

BONENG



GA 系列梅花形弹性联轴器
series torsionally flexible jaw-type couplings

GC 系列鼓形齿联轴器
series curved-tooth gear couplings

GA 梅花形弹性联轴器

Torsionally flexible jaw-type couplings



- ◆ 结构尺寸小、重量轻、传递扭矩高
- ◆ 能有效改善机械的运行质量和稳定性
- ◆ 能使传动时的振动得到缓冲，并吸收由动力机的不均匀运转所产生的冲击
- ◆ 最大扭转角均能达到5°
- ◆ 可水平安装，也可立式安装
- ◆ Small, light and high torque transmission.
- ◆ Improve the operation level and stability.
- ◆ Slow drive vibration and absorb impact of running machine.
- ◆ Maximum torsion angle up to 5° .
- ◆ Can be in horizontal or vertical installation.

GC 鼓形齿联轴器

Curved-tooth gear couplings



- ◆ 具有最佳轮齿形状并使用优质材料，运行可靠性极高
- ◆ 传递扭矩大,纠偏能力强
- ◆ 高速运转而不产生振动,运行平稳
- ◆ 最大允许角度偏差1.5°
- ◆ 优良的防腐性能
- ◆ 可水平安装，也可立式安装
- ◆ Best gear tooth shape with good material,running with high reliability.
- ◆ High transmission torque and error correction capability.
- ◆ Smooth operation and no vibration in high speed.
- ◆ The maximum allowable deviation angle up to 1.5° .
- ◆ Corrosion resistance.
- ◆ Can be in horizontal or vertical installation.



产品广泛应用于电力、煤炭、水泥、冶金、港口、农业、船舶、起重、环保、舞台、物流、纺织、造纸、轻工、塑料等各个领域。

博能传动公司总部和各大区域的技术专家以及各区域办事处的应用工程师、售后服务技师竭诚为您提供全面的技术咨询和完善的服务。

In all industry, all technology team and sales of BONENG will offer best technical solution and best service to you.

注意事项！ 必须严格遵守以下各项！

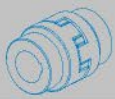
Note: You must conform to the following instructions

- ◆ 样本中的结构示意图、外形图及其他附图只属范例，无严格比例要求。（未注尺寸单位均为mm）。
- ◆ 所注重量仅为平均值，并不具有约束力。
- ◆ 为防止意外事故发生，所有旋转部件均按照使用者所在国家和地区的安全规范由购置方加罩保护。
- ◆ 试车之前必须认真阅读使用说明书。

- ◆ The structure scheme, appearance diagram and other attached diagrams in sample are examples, there is no strict proportion requirement. (The unmarked dimension units are mm).
- ◆ We can only refer to the marked weight in the manual.
- ◆ To prevent accidents, all the rotation parts should be added with protective covers according to local safety regulations and laws.
- ◆ Before testing, users should read instruction manual carefully.

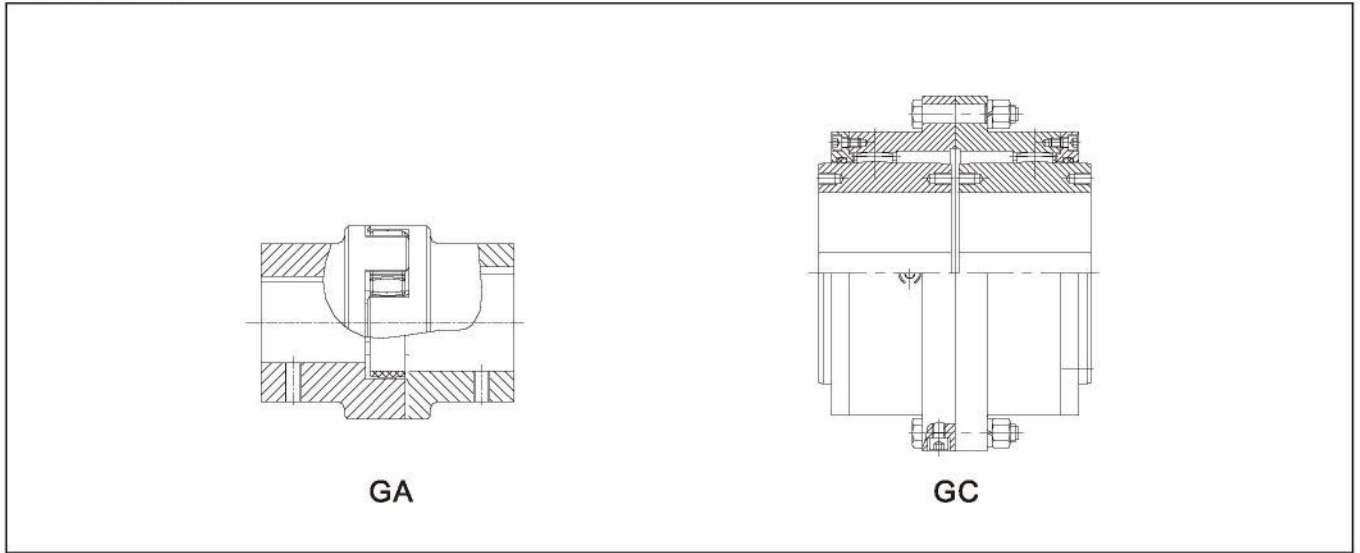
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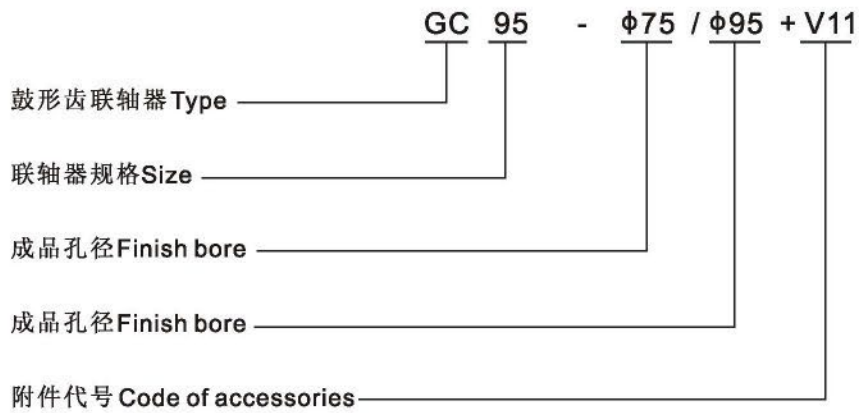
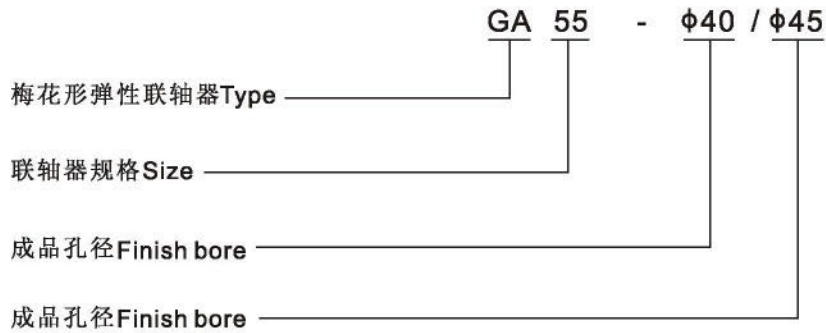
1 结构示意图:

1 Sectional Drawings:



2 型号表示方法:

2 Type Designation:





3 GA梅花形弹性联轴器:

3 GA Torsionally flexible jaw-type couplings:

3.1 选型及举例:

3.1 Coupling selection and example:

序号 Steps	说明 Specification	代号 Symbol	参数计算 Calculate parameter				
1	被驱动设备系数 Driven machine factor	f ₁	负荷性质 Load characteristic	每天使用时间(小时) Operating time(h/d)			
			均匀负载 Uniform	≤2	2-10	10-24	
			一般冲击 Moderate	1.00	1.25	1.50	
			强烈冲击 Heavy	1.25	1.50	2.00	
2	启动频率系数 Starting frequency factor	f _z	启动频率(次/小时) Starting frequency(T/h)	0-1	1-30	30-60	60-200
			f _z	1.0	1.2	1.3	1.5
3	环境温度系数 Ambient temperature factor	f _t	环境温度 Ambient temperature	-10℃~+30℃	+30℃~+40℃	+40℃~+60℃	+60℃~+80℃
			f _t	1	1.2	1.4	1.8
4	许用输入转速 Permissible input speed	n ₁	n ₁ ≤ n _{1max}	详见联轴器基本参数表 See the table of technical data			
5	计算扭矩 Calculation of rated driving torque	T _n	T _n = 9550 · P ₁ /n 或者其他驱动扭矩数据 or other torque data of driving side				
6	确认规格 Size confirmation	T _{2N}	T _{2N} ≥ T _n · f ₁ · f _z · f _t 根据计算扭矩必须小于联轴器许用额定扭矩的原则选择联轴器规格, 校对轴孔是否适合。 Select the type of the coupling and check the finish hole according to the principle which calculated torque must be less than the permissible normal torque.				
7	特殊环境条件 Special ambient conditions	/	高温、低温、灰尘多, 化学作用(例: 酸碱等), 露天(直接日照、冰、水淋等), 请咨询。 For applications in extreme conditions such as high temperature, low temperature, dusty place, Chemical reaction (acid, alkali etc), open field (Sunshine, ice rain etc) Please consult Boneng for further information.				

选型举例

已知条件:

- 1、输入功率P₁=30kW, 输入转速n₁=1470r/min;
- 2、负荷性质为一般冲击, 工作8小时/天, 启动频率为10次/小时, 环境温度为60℃下工作,
- 3、轴孔为Φ55/Φ60。

选型步骤:

- 1、根据负荷性质及启动频率可得出被驱动设备系数 f₁=1.5, 启动频率系数f_z=1.2, 环境温度系数f_t=1.4;
- 2、计算扭矩:T_n=9550 · P₁/n=9550 · 30/1470=195N · m;
- 3、校核扭矩:
T_{2N} ≥ T_n · f₁ · f_z · f_t=195 · 1.5 · 1.2 · 1.4=491.4 N · m,
查基本参数表,T_{2N}=625 ≥ 491.4 N · m,选规格为GA65;
- 4、校对轴孔D: 适合

确定联轴器型号为GC65-Φ55/Φ60。

Selection example

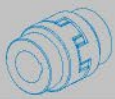
Known Criteria:

1. Input power P₁=30kW, input speed n₁=1470rpm
2. Load characteristic is moderate, working for 8h/day, starting frequency 10 times/hour, ambient temperature <60℃
3. Finish bore Φ55/Φ60

Selection steps:

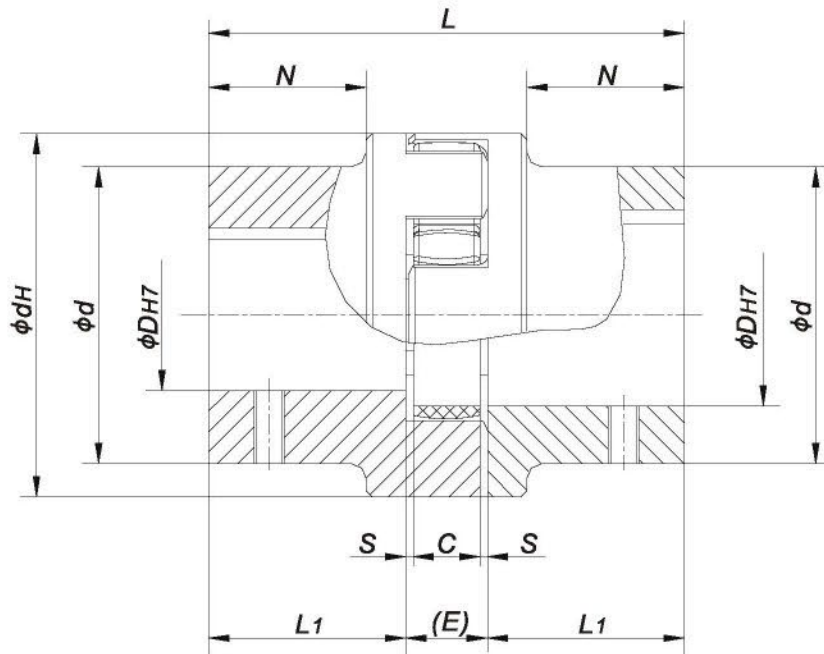
1. According to load characteristic and starting frequency, we can arrive at: f₁=1.5, f_z=1.2, f_t=1.4
2. Calculate rated torque of driving side:
T_n=9550 · P₁/n=9550 · 30/1470=195N · m
3. Check normal torque of coupling:
T_{2N} ≥ T_n · f₁ · f_z · f_t=195 · 1.5 · 1.2 · 1.4=491.4 N · m,
check up the technical data table, T_{2N}=625 ≥ 491.4N · m
select GA65.
4. Check finish bore D: Ok (Acceptable)

Choose: GC65-Φ55/Φ60



3.2 基本参数表:

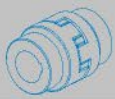
3.2 Technical data:



规格 Size	T _{2N} (N·m)	n _{1max} (rpm)	D 成品孔径 Finish bore	d	dH	L	N	L ₁	E	c	s	转动惯量 Moment of inertia (kgm ²)	重量 Weight (kg)
GA19	10	14000	9\11\14\19	32	41	66	20	25	16	12	2	0.00007	0.4
GA24	35	10600	11\14\16\19\24	40	56	78	24	30	18	14	2	0.00025	0.8
GA28	95	8500	14\19\24\25\28	48	67	90	28	35	20	15	2.5	0.00059	1.3
GA38	190	7100	20\25\28\30 32\35\38	66	80	114	37	45	24	18	3	0.0019	2.7
GA42	265	6000	25\28\30\32 35\38\40\42	75	95	126	40	50	26	20	3	0.0039	3.9
GA48	310	5600	25\30\32\35 38\40\42\45\48	85	105	140	45	56	28	21	3.5	0.0067	5.4
GA55	410	4750	30\32\35\38\40 42\45\48\50\55	98	120	160	52	65	30	22	4	0.0134	8.4
GA65	625	4250	35\38\40\42\45 48\50\55\60\65	115	135	185	47	75	35	26	4.5	0.03	13.8
GA75	1280	3550	40\42\45\48\50 55\60\65\70\75	135	160	210	53	85	40	30	5	0.066	21.6
GA90	2400	2800	50\55\60\65 70\75\80\85\90	160	200	245	62	100	45	34	5.5	0.174	37.5

注：1 联轴器材质为球墨铸铁，弹性块材质为浇注聚氨酯，弹性体硬度：邵尔HA92°；
2 联轴器的短时过载扭矩T_A≤2×T_{2N}；
3 质量和转动惯量为预留最小孔径时数据。

Note:
1. Coupling is made of nodular cast iron, The material of spider is pouring polyurethane with shore hardness HA92° .
2. Momentary overload torque of coupling T_A≤2×T_{2N}.
3. Weight and mass moment of inertia each refer to the minimum pilot bore.

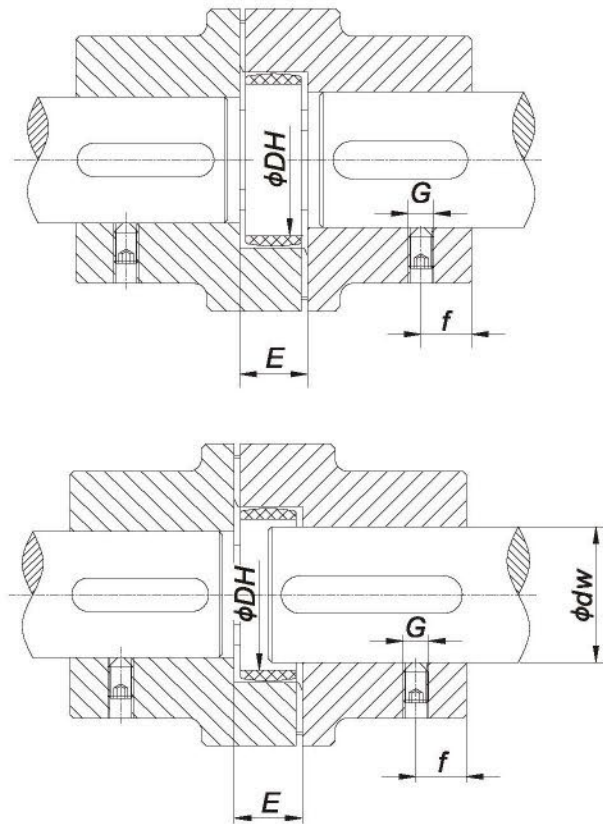


3.3 安装与偏差:

3.3 Installation and displacements:

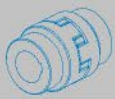
1) 安装:

1) Installation:



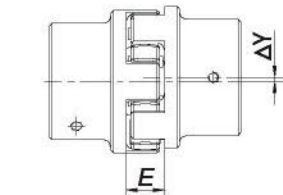
带键槽轴可伸入弹性体内孔(轴径 ϕdw)
The permissible bore diameters
(Diameter of shaft ϕdw).

规格 Size	GA19	GA24	GA28	GA38	GA42	GA48	GA55	GA65	GA75	GA90
安 装 尺 寸 Mounting Dimension										
E	16	18	20	24	26	28	30	35	40	45
DH	18	27	30	38.5	46	51	60	68	82	100
d Wmax	12	20	22	28	36	40	48	55	65	80
紧 固 螺 钉 Set screw										
G	M5	M5	M8	M8	M8	M8	M10	M10	M10	M12
f	10	10	15	15	20	20	20	20	25	30
预紧扭矩 Tightening torque T (N·m)	2	2	4.8	10	10	10	17	17	17	40

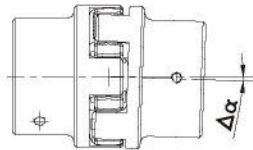


2) 偏差:

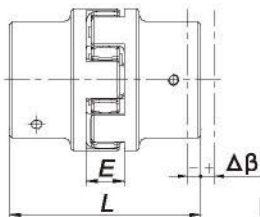
2) Displacements:



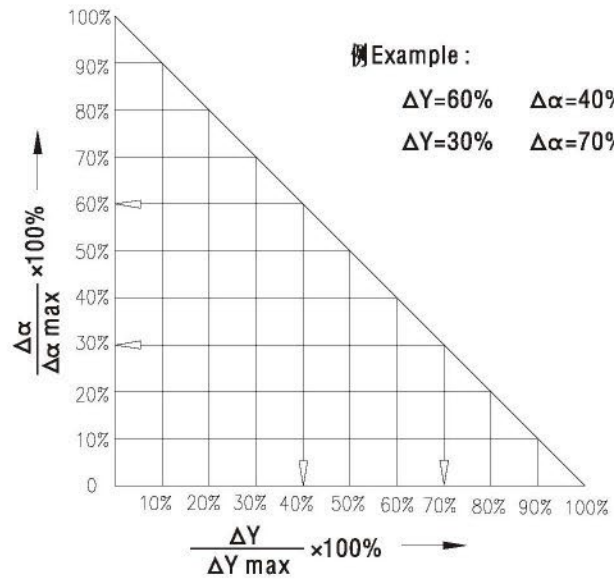
径向偏差 ΔY
Radial displacements ΔY



角向偏差 $\Delta \alpha$
Angular displacements $\Delta \alpha$



轴向偏差 $\Delta \beta$
Axial displacements $\Delta \beta$
 $L_{max/min} = L + \Delta \beta$



Example for the displacements combinations given in above picture.

符合 The following conditions must be met

$$100\% \geq \frac{\Delta Y}{\Delta Y \max} + \frac{\Delta \alpha}{\Delta \alpha \max}$$

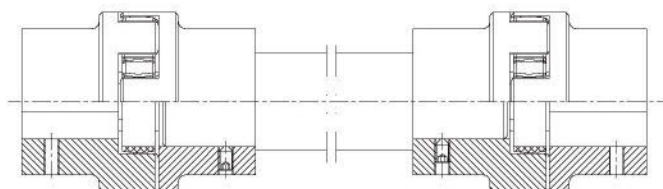
$\Delta \beta \max(\text{mm})$	-0.5	-0.5	-0.7	-0.7	-1	-1	-1	-1	-1.5	-1.5
	+1.2	+1.4	+1.5	+1.8	+2	+2.1	+2.2	+2.6	+3	+3.4
$\Delta Y \max (\text{mm})$ $n_1=1500\text{r/min}$	0.2	0.22	0.25	0.28	0.32	0.36	0.38	0.42	0.48	0.5
$\Delta \alpha \max$ $n_1=1500\text{r/min}$	1.2	0.9	0.9	1	1	1.1	1.1	1.2	1.2	1.2

以上所列的弹性联轴器的允许偏差值均为标准值；其前提条件是联轴器的扭矩 T_{2N} ，转速 1500r/min ，环境温度 $+30^\circ\text{C}$ ；若同时发生几项偏差，必须按此例限制；为确保联轴器的轴向间隙，必须保持安装距离 E 的精度；为使弹性体齿表面避免应力集中，轴向尺寸 L 应取最小值。

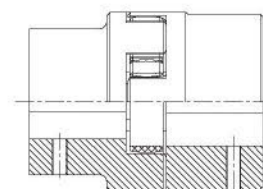
The above-mentioned figures of displacement of flexible couplings are standard values taking into account the load of the coupling up to the normal torque T_{2N} and an operating speed $n=1500\text{rpm}$, along with an ambient temperature of $+30^\circ\text{C}$; The displacement figures may only be used one by one if they appear simultaneously. They must be limited in proportion. Care should be taken to maintain the distance dimension E accurately in order to allow for axial clearance of the coupling while in operation. In case of an axial shifting, the dimension " L " has to be considered as a minimum dimension in order to keep the spider free from pressure on its faces.

3.4 专用型 (来电咨询) :

3.4 Special type(Please consult us):



带中间轴型
With intermediate shaft



加大轴径型
Increased shaft diameter



4 GC型鼓形齿联轴器:

4 GC Curved-tooth gear couplings:

4.1 选型及举例:

4.1 Coupling selection and example:

序号 Steps	说明 Specification	代号 Symbol	参数计算 Calculate parameter				
1	被驱动设备系数 Driven machine factor	f ₁	负荷性质 Load characteristic	每天使用时间(小时) Operating time(hours/day)			
			均匀负载 Uniform	≤2	2-10	10-24	
			一般冲击 Moderate	1.25	1.50	1.75	
			强烈冲击 Heavy	1.50	1.75	2.00	
2	启动频率系数 Starting frequency factor	f _z	启动频率(次Times/小时H) Starting frequency	0-1	1-30	30-60	60-200
			f _z	1.0	1.2	1.3	1.5
3	许用输入转速 Permissible input speed	n ₁	n ₁ ≤ n _{1max} 详见联轴器基本参数表 See the technical data				
4	计算扭矩 Calculate rated driving torque	T _n	T _n = 9550 · P ₁ /n 或者其他驱动扭矩数据 or other torque of driving side				
5	确认规格 Size confirmation	T _{2N}	T _{2N} ≥ T _n · f ₁ · f _z 根据计算扭矩必须小于联轴器许用额定扭矩的原则选择联轴器规格, 校对轴孔是否适合。 Select the type of the coupling and check the finish hole according to the principle which calculated torque must be less than the permissible rated torque.				
6	一般环境条件 Normal ambient conditions	/	环境温度 Ambient temperature -10~+40℃。				
7	特殊环境条件 Special ambient conditions	/	高温、低温、灰尘多, 化学作用(例: 酸碱等), 露天(直接日照、冰、水淋等), 请咨询。 For applications in high or low temperature ,dusty, chemical reaction(acid, alkali), open field (sunshine,ice,rain etc), please consult us.				

选型举例

已知条件:

- 1、输入功率P=90KW,输入转速n=200r/min;
- 2、负荷性质为一般冲击, 工作8小时/天,
启动频率为10次/小时,水平安装;
- 3、轴孔为Φ75/Φ90。

选型步骤:

- 1、根据负荷性质及启动频率可得出
被驱动设备系数f₁=1.75, 启动频率系数f_z=1.2;
- 2、计算扭矩T_n=9550 · P₁/n=9550 · 90/200=4298N · m;
- 3、校核扭矩: T_{2N} ≥ T_n · f₁ · f_z
=4298 · 1.75 · 1.2=9026N · m,
查基本参数表,T_{2N}=10000 ≥ 9026(N · m) ,
选择规格为GC95;
- 4、校对轴孔D:适合;

确认联轴器型号为GA95-Φ75/Φ90。

Selection example

Known Criteria:

1. Input power P=90kW, input speed n=200rpm,
2. Load characteristic is moderate, work for 8h/day,
start-up frequency f_z=10, horizontal mount,
3. Finish bore Φ75/Φ90

Selection steps:

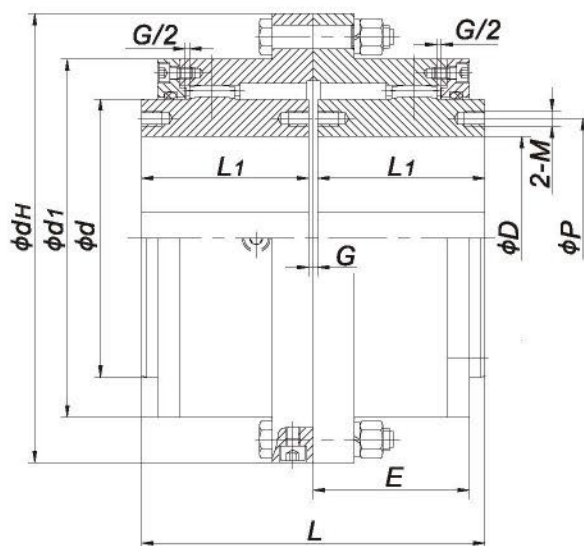
1. According to load characteristic and
Starting frequency, we can arrive at
driven machine factor f₁=1.75, f_z=1.2
2. Calculate normal torque of driving side:
T_n=9550 · P₁/n=9550 · 90/200=4298N · m;
3. Check torque of coupling:
T_{2N} ≥ T_n · f₁ · f_z=4298 · 1.75 · 1.2=9026N · m,
check up the technical data table,
T_{2N}=10000 ≥ 9026 (N · m) select type GC95,
4. Check finish bore D: Acceptable

Choose: GA95-Φ75/Φ90



4.2 基本参数表:

4.2 Technical data:



规格 Size	T2N (kN·m)	n_{1max} (rpm)	DH7 成品孔径 Finish bore	L	dH	d1	d	L1	E	G	P	M	转动惯量 Moment of inertia (kgm ²)	Oil	重量 Weight (kg)
GC50	1.3	3000	35\38\40\42 45\48\50	89	119	94	65	43	42	3	/	/	0.006	0.05	4.6
GC60	2.8	3000	40\42\45\48 50\55\60	103	144	112	80	50	48	3	/	/	0.018	0.07	8.1
GC75	5	3000	55\60\65 70\75	127	175	141.5	103	62	58.5	3	/	/	0.05	0.13	14.5
GC95	10	3000	70\75\80 85\90\95	157	214	168	125	76	72	5	/	/	0.125	0.21	24.7
GC110	16	3000	90\95\100 110	185	242	193	148	90	84	5	/	/	0.23	0.36	35.3
GC150	32	2800	100\110\120 130\140\150	246	335	265	200	120	109	6	175	M12×15	1.13	0.8	96.6
GC190	62	2550	140\150\160 170\180\190	308	395	325	248	150	132	8	220	M16×20	2.88	1.51	165
GC240	115	2300	170\180\190 200\220\240	388	470	387	307	190	165	8	276	M16×20	6.41	2.43	271
GC280	244	1900	200\240\250 260\280	570	605	486	386	280	225	10	335	M20×24	24.2	6.44	609

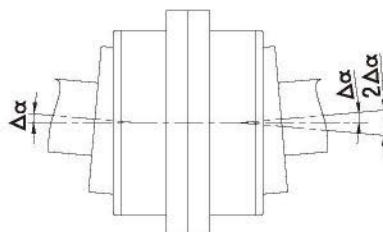
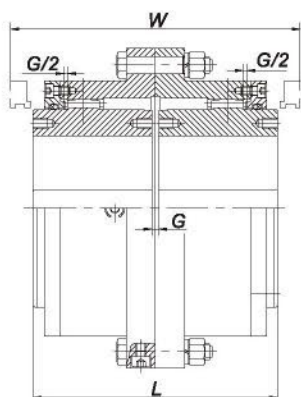
- 注：1、重量、注油量和转动惯量均为预留最小孔数据；
 2、所选联轴器的最大允许角度偏差不得大于1.5°；
 3、标准产品仅适应于水平位置安装，需立式安装场合时请选附件V11，详见P9页。
 4、出厂未配润滑脂，在环境温度-10℃~+40℃时，联轴器润滑脂为000#锂基脂，附件代号V00。

1. The weight, oil feeding and mass moment of inertia is refer to the minimum pilot bore.
 2. The max permissible angular displacement of coupling selected must not exceed 1.5° .
 3. The standard line is only for the horizontal assembly, for vertical mounting, pls select accessory V11, see 9 page.
 4. Out-factory without lubrication grease, when ambient temperature is between -10℃~+40℃, 000# lithium grease should be used for the coupling, accessory code is V00.

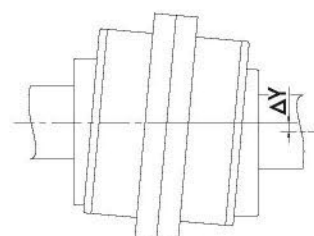


4.3 安装与偏差:

4.3 Installation and displacements:



$\Delta\alpha = 0.75^\circ$
 最大角向补偿量(最大角向偏差)
 Max. angular compensation
 (Max. Angular displacement)



二轴线无角向位移时,联轴器
 许用径向补偿量(最大径向偏差)
 Permissible radial compensation of
 coupling in the case of no angular
 displacement between 2 axles
 (Max. Radial displacement)

规格 Size	GC50	GC60	GC75	GC95	GC110	GC150	GC190	GC240	GC280
G	3	3	3	5	5	6	8	8	10
L	89	103	127	157	185	246	308	388	570
W	108	122	153	184	216	272	342	426	632
ΔY	0.32	0.4	0.5	0.6	0.7	1	1.2	1.5	2
$\Delta\alpha_{max}$	0.75°	0.75°	0.75°	0.75°	0.75°	0.75°	0.75°	0.75°	0.75°

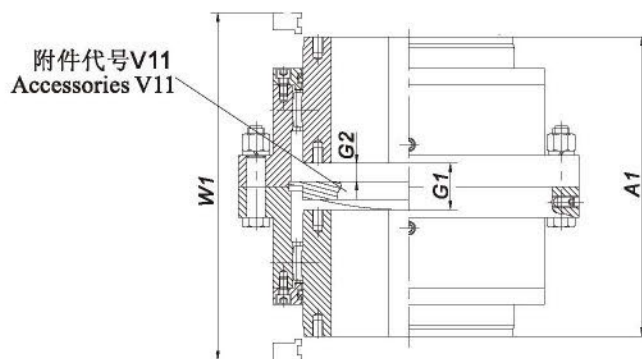
注: W尺寸为更换密封件所需尺寸。

Note: W dimension is for replacing seals.



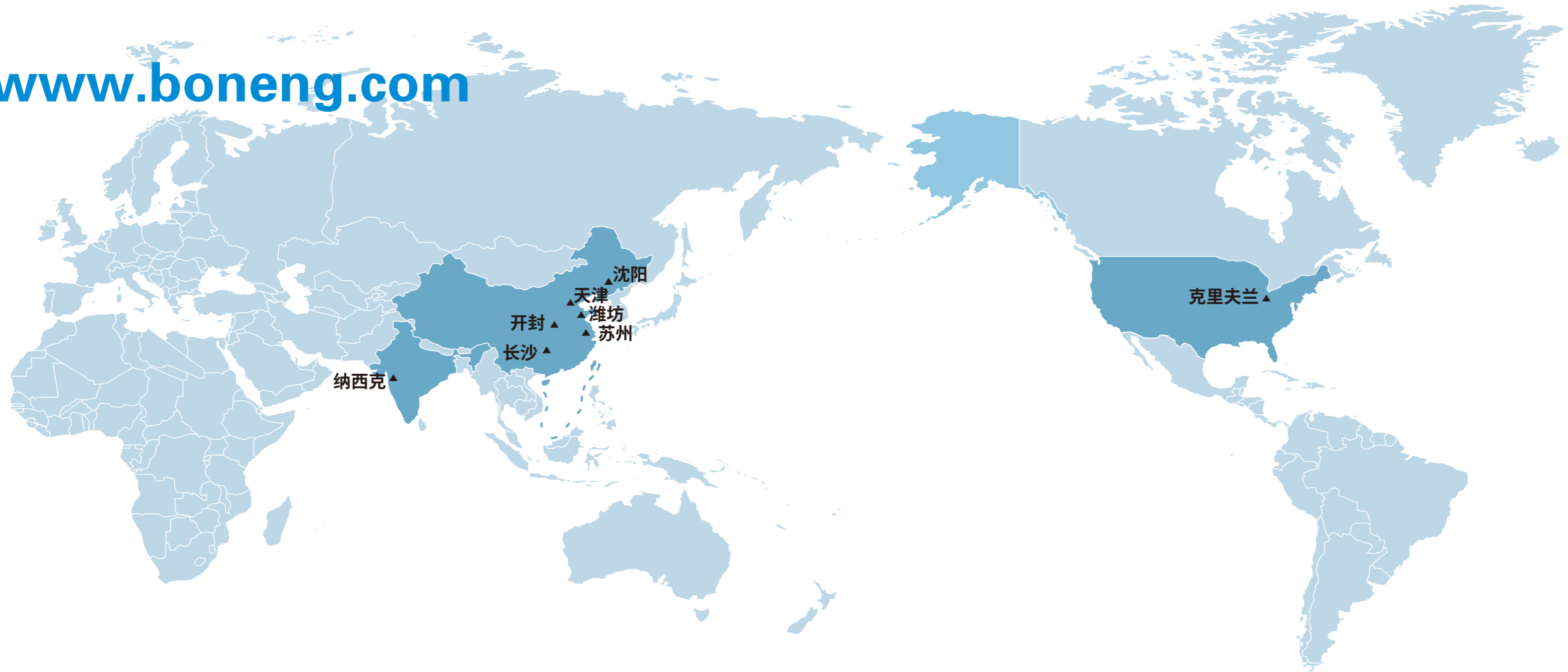
4.4 立式安装附件（附件代号V11）：

4.4 Accessories for vertical mounting (Accessories V11) :



规格 Size	GC50	GC60	GC75	GC95	GC110	GC150	GC190	GC240	GC280
A1	97	115	141	181	213	282	356	464	610
G1	11	15	17	29	34	30	56	84	50
G2	2	4	5	11	13	17.5	23	36	17
W1	116	134	167	208	244	296	390	502	672

有关公司产品目录的内容，随着技术进步等，将会有变更，望谅解！



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