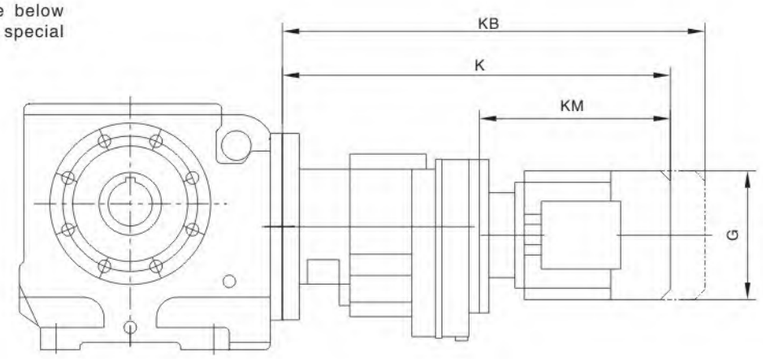
# BS..R..

注: 下面表中电机尺寸为参考尺寸，实际尺寸以我公司提供的图纸为准。因空间限制对尺寸有严格要求时请向我公司咨询。

Notes: The dimension of motor in the below table is only for reference. If you have special require, please consult us.




| 减速箱规格 Gear unit type | 电机规格 Motor type | G | K | KB | KM |
|---|---|---|---|---|---|
| BS..37R17 | D63.. | 155 | 368 | 425 | 193 |
| | D71M | 155 | 369 | 433 | 194 |
| | D80.. | 155 | 419 | 483 | 244 |
| BS..47R17<br>BS..57R37 | D63.. | 155 | 400 | 425 | 193 |
| | D71M | 155 | 401 | 433 | 194 |
| | D80.. | 155 | 451 | 483 | 244 |
| BS..67R37 | D63.. | 155 | 410 | 457 | 235 |
| | D71M | 155 | 401 | 465 | 236 |
| | D80.. | 155 | 451 | 515 | 286 |
| | D90.. | 155 | 451 | 536 | 286 |
| BS..77R37 | D63.. | 155 | 392 | 449 | 235 |
| | D71M | 155 | 393 | 457 | 236 |
| | D80.. | 155 | 443 | 507 | 286 |
| | D90.. | 210 | 443 | 528 | 286 |
| BS..87R57 | D63.. | 155 | 445 | 502 | 229 |
| | D71M | 155 | 445 | 509 | 229 |
| | D80.. | 155 | 495 | 559 | 279 |
| | D90.. | 210 | 495 | 580 | 279 |
| | D100M | 210 | 545 | 630 | 329 |
| | D100L | 210 | 565 | 650 | 349 |
| BS..97R57 | D63.. | 155 | 440 | 497 | 229 |
| | D71M | 155 | 440 | 504 | 229 |
| | D80.. | 155 | 490 | 554 | 279 |
| | D90.. | 210 | 510 | 595 | 299 |
| | D100M | 210 | 540 | 625 | 329 |
| | D100L | 210 | 560 | 645 | 349 |
| | D112M | 240 | 575 | 655 | 364 |







# 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。
Always use the supplied NOCO Fluid paste during the assembly procedure. It avoids contact corrosion and easy for disassembly.
・键的尺寸X是有用户确定，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):

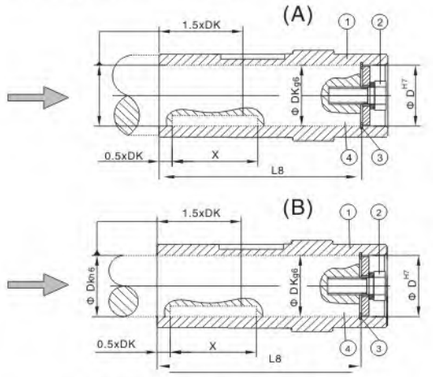
1. 用提供的固定件进行装配
Install with supplied fastening elements
2. 用可选件装卸工具进行装配
Install using the optional installation /removal kit

### 9.1.1 提供的固定件
### 9.1.1 Supplied 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
Rataining screw with washer①

・孔用挡圈
Circlip ②




带轴肩的用户轴
用户轴的安装长度必须为L8−1(mm)(图)
Installation length of customer shaft with contact shoulde(A)must be L8−1mm
用户轴不带轴肩
安装长度必须等于L8(图)
Installtion length of customer shaft with contact shoulde(B)must equal to L8
紧固螺栓要拧紧到MS所示拧紧力矩值
The retaining screw② must be tightened to the tightening torque MS listed in 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：空心轴组装示意图(带轴肩的用户轴)
Fig：Customer shaft with contact shoulder(A)and with contact shoulder(B)

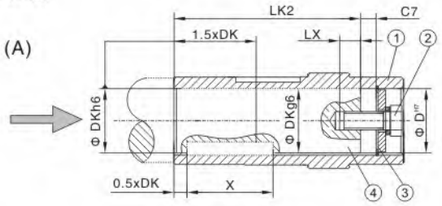
| 减速器型号 Gear unit type | $D^{H7}$[mm] | DK[mm] | L8[mm] | MS[Nm] |
|---|---|---|---|---|
| BSA..37 | 20 | 20 | 84, 106, 104 | 8 |
| BSA..47 | 25 | 25 | 105 | 20 |
| BFA..37, BKA..37,BSA..47, BSA..57 | 30 | 30 | 105<br>132 | 20 |
| BFA..47, BKA..47, BSA..57 | 35 | 35 | 132 | 20 |
| BFA..57, BKA..57<br>BFA..67, BKA..67, BSA..67 | 40 | 40 | 142, 156, 144 | 40 |
| BSA..67 | 45 | 45 | 144 | 40 |
| BFA..77, BKA..77, BSA..77 | 50 | 50 | 183 | 40 |
| BFA..87, BKA..87,<br>BSA..77, BSA..87 | 60 | 60 | 210<br>180, 220 | 80 |
| BFA..97, BKA..97,<br>BSA..87, BSA..97 | 70 | 70 | 270<br>220, 260 | 80 |
| BFA..107, BKA..107, BSA..97 | 90 | 90 | 313, 313, 255 | 200 |
| BFA..127, BKA..127, | 100 | 100 | 373 | 200 |
| BFA..157, BKA..157, | 120 | 120 | 460 | 200 |

## 9.1.2 拆装工具
## 9.1.2 Installation / removal kit

可使用的选件：拆装工具进行装配。可以通过表中给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有的轴套
- 装配用的紧固螺栓
- 拆卸用的压盘
- 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 accesseriyes of the tools includorg:
–Distance piece for installation without contact shoulder⑤
–Retaining screw for installation②
–Removal washer for installation⑦
–Fixed nut for removal⑧

(A)

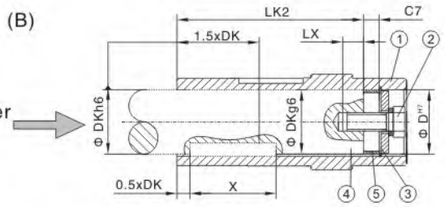



带轴肩的用户轴
安装长度LK2【→图A】不使用轴套
The installation length of the customer shaft must be LK2.
The distance piece must not be used if the customer shaft does have a contact shouder(A).

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

(B)




不带轴肩的用户轴
安装长度LK2【→图B】轴套必须使用
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 shouder(B).

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

| 减速器型号 Gear unit type | $D^{H7}$[mm] | DK[mm] | LK2[mm] | $LX^{+2}$[Nm] | C7[Nm] | MS[Nm] |
|---|---|---|---|---|---|---|
| BSA..37 | 20 | 20 | 92 | 16 | 12 | 8 |
| BSA..47 | 25 | 25 | 89 | 22 | 16 | 20 |
| BFA..37,BKA..37,BSA..47<br>BSA..57 | 30 | 30 | 89<br>89,116 | 22 | 16 | 20 |
| BFA..47,BKA..47,BSA..57 | 35 | 35 | 114 | 28 | 18 | 20 |
| BFA..57,BKA..57<br>BFA..67,BKA..57,BSA..67 | 40 | 40 | 138,138<br>126,124 | 36 | 18 | 40 |
| BSA..67 | 45 | 45 | 126 | 36 | 18 | 40 |
| BFA..77,BKA..77,BSA..77 | 50 | 50 | 165 | 36 | 18 | 40 |
| BFA..87,BKA..87<br>BSA..77,BSA..87 | 60 | 60 | 158,198<br>188 | 42 | 22 | 80 |
| BFA..97,BKA..97<br>BSA..87,BSA..97 | 70 | 70 | 198, 238<br>248 | 42 | 22 | 80 |
| BFA..107,BKA..107,BSA..97 | 90 | 90 | 287<br>229 | 50 | 26 | 200 |
| BFA..127,BKA..127 | 100 | 100 | 347 | 50 | 26 | 200 |
| BFA..157,BKA..157 | 120 | 120 | 434 | 50 | 26 | 200 |





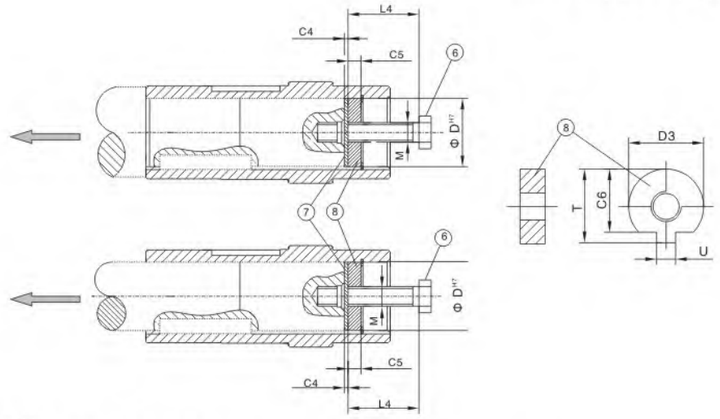


拆卸
Removal

用拆装工具进行装配，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。

Applies prior installation with the installation /removal kit only.
Proceed as follows for removal:
1.Remone the retaining screw⑥
2.Remove the Circlip ③ and if used, the distance piece ⑤
3.Insed the removal washer ⑦ and the fixed nut ⑧ between the customer shaft ④ and circlip ③ according to Fig.
4.Re-insert the cirlip ③.
5.Re-insert the retaining screw ⑥.You can now push the gear unit off the shaft.




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

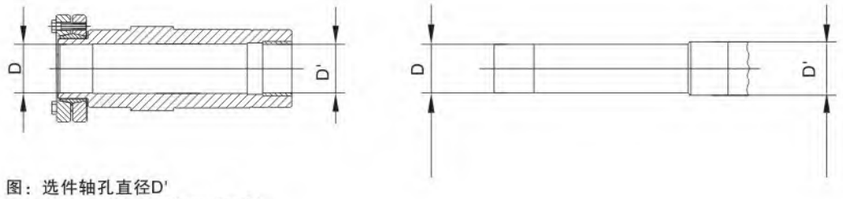
图：空心轴拆卸示意图
Fig.Removal

| 型号 Model | $D^{H7}$ [mm] | M | C4 [mm] | C5 [mm] | C6 [mm] | $U^{-0.5}$ [mm] | $T3^{-0.5}$ [mm] | $D^{-0.5L4}$ [mm] | 拆装工具零件号 Installation/removal kit part number |
|---|---|---|---|---|---|---|---|---|---|
| BSA..37 | 20 | M6 | 5 | 6 | 15.5 | 5.5 | 22.5 | 19.7 | 25 |
| BSA..47 | 25 | M10 | 5 | 10 | 20 | 7.5 | 28 | 24.7 | 35 |
| BFA..37,BKA..37,BSA..57 | 30 | M10 | 5 | 10 | 25 | 7.5 | 33 | 29.7 | 35 |
| BFA..47,BSA..57 | 35 | M12 | 5 | 12 | 29 | 9.5 | 38 | 34.7 | 45 |
| BFA..57,BKA..57,BFA..67,BKA..67,BSA..67 | 40 | M16 | 5 | 12 | 34 | 11.5 | 41.9 | 39.7 | 50 |
| BSA..67 | 45 | M16 | 5 | 12 | 38.5 | 13.5 | 48.5 | 44.7 | 50 |
| BFA..77,BKA..77,BSA..77 | 50 | M16 | 5 | 12 | 43.5 | 13.5 | 53.5 | 49.7 | 50 |
| BFA..87,BKA..87,BSA..77,BSA..87 | 60 | M20 | 5 | 16 | 56 | 17.5 | 64 | 59.7 | 60 |
| BFA..97,BKA..97,BSA..97 | 70 | M20 | 5 | 16 | 65.5 | 19.5 | 74.5 | 69.7 | 60 |
| BFA..107,BKA..107,BSA..97 | 90 | M24 | 5 | 20 | 80 | 24.5 | 95 | 89.7 | 70 |
| BFA..127,BKA..127 | 100 | M24 | 5 | 20 | 89 | 27.5 | 106 | 99.7 | 70 |
| BFA..157,BKA..157 | 120 | M24 | 5 | 20 | 107 | 31 | 127 | 119.7 | 70 |

## 9.2 带轴阶的空心轴和锁紧盘选件
## 9.2 Shouldered hollow shaft with shrink disk (option)

带空心轴锁紧盘的减速机(BFH/FHF/FHZ37–157 平行轴减速机BKH/KHF/KHZ37–157斜齿轮–锥齿轮减速机和BSH/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 unit with a hollow shaft and shrink disk (parallel shaft helical gear units BFH/FHF/FHZ37–157, helical–bevel gear units BKH/KHF/KHZ37–157 and helicalworm gear units BSH/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 Hole diameter D/D' |
|---|---|
| BFH/FHF/FHZ37,BKH/KHF/KHZ37,BSH/SHF/SHZ47 | 30/32 |
| BFH/FHF/FHZ47,BKH/KHF/KHZ47,BSH/SHF/SHZ57 | 35/36 |
| BFH/FHF/FHZ57,BKH/KHF/KHZ57 | 40/42 |
| BFH/FHF/FHZ67,BKH/KHF/KHZ67,BSH/SHF/SHZ67 | 40/42 |
| BFH/FHF/FHZ77,BKH/KHF/KHZ77,BSH/SHF/SHZ77 | 50/52 |
| BFH/FHF/FHZ87,BKH/KHF/KHZ87,BSH/SHF/SHZ87 | 65/66 |
| BFH/FHF/FHZ97,BKH/KHF/KHZ97,BSH/SHF/SHZ97 | 75/76 |
| BFH/FHF/FHZ107,BKH/KHF/KHZ107 | 95/96 |
| BFH/FHF/FHZ127,BKH/KHF/KHZ127 | 105/106 |
| BFH/FHF/FHZ157,BKH/KHF/KHZ157 | 125/126 |

定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：BFH37 D80M4 30/32
Diameter D/D' must be specified when ordering gear units with a shouldered hollow shaft (optional bole diameter D').







## 带轴阶空心轴和锁紧盘的平行轴减速电机
## Parallel shaft helical gear unit with shouldered hollow shaft

### BFH/FHF/FHZ37
**Φ 30$^{H7}$/Φ 32$^{H7}$**

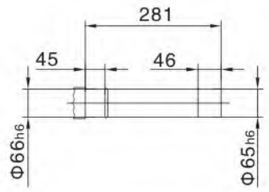
### BFH/FHF/FHZ47
**Φ 35$^{H7}$/Φ 36$^{H7}$**

### BFH/FHF/FHZ57
**Φ 40$^{H7}$/Φ 42$^{H7}$**

### BFH/FHF/FHZ67
**Φ 40$^{H7}$/Φ 42$^{H7}$**

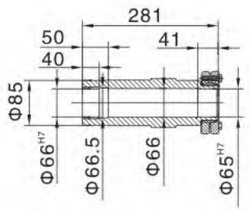
### BFH/FHF/FHZ77
**Φ 50$^{H7}$/Φ52$^{H7}$**

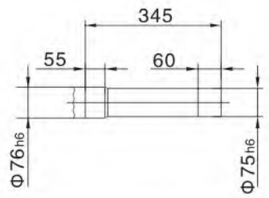
## 带轴阶空心轴和锁紧盘的平行轴减速电机
## Parallel shaft helical gear unit with shouldered hollow shaft




**BFH/FHF/FHZ87**

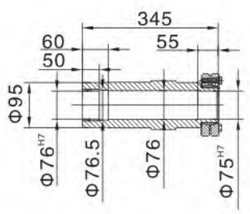
**Φ65$^{H7}$/Φ66$^{H7}$**

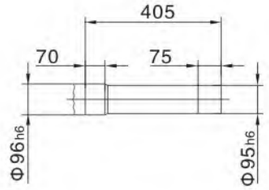



**BFH/FHF/FHZ97**

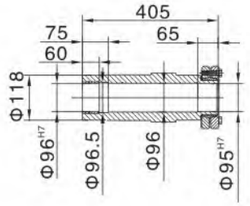
**Φ75$^{H7}$/Φ76$^{H7}$**

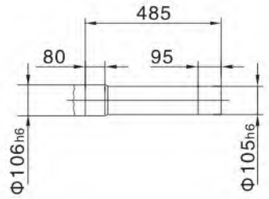



**BFH/FHF/FHZ107**

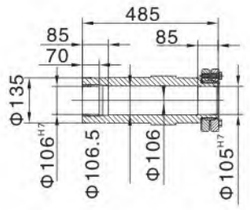
**Φ95$^{H7}$/Φ96$^{H7}$**

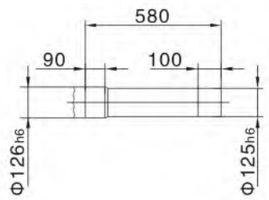



**BFH/FHF/FHZ127**

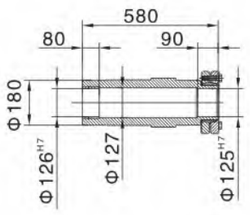
**Φ105$^{H7}$/Φ106$^{H7}$**




**BFH/FHF/FHZ157**

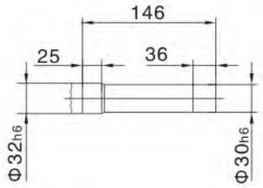
**Φ125$^{H7}$/Φ126$^{H7}$**





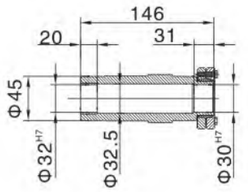


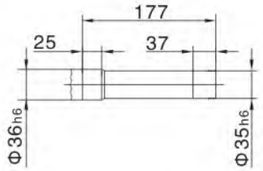

## 带轴阶空心轴和锁紧盘的斜齿轮–锥齿轮减速电机
## Helical–bevel gear unit with shouldered hollow shaft




**BKH/KHF/KHZ37**

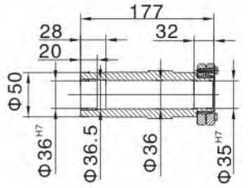
**Φ30$^{H7}$/Φ32$^{H7}$**

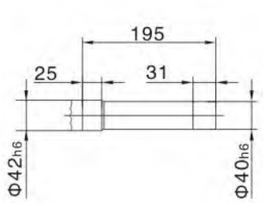



**BKH/KHF/KHZ47**

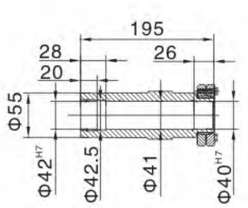
**Φ35$^{H7}$/Φ36$^{H7}$**

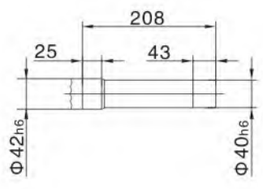



**BKH/KHF/KHZ57**

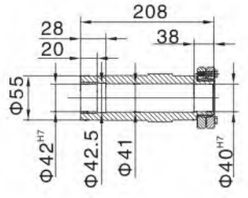
**Φ40$^{H7}$/Φ42$^{H7}$**

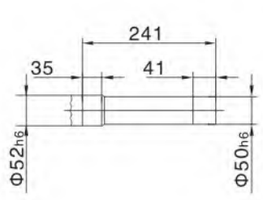



**BKH/KHF/KHZ67**

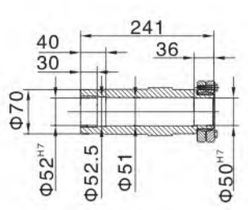
**Φ40$^{H7}$/Φ42$^{H7}$**



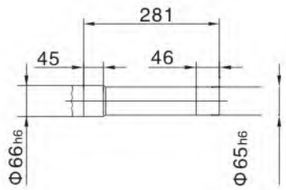




**BKH/KHF/KHZ77**

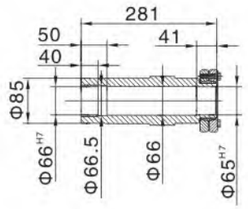
**Φ50$^{H7}$/Φ52$^{H7}$**

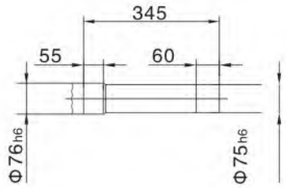


## 带轴阶空心轴和锁紧盘的斜齿轮–锥齿轮减速电机
## Helical–bevel gear unit with shouldered hollow shaft

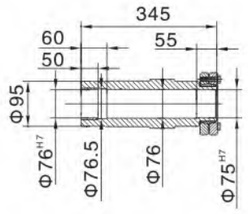


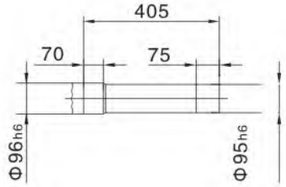

### BKH/KHF/KHZ87
**Φ65$^{H7}$/Φ66$^{H7}$**



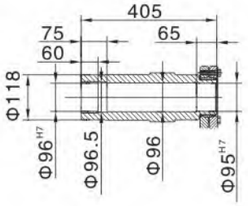



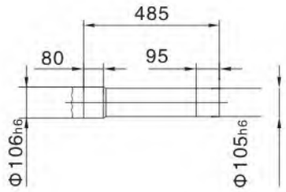

### BKH/KHF/KHZ97
**Φ75$^{H7}$/Φ76$^{H7}$**



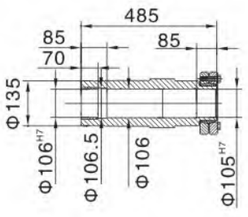



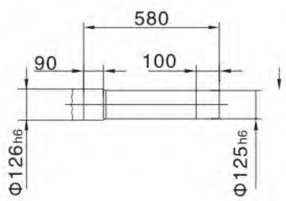

### BKH/KHF/KHZ107
**Φ95$^{H7}$/Φ96$^{H7}$**



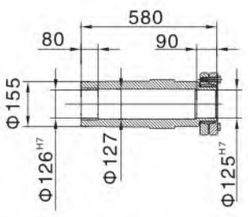




### BKH/KHF/KHZ127
**Φ105$^{H7}$/Φ106$^{H7}$**




### BKH/KHF/KHZ157
**Φ125$^{H7}$/Φ126$^{H7}$**

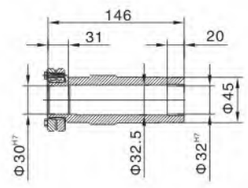




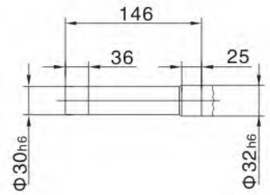


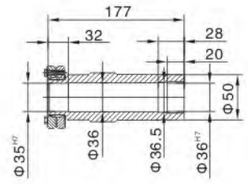



## 带轴阶空心轴和锁紧盘的斜齿轮–蜗杆减速电机
## Helical–worm gear unit with shouldered hollow shaft

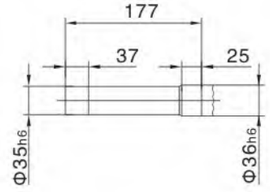


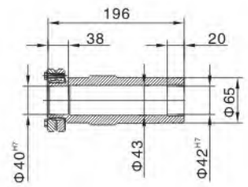

### BSH/SHF/SHZ47
**Φ30$^{H7}$/Φ32$^{H7}$**



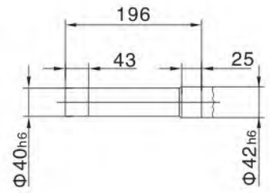



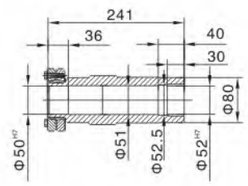

### BSH/SHF/SHZ57
**Φ35$^{H7}$/Φ36$^{H7}$**



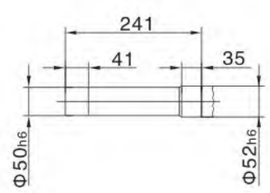




### BSH/SHF/SHZ67
**Φ40$^{H7}$/Φ42$^{H7}$**



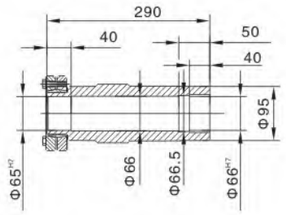

### BSH/SHF/SHZ77
**Φ50$^{H7}$/Φ52$^{H7}$**

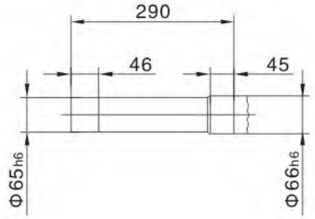


## 带轴阶空心轴和锁紧盘的斜齿轮–蜗杆减速电机
## Helical–worm gear unit with shouldered hollow shaft

### BSH/SHF/SHZ87

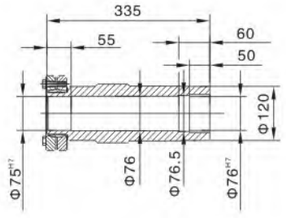
**Φ65$^{H7}$/Φ66$^{H7}$**

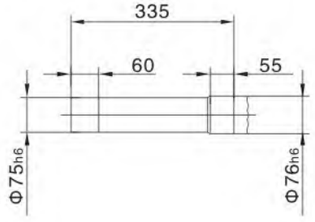



### BSH/SHF/SHZ97

**Φ75$^{H7}$/Φ76$^{H7}$**



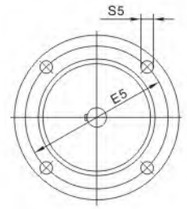



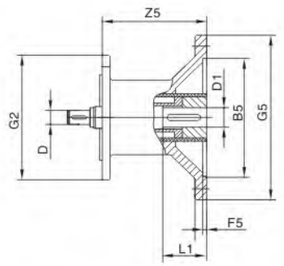







## 9.3 用于安装IEC标准电机的联轴器
## 9.3 Coupling for mounting of IEC motors



| 减速箱规格<br>Gear unit type | 联轴器规格<br>Coupling type | B5 | D | E5 | F5 | G2 | G5 | S5 | Z5 | D1 | L1 | T1 | U1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR..27,BR..37<br>BF..37,BF..47<br>BK..37<br>BS..37,BS..47<br>BS..57 | AM63 | 95 | 10 | 115 | 3.5 | 120 | 140 | M8 | 72 | 11 | 23 | 12.8 | 4 |
| | AM71[1] | 110 | | 130 | | | 160 | | | 14 | 30 | 16.3 | 5 |
| | AM80[1] | 130 | 12 | 165 | 4.5 | | 200 | M10 | 106 | 19 | 40 | 21.8 | 6 |
| | AM90[1] | | 14 | | | | | | | 24 | 50 | 27.3 | 8 |
| BR..47,BR..57<br>BR..67<br>BF..57,BF..67<br>BK..47,BK..57<br>BK..67<br>BS..67 | AM63 | 95 | 10 | 115 | 3.5 | 160 | 140 | M8 | 66 | 11 | 23 | 12.8 | 4 |
| | AM71 | 110 | | 130 | | | 160 | | | 14 | 30 | 16.3 | 5 |
| | AM80 | 130 | 12 | 165 | 4.5 | | 200 | M10 | 99 | 19 | 40 | 21.8 | 6 |
| | AM90 | | 14 | | | | | | | 24 | 50 | 27.3 | 8 |
| | AM100[1] | 180 | 16 | 215 | 5 | | 250 | M12 | 134 | 28 | 60 | 31.3 | 8 |
| | AM112[1] | | 18 | | | | | | | | | | |
| BR..77<br>BF..77<br>BK..77<br>BS..77 | AM63 | 95 | 10 | 115 | 3.5 | 200 | 140 | M8 | 60 | 11 | 23 | 12.8 | 4 |
| | AM71 | 110 | | 130 | | | 160 | | | 14 | 30 | 16.3 | 5 |
| | AM80 | 130 | 12 | 165 | 4.5 | | 200 | M10 | 92 | 19 | 40 | 21.8 | 6 |
| | AM90 | | 14 | | | | | | | 24 | 50 | 27.3 | 8 |
| | AM100[1] | 180 | 16 | 215 | 5 | | 250 | M12 | 126 | 28 | 60 | 31.3 | 8 |
| | AM112[1] | | 18 | | | | | | | | | | |
| | AM132S[1]<br>AM132M[1] | 230 | 22 | 265 | | | 300 | | 179 | 38 | 80 | 41.3 | 10 |
| | AM132ML[1] | | 28 | | | | | | | | | | |
| BR..87<br>BF..87<br>BK..87<br>BS..87 | AM80 | 130 | 12 | 165 | 4.5 | 250 | 200 | M10 | 87 | 19 | 40 | 21.8 | 6 |
| | AM90 | | 14 | | | | | | | 24 | 50 | 27.3 | 8 |
| | AM100 | 180 | 16 | 215 | 5 | | 250 | M12 | 121 | 28 | 60 | 31.3 | 8 |
| | AM112 | | 18 | | | | | | | | | | |
| | AM132S<br>AM132M | 230 | 22 | 265 | | | 300 | | 174 | 38 | 80 | 41.3 | 10 |
| | AM132ML | | 28 | | | | | | | | | | |
| | AM160[1] | 250 | 28 | 300 | 6 | | 350 | M16 | 232 | 42 | 110 | 45.3 | 12 |
| | AM180[1] | | 32 | | | | | | | 48 | | 51.8 | 14 |

Fig.1

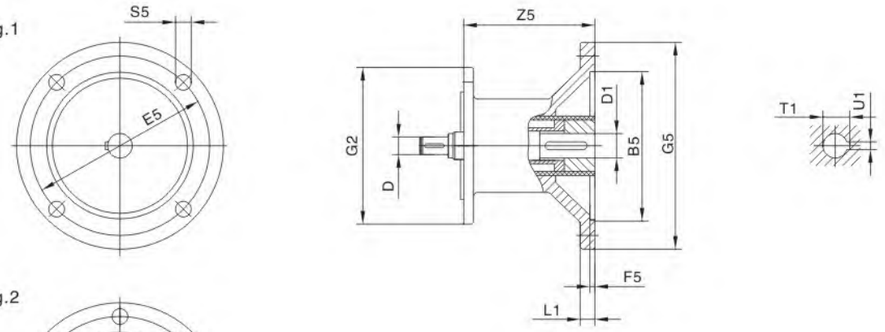
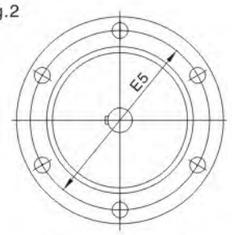



Fig.2




| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR..97<br>BF..97<br>BK..97<br>BS..97 | AM100 | 1 | 180 | 16 | 215 | 5 | 300 | 250 | M12 | 116 | 28 | 60 | 31.3 | 8 |
| | AM112 | | | 18 | | | | | | | | | | |
| | AM132S | | 230 | 22 | 265 | | | 300 | | 169 | 38 | 80 | 41.3 | 10 |
| | AM132M | | | | | | | | | | | | | |
| | AM132ML | | | 28 | | | | | | | | | | |
| | AM160 | | 250 | 28 | 300 | 6 | | 350 | M16 | 227 | 42 | 110 | 45.3 | 12 |
| | AM180 | | | 32 | | | | | | | 48 | | 51.8 | 14 |
| | AM200 | | 300 | 38 | 350 | 7 | | 400 | | 268 | 55 | | 59.3 | 16 |
| | AM225[1] | 2 | 350 | 38 | 400 | | | 450 | | 283 | 60 | 140 | 64.4 | 18 |
| BR..107<br>BF..107<br>BK..107 | AM100 | 1 | 180 | 16 | 215 | 5 | 350 | 250 | M12 | 110 | 28 | 60 | 31.3 | 8 |
| | AM112 | | | 18 | | | | | | | | | | |
| | AM132S | | 230 | 22 | 265 | | | 300 | | 163 | 38 | 80 | 41.3 | 10 |
| | AM132M | | | | | | | | | | | | | |
| | AM132ML | | | 28 | | | | | | | | | | |
| | AM160 | | 250 | 28 | 300 | 6 | | 350 | M16 | 221 | 42 | 110 | 45.3 | 12 |
| | AM180 | | | 32 | | | | | | | 48 | | 51.8 | 14 |
| | AM200 | | 300 | 38 | 350 | 7 | | 400 | | 262 | 55 | | 59.3 | 16 |
| | AM225 | 2 | 350 | 38 | 400 | | | 450 | | 277 | 60 | 140 | 64.4 | 18 |
| BR..137 | AM132S | 1 | 230 | 22 | 265 | 5 | 400 | 300 | M12 | 156 | 38 | 80 | 41.3 | 10 |
| | AM132M | | | | | | | | | | | | | |
| | AM132ML | | | 28 | | | | | | | | | | |
| | AM160 | | 250 | 28 | 300 | 6 | | 350 | M16 | 214 | 42 | 110 | 45.3 | 12 |
| | AM180 | | | 32 | | | | | | | 48 | | 51.8 | 14 |
| | AM200 | | 300 | 38 | 350 | 7 | | 400 | | 255 | 55 | | 59.3 | 16 |
| | AM225 | 2 | 350 | 38 | 400 | | | 450 | | 270 | 60 | 140 | 64.4 | 18 |

1) 如果安装在BR、BK和BS系列地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 1/2 G5 may protrude past foot mounting surface if mounted on BR、BK or BS foot-mounted gear unit, Please check.





Fig.1

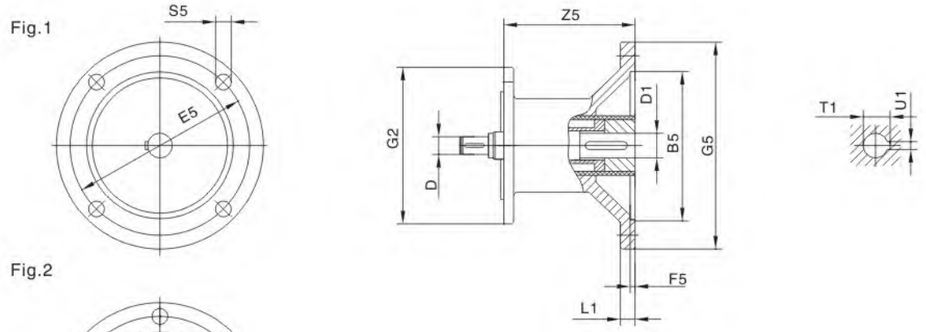
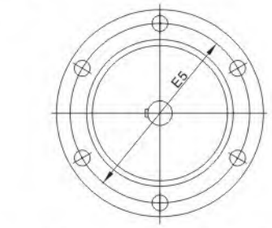


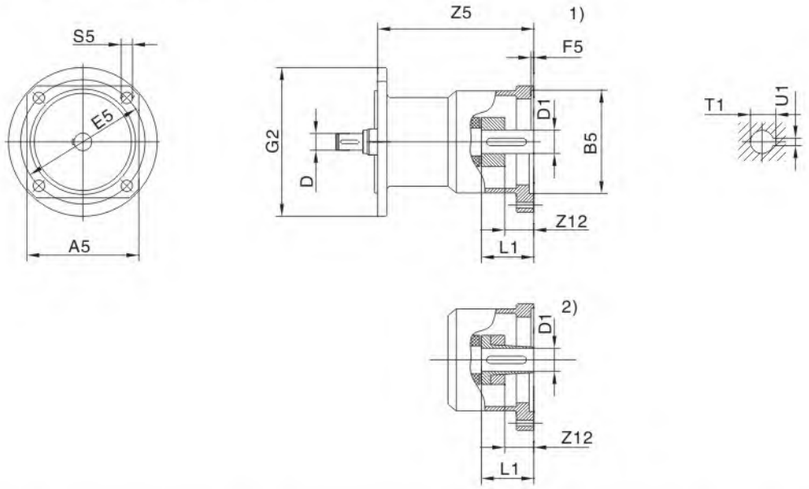

Fig.2




| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR..147<br>BF..127<br>BK..127 | AM132S | 1 | 230 | 22 | 265 | 5 | 450 | 300 | M12 | 148 | 38 | 80 | 41.3 | 10 |
| | AM132M | | | | | | | | | | | | | |
| | AM132ML | | | 28 | | | | | | | | | | |
| | AM160 | | 250 | 28 | 300 | 6 | | 350 | M16 | 206 | 42 | 110 | 45.3 | 12 |
| | AM180 | | | 32 | | | | | | | 48 | | 51.8 | 14 |
| | AM200 | | 300 | 38 | 350 | 7 | | 400 | | 247 | 55 | | 59.3 | 16 |
| | AM225 | 2 | 350 | 38 | 400 | | | 450 | | 262 | 60 | 140 | 64.4 | 18 |
| | AM250 | | 450 | 48 | 500 | | | 550 | | 336 | 65 | | 69.4 | |
| | AM280 | | | | | | | | | | 75 | | 79.9 | 20 |
| BR..167<br>BF..157<br>BK..157<br>BK..167<br>BK..187 | AM160 | 1 | 250 | 28 | 300 | 6 | 550 | 350 | M16 | 198 | 42 | 110 | 45.3 | 12 |
| | AM180 | | | 32 | | | | | | | 48 | | 51.8 | 14 |
| | AM200 | | 300 | 38 | 350 | 7 | | 400 | | 239 | 55 | | 59.3 | 16 |
| | AM225 | 2 | 350 | 38 | 400 | | | 450 | | 254 | 60 | 140 | 64.4 | 18 |
| | AM250 | | 450 | 48 | 500 | | | 550 | | 328 | 65 | | 69.4 | |
| | AM280 | | | | | | | | | | 75 | | 79.9 | 20 |

1) 如果安装在BR、BK和BS系列地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 1/2 G5 may protrude past foot mounting surface if mounted on BR、BK or BS foot-mounted gear unit, Please check.

## 9.4 用于安装伺服电机的联轴器
## 9.4 Adapter for mounting of servomotors




| 减速箱规格 Gear unit type | 联轴器规格 Coupling type | A5 | B5 | D | E5 | F5 | G2 | S5 | Z5 | Z12[1] | Z12[2] | D1 | L1 | T1[1] | U1[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR..27<br>BR..37<br>BF..37<br>BF..47<br>BK..37<br>BS..37<br>BS..47<br>BS..57 | AQ..80/1 | 82 | 60 | 10<br>12 | 75 | 3 | 120 | M5 | 104.5 | 5.5 | 5.5 | 11 | 23 | 12.8 | 4 |
| | AQ..80/2 | | | | | | | | | | | 14 | 30 | 16.3 | 5 |
| | AQ..80/3 | | 50 | | 95 | | | M6 | | | | | | | |
| | AQ..100/1 | 100 | 80 | 10<br>12<br>14<br>16 | 100 | 4 | | M6 | 129.5 | – | – | 14 | 30 | 16.3 | 5 |
| | AQ..100/2 | | 95 | | 115 | | | M8 | | | | | | | |
| | AQ..100/3 | | 80 | | 100 | | | M6 | 143.5 | 7 | 14 | 19 | 40 | 21.8 | 6 |
| | AQ..100/4 | | 95 | | 115 | | | M8 | | | | | | | |
| | AQ..115/1 | 115 | 95 | | 130 | | | M8 | 152.5 | 16 | 23 | 19 | 40 | 21.8 | 6 |
| | AQ..115/2 | | 110 | | | | | | | | | | | | |
| | AQ..115/3 | | | | | | | | | 21 | 16 | 24 | 50 | 27.3 | 8 |
| BR..47<br>BR..57<br>BR..67<br>BF..57<br>BF..67<br>BK..47<br>BK..57<br>BK..67<br>BS..67 | AQ..80/1 | 82 | 60 | 10<br>12 | 75 | 3 | 160 | M5 | 98 | 5.5 | 5.5 | 11 | 23 | 12.8 | 4 |
| | AQ..80/2 | | | | | | | | | | | 14 | 30 | 16.3 | 5 |
| | AQ..80/3 | | 50 | | 95 | | | M6 | | | | | | | |
| | AQ..100/1 | 100 | 80 | 10<br>12<br>14<br>16 | 100 | 4 | | M6 | 122.5 | – | – | 14 | 30 | 16.3 | 5 |
| | AQ..100/2 | | 95 | | 115 | | | M8 | | | | | | | |
| | AQ..100/3 | | 80 | | 100 | | | M6 | 136.5 | 7 | 14 | 19 | 40 | 21.8 | 6 |
| | AQ..100/4 | | 95 | | 115 | | | M8 | | | | | | | |
| | AQ..115/1 | 115 | 95 | | 130 | | | M8 | 145.5 | 16 | 23 | 19 | 40 | 21.8 | 6 |
| | AQ..115/2 | | 110 | | | | | | | | | | | | |
| | AQ..115/3 | | | | | | | | | 21 | 16 | 24 | 50 | 27.3 | 8 |
| | AQ..140/1 | 140 | 110 | 16 | 165 | 5 | | M10 | 175 | 21 | 16 | 24 | 50 | 27.3 | 8 |
| | AQ..140/2 | | 130 | 18 | | | | | | | | | | | |
| | AQ..140/3 | | | 22 | | | | | 188 | 24 | 22 | 32 | 60 | 35.5 | 10 |

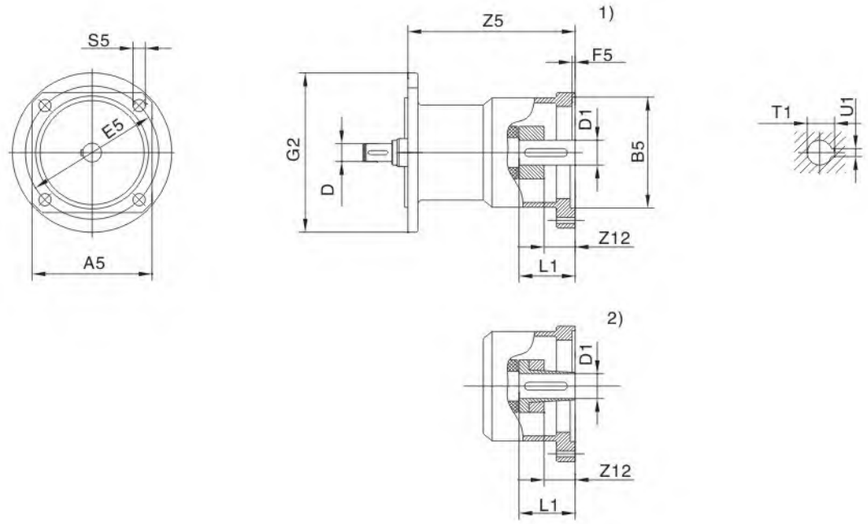
1) 适用于键连接（AQA..）
2) 适用于锁紧套连接（AQH..）

1) Applies to type with key way（AQA..）
2) Applies to type with clamping ring hub（AQH..）





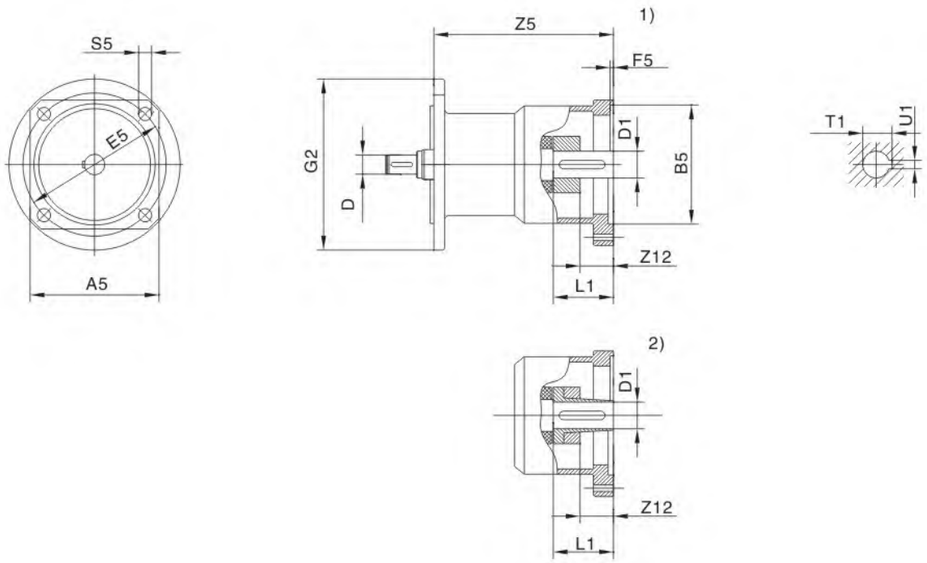





| 减速箱规格 Gear unit type | 联轴器规格 Coupling type | A5 | B5 | D | E5 | F5 | G2 | S5 | Z5 | Z12[1] | Z12[2] | D1 | L1 | T1[1] | U1[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR..77<br>BF..77<br>BK..77<br>BS..77 | AQ..80/1 | 82 | 60 | 10<br>12 | 75 | 3 | 200 | M5 | 92 | 5.5 | 5.5 | 11 | 23 | 12.8 | 4 |
| | AQ..80/2 | | | | 75 | | | | | | | 14 | 30 | 16.3 | 5 |
| | AQ..80/3 | | 50 | | 95 | | | M6 | | | | | | | |
| | AQ..100/1 | 100 | 80 | 10<br>12<br>14<br>16 | 100 | 4 | | M6 | 115.5 | – | – | 14 | 30 | 16.3 | 5 |
| | AQ..100/2 | | 95 | | 115 | | | M8 | | | | | | | |
| | AQ..100/3 | | 80 | | 100 | | | M6 | 129.5 | 7 | 14 | 19 | 40 | 21.8 | 6 |
| | AQ..100/4 | | 95 | | 115 | | | M8 | | | | | | | |
| | AQ..115/1 | 115 | 95 | | 130 | | | M8 | 138.5 | 16 | 23 | 19 | 40 | 21.8 | 6 |
| | AQ..115/2 | | 110 | | | | | | | | | | | | |
| | AQ..115/3 | | | | | | | | | 21 | 16 | 24 | 50 | 27.3 | 8 |
| | AQ..140/1 | 140 | 110 | 16<br>18<br>22 | 165 | 5 | | M10 | 167 | 21 | 16 | 24 | 50 | 27.3 | 8 |
| | AQ..140/2 | | 130 | | | | | | | | | | | | |
| | AQ..140/3 | | | | | | | | 180 | 24 | 22 | 32 | 60 | 35.3 | 10 |
| | AQ..190/1 | 190 | 130 | 22<br>28 | 215 | | | M12 | 225.5 | 26 | 24 | 32 | 60 | 35.3 | 10 |
| | AQ..190/2 | | 180 | | | | | | | | | | | | |
| | AQ..190/3 | | | | | | | | 249.5 | 39 | 34 | 38 | 80 | 41.3 | 10 |
| BR..87<br>BF..87<br>BK..87<br>BS..87 | AQ..100/1 | 100 | 80 | 12<br>14<br>16 | 100 | 4 | 250 | M6 | 110.5 | – | – | 14 | 30 | 16.3 | 5 |
| | AQ..100/2 | | 95 | | 115 | | | M8 | | | | | | | |
| | AQ..100/3 | | 80 | | 100 | | | M6 | 124.5 | 7 | 14 | 19 | 40 | 21.8 | 6 |
| | AQ..100/4 | | 95 | | 115 | | | M8 | | | | | | | |
| | AQ..115/1 | 115 | 95 | | 130 | | | M8 | 133.5 | 16 | 23 | 19 | 40 | 21.8 | 6 |
| | AQ..115/2 | | 110 | | | | | | | | | | | | |
| | AQ..115/3 | | | | | | | | | 21 | 16 | 24 | 50 | 27.3 | 8 |
| | AQ..140/1 | 140 | 110 | 16<br>18<br>22 | 165 | 5 | | M10 | 162 | 21 | 16 | 24 | 50 | 27.3 | 8 |
| | AQ..140/2 | | 130 | | | | | | | | | | | | |
| | AQ..140/3 | | | | | | | | 175 | 24 | 22 | 32 | 60 | 35.3 | 10 |
| | AQ..190/1 | 190 | 130 | 22<br>28 | 215 | | | M12 | 220.5 | 26 | 24 | 32 | 60 | 35.3 | 10 |
| | AQ..190/2 | | 180 | | | | | | | | | | | | |
| | AQ..190/3 | | | | | | | | 244.5 | 39 | 34 | 38 | 80 | 41.3 | 10 |

1) 适用于键连接（AQA..）
2) 适用于锁紧套连接（AQH..）

1) Applies to type with key way（AQA..）
2) Applies to type with clamping ring hub（AQH..）




| 减速箱规格 Gear unit type | 联轴器规格 Coupling type | A5 | B5 | D | E5 | F5 | G2 | S5 | Z5 | Z12[1)] | Z12[2)] | D1 | L1 | T1[1)] | U1[1)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR..97<br>BF..97<br>BK..97<br>BS..97 | AQ..140/1 | 140 | 110 | 16<br>18<br>22 | 165 | 5 | 300 | M10 | 157 | 21 | 16 | 24 | 50 | 27.3 | 8 |
| | AQ..140/2 | | 130 | | | | | | | | | | | | |
| | AQ..140/3 | | | | | | | | 170 | 24 | 22 | 32 | 60 | 35.3 | 10 |
| | AQ..190/1 | 190 | 130 | 22<br>28 | 215 | | | M12 | 215.5 | 26 | 24 | 32 | 60 | 35.3 | 10 |
| | AQ..190/2 | | 180 | | | | | | | | | | | | |
| | AQ..190/3 | | | | | | | | 239.5 | 39 | 34 | 38 | 80 | 41.3 | |
| BR..107<br>BF..107<br>BK..107 | AQ..140/1 | 140 | 110 | 16<br>18<br>22 | 165 | | 350 | M10 | 151 | 21 | 16 | 24 | 50 | 27.3 | 8 |
| | AQ..140/2 | | 130 | | | | | | | | | | | | |
| | AQ..140/3 | | | | | | | | 164 | 24 | 22 | 32 | 60 | 35.3 | 10 |
| | AQ..190/1 | 190 | 130 | 22<br>28 | 215 | | | M12 | 209.5 | 26 | 24 | 32 | 60 | 35.3 | 10 |
| | AQ..190/2 | | 180 | | | | | | | | | | | | |
| | AQ..190/3 | | | | | | | | 233.5 | 39 | 34 | 38 | 80 | 41.3 | |
| BR..137 | AQ..190/1 | 190 | 130 | 22<br>28 | 215 | | 400 | M12 | 202.5 | – | 25 | 32 | 60 | 35.3 | 10 |
| | AQ..190/2 | | 180 | | | | | | | | | | | | |
| | AQ..190/3 | | | | | | | | 226.5 | 39 | 34 | 38 | 80 | 41.3 | |
| BR..147<br>BF..127<br>BK..127 | AQ..190/1 | | 130 | 22<br>28 | | | 450 | | 194.5 | 26 | 24 | 32 | 60 | 35.3 | |
| | AQ..190/2 | | 180 | | | | | | | | | | | | |
| | AQ..190/3 | | | | | | | | 218.5 | 39 | 34 | 38 | 80 | 41.3 | |

1) 适用于键连接（AQA..）
2) 适用于锁紧套连接（AQH..）

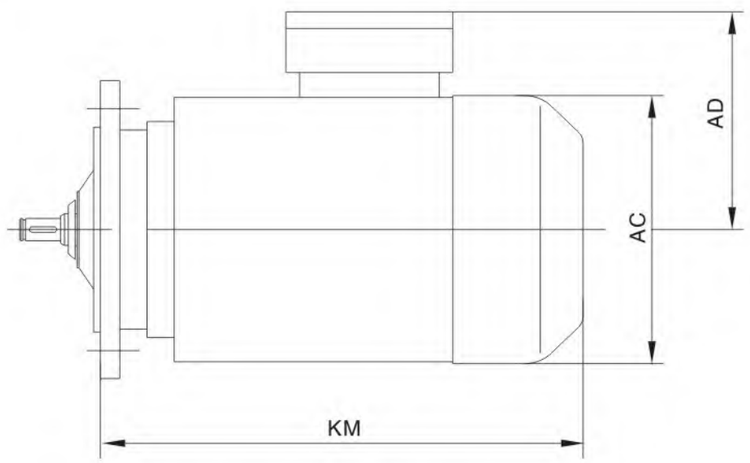
1) Applies to type with key way（AQA..）
2) Applies to type with clamping ring hub（AQH..）







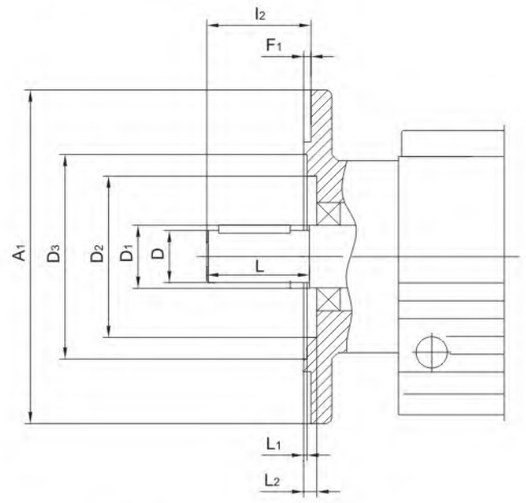
## 9.5 电机尺寸图
## 9.5 The size of motor




| 型号 Model | D63M | D71M | D80M | D90S<br>D90L | D100L | D112M | D132S<br>D132M | D160M<br>D160L | D180M<br>D180L | D200L | D225S<br>D225M | D250M | D280S<br>D280M | D315S<br>D315M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | 145 | 162 | 177 | 197 | 220 | 235 | 273 | 427 | 476 | 524 | 574 | 650 | 700 | 770 |
| AD | 111 | 116 | 146 | 153 | 177 | 184 | 206 | 273 | 299 | 332 | 358 | 400 | 446 | 527 |
| KM | 244 | 260 | 271 | 314<br>339 | 367 | 375 | 421<br>459 | 500<br>544 | 556<br>594 | 659 | 682<br>707 | 790 | 900<br>948 | 1076<br>1126 |

注：上表中的电机尺寸为部分铁芯长度电机的参考尺寸，具体尺寸根据铁芯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. If you have any special requirements, please contact us.

## 9.6 BRF..和BR..F减速电机法兰外形图
## 9.6 Flange contours of BRF.. and BR..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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | BRF | BR..F | | | | | BRF | BR..F | |
| BRF17,BR17F | 120 | 20 | 25 | 46 | 46 | 65 | 3 | 40 | 40 | 1 | 1 | 5 |
| | 140 | | | | – | 78 | 3 | | | 1 | – | 5 |
| BRF27,BR27F | 120 | 25 | 30 | 54 | 4 | 66 | 3 | 50 | 50 | 1 | 1 | 6 |
| | 140 | | | | – | 79 | 3 | | | 3 | – | 7 |
| | 160 | | | | – | 92 | 3.5 | | | 3 | – | 7 |
| BRF37,BR37F | 120 | 25 | 35 | 60 | 63 | 70 | 3 | 50 | 50 | 5 | 4 | 7 |
| | 160 | | | | – | 96 | 3.5 | | | 1 | – | 7.5 |
| | 200 | | | | – | 119 | 3.5 | | | 1 | – | 7.5 |
| BRF47,BR47F | 140 | 30 | 35 | 72 | 64 | 82 | 3 | 60 | 60 | 4 | 1 | 6 |
| | 160 | | | | – | 96 | 3.5 | | | 0.5 | – | 6.5 |
| | 200 | | | | – | 116 | 3.5 | | | 0.5 | – | 6.5 |
| BRF57,BR57F | 160 | 35 | 40 | 76 | 75 | 96 | 3.5 | 70 | 70 | 4 | 2.5 | 5 |
| | 200 | | | | – | 116 | 3.5 | | | 0 | – | 5 |
| | 250 | | | | – | 160 | 4 | | | 0.5 | – | 5.5 |
| BRF67,BR67F | 200 | 35 | 50 | 90 | 90 | 118 | 3.5 | 70 | 70 | 2 | 4 | 7 |
| | 250 | | | | – | 160 | 4 | | | 1 | – | 7.5 |
| BRF77,BR77F | 250 | 40 | 52 | 112 | 100 | 160 | 4 | 80 | 80 | 0.5 | 2.5 | 7 |
| | 300 | | | | – | 210 | 4 | | | 0.5 | – | 7 |
| BRF87,BR87F | 300 | 50 | 62 | 123 | 122 | 210 | 4 | 100 | 100 | 0 | 1.5 | 8 |
| | 350 | | | | – | 226 | 5 | | | 1 | – | 9 |
| BRF97 | 350 | 60 | 72 | 136 | | 236 | 5 | 120 | 120 | 0 | | 9 |
| | 450 | | | | | 320 | | | | | | |
| BRF107 | 350 | 70 | 82 | 157 | | 232 | 5 | 140 | 140 | 0 | | 11 |
| | 450 | | | 186 | | 316 | | | | | | |
| BRF137 | 450 | 90 | 108 | 180 | | 316 | 5 | 170 | 170 | 0 | | 10 |
| | 550 | | | | | 416 | | | | | | |
| BRF147 | 450 | 110 | 125 | 210 | | 316 | 5 | 210 | 210 | 0 | | 10 |
| | 550 | | | | | 416 | | | | | | |
| BRF167 | 550 | 120 | 145 | 290 | | 416 | 5 | 210 | 210 | 1 | | 10 |
| | 660 | | | | | 517 | 6 | | | 2 | | 11 |







## 9.7 减速机安装
## 9.7 Gear unit mounting

安装减速机和减速电机时一定要使用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（BRF..）和地脚/法兰安装（BR..F..）的斜齿轮减速电机，法兰和用户安装单元固定时一定要用10.9级的螺栓。
- BRF37和带Φ120mm法兰的BRF37
- BRF47和带Φ140mm法兰的BRF47
- BRF57和带Φ160mm法兰的BRF57

Bolts of quality 10.9 must be used for used for fastening the flange to the customer supplied unit in order to transmit the rated torque specified in the catalog. These bolts must be used in case following flange–mounnted helical geared motors ( BRF.. ) and foot/flange–mounted helical geared motors ( BR..F.. ) :
- BRF37, BRF37F with flange Φ120mm
- BRF47, BRF47F with flange Φ140mm
- BRF57, BRF57F with flange Φ160mm

### BKH167..,BKH187..的力矩臂
### Torque arms for BKH167..,BKH187..

对于减速电机BKH167..和BKH187..作为标准配置，一般不提供扭矩臂。如果需要，请和我公司联系，我们将给出推荐的安装位置和尺寸图。

As standard, there are no torque arms available for gear unit sizes BKH167.. and BKH187.. Please contact company if you require torque arms for these gear units. We will submit the configuration of recommendations.

## 9.8 润滑
## 9.8 Lubricants

### 概述
### Greneral information

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

Unless there is a special requirement, company always supplies the drives that with lubricant fill specifically for the reducer and mounting position. When ordering a drive, the decisve factor of lubricant fill qwantites is the drives mounting position. You must adapt the lubricant fill to any subsequent change made to the mounting position check for the Lubricant fill quantities.

### 润滑油的等级和粘度类型
### Lubricating conglutination

推荐使用的润滑油见润滑油表，其等级和粘度指标见下表
Commend the lubricant oi. The grade and conglutination index in the following.

| DIN(ISO,SAE)标准润滑油<br>Normal lubricating | 粘度指标<br>Conglutination index | 环境温度℃<br>Ambient temperature | 减速机型号<br>Gear unit type |
|---|---|---|---|
| Mineral oil CLp(cc) | ISOVG 220 | −10~+40 | BR、BF、BK系列减速机<br>BR, BF,BK series gear units |
| | ISOVG 680 | 0~+40 | BS系列减速机<br>BS series gear units |

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 lubricante oil. must be used in special situation. For example requesting use the oil with long life−span.If you want, we can afford the biology decompose oil for food ndustry.

| DIN(ISO,SAE)标准润滑油<br>Normal lubricating | 粘度指标<br>Conglutination index | 环境温度℃<br>Ambient temperature | 减速机型号<br>Gear unit type |
|---|---|---|---|
| Mineral oil CLp(CC) | ISOVG 100 | −20~+25 | BR、BF、BK系列减速机<br>BR, BF,BK series gear units |
| Synthetic fluid,clp pg | ISOVG 220 | −25~+80 | BR、BF、BK系列减速机<br>BR, BF,BK series gear units |
| Synthetic fluid,CLP HC | ISOVG 460 | −30~+80 | BS系列减速机<br>BS series gear units |

### 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 used for abrasion resistant bearing lubrication reducer and motor

| DIN(ISO,SAE)标准润滑油<br>Normal lubricating | 环境温度℃<br>Ambient temperature | 减速机型号<br>Gear unit type |
|---|---|---|
| 矿物轴承润滑脂K32N/K2K<br>mineral bearing lubricating lipin K32N/K2K | −30~+60 | 正常型式：减速机、电机<br>Normal type:motor reducer |
| 合成轴承润滑脂KHC 2R−40<br>synthetic bearing lubricating lipin K2R−40 | −40~+80 | 减速机加注合成润滑油<br>Reducers need to inject the synthetic lubricant |
| 矿物轴承润滑脂K3N−30<br>mineral bearing lubricating lipin K3N−30 | −25~+80 | 特殊型式：按应用场合确定的电机<br>Special type:select the motor in different situation |
| 合成轴承润滑脂K2S−50<br>synthetic bearing lubricating lipin K2S−50 | −45~−25 | 特殊型式：按应用场合确定的电机<br>Special type:select the motor in different situation |





## 传动装置润滑油表
## Lubricant table

| 减速机型号 Gear unit type | 环境温度 Ambient temperature 0° +50 +100 | | | 润滑油类型 DIN(ISO) | ISO粘度与NLGI相应 | Mobil | Shell | KLÜBER LUBRICATION | OPTIMOL | FUCHS |
|---|---|---|---|---|---|---|---|---|---|---|
| BR BF BK | −10 | 标准 | +40 | CLP (CC) | VG 220 | Mobilgear 630 | Shell Omala 220 | Klüberoil GEM 1−225 | Optigear BM220 | Renolin CLP 220 |
| | −25 | | +80 | CLP PG | VG 220 | Mobil Glygoyle 30 | Shell Tivela WB | Klübersynth GH 6−220 | Optiflex A 220 | |
| | *−40 | | +80 | CLP HC | VG 220 | Mobil SHC 630 | Shell Omala 220 HD | Klübersynth GEM 4−220 | Optigear Synthetic A 220 | Renolin Unisyn CLP 220 |
| | *−40 | | +40 | | VG 150 | Mobil SHC 629 | | Klübersynth GEM 4−150 | | |
| | −20 | | +25 | CLP (CC) | VG 150 VG 100 | Mobilgear 629 | Shell Omala 100 | Klüberoil GEM 1−150 | Optigear BM220 | Renolin CLP 150 |
| | −30 | | +10 | CLP HC | VG 68−46 VG 32 | Mobil D.T.E 15M | Shell Tellus T32 | Klüberoil GEM 1−68 | Optigear 32 | Renolin B 46 HVI |
| | *−40 | | +10 | | VG 32 | Mobil SHC 624 | | Klübersynth GEM 4−32 | | |
| | *−40 | | −20 | HLP (HM) | VG 22 VG 15 | Mobil D.T.E 11M | Shell Tellus T15 | ISOFLEX MT 30 ROT | | |
| BS | 0 | 标准 | +40 | CLP (CC) | VG 680 | Mobilgear 636 | Shell Omala 680 | Klüberoil GEM 1−680 | Optigear BM 680 | Renolin CLP 680 |
| | −20 | | +60 | CLP PG | VG 680 1) | Mobil Glygoyle HE 680 | | Klübersynth Gh 6−680 | | |
| | *−30 | | +80 | | VG 460 | Mobil SHC 634 | Shell Omala 460 HD | Klübersynth GEM 4−460 | | |
| | *−40 | | +10 | CLP PHC | VG 150 | Mobil SHC 629 | | Klübersynth GEM 4−150 | | |
| | −20 | | +10 | CLP (CC) | VG 150 VG 100 | Mobil D.T.E 18M | Shell Omala 100 | Klüberoil GEM 1−150 | Optigear BM 100 | Renolin CLP 150 |
| | −25 | | +20 | CLP PG | VG 220 1) | Mobil Glygoyle 30 | | Klübersynth GH 6−220 | Optiflex A 220 | |
| | *−40 | | 0 | CLP HG | VG 32 | Mobil SHC 624 | | Klübersynth GEM 4−32 | | |
| BR BK BF BS | *−30 | | +40 | HCE | VG 460 4) | | Shell Cassida Fluid GL 460 | Klüberoil 4UH1−460 | Optileb GT 460 | |
| | −20 | 标准 | +40 | E | VG 460 5) | | | Klüberbio CA2−460 | Optisynt BS 460 | |
| BF27 BR17 BR27 | −25 | | +60 | 润滑脂 DIN 51181 | 00 2) | Glygoyle Grease 00 | Shell Tivela Compound A | Klübersynth GE 46−1200 | Multifak 6833EP 00 | |
| | −15 | | +40 | | 000−0 2) | Mobilux EP 004 | Shell Alvania GL 00 | | Multifak EP 000 | Longtime PD 00 | Renolin SF 7−041 |

| ARAL | BP | Tribol |
|---|---|---|
| Aral Degol Bg220 | BP Energol GR−Xp220 | Tribol 1100/220 |
| Aral Degol Gs220 | BP Energol SR−Xp220 | Tribol 800/220 |
| Aral Degol PAS220 | | Tribol 1510/200 |
| Aral Degol Bg100 | BP Energol GR−Xp100 | Tribol 1000/100 |
| Aral Degol Bg46 | | Tribol 1100/68 |
| | | |
| | BP Energol HLP−HM10 | |
| Aral Degol Bg680 | BP Energol GR−Xp680 | Tribol 1100/680 |
| | BP Enersyn SG−Xp680 | Tribol 800/680 |
| Aral Degol Bg100 | BP Energol GR−Xp100 | Tribol 1100/100 |
| | | Tribol 800/220 |
| Aral Eural Bear 460 | | |
| Aralub MFL 00 | BP Energrease LS−EP 00 | |

CLPPG=聚二醇类
CLP HC=碳氢化合物类
E=二元酸脂合成油
HCE=碳氢化合物十二脂油

CLP=矿物油
HLP=液压油

CLP:Petrolatam oil
HLP:Hydraulic pressure oil
KBTS/Ga/Vi

1)用PG油的斜齿轮蜗杆减速机请和公司联系
2)低粘度油脂，其它型号减速机请和公司联系
3)食品饮料行业用油(食品级油)
4)生物降解油(用于农业，林业和水工业)
*低温时起动要求高

=合成润滑油 Synthetic lubricant
=矿物润滑油 Mineral lubricant

1)With the Helical−worm geared motors use PG oil. Please contact with company
2)Small conglutination index oil, other types of reducers. Please contact with company.
3)Food or beverage industry used oil.
4)biology decompose oil.
*−High request when start−up in low temperature.

## 加油量 Lubricant fill quantities

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，最有效是检查油位塞，因为它指示精确注油量。
The specified fill quantities are recommended values. The precise vary depending on the number of stages and gear ratio. When filling, it is essential to check the oil level plug since it indicates the precise oil capacity.

### 斜齿轮减速器(BR系列) Helical gear units(BR..)

下表按安装位置M1–M16,给出了注油量的参考值。
The following tables show referenced values for lubricant fill quantities in relation to 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 |
| BR17/R17F | 0.25 | 0.6 | 0.35 | 0.6 | 0.35 | 0.35 |
| BR27/R27F | 0.25/0.4 | 0.7 | 0.4 | 0.7 | 0.4 | 0.4 |
| BR37/R37F | 0.3/1 | 0.9 | 1 | 1.1 | 0.8 | 1 |
| BR47/R47F | 0.7/1.5 | 1.6 | 1.5 | 1.7 | 1.5 | 1.5 |
| BR57/R57F | 0.8/1.7 | 1.9 | 1.7 | 2.1 | 1.7 | 1.7 |
| BR67/R67F | 1.1/2.3 | 2.6/3.5 | 2.8 | 3.2 | 1.8 | 2 |
| BR77/R77F | 1.2/3 | 3.8/4.3 | 3.6 | 4.3 | 2.5 | 3.4 |
| BR87/R87F | 2.3/6 | 6.7/8.4 | 7.2 | 7.7 | 6.3 | 6.5 |
| BR97 | 4.6/9.8 | 11.7/14 | 11.7 | 13.4 | 11.3 | 11.7 |
| BR107 | 6/13.7 | 16.3 | 16.9 | 19.2 | 13.2 | 15.9 |
| BR137 | 10/25 | 28 | 29.5 | 31.5 | 25 | 25 |
| BR147 | 15.4/40 | 46.5 | 48 | 52 | 39.5 | 41 |
| BR167 | 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 |
| BRF17 | 0.25 | 0.6 | 0.35 | 0.6 | 0.35 | 0.35 |
| BRF27 | 0.25/0.4 | 0.7 | 0.4 | 0.7 | 0.4 | 0.4 |
| BRF37 | 0.4/1 | 0.9 | 1 | 1.1 | 0.8 | 1 |
| BRF47 | 0.7/1.5 | 1.6 | 1.5 | 1.7 | 1.5 | 1.5 |
| BRF57 | 0.8/1.7 | 1.8 | 1.7 | 2 | 1.7 | 1.7 |
| BRF67 | 1.1/2.5 | 2.7/3.6 | 2.7 | 3.1 | 1.9 | 2.1 |
| BRF77 | 1.2/2.6 | 3.8/4.1 | 3.3 | 4.1 | 2.4 | 3 |
| BRF87 | 2.4/6 | 6.8/7.9 | 7.1 | 7.7 | 6.3 | 6.4 |
| BRF97 | 5.1/10.2 | 11.9/14 | 11.2 | 14 | 11.2 | 11.8 |
| BRF107 | 6.3/14.9 | 15.9 | 17 | 19.2 | 13.1 | 15.9 |
| BRF137 | 9.5/25 | 27 | 29 | 32.5 | 25 | 25 |
| BRF147 | 16.4/42 | 47 | 48 | 52 | 42 | 42 |
| BRF167 | 26/70 | 82 | 78 | 88 | 65 | 71 |

1)多级减速机中较大的减速机须注较多的油量。
The output end gear unit of multi–stage gear units be filled with the larger oil volume.

| 减速器型号 Gear unit type | 注油量(升) Fill quantity(L) | | | | | |
|---|---|---|---|---|---|---|
| | M1 | M2 | M3 | M4 | M5 | M6 |
| BRX57 | 0.6 | 0.8 | 1.3 | 1.3 | 0.9 | 0.9 |
| BRX67 | 0.8 | 0.8 | 1.7 | 1.9 | 1.1 | 1.1 |
| BRX77 | 1.1 | 1.5 | 2.6 | 2.7 | 1.6 | 1.6 |
| BRX87 | 1.7 | 2.5 | 4.8 | 4.8 | 2.9 | 2.9 |
| BRX97 | 2.1 | 3.4 | 7.4 | 7 | 4.8 | 4.8 |
| BRX107 | 3.9 | 5.6 | 11.6 | 11.9 | 7.7 | 7.7 |

| 减速器型号 Gear unit type | 注油量(升) Fill quantity(L) | | | | | |
|---|---|---|---|---|---|---|
| | M1 | M2 | M3 | M4 | M5 | M6 |
| BRX57 | 0.5 | 0.8 | 1.1 | 1.1 | 0.7 | 0.7 |
| BRX67 | 0.7 | 0.8 | 1.5 | 1.7 | 1 | 1 |
| BRX77 | 0.9 | 1.5 | 2.4 | 2.5 | 1.6 | 1.6 |
| BRX87 | 1.6 | 2.5 | 4.9 | 4.7 | 2.9 | 2.9 |
| BRX97 | 2.1 | 3.6 | 7.1 | 7 | 4.8 | 4.8 |
| BRX107 | 3.1 | 5.9 | 11.2 | 10.5 | 7.2 | 7.2 |







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

BF..,BFA..B,BFH..B,BFV..B

| 减速器型号 Gear unit type | 注油量(升) Fill quantity(L) | | | | | |
|---|---|---|---|---|---|---|
| | M1 | M2 | M3 | M4 | M5 | M6 |
| BF37 | 1 | 1.2 | 0.7 | 1.2 | 1 | 1.1 |
| BF47 | 1.5 | 1.8 | 1.1 | 1.9 | 1.5 | 1.7 |
| BF57 | 2.6 | 3.7 | 2.1 | 3.5 | 2.8 | 2.9 |
| BF67 | 2.7 | 3.8 | 1.9 | 3.8 | 2.9 | 3.2 |
| BF77 | 5 | 7.3 | 4.3 | 8 | 6 | 6.3 |
| BF87 | 10 | 13.0 | 7.7 | 13.8 | 10.8 | 11 |
| BF97 | 18.5 | 22.5 | 12.6 | 25.2 | 18.5 | 20 |
| BF107 | 24.5 | 32 | 19.5 | 37.5 | 27 | 27 |
| BF127 | 40.5 | 55 | 34 | 61 | 46.5 | 47 |
| BF157 | 69 | 104 | 63 | 105 | 86 | 78 |

BFF..

| 减速器型号 Gear unit type | 注油量(升) Fill quantity(L) | | | | | |
|---|---|---|---|---|---|---|
| | M1 | M2 | M3 | M4 | M5 | M6 |
| BFF37 | 1 | 1.2 | 0.7 | 1.3 | 1 | 1.1 |
| BFF47 | 1.6 | 1.9 | 1.1 | 1.9 | 1.5 | 1.7 |
| BFF57 | 2.8 | 3.8 | 2.1 | 3.7 | 2.9 | 3 |
| BFF67 | 2.7 | 3.8 | 1.9 | 3.8 | 2.9 | 3.2 |
| BFF77 | 5.1 | 7.3 | 4.3 | 8.1 | 6 | 6.3 |
| BFF87 | 10.3 | 13.2 | 7.8 | 14.1 | 11 | 11.2 |
| BFF97 | 19 | 22.5 | 12.6 | 25.5 | 18.9 | 20.5 |
| BFF107 | 25.5 | 32 | 19.5 | 38.5 | 27.5 | 28 |
| BFF127 | 41.5 | 56 | 34 | 63 | 46.5 | 49 |
| BFF157 | 72 | 105 | 64 | 106 | 87 | 79 |

BFA..,BFH..,BFV..,BFAF..,BFHF..,BFVF..,BFAZ..,BFHZ..,BFVZ

| 减速器型号 Gear unit type | 注油量(升) Fill quantity(L) | | | | | |
|---|---|---|---|---|---|---|
| | M1 | M2 | M3 | M4 | M5 | M6 |
| BF..37 | 1 | 1.2 | 0.7 | 1.2 | 1 | 1.1 |
| BF..47 | 1.5 | 1.8 | 1.1 | 1.9 | 15 | 1.7 |
| BF..57 | 2.7 | 3.8 | 2.1 | 3.6 | 2.9 | 3 |
| BF..67 | 2.7 | 3.8 | 1.9 | 3.8 | 2.9 | 3.2 |
| BF..77 | 5 | 7.3 | 4.3 | 8 | 6 | 6.3 |
| BF..87 | 10 | 13.0 | 77 | 13.8 | 10.8 | 11 |
| BF..97 | 18.5 | 22.5 | 12.6 | 25.0 | 18.5 | 20 |
| BF..107 | 24.5 | 32 | 19.5 | 37.5 | 27 | 27 |
| BF..127 | 39 | 55 | 34 | 61 | 45 | 46.5 |
| BF..157 | 68 | 103 | 62 | 104 | 85. | 77 |

斜齿轮–锥齿轮减速器(BK系列)
Helical–bevel Gear unit (BK..)

BK..,BKA..B,BKH..B,BKV..B

| 减速器型号 Gear unit type | 注油量(升) Fill quantity(L) | | | | | |
|---|---|---|---|---|---|---|
| | M1 | M2 | M3 | M4 | M5 | M6 |
| BK..37 | 0.5 | 1 | 1 | 1.3 | 1 | 1 |
| BK..47 | 0.8 | 1.3 | 1.5 | 2 | 1.6 | 1.6 |
| BK..57 | 1.2 | 2.3 | 2.5 | 3 | 2.6 | 2.4 |
| BK..67 | 1.1 | 2.4 | 2.6 | 3.4 | 2.6 | 2.6 |
| BK..77 | 2.2 | 4.1 | 4.4 | 5.9 | 4.2 | 4.4 |
| BK..87 | 3.7 | 8 | 8.7 | 10.9 | 7.8 | 8 |
| BK..97 | 7 | 14 | 15.7 | 20 | 15.7 | 15.5 |
| BK..107 | 10 | 21 | 25.5 | 33.5 | 24 | 24 |
| BK..127 | 21 | 41.5 | 44 | 54 | 40 | 41 |
| BK..157 | 31 | 62 | 6.5 | 90 | 58 | 62 |
| BK..167 | 35 | 100 | 100 | 125 | 85 | 85 |
| BK..187 | 60 | 170 | 170 | 205 | 130 | 130 |

BKF..

| 减速器型号 Gear unit type | 注油量(升) Fill quantity(L) | | | | | |
|---|---|---|---|---|---|---|
| | M1 | M2 | M3 | M4 | M5 | M6 |
| BKF37 | 0.5 | 1.1 | 1.1 | 1.5 | 1 | 1 |
| BKF47 | 0.8 | 1.3 | 1.7 | 2.2 | 1.6 | 1.6 |
| BKF57 | 1.3 | 2.3 | 2.7 | 3 | 2.9 | 2.7 |
| BKF67 | 1.1 | 2.4 | 2.8 | 3.6 | 2.7 | 2.7 |
| BKF77 | 2.1 | 4.1 | 4.4 | 6 | 4.5 | 4.5 |
| BKF87 | 3.7 | 8.2 | 9 | 11.9 | 8.4 | 8.4 |
| BKF97 | 7 | 14.7 | 17.3 | 21.5 | 15.7 | 16.5 |
| BKF107 | 10 | 22 | 26 | 35 | 25 | 25 |
| BKF127 | 21 | 41.5 | 46 | 55 | 41 | 41 |
| BKF157 | 31 | 66 | 69 | 92 | 62 | 62 |

BKA..,BKH..,BKV..,BKAF..,BKHF..,BKVF..,BKAZ..,BKHZ..,BKVZ

| 减速器型号 Gear unit type | 注油量(升) Fill quantity(L) | | | | | |
|---|---|---|---|---|---|---|
| | M1 | M2 | M3 | M4 | M5 | M6 |
| BK..37 | 0.5 | 1 | 1 | 1.4 | 1 | 1 |
| BK..47 | 0.8 | 1.3 | 1.6 | 2.1 | 1.6 | 1.6 |
| BK..57 | 1.3 | 2.3 | 2.7 | 3 | 2.9 | 2.7 |
| BK..67 | 1.1 | 2.4 | 2.7 | 3.6 | 2.6 | 2.6 |
| BK..77 | 2.1 | 4.1 | 4.6 | 6 | 4.4 | 4.4 |
| BK..87 | 3.7 | 8.2 | 8.8 | 11.1 | 8 | 8 |
| BK..97 | 7 | 14.7 | 15.7 | 20 | 15.7 | 15.7 |
| BK..107 | 10 | 20.5 | 24 | 32 | 24 | 24 |
| BK..127 | 21 | 41.5 | 43 | 52 | 40 | 40 |
| BK..157 | 31 | 66 | 67 | 87 | 62 | 62 |
| BK..167 | 35 | 100 | 100 | 125 | 85 | 85 |
| BK..187 | 60 | 170 | 170 | 205 | 130 | 130 |







斜齿轮–蜗轮蜗杆减速器(BS系列)
Helical–worm Gear units.(BS..)

BS..

| 减速器型号 Gear unit type | 注油量(升) Fill quantity(L) | | | | | |
|---|---|---|---|---|---|---|
| | M1 | M2 | M3[1)] | M4 | M5 | M6 |
| BS37 | 0.25 | 0.4 | 0.5 | 0.6 | 0.4 | 0.4 |
| BS47 | 0.35 | 0.8 | 0.7 | 1.1 | 0.8 | 0.8 |
| BS57 | 0.5 | 1.2 | 1 | 1.5 | 1.3 | 1.3 |
| BS67 | 1 | 2.0 | 2.2/3.1 | 3.2 | 2.6 | 2.6 |
| BS77 | 1.9 | 4.2 | 3.7/5.4 | 6 | 4.4 | 4.4 |
| BS87 | 3.3 | 8.1 | 6.9/10.4 | 12 | 8.4 | 8.4 |
| BS97 | 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。
The output end unit of multi–stage gear units must be filled with the larger oil volume.

BSF..

| 减速器型号 Gear unit type | 注油量(升) Fill quantity(L) | | | | | |
|---|---|---|---|---|---|---|
| | M1 | M2 | M3[1)] | M4 | M5 | M6 |
| BSF37 | 0.25 | 0.4 | 0.5 | 0.6 | 0.4 | 0.4 |
| BSF47 | 0.4 | 0.9 | 0.9 | 1.2 | 1.0 | 1 |
| BSF57 | 0.5 | 1.2 | 1 | 1.6 | 1.4 | 1.4 |
| BSF67 | 1 | 2.2 | 2.3/3 | 3.2 | 2.7 | 2.7 |
| BSF77 | 1.9 | 4.1 | 3.9/5.8 | 6.5 | 4.9 | 4.9 |
| BSF87 | 3.8 | 8 | 7.1/10.1 | 12 | 9.1 | 9.1 |
| BSF97 | 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。
The output end unit of multi–stage gear units must be filled with the larger oil volume.

BSA..,BSH..,BSAF..,BSHF..,BSAZ..,BSHZ.

| 减速器型号 Gear unit type | 注油量(升) Fill quantity(L) | | | | | |
|---|---|---|---|---|---|---|
| | M1 | M2 | M3[1)] | M4 | M5 | M6 |
| BS..37 | 0.25 | 0.4 | 0.5 | 0.6 | 0.4 | 0.4 |
| BS..47 | 0.4 | 0.8 | 0.7 | 1.1 | 0.8 | 0.8 |
| BS..57 | 0.5 | 1.1 | 1 | 1.6 | 1.2 | 1.2 |
| BS..67 | 1 | 2 | 1.8/2.6 | 2.9 | 2.5 | 2.5 |
| BS..77 | 1.8 | 3.9 | 3.6/5 | 5.9 | 4.5 | 4.5 |
| BS..87 | 3.8 | 7.4 | 6/8.7 | 11.2 | 8 | 8 |
| BS..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。
The output end unit of multi–stage gear units must be filled with the larger oil volume.