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DRIVE THE FUTURE

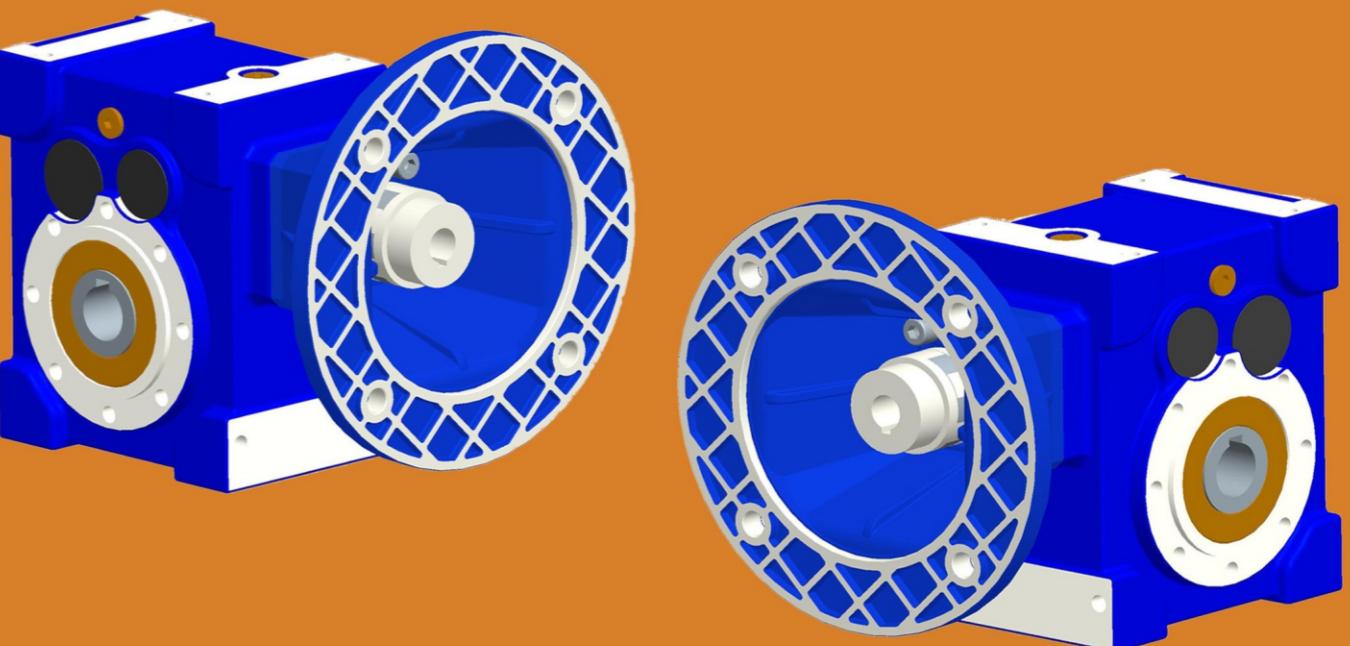


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## BH系列斜齿-准双曲面齿轮减速机 BH Series Hdlical-Hypoid Gear Reducer

广州欧特士传动设备有限公司  
Guangzhou Haitec Transmission Equipment Co.,Ltd



## 公司简介

广州欧特士传动设备有限公司是一家集科、工、贸于一体的新型现代化企业。

公司拥有雄厚的技术实力和先进的生产设备及工艺，累计多年意大利传动机械的制造经验，承接传动设备系统的设计、制造及售后的全套优质服务，保证了产品经久耐用、安全可靠、小型高效的精良品质。公司设计的传动设备配套用于食品、皮革、纺织、玻璃、陶瓷、医疗、化工、轻工等机械设备等行业，尤适用于各类自动线传动。

公司将凭着资源充足、质量保证、价格优惠、批量定货送货上门、外地定货代办托运原则，争取获得广大用户的好评。将国内这个行业里最优秀的企业作为我们追赶的对象，同时引用国外先进技术，提高我们公司的国内外市场竞争力。

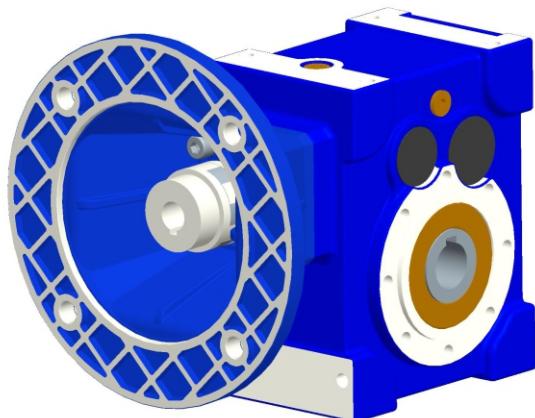
无论是现在还是将来，公司将以一流的人才、一流的技术、一流的产品、一流的服务、一流的待遇、一流的管理、一流的企业文化作为发展原则，我们的目标不是最好而为最好。

Haitec Transmission Equipment CO.,Ltd.is a modernized enterprise:

The company has excellent technological strengths and advanced production facilities and processes. It is capable of undertaking the full range of services from transmission system designs,productions to after-sales service. The company is also committed to product reliability,durability and efficiency. The transmission package designed by the company is used in the food,leather,textile,glass,pottery,medical,chemical and light industries and other machinery facilities; it is especially suitable for all types of automation line transmission.

We endeavor to earn accolades from our users and agencies through adequate supplies,quality assurances,competitive pricing, and doorstep delivery based on order quantity, and being an agency for overseas shipments. We aim to draw alongside the best in the industry within the country and to import advanced foreign technologies in order to enhance our company's local and overseas competitiveness.

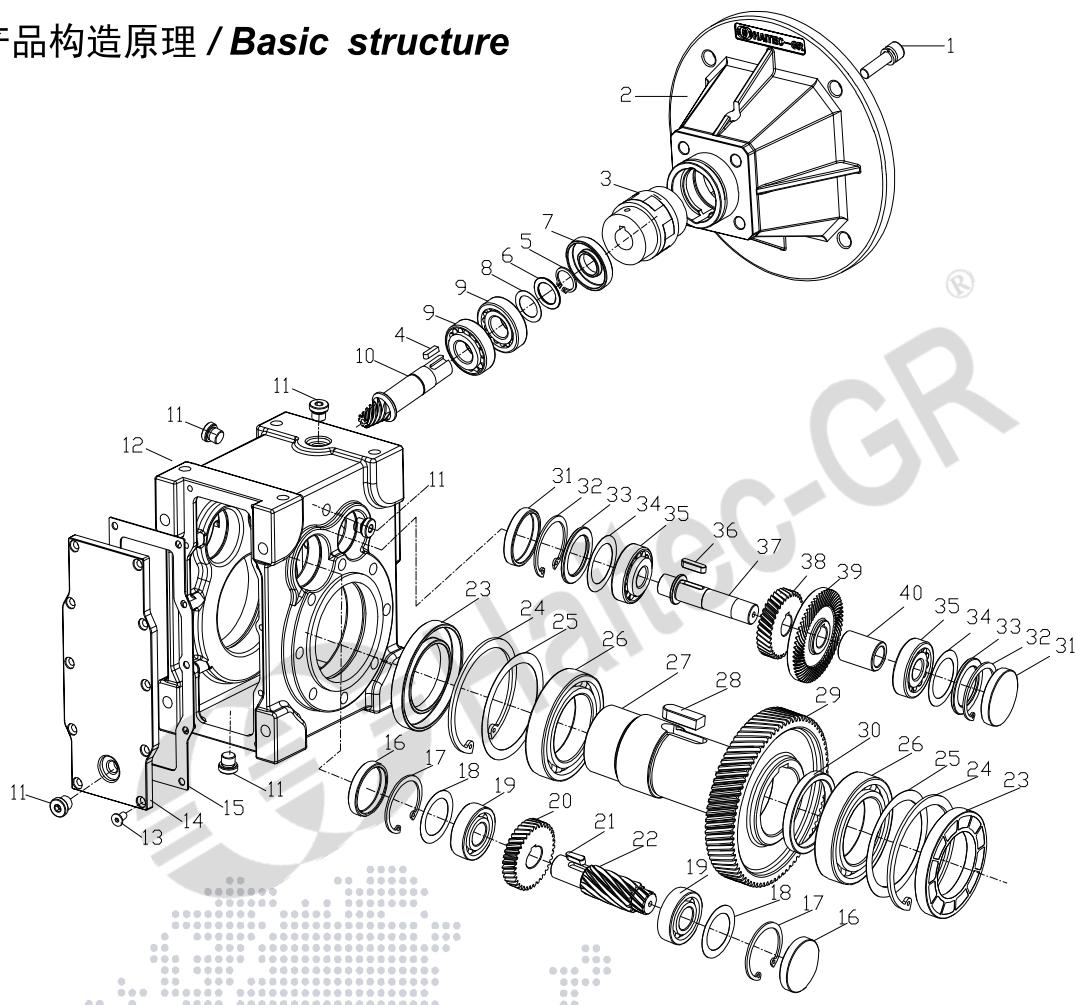
The company's current and development principles hinges on the best talent,technologies, products, services, remunerations, management and company culture.Better than the best is our goal.



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## 1. 产品构造原理 / Basic structure



1 内六角螺钉 / Inner Hex Screw	15 橡胶垫 / Rubber Gasket	29 从动齿轮 / Gear
2 输入法兰 / Input Flange	16 密封盖 / Sealing Cover	30 间隔套 / Spacer
3 联轴器 / Coupling	17 孔用挡圈 / Hole-circlip	31 密封盖 / Sealing Cover
4 键 / Key	18 调整垫片 / Shim Ring	32 孔用挡圈 / Hole-circlip
5 轴用挡圈 / Shaft-circlip	19 轴承 / Bearing	33 间隔套 / Spacer
6 间隔套 / Spacer	20 从动齿轮 / Gear	34 调整垫片 / Shim Ring
7 油封 / Oil Seal	21 键 / Key	35 轴承 / Bearing
8 调整垫片 / Shim Ring	22 主动齿轮轴 / Pinion Shaft	36 键 / Key
9 轴承 / Bearing	23 油封 / Oil Seal	37 传动轴 / Shaft
10 主动齿轮轴 / Driving Gear Shaft	24 孔用挡圈 / Hole-circlip	38 主动齿轮 / Pinion
11 油塞 / Oil Plug	25 调整垫片 / Shim Ring	39 从动齿轮 / Gear
12 齿轮箱体 / Gearcase	26 轴承 / Bearing	40 间隔套 / Spacer
13 内六角螺钉 / Inner Hex Screw	27 输出轴 / Hollow Shaft	
14 齿轮箱盖板 / Gearcase Cover	28 键 / Key	

## 2. 概述

### 2.1 产品特点

BH 系列斜齿-准双曲面齿轮减速器是我公司自主研发的新一代实用性产品、融合了国内外先进技术，具有以下一些主要特点：

- 1、采用准双曲面齿轮传动，传动比大；
- 2、输出扭矩大，传动效率高，节能环保；
- 3、优质铝合金铸造，重量轻，不生锈；
- 4、传动平稳，噪音小，适合在恶劣环境中长期连续工作；
- 5、美观耐用，体积小；
- 6、可适应全方位安装，应用广泛，使用方便；
- 7、BH 系列减速器安装尺寸与HMRV系列蜗轮蜗杆减速器完全兼容；

### 2.2 主要材料

- 1、外壳:铝合金(机座: 50-90)；
- 2、齿轮：40Cr，高频淬火，齿面硬度50-60HRC，精磨后保持高频厚度0.3-0.5mm；

### 2.3 表面涂装：

铝合金外壳：

- 1、表面兰皱喷粉处理。

## 2. SUMMARIZE

### 2.1 Products characteristics

BH series helical-hypoid gear units is a new generation of product developed by our company. with a compromise of advanced technology both at home and abroad, its main features are as follows:

1. Driven by hypoid gear, has big ratios.
2. Large in output torque, high efficiency, energy saving and environmental protection.
3. Made of high-quality aluminum alloy , light in weight and non-rusting.
4. Smooth in running and low in noise, can work long time in dreadful conditions
5. Good-looking in appearance, durable in service life and small in size.
6. Suitable for all round installation, wide application and easy to use.
7. The mounting dimension of BH series are compatible with HMRV series worm gear unit.

### 2.2 Main materials

1. Housing: die-cast aluminum alloy (frame size: 50 to 90);
2. gear wheel: 40Cr, high frequency quencher heat treatment make the hardness of gear's surface up to 50-60 HRC, retain high frequency layer's thickness between 0.3 and 0.5mm after precise grinding.

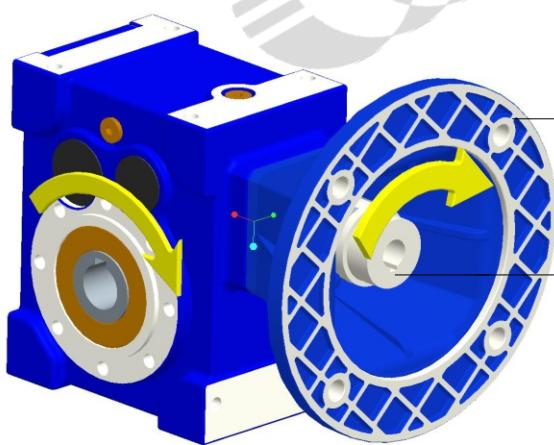
### 2.3 Surface painting

Aluminum alloy housing:

1. powder painting in blue color.

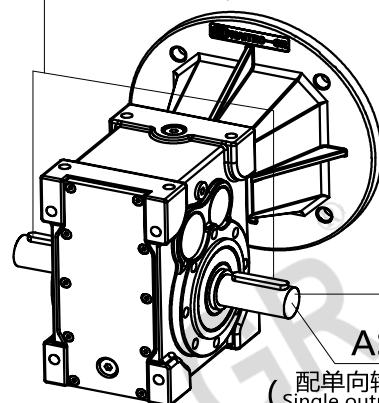
### 3. 型号注解 / Designation

BH	050	20	-160	/14	+AS	+FA
输入形式/ Input code name	减速器规格 代号/ Specification code of gear units	传动比/ Reduction ratio	输入法兰尺寸 /Input flange diameter	BH输入孔尺寸 /BH Drive shaft diameter	输出轴/ Output shaft	输出法兰/ Output flange
BH	050 063 075	7.5 10、12.5 15、20 25、30 40、50 60、75 100、125 150、200 250	105 120 140 160 200 250	11 14 19 24 28	AS AB	FA FB FC FD FE
Necessary (必要)	Necessary (必要)	Necessary (必要)	Optional (必选)	Optional (必选)	Optional (可选)	Optional (可选)

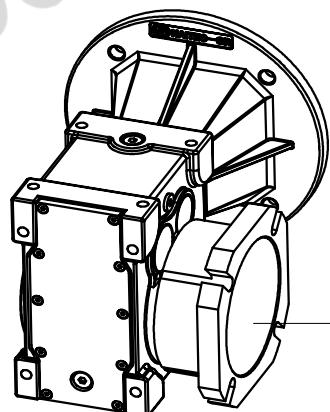


BH  
( 孔输入、带输入法兰式减速机 )  
( Reducer with hole and flange input )

AB ( 配双向输出轴 )



AS  
( 单向输出轴 )  
( Single output shaft )



订单时请说明是否带电机，一般按不带电机供应。

When ordering, you should show whether the reducers are equipped with motors, otherwise reducers aren't supplied with motors.

## 4. 选型相关参数

### 4.1 功率 P

$$P_1 = \frac{P_2}{\eta} (\text{kW})$$

$$P_{1n} \geq P_{1 \cdot f_s} (\text{kW})$$

**P<sub>1</sub>** 输入功率

**P<sub>2</sub>** 输出功率

**P<sub>1n</sub>** 电机额定功率

**f<sub>s</sub>** 使用系数

**η** 传动效率

BH系列减速器的效率为92%。

### 4.2 转速 n

**n<sub>1</sub>** 减速器输入转速  
**n<sub>2</sub>** 减速器输出转速

若是齿轮箱外部传动装置驱动，为了优化工作条件和提高使用寿命，建议使用1400r/min或更低转速；允许输入较高的转速，但这种情况下，额定扭矩M<sub>2</sub>会下降。

### 4.3 传动比 i

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

传动比通常为小数，在选型表中保留两位小数。

### 4.4 扭矩 M

$$M_2 = \frac{9550 \cdot P_1 \cdot \eta}{n_2} (\text{Nm})$$

$$M_{2n} \geq M_2 \cdot f_s (\text{Nm})$$

**M<sub>2</sub>** 输出扭矩

**M<sub>2n</sub>** 选用输出扭矩

**P<sub>1</sub>** 输入功率

**f<sub>s</sub>** 使用系数

**η** 传动效率

### 4.5 使用系数 f<sub>s</sub>

使用减速器时，应考虑一定的使用系数 f<sub>s</sub>，它是根据每天的运转时间和启停频率Z确定的。

## 4. RELEVANT PARAMETER

### 4.1 Power P

$$P_1 = \frac{P_2}{\eta} (\text{kW})$$

$$P_{1n} \geq P_{1 \cdot f_s} (\text{kW})$$

**P<sub>1</sub>** Input power

**P<sub>2</sub>** Output power

**P<sub>1n</sub>** Rated power driving motor

**f<sub>s</sub>** Service factor

**η** Transmission efficiency

The efficiency of BH gear units varies with the number of gear stages 92%

### 4.2 Rotation speed n

**n<sub>1</sub>** Gear units input speed  
**n<sub>2</sub>** Gear units output speed

If driven by the external gearing , 1400r/min or lower rotation speed is suggested so as to optimize the working conditions and prolong the service life. Higher input rotation speed is permitted , but in this situation, the rated torque M2 will be reduced.

### 4.3 Transmission ratio i

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

Usually Transmission ratio is decimal fraction with 2 radix point tagged in selection tables.

### 4.4 Torque M

$$M_2 = \frac{9550 \cdot P_1 \cdot \eta}{n_2} (\text{Nm})$$

$$M_{2n} \geq M_2 \cdot f_s (\text{Nm})$$

**M<sub>2</sub>** Output Torque

**M<sub>2n</sub>** Selected output Torque

**P<sub>1</sub>** Input power

**η** Transmission efficiency

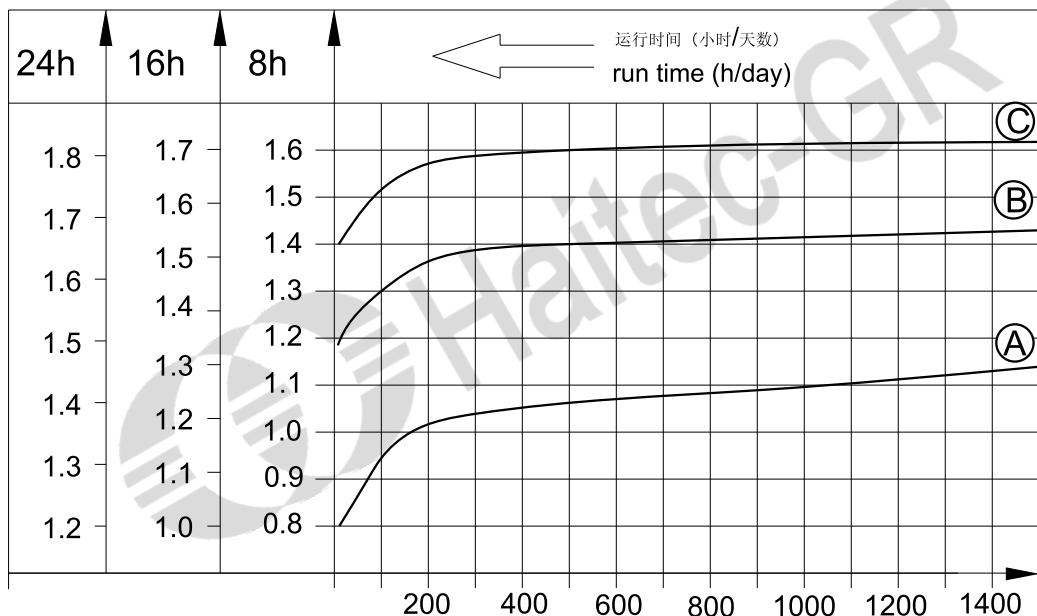
**f<sub>s</sub>** Service factor

### 4.5 Service factor f<sub>s</sub>

The effect of the driven machine on the gear unit is taken into account to a sufficient level of accuracy using the service factor f<sub>s</sub>. The service factor is determined according to the daily operating time and the starting frequency Z.

根据惯性加速系数确定三种负载类型，在下图中可以读取实际应用的使用系数，按下图选取的使用系数必须小于或等于从性能参数表中提供的使用系数。

Three load classifications are considered depending on the mass acceleration factor. You can read off the service factor applicable to your application in following figure. The service factor selected using this diagram must be less than or equal to the service factor as given in the performance parameter table.



图：使用系数 (fs)

Fig : Service factor (fs)

# 启动频率Z：周期包括所有启动、制动的次数以及变速电机高低速变化时的次数。

图：启动频率Z (次/小时) #

Start up frequencyZ (1/h) #

# Starting frequencyZ :The cycles include all starting and braking procedures as well as change overs from low to high speed.

#### 4.5.1 负载类型

- (A) 均匀冲击负载，允许惯性加速系数  $f_a \leq 0.2$
- (B) 中等冲击负载，允许惯性加速系数  $f_a \leq 3$
- (C) 重冲击负载，允许惯性加速系数  $f_a \leq 10$

##### 负载类型：

轻负载的螺杆输送，风扇，装备线，输送带，小型搅拌机，电梯，清洗机器，过滤器，控制驱动。

卷扬机，木工机械进料器，货物起重机，平衡器，绞螺纹机器，中型搅拌器，重型输送带，绞盘，滑动闸门，刮料机，包装机械，混凝土搅拌机，行车驱动装置，铣床，齿轮泵。

大型搅拌器，剪床，压机，离心机，旋转支撑装置，重型绞盘和起重机，磨床，石材打磨机，翻斗机，钻床，冲床，凸轴压机，锯床，机床转盘，翻桶装置，震荡装置，破碎机。

#### 4.5.1 Load classification

- (A) Uniform, permitted mass acceleration factor  $f_a \leq 0.2$
- (B) Moderate shock load,permitted mass acceleration factor  $f_a \leq 3$
- (C) Heavy shock load,permitted mass acceleration factor  $f_a \leq 10$

##### Load classifications:

Screw feeders for light materials, fans, assembly lines, conveyor belts for light materials, small mixers, lifts, cleaning machines, fillers, control machines.

Winding devices, woodworking machine feeders, goods lifts, balancers, threading machines, medium mixers, conveyor belts for heavy materials, winches, sliding doors, fertilizer scrapers, packing machines, concrete mixers, crane mechanisms, milling cutters, folding machines, gear pumps.

Mixers for heavy materials, shears, presses, centrifuges, rotating supports, winches and lifts for heavy materials, grinding lathes, stone mills, bucket elevators, drilling machines, hammer mills, cam presses, folding machines, turntables, tumbling barrels, vibrators, shredders.

#### 4.5.2 惯性加速系数

惯性加速系数计算如下：

$$f_a = \frac{J_c}{J_m}$$

$f_a$  惯性加速系数

$J_c$  所有外部传动惯量 ( $\text{kgm}^2$ )

$J_m$  驱动电机的传动惯量 ( $\text{kgm}^2$ )

如果惯性加速系数  $f_a > 10$ , 请与我们技术部联系。

为了保证减速器的使用寿命, 从产品样本中的性能参数表所选择的使用系数  $f_s$  应等于或略高于计算出的使用系数  $f_s$ 。

举例：

惯性加速系数2.5 (负载类型B), 运行时间14小时/天, (按16小时/天查图) 和每小时200次启停, 查图得使用系数为  $f_s=1.48$ 。根据性能参数表所选择的使用系数  $f_s \geq 1.48$ 。

#### 4.6 径向载荷和轴向载荷

在确定影响径向载荷时, 必须考虑安装在轴端上的传动件类型。不同类型的传动件的传动附加系数  $f_z$  列表如下:

传动件 Transmission element	传动附加系数 $F_z$ Transmission element factor $F_z$	注释 Comments
齿轮 Gears	1.15	< 17 齿 teeth
链轮 Chain sprockets	1.25	< 20 齿 teeth
	1.40	< 13 齿 teeth
V带轮 Narrow V-belt pulleys	1.75	有预紧力作用 influence of the tensile force
平带轮 Flat belt pulleys	2.50	有预紧力作用 influence of the tensile force
齿带轮 Toothed belt pulleys	2.50	有预紧力作用 influence of the tensile force

作用在电机和齿轮轴上的径向载荷按如下公式计算：

$$F_r = \frac{M \cdot 2000 \cdot f_z}{d_o} (\text{N})$$

$F_r$  作用在轴上的载荷 (N)

$M$  作用在轴上的扭矩 (Nm)

$d_o$  安装在轴上传动件的平均直径 (mm)

$f_z$  传动附加系数

#### 4.5.2 Mass acceleration factor

The mass acceleration factor is calculated as follows :

$$f_a = \frac{J_c}{J_m}$$

$f_a$  Mass acceleration factor

$J_c$  All external Mass moments of inertia ( $\text{kgm}^2$ )

$J_m$  Mass moment of inertia on the motor end ( $\text{kgm}^2$ )

If Mass acceleration factor  $f_a > 10$ , please call our technical service.

To keep the service-life of gear units, the use factor  $f_s$  selected from the catalogue must be equal or slightly higher than the calculated use factor  $f_s$ .

#### Example:

Mass acceleration factor 2.5(load classification B), 14 hours/day operating time (read off at 16h/d) and 200 cycles/hour result in a service factor  $f_s=1.48$ .

#### 4.6 Overhung loads and axial forces

When determining the resulting radial loads, the type of transmission elements, mounted on the shaft end must be considered. various transmission elements are corresponding with following transmission element factors  $f_z$ :

The overhung loads exerted on the motor or gear shaft is then calculated as follows :

$$F_r = \frac{M \cdot 2000 \cdot f_z}{d_o} (\text{N})$$

$F_r$  Resulting radial load [N]

$M$  Torque on the shaft [Nm]

$d_o$  Mean diameter of the mounted transmission element in [mm]

$f_z$  Transmission element factor

许用径向载荷是根据轴承额定使用寿命L10h 来估算的(根据ISO281)。对于特殊的运行条件, 许用径向载荷是根据修正使用寿命Lna来确定的。

当作用点偏离出轴中点时, 许用径向载荷须按以下公式来计算, 取在X点的许可数值F<sub>XL</sub> (根据轴承的使用寿命)

根据轴承的使用寿命公式 :

$$F_{XL} = F_{r(1,2)} \cdot \frac{a}{b+x} \text{ (N)}$$

$F_{r1}, F_{r2}$  = 性能参数表中的许用径向载荷 ( $X=L/2$ ) (N)

$X$  = 从轴肩到受力点的距离 (mm)

$a,b,$  = 减速器径向转化常量 (mm)

The basis for determining the permitted radial loads is the computation of the rated service life **L10h** of the bearings (according to ISO281). For special operating conditions, the permitted radial loads can be determined with regard to the modified service life **L<sub>na</sub>**.

The permitted radial loads given in the selection tables must be calculated using the following formula in the event of force application not in the center of the shaft end. The smaller of the two values  $F_{XL}$  (according to bearing service life)

according to bearing service life:

$$F_{XL} = F_{r(1,2)} \cdot \frac{a}{b+x} \text{ (N)}$$

$F_{r1}, F_{r2}$  = Permitted overhung load ( $X=L/2$ ) for foot mounted gear units according to the selection tables in [N]

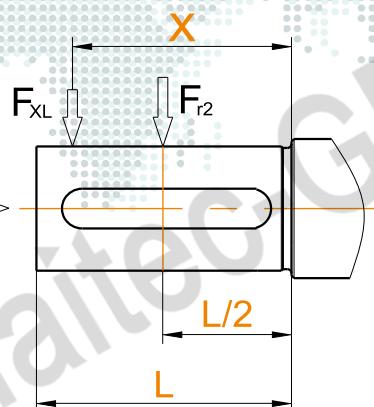
$X$  = Distance from the shaft shoulder to the force application point in [mm]

$a,b,$  = Gear unit constant for overhung load conversion [mm]

### 输出轴径向载荷/*Output shafts radial loads*

$F_{a2}$  = 输出轴向载荷  
Output axial loads

$$F_{a2} = F_{r2} \times 0.1$$



BH减速器径向转化常量  
BH Gear unit constants for overhung load conversion

	BH050	BH063	BH075
a	104	118	131
b	78	93	101

## 5. BH 减速机性能参数表 / Performance parameter

配4极 n<sub>1</sub>=1400r/min 电机 (With 4P, n<sub>1</sub>=1400r/min Motor)

P <sub>1n</sub> (KW)	n <sub>2</sub> (rpm)	M <sub>2n</sub> (N·m)	i 公称	i 实际	f <sub>s</sub>	减速器型 号	输入法兰 型号	电机转速 n <sub>1</sub> (rpm)
0.12	5.7	157	<b>250</b>	243.48	0.7	BH050	63B5	1400
	7	128	<b>200</b>	199.87	0.8			1400
	9.3	96	<b>150</b>	151.14	1			1400
	11.7	77	<b>125</b>	120.08	1.2			1400
	14.2	63	<b>100</b>	98.57	1.5			1400
	18.3	49	<b>75</b>	76.39	2			1400
	22.4	40	<b>60</b>	62.43	2.2			1400
	28.2	32	<b>50</b>	49.6	2.4			1400
	34.4	26	<b>40</b>	40.71	3.6			1400
	44.4	21	<b>30</b>	31.55	4.8			1400
	59.3	15	<b>25</b>	23.61	6			1400
	67.8	14	<b>20</b>	20.66	7			1400
	92.7	10	<b>15</b>	15.11	9.1			1400
	110.1	9	<b>12.5</b>	12.72	10.5			1400
	144	6	<b>10</b>	9.72	14			1400
0.18	186.7	5	<b>7.5</b>	7.5	14.3	BH063	63B5	1400
	5.6	160	<b>250</b>	247.99	0.9			1400
	7	128	<b>200</b>	200.44	1.2			1400
	9	100	<b>150</b>	155.62	1.5			1400
	11.2	80	<b>125</b>	125.45	1.9			1400
	13.8	65	<b>100</b>	101.4	2.2			1400
	18.1	49	<b>75</b>	77.24	2.5			1400
	22.8	39	<b>60</b>	61.52	2.5			1400
	26.9	32	<b>50</b>	52.1	2.6			1400
	32.6	26	<b>40</b>	42.9	5.5			1400
	43.2	21	<b>30</b>	32.4	7			1400
	14.2	95	<b>100</b>	98.57	1.1	BH050	63B5	1400
	18.3	74	<b>75</b>	76.39	1.3			1400
	22.4	62	<b>60</b>	62.43	1.6			1400
	28.2	50	<b>50</b>	49.6	1.8			1400
	34.4	41	<b>40</b>	40.71	2.4			1400
	44.4	31	<b>30</b>	31.55	3.2			1400
	59.3	24	<b>25</b>	23.61	4.1			1400
	67.8	21	<b>20</b>	20.66	4.7			1400
	92.7	15	<b>15</b>	15.11	6.5			1400
	110.1	13	<b>12.5</b>	12.72	7.8			1400
	144	10	<b>10</b>	9.72	9.2			1400
	186.7	8	<b>7.5</b>	7.5	9.6			1400

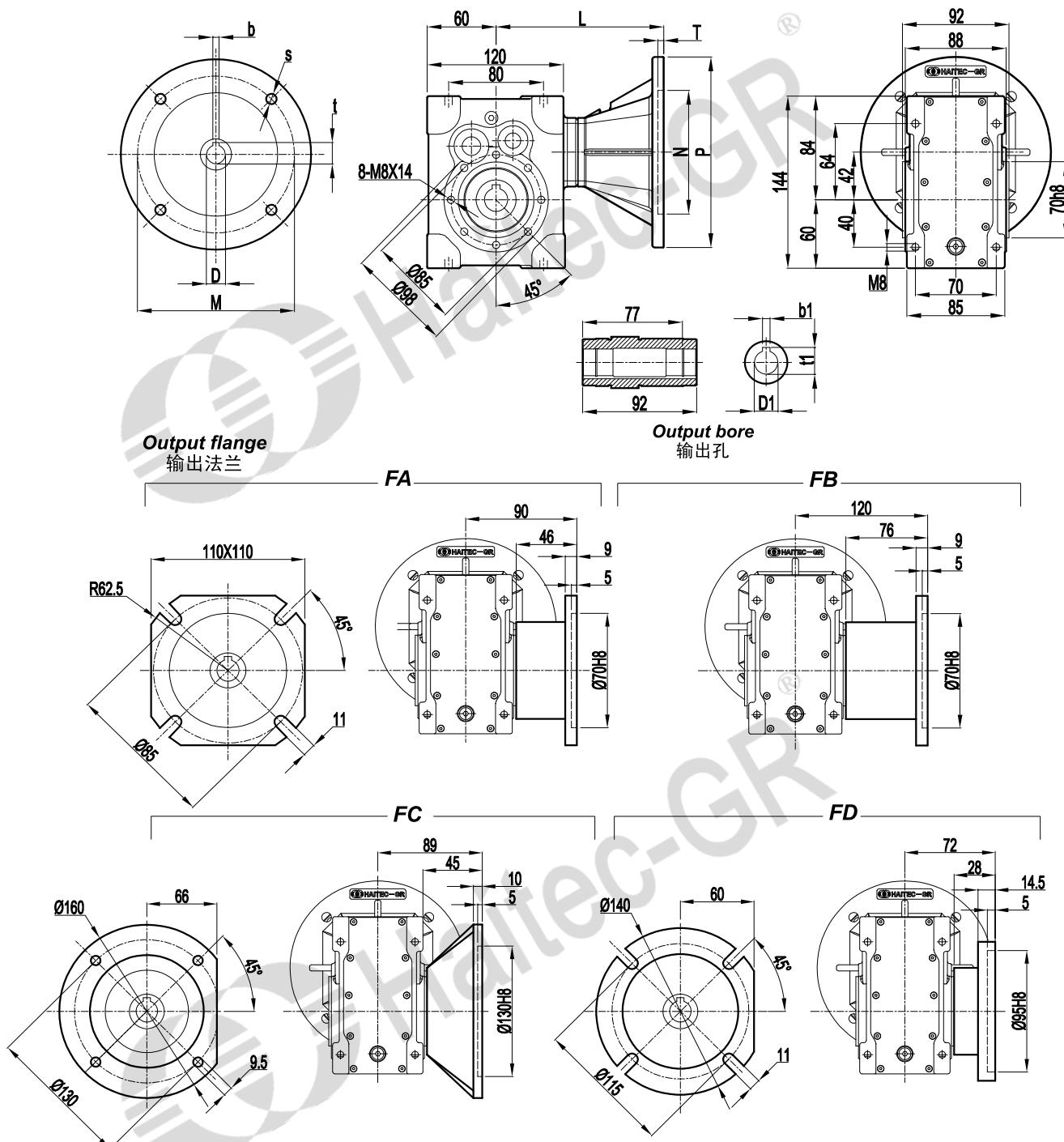
$P_{1n}$ (KW)	$n_2$ (rpm)	$M_{2n}$ (N · m)	i 公称	i 实际	f <sub>s</sub>	减速器 型 号	输入法兰 型 号	电机转速 $n_1$ (rpm)
0.18	9	150	150	155.62	1	BH063	63B5	1400
	11.2	120	125	125.45	1.1			1400
	13.8	98	100	101.4	1.5			1400
	18.1	74	75	77.24	1.6			1400
	22.8	59	60	61.52	1.8			1400
	26.9	49	50	52.1	1.8			1400
	32.6	40	40	42.9	2			1400
0.25	22.4	84	60	62.43	1	BH050	71B5	1400
	28.2	68	50	49.6	1.2			1400
	34.4	55	40	40.71	1.5			1400
	44.4	44	30	31.55	1.9			1400
	59.3	33	25	23.61	2.7			1400
	67.8	28	20	20.66	3.2			1400
	92.7	21	15	15.11	3.9			1400
0.37	13.8	135	100	101.4	1.1	BH063	71B5	1400
	18.1	103	75	77.24	1.1			1400
	22.8	82	60	61.52	1.2			1400
	26.9	68	50	52.1	1.3			1400
	32.6	55	40	42.9	1.6			1400
	43.2	42	30	32.4	2			1400
	5.7	327	250	246.37	0.7			1400
0.37	6.7	279	200	207.9	0.8	BH075	71B5	1400
	9.2	203	150	152.4	1.3			1400
	11.1	168	125	125.65	1.5			1400
	13.2	141	100	106.03	1.8			1400
	18.9	99	75	74.15	2.6			1400
	22.8	82	60	61.47	3			1400
	34.4	83	40	40.71	1.2			1400
0.37	44.4	64	30	31.55	1.5	BH050	71B5	1400
	59.3	48	25	23.61	1.9			1400
	67.8	40	20	20.66	2.2			1400
	92.7	31	15	15.11	2.5			1400
	110.1	26	12.5	12.72	2.8			1400
	144	20	10	9.72	2.8			1400
	186.7	15	7.5	7.5	3			1400

$P_{1n}$ (KW)	$n_2$ (rpm)	$M_{2n}$ (N · m)	i 公称	i 实际	$f_s$	减速器 型 号	输入法兰 型号	电机转速 $n_1$ (rpm)
0.37	22.8	122	<b>60</b>	61.52	1	BH063	71B5	1400
	26.9	100	<b>50</b>	52.1	1.1			1400
	32.6	81	<b>40</b>	42.9	1.4			1400
	43.2	62	<b>30</b>	32.4	1.5			1400
	52.1	48	<b>25</b>	26.9	1.8			1400
	65.1	42	<b>20</b>	21.5	2			1400
	11.1	249	<b>125</b>	125.65	1	BH075	71B5	1400
	13.2	209	<b>100</b>	106.03	1.2			1400
	18.9	146	<b>75</b>	74.15	1.6			1400
	22.8	122	<b>60</b>	61.47	2			1400
	27.6	102	<b>50</b>	50.68	2.5			1400
	32.7	87	<b>40</b>	42.77	2.7			1400
0.55	44.4	95	<b>30</b>	31.55	1	BH050	80B5	1400
	59.3	71	<b>25</b>	23.61	1.3			1400
	67.8	62	<b>20</b>	20.66	1.5			1400
	92.7	45	<b>15</b>	15.11	2			1400
	110.1	38	<b>12.5</b>	12.72	2.5			1400
	144	29	<b>10</b>	9.72	2.7			1400
	186.7	22	<b>7.5</b>	7.5	3			1400
	32.6	126	<b>40</b>	42.9	1.1	BH063	80B5	1400
	43.2	92	<b>30</b>	32.4	1.6			1400
	52.1	71	<b>25</b>	26.9	2			1400
	65.1	62	<b>20</b>	21.5	2.3			1400
	86.4	44	<b>15</b>	16.2	3.2			1400
	106.9	37	<b>12.5</b>	13.1	3.1			1400
	139.7	30	<b>10</b>	10.02	3			1400
	181.8	23	<b>7.5</b>	7.7	3.2			1400
0.75	18.9	256	<b>75</b>	74.15	1.2	BH075	80B5	1400
	22.8	212	<b>60</b>	61.47	1.4			1400
	27.6	179	<b>50</b>	50.68	1.7			1400
	32.7	151	<b>40</b>	42.77	2			1400
	46.8	105	<b>30</b>	29.91	2.4			1400
	56.3	88	<b>25</b>	24.88	2.7			1400
	67.8	89	<b>20</b>	20.66	1.1	BH050	80B5	1400
	92.7	66	<b>15</b>	15.11	1.6			1400

P <sub>1n</sub> (KW)	n <sub>2</sub> (rpm)	M <sub>2n</sub> (N · m)	i 公称	i 实际	f <sub>s</sub>	减速器型 号	输入法兰 型号	电机转速 n <sub>1</sub> (rpm)
0.75	106.9	55	<b>12.5</b>	13.1	1.9	BH063	80B5	1400
	139.7	43	<b>10</b>	10.02	2.3			1400
	181.8	33	<b>7.5</b>	7.7	2.4			1400
	43.2	132	<b>30</b>	32.4	1.2			1400
	52	103	<b>25</b>	26.9	1.5			1400
	65.1	89	<b>20</b>	21.5	1.8	BH063	80B5	1400
	86.4	64	<b>15</b>	16.2	2.3			1400
	106.9	54	<b>12.5</b>	13.1	2.4			1400
	139.7	43	<b>10</b>	10.02	2.3			1400
	181.8	33	<b>7.5</b>	7.7	2.4			1400
1.1	22.8	246	<b>60</b>	61.47	1	BH075	80B5	1400
	27.6	208	<b>50</b>	50.68	1.2			1400
	32.7	175	<b>40</b>	42.77	1.5			1400
	46.8	123	<b>30</b>	29.91	2			1400
	56.3	102	<b>25</b>	24.88	2.4			1400
	64.3	89	<b>20</b>	21.77	2.9			1400
	92.7	91	<b>15</b>	15.11	1	BH050	90B5	1400
	110.1	77	<b>12.5</b>	12.72	1.2			1400
	144	59	<b>10</b>	9.72	1.6			1400
	186.7	45	<b>7.5</b>	7.5	1.5			1400
	59.3	142	<b>25</b>	26.9	1	BH063	90B5	1400
	67.8	124	<b>20</b>	21.5	1.2			1400
	94.5	89	<b>15</b>	16.2	1.5			1400
1.5	112.3	75	<b>12.5</b>	13.1	1.5			1400
	139.7	61	<b>10</b>	10.02	16			1400
	181.8	46	<b>7.5</b>	7.7	1.6			1400
	32.7	257	<b>40</b>	42.77	1	BH075	90B5	1400
	46.8	180	<b>30</b>	29.91	1.4			1400
	56.3	149	<b>25</b>	24.88	1.7			1400
	64.3	131	<b>20</b>	21.77	2.3			1400
	89.2	95	<b>15</b>	15.69	2.6			1400
	108.8	78	<b>12.5</b>	12.87	2.9			1400

$P_{1n}$ (KW)	$n_2$ (rmp)	$M_{2n}$ (N·m)	i 公称	i 实际	f <sub>s</sub>	减速器 型 号	输入法兰 型 号	电机转速 $n_1$ (rpm)
1.5	86.4	156	<b>15</b>	16.2	1.1	BH063	90B5	1400
	106.9	102	<b>12.5</b>	13.1	1.1			1400
	139.7	82	<b>10</b>	10.02	1.2			1400
	181.8	63	<b>7.5</b>	7.7	1.2			1400
	46.8	245	<b>30</b>	29.91	1.1			1400
	56.3	203	<b>25</b>	24.88	1.3	BH075	90B5	1400
	64.3	178	<b>20</b>	21.77	1.5			1400
	89.2	128	<b>15</b>	15.69	1.8			1400
	108.8	105	<b>12.5</b>	12.87	2.4			1400
	131.3	88	<b>10</b>	10.66	2.7			1400
2.2	180.4	64	<b>7.5</b>	7.76	3	BH075	100B5	1400
	89.2	188	<b>15</b>	15.69	1.2			1400
	108.8	155	<b>12.5</b>	12.87	1.5			1400
	131.3	128	<b>10</b>	10.66	1.7			1400
3	180.4	88	<b>7.5</b>	7.76	1.9	BH075	100B5	1400
	108.8	211	<b>12.5</b>	12.87	1.2			1400
	131.3	174	<b>10</b>	10.66	1.4			1400
	180.4	127	<b>7.5</b>	7.76	1.6			1400

## 6. 产品外型尺寸图表 / OUTLINE DIMENSION SHEET

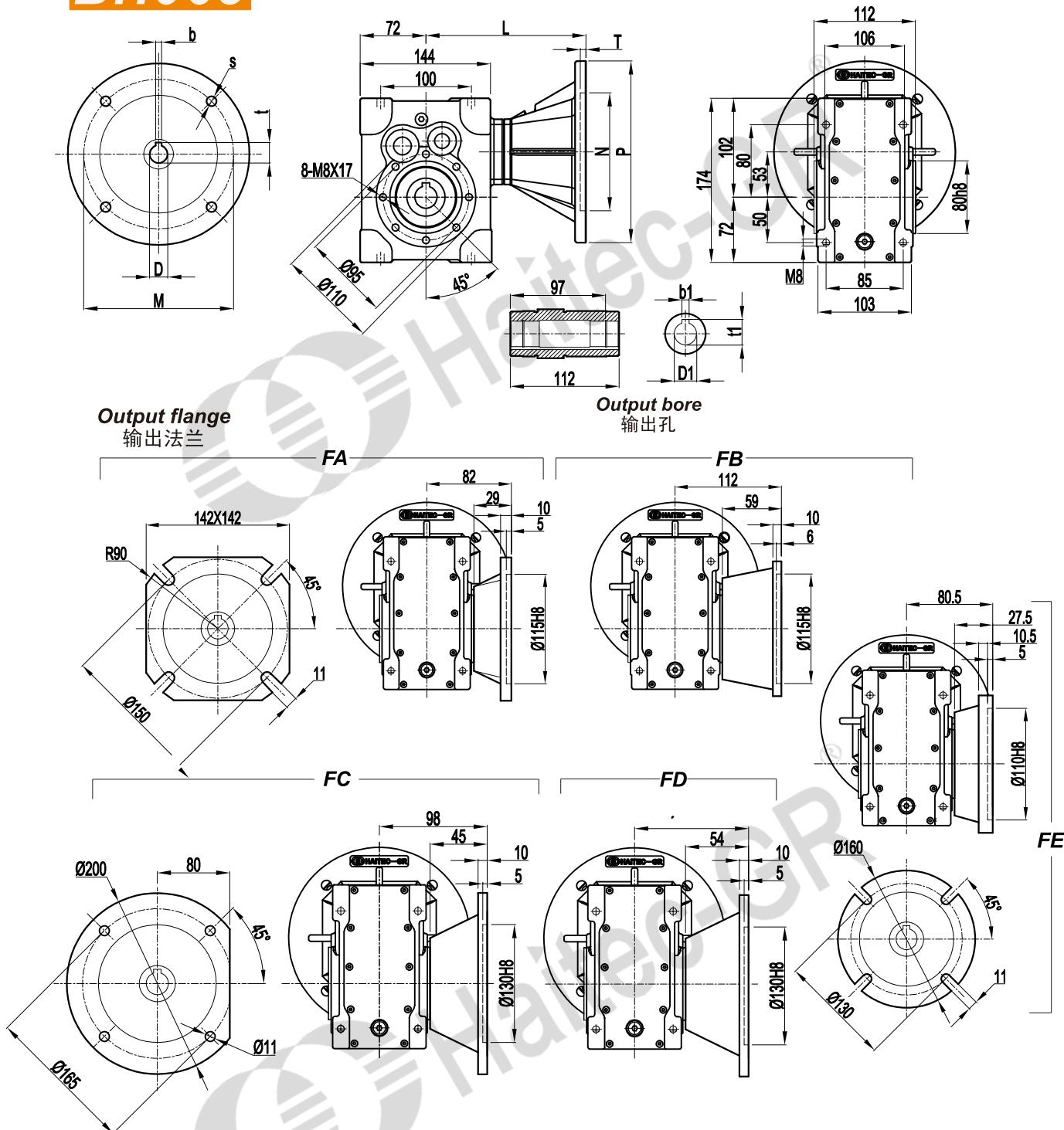
**BH050**

IEC	DE8	b	t	P	M	N	S	T	L	D1H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	117	25	8	28.3
71B5	14	5	16.3	160	130	110	9	4	124	25	8	28.3
71B14	14	5	16.3	105	85	70	7	4	124	25	8	28.3
80B5	19	6	21.8	200	165	130	11	4	144			
80B14	19	6	21.8	120	100	80	7	4	144			
90B14	24	8	27.3	140	115	95	9	4	144			

※ 非标产品，订单时请说明  
※ Only on request

重量 (不含马达)  
≈4.9kg  
Weight without motor  
≈4.9kg

**BH063**

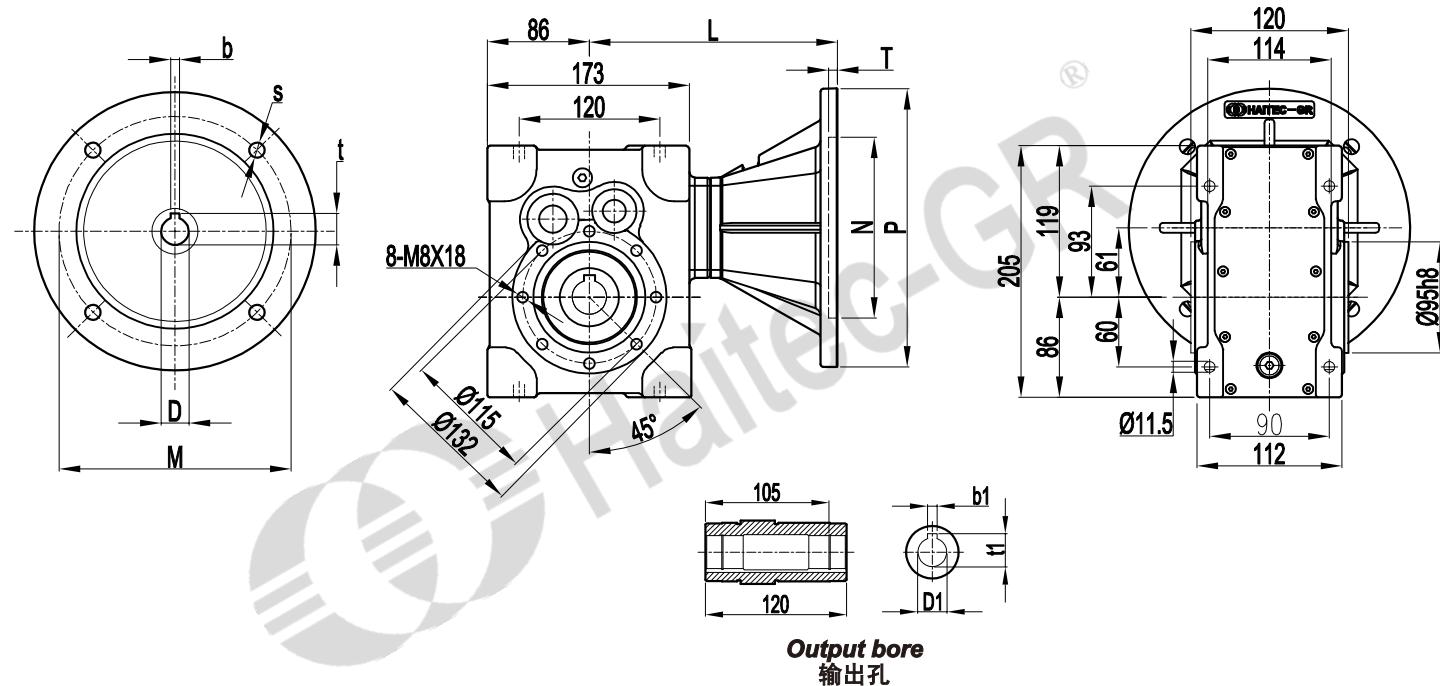


IEC	DE8	b	t	P	M	N	S	T	L	D1H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	150	25	8	28.3
71B5	14	5	16.3	160	130	110	9	4	158	25	8	28.3
71B14	14	5	16.3	105	85	70	7	4	158	25	8	28.3
80B5	19	6	21.8	200	165	130	11	4	168			
80B14	19	6	21.8	120	100	80	7	4	168			
90B5	24	8	27.3	200	165	130	11	4	178			
90B14	24	8	27.3	140	115	95	9	4	178			

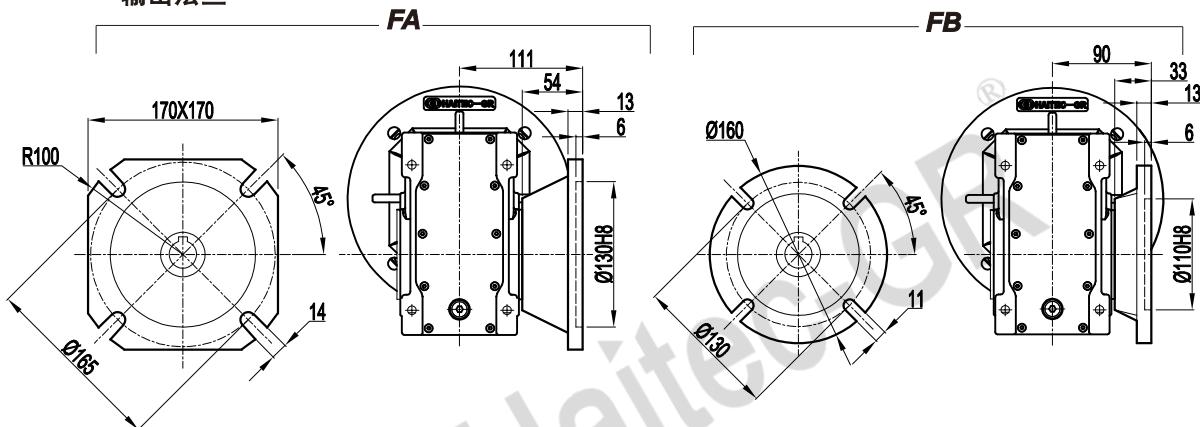
※ 非标产品，订单时请  
说明  
※ Only on request

重量 (不含马达)  
≈6.6kg  
Weight without motor  
≈6.6kg

# BH075



**Output flange**  
输出法兰



IEC	DE8	b	t	P	M	N	S	T	L	D1H8	b1	t1
63B5	11	4	12.8	140	115	95	9	4	151	28	8	31.3
71B5	14	5	16.3	160	130	110	9	4	158	28	8	31.3
80B5	19	6	21.8	200	165	130	11	4	178	28	8	31.3
80B14	19	6	21.8	120	100	80	7	4	178			
90B5	24	8	27.3	200	165	130	11	4	178			
90B14	24	8	27.3	140	115	95	9	4	178			
100/112B5	28	8	31.3	250	215	180	13.5	4.5	188			
100/112B14	28	8	31.3	160	130	110	9	4.5	188			

\* 非标产品，订单时请说明

\* Only on request

重量 (不含马达)

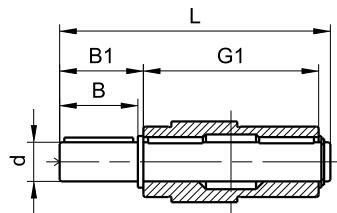
≈10.6kg

Weight without motor

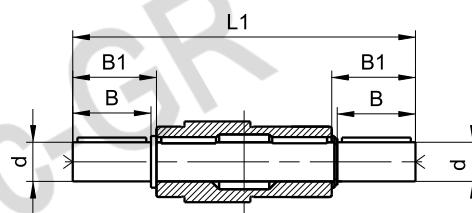
≈10.6kg

## 7. 附件尺寸图表 / ACCESSORIES OUTLINE DIMENSION SHEET

### 7.1 输出轴 / Output Shafts



AS



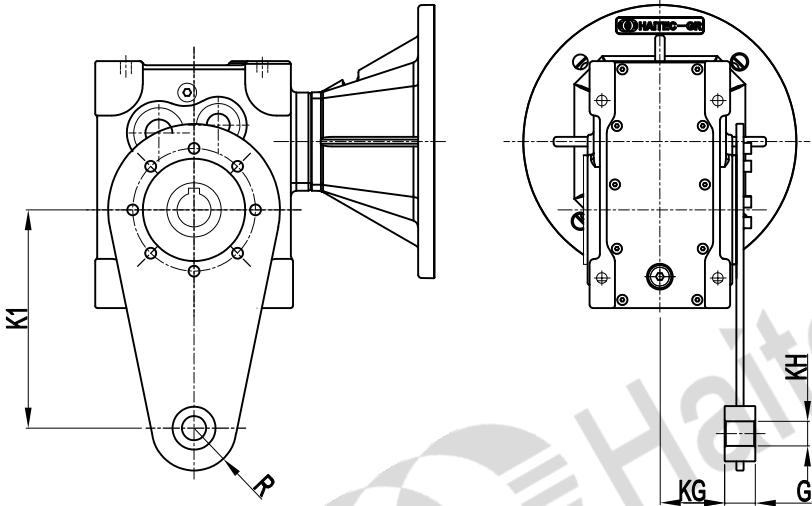
AB

	<b>d<sub>h6</sub></b>	<b>B</b>	<b>B<sub>1</sub></b>	<b>G<sub>1</sub></b>	<b>L</b>	<b>L<sub>1</sub></b>	<b>f</b>	<b>b<sub>1</sub></b>	<b>t<sub>1</sub></b>
BH050	25	50	53.5	92	153	199	M10	8	28
BH063	25	50	53.5	112	173	219	M10	8	28
BH075	28	60	63.5	120	192	247	M10	8	31

\* 非标产品，订单时请说明

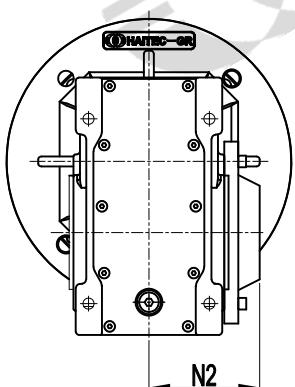
\* Only on request

### 7.2 扭力臂 / Torque Arm



	<b>K1</b>	<b>G</b>	<b>KG</b>	<b>KH</b>	<b>R</b>
BH050	100	14	38.5	10	18
BH063	150	14	49	10	18
BH075	200	25	47.5	20	30

### 7.3 防尘盖 / Side cover

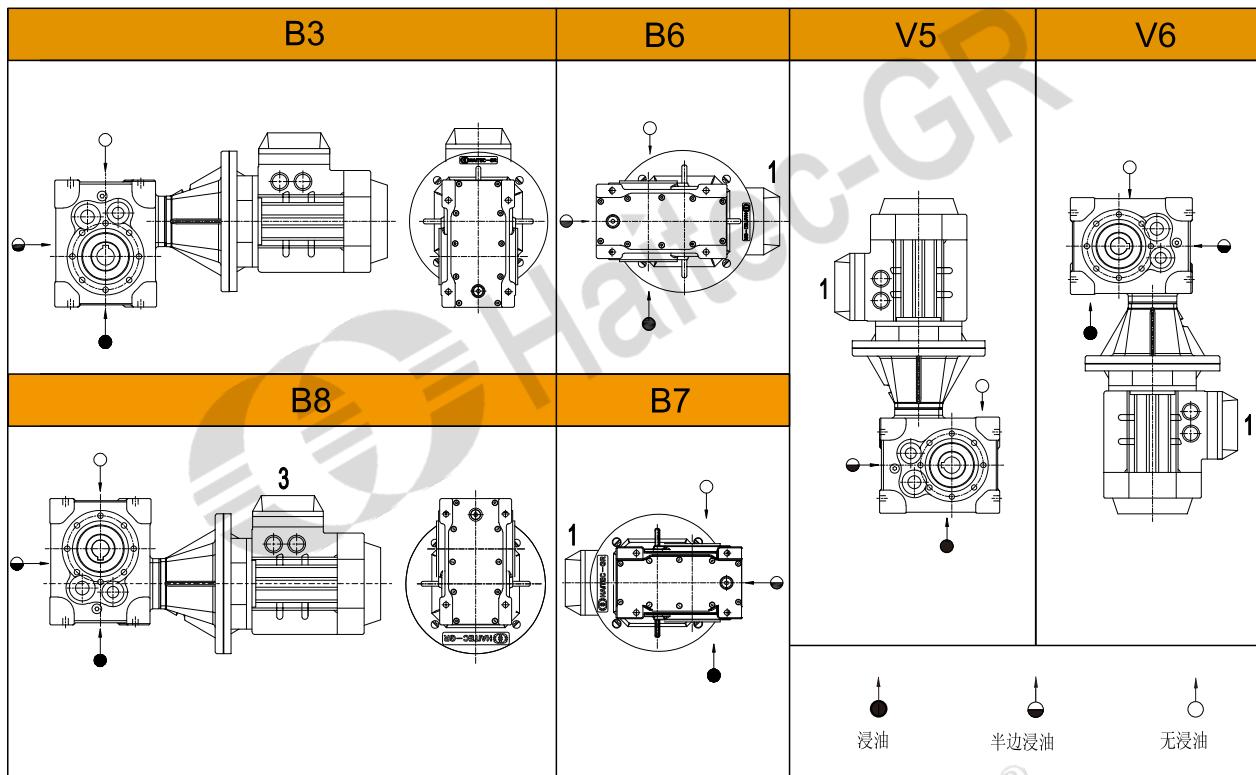


	<b>N2</b>
BH050	58.5
BH063	69
BH075	74

## 8. 安装方位图 / **INSTALLATION POSITIONS DIAGRAM**

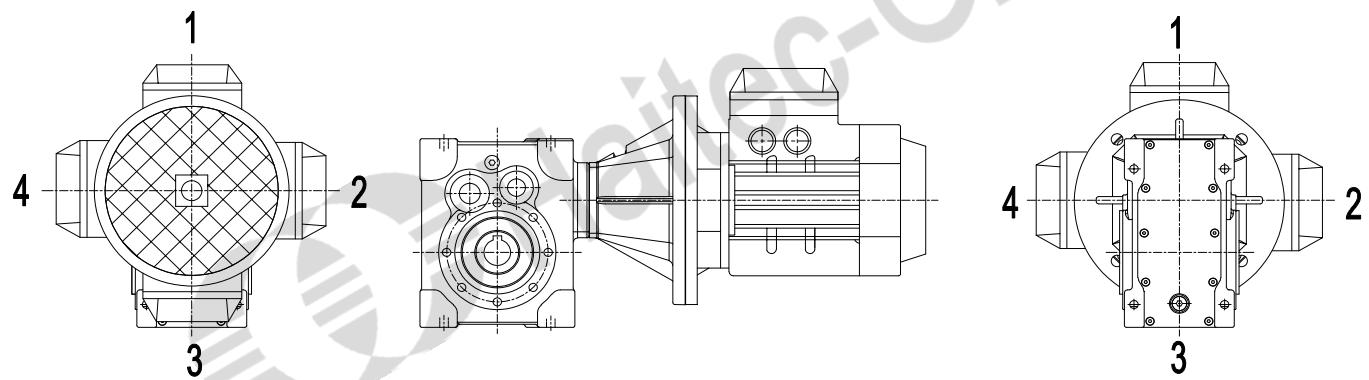
### 8.1 BH 安装方位

#### **BH Mounting positions**



### 8.2 接线盒位置

#### **Positions of terminal box**

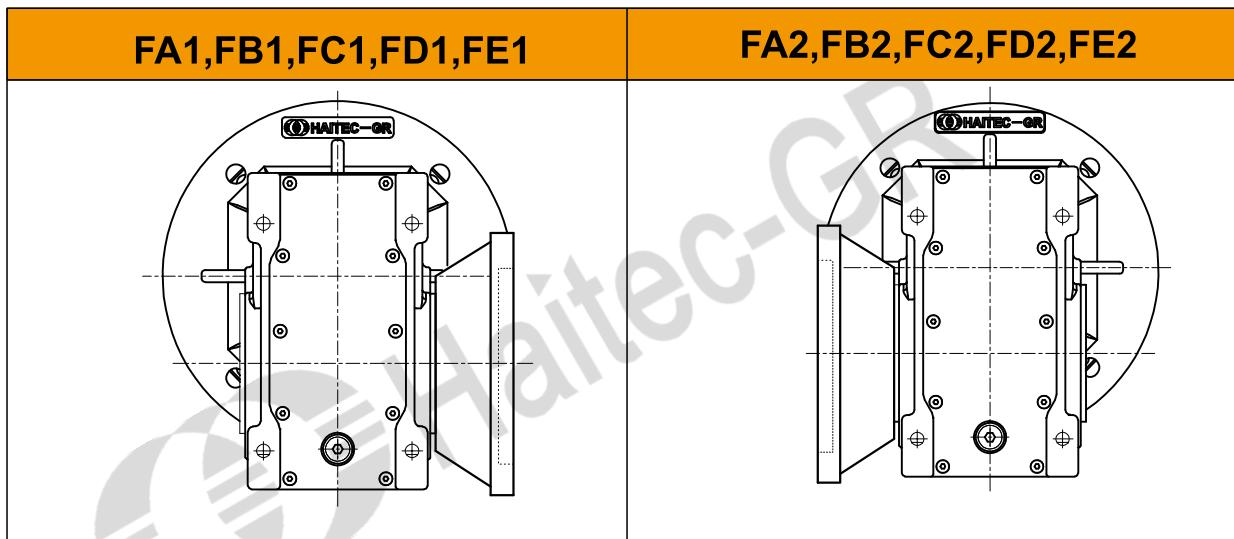


如对接线盒位置有特殊要求, 请在下单时如图所示来指定接线盒安装方位。

In the case of specific requirement, when ordering, specify the position of the terminal box as shown in the diagram .

### 8.3 输出法兰位置

*Position diagram for output flange*

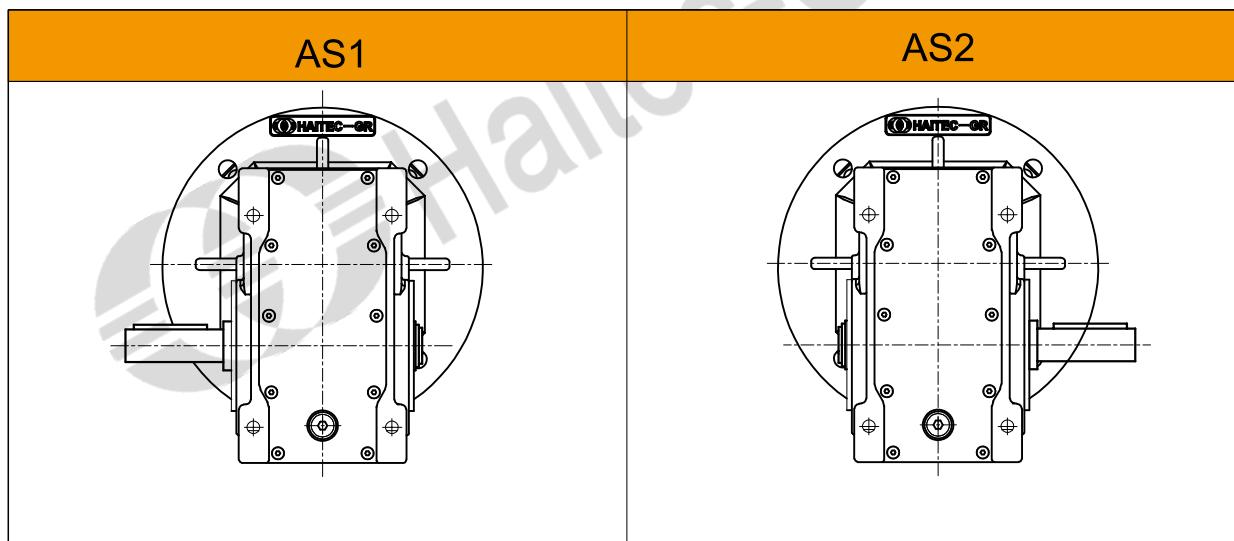


如没有特殊要求,一般按出厂的标准位置如图F..1方式和B3位置提供。

Unless specified otherwise, the reduction unit is supplied with the flange in pos. F..1 referred to position B3 .

### 8.4 单向输出轴位置

*Position diagram for single output shaft*



## 9. 安装 / INSTALLATION

### 9.1 注意事项

安装减速器时要注意以下一些事项：

1. 减速器与机械设备装配之前，要检查减速器输出轴的旋转方向是否正确；
2. 减速器与原动机、设备装配之前，应检查各轴径、孔径、键和键槽的偏差尺寸，避免装配过紧、过松影响减速器性能；
3. 减速器必须牢固地安装在机械设备上，避免有松动或振动；
4. 尽可能地避免减速器暴露在烈日阳光下和恶劣环境中；
5. 如果减速器存放时间长大达4-6个月，应检查油封是否浸润在润滑油中，可能油封唇口会粘在轴上，甚至失去了弹性，由于适当的弹性是油封必须的工作条件，所以推荐更换油封；
6. 所有橡胶件和秀气孔不能沾有油漆；
7. 与减速器的空心轴或实心轴配合连接时，应在轴上配合部分涂上润滑油，以免卡死或氧化；
8. 使用时必须检查油位（如油位镜孔或打开油塞）
9. 使用新减速器时，不能满负载起动，应该逐步增大负载；
10. 使用各类电机直联型减速器时，若电机重量偏大，应设支撑装置；
11. 确保电机购房附近有良好的通风环境，双免影响散热效果；
12. 减速器的标准工作环境是-5° C至40° C，如果不在这范围时请与我们技术服务人员联系。

### 9.1 Note recommendations

To install the reduction unit it is necessary to note the following recommendations;

1. Check the correct direction of rotation of the reduction unit output shaft before fitting the unit to the machine.
2. Before mount with the prime mover and device, please check the reducer's every axial diameter, aperture key and key slot, to be sure their dimensions are not deviation , and avoid assembling too tight or too loose , unless it will influence the reducer's performance.
3. The mounting on the machine must be stable to avoid any vibration.
4. Whenever possible ,protect the reduction unit against solar radiation and bad weather.
5. In the case of particularly lengthy periods of storage (4-6months), if the oil seal is not immersed in the lubricant the unit ,it is recommended to change it since the rubber could stick to the shaft or may even have lost the elasticity it need to function properly .
6. Painting must definitely not go over rubber parts and the holes on the breather plugs .
7. When connect to hollow or solid shaft, please grease the both surfaces to make it smooth and avoid oxidation.
8. Check the correct level of the lubricant through the indicator, if there is one.
9. Starting must take place gradually, without immediately applying the maximum load.
10. Supporting unit is required when using various of reducer matched with motor directly and the weight of motor is a little bigger than common.
11. Ensure the motor cools correctly by assuring good passage of air from the fan side.
12. In the case of ambient temperatures under -5°C or over 40°C call the Technical Service.

## 9.2 使用限制

这本样本给出的参数基本上是按B3安装方位来编的，即第一级没有完全浸入油中。对于其他安装方位和输入转速，请参考下面表格中的相应参数。当遇到下列应用情况时，如有必要请与我们技术服务人员联系：

1. 在原有上提高转速时；
  2. 应用在惯性特别大的设备上时；
  3. 当减速器出现故障有可能会对操作者造成危害时；
  4. 应用在减速器过度疲劳状态时；
  5. 工作环境低于-5° C 或高于40° C 时；
  6. 在化学腐蚀环境中使用里时；
  7. 在盐性环境中使用时；
  8. 在辐射性高的环境中使用时；
  9. 在环境气压不在正常大气压力下使用时；
  10. 安装方位在这样本中没有提到时；
- 避免把减速器部分或整台浸入水里或其它液体中。

减速器以承受的最大负载扭矩不能超过两倍于性能参数表中规定的正常扭矩（当使用系数 $f_s=1$ 时）；这里最大负载扭矩是指能承受瞬间暂时过载，它出现在过载启动、刹车、振动或其他动态操作环境中。

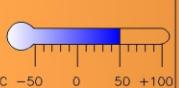
## 9.2 Critical applications

The performance given in the catalogue correspond to mounting position B3 or similar, when the first stage is not entirely immersed in oil. For other mounting positions and /or particular input speeds, refer to the tables that highlight different critical situations for each size of reduction unit. It is also necessary to take due consideration of and carefully assess the following applications by calling our Technical Service:

1. As a speed increasing.
  2. Applications with especially high inertia
  3. Use in services that could be hazardous for people if the reduction unit fails.
  4. Applications with high dynamic strain on the reduction unit.
  5. In places with T° under -5°C or over 40°C
  6. Use in chemically aggressive environments.
  7. Use in a salty environment.
  8. Use in radioactive environments.
  9. Use in environments pressures other than atmospheric pressure
  10. Mounting positions not envisaged in the catalogue.
- Avoid applications where even partial immersion of the reduction unit is required.
- The maximum torque that the gear reducer can support must not exceed two times the nominal torque ( $f_s = 1$ ) stated in the performance tables, intended for momentary overloads due to starting at full load, braking, shocks or other causes, particularly those that are dynamic.

## 10. 润滑油/LUBRICATION

### 10.1 润滑油型号/Types of lubrication

BH (050, 063, 075)	 标准 standard 	ISO	SHELL	MOBIL	BP	润滑油类型 lubrication type
矿物油 Mineral oil	-10	+40	VG220	She11 Oma1a 220	Mobilgear 630	BP Energol GR-XP220
	-20	+25	VG150 VG100	She11 Oma1a 100	Mobilger 627	BP Energol GR-XP100
	-30	+10	VG68-46 VG32	She11 Tellus T32	Mobil D. T. E. 13M	
	-40	-20	VG22 VG15	She11 Tellus T15	Mobil D. T. E. 11M	BP Energol HLP-HM15
合成油 Synthetic oil	-40	+80	VG220	She11 Oma1a HD220	Mobil SHC630	
	-40	+40	VG150		Mobil SHC629	
	-40	+10	VG32		Mobil SHC624	

### 10.2 润滑油加注量

规定的加注量为参考值，精确值的变化与级数和传动比有关。请您在加注润滑油时一定要注意油位螺栓所指示的精确油量。后期调整安装方式时，你必须根据改变后的安装方式相应调整加注润滑剂。下表中列出了不同安装方式（例如：B3、B6，见P33）的减速器相应标准参考润滑油注入量值。

### 10.2 Lubricant fill quantity

The specified fill quantities are recommended values. The precise values 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. The following tables show guide values for lubricant fill quantities in relation to the mounting position (e.g.: B3, B6, see page 33.)

BH系列 润滑油加注量/Lubricant fill quantity

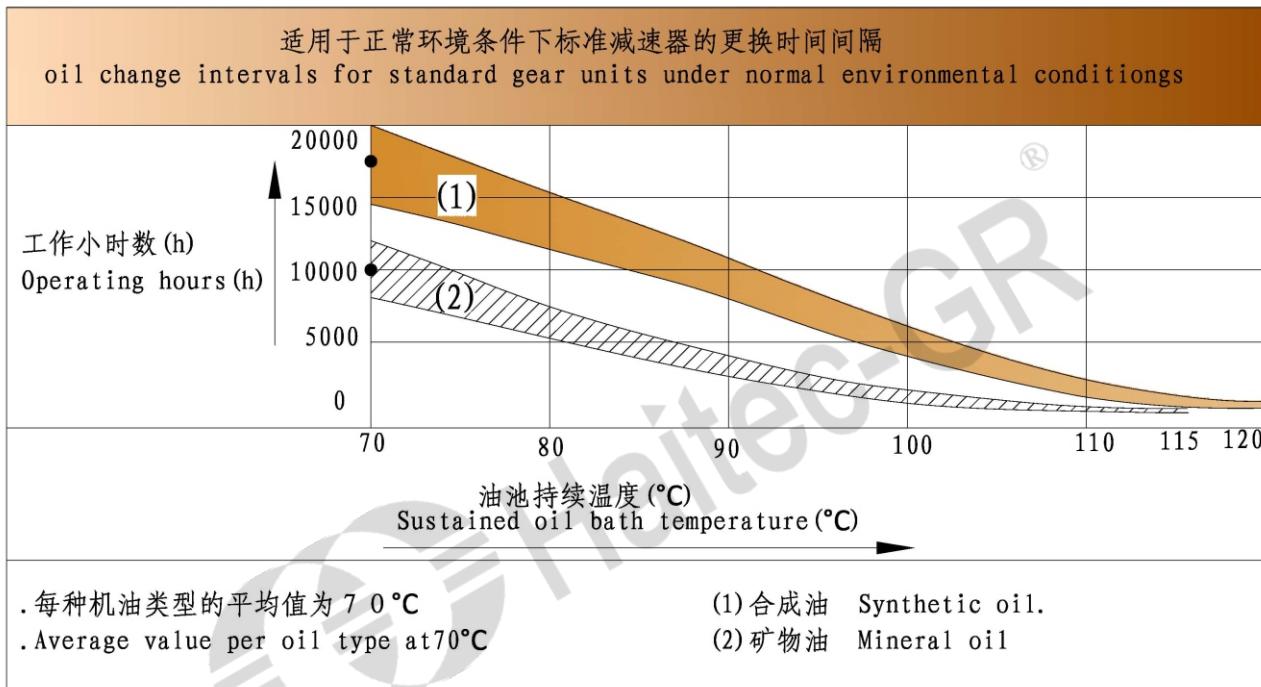
减速器型号 Gear units	加注量 Fill quantity in liters						单位:升(L) Unit: Liters
	B3	B6	B7	B8	V5	V6	
BH050	0.22	0.2	0.15	0.15	0.25	0.15	
BH063	0.42	0.35	0.25	0.25	0.45	0.25	
BH075	0.7	0.6	0.4	0.4	0.75	0.45	

## 11. 维护

1. 对于齿轮箱，首次换油必须在工作大至300小时（齿轮磨合期）后进行，在换油时应使用合适的清洗剂小心地冲洗齿轮箱，不得将矿物油和合成油混合。
2. 每3000工作小时，最低程度半年，应检测油以及油位，油封密封不严引起滴漏的常规检测，若是IEC输入的减速器，则检测弹性体，必要时进行更换。
3. 根据不同的工作条件（见下图）而定，最长每三年检测一次，更换矿物油，更换轴承润滑油脂。
4. 根据不同的工作条件而定，更换输出轴上的油封。
5. 产品出现故障时，不要指拆卸部件，与本公司售后服务部门联系（需提供减速器规格、出厂日期、编号、已使用时间、主机名称、主机生产单位和故障类型）后，再采取合理的措施。

## 11. MAINTENANCE

- 1 .For gear units, first oil change should be after about 300 hours (run-in period). The right lotion is required to clean the gear units with care. Never mix the synthetic oil and mineral oil together.
- 2 . Every 3000 working time, at least every 6 months, visually for leakage. For IEC input gear units, the elastomer should be tested or replaced if necessary.
- 3 . Depending on the operating conditions (see chart below),every 3 years at the latest for inspection is needed. Then change the mineral oil and replace the bearing grease.
- 4 . Depending on the operating conditions change the oil seals on output shaft.
- 5 . Once the malfunctions appear, stop disassembling the parts, and firstly please contact the customer service (the information about specification, delivery date, series number, time used, name of machine, machine manufacturer, malfunction problems is required), then take suitable measures.



## 12. 存放

1. 有顶棚，防雨雪，无振动。
2. 在设备和地面之间垫放木块或其他材料。
3. 开箱后暂不使用的齿轮减速器在其加工表面涂上防锈油，并应及时放回包装箱内。
4. 在定期检查的情况下，两年以及更长时间。在进行检查时，应检查清洁度和机械损伤，检查防锈层是否完好。

## 12. STORAGE

1. Under roof, protected against rain and snow, no shock loads.
2. Underlay the block and other material between the ground and equipment.
3. The opened but not used gear units should be added with the anti-corrosive oil on its surface, and then return to the packing containers timely.
4. Two years or more given regular inspections. Check for cleanliness and mechanical damage as part of the inspection, Check corrosion protection.

## 13. 定货须知

请于下单前提供以下资料：

1. 减速器型号标记(减速器类型、速比、功率、和安装方式)。
2. 减速器表面喷涂颜色，一般按蓝色提供。
3. 订货数量。
4. 其他特殊要求。
5. 单位名称、联系人、联系电话。

## 13. NOTICE FOR ORDER

please offer the following information when place the orders:

1. The model mark of the gear units (type, ratio, power and mounting position).
2. Generally the gear units paint in peacock blue .
3. Quantity ordered.
4. Other special requirements.
5. Company, contact and telephone.

## 14. 减速器运转故障/ **GEAR UNIT MALFUNCTIONS**

故障	可能的原因	解决办法
异常、均匀的运转噪声.	A. 滚动 / 碾压噪声, 轴承损坏 B. 冲击型噪声: 齿轮啮合不均匀	A. 检测润滑油, 更换轴承 B. 请向客户服务部咨询
异常、不均匀的运转噪声.	机油中有异物	. 检测润滑 . 停止运转传动装置, 向客户服务部咨询
机油泄漏 . 在减速器盖上 . 在电机凸缘上. . 在电机轴密封圈上. . 在减速器凸缘上. . 在输出端轴密封圈上.	A. 减速器底座上的橡胶密封发生渗漏. B. 密封圈损坏. C. 减速器没有排气.	A. 拧紧各个外盖上的螺钉并且观察减速器. 如果机油继续泄露, 请向客户服务部咨询. B. 请向客户服务部咨询. C. 给减速器排气(参见"安装方式")
机油从排气阀旁渗出.	A. 机油太多. B. 传动装置安装方式错误. C. 频繁冷起动. (机油起泡沫)和 / 或者较高的油位.	A. 修正油量(参见"润滑油") B. 正确安排气阀并且矫正油位(参见"安装方式")
尽管电机运转或者传动轴已经被驱动, 但是传动轴不转动.	减速器中的轴轮毂联接断裂	将减速器或减速电机送修。

在磨合试运转阶段 (24小时运转时间内), 轴密封圈有可能出现短期内的漏油 / 油脂的现象。

Problem	Possible cause	Remedy
Unusual, regular running noise	A. Meshing / grinding noise: Bearing damage B. Knocking noise: Irregularity in the gearing	A. Check the oil, change bearings. B. Contact customer service.
Unusual, irregular running noise	Foreign bodies in the oil	. Check the oil. . Stop the drive, contact customer service.
Oil leaking . From the gear cover plate. . From the motor flange. . From the motor oil seal. . From the gear unit flange. . From the output end oil seal.	A. Rubber seal on the gear cover plate leaking. B. Seal defective. C. Gear unit not vented.	A. Tighten the bolts on the gear cover plate and observe the gear unit .Oil still leaking>Contact customer service . B. Contact customer service. C. Vent the gear unit(see"Mounting Positions").
Oil leaking from breaking valve.	A. Too much oil . B. Drive operated in incorrect mounting position. C. Frequent cold starts(oil foams)and/or high oil level.	A. Correct the oil level(see Sec. Inspection and Maintenance" ). B. Mount the breather valve correctly (see Sec. "Mounting Positions")and correct the oil level(see" Lubricants").
Output shaft does not turn although the motor is running or the input shaft is rotated.	Connection between shaft and hub in gear unit interrupted.	Send in the gear unit/gearmotor for repair.

Short-term oil/grease leakage at the oil seal is possible in the run-in phase(24hours running time).