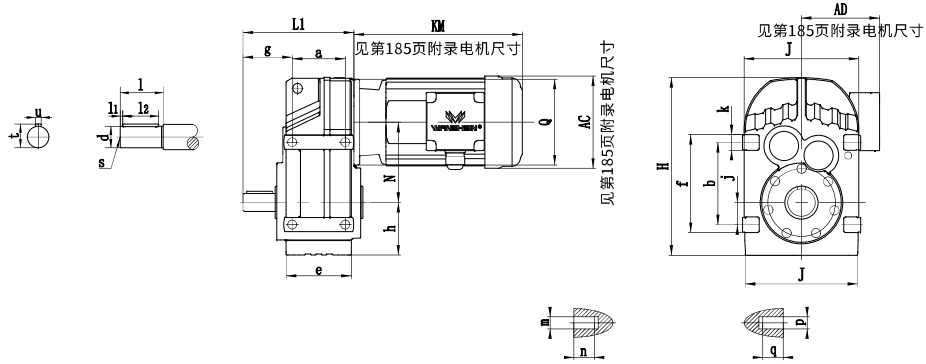
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Table with columns: 输出转速, 输出转矩, 传动比, 径向负荷, 使用系数, 机型号. Includes sub-sections for 0.75kW, 0.75kW, and 1.1kW.

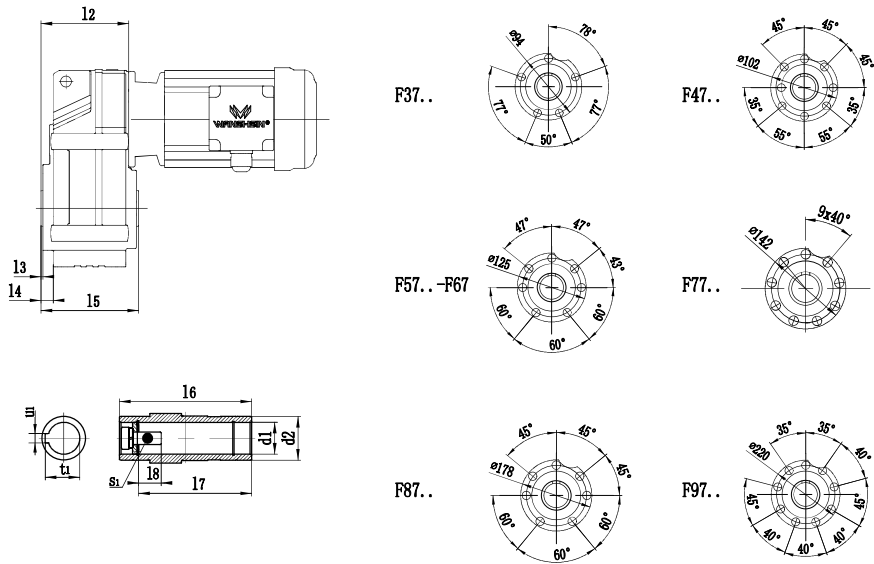
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Table with columns: 输出转速, 输出转矩, 传动比, 径向负荷, 使用系数, 机型号. Includes sub-sections for 1.1kW, 1.1kW, and 1.1kW.

F37..~F157..



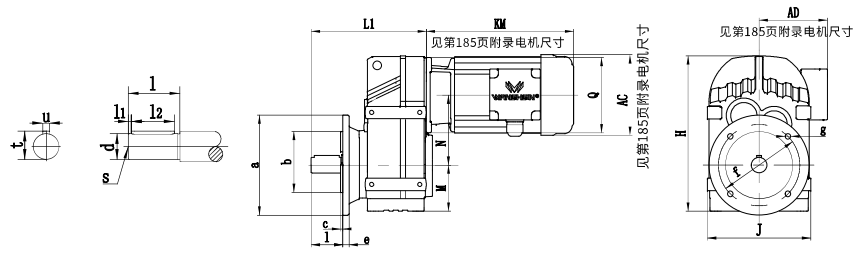
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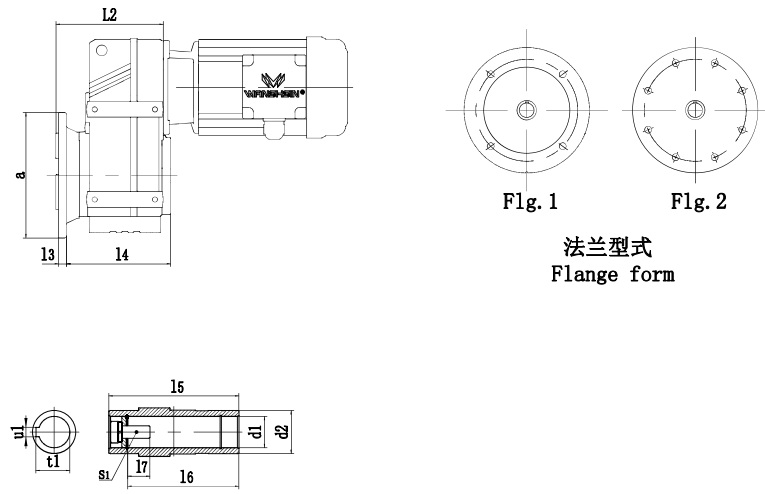
型号 Model	a b	e f	g	h	j	k	m n	p q	轴伸尺寸 Shaft dimension				
									d	l	l1 l2	s	t u
F37.. FA37B..	77 115	95 135	72.5	76	31	20	M8 11	M8 11	25k6	50	5 40	M10	28 8
F47.. FA47B..	93 145	109 165	91	77	43	20	M8 11	M10 15	30k6	60	3.5 50	M10	33 8
F57.. FA57B..	102 170	126 195	104.5	93	55	25	M12 17	M12 17	35k6	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..

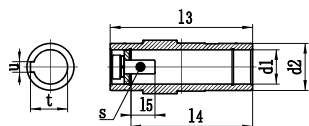
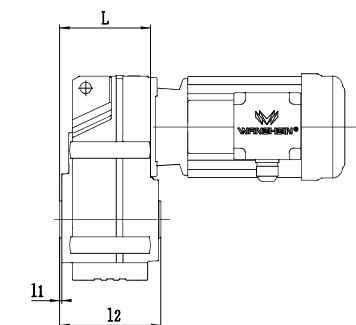
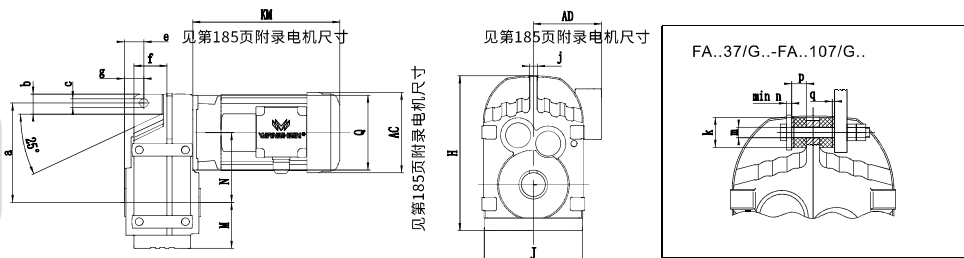


FAF37...~FAF157..



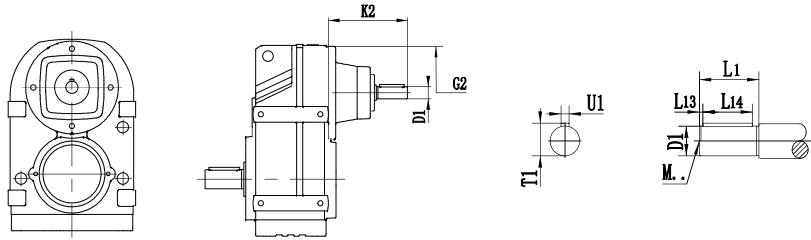
型号 Model	法兰形式 Flange form	a b	c e	f g	轴伸尺寸 Shaft dimension									H J	L1 L2	M N Q
					d l	l1 l2	s	t u	d1 d2	l3 l4	l5 l6	l7 l8	t1 u1			
FF37.. FAF37..	Fig.1	160 110j6	3.5 10	130 9	25k6 50	5 40	M10	28 8	30H7 45	24 123	120 105	17 M10X25	33.3 8	252 165	184 138	76 112 120
FF47.. FAF47..	Fig.1	200 130j6	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..



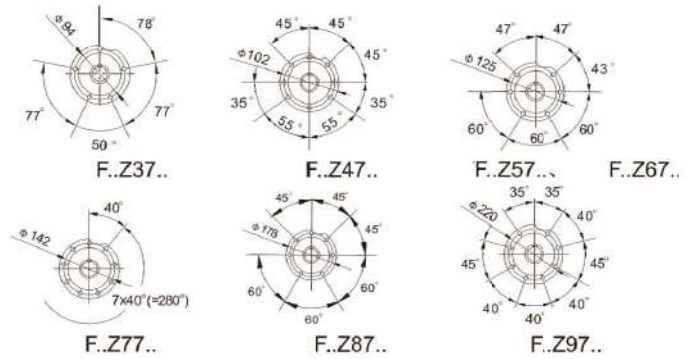
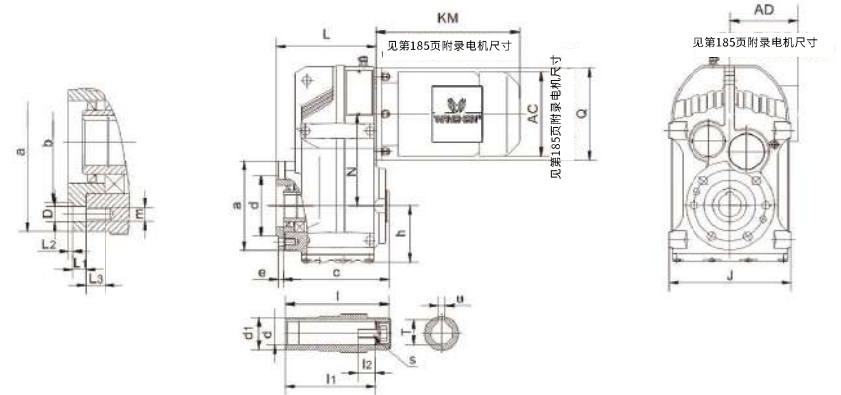
型号 Model	a b	c e	f g	空心轴尺寸 Hollow Shaft Dimension					扭矩臂尺寸 Torque arm form		H J j	L	M	N Q
				d1 d2	l1 l2	l3 l4	l5 s	t u	K M N	p q				
FA37.. FA..37/G..	158 30	14 31.5	46 15	30H7 45	0.5 123	120 105	17 M10X25	33.3 8	40 12.5 5	20 1	252 172 12	110	76	112 120
FA47.. FA..47/G..	170 22	14 32	64 12	35H7 50	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..

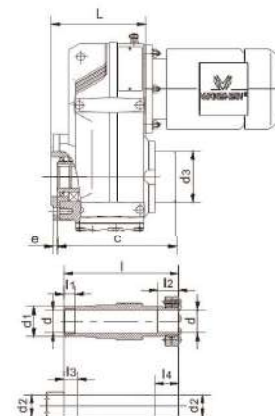


		G2	K2	D1	L1	L13	L14	T1	U1	M
F..37 F..47	AD1	120	102	16	40	4	32	18	5	M5
	AD2		130	19	40	4	32	21.5	6	M6
F..57 F..67	AD2	160	123	19	40	4	32	21.5	6	M6
	AD3		159	24	50	5	40	27	8	M8
F..77	AD2	200	116	19	40	4	32	21.5	6	M6
	AD3		151	24	50	5	40	27	8	M8
	AD4		224	38	80	5	70	41	10	M12
F..87	AD2	250	111	19	40	4	32	21.5	6	M6
	AD3		156	28	60	5	50	31	8	M10
	AD4		219	38	80	5	70	41	10	M12
F..97	AD5	300	292	42	110	10	70	45	12	M16
	AD3		151	28	60	5	50	31	8	M10
	AD4		214	38	80	5	70	41	10	M12
F..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
F..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
F..157	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
F..157	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

FAZ37..~FAZ157..



FAZ37..~FAZ157..



F..AM..

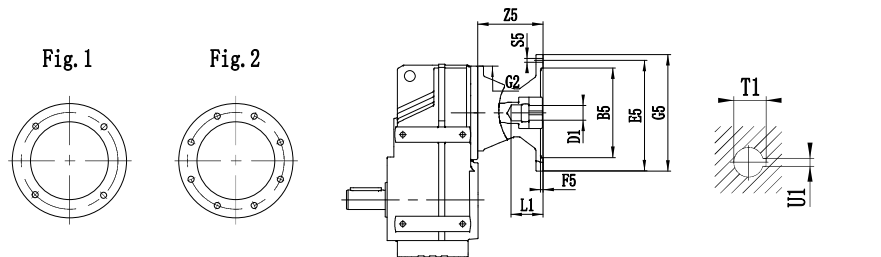


		Fig.	B5	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1			
F..37 F..47	AM63	1	95	115	3.5	120	140	M8	72	11	23	12.8	4			
	AM71		110	130			14			30	16.3	5				
	AM80		130	165	4.5		200	M10		106	19	40	21.8	6		
	AM90						24	50		27.3	8					
F..57 F..67	AM63	1	95	115	3.5	160	140	M8	66	11	23	12.8	4			
	AM71		110	130			14			30	16.3	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		230	265	5		300			179	38	80	41.3	10		
AM132M																
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		230	265	5		300	M12		174	38	80	41.3	10		
	AM132M															
	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		230	265	5		300	M12		169	38	80	41.3	10		
	AM132M															
	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	64.4	18		

F..AM..

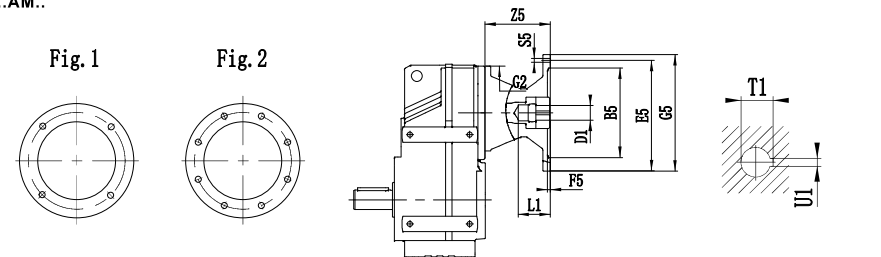
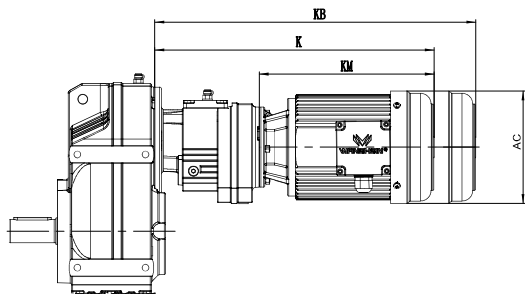


		Fig.	B5	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1			
F..107	AM100	1	180	215	5	350	250	M12	110	28	60	31.3	8			
	AM112															
	AM132S		230	265	5		300	M12		163	38	80	41.3	10		
	AM132M															
	AM132ML															
	AM160		250	300	6		350	M16		221	42	110	45.3	12		
	AM180						48								51.8	14
	AM200		300	350	7		400	M16		262	55	140	59.3	16		
AM225	450	277				60	140		64.4						18	
F..127	AM132S	1	230	265	5	450	300	M12	148	38	80	41.3	10			
	AM132M															
	AM132ML															
	AM160		250	300	6		350	M16		206	42	110	45.3	12		
	AM180						48								51.8	14
	AM200		300	350	7		400	M16		247	55	140	59.3	16		
	AM225						450								262	60
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						48							51.8	14	
	AM200		300	350	7		400	M16		239	55	140	59.3	16		
	AM225						450								254	60
	AM250		450	500	7		550	M16		328	65	140	69.4	20		
	AM280						75								79.9	20

F..R..



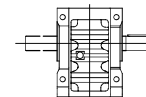
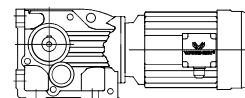
7. K系列斜齿轮-伞齿轮减速机 K Helical-Bevel Geared Motor

7.1设计方案 7.1 Versions of geared motors

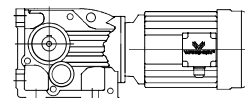
斜齿轮-伞齿轮减速机有以下设计方案:
The following types of helical-bevel geared motor can be supplied:

型号组合	功率 (KW)	AC	K	KB	KM	型号组合	功率 (KW)	AC	K	KB	KM
F..57R37	0.18	129	371.5	408	206.5	F..127R77	0.18	129	438.5	475	206.5
	0.25-0.37	129	372/384.5	407.5/421	207/219.5		0.25-0.37	129	439/451.5	474.5/488	207/219.5
	0.55-0.75	169	411.5/412	456.5/457	246.5/247		0.55-0.75	169	478.5/479	523.5/524	246.5/247
F..67R37	0.18	129	371.5	408	206.5		1.1-1.5	192	530	575.5	298
	0.25-0.37	129	372/384.5	407.5/421	207/219.5		2.2	219	554.5	616.5	322.5
	0.55-0.75	169	411.5/412	456.5/457	246.5/247		3	219	554.5	616.5	322.5
	1.1-1.5	192	463	508.5	298		4	219	570.5	632.5	338.5
F..77R37	0.18	129	363.5	400	206.5		5.5	257	641	709	409
	0.25-0.37	129	364/367.5	399.5/413	207/219.5		7.5	257	684	752	452
	0.55-0.75	169	403.5/404	448.5/449	246.5/247	9.2	257	684	752	452	
F..87R57	1.1-1.5	192	455	500.5	298	11-15	318	740	840	508	
	0.18	129	422.5	459	206.5	F..127R87	1.1-1.5	192	578	623.5	298
	0.25-0.37	129	423/433.5	458.5/472	207/219.5		2.2	219	602.5	664.5	322.5
	0.55-0.75	169	462.5/463	507.5/508	246.5/247		3	219	602.5	664.5	322.5
	1.1-1.5	192	514	559.5	298		4	219	618.5	680.5	338.5
2.2	219	538.5	600.5	322.5	5.5		257	689	757	409	
3	219	538.5	600.5	322.5	7.5		257	732	800	452	
F..97R57	0.18	129	417.5	454	206.5		9.2	257	732	800	452
	0.25-0.37	129	418/430.5	453.5/467	207/219.5		11	318	788	888	508
	0.55-0.75	169	475.5/458	502.5/503	246.5/247		15	318	788	888	508
	1.1-1.5	192	509	554.5	298	18.5	380	844	944	564	
	2.2	219	533.5	595.5	322.5	0.55-0.75	169	571.5/572	616.5/617	246.5/247	
F..107R77	3	219	533.5	595.5	322.5	1.1-1.5	192	623	668.5	298	
	4	219	549.5	611.5	338.5	2.2	219	647.5	709.5	322.5	
	0.18	129	453.5	490	206.5	3	219	647.5	709.5	322.5	
	0.25-0.37	129	454/466.5	489.5/503	207/219.5	4	219	663.5	725.5	338.5	
	0.55-0.75	169	493.5/494	538.5/539	246.5/247	5.5	257	734	802	409	
	1.1-1.5	192	545	590.5	298	7.5	257	777	845	452	
	2.2	219	569.5	631.5	322.5	9.2	257	777	845	452	
	3	219	569.5	631.5	322.5	11	318	833	933	508	
	4	219	585.5	647.5	338.5	15	318	833	933	508	
	5.5	257	656	724	409	18.5	380	889	989	564	
	7.5	257	699	767	452						
9.2	257	699	767	452							
11-15	318	755	855	508							

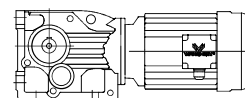
注:上表中电机尺寸为参考尺寸,因空间限制对电机尺寸有严格要求时请向我公司咨询。
Notes:The dimension of motor in the above table is only reference.If you have special requirement, Please consult us.



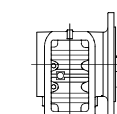
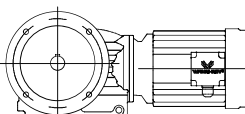
K..D..
底脚安装齿轮-伞齿轮减速机
Foot-mounted helical-bevel geared motor



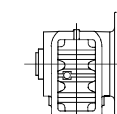
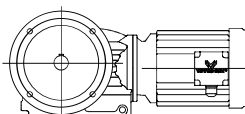
KA..BD..
底脚空心轴安装斜齿轮-伞齿轮减速机
Foot-mounted helical-bevel geared motor with hollow shaft.



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.



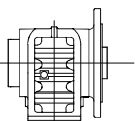
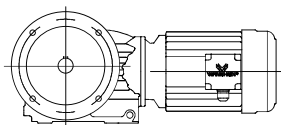
KH..BD..
底脚空心轴锁紧盘安装斜齿轮-伞齿轮减速机
Foot-mounted helical-bevel geared motor with hollow shaft and shrink disk.



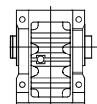
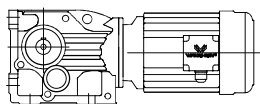
KF..D..
B5法兰安装斜齿轮-伞齿轮减速机
Helical-bevel geared motor in B5 flange-mounted version.

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.

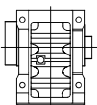
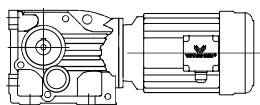
KVF..D..
B5法兰花键空心轴(DIN5480)安装斜齿轮-伞齿轮减速机
Helical-bevel geared motor in B5 flange-mounted version with hollow shaft and splined hollow shaft to DIN 5480.



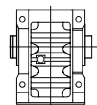
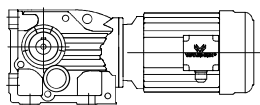
KHF..D..
B5法兰空心轴锁紧盘安装斜齿轮-伞齿轮减速机
Helical-bevel geared motor in B5 flange-mounted version with hollow shaft and shrink disk.



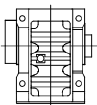
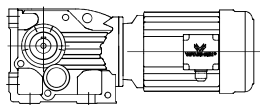
KA..D..
空心轴安装斜齿轮-伞齿轮减速机
Helical-bevel geared motor with hollow shaft .



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



KAZ..D..
B14法兰空心轴安装斜齿轮-伞齿轮减速机
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



Table with 7 columns: Output speed (n2), Output torque (M2), Ratio (i), Permitted overhung load (FRa), Service factor (fs), Model, and Model. Includes sections for 0.25kW, 0.37kW, and 0.55kW.

Table with 7 columns: Output speed (n2), Output torque (M2), Ratio (i), Permitted overhung load (FRa), Service factor (fs), Model, and Model. Includes sections for 0.25kW, 0.37kW, and 0.55kW.

Table with 7 columns: Output speed (n2), Output torque (M2), Ratio (i), Permitted overhung load (FRa), Service factor (fs), Model, and Model. Includes sections for 0.37kW, 0.55kW, and 0.75kW.

Table with 7 columns: Output speed (n2), Output torque (M2), Ratio (i), Permitted overhung load (FRa), Service factor (fs), Model, and Model. Includes sections for 0.37kW, 0.55kW, and 0.75kW.



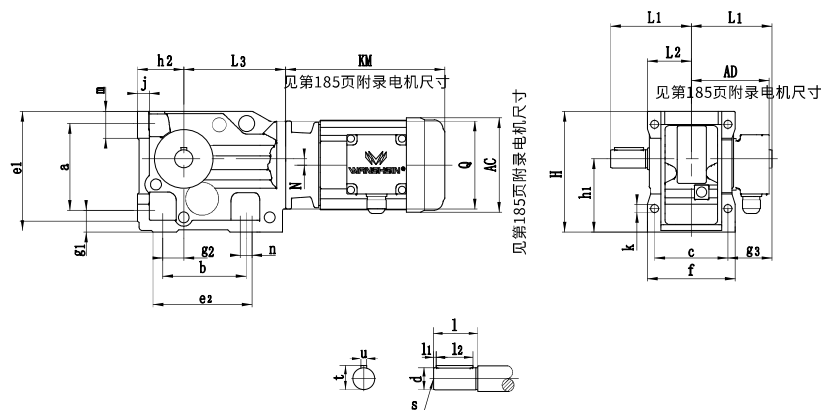
输出转速 Output speed n_a [r/min]	输出转矩 Output torque M_a [N·m]	传动比 Ratio i	径向负荷 Permitted overhung load F_{Ra} [N]	使用系数 Service factor f_s	机型号 Model
90kW					
14	59300	102.16	151300	0.85	
17	51100	88.00	153400	0.95	
20	42900	73.96	154200	1.10	
23	37200	64.04	153800	1.25	K 187 WSS90kW-4
28	31000	53.36	152200	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	
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	K 167 WSS90kW-4
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	
47	18200	31.30	55500	1.00	
54	16000	27.62	56700	1.10	K 157 WSS90kW-4
62	13900	23.95	57500	1.30	KF 157 WSS90kW-4
69	12400	21.31	57900	1.45	KA 157 WSS90kW-4
81	10700	18.37	57900	1.70	KAF 157 WSS90kW-4
99	8670	12.65	57400	2.1	
117	7350	12.65	56600	2.3	
62	13900	23.91	36400	0.95	
70	12300	21.15	37800	1.05	
83	10300	17.77	39200	1.25	K 127 WSS90kW-4
103	8330	14.35	40200	1.45	KF 127 WSS90kW-4
116	7420	12.79	37600	1.15	KA 127 WSS90kW-4
138	6240	10.74	38000	1.30	KAF 127 WSS90kW-4
171	5040	8.68	38000	1.45	

110kW					
17	62300	88.00	136000	0.80	
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	1.35	K 127 WSS110kW-4
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	
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	K 167 WSS110kW-4
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	KF 157 WSS110kW-4
81	13000	18.37	52700	1.40	KA 157 WSS110kW-4
100	10600	14.92	53100	1.70	KAF 157 WSS110kW-4
117	8950	12.65	53000	1.90	

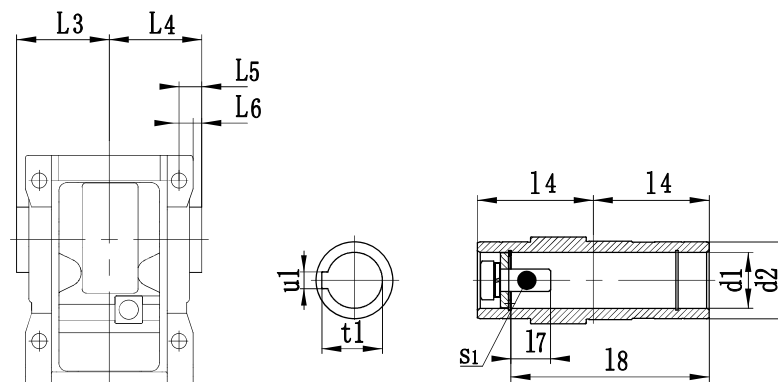
132kW					
20	62800	73.96	123300	0.80	
23	54400	64.04	127000	0.90	
28	45300	53.36	129800	1.10	
33	38600	45.50	130800	1.30	
35	36100	42.51	130900	1.40	
39	32700	38.57	130700	1.55	K 187 WSS110kW-4
45	28200	33.23	129800	1.75	
53	23700	27.92	127900	2.1	
61	20500	24.18	125900	2.3	
74	17100	20.15	122800	2.6	
86	14600	17.18	119700	2.8	
35	36400	42.89	96400	0.90	
41	31100	36.61	98600	1.05	
46	27400	32.25	99600	1.15	
52	24400	28.77	99900	1.30	K 167 WSS110kW-4
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	KF 157 WSS132kW-4
81	15600	18.37	47000	1.15	KA 157 WSS132kW-4
100	12700	14.92	48500	1.40	KAF 157 WSS132kW-4
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 overhung load F_{Ra} [N]	使用系数 Service factor f_s	机型号 Model
160kW					
28	54900	53.36	114900	0.90	
33	46800	45.50	118100	1.05	
45	34200	33.23	120500	1.45	
53	28700	27.92	120100	1.75	K 187 WSS60kW
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	
61	25200	24.52	91700	1.25	K 167 WSS160kW-4
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	KF 157 WSS160kW-4
117	13000	12.65	44100	1.30	KAF 157 WSS160kW-4
200kW					
33	58500	45.50	100000	0.85	
45	42700	33.23	107300	1.15	
53	35900	27.92	109000	1.40	
61	31100	24.18	109500	1.55	K 187 WSS200kW-4
74	25900	20.15	109100	1.70	
86	22100	17.18	108100	1.85	
61	31500	24.52	80100	1.00	
73	26100	20.32	82400	1.20	K 167 WSS200kW-4
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	KF 157 WSS200kW-4
					KAF 157 WSS200kW-4

K37...~K157..



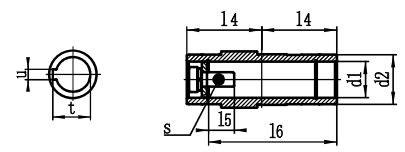
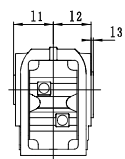
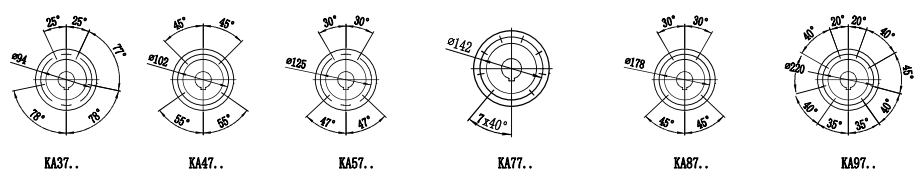
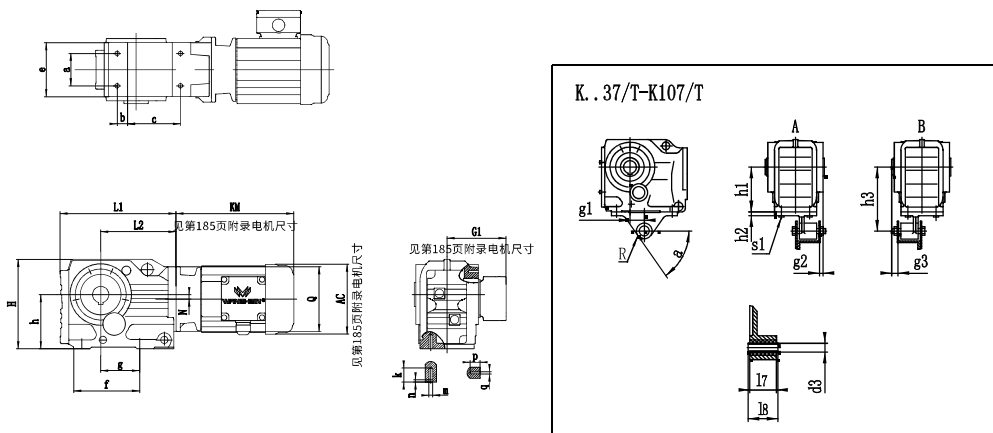
KA37B...~KA157B..



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

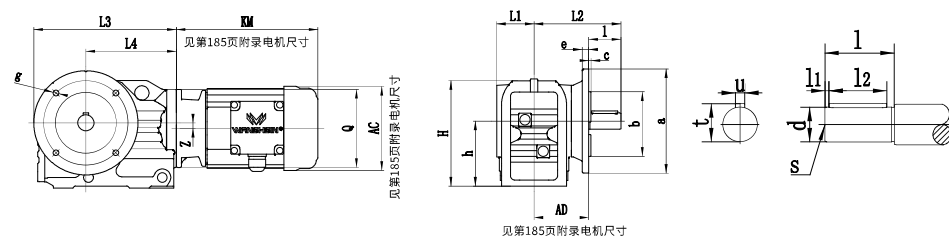
型号 Size	空心轴尺寸 Hollow shaft dimension							H	L1 L2	L3	N	Q
	d1	d2	l3 l4	l5 l6	l7 l8	s1	t1 u1					
K37.. KA37B..	-	-	-	-	-	-	-	165	110 60	139	8.5	120
K47.. KA47B..	35 ^m	50	78 75	15 3	22 132	M12X30	38.3 10	185	135 72	166	7.2	160
K57.. KA57B..	40 ^m	55	86 83	18 3	29 142	M16X40	43.3 12	217	153 80	173	13.1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

KA37/T..~KA107

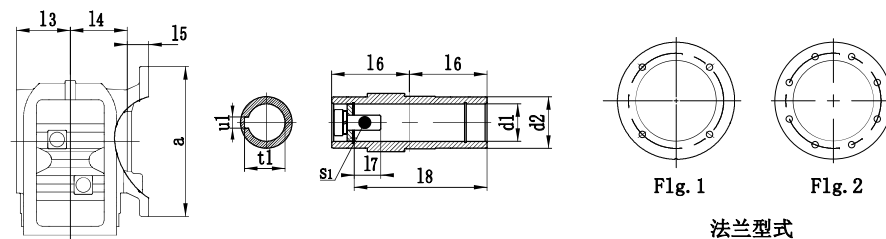


型号 Size	a b c	e f g	h	k m n	p q	空心轴尺寸 Hollow shaft dimension				扭矩臂尺寸 Torque arm form				H L ₂ L ₃	Q N
						d ₁ d ₂	l ₁ l ₁ l ₂	l ₄ l ₅ l ₆	s t u	g ₁ g ₂ g ₃	h ₁ h ₂ h ₃	d ₃ l ₇ l ₈	r s ₁ s ₂		
						30° 45°	63 60 2.5	60 17 105	M10 33.3 8	23.5 20 20	100 ^{+0.5} 10 140 ^{+0.2}	10.4 ^{+0.1} 31 36 ^{+0.3}	22.5 M10X25 60°		
KA 37.. K..37/T..	60 35 82	100 147 97	100-0.5	20 M10 4	12 M8	30° 45°	63 60 2.5	60 17 105	M10 33.3 8	23.5 20 20	100 ^{+0.5} 10 140 ^{+0.2}	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° 50°	78 75 3	75 22 132	M12 38.3 10	30 20 20	112 ^{+0.5} 12 160 ^{+0.2}	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° 55°	86 83 3	83 29 142	M16 43.3 12	40 18 18	132 ^{+0.5} 13 192 ^{+0.2}	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° 55°	94 90 3.5	90 29 156	M16 43.3 12	45 25 25	140 ^{+0.5} 13 200 ^{+0.2}	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° 70°	108 105 4	105 32 183	M16 53.8 14	52.5 25 25	180 ^{+0.5} 14 250 ^{+0.2}	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° 85°	123 120 4	120 36 4	M20 64.4 18	60 30 30	212 ^{+0.5} 16 300 ^{+0.2}	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° 95°	153 150 4	150 34 270	M20 74.9 20	70 40 40	265 ⁺¹ 17 350 ^{+0.2}	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° 118°	178 175 2.5	175 40 313	M24 95.4 25	74 45 45	315 ⁺¹ 20 450 ^{+0.2}	25 ^{+0.08} 92 100 ^{+0.3}	41 M24X60 55°	500 537 341	52 350

KF37..~KF157..



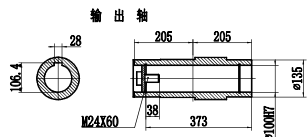
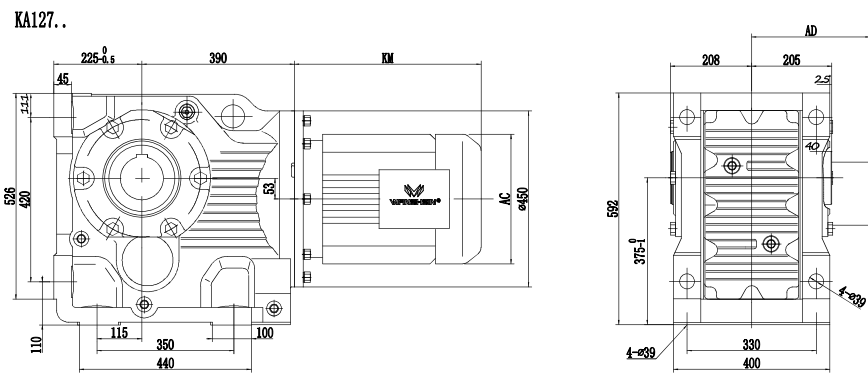
KAF37..~KAF157..



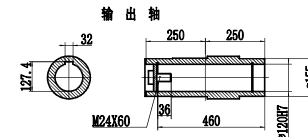
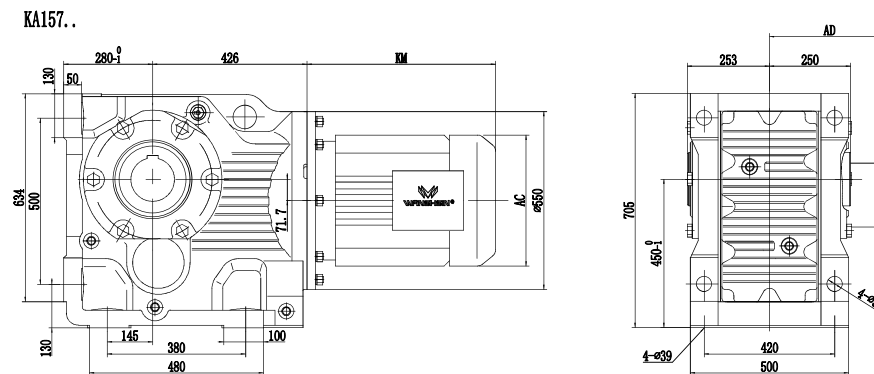
法兰型式
Flange form

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	-	-	-	30H7	45	30h6	75	-	-	-
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	150 220 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.. KHF127..	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	-	-	-

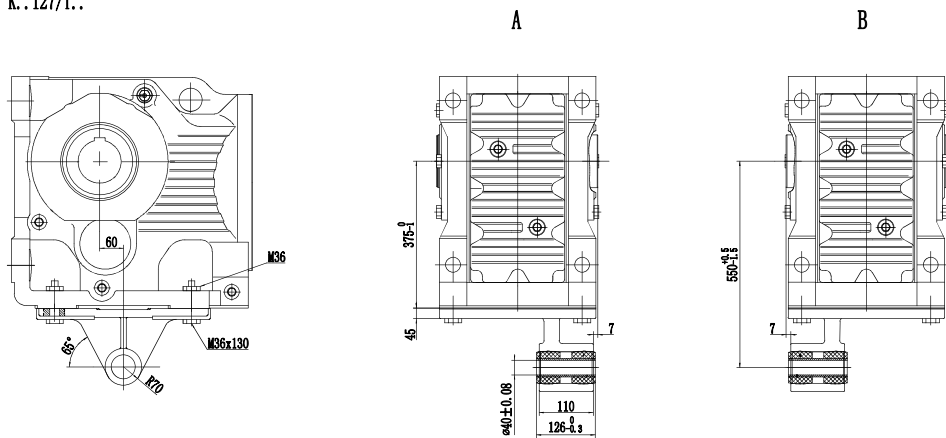
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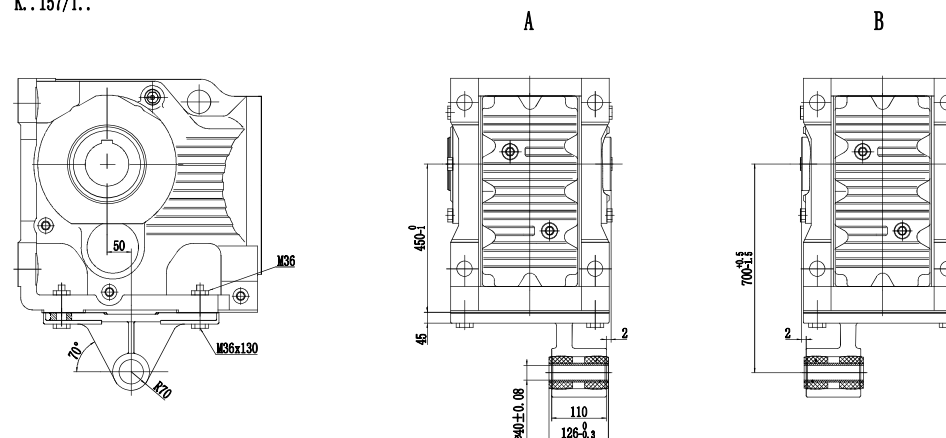
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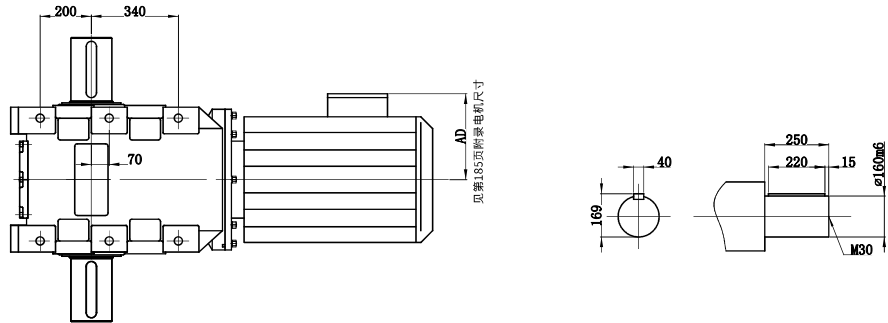
K..127/T..



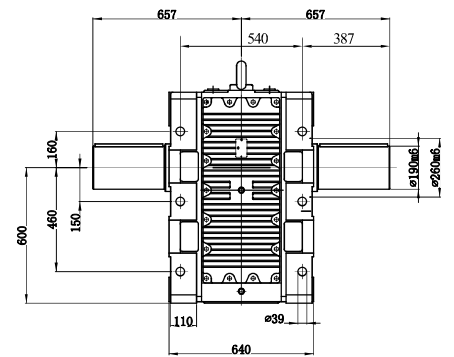
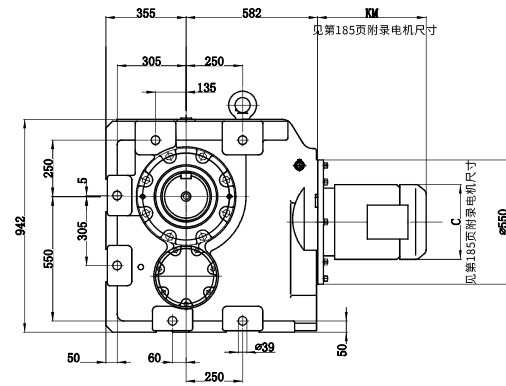
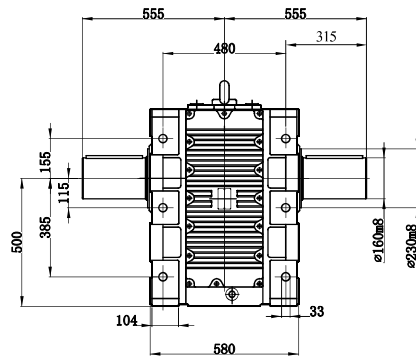
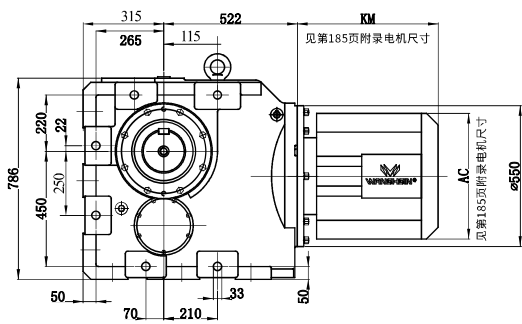
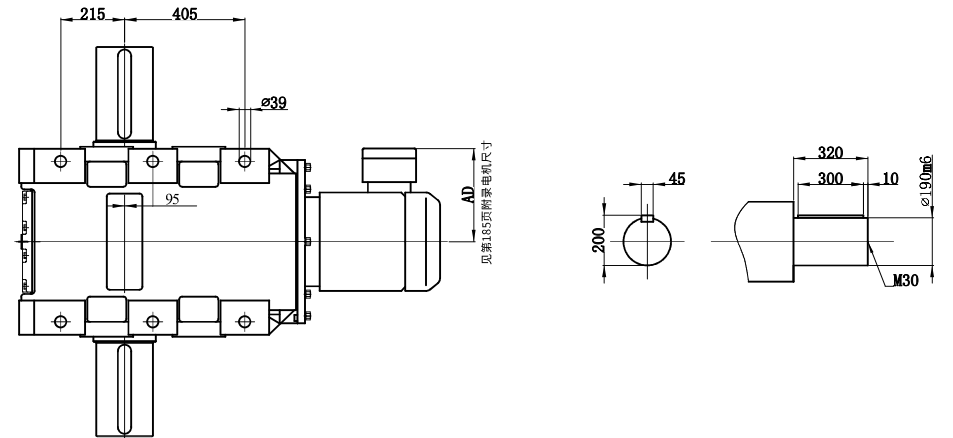
K..157/T..



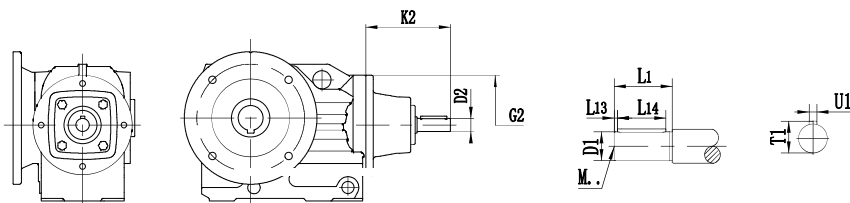
KA167..



KA187..

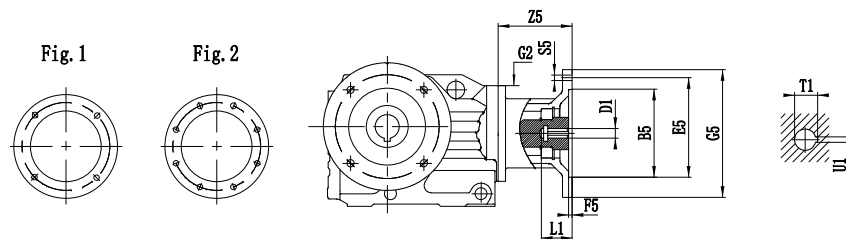


K..AD..



		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
	AD6		327	48	110	10	80	51.5	14	M16
K..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
K..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
K..157 K..167 K..187	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

K..AM..



			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			160			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			160			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"													
K..77	AM63	1	95	115	3.5	200	140	M8	60	11	23	12.8	4	
	AM71		110	130			160			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"		230	265	5		300	179	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		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													
	AM132S		230	265	6		300	M16	169	38	80	41.3	10	
	AM132M													
	AM132ML													
	AM160		250	300	7		350	M16	227	42	110	45.3	12	
	AM180													
	AM200"		300	350	400		268	55	59.3	16				
AM225"	2	350	400	7	450	283	60	140	64.4	18				

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..

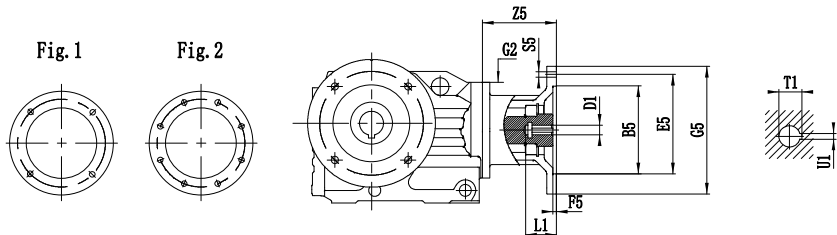
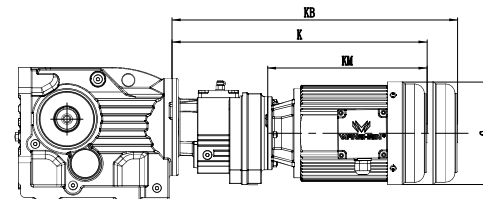


		Fig	B5	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
K.107	AM100	1	180	215	5	350	250	M12	110	28	60	31.3	8
	AM112												
	AM132S												
	AM132M												
	AM132ML	2	230	265	6	300	M16	163	38	80	41.3	10	
	AM160												
	AM180												
	Am200												
Am225	350	300	350	7	450	M16	221	42	110	45.3	12		
AM132S													
AM132M													
AM132ML													
K.127	AM160	1	230	265	5	450	300	M12	148	38	80	41.3	10
	AM180												
	AM200												
	AM225												
	AM250	2	250	300	6	400	M16	247	55	110	51.3	14	
	AM180												
	AM200												
	AM225												
AM250	350	400	7	550	M16	262	60	140	64.4	18			
AM280													
AM250													
AM280													
K..157 K..167 K..187	AM160	1	250	300	6	550	350	M16	198	42	110	45.3	12
	AM180												
	AM200												
	AM225												
	AM250	2	300	350	7	450	M16	239	55	140	59.3	16	
	AM225												
	AM250												
	AM280												
AM250	350	400	7	550	M16	254	60	140	64.4	18			
AM280													
AM250													
AM280													
AM250	450	500	7	550	M16	328	65	140	69.4	18			
AM280													
AM250													
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	
	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	455	500.5	298		K..157R97 K..167R97 K..187R97	0.55-0.75	169	571.5/572	616.5/617	246.5/247
K..87R57	0.18	129	422.5	459	206.5			1.1-1.5	192	623	668.5	298
	0.25-0.37	129	423/433.5	458.5/472	207/219.5	2.2		219	647.5	709.5	322.5	
	0.55-0.75	169	462.5/463	507.5/508	246.5/247	3		219	647.5	709.5	322.5	
K..97R57	1.1-1.5	192	514	559.5	298	4		219	663.5	725.5	338.5	
	2.2	219	538.5	600.5	322.5	5.5		257	734	802	409	
	3	219	538.5	600.5	322.5	7.5		257	777	845	452	
	0.18	129	417.5	454	206.5	9.2		257	777	845	452	
	0.25-0.37	129	418/430.5	453.5/467	207/219.5	11		318	833	933	508	
	0.55-0.75	169	475.5/458	502.5/503	246.5/247	15		318	833	933	508	
K..107R77	1.1-1.5	192	509	554.5	298	K..157R107 K..167R107 K..187R107		2.2	219	704.5	766.5	322.5
	2.2	219	533.5	595.5	322.5			3	219	704.5	766.5	322.5
	3	219	533.5	595.5	322.5		4	219	720.5	782.5	338.5	
	4	219	549.5	611.5	338.5		5.5	257	791	859	409	
	0.18	129	453.5	490	206.5		7.5	257	834	902	452	
	0.25-0.37	129	454/466.5	489.5/503	207/219.5		9.2	257	834	902	452	
0.55-0.75	169	493.5/494	538.5/539	246.5/247	11		318	890	990	508		
K..107R77	1.1-1.5	192	545	590.5	298		15	318	890	990	508	
	2.2	219	569.5	631.5	322.5		18.5	380	946	1046	564	
	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	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.

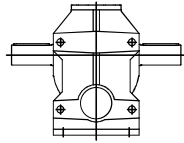
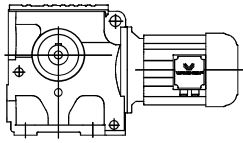
8.S系列斜齿轮—蜗轮蜗杆减速机 8.S Helical-Worm Geared Motor

8.1 设计方案

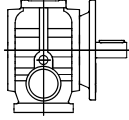
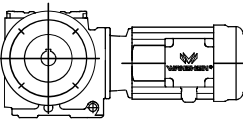
8.1 Versions geared motors

斜齿轮-蜗轮蜗杆齿轮减速机有以下设计方案：

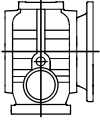
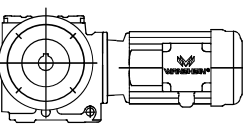
The following types of helical-worm gearmotor can be supplied:



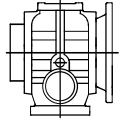
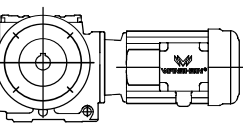
S..D..
 底脚安装斜齿轮—蜗轮蜗杆齿轮减速机
 Foot-mounted helical-worm gear motor



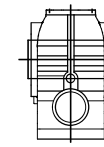
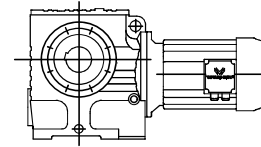
SF..D..
 法兰安装斜齿轮—蜗轮蜗杆齿轮减速机
 Helical-worm gear motor flange-mounted version



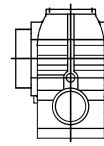
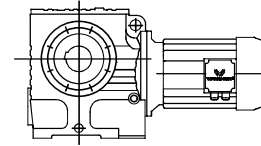
SAF..D..
 B5法兰空心轴安装斜齿轮—蜗轮蜗杆齿轮减速机
 Helical-worm gear motor in B5 flange-mounted version with hollow shaft.



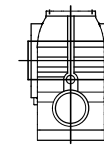
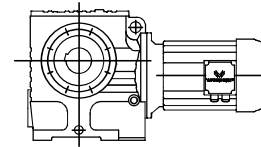
SHF..D..
 B5法兰空心轴锁紧盘安装斜齿轮—蜗轮蜗杆齿轮减速机
 Helical-worm gear motor in B5 flange-mounted version with hollow shaft and shrink disk.



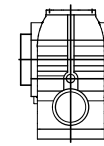
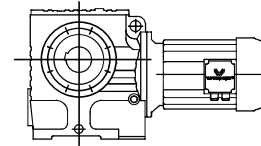
SA..D..
 空心轴安装斜齿轮—蜗轮蜗杆齿轮减速机
 Helical-worm gear motor with hollow shaft.



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.



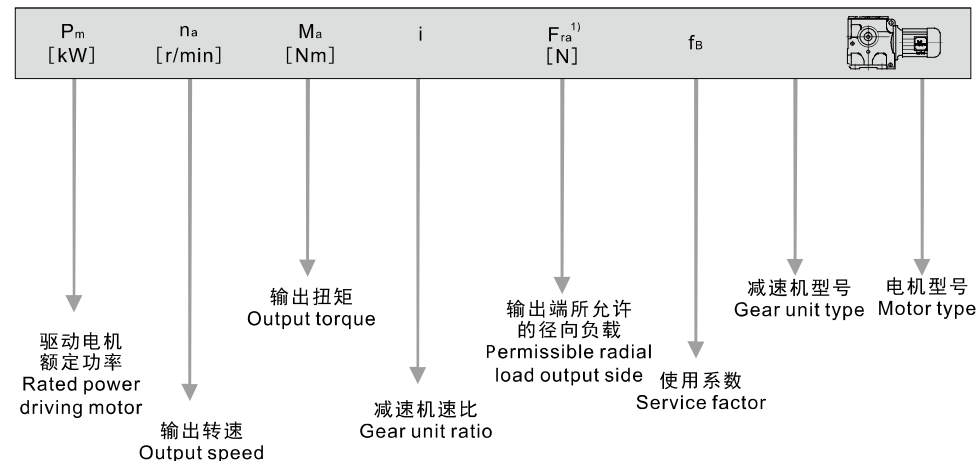
SHZ..D..
 B14法兰空心轴锁紧盘安装斜齿轮—蜗轮蜗杆齿轮减速机
 Helical-worm gear motor in B14 flange-mounted version with hollow shaft and shrink disk.

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

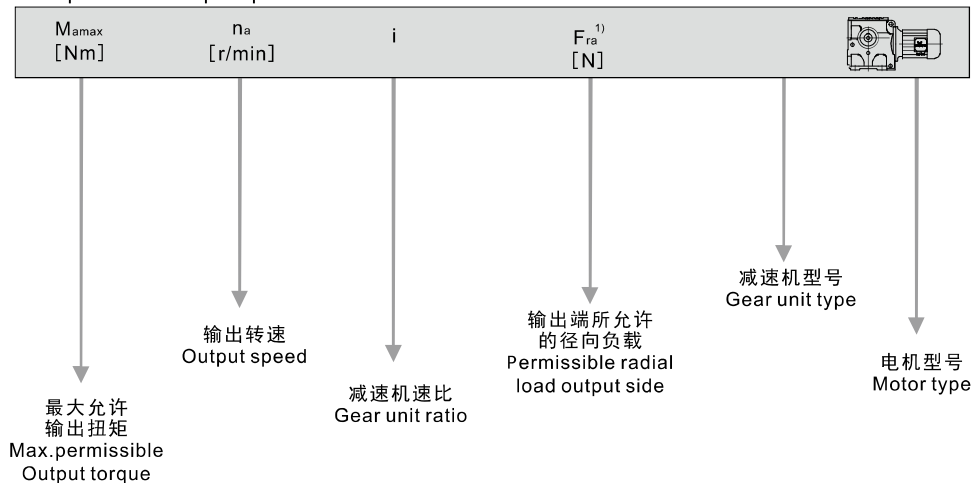
S87R57 2500Nm				S97R57 4200Nm			
i	n_a [r/min]	M_{amax} [Nm]	F_{ra} [N]	i	n_a [r/min]	M_{amax} [Nm]	F_{ra} [N]
25987	0.05	2500	27500	33818	0.04	4200	34200
23940	0.06	2500	27500	31154	0.04	4200	34200
20568	0.07	2500	27500	27847	0.05	4200	34200
18265	0.08	2500	27500	24641	0.06	4200	34200
16774	0.08	2500	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 Cutoffine

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

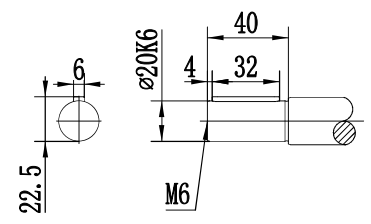
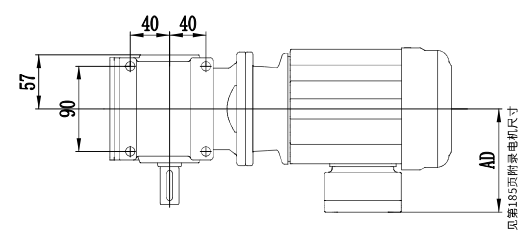
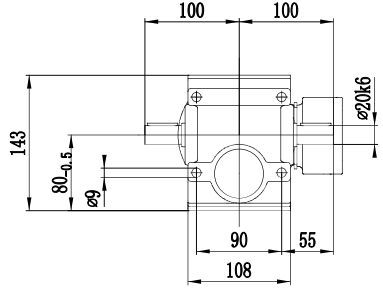
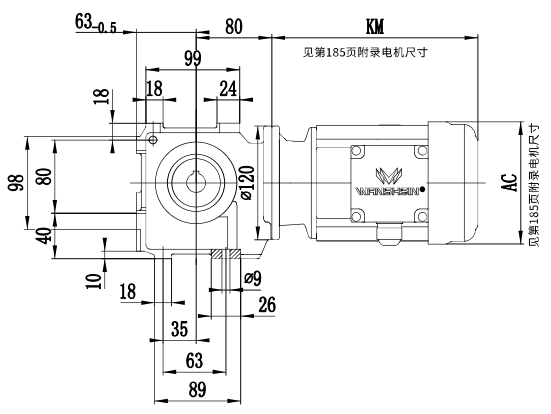
1) 实心轴底脚安装减速机的径向负荷

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

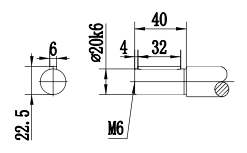
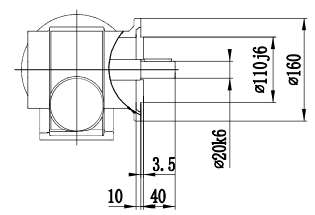
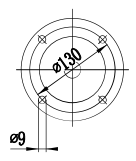
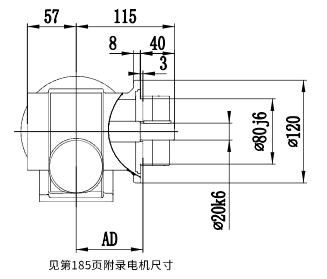
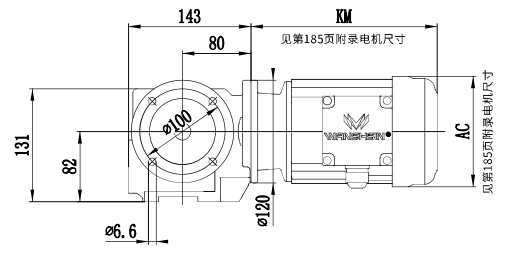
注意: Notice:

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.

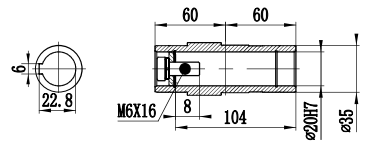
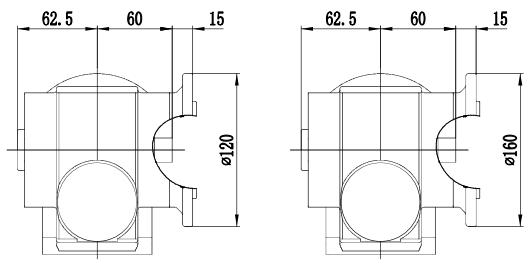
S37..



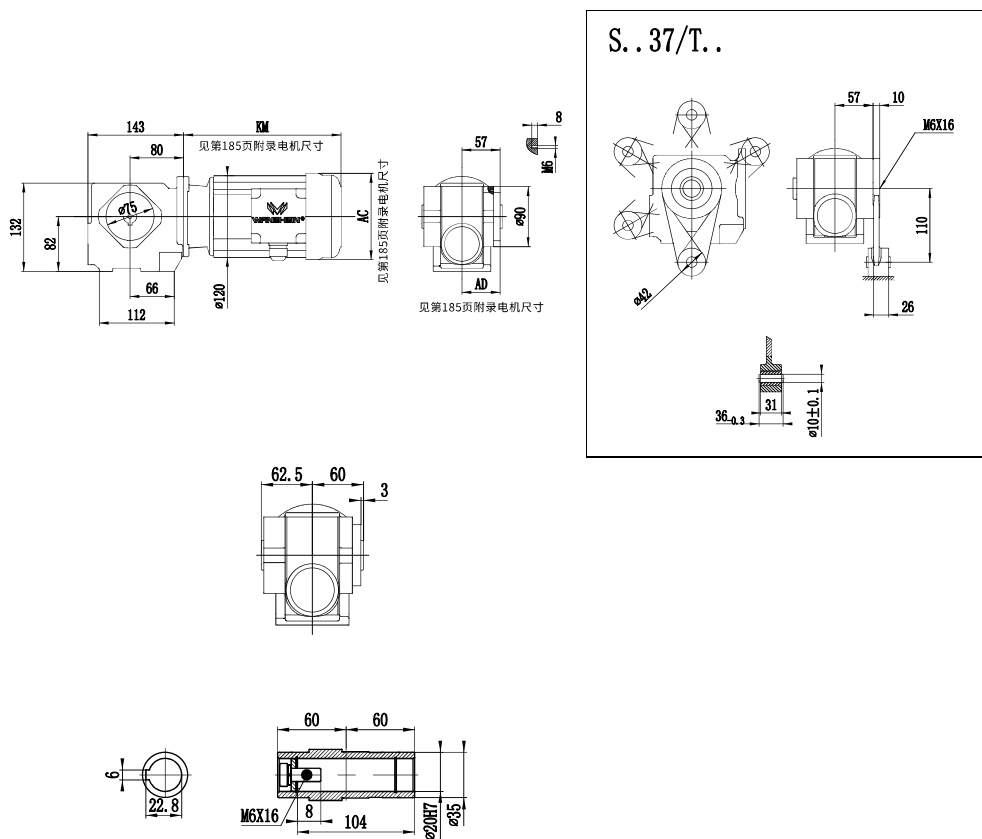
SF37..



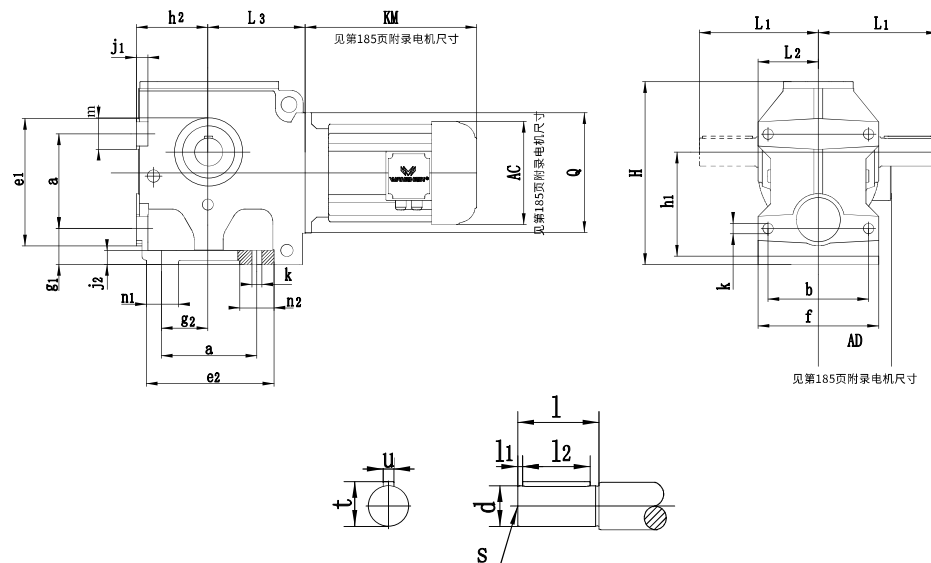
SAF37..



SA37..

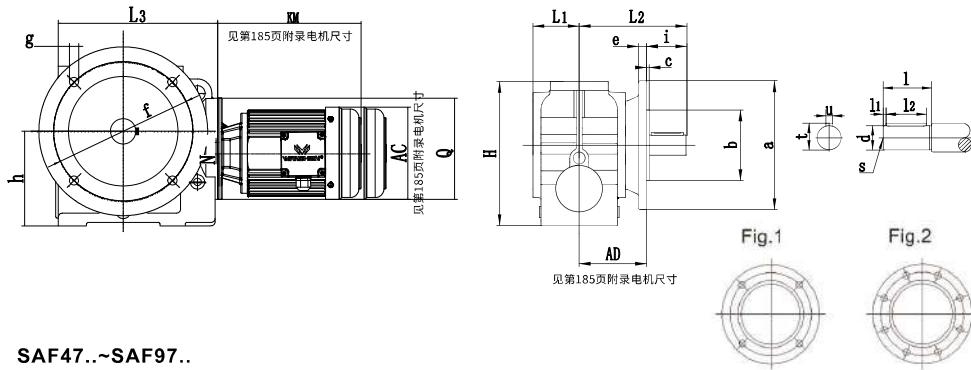


S47..~S97..

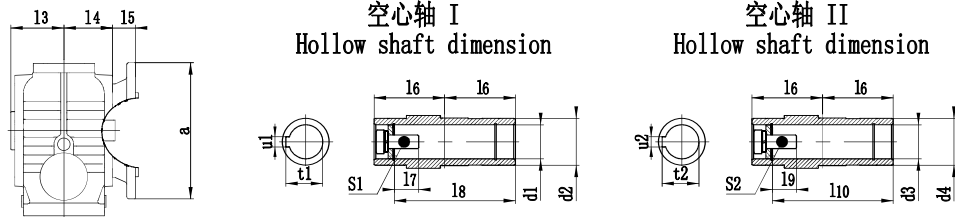


型号 Model	a b	e ₁ e ₂ f	g ₁ g ₂	h ₁ h ₂	j ₁ j ₂ k	m n ₁ n ₂	轴伸尺寸 Shaft dimension				L ₁ L ₂ L ₃	H	N Q
							d l	l ₁ l ₂	s	t u			
S47..	80	105	35	100 _{±0.5}	12	25	25k6	5	M10	28	115	165	8
	100	112	35	75 _{±0.5}	15	30	50	40		8	60		
	120	35	11	30	8	96	120						
S57..	100	130	35	112 _{±0.5}	12	30	30k6	3.5	M10	33	134	189	20
	110	130	45	80 _{±0.5}	15	30	60	50		8	71		
	136	11	30	8	107	136	120						
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	85.5		
	160	13.5	45	10	135	160	120						
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	101		
	185	17.5	69	14	162	185	120						
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	130		
	250	22	67	18	190	250	120						
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	150		
	300	26	85	20	240	300	120						

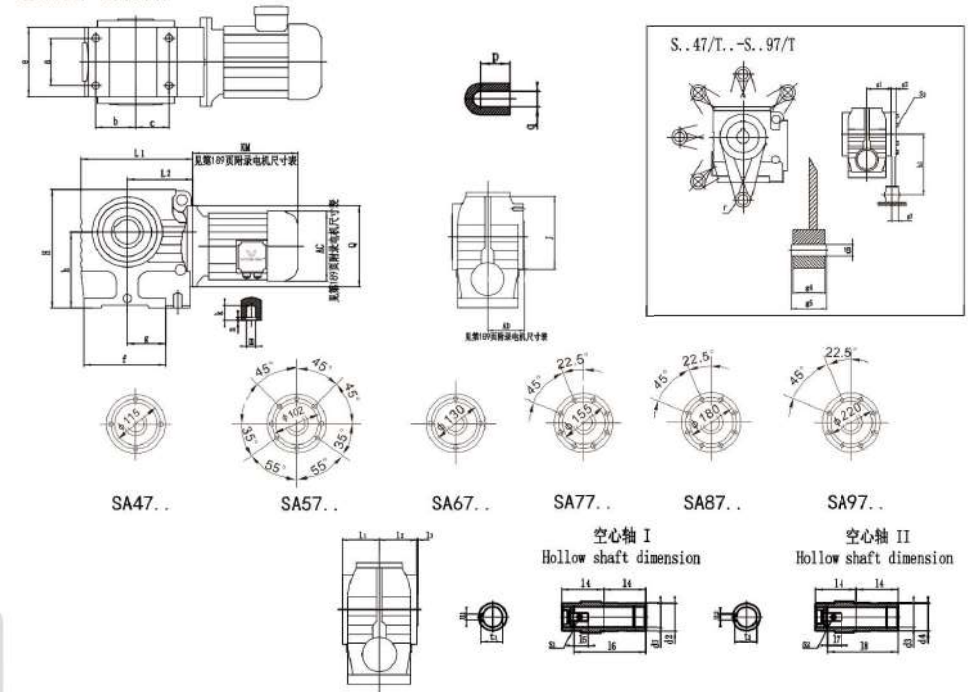
SF47...~SF97...



SAF47...~SAF97...



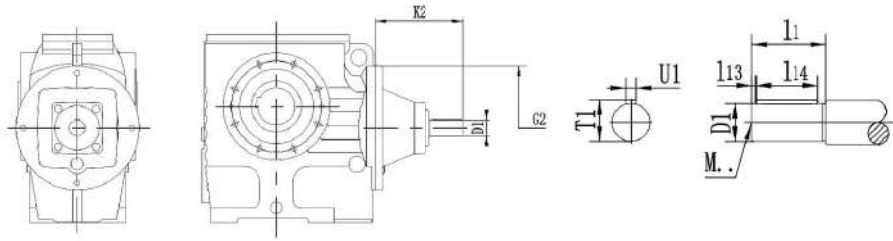
SA47...~SA97...



型号 Model	法兰 型式 Flange form	a	c	f	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				
					g	h	d	l1	l2	s	t	u	d1						l3	l4	l6	l7
SF47... SAF47...	Fig.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...	Fig.1	200 130j6	3.5 12	165 11 112	30k6 60	3.5 50	M10 33 8	35 ^{H7} 50	78 60 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...	Fig.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...	Fig.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...	Fig.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...	Fig.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	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	l1	l4	s1	d3	l7	s2	g1	g4	d5			
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 60 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 32.5	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	301 287 162	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	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..

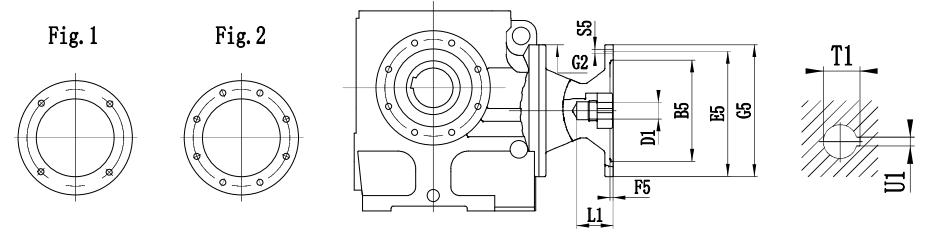
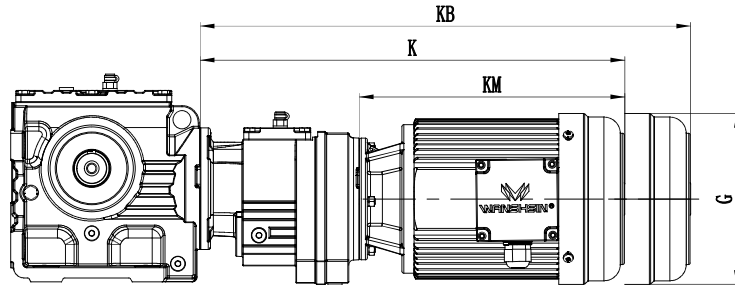


		Fig1	B5	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
S...37 S...47 S...57	AM63	1	95	115	3.5	120	140	M8	72	11	23	12.8	4
	AM71 ¹⁾		110	130			14			30	16.3	5	
	AM80 ¹⁾		130	165	4.5		200	M10	106	19	40	21.8	6
	AM90 ¹⁾						24	50	27.3	8			
S...67	AM63	1	95	115	3.5	160	140	M8	66	11	23	12.8	4
	AM71		110	130			14			30	16.3	5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

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
	1.1-1.5	192	463	508.5	298
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
	1.1-1.5	192	455	500.5	298
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
	1.1-1.5	192	514	559.5	298
	2.2	219	538.5	600.5	322.5
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
	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):

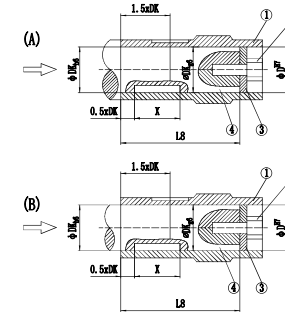
1. 用提供的固定件进行装配
Install with supplied fastening elements
2. 用可选件：装卸工具进行装配
Install using the optional installation/removal kit

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 [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

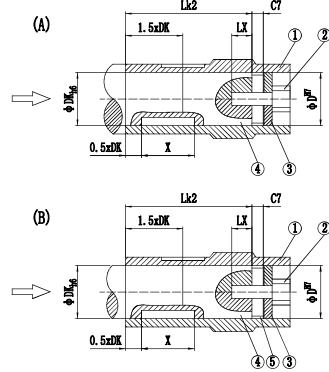
9.1.2 Installation /removal kit

可使用的选项：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
- ③Chirclip
- ④Customer shaft
- ⑤Distance piece

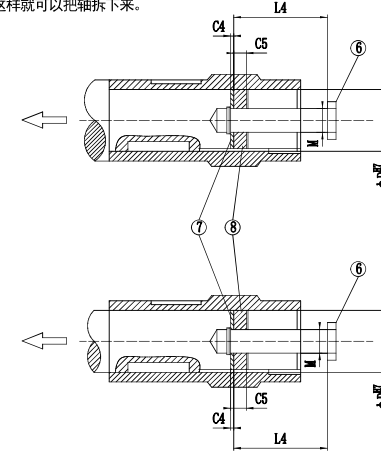
图：带轴肩附用户轴 (A) 和不带轴肩附用户轴 (B)
Fig:Customer shaft with contact shoulder(A) and without contact shoulder (B)

减速器型号 Gear unit type	D ^H [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 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	124 138,138,126	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

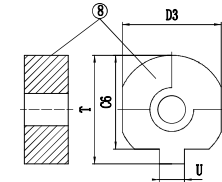
1. 拆下紧固螺栓⑥
 2. 拆下挡圈③，若使用了轴套⑤也一并拆下
 3. 在用户轴④和挡圈③之间按图13装上压盘⑦和锁母⑧
 4. 重新装上挡圈③
 5. 重新装上紧固螺栓⑥
- 这样就可以把轴拆下来。



- 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 ^H [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 part number
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

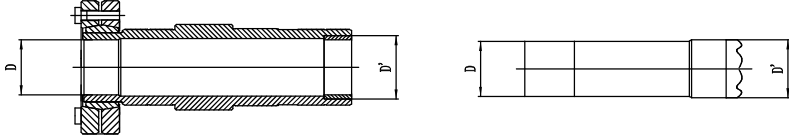


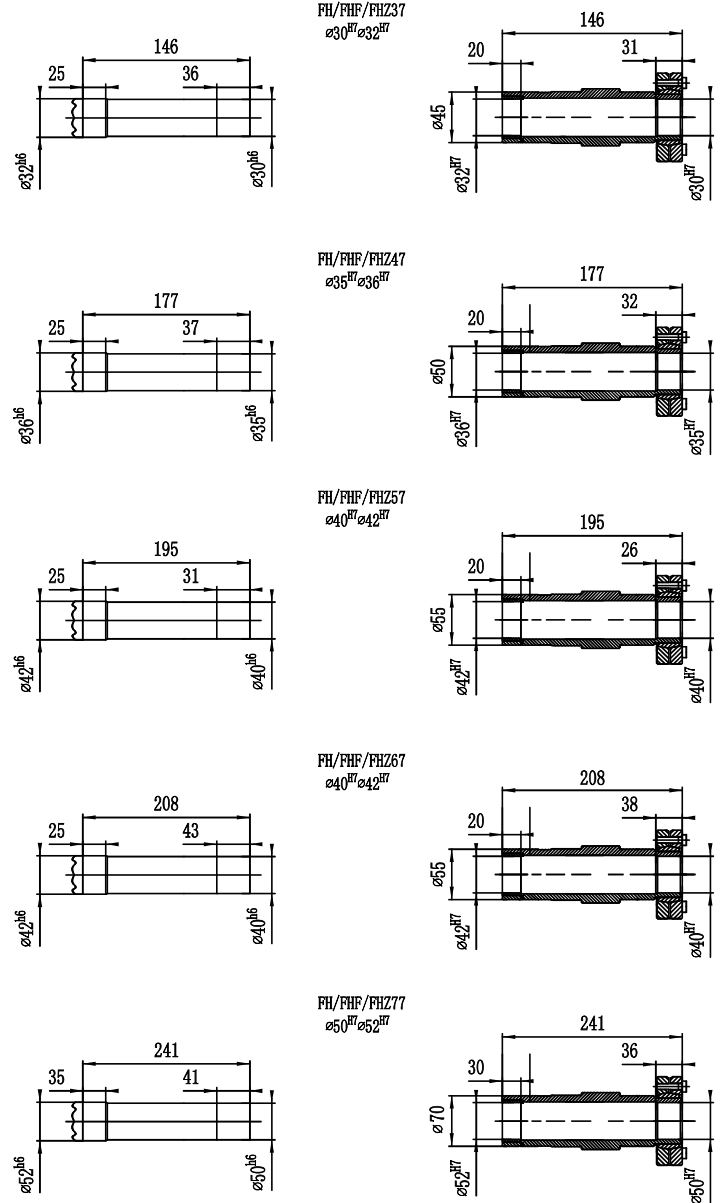
图: 选件轴孔直径D'
Fig: Optional hole diameter D'

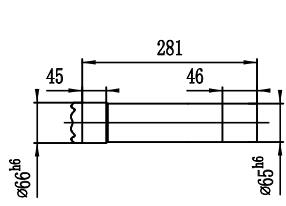
减速器型号 Gear unit size	孔径 D/D', Hole diameter
FH/FHF/FHZ37, KH/KHF/KHZ37, SH/SHF/SHZ47	30/32
FH/FHF/FHZ47, KH/KHF/KHZ47, SH/SHF/SHZ57	35/35
FH/FHF/FHZ57, KH/KHF/KHZ57	40/42
FH/FHF/FHZ67, KH/KHF/KHZ67, SH/SHF/SHZ67	40/42
FH/FHF/FHZ77, KH/KHF/KHZ77, SH/SHF/SHZ77	50/52
FH/FHF/FHZ87, KH/KHF/KHZ87, SH/SHF/SHZ87	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').

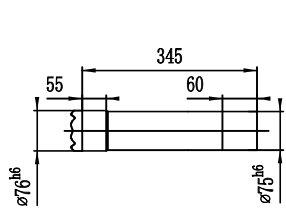
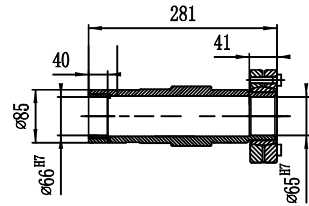
带轴阶空心轴和锁紧盘的平行轴减速机

Parallel shaft helical gear unit with shouldered hollow shaft

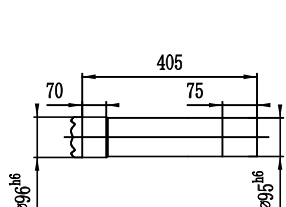
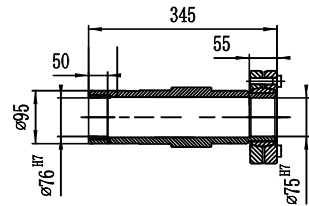




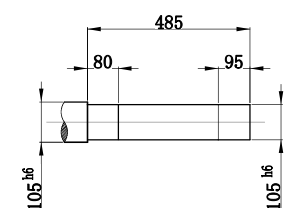
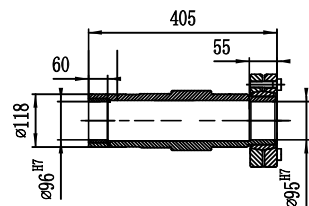
FH/FHF/FHZ287
 $\phi 65^{H7} \phi 66^{h7}$



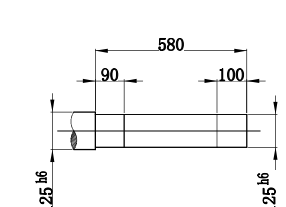
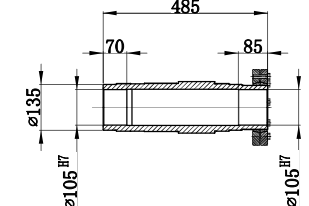
FH/FHF/FHZ297
 $\phi 75^{H7} \phi 76^{h7}$



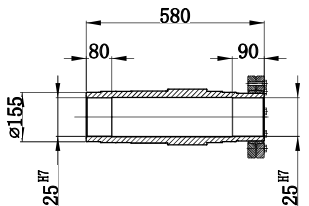
FH/FHF/FHZ107
 $\phi 95^{H7} \phi 96^{h7}$



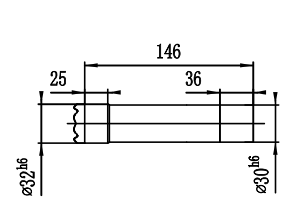
FH/FHF/FHZ127



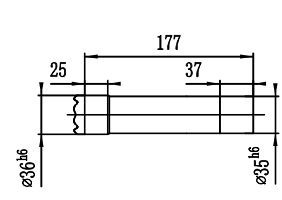
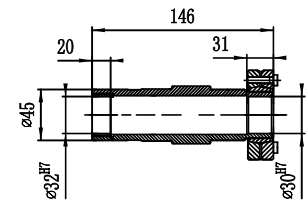
FH/FHF/FHZ157



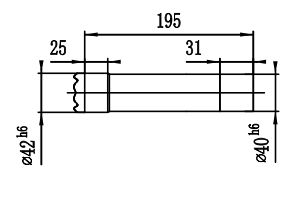
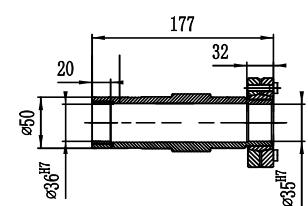
带轴阶空心轴和锁紧盘的斜齿轮—锥齿轮减速机
Helical-bevel gear unit with shouldered hollow shaft and shrink disk



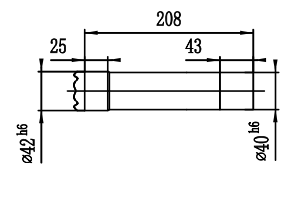
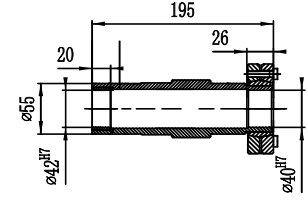
KH/KHF/KHZ37
 $\phi 30^{H7} \phi 32^{h7}$



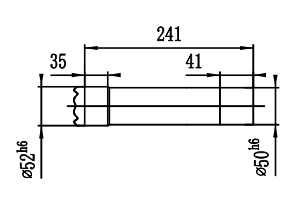
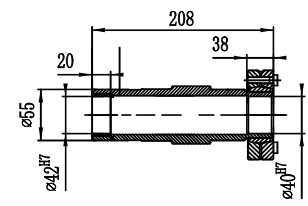
KH/KHF/KHZ47
 $\phi 35^{H7} \phi 36^{h7}$



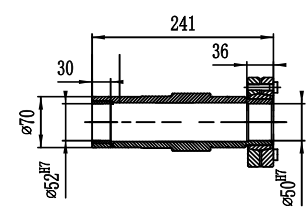
KH/KHF/KHZ57
 $\phi 40^{H7} \phi 42^{h7}$

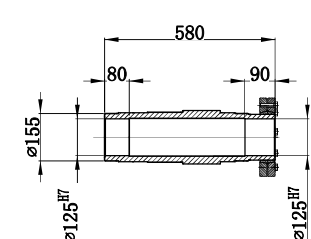
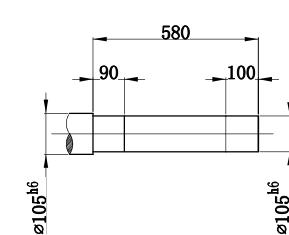
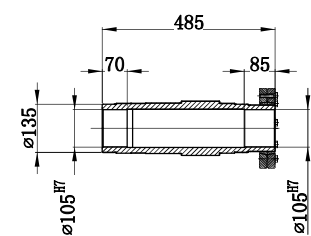
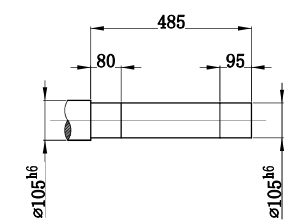
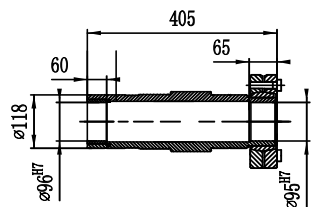
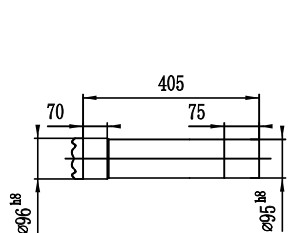
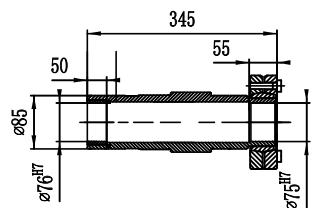
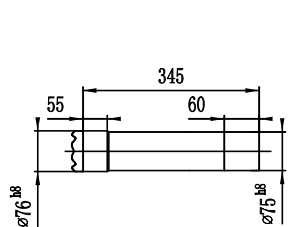
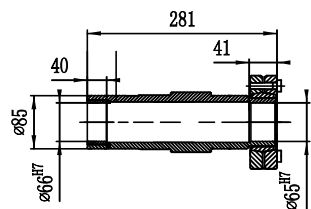
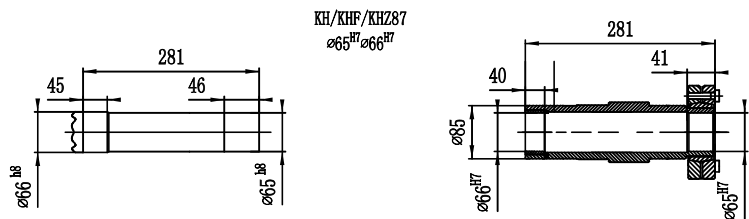


KH/KHF/KHZ67
 $\phi 40^{H7} \phi 42^{h7}$

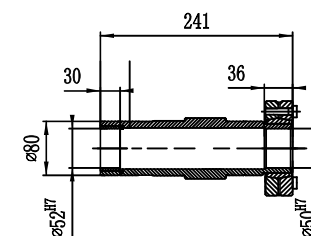
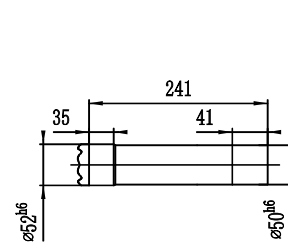
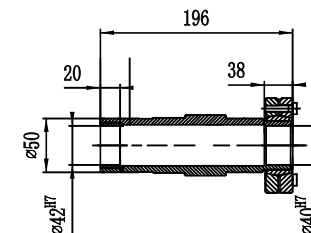
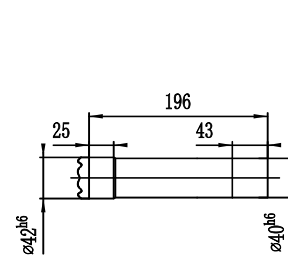
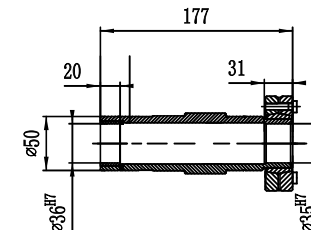
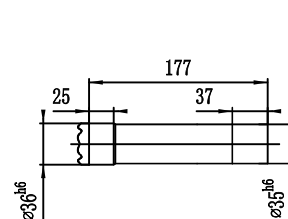
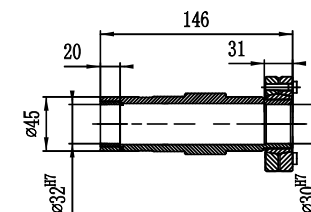
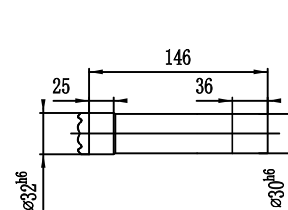


KH/KHF/KHZ77
 $\phi 50^{H7} \phi 52^{h7}$

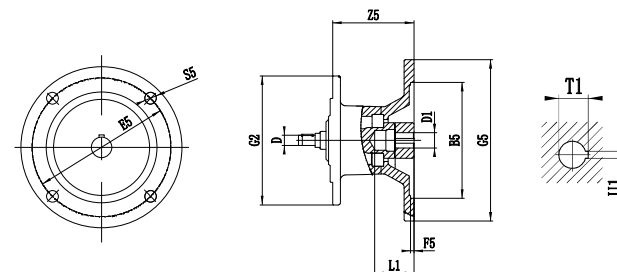
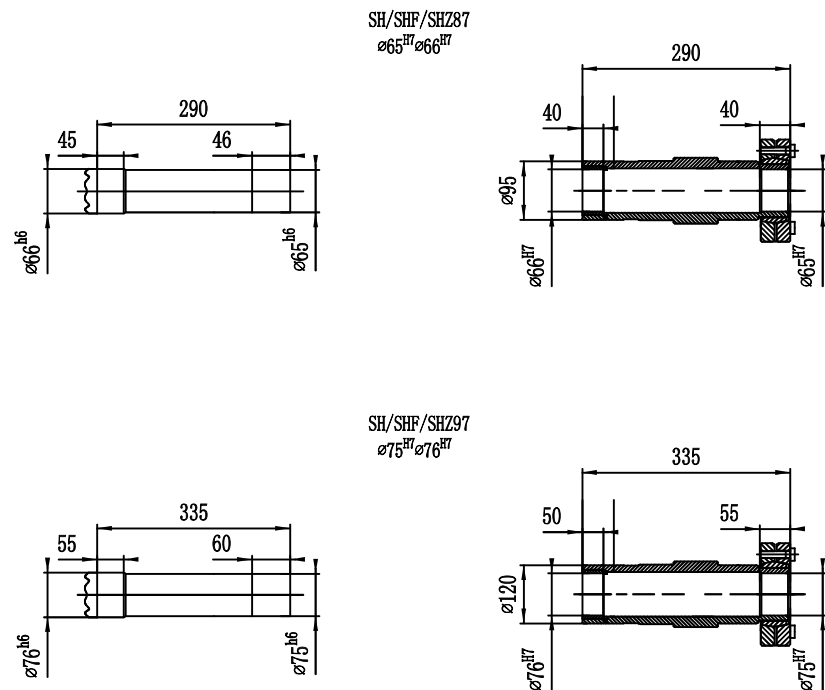




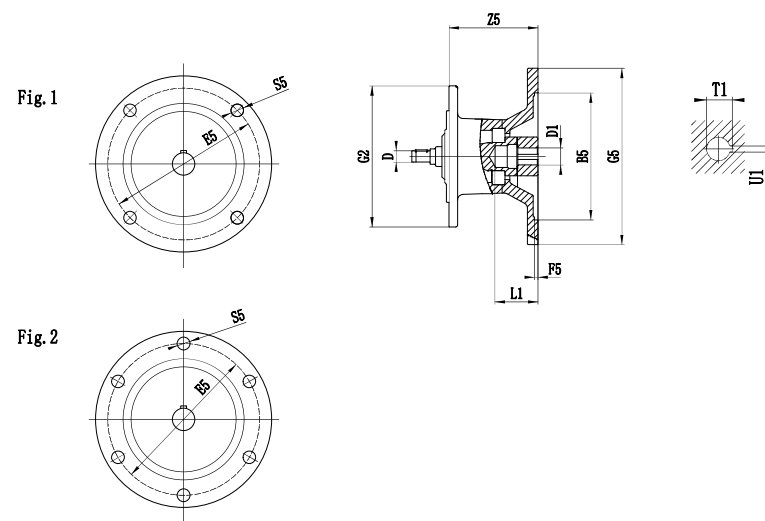
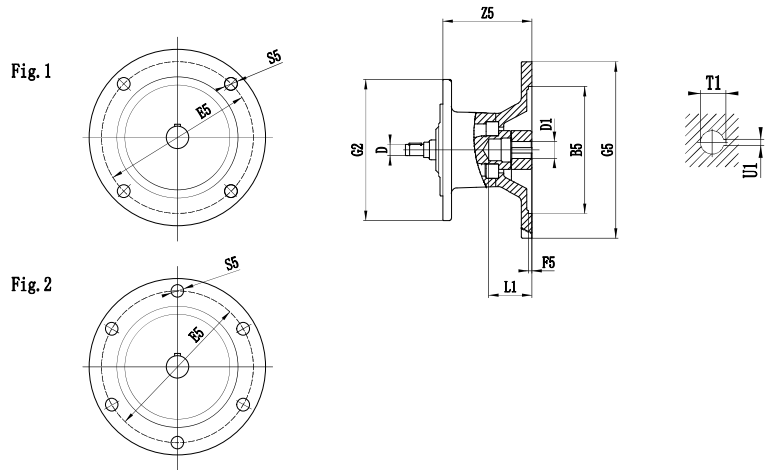
带轴阶空心轴和锁紧盘的斜齿轮—蜗杆减速机
 Helical-worm gear unit with shouldered hollow shaft and shrink disk



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



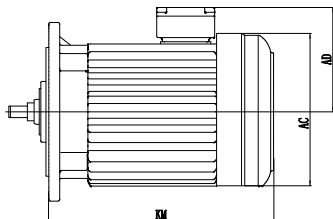
减速箱规格 Gear unit type	联轴器规格 Coupling type	B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
R..37 F..37,F..47 K..37 S..37,S..47,S..57	AM63	95	10	115	3.5	120	140	M8	72	11	23	12.8	4
	AM71 ¹⁾	110		130			160			14	30	16.3	5
	AM80 ¹⁾	130	12	200	M10		106	19	40	21.8	6		
	AM90 ¹⁾		14					165	4.5	24	50	27.3	8
R..47,R..57,R..6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



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	1	230	22	265	5	300	300	M12	169	38	80	41.3	10
	AM132ML			28										
	AM160	1	250	28	300	6	300	350	M16	227	42	110	45.3	12
	AM180			32										
	Am200	1	300	38	350	7	300	400	M16	268	55	110	59.3	16
Am225	2			350										
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	1	230	22	265	5	350	300	M12	163	38	80	41.3	10
	AM132ML			28										
	AM160	1	250	28	300	6	350	350	M16	221	42	110	45.3	12
	AM180			32										
	Am200	1	300	38	350	7	350	400	M16	262	55	110	59.3	16
Am225	2			350										
R..137	AM132S AM132M	1	230	22	265	5	400	300	M12	156	38	80	41.3	10
	AM132ML			28										
	AM160	1	250	28	300	6	400	350	M16	214	42	110	45.3	12
	AM180			32										
	AM200	1	300	38	350	7	400	400	M16	255	55	110	59.3	16
	AM225			2										

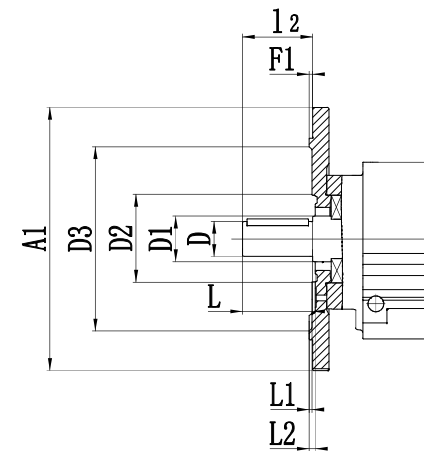
减速箱规格 Gear unit type	联接盘规格 Motor adcopator	Fig.	B5	D	E5	F5	G2	G5	S5	Z5	D1	L1	T1	U1
R..147 F..127 K..127	AM132S AM132M	1	230	22	265	5	450	300	M12	148	38	80	41.3	10
	AM132ML			28										
	AM160	1	250	28	300	6	450	350	M16	206	42	110	45.3	12
	AM180			32										
	AM200	1	300	38	350	7	450	400	M16	247	55	110	59.3	16
	AM225			2										
	AM250	1	450	48	500	7	550	336	M16	65	140	69.4	20	
AM280	75													
R..167 F..157 K..167	AM160	1	250	28	300	6	550	350	M16	198	42	110	45.3	12
	AM180			32										
	AM200	1	300	38	350	7	550	400	M16	239	55	110	59.3	16
	AM225			2										
	AM250	1	450	48	500	7	550	328	M16	65	140	69.4	20	
	AM280													75

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
	-				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
	-				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
	-				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
	-				160	4	1			-	7.5	
	250				-	160	4			0.5	2.5	7
RF77	300	40	52	112	100	160	4	80	80	0.5	-	7
	-				210	4	0.5			-	7	
	300				-	210	4			0	1.5	8
RF87	350	50	62	123	122	210	4	100	100	0	-	8
	-				226	5	1			-	9	
	350				-	226	5			0	-	9
RF97	450	60	72	136	236	5	120	120	120	0	-	9
	-				320	5	0			-	9	
	350				-	320	5			0	-	9
RF107	450	70	82	157	232	5	140	140	140	0	-	11
	-				316	5	0			-	11	
	450				-	316	5			0	-	11
RF137	550	90	108	180	316	5	170	170	170	0	-	10
	-				416	5	0			-	10	
	450				-	416	5			0	-	10
RF147	550	110	125	210	316	5	210	210	210	0	-	10
	-				416	5	0			-	10	
	550				-	416	5			0	-	10
RF167	650	120	145	290	416	5	210	210	210	1	-	10
	-				517	6	2			-	11	
	650				-	517	6			2	-	11

9.7 减速机安装
9.7 Gear unit mounting

安装减速机 和减速机时一定要使用8.8级螺栓
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.)

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.

润滑油的等级和粘度类型
Lubricating oil grade and Viscosity Grade

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

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.

减速器型号 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

减速器型号 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.

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

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 NIGI相应	Mobil	Shell	壳牌工业润滑油	壳牌工业润滑油	壳牌工业润滑油	壳牌工业润滑油	壳牌工业润滑油	壳牌工业润滑油		
K R F R	-10	标准	VG 220	Mobilgear 630	Shell Omala 220	Klubersynth GEM 1-225	Aral Degol Bg220	BP Energol GR-Xp220	Tribol 1100/220	Merqpa 220	Optigear Bp220	Renolin CLP 220	
	25		VG 220	Mobil (FG)	Shell Invidia V15	Klubersynth Gh 6-220	Aral Degol Bg220	BP Energol SR-Xp220	Tribol 800/220	Synlube CLP 220	Optigear BM 220	Renolin Aisi 220	
	40		VG 220	Mobil (HG)	Shell Omala 220 HD	Klubersynth GEM 4-220	Aral Degol Pns220		Tribol 1510/220	Pinnacle EP220	Optigear Syntetic A220	Renolin Unisyn CLP 220	
	40		VG 150	Mobil	Shell Omala SHC 629	Klubersynth GEM 4-150	Aral Degol Bg100	BP Energol GR-Xp100	Tribol 1100/100	Merqpa 150	Optigear BM 100	Renolin CLP 150	
	20	+25	VG 100	Mobilgear 629	Shell Tellus DTE 11M	Klubersynth GEM 1-150	Aral Degol Bg100	BP Energol GR-Xp100	Tribol 1100/100	Arubla EP 46	Optigear BM 100	Renolin B 46 HVI	
	30	+10	VG 68-46	VG 68-46	Shell Tellus DTE 15M	Klubersynth GEM 1-68	Aral Degol Bg46		Tribol 1100/68	Castus PAO 46			
	40	+10	VG 32	VG 32	Mobil SHC 624	Klubersynth GEM 4-32							
	40		VG 22	VG 22	Mobil HLP	ISO/LEX	BP Energol HLP-HM10				Ararati Hvd Oil 15	Optigear BM 680	Renolin CLP 680
	0	标准	VG 680	VG 680	Mobilgear 680	Shell Omala 680	Klubersynth GEM 1-680	Aral Degol Bg680	BP Energol GR-Xp680	Tribol 1100/680	Merqpa 680	Optigear BM 680	Renolin CLP 680
	30	+60	VG 680 1)	VG 680 1)	Mobilgear HE 680	Shell Omala 480 HD	Klubersynth Gh 6-680				Synlube CLP 680		
S	30		VG 460	Mobil SHC 634	Shell Omala 480 HD	Klubersynth GEM 4-460							
	40	+10	VG 150	Mobil SHC 629	Shell Omala 100	Klubersynth GEM 1-150	Aral Degol Bg100	BP Energol GR-Xp100	Tribol 1100/100	Merqpa 100	Optigear BM 100	Renolin CLP 150	
	20	+10	VG 150	Mobil DTE 18M	Shell Omala 100	Klubersynth Gh 6-220	Aral Degol Bg100	BP Energol GR-Xp100	Tribol 800/220	Synlube CLP 220	Optigear BM 220	Renolin CLP 150	
	25	+20	VG 220 1)	VG 220 1)	Mobil Gygoyle 30	Klubersynth GEM 4-32					Castus PAO 46		
	40	0	HG	VG 32	Mobil SHC 624	Klubersynth GEM 4-32							
	30	+40	HCE	VG 460 4)	Shell Castrol Fluid CL 460	Klubersynth GH 4H-460	Aral Eural Bg 460					Optigear GT 460	Optisyn BS 460
	20	+40	E	VG 460 5)		Klubero CAZ-460							

Kn

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 congnulation inkey oil, other types of reducers, Please contact with DAF USI.
 - 3) Food or beverage industry used oil.
 - 4) Biological degradation oil.
- High requirement when start-up in low temperature.

- 1) 用PG油润滑蜗轮蜗杆减速机
 - 2) 保持润滑油, 其他型号减速机
 - 3) 食品级润滑油 (用于食品, 林业加工)
 - 4) 生物降解油
- *低温启动要求高

CLP-PC=聚脲类
CLP-HC=低氮化合物类
E=二元磺酸盐成油
HOE=胺氧化合物十二酯油

CLP=矿物油
HLP=液压油
CLP-Petrolatam oil
HL-P/Hydraulic pressure oil
KBS/Ga/VI

联系

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..

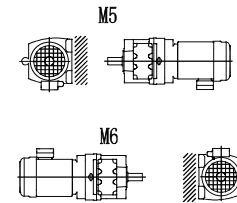
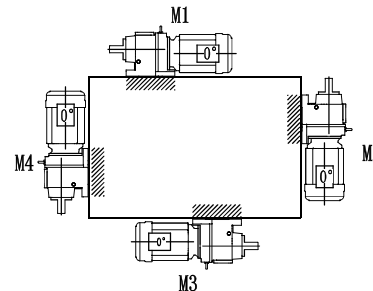
减速器型号 Gear unit type	注油量 (升) Fill quantity (L)					
	M1	M2	M3 ¹⁾	M4	M5	M6
S..37	0.25	0.4	0.5	0.6	0.4	0.4
S..47	0.4	0.8	0.7	1.1	0.8	0.8
S..57	0.5	1.1	1	1.6	1.2	1.2
S..67	1	2	1.8/2.6	2.9	2.5	2.5
S..77	1.8	3.9	3.6/5	5.9	4.5	4.5
S..87	3.8	7.4	6/8.7	11.2	8	8
S..97	7	14	11.4/16	21	15.7	15.7

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.

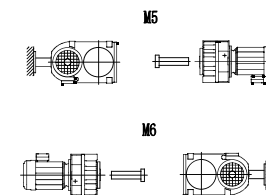
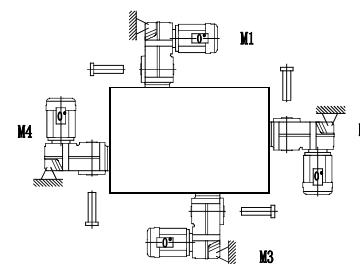
10. 安装位置 Mounting Position

10.1 安装位置概述 10.1 Mounting Position designation

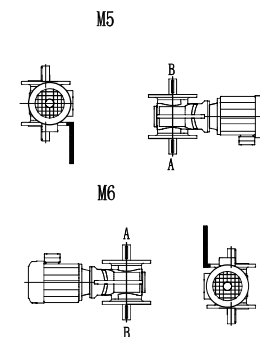
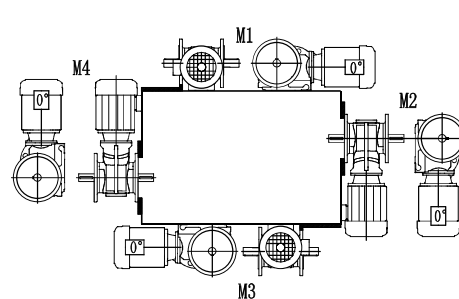
安装位置说明：减速电机有M1..M6共6种安装位置。
下面的图标说明了减速器安装位置M1..M6的空间排列。
differences between six mounting position M1-M6 for geared motors. The following pictures shows the spatial arrangement of the gear units in mounting positions M1-M6.



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-angle shaft reducers: output shaft connection.
For the right-angle 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
 fard side
 In addition, the position of the cable entry can be selected. The possibilities are “X”

(=normal position), “1”, “2” or “3”

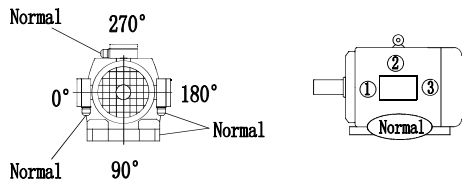


图: 接线盒与出线嘴的位置

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.

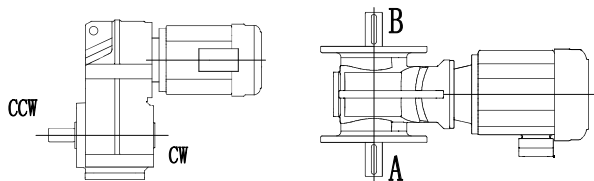


图: 输出轴的旋转方向

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

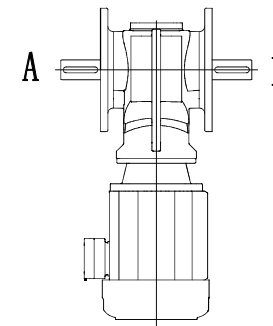


图: 出轴方向

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.

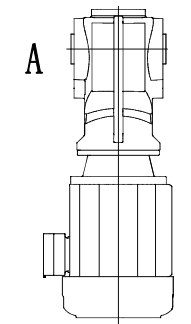


图: 连接端的位置

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 untils 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 Ration 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.

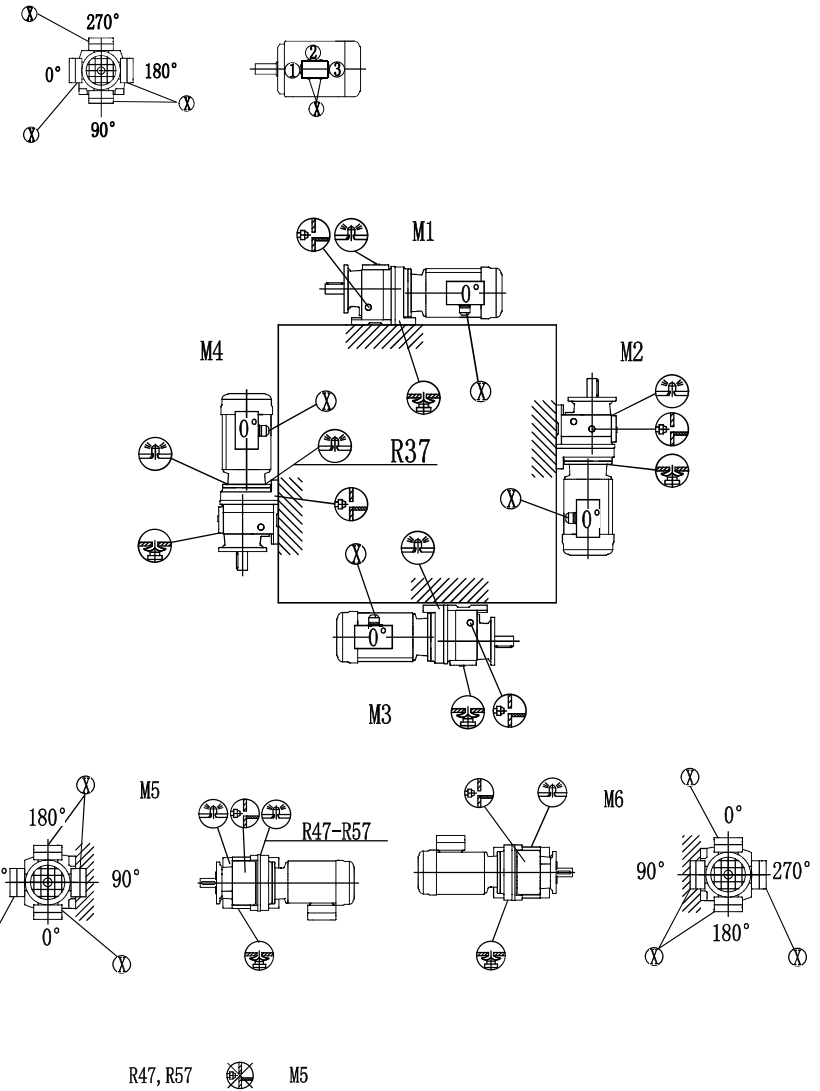
安装位置 Mounting position	减速器型号 Gear unit type	减速器规格 Gear unit size	输入速度 (rpm) Input speed
M2,M4	R	97-107	>2500
		>107	>1500
M2,M3,M4,M5,M6	F	97-107	>2500
		>107	>1500
	K	77-107	>2500
		>107	>1500
S	77-97	>2500	

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

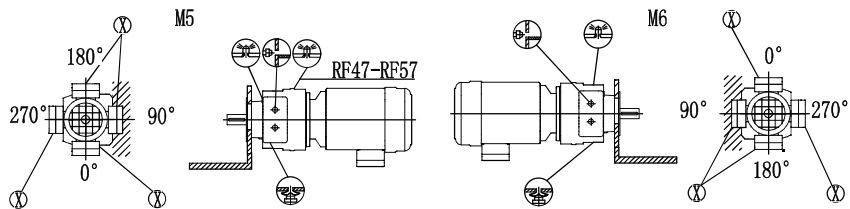
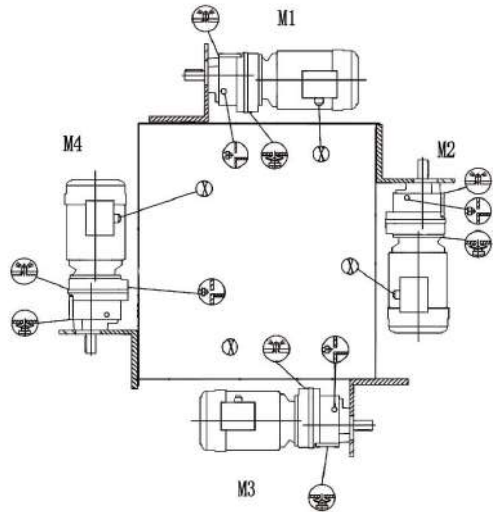
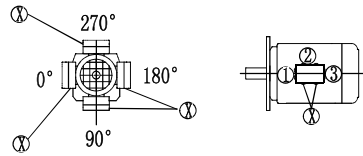
维护周期 Maintenance Period	内容 Content
首次运行300小时 First running for 300 hours	箱体清洗干净后换油 Replace the lubricant after clean the box body
每六个月或工作3000小时 Check once a month or every 3000 working hours	检查油 Check the lubricant
取决于运行条件，检查周期不得长于3年 Depending on operating condition, lubricant inspecting period should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

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

R37-R167

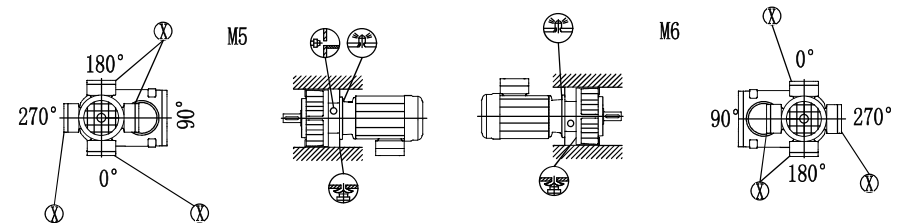
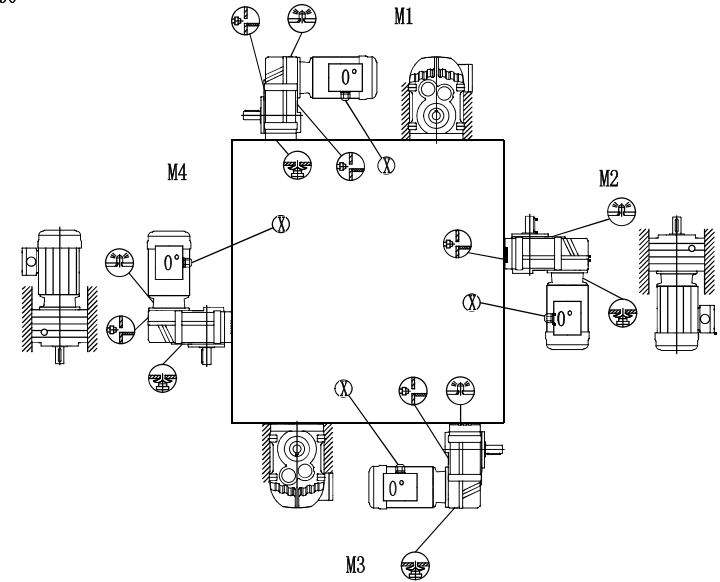
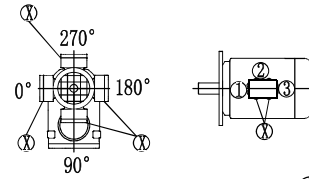


RF37-RF167

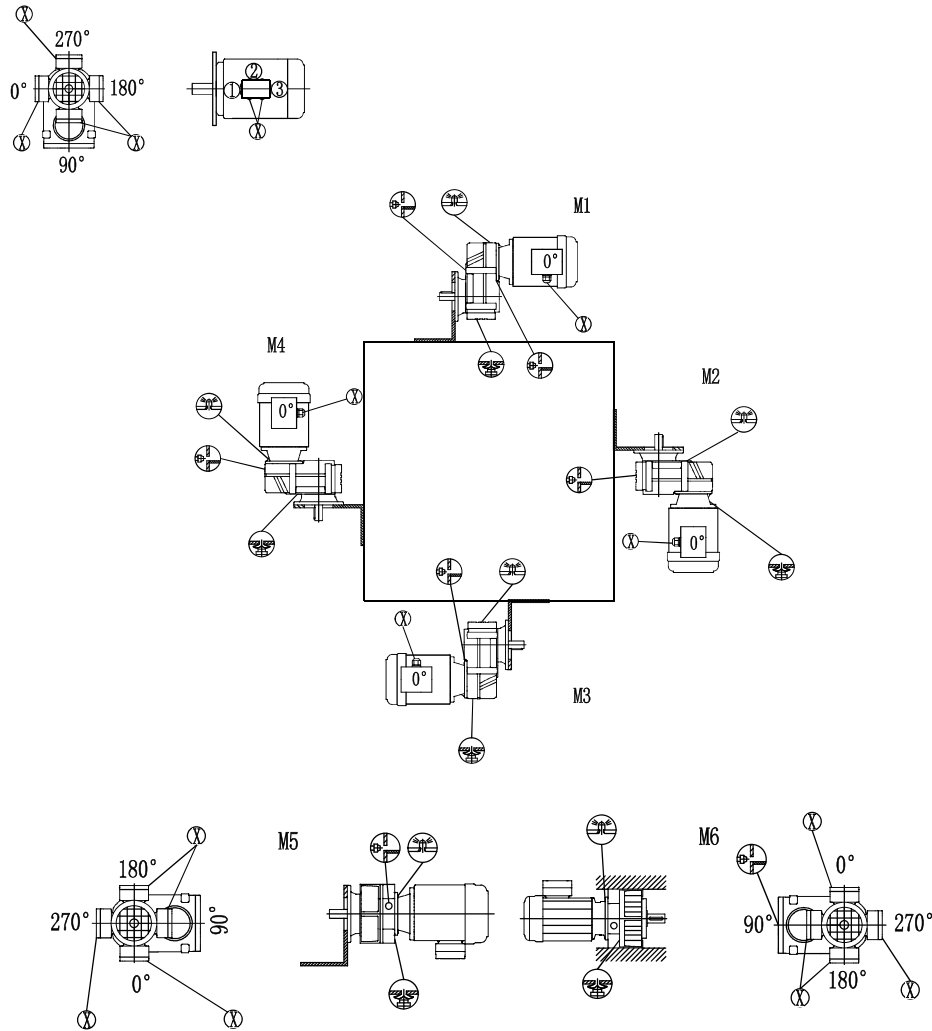


RF47, RF57 M5

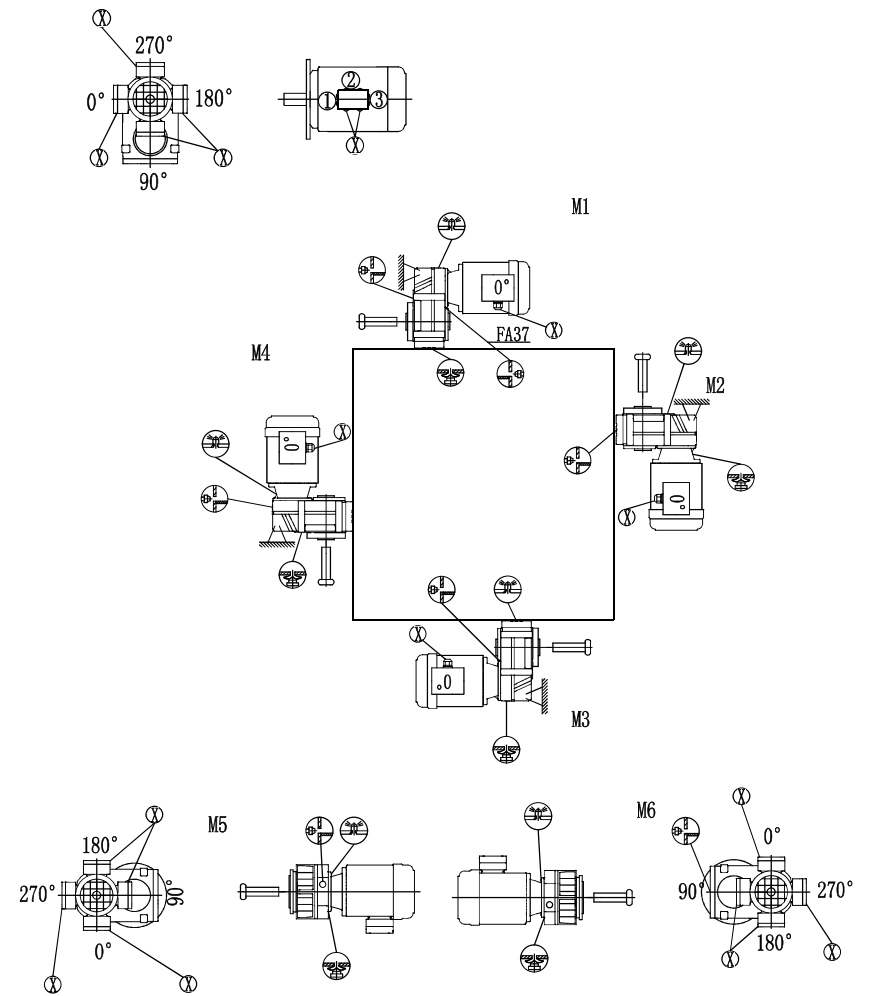
10.3 平行轴斜齿轮减速电机安装位置
10.3 Mounting position of parallel shaft helical Gear unit
F/FA..B/FH37B-157B, FV37B-157B



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

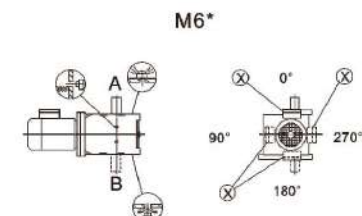
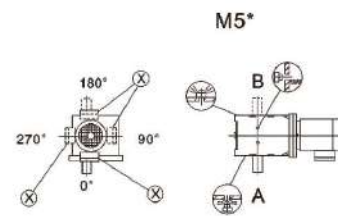
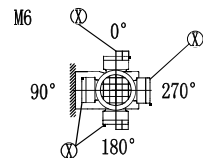
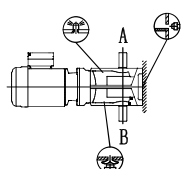
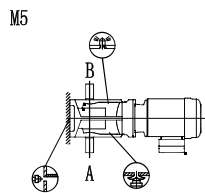
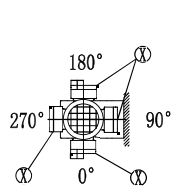
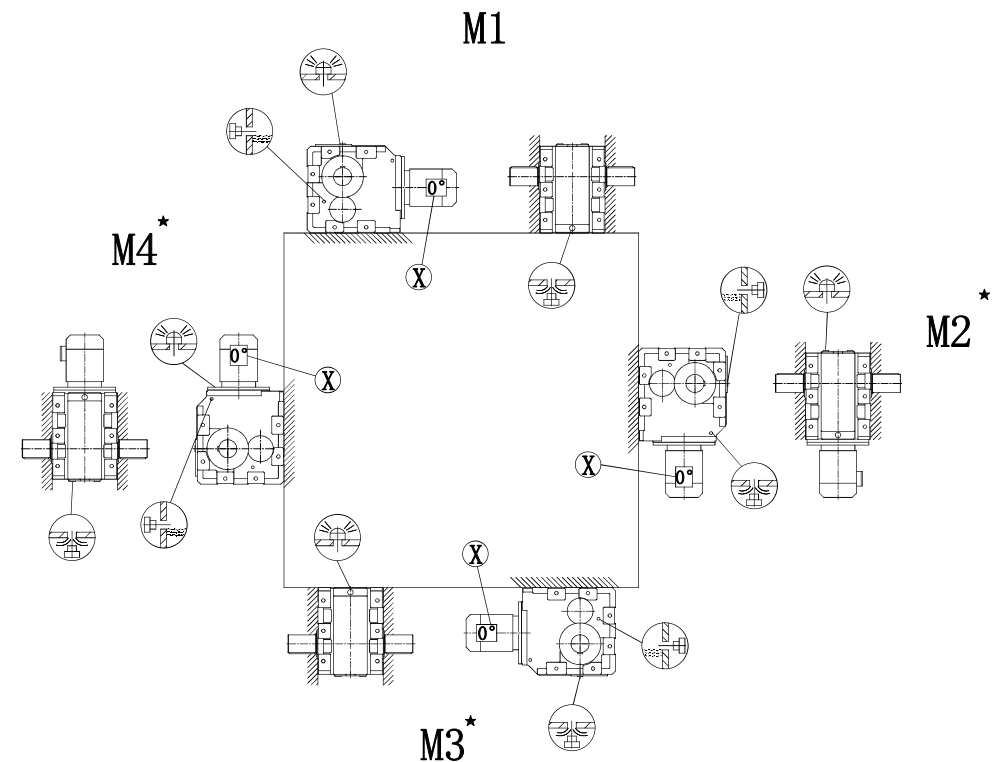
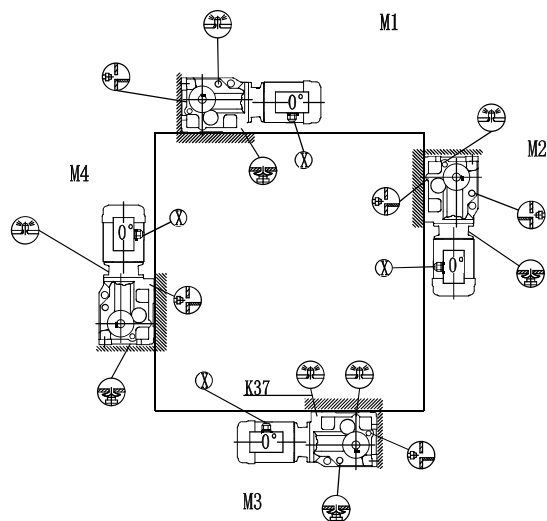
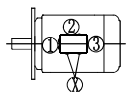
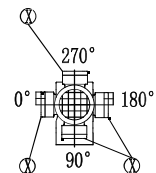


FA/FH37-157, FV37-107



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

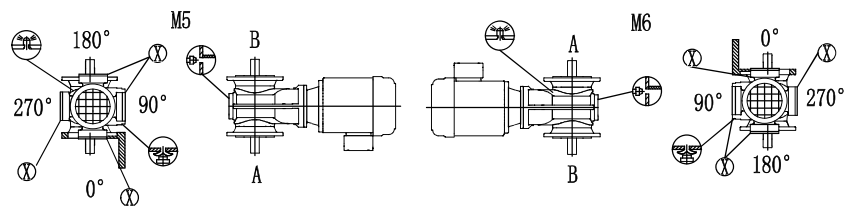
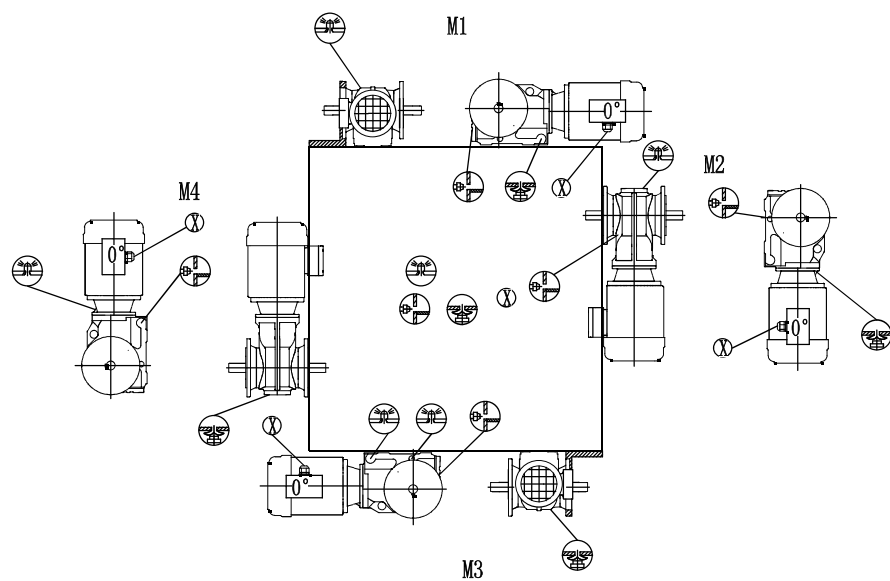
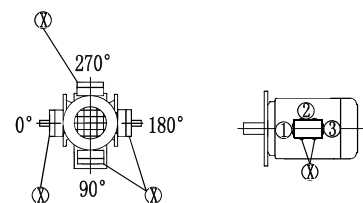
K167-187,KH167B-187B



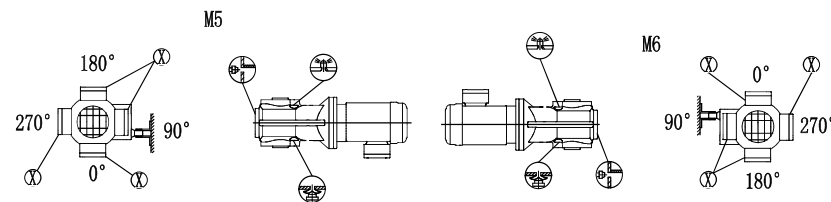
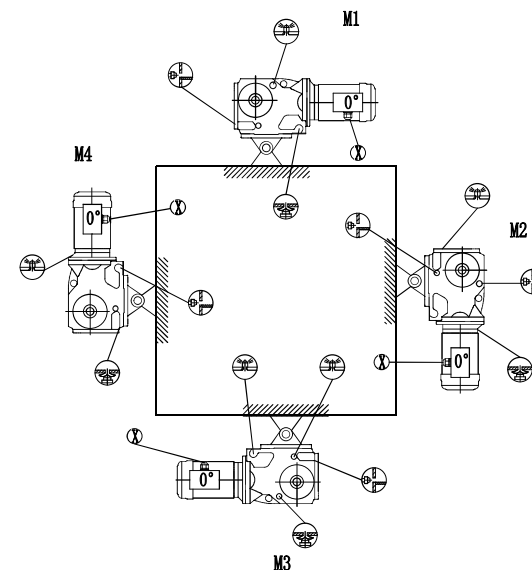
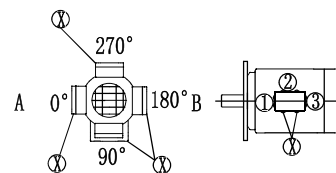
重要：请参见“减速器选型”中“径向和轴向负载”部分（P21）
Important: Please refer to the information in the “Geared Motors” catalog. Optional Planning for gear units Ouerhung and axial loads part (P21)

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

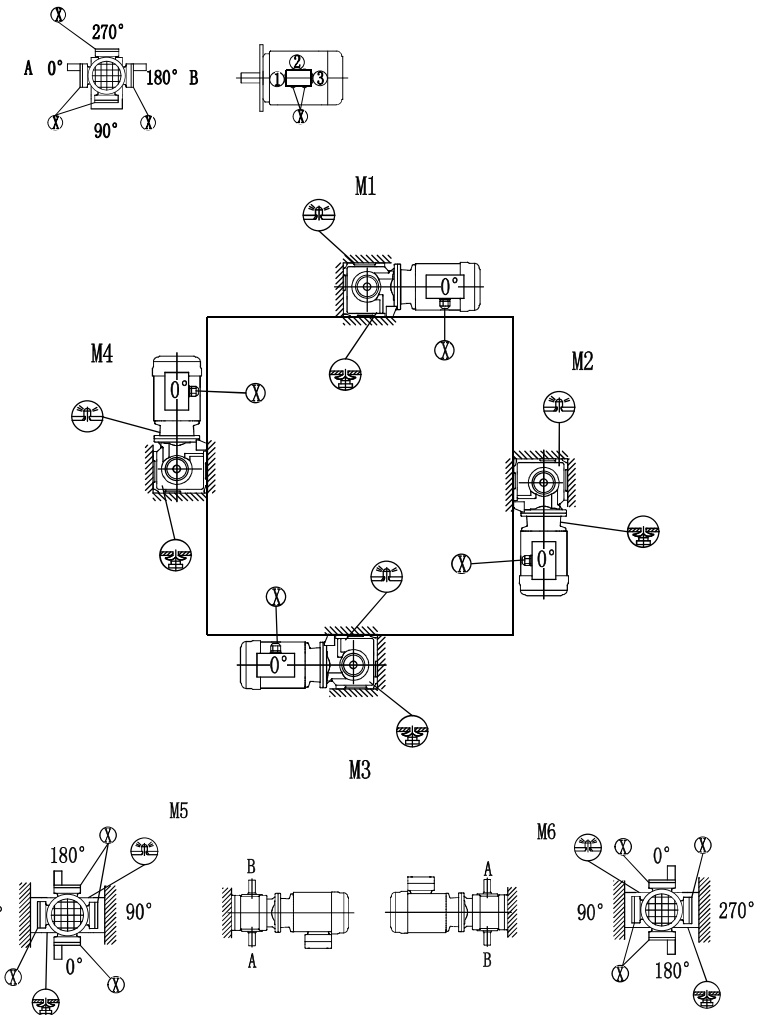
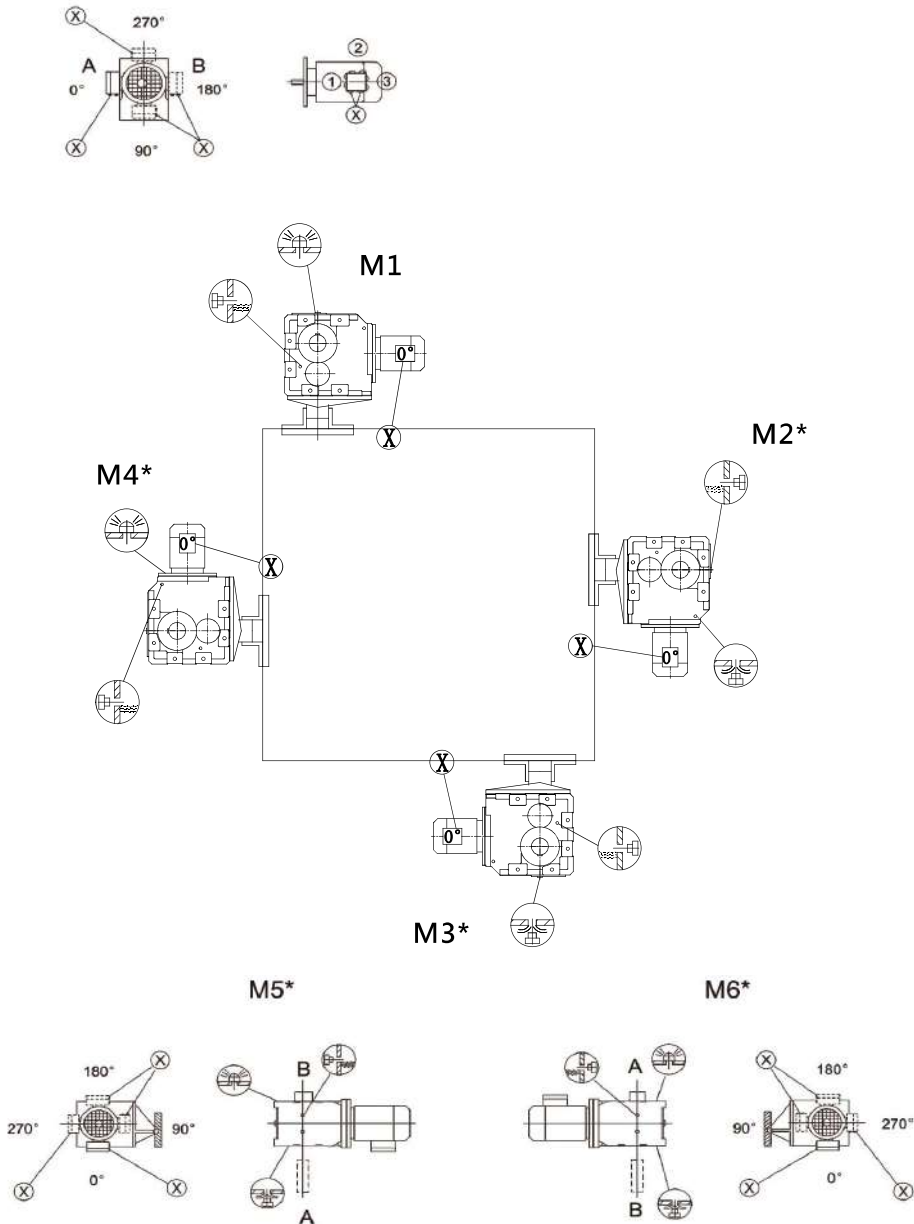


KH/KH37-157,KV37-107



KH167-187

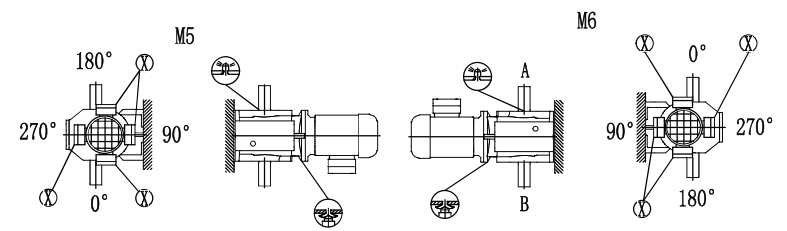
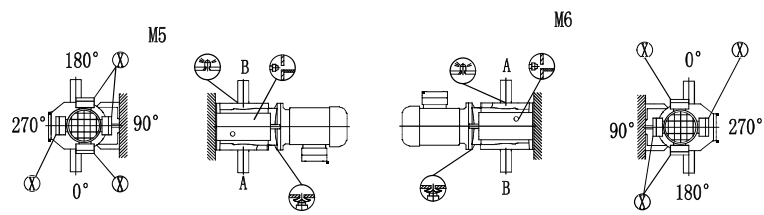
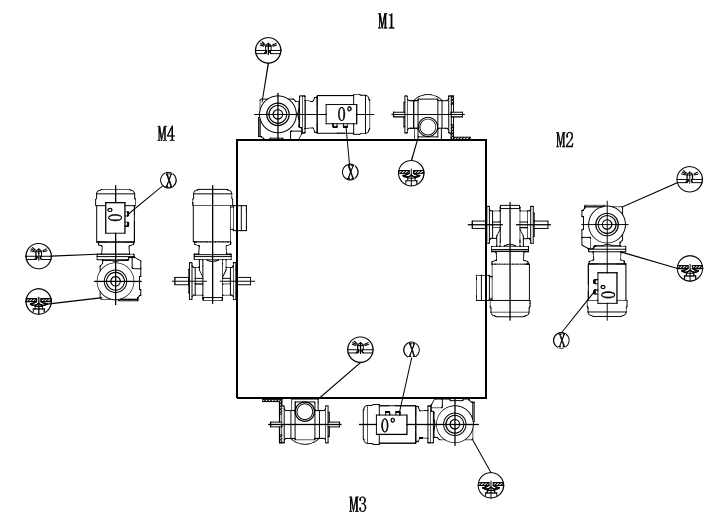
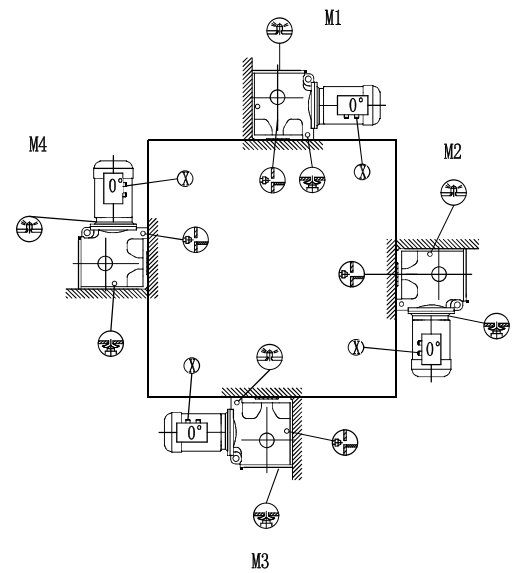
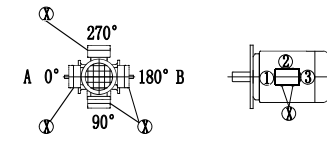
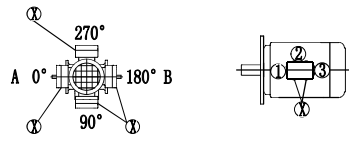
10.5 斜齿轮-蜗杆减速电机安装位置
10.5 Mounting position of Helical-worm Gear motor
S37



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

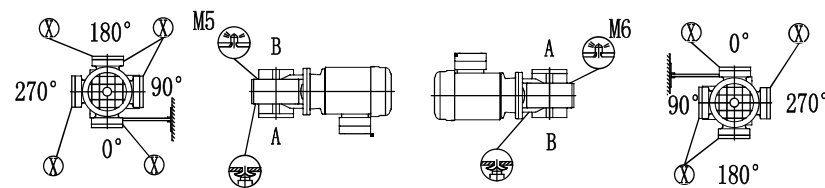
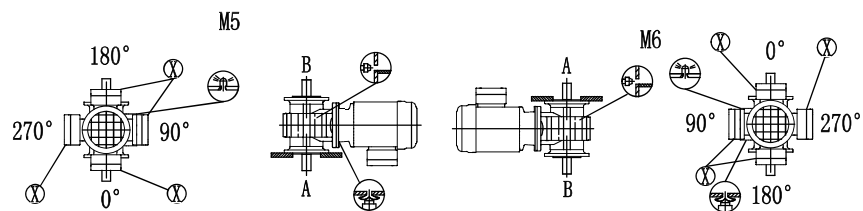
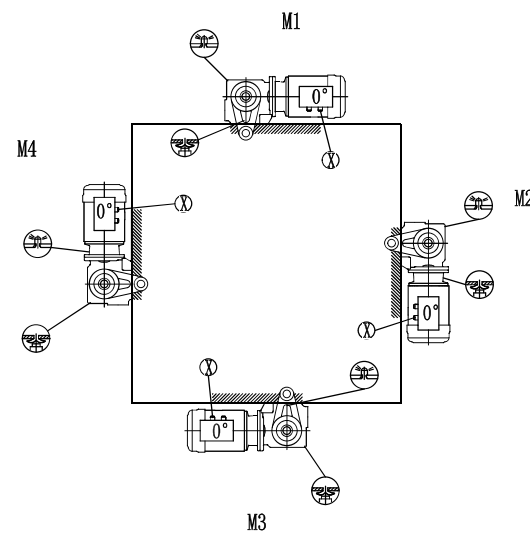
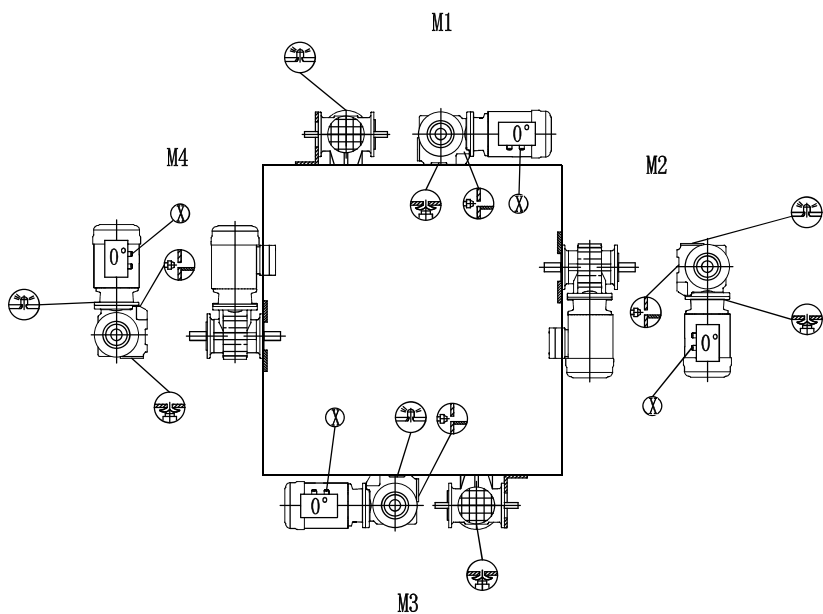
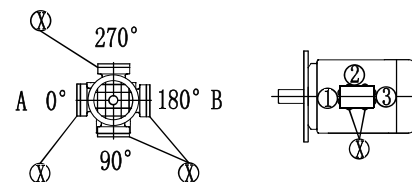
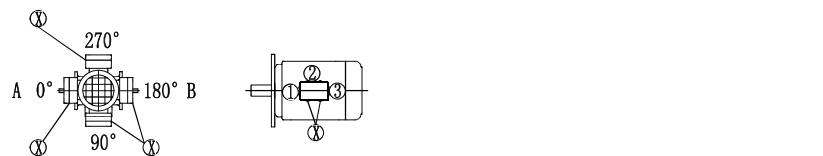
SF/SAF/SHF37



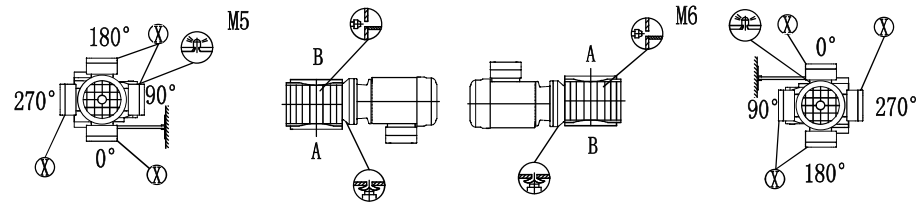
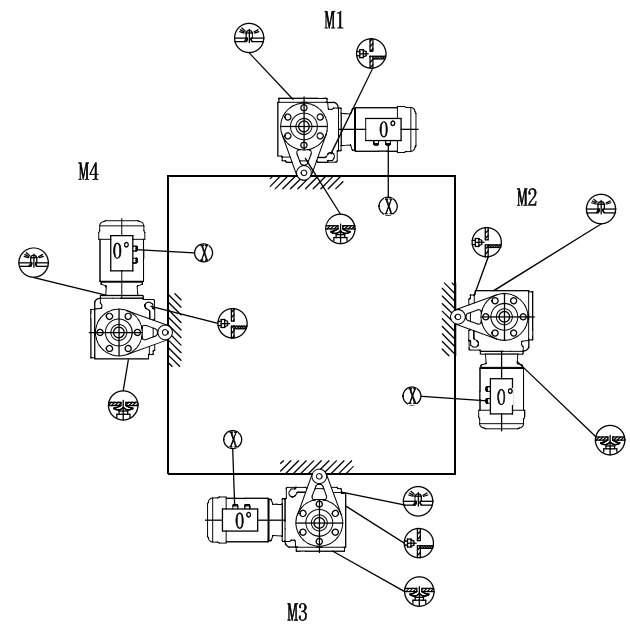
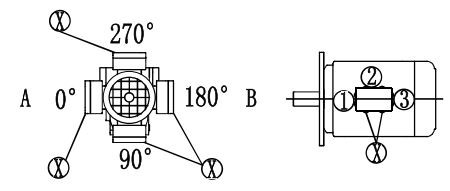
重要：请参见“减速器选型”中“径向和轴向负载”部分（P21）
 Important: Please refer to the information in the “Geared Motors” catalog. Optional Planning for gear units Ouerhung and axial loads part (P21)

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

SA/SH37



SA/SH47...97..



11. 尺寸信息 Information on dimension sheets

范围的分类
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

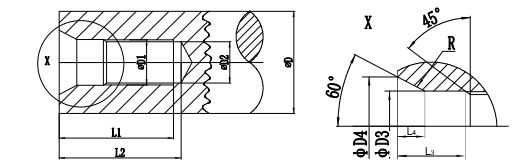
- h ≤ 250mm → -0.5mm
- h > 250mm → -1mm

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
- φ ≤ 50mm → ISOk6
- φ > 50mm → ISOm6

按照DIN332标准有DR型中心孔:
Center holes in accordance with DIN332.shape DR



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

φ → ISOH7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 sc-rew plug is replaced by an breather valve at the factory depending on with mounti-ngposition M1-M6 is ordered. This means the contour dimensions may be slightly different.

锁紧盘连接
Shrink disk connectio

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.