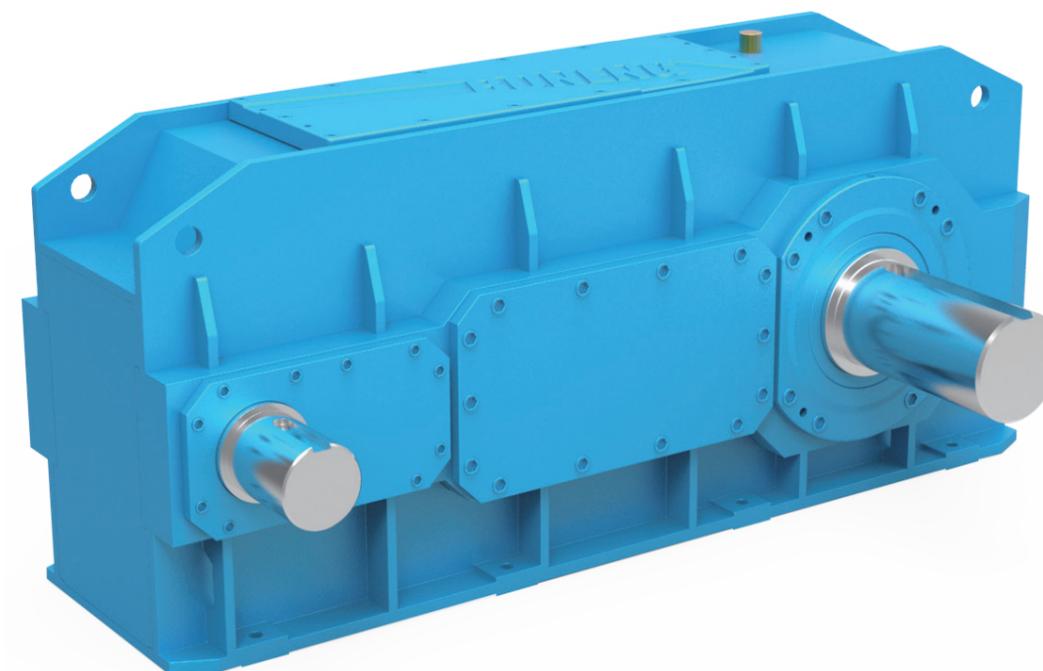


HK加长中心距齿轮箱

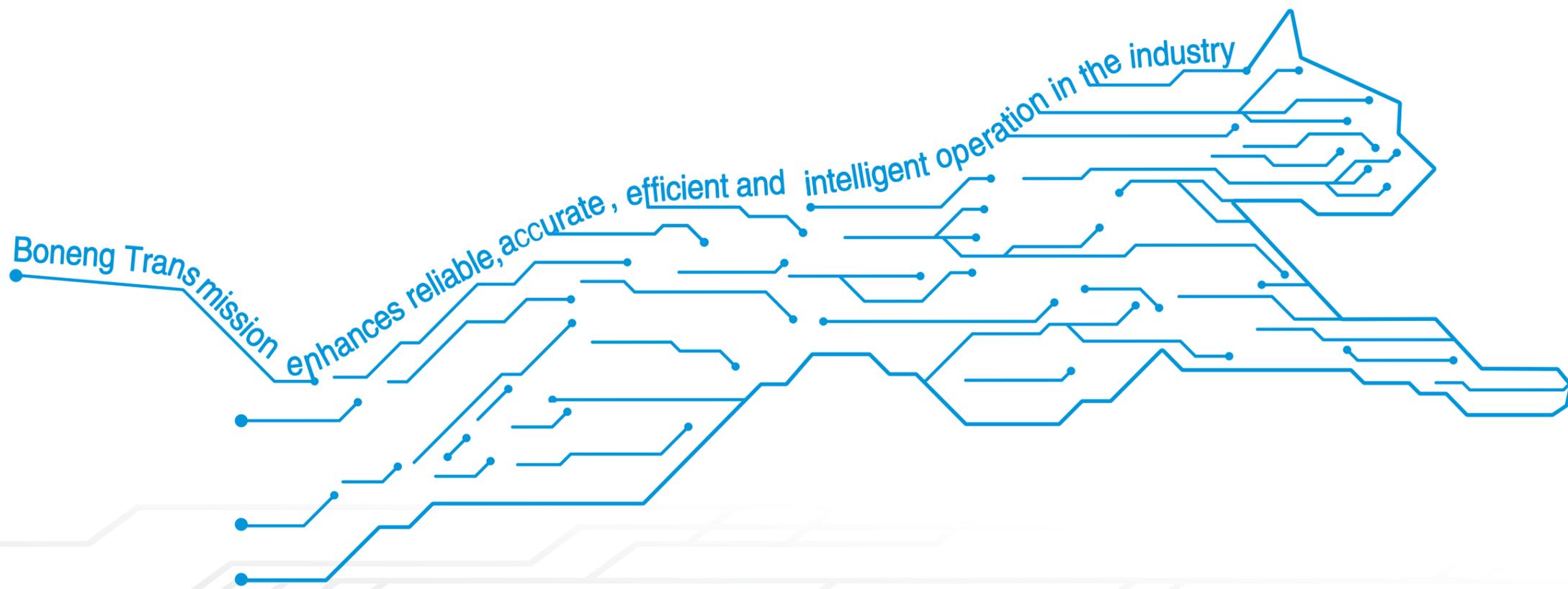
HK Helical Gearbox with Extended Center Distance



HK加长中心
距齿轮箱

HK Helical
Gearbox with
Extended Center
Distance

Modified date 11/2025
Selection Sample C05.0005-CN



控制器/驱动器/马达/
齿轮马达/齿轮箱

Controller/ Drive/ Motor/
Gearmotor/ Gearbox

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1 概述

博能齿轮箱以优质的服务和稳定的质量赢得了国内外用户的广泛赞誉,我公司产品广泛应用于门式起重机、塔式起重机、汽车起重机、轮胎起重机、履带起重机、甲板起重机、浮式起重机、缆索起重机、装卸桥、桥式起重机等各种起重设备的主、副起升以及回转、行走、变幅机构中,在港口、矿山、冶金、建筑、船舶等行业取得了显著的业绩。

HK系列是根据起重设备的结构和传动特点专门设计的一款齿轮箱,具有以下特点:

- ◆ 在同样的传动能力下加大了输出、输入轴之间的中心距,避免了为满足安装尺寸而不得不浪费功率的情况,特别适合用于门式起重机、桥式起重机、集装箱起重机的主、副起升机构中。
- ◆ 模块化设计,国际化生产,交货更加便捷。
- ◆ HK系列中可以选择3级或者4级传动,其速比范围14~250。
- ◆ HK系列的齿轮箱(规格05~22)箱体是采用钢板焊接而成。
- ◆ 采用具有很高安全可靠性的迷宫式组合密封方式,可以有效防止粉尘状颗粒等物质进入减速箱内部,且可以重复填充油脂。

△注:1.齿轮箱供货前已处于准运行状态,运行前需加注润滑油。
2.样本中未注尺寸单位均为毫米(mm)。

2 产品功能标识

-  油镜
-  通气帽
-  进油孔
-  放油孔

1 Overview

Boneng gear units win wide reputation with good service and stable quality both at home and abroad.The products are widely applied in main and subsidiary lifting of portal crane,tower crane,vehicle crane,tyre crane,belt crane,deck crane,float crane,cable crane,loading and unloading bridge,bridge crane and various kinds of cranes,rotary,running and trolley traveling mechanisms. We obtain obvious achievements in port,mine,melt,construction,shipping and other industries.

HK Series is a special kind of gear unit designed according to structure and transmission characteristics of lifting equipment. It has the following characteristics:

- ◆ It expands the central distance between input and output shaft under the same transmission capacity,which avoids the situation of wasting power to satisfy mounting dimension,which is especially appropriate for main and subsidiary lifting mechanisms of portal crane,bridge crane and container crane.
- ◆ Modular design,international production,delivery is more convenient.
- ◆ In HK series,you can select level 3 or level 4 transmission,the ratio range is from 14 to 250.
- ◆ Gear box of HK series(regulation 05~22) applies steel plate welding.
- ◆ Applying grease-filled, refillable Labyrinth seal combinations sealing method, which can guard against ingress of dust-like materials into the gear box effectively with high safety reliable.

△Note: 1.Gear unit is on running-permission status before delivery,lubrication oil should be filled before running.
2.The dimension unit not marked in the sample is millimeter(mm).

2 Product function mark

-  Oil glass
-  Breather
-  Oil filler
-  Oil drain



3 选型

3 Type selection

序号 Serial NO.	说明 Description	代号 Codes	参数计算 Parameters calculation	
1	被驱动设备系数 Driven machine factor	f1	根据工作级别见06页f1表	Check f1 table on page 6 according to working level
2	原动机系数 Prime mover factor	f2	原动机系数	Prime Mover Factor
			电机、液压马达、汽轮机	Electric motor, hydraulic motor, turbine
			4-6缸活塞发动机, 周期变化1: 100至1: 200	Piston engine with 4-6 cylinders, cycle variation 1:100 to 1:200
	1-3缸活塞发动机, 周期变化1: 100	Piston engine with 1-3 cylinders, cycle variation 1:100	1.5	
3	齿轮箱可靠度系数 Factor for gear unit reliability	SF	见06页SF表	Check SF table on page 6
4	齿轮箱传动效率 Transmission Efficiency	η	三级:94%, 四级:92%	3 stage: 94%; 4 stage: 92%
5	输入转速 Input Speed	n1	≤1500r/min 更高转速请来电咨询	≤1500r/min Consult us if higher speed required.
6	确定减速比 Calculation of the ratio	i	i=n1/n2	i=n1/n2
7	以被驱动设备所需的扭矩或功率, 确认齿轮箱输入功率 Calculate the input power of the gear unit on basis of the torque and power required by the driven machine.	P1	P1=T2 · n1 / (955 · 0 · i · η) 或 P1=P2 / η	P1=T2 · n1 / (955 · 0 · i · η) 或 P1=P2 / η
8	根据计算, 查传动能力表, 确认齿轮箱机座号 Determination of gear unit type referring to the table of Transmission Capacity.	T2N、P1N	T2N≥T2 · f1 · f2 · SF 或 P1N≥P1 · f1 · f2 · SF 见6页SF表	T2N≥T2 · f1 · f2 · SF or P1N≥P1 · f1 · f2 · SF Check SF table on page 6
9	峰值扭矩校核* Check Peak Torque*	TA	P1N≥TA · n1 · f3 / 9550 根据工作级别见06页f3表	P1N≥TA · n1 · f3 / 9550 Check f3 table on page 6 according to working level
10	选定连接安装和附件后, 校核轴许用强度 Check permissible strength of the shaft after output mode and accessories are selected.	Fr1/Fr2 Fa1/Fa2	当输入、输出轴为皮带轮、链轮或齿轮等明显有附加径向力传动时, 必须校核径向力。	It is crucial to check radial forces on the shafts when input and output shafts are for pulleys, sprockets or gears.
11	确认润滑方式、选择润滑油 Determination of Lubrication Systems and Lubricants		可供选择的润滑方式: 1) 飞溅润滑 2) 强制润滑 轴端泵润滑 电机油泵润滑 用户必备稀油站润滑	Optional lubrications 1) Splash 2) Forced Shaft-end pump Motor pump User-supplied oil station
12	按型号表示方法确定各项 Determination of every item included in the type designation		型号表示方法见07页	For details about type designation, see Page 7

*峰值扭矩: 最大负载扭矩, 是指启动、制动或最大脉动载荷所引起的最大扭矩。(一般工况条件下峰值扭矩为启动或制动时的最大扭矩)

* Peak torque: max.load torque,e.g.peak starting,braking and operating torque. (Generally,it refers to peak starting or braking torque.)

4 机构工作级别及
服务系数

4 Working level and
Service factors

起重机形式 Cranes type			工作级别 Working level	起重机形式 Cranes type			工作级别 Working level
门式 起重机 Portal Crane	安装用 吊钩式	Fitting hook type	A3-A5	吊 钩 式 Hook type	电厂安装 及检修用	For power plant installment and inspection	A1-A3
	装卸用 吊钩式	Loading and unloading hook type	A6-A7		车间及 仓库用	For workshop and warehouse	A3-A5
	装卸用 抓斗式	Loading and unloading grab type	A7-A8		繁重车间 及仓库用	For arduous workshop and warehouse	A6-A7
塔式 起重机 Tower Crane	一般建筑 安装用	For normal construction fitting	A2-A4	抓 斗 式 Grab type	间断装 卸用	For intermittent loading and unloading	A6-A7
	用吊罐装 卸混凝土	Loading and un- loading concrete with bucket	A4-A6		连续装 卸用	For continuous loading and unloading	A8
汽车、 轮胎、 履带 起重机 Truck, tyre, crawler crane	安装及装卸 用吊钩式	Fitting load- ing and unloa- ding hook type	A1-A4	冶金专 用 Metal- lurgy speci- al type	吊料箱 用	For lifting material box	A7-A8
	装卸用 抓斗式	Loading and unloading grab type	A4-A6		加料用	For feeding material	A8
甲板 起重机 Deck crane	吊钩式	Hook type	A4-A6		铸造用	For casting	A6-A8
	抓斗式	Grab type	A6-A7		锻造用	For forging	A7-A8
浮式 起重机 Floating crane	装卸用 吊钩式	Loading and unloading hook type	A5-A6		淬火用	For quenching	A8
	装卸用 抓斗式	Loading and unloading grab type	A6-A7		夹钳、 脱胎用	For clamping and ingot drawing	A8
	造船安装 用	Shipbuilding mounting type	A4-A6		揭盖用	For uncovering	A7-A8
缆索 起重机 Cable crane	安装用 吊钩式	Fitting hook type	A3-A5		料耙式	Raking type	A8
	装卸或施工 用吊钩式	Loading, unloa- ding or constr- uction hook type	A6-A7		电磁铁 式	Electric magnet type	A7-A8
	装卸或施工 用抓斗式	Loading, unloa- ding or constr- uction grab type	A7-A8		一般用途 吊钩式	Electric magnet type	A5-A6
装卸 桥 Loading and unload- ing bridge	料场装卸 用抓斗式	Loading and unloading grab for stockyard	A7-A8	装卸用抓 斗式	Loading and unloading grab type	A7-A8	
	港口装卸 用抓斗式	Loading and unloading grab for harbor	A8	电厂用吊 钩式	Hook for power plant	A2-A3	
	港口装卸 集装箱用	Loading and un- loading container for harbor	A6-A8	造船安装 用吊钩式	Ship-building mounting hook type	A4-A5	
-	-	-	-	装卸集 装箱用	Loading and unloading container type	A6-A8	

齿轮箱可靠度系数		Reliability Factor	SF
一般设备, 齿轮箱失效后仅仅引起单机停产, 并且更换零部件比较容易, 损失较小。		Ordinary: single machine halts when gear units fail, easy to replace spare parts and minor loss occurred.	$1.0 \leq SF \leq 1.3$
重要设备, 齿轮箱失效后使生产线或者全场停工, 停机事故损失。		Important: a product line or and entire plant halts when gear units fail, heavy loss.	$1.3 < SF \leq 1.5$
高可靠度要求, 齿轮箱失效后可能造成重大停产事故, 造成极大的经济损失, 以及人生命事故。		Highly reliable: severe production problem happens when gear units fail, enormous loss and life injuries.	$1.5 < SF$

载荷 分级 level	说明 Specification	服务 系数 Service factor	被驱动设备 系数 f1 Factor for dri- ven machine f1					峰值扭矩负 荷系数 f3 Peak torque factor f3					
			工作时间 (小时) Working hours										
			U0	U1	U2	U3	U4	U0	U1	U2	U3	U4	
Q1 轻 Light	很少起升 额定载荷, 一般起升 较轻载荷	Rarely hoist- ing nominal load, normally hoisting light load	1) f1	0.8	A1	0.8	A1	0.8	A1	0.8	A2	0.8	A3
			2) f3	0.8		0.8		0.8		0.8			
			3) f3	0.8		0.8		0.8		0.8			
Q2 中 Medium	有时起升 额定载荷, 一般起升 中等载荷	Sometimes hoist- ing nominal load, normally hoisting med- ium load	1) f1	0.8	A1	0.8	A1	0.8	A2	0.9	A3	0.9	A4
			2) f3	0.5		0.5		0.5		0.5			
			3) f3	0.8		0.8		0.8		0.8			
Q3 重 Heavy	经常起升 额定载荷, 一般起升 较重载荷	Often hoist- ing nominal load, normally hoisting heavy load	1) f1	0.8	A1	0.8	A2	0.9	A3	1	A4	1	A5
			2) f3	0.5		0.5		0.5		0.5			
			3) f3	0.8		0.8		0.8		0.8			
Q4 特重 Super heavy	频繁的起 升额定载 荷	Frequently hoist- ing nominal load	1) f1	0.9	A2	0.9	A3	1	A4	1.1	A5	1.2	A6
			2) f3	0.5		0.5		0.5		0.5			
			3) f3	0.8		0.8		0.8		0.8			

载荷 分级 level	说明 Specification	服务 系数 Service factor	被驱动设备 系数 f1 Factor for dri- ven machine f1					峰值扭矩负 荷系数 f3 Peak torque factor f3					
			工作时间 (小时) Working hours										
			U5	U6	U7	U8	U9	U5	U6	U7	U8	U9	
Q1 轻 Light	很少起升 额定载荷, 一般起升 较轻载荷	Rarely hoist- ing nominal load, normally hoisting light load	1) f1	0.9	A4	1	A5	1	A6	1.1	A7	1.2	A8
			2) f3	0.5		0.56		0.63		0.71			
			3) f3	0.8		0.8		1.9		1		1.12	
Q2 中 Medium	有时起升 额定载荷, 一般起升 中等载荷	Sometimes hoist- ing nominal load, normally hoisting med- ium load	1) f1	1	A5	1.1	A6	1.2	A7	1.3	A8	1.4	A8
			2) f3	0.5		0.56		0.63		0.71			
			3) f3	0.8		0.8		0.9		1		1.12	
Q3 重 Heavy	经常起升 额定载荷, 一般起升 较重载荷	Often hoist- ing nominal load, normally hoisting heavy load	1) f1	1.1	A6	1.2	A7	1.3	A8	1.4	A8	1.6	A8
			2) f3	0.56		0.63		0.71		0.8			
			3) f3	0.8		0.9		1		1.12		1.25	
Q4 特重 Super heavy	频繁的起 升额定载 荷	Frequently hoist- ing nominal load	1) f1	1.3	A7	1.4	A8	1.6	A8	1.8	A8	2	A8
			2) f3	0.56		0.63		0.71		0.8			
			3) f3	0.8		0.9		1		1.12		1.25	

注: 1) f1=被驱动设备系数
2) f3=在负载方向保持不变时的峰值扭矩系数, 如起升, 变幅机构等
3) f3=在负载方向交替改变时的峰值扭矩系数, 如回转, 行走机构等

Note: 1) f1=Factor for driven machine
2) f3=Peak torque factor when load direction is unchanging, such as hoisting mechanisms, lifting mechanisms, etc.
3) f3=Peak torque factor when load direction is alternating, such as rotary, running mechanisms, etc.

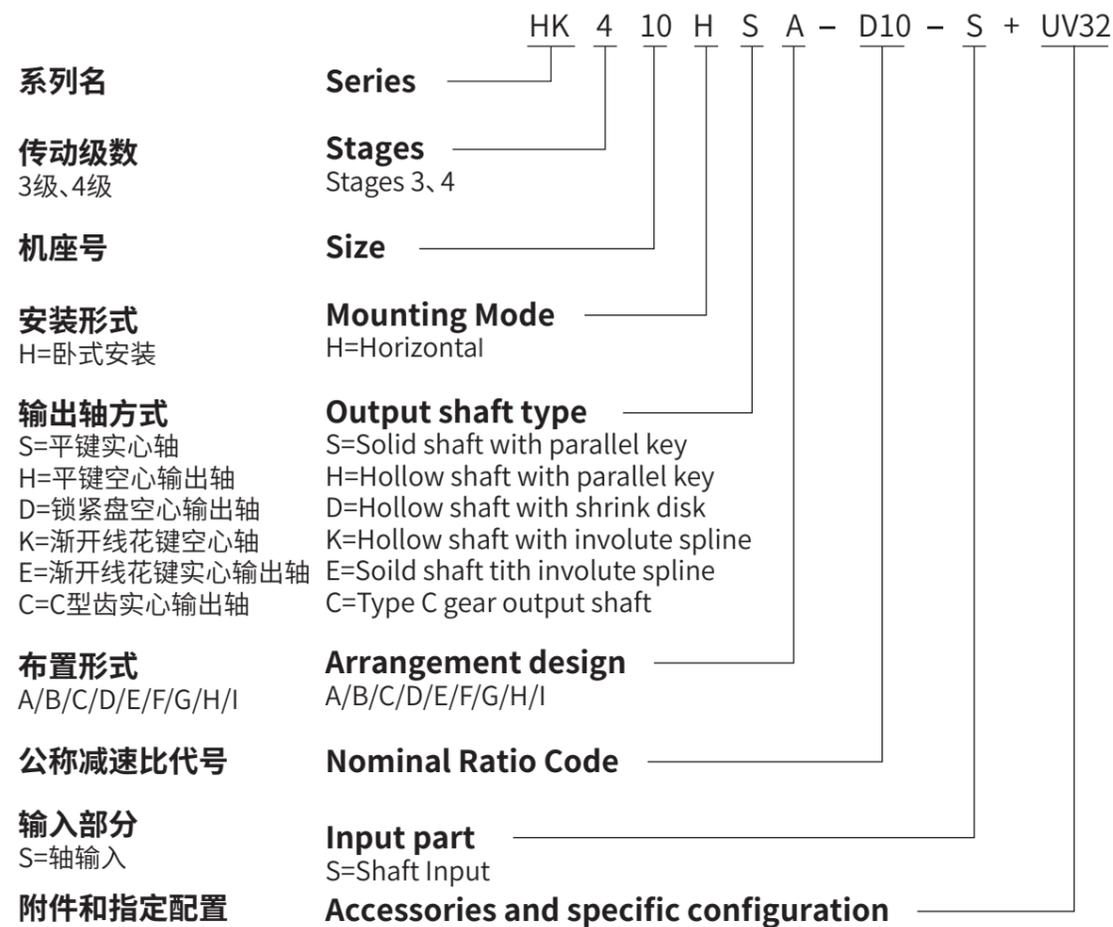
5 常用代号说明

5 Symbol specification

代号 Code	说明	Description	单位 Unit
i	实际减速比	actual ratio	/
iN	公称减速比	Nominal ratio	
ieX	精确减速比	Exact ratio	
T2N	额定输出扭矩	Rated output torque	N · m
TA	峰值扭矩	Peak torque	
P1N	齿轮箱额定输入功率	Rated input power of gear unit	kW
P1	输入功率	Input power	
P2	被驱动设备使用功率	Power for driven equipment	
Pm	电机功率	Motor power	
f1	被驱动设备系数	Driven machine factor	
f2	原动机系数	Prime mover factor	/
f3	峰值负荷系数	Peak loading coefficient	
SF	齿轮箱可靠度系数	Factor for gear unit reliability	
n1	输入转速	Input speed	r/min
n2N	公称输出转速	Nominal output speed	
n2	输出转速	Output speed	

6 型号表示方法

6 型号表示方法



7 选型举例

7 Examples

选型示例:	Selection example:
原动机: 电机功率: Pm=30kW 电机转速: n1=710rpm 最大启动扭矩: TA=645N.m	Prime mover: Motor power: Pm=30kW Speed: n1=710rpm Max starting torque: TA=645N.m
被驱动设备(工作机): 桥式起重机主起升 提升功率: P2=22kW 卷筒转速: n2=10rpm 工作级别: Q3-U9-A8 工作时间: >50000小时 环境温度: 30℃	Driven machine: Main hoisting gears of bridge crane hoisting power: P2=22kW Drum speed: n2=10rpm Working level: Q3-U9-A8 Working hour: >50000 hours Ambient temperature: 30℃
齿轮箱: 平行轴齿轮箱 轴布置形式: G 中心距: ≥900mm	Gear units: Parallel shaft gear units Shaft arrangement: G Center distance: ≥900mm
选型步骤:	Selection steps:
1. 计算速比: $i=n1/n2=710/10=71$ 取iN=C71 传动级数: 4级	1. Calculation of ratio: $i=n1/n2=710/10=71$ take iN=C71 four stage.
2. 确定齿轮箱的额定功率: $P1=P2/\eta=22/92\%=23.9kW$ $P1N \geq P1 \cdot f1 \cdot f2 \cdot SF$ $=23.9 \times 1.6 \times 1 \times 1.2=45.9kW$ 根据传动能力表查得: 齿轮箱规格10, 对应额定功率 P1N=60kW, 中心距E=940mm>900mm 满足要求	2. Determination of nominal power of gear unit: $P1=P2/\eta=22/92\%=23.9kW$ $P1N \geq P1 \cdot f1 \cdot f2 \cdot SF$ $=23.9 \times 1.6 \times 1 \times 1.2=45.9kW$ Referring to transmission capacity: Gear unit size is 10, corresponding rated power P1N=60kW, Center distance E=940mm>900mm meet requirement
3. 峰值扭矩校核: $P1N \geq TA \cdot n1 \cdot f3/9550$ $=645 \times 710 \times 0.9/9550=43.2kW$ P1N=60kW>43.2kW 满足要求	3. Verify peak torque: $P1N \geq TA \cdot n1 \cdot f3/9550$ $=645 \times 710 \times 0.9/9550=43.2kW$ P1N=60kW>43.2kW meet requirement
4. 确定型号: HK410HSG-C71-S	4. Determination of type: HK410HSG-C71-S

8 传动能力表

8 Transmission capacity

代号 code	i _N	n ₁ (r/min)	n _{2N} (r/min)	HK305			HK306			HK307			HK308			HK309			HK310			HK311			HK312			HK313				
				T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)		
C14	14	1740	124.3	11.6	14.02	151	21.7	13.76	30	13.58	35.7	13.86	282	57	13.69	64	13.56	833	78	13.58	91	13.36	390	465	742	1015	1184					
		1450	103.6			126							235										325					387	618	694	846	987
		960	68.6			83							156										215					256	409	460	560	653
		710	50.7			62							115										159					190	303	340	414	483
C16	16	1740	108.8	11.6	15.71	132	21.7	15.39	30	15.19	35.7	15.63	247	57	15.44	64	15.41	729	78	15.43	91	14.96	407	407	649	1036						
		1450	90.6			110							206										285				339	541	607	740	864	
		960	60.0			73							136										188				224	358	402	490	572	
		710	44.4			54							101										139				166	265	297	362	423	
C18	18	1740	96.7	11.6	18.52	117	18.5	17.93	30	16.90	35.7	18.06	220	57	17.83	64	17.55	648	78	17.57	91	17.14	304	361	577	790	921					
		1450	80.6			98							183										253					301	481	540	658	768
		960	53.3			65							103										168					199	318	357	436	508
		710	39.4			48							76										90					147	235	264	322	376
C20	20	1740	87.0	11.6	20.09	106	18.5	20.08	30	19.03	35.7	20.60	198	57	20.34	64	19.19	583	78	19.21	91	19.14	273	325	519	711	829					
		1450	72.5			88							165										228					271	433	486	592	691
		960	48.0			58							109										151					179	286	322	392	457
		710	35.5			43							81										112					133	212	238	290	338
C22	22.4	1740	77.7	11.6	23.46	94	18.5	23.67	30	21.94	35.7	22.07	177	57	21.79	64	21.40	521	78	21.43	91	21.45	244	290	464	634	740					
		1450	64.7			79							147										203					242	386	434	529	617
		960	42.9			52							83										97					160	256	287	350	408
		710	31.7			39							61										72					100	118	189	212	302
C25	25	1740	69.6	11.6	25.99	85	18.5	25.68	30	24.21	35.7	23.85	158	57	23.55	64	24.34	466	78	24.38	91	24.25	219	260	415	568	663					
		1450	58.0			70							112										132					182	217	346	389	474
		960	38.4			47							74										87					121	144	229	257	314
		710	28.4			34							55										65					89	106	170	190	232
C28	28	1740	62.1	11.6	27.57	75	18.5	29.99	30	26.81	35.7	27.59	141	57	27.24	64	27.51	416	78	27.55	91	27.09	195	232	371	508	592					
		1450	51.8			63							100										118					163	194	309	347	423
		960	34.3			42							66										78					108	128	205	230	280
		710	25.4			31							49										58					80	95	151	170	207
C32	31.5	1740	55.2	11.6	31.33	67	18.5	33.23	30	29.83	35.7	30.82	126	57	30.44	64	31.59	370	78	31.64	91	30.96	174	206	330	451	526					
		1450	46.0			56							89										105					145	172	275	308	376
		960	30.5			37							59										69					96	114	182	204	249
		710	22.5			27							44										51					71	84	135	151	184
C36	35.5	1740	49.0	11.6	35.06	60	18.5	35.24	30	33.86	35.7	34.74	111	57	34.30	64	36.16	274	78	36.21	91	35.82	154	183	293	467						
		1450	40.8			50							93										128				153	244	274	334	389	
		960	27.0			33							72										61				85	101	161	181	221	
		710	20.0			24							39										45				63	75	119	134	163	
C40	40	1740	43.5	11.6	38.93	53	18.5	40.06	30	37.60	35.7	38.40	99	57	37.92	64	39.84	292	78	39.90	91	39.74	137	163	260	355	415					
		1450	36.3			44							82										114					143	216	243	296	345
		960	24.0			29							46										55					75	90	143	161	196
		710	17.8			22							34										40					56	66	106	119	145
C45	45	1740	38.7	11.6	45.58	47	18.5	44.82	30	42.72	35.7	43.18	88	57	42.64	64	44.83	259	78	44.89	91	44.38	121	145	231	316	368					
		1450	32.2			39							73										101					127	192	216	263	307
		960	21.3			26							41										48					67	80	127	143	174
		710	15.8			19							31										36					50	59	106	129	150
C50	50	1740	34.8	11.6	49.00	42	18.5	49.77	30	49.03	35.7	47.82	79	57	47.22	64	49.30	233	78	49.37	91	49.37	109	130	208	284	368					
		1450	29.0			35							66										91					108	173	194	237	277
		960	19.2			23							37										44					60	72	115	129	157
		710	14.2			17							28										32					45	53	85	95	116
C56	56	1740	31.1	11.6	58.27	60	18.5	58.27	30	58.27	35.7	58.27	88	57	58.27	64	58.27	259	78	58.27	91	58.27	121	145	231	316	368					
		1450	25.9			50							88										121					145	231	259	316	368
		960	17.1			33							48										67					80	127	143	174	203
		710	12.7			25							36										50					59	106	129	150	150
C63	63	1740	27.6	11.6	62.64	54	18.5	62.64	30	62.64	35.7	62.64	88	57	62.64	64	62.64	259	78	62.64	91	62.64	121	145	231	316	368					
		1450	23.0			45							88										121					145	231	259	316	368
		960	15.2			30							48										67					80	127	143	174	203
		710	11.3			22							36										50					59	106	129	150	150

代号 code	i _N	n ₁ (r/min)	n _{2N} (r/min)	HK314			HK315			HK316			HK317			HK318			HK319			HK320			HK321			HK322			n ₁ (r/min)	n _{2N} (r/min)	i _N	代号 code
				T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)				
C14	14	1740	124.3	11.6	14.02	151	21.7	13.76	30	13.58	35.7	13.86	282	57	13.69	64	13.56	833	78	13.58	91	13.36	390	465	742	1015	1184							
		1450	103.6			126							235										325					387	618	694	846	987		
		960	68.6			83							156										215					256	409	460	560	653		
		710	50.7			62							115										159					190	303	340	414	483		
C16	16	1740	108.8	11.6	15.71	132	21.7	15.39	30	15.19	35.7	15.63	247	57	15.44	64	15.41	729	78	15.43	91	14.96	407	407	649	1036								
		1450	90.6			110							206										285				339	541	607	740	864			
		960	60.0			73							136										188				224	358	402	490	572			
		710	44.4			54							101										139				166	265	297	362	423			
C18	18	1740	96.7	11.6	18.52	117	18.5	17.93	30	16.90	35.7	18.06	220	57	17.83	64	17.55	648	78	17.57	91	17.14	304	361	577	790	921							
		1450	80.6			98							183										253					301	481	540	658	768		
		960	53.3			65							103										168					199	318	357	436	508		
		710	39.4			48							76										90					147	235	264	322	376		
C20	20	1740	87.0	11.6	20.0																													

代号 code	i _N	n ₁ (r/min)	n _{2N} (r/min)	HK405			HK406			HK407			HK408			HK409			HK410			HK411			HK412			HK413																
				T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)	T _{2N} (kN·m)	i _{ex}	P _{1N} (kW)											
C22	22.4	1740	77.7	11.6	23.26	94	21.7	21.40	177	30	21.12	203	35.7	22.22	240	57	21.95	64	21.72	521	78	21.75	634	91	21.54	740	1789	220	22.27	1789	330	22.57	2684	380	22.80	3091	77.7	22.4	C22					
		1450	64.7			79						147			242											464										521				617	1491	3091	1450	64.7
		960	42.9			52						100			160											256										386				434	497	830	1450	42.9
		710	31.7			39						72			118											189										287				350	387	617	960	31.7
C25	25	1740	69.6	11.6	25.52	85	21.7	23.43	158	30	23.12	219	35.7	24.89	260	57	24.58	64	24.30	466	78	24.33	568	91	24.29	663	1336	220	25.29	1336	265	25.71	2405	380	25.54	2769	69.6	25	C25					
		1450	58.0			70						132			217											346										474				533	830	2405	1450	58.0
		960	38.4			47						87			144											229										346				387	617	1450	38.4	
		710	28.4			34						65			106											170										257				314	366	830	960	28.4
C28	28	1740	62.1	11.6	26.45	75	18.5	29.74	141	30	27.33	195	35.7	29.34	232	57	28.98	64	27.03	347	78	27.07	423	91	28.05	493	1030	220	28.81	1030	265	29.20	2473	380	29.27	2993	62.1	28	C28					
		1450	51.8			63						108			178											270										389				433	790	2473	1450	51.8
		960	34.3			42						78			128											194										287				327	533	1030	960	34.3
		710	25.4			31						58			80											95										151				170	207	790	710	25.4
C32	31.5	1740	55.2	11.6	30.67	67	18.5	32.63	109	30	30.62	126	35.7	31.84	172	57	31.44	64	30.45	330	78	30.49	485	91	32.00	526	1099	220	31.50	1099	265	33.26	2199	380	32.68	2611	55.2	31.5	C32					
		1450	46.0			56						105			145											206										308				337	617	2199	1450	46.0
		960	30.5			37						69			96											121										172				199	232	987	960	30.5
		710	22.5			27						44			51											51										83				84	104	617	710	22.5
C36	35.5	1740	49.0	11.6	34.64	60	18.5	33.82	79	30	33.51	93	35.7	33.95	128	57	33.53	64	34.06	244	78	34.11	334	91	34.03	467	1360	220	33.97	1360	265	36.36	1694	380	36.62	2361	49.0	35.5	C36					
		1450	40.8			50						85			119											161										233				258	491	1694	1450	40.8
		960	27.0			33						52			61											61										93				93	119	987	960	27.0
		710	20.0			24						39			45											45										75				75	104	617	710	20.0
C40	40	1740	43.5	11.6	39.38	53	18.5	39.20	44	30	36.69	89	35.7	38.02	137	57	37.55	64	38.09	260	78	38.14	296	91	38.37	401	1002	220	39.74	1002	265	39.22	1503	380	41.40	2095	43.5	40	C40					
		1450	36.3			44						70			99											136										196				229	491	1503	1450	36.3
		960	24.0			29						46			34											34										60				60	75	617	960	24.0
		710	17.8			22						34			29											29										45				45	55	491	710	17.8
C45	45	1740	38.7	11.6	45.66	47	18.5	44.28	39	30	43.37	88	35.7	44.83	121	57	44.27	64	42.38	259	78	42.44	316	91	44.32	388	1073	220	43.95	1073	265	44.55	1539	380	43.68	2162	38.7	45	C45					
		1450	32.2			42						62			73											101										143				174	216	1539	1450	32.2
		960	21.3			26						41			36											36										50				50	62	987	960	21.3
		710	15.8			19						31			26											26										35				35	42	617	710	15.8
C50	50	1740	34.8	11.6	49.77	42	18.5	50.35	37	30	48.59	79	35.7	48.64	109	57	48.03	64	47.74	208	78	47.80	233	91	50.56	332	1385	220	48.06	1385	265	50.74	1895	380	51.42	1676	34.8	50	C50					
		1450	29.0			35						56			66											91										128				157	173	1895	1450	29.0
		960	19.2			23						37			25											25										32				32	45	1002	960	19.2
		710	14.2			17						28			22											22										28				28	32	617	710	14.2
C56	56	1740	31.1	11.6	55.97	38	18.5	58.37	31	30	51.89	81	35.7	56.80	98	57	56.09	64	55.02	185	78	55.10	254	91	54.17	247	1073	220	53.59	1073	265	55.48	1339	380	53.24	1497	31.1	56	C56					
		1450	25.9			31						50			59											81										115				140	161	1339	1450	25.9
		960	17.1			21						33			29											29										39				39	47	987	960	17.1
		710	12.7			15						25			20											20										29				29	32	617	710	12.7
C63	63	1740	27.6	11.6	61.56	34	18.5	63.63	28	30	59.37	63	35.7	62.93	87	57	62.14	64	60.71	165	78	60.80	208	91	62.74	219	1385	220	48.06	1385	265	50.74	1895	380	51.42	1676	27.6	63	C63					
		1450	23.0			28						45			52											72										103				128	143	1895	1450	23.0
		960	15.2			19						32			25											25										32				32	42	1002	960	15.2
		710	11.3			14						22			17											17										22				22	28	617	710	11.3
C71	71	1740	24.5	11.6	69.99	30	18.5	71.55	25	30	67.10	56	35.7	65.91	77	57	65.09	64	71.37	146	78	71.47	200	91	70.74	234	1073	220	68.65	1073	265	70.39	1339	380	72.74	1497	24.5	71	C71					
		1450	20.4			25						40			46											62										87				106	122	1339	1450	20.4
		960	13.5			16						26			23											23										31				31	37	987	960	13.5
		710	10.0			12						19			15											15										19				19	23	617	710	10.0
C80	80	1740	21.8	11.6	81.15	26	18.5	78.70	22	30	79.32	42	35.7	77.70	58	57	76.73	64	79.40	130	78	79.52	178	91	81.71	207	1073	220	78.19	1073	265	79.25	1339	380	78.67	1497	21.8	80	C80					
		1450	18.1			22						35			41											57										80				98	108	1339	1450	18.1
		960	12.0			15						22			17											17										22				22	28	987	960	12.0
		710	8.9			11						17			14											14										17				17	20	617	710	8.9
C90	90	1740	19.3	11.6	88.47	23	18.5	89.48	21	30	88.87	44	35.7	84.31	61	57	83.25	64	89.44	115	78	89.57	158	91	93.21	184	1073	220	88.65	1073	265	90.27	1339	380	90.15	1497	19.3	90	C90					
		1450	16.1			20						31			37											51										71				87	102	1339	1450	16.1
		960	10.7			13						21			18											18										24				24	29	987	960	10.7
		710	7.9			10						15			12											12										15				15	18	617	710	7.9
D10	100	1740	17.4	11.6	99.48	21	18.5	103.74	18	30	94.90	46	35.7	98.44	65	57	97.21	64	103.09	104	78	103.23	118	91	99.87	138	1073	220	95.35	1073	265	98.70	1339	380	100.65	1497	17.4	100	D10					
		1450	14.5			18						26			32											42										58				78	97	1339	1450	14.5
		960	9.6			12						19			16											16										22				22	27	987	960	9.6
		710	7.1			9						14			11											11										14				14</				

9 输出轴允许的附加径向力

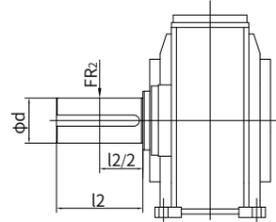
9 Permissible additional radial forces on output shaft

9.1 输出轴d上允许的附加径向力

9.1 permissible Additional Radial Forces on Output Shaft d

作用于输出轴中部

acting on the center of the output shaft



允许的附加径向力FR2

Permissible Additional Radial Forces FR2 (kN)

Type	布置 Arrangement	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22
HK3...SH	A+B+G+H	18	18	26	26	30	40	50	50	150	150	160	185	185	190	284	305	308	330
	C+D	29	29	40	40	40	60	85	85	190	190	200	265	265	265	365	372	395	400
HK4...SH	A+B+G+H	18	18	26	26	30	40	50	50	150	150	160	185	185	190	284	305	308	330
	C+D	29	29	40	40	40	60	85	85	190	190	200	265	265	265	365	372	395	400

注: 1) 如果给定了力的作用角和回转方向, 通常情况下, 可允许承受较大的附加力。请与我司联系。
2) *当作用力不在轴中部时, 请参见9.2。
3) 基础螺栓的最低性能等级为8.8级。基础必须干燥, 不得有油脂。如用户要求, 允许输入轴d1上附加径向力, 具体请与我司联系。

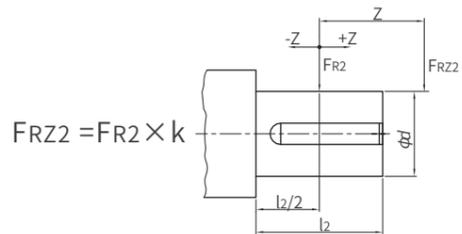
Note: 1) If angle of action and turning direction of the force are known, in most cases, higher radial force can be allowed. Please consult us.
2) *For application of force outside the center of the shaft end, see 9.2.
3) The foundation must be dry and grease-free. Permissible additional radial force on input shaft d1 is upon request.

9.2 输出轴d上允许的附加径向力

9.2 Permissible Additional Radial Forces on Output Shaft d

作用力不在轴端中部

The application of forces outside the center of shaft end



FR22 允许的外部径向力
FR2 允许的附加径向力
k 作用力系数根据下表确定

FR22 Permissible external radial force
FR2 Permissible additional radial force
k The factor for action force is in the table below

作用力系数K

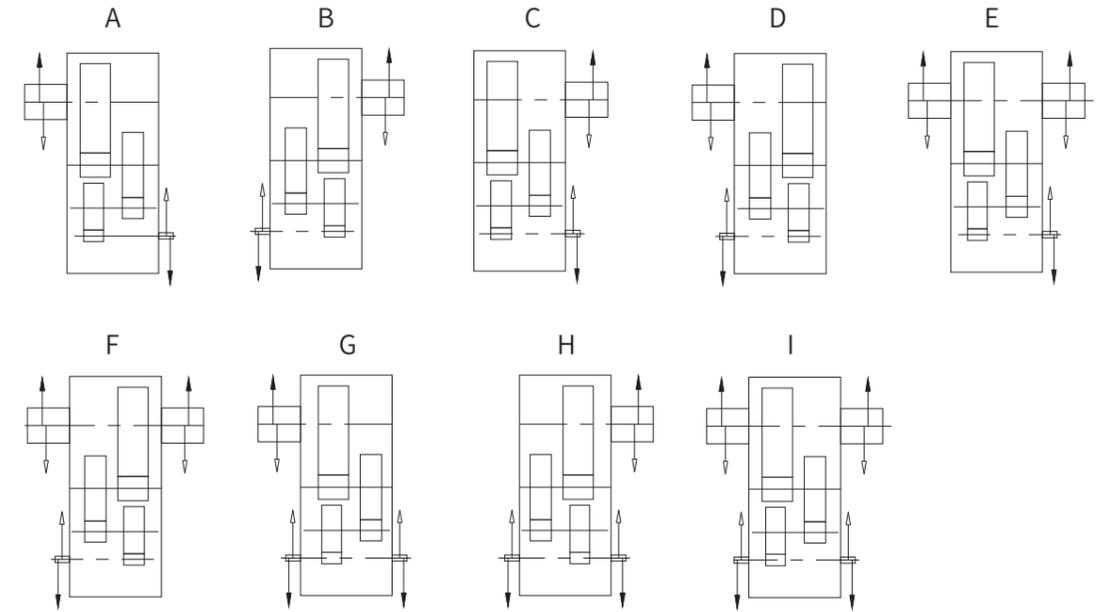
Factor for action force (K)

Size	Z (mm)															
	-250	-200	-150	-100	-75	-50	-25	0	25	50	75	100	150	200	250	300
05/06					1.22	1.14	1.06	1	0.88	0.79	0.72	0.66	0.62	0.52	0.44	
07/08					1.19	1.12	1.06	1	0.89	0.81	0.74	0.68	0.58	0.51	0.46	0.41
09/10				1.22	1.15	1.1	1.05	1	0.9	0.82	0.76	0.7	0.61	0.54	0.48	0.44
11/12				1.18	1.13	1.08	1.04	1	0.91	0.84	0.78	0.73	0.64	0.57	0.51	0.47
13/14			1.24	1.15	1.11	1.07	1.03	1	0.92	0.86	0.8	0.75	0.67	0.6	0.55	0.5
15/16			1.2	1.12	1.09	1.06	1.03	1	0.93	0.87	0.82	0.77	0.69	0.63	0.58	0.53
17/18	1.25	1.17	1.11	1.08	1.05	1.03	1	0.94	0.88	0.84	0.79	0.72	0.66	0.6	0.56	
19/20	1.22	1.13	1.1	1.06	1.04	1.02	1	0.95	0.9	0.85	0.81	0.74	0.69	0.62	0.58	
21/22	1.27	1.21	1.12	1.09	1.05	1.04	1	0.96	0.92	0.86	0.83	0.75	0.71	0.64	0.6	

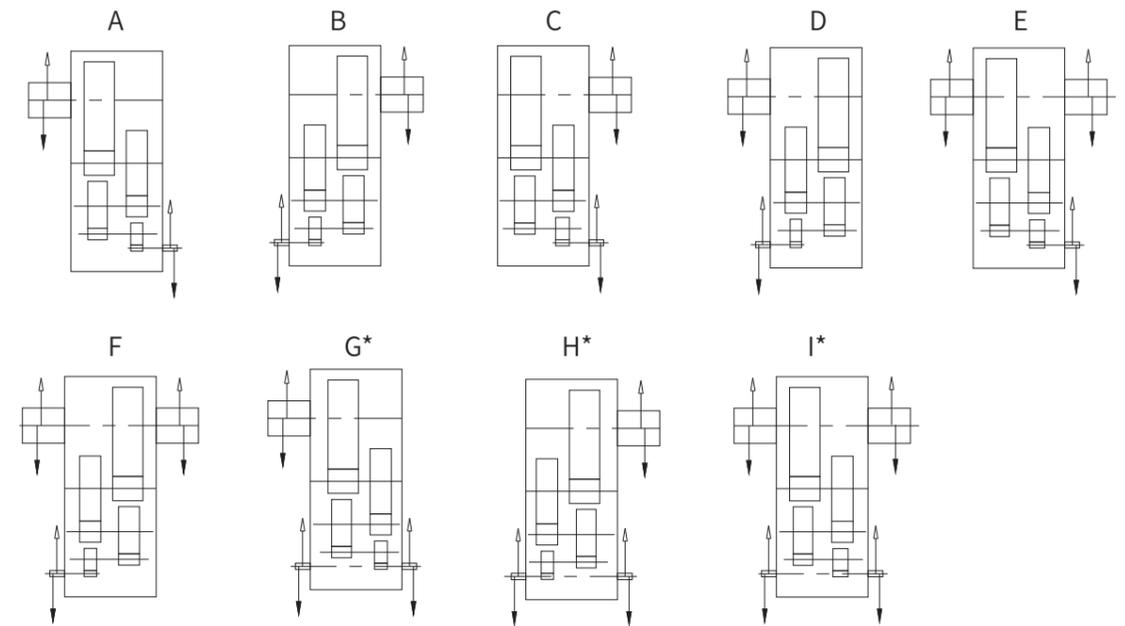
10 轴布置形式

10 Shaft arrangement

HK3



HK4



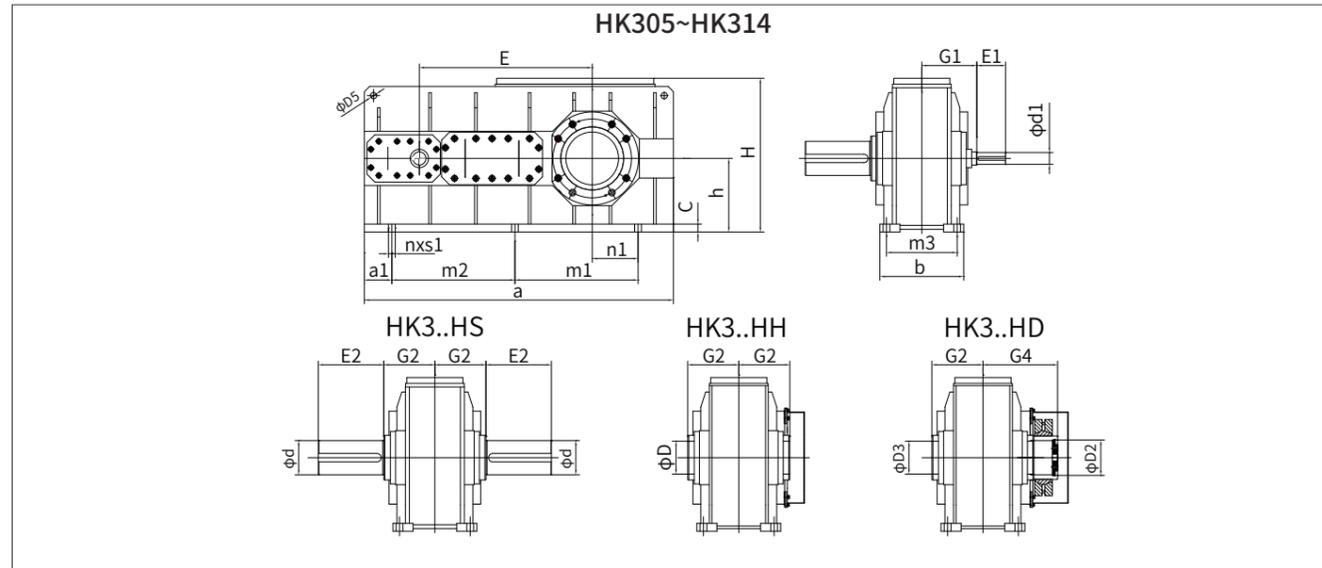
*) 布置形式G/H/I为右表中iN时, 敬请垂询

*) Please consult us for arrangement G/H/I when iN are in right table

机座号 Size 型号 Type	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	HK3	35.5 40 45 50	45 50 56 63	35.5 40 45 50	45 50	45 50	40 45	45 50	35.5 40 45	40 45 50	45 50 56	50 56 63						
HK4	160 180 200	200 224 250	160 180 200	160 180 200	160 180 200	160 180 200	160 180 200	160 180 200	160 180 200	160 180 200	200 224 250	200 224 250	160 180 200	180 200 224 250			200 224 250	200 224

11 外形尺寸图

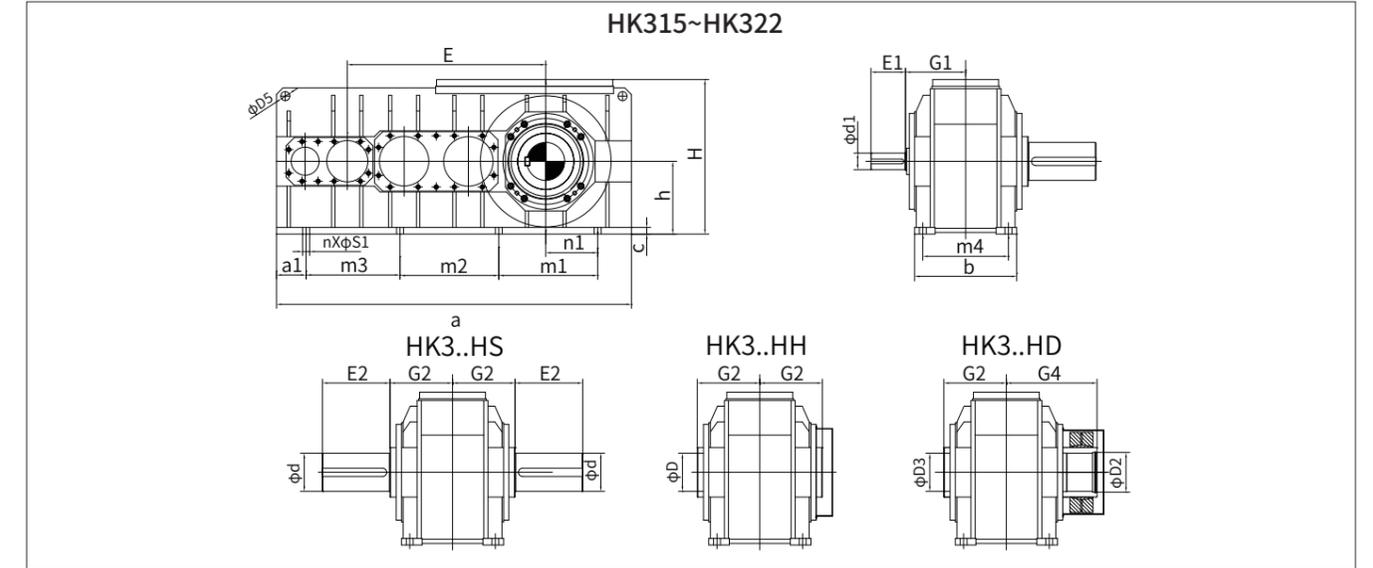
11 Outline dimensions



机座号 size	iN=14-25		iN=18-31.5		iN=28-45		iN=28-50		iN=35.5-63		G1
	d1	E1	d1	E1	d1	E1	d1	E1	d1	E1	
05	50k6	110					38k6	80			195
06			50k6	110					38k6	80	195
07	60m6	140					50k6	110			210
08	60m6	140					50k6	110			210
09	75m6	140					60m6	140			240
10	75m6	140					60m6	140			240
11	90m6	170					70m6	140			275
12	90m6	170					70m6	140			275
13	100m6	210			85m6	170					330
14	100m6	210			85m6	170					330

机座号 size	a	b	C	D5	E	h	H	m1	m2	m3	a1	n1	n	S1
05	870	255	30	24	497	220	505	375	315	215	85	158	6	22
06	975	255	30	24	555	230	555	420	400	215	80	213	6	22
07	1165	320	30	24	625	240	575	480	430	270	155	190	6	26
08	1235	320	30	24	665	280	645	505	470	270	150	210	6	26
09	1350	390	35	36	740	280	655	550	500	330	185	210	6	33
10	1460	390	35	36	800	320	745	600	550	330	195	260	6	33
11	1650	470	35	40	886	320	750	605	605	400	240	200	6	39
12	1750	470	35	40	936	380	855	675	675	400	230	270	6	39
13	1870	545	40	48	1027	380	880	712.5	712.5	465	245	240	6	45
14	2025	545	40	48	1105	440	1010	782.5	782.5	465	250	310	6	45

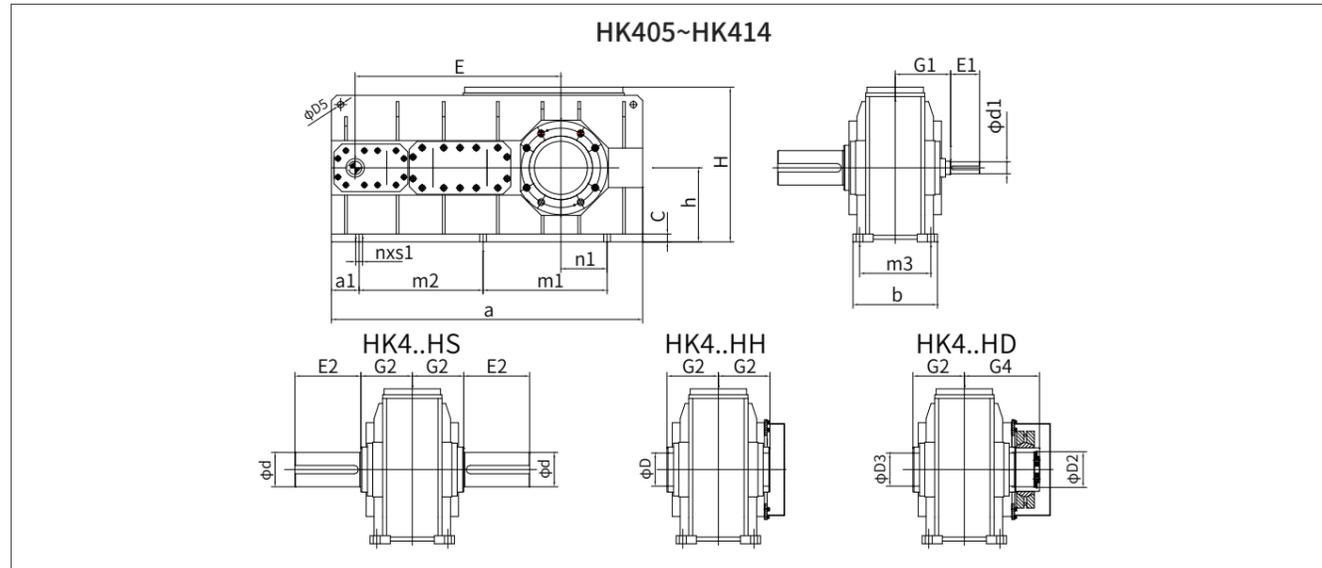
机座号 size	HK3..HS			HK3..HH		HK3..HD				H3..HK	H3..HE	H3..HC	油量 oil (L) (L)	重量 weight (Kg) (Kg)
	d	E2	G2	D	G2	D2	D3	G2	G4					
05	100m6	210	165	95H7	165	100H7	100H7	165	240				20	435
06	110m6	210	165	105H7	165	110H7	110H7	165	240				24	505
07	120m6	210	195	115H7	195	120H7	120H7	195	280				36	720
08	130m6	250	195	125H7	195	130H7	130H7	195	285				44	830
09	140m6	250	235	135H7	235	140H7	140H7	235	330	21页	22页	22页	56	1150
10	160m6	300	235	150H7	235	150H7	150H7	235	350	Page	Page	Page	67	1330
11	170m6	300	270	165H7	270	165H7	165H7	270	400	21	22	22	95	1860
12	180m6	300	270	180H7	270	180H7	180H7	270	405				128	2205
13	200m6	350	335	190H7	335	190H7	190H7	335	480				153	2890
14	220m6	350	335	210H7	335	210H7	210H7	335	480				190	3405



规格 size	iN=14-28		iN=16-31.5		iN=18-25		iN=20-35.5		iN=28-45		iN=31.5-50		iN=35.5-56		iN=40-63		G1
	d1	E1	d1	E1	d1	E1	d1	E1	d1	E1	d1	E1	d1	E1	d1	E1	
15			120m6	210									100m6	210			365
16			120m6	210									100m6	210			365
17	125m6	210									110m6	210					420
18			125m6	210									110m6	210			420
19					150m6	250			120m6	210							475
20	150m6	250									120m6	210					475
21			170m6	300									140m6	250			495
22							170m6	300							140m6	250	495

机座号 size	a	b	C	D5	E	h	H	m1	m2	m3	m4	a1	n1	n	S1
15	2250	595	40	55	1205	440	1020	600	600	570	520	275	315	8	42
16	2300	595	40	55	1230	500	1100	690	600	570	520	255	360	8	42
17	2410	655	45	55	1315	500	1100	660	660	675	580	205	350	8	42
18	2535	655	45	55	1380	550	1210	790	660	675	580	210	420	8	42
19	2490	750	50	65	1580	550	1255	760	760	525	645	235	400	8	48
20	2600	750	50	65	1635	620	1380	890	760	520	645	220	470	8	48
21	3085	830	55	72	1725	700	1485	870	870	810	700	277.5	450	8	56
22	3195	830	55	72	1780	700	1485	985	870	810	700	280	510	8	56

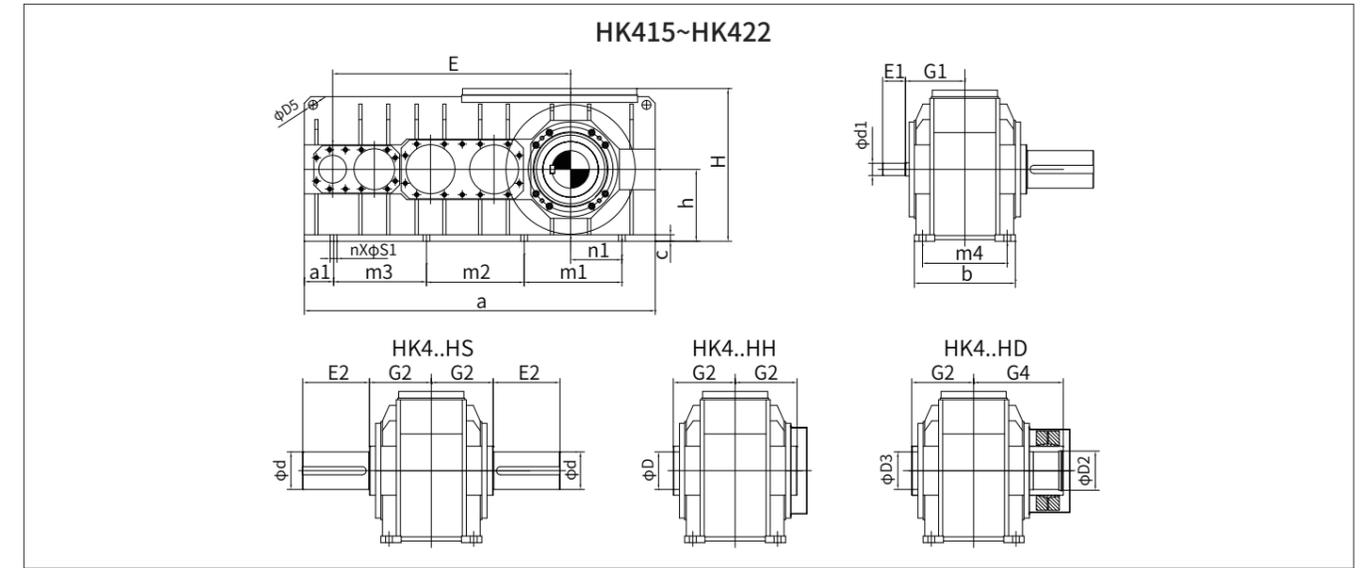
机座号 size	HK3..HS			HK3..HH		HK3..HD				H3..HK	H3..HE	H3..HC	油量 oil (L) (L)	重量 weight (Kg) (Kg)
	d	E2	G2	D	G2	D2	D3	G2	G4					
15	240m6	410	380	230H7	380	230H7	230H7	380	550				235	4095
16	250m6	410	380	240H7	380	240H7	240H7	380	550				225	4715
17	260m6	410	415	250H7	415	250H7	250H7	415	600	21页	22页	22页	290	5565
18	280m6	470	415	275H7	415	280H7	280H7	415	600	Page	Page	Page	375	6415
19	290m6	470	465							21	22	22	415	8420
20	310m6	470	465							敬请垂询 On request			500	9500
21	330m6	550	490										700	11660
22	350m6	550	490										710	12960



机座号 size	iN=22.4-100		iN=22.4-112		iN=28-125		iN=112-200		iN=125-200		iN=125-224		iN=140-250		G1
	d1	E1	d1	E1	d1	E1	d1	E1	d1	E1	d1	E1	d1	E1	
05	40k6	80					30k6	60							170
06					40k6	80							30k6	60	170
07			45k6	110			35k6	80							210
08			45k6	110			35k6	80							210
09			60m6	140					45k6	110					240
10			60m6	140					45k6	110					240
11			70m6	140					50k6	110					275
12			70m6	140					50k6	110					275
13			85m6	170					60m6	140					325
14			85m6	170					60m6	140					325

机座号 size	a	b	C	D5	E	h	H	m1	m2	m3	a1	n1	n	S1
05	950	255	30	24	590.5	220	505	375	375	215	110	158	6	22
06	1040	255	30	24	648.5	230	555	420	420	400	130	213	6	22
07	1165	320	30	24	745	240	575	480	430	270	155	190	6	26
08	1235	320	30	24	785	280	645	505	470	270	150	210	6	26
09	1350	390	35	36	880	280	655	550	500	330	185	210	6	33
10	1460	390	35	36	940	320	745	600	550	330	195	260	6	33
11	1650	470	35	40	1061	320	750	605	605	400	240	200	6	39
12	1750	470	35	40	1111	380	855	675	675	400	230	270	6	39
13	1870	545	40	48	1237	380	880	712.5	712.5	465	245	240	6	45
14	2025	545	40	48	1315	440	1010	782.5	782.5	465	250	310	6	45

机座号 size	HK4..HS			HK4..HH		HK4..HD				H4..HK	H4..HE	H4..HC	油量 oil (L) (L)	重量 weight (Kg) (Kg)
	d	E2	G2	D	G2	D2	D3	G2	G4					
05	100m6	210	165	95H7	165	100H7	100H7	165	240				20	450
06	110m6	210	165	105H7	165	110H7	110H7	165	240				24	520
07	120m6	210	195	115H7	195	120H7	120H7	195	280				35	730
08	130m6	250	195	125H7	195	130H7	130H7	195	285				42	825
09	140m6	250	235	135H7	235	140H7	140H7	235	330				55	1155
10	160m6	300	235	150H7	235	150H7	150H7	235	350	21页	22页	22页	65	1340
11	170m6	300	270	165H7	270	165H7	165H7	270	400	page	page	page	90	1855
12	180m6	300	270	180H7	270	180H7	180H7	270	405	21	22	22	125	2215
13	200m6	350	335	190H7	335	190H7	190H7	335	480				150	2890
14	220m6	350	335	210H7	335	210H7	210H7	335	480				187	3450



规格 size	iN=22.4-112		iN=22.4-125		iN=25-140		iN=125-250		iN=140-250		iN=160-250		G1
	d1	E1	d1	E1	d1	E1	d1	E1	d1	E1	d1	E1	
15					100m6	210					75m6	140	365
16					100m6	210					75m6	140	365
17	100m6	210					75m6	140					400
18			100m6	210					75m6	140			400
19	110m6	210					90m6	170					440
20			110m6	210					90m6	170			440
21					130m6	250					110m6	210	470
22					130m6	250					110m6	210	470

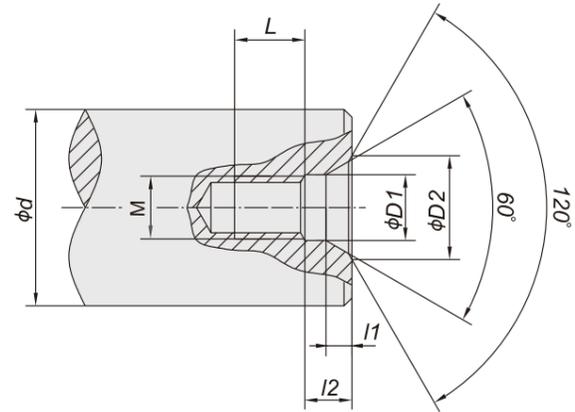
机座号 size	a	b	C	D5	E	h	H	m1	m2	m3	m4	a1	n1	n	S1
15	2250	595	40	55	1461	440	1020	600	600	570	520	275	315	8	42
16	2300	595	40	55	1486	500	1100	690	600	570	520	255	360	8	42
17	2410	655	45	55	1571	500	1100	660	660	675	580	205	350	8	42
18	2535	655	45	55	1636	550	1210	790	660	675	580	210	420	8	42
19	2700	750	50	65	1776	550	1255	760	760	700	645	235	400	8	48
20	2810	750	50	65	1831	620	1380	890	760	700	645	235	470	8	48
21	3085	830	55	72	2070	700	1485	870	870	810	700	277.5	450	8	56
22	3195	830	55	72	2125	700	1485	985	870	810	700	280	510	8	56

机座号 size	HK4..HS			HK4..HH		HK4..HD				H4..HK	H4..HE	H4..HC	油量 oil (L) (L)	重量 weight (Kg) (Kg)
	d	E2	G2	D	G2	D2	D3	G2	G4					
15	240m6	410	380	230H7	380	230H7	230H7	380	550				235	4635
16	250m6	410	380	240H7	380	240H7	240H7	380	550				220	5150
17	260m6	410	415	250H7	415	250H7	250H7	415	600				290	6190
18	280m6	470	415	275H7	415	280H7	280H7	415	600	21页	22页	22页	375	7280
19	290n6	470	465							page	page	page	440	9135
20	310n6	470	465							21	22	22	510	10180
21	330n6	550	490										695	12600
22	350n6	550	490										705	13915

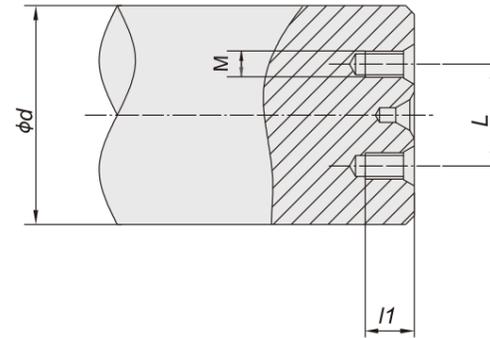
12 轴端螺纹孔

12 Screw hole in shaft end

轴端C型螺纹中心孔 Type C screw central hole in shaft end



轴端双螺孔 Double screw holes in shaft end



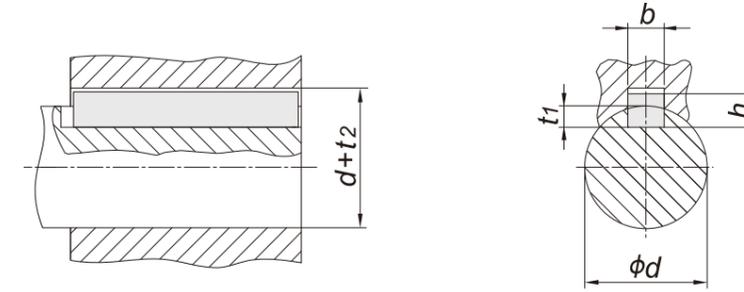
轴端C型螺纹中心孔 Type C screw central hole in shaft end
7 < d ≤ 225

轴端双螺孔 Double screw holes in shaft end
225 < d

d	M	L	I2	I1	D1	D2	d	M	I1	L
7 < d ≤ 10	M3	10	2.6	1.8	3.2	5.8	225 < d ≤ 230	M16	28	160
10 < d ≤ 13	M4	10	3.2	2.1	4.3	7.4	230 < d ≤ 280	M20	38	180
13 < d ≤ 16	M5	10	4	2.4	5.3	8.8	280 < d ≤ 290			190
16 < d ≤ 21	M6	12	5	2.8	6.4	10.5	290 < d ≤ 310			220
21 < d ≤ 24	M8	12	6	3.3	8.4	13.2	310 < d ≤ 330	M24	45	230
24 < d ≤ 30	M10	15	7.5	3.8	10.5	16.3	330 < d ≤ 340			240
30 < d ≤ 38	M12	20	9.5	4.4	13	19.8	340 < d ≤ 360			250
38 < d ≤ 50	M16	25	12	5.2	17	25.3	360 < d ≤ 390			270
50 < d ≤ 85	M20	30	15	6.4	21	31.3	390 < d ≤ 420			300
85 < d ≤ 130	M24	35	18	8	25	38	420 < d ≤ 460	M30	55	320
130 < d ≤ 225	M30	45	18	11	31	48	460 < d ≤ 500			350

13 平键键槽尺寸

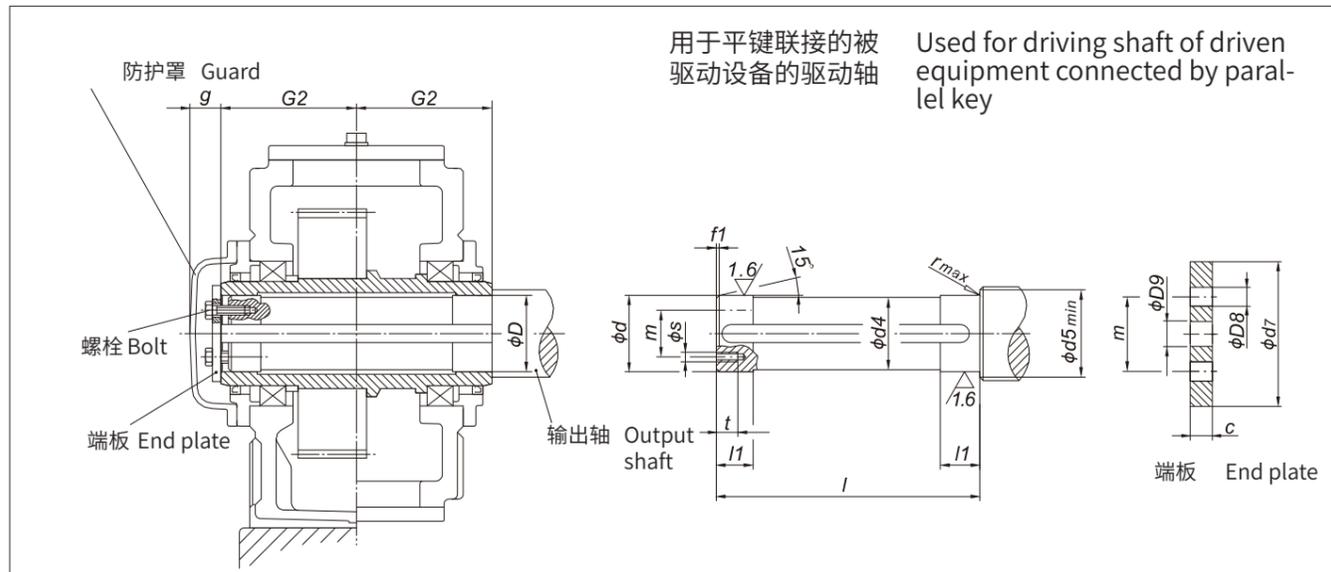
13 Parallel keys and keyway



d	b	h	t1	d+t2
8 < d ≤ 10	3	3	1.8	d+1.4
10 < d ≤ 12	4	4	2.5	d+1.8
12 < d ≤ 17	5	5	3	d+2.3
17 < d ≤ 22	6	6	3.5	d+2.8
22 < d ≤ 30	8	7	4	d+3.3
30 < d ≤ 38	10	8	5	d+3.3
38 < d ≤ 44	12	8	5	d+3.3
44 < d ≤ 50	14	9	5.5	d+3.8
50 < d ≤ 58	16	10	6	d+4.3
58 < d ≤ 65	18	11	7	d+4.4
65 < d ≤ 75	20	12	7.5	d+4.9
75 < d ≤ 85	22	14	9	d+5.4
85 < d ≤ 95	25	14	9	d+5.4
95 < d ≤ 110	28	16	10	d+6.4
110 < d ≤ 130	32	18	11	d+7.4
130 < d ≤ 150	36	20	12	d+8.4
150 < d ≤ 170	40	22	13	d+9.4
170 < d ≤ 200	45	25	15	d+10.4
200 < d ≤ 230	50	28	17	d+11.4
230 < d ≤ 260	56	32	20	d+12.4
260 < d ≤ 290	63	32	20	d+12.4
290 < d ≤ 330	70	36	22	d+14.4
330 < d ≤ 380	80	40	25	d+15.4
380 < d ≤ 440	90	45	28	d+17.4
440 < d ≤ 500	100	50	31	d+19.5
500 < d ≤ 560	110	56	34.3	d+22.2
560 < d ≤ 640	120	63	39	d+24.5

14 建议输出联接尺寸图表 14 Dimensions for recommended output connections

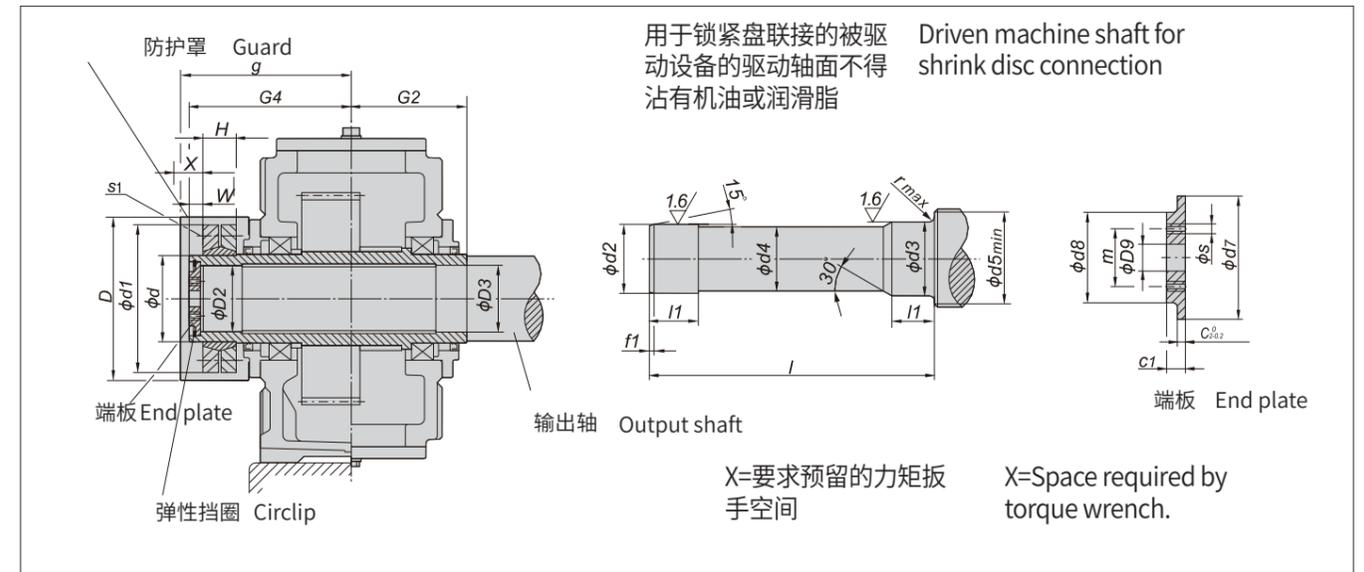
14.1 带平键联接的空心轴尺寸图表 14.1 Hollow shaft with parallel keys



机座号 Size		被驱动设备的驱动轴 Driven machine shaft										端板 End plate				螺栓 Bolt		空心轴 Hollow shaft		
机座号 Size		d	d4	d5	f1	l	l1	r	s	t	c	D8	D9	d7	m	规格 Size	数量 Qty.	D	G2	g
05	95h6	94.5	105	5	328	40	1.6	M10	18	10	11	26	120	70	M10×25	2	95H7	165	40	
06	105h6	104.5	116	5	328	45	1.6	M10	18	10	11	26	120	70	M10×25	2	105H7	165	40	
07	115h6	114.5	126	5	388	50	1.6	M12	20	12	13.5	26	140	80	M12×30	2	115H7	195	40	
08	125h6	124.5	136	6	388	55	2.5	M12	20	12	13.5	26	150	85	M12×30	2	125H7	195	40	
09	135h6	134.5	147	6	467	60	2.5	M12	20	12	13.5	33	160	90	M12×30	2	135H7	235	45	
10	150h6	149.5	162	6	467	65	2.5	M12	20	12	13.5	33	185	110	M12×30	2	150H7	235	45	
11	165h6	164.5	177	7	537	70	2.5	M16	28	15	17.5	33	195	120	M16×40	2	165H7	270	45	
12	180h6	179.5	192	7	537	75	2.5	M16	28	15	17.5	33	220	130	M16×40	2	180H7	270	45	
13	190h6	189.5	206	7	667	80	3	M16	28	18	17.5	33	230	140	M16×40	2	190H7	335	45	
14	210h6	209.5	226	8	667	85	3	M16	28	18	17.5	33	250	160	M16×40	2	210H7	335	45	
15	230h6	229.5	248	8	756	100	3	M20	38	25	22	39	270	180	M20×55	4	230H7	380	60	
16	240h6	239.5	258	8	756	100	3	M20	38	25	22	39	280	180	M20×55	4	240H7	380	60	
17	250h6	249.5	270	8	826	110	4	M20	38	25	22	39	300	190	M20×25	4	250H7	415	60	
18	275h6	274.5	295	9	826	120	4	M20	38	25	22	39	330	210	M20×25	4	275H7	415	60	

△注: 1. 被驱动设备的驱动轴材质: 40Cr或强度更高的钢。
 2. 被驱动设备的驱动轴及平键不在我们的供货范围之内。如果需要的话, 订货。
 3. 防护罩、端板及螺栓均为带平键联接空心轴的标准配置。
 △Note: 1. Material of driven machine shaft: 40Cr or higher strength steel.
 2. Driven machine shaft and parallel keys don't belong to the scope of our supply. Please order separately, if required.
 3. Protection cover, end board and bolts are standard allocation of hollow shaft with parallel key connections.

14.2 带锁紧盘联接的空心轴尺寸图表 14.2 Hollow shaft with shrink disk

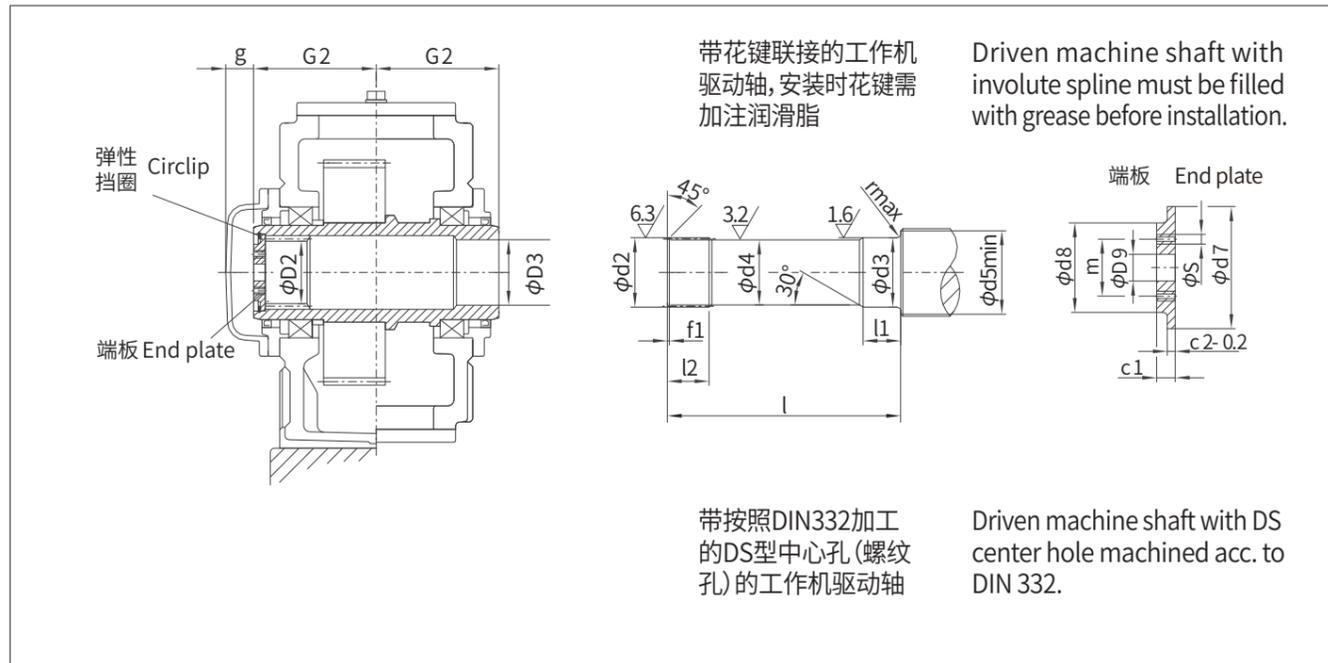


机座号 Size		被驱动设备的驱动轴 Driven machine shaft										端板 End plate				弹性挡圈 Circlip	空心轴 Hollow shaft				锁紧盘 Shrink disk		螺栓 Bolt	防护罩 Guard					
机座号 Size		d2	d3	d4	d5	f1	l	l1	r	c1	c2	d7	d8	D9	m	s	数量 Qty.	D2	D3	G2	G4	Type	d	d1	H	W	S1	D	g
05	100g6	100h6	99.5	114	5	383	53	2	20	8	105	80	26	55	M10	2	105	100H7	100	165	240	SP2-125	125	215	53	20	M12	275	255
06	110g6	110h6	109.5	124	5	383	58	3	20	8	115	85	26	60	M10	2	115	110H7	110	165	240	SP2-140	140	230	58	20	M12	285	255
07	120g6	120h6	119.5	134	5	453	68	3	20	8	125	90	26	65	M12	2	125	120H7	120	195	280	SP2-155	155	263	62	23	M12	330	295
08	130g6	130h6	129.5	145	6	458	73	3	20	8	135	100	26	70	M12	2	135	130H7	130	195	285	SP2-165	165	290	68	23	M16	340	300
09	140g6	140h6	139.5	160	6	539	82	4	23	10	150	110	33	80	M12	2	150	140H7	140	235	330	SP2-175	175	300	68	28	M16	360	345
10	150g6	150h6	149.5	170	6	559	92	4	23	10	160	120	33	90	M12	2	160	150H7	150	235	350	SP2-200	200	340	85	28	M16	395	365
11	165f6	165g6	164.5	185	7	644	112	4	23	10	175	130	33	90	M12	2	175	165H7	165	270	400	SP2-220	220	370	103	30	M16	435	420
12	180f6	180g6	179.5	200	7	649	122	4	23	10	190	140	33	100	M16	2	190	180H7	180	270	405	SP2-240	240	405	107	30	M20	450	420
13	190f6	190g6	189.5	213	7	789	137	5	23	10	200	150	33	110	M16	2	200	190H7	190	335	480	SP2-260	260	430	119	30	M20	500	505
14	210f6	210g6	209.5	233	8	784	147	5	28	14	220	170	33	130	M16	2	220	210H7	210	335	480	SP2-280	280	460	132	30	M20	525	505
15	230f6	230g6	229.5	253	8	899	157	5	28	14	240	180	39	140	M16	2	240	230H7	230	380	550	SP2-300	300	485	140	35	M20	575	575
16	240f6	240g6	239.5	263	8	899	157	5	28	14	250	190	39	150	M20	2	250	240H7	240	380	550	SP2-320	320	520	140	35	M20	595	575
17	250f6	250g6	249.5	278	8	982	177	5	30	14	265	200	39	150	M20	2	265	250H7	250	415	600	SP2-340	340	570	155	35	M20	615	630
18	280f6	280g6	279.5	306	9	982	177	5	30	14	290	210	39	160	M20	2	290	280H7	280	415	600	SP2-360	360	590	162	35	M24	635	625
19-22	敬请垂询																On request												

△注: 1. 被驱动设备的驱动轴材质: 40Cr或强度更高的钢。
 2. 被驱动设备的驱动轴不在供货范围之内。但尺寸函索即复。
 3. 锁紧盘、防护罩、端板及弹性挡圈均为带锁紧盘联接空心轴的标准配置。
 4. 被驱动设备的驱动轴表面不得沾有机油或润滑脂。
 △Note: 1. Material of driven machine shaft: 40Cr or higher strength steel.
 2. Driven machine shaft doesn't belong to the scope of our supply. But you can get the dimensions with e-mail.
 3. Shrink disk, protective cover, end plate and circlip are standard allocation of hollow shaft with shrink disc.
 4. Driven machine shaft must be free of oil or grease.

14.3 带花键空心轴尺寸图表

14.3 Hollow shaft with involute spline



带按照DIN332加工的DS型中心孔(螺孔)的工作机驱动轴
Driven machine shaft with DS center hole machined acc. to DIN 332.

型号 HK3K、HK4K

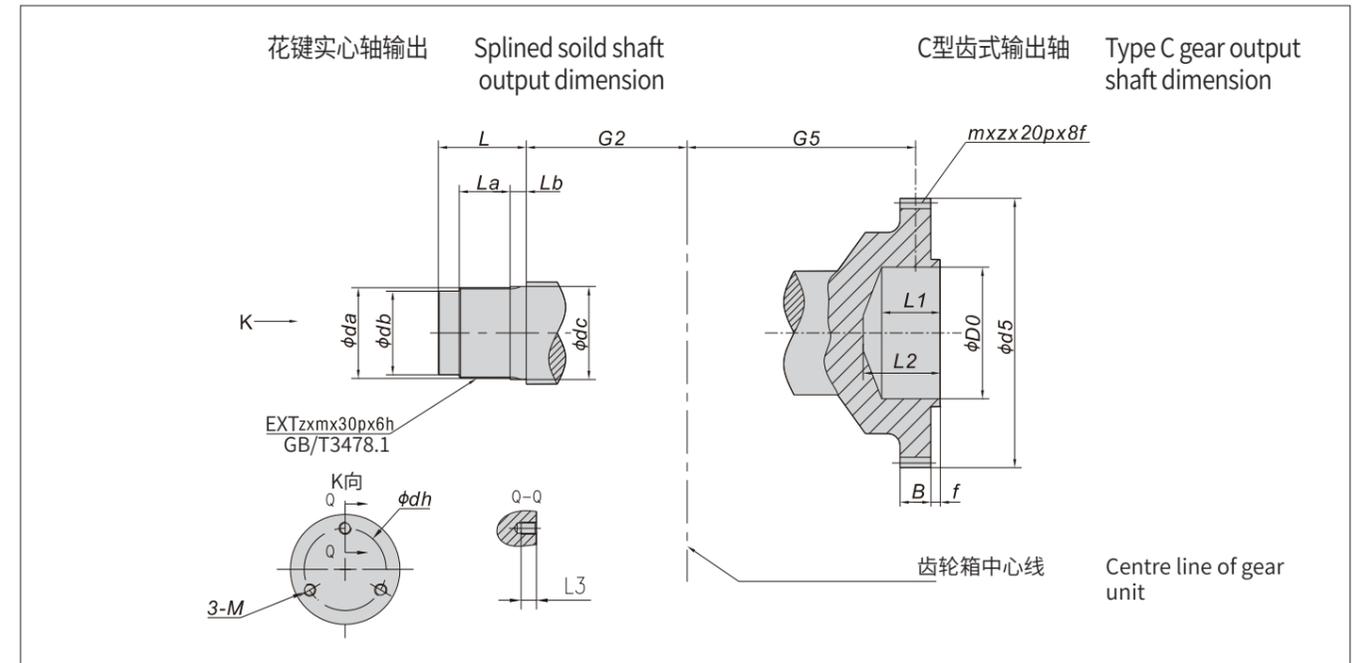
Types HK3K、HK4K

机座号 Size	渐开线花键 Involute splines DIN5480	工作机驱动轴 ¹⁾ Driven equipment shaft ¹⁾										端板 End plate				弹性挡圈 Circlip	空心轴 Hollow shaft				螺栓 Bolt			
		d2	d3	d4	d5	f1	l	l1	l2	r	c1	c2	d7	d8	D9		m	s	数量 Qty.	D2		D3	G2	G
5	W95×3×30×30×8f	94.4h11	100h6	93	114	3	308	53	90	2	20	8	105d9	80	26	55	M10	2	105	89H11	100H7	165	45	M24
6	W95×3×30×30×8f	94.4h11	110h6	93	124	3	308	58	90	3	20	8	105d9	80	26	55	M10	2	105	89H11	110H7	165	45	M24
7	W120×3×30×38×8f	119.4h11	120h6	118	134	3	368	68	105	3	20	8	125d9	90	26	65	M12	2	125	114H11	120H7	195	55	M24
8	W120×3×30×38×8f	119.4h11	130h6	118	145	3	368	73	105	3	20	8	125d9	90	26	65	M12	2	125	114H11	130H7	195	55	M24
9	W140×3×30×45×8f	139.4h11	145h6	138	160	3	444	82	125	4	23	10	150d9	110	33	80	M12	2	150	134H11	145H7	235	55	M30
10	W140×3×30×45×8f	139.4h11	155h6	138	170	3	444	92	125	4	23	10	150d9	110	33	80	M12	2	150	134H11	155H7	235	55	M30
11	W170×5×30×32×8f	169h11	170h6	168	185	5	514	112	150	4	23	10	175d9	130	33	90	M12	2	175	160H11	170H7	270	65	M30
12	W170×5×30×32×8f	169h11	185h6	168	200	5	514	122	150	4	23	10	175d9	130	33	90	M12	2	175	160H11	185H7	270	65	M30
13	W190×5×30×36×8f	189h11	195h6	188	213	5	644	137	180	5	23	5	200d9	150	33	110	M16	2	200	180H11	195H7	335	45	M30
14	W190×5×30×36×8f	189h11	215h6	188	233	5	644	147	180	5	23	5	200d9	150	33	110	M16	2	200	180H11	215H7	335	45	M30
15~22	敬请垂询 On request																							

- 注: 1. 被驱动设备的驱动轴材质: 40Cr或强度更高的钢。
2. 被驱动设备的驱动轴不在我们的供货范围之内。如果需要的话, 请另订货。
3. 防护罩、端板及弹性挡圈均为带花键联接空心轴的标准配置。
4. 带花键联接的工作机驱动轴, 安装时花键需加注润滑脂。

14.4 花键实心轴和C型齿式输出轴尺寸图表

14.4 Dimensions of splined solid shaft and type C output shaft



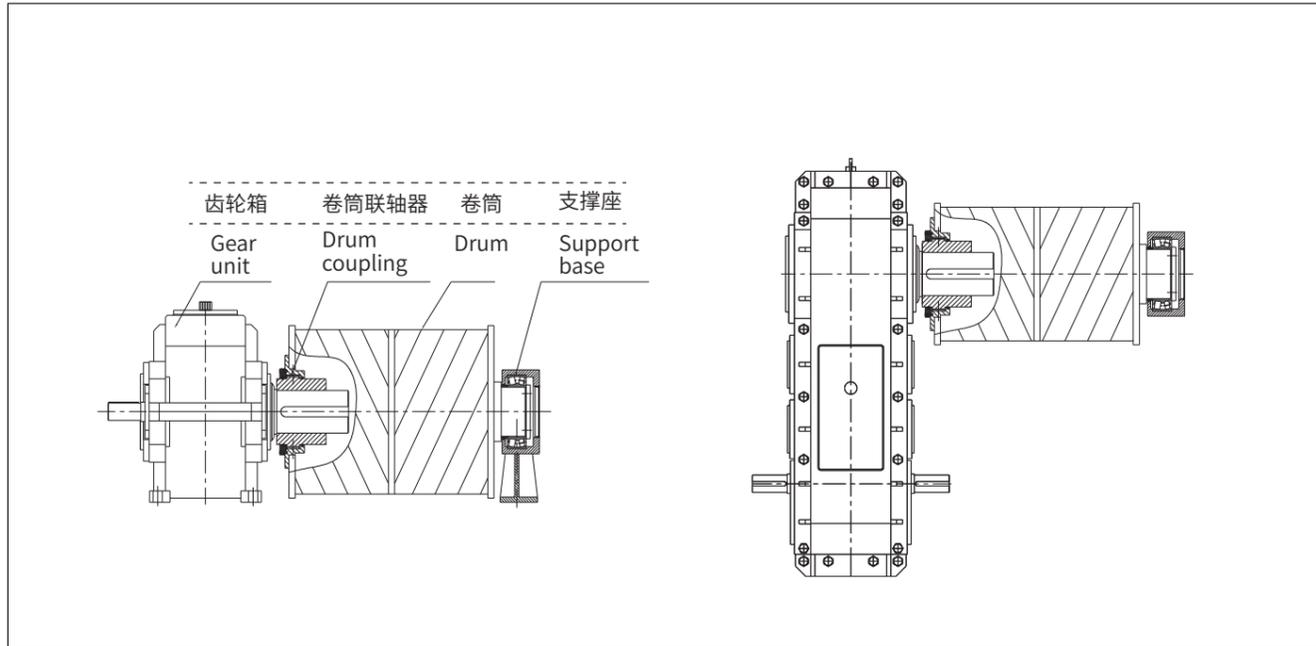
机座号 Size	花键实心轴输出尺寸 Splined solid shaft output dimension											C型齿式输出轴尺寸 Type C gear output shaft dimension							
	G2	z×m	da	db	dc	dh	L	La	Lb	M	L3	m×z	d5	D0	L1	L2	B	f	G5
05	165	18×5	95h6	80h6	100	50	125	55	35	M10	17	4×56	232h11	120H7	50	75	35	14	271
06	165	22×5	115h6	100h6	120	70	135	60	40	M12	20	4×56	232h11	120H7	50	75	35	14	271
07	195	26×5	135h6	120h6	140	90	155	75	45	M12	20	4×56	232h11	120H7	76	100	35	14	346
08	195	26×5	135h6	120h6	140	90	155	75	45	M12	20	4×56	232h11	120H7	76	100	35	14	346
09	235	30×5	155h6	140h6	160	100	165	80	50	M12	20	8×54	448h11	200H7	78	100	50	15	370
10	235	34×5	175h6	160h6	180	110	180	80	55	M16	24	8×54	448h11	200H7	78	100	50	15	385
11	270	38×5	195h6	180h6	200	130	190	100	55	M16	24	8×54	448h11	200H7	78	100	50	15	420
12	270	38×5	195h6	180h6	200	130	190	100	55	M16	24	8×54	448h11	200H7	78	100	50	15	430
13	335	26×8	216h6	190h6	222	140	205	110	60	M16	24	10×48	500h11	200H7	78	100	60	35	513
14	335	26×8	216h6	190h6	222	140	205	110	60	M16	24	10×48	500h11	200H7	78	100	60	35	513
15	400	30×8	248h6	220h6	254	160	220	125	60	M16	24	10×48	500h11	200H7	78	100	60	35	550
16	400	30×8	248h6	220h6	254	160	220	125	60	M16	24	10×48	500h11	200H7	78	100	60	35	575
17	450	30×8	248h6	220h6	254	160	220	125	60	M16	24	12×54	672h11	290H7	78	100	75	45	600
18	450	34×8	280h6	250h6	286	180	235	140	60	M20	30	12×54	672h11	290H7	78	100	75	45	625
19	500	34×8	280h6	250h6	286	180	235	140	60	M20	30	12×54	672h11	290H7	78	100	75	45	625
20	500	38×8	312h6	280h6	318	200	260	155	70	M24	40	12×54	672h11	290H7	78	100	75	45	675
21	550	38×8	312h6	280h6	318	200	260	155	70	M24	40	/	/	/	/	/	/	/	/
22	550	44×8	360h6	320h6	366	230	315	205	75	M24	40	/	/	/	/	/	/	/	/

15 应用示意图

15 Application drawing

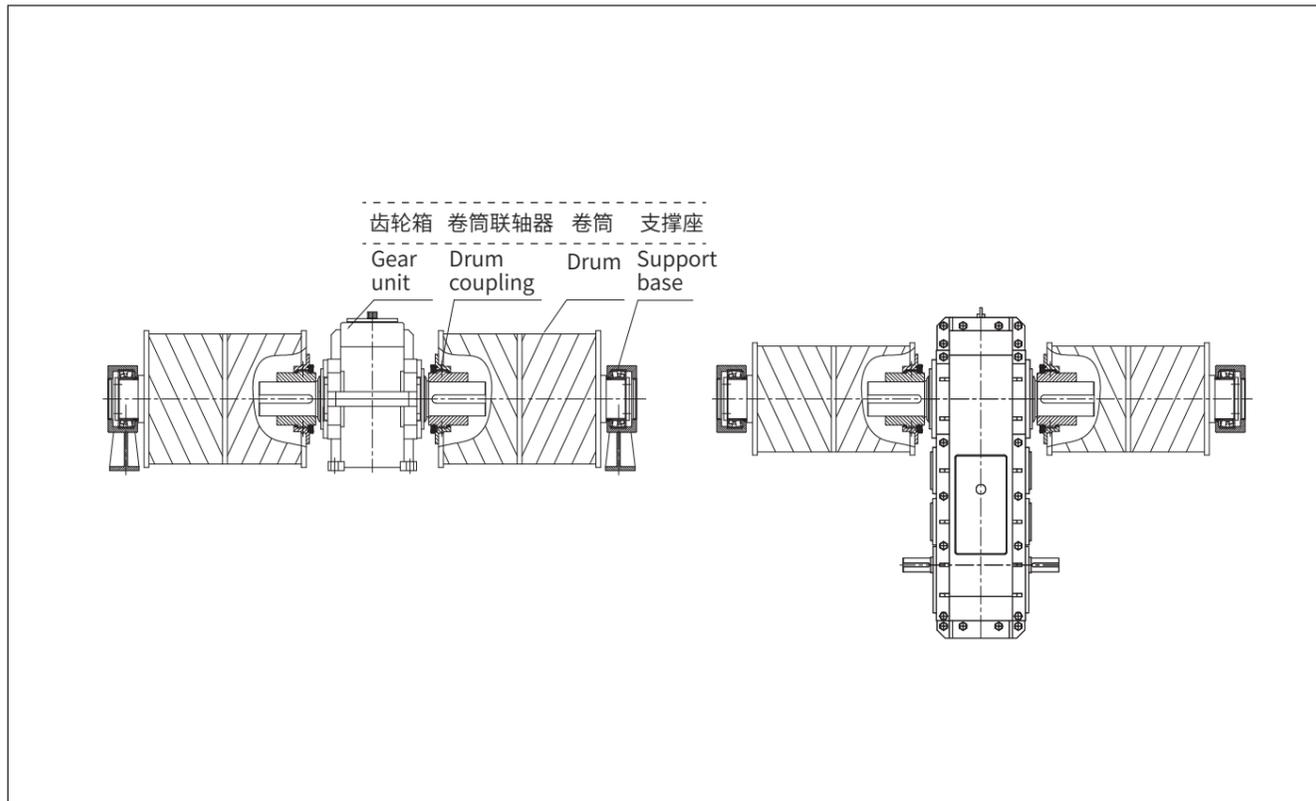
15.1 单卷筒传动示意图

15.1 Single drum transmission



15.2 双卷筒传动示意图

15.2 Double drums transmission



16 润滑油

16 Lubrication oil

重负荷工业齿轮油粘度牌号选用:
VG320 (附件代号UV32)
VG460 (附件代号UV46)

Heavy-loading industrial gear wheel
oil viscosity brand selection:
VG320 (Accessory codeUV32)
VG460 (Accessory codeUV46)

环境温度 Ambient temperature °C	-20 °C ~ +40 °C	+30 °C ~ +50 °C
粘度牌号 Viscosity brand number	VG320	VG460

△注:1.上表中粘度牌号为40°C温度下的ISO-VG粘度。
2.环境温度低于-10°C必须使用合成油。
3.为保证产品寿命,实际使用中建议使用合成油。
4.若环境温度超出上述范围,敬请垂询。

△Note:1.Viscosity brand number in the above table is ISO-VG viscosity under 40°C.
2.Synthetic oil must be used when ambient temperature is lower than -10°C.
3.To ensure product lifespan,we suggest synthetic oil in application.
4.If ambient temperature exceeds the above range, please consult us.

随着技术迭代进步,博能产品样本将会同步更新,请见谅。
Along with the technology advancedet.,the product of the manual of Boneng will be changed,please forgive.

控制层



X3010 PLC
EtherCAT&Modbus
24VDC



X3050 运动控制器
EtherCAT&Modbus
24VDC

驱动层

C/F/K/S-M
* . . . D
马达分布式
变频驱动器

AM 变频驱动器



Modbus
380~480VAC
0.75~5.5kW

A1 变频驱动器



Modbus/CANopen
/PROFINET
380~480VAC
0.75~132kW

MX&AX
伺服马达&伺服
驱动器



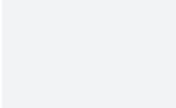
EtherCAT/
PROFINET
380~480VAC
0.28~14kW
1500/2000r/min
3000/4500r/min

C/F/K/S-MX
&AX齿轮伺
服马达&伺
服驱动器



EtherCAT/
PROFINET
380~480VAC
0.28~14kW
i=1.25~315

PX-MX&AX
行星伺服马达
&伺服驱动器



EtherCAT/
PROFINET
380~480VAC
0.38~14kW
i=3~100

PN-MN&AN
行星伺服马达
&伺服驱动器



EtherCAT
380~480VAC
0.28~5.03kW
i=3~100

马达层



C/F/K/S/R
齿轮马达



380~480VAC
0.09~200kW
i=1.25~500

MP/MU/MA
三相交流异步马达



380~480VAC
0.09~90kW
960/1450r/min
1160/1750r/min

HB/BE/HK
齿轮箱



4.2~15775kW
i=5.6~450

P/PK
行星齿轮箱



0.4~14000kW
i=25~4000

PW
卷扬齿轮箱



1~1810kW
i=13~940

PS
回转齿轮箱



1~1626kW
i=14~947

齿轮层

EtherCAT&
Modbus
380~480VAC
0.25~3kW
i=4~355

J/JB
升降机



0.35~22.63kW
i=5~34

T
转向箱



0.08~303kW
i=1:1~3:1

博能传动(沈阳)有限公司	BONENG TRANSMISSION(SHENYANG)CO.,LTD.
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天津市北辰区双海道6号 宏鹏工业园7号车间 电话: 022-26929556	7th Workshop, Hongpeng Industrial Park, No. 6 Shuanghai Road, Beichen District, Tianjin City, China TEL: 022-26929556
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山东省潍坊市安丘市经济开发区 汶水路与昆仑大街交叉口往北 100米路东1号车间 电话: 0536-2141166	1st Workshop, Economic Development Zone, Anqiu, Weifang City, Shandong Province, China TEL: 0536-2141166
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河南省开封市宋城路四大街11号 海神机械院内五号厂房 电话: 0371-23335238	5th Workshop, Haishen Machinery, No.11, Fourth Street, Songcheng Road, New District, Kaifeng City, Henan Province, China TEL: 0371-23335238
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四川省成都市金牛区金牛坝路9号5栋 向荣中心A座7楼-703 电话: 028-87741100	703, 7th Floor, Block A, Xiangrong Center, Building 5, No. 9 Jinniuba Road, Jinniu District, Chengdu City, Sichuan Province, China TEL: 028-87741100
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江苏省苏州市相城区如元路100号 电话: 0512-66189662	No. 100, Ruyuan Road, Xiangcheng District, Suzhou, Jiangsu Province, China TEL: 0512-66189662

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1250 E 222nd Euclid, OH 44117, United States TEL: 1-216-618-0138 TEL: 1-216-618-0496 TEL: 1-216-618-3099	1250 E 222nd Euclid, OH 44117, United States TEL: 1-216-618-0138 TEL: 1-216-618-0496 TEL: 1-216-618-3099
博能传动(印度)有限公司	BONENG TRANSMISSION(INDIA)PVT.LTD
Plot No. E-10/3, MIDC sinner (Malegaon) Industrial Area, Nashik, 422123, Maharashtra, India. TEL:+91-11- 4507 6293 (DELHI) TEL:+91-22-2781 3385 (MUMBAI)	Plot No. E-10/3, MIDC sinner (Malegaon) Industrial Area, Nashik, 422123, Maharashtra, India. TEL:+91-11- 4507 6293 (DELHI) TEL:+91-22-2781 3385 (MUMBAI)