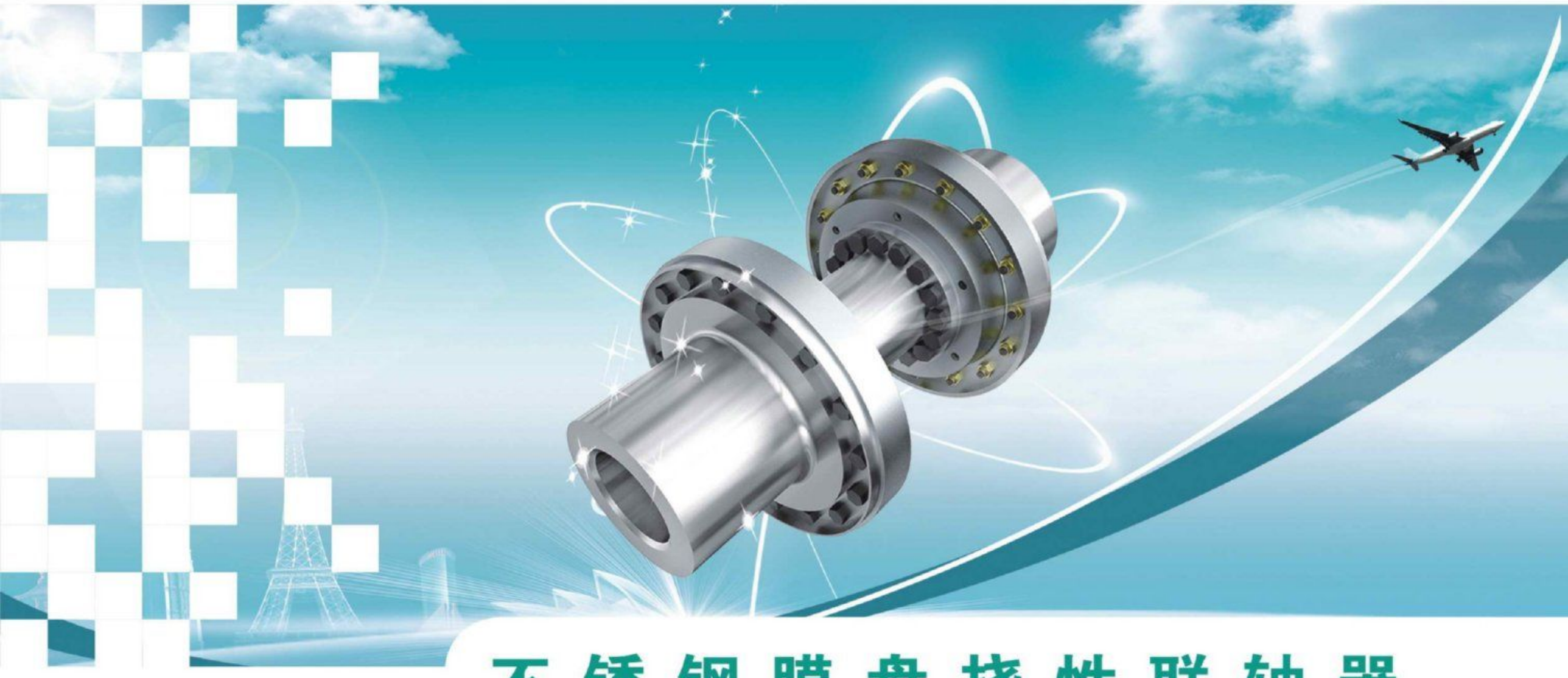
POWER TRANSMISSION PRODUCTS



不锈钢膜盘挠性联轴器

FLEXIBLE STAINLESS STEEL DIAPHRAGM COUPLINGS

推荐应用于由汽轮机、燃气轮机、能量回收透平和电动机经增速齿轮箱驱动的高速旋转设备，尤其适合于转速较高的机组；

推荐应用于要求低悬挂质量和低附加弯矩的场合。

Recommended to be applied to the high rotation speed equipment driven by steam turbine, gas–turbine, energy recovering turbine, electric motor through speed increasing gear;

Recommended to be applied to the cases where the coupling lower overhung mass and additional bending moment required.

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无锡创明传动工程有限公司
WUXI TRUMY TRANSMISSION ENGINEERING CO.,LTD.

不锈钢膜盘挠性联轴器简介 A brief introduction to flexible stainless steel diaphragm couplings

不锈钢膜盘挠性联轴器（以下简称膜盘联轴器）为旋转机械提供了一种高性能的联接方式，它可以在传递扭矩的同时，依靠特定型面的金属膜盘的变形来吸收机组的不对中。它具有强度高、重量轻、功率密度大、补偿不对中能力强、对机组的附加作用力小等优点，广泛应用于由燃气轮机、蒸汽轮机、电动机驱动的各类泵、风机、压缩机组,特别适合于对联轴器重量和悬挂弯矩比较敏感的高速大功率透平压缩机组。

膜盘联轴器之膜盘采用高强度不锈钢制造，不仅强度高、重量轻，而且具有天然的抗腐蚀能力，可广泛应用于各类工业流程环境。

膜盘通常采用极薄的曲线型面，以便在传递扭矩的同时能够通过自身的弹性变形来吸收机组的不对中。（如图1）

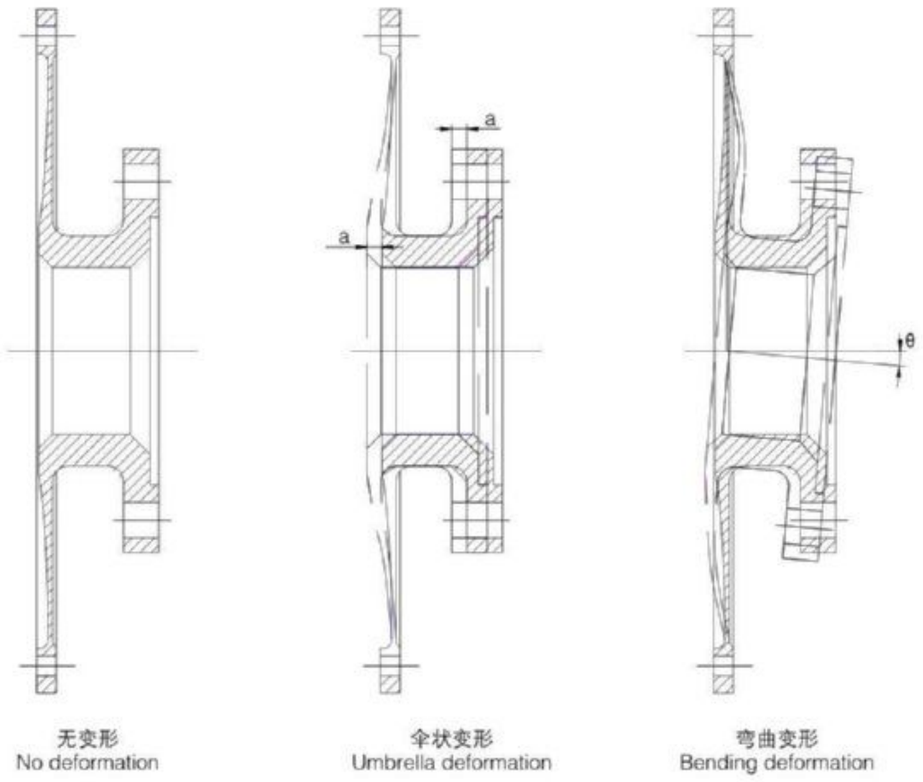


图1 膜盘弹性变形示意图

Fig. 1 Elastic deformation of the diaphragm

Flexible stainless steel diaphragm coupling （hereafter referred to as diaphragm coupling, for short）provides a high performance coupling means for rotation machines. It absorbs shafts misalignments by deformation of metallic diaphragms with specific profile, while transmitting torque. The coupling has advantages in high strength, light weight, big power density, exceptional misalignment accommodating capacity and small additional force on equipment. It has found a wide range of applications to pumps, fans and compressors, driven by gas turbines, steam turbines and electric motors, especially to the high speed/high power turbine–compressor sets, usually sensitive to coupling mass and overhung bending moment.

The flexible elements, diaphragms, made of high strength stainless steel, bring to the coupling high strength, light weight and inherent anticorrosion capability.

Thinnest and curve profile diaphragms absorb shafts misalignments by elastic deformation, while transmitting torque (as shown in Fig.1).

膜盘与相连件的连接采用螺栓连接，可以很方便地在现场进行安装或更换。

根据结构形式和性能特点的不同，创明膜盘联轴器分为HM、H2M、DM和D2M四大系列。

HM系列，其挠性单元采用单膜盘设计，是膜盘联轴器的一种常规设计。两个挠性单元分布在间隔轴的两端，与间隔轴法兰以螺栓连接的方式组装在一起成为挠性传动组件；挠性传动组件整体组装出厂，现场安装比较简便。该系列可满足大部分流程动力设备（如：泵、风机、压缩机等）的应用需求。HM系列典型结构如图2.

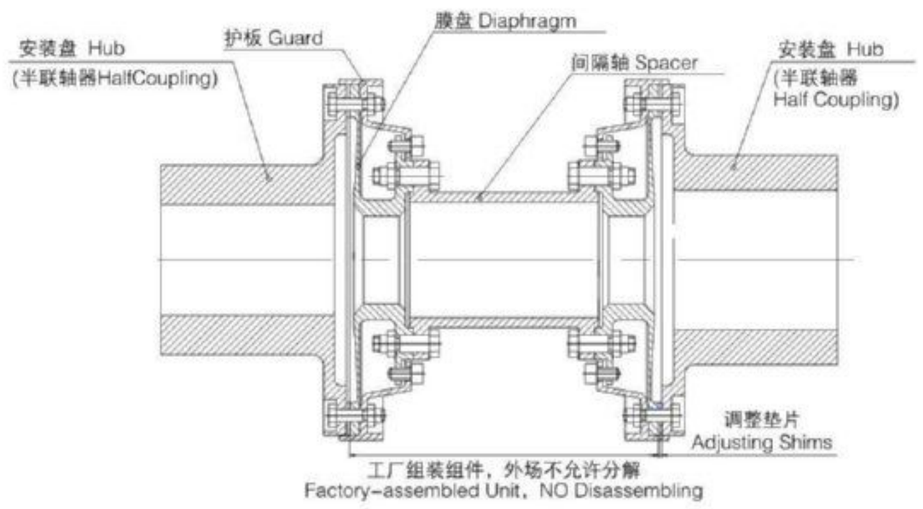


图2 HM系列膜盘联轴器典型结构图

Fig.2 Typical HM series diaphragm coupling structure

Bolting between diaphragm and other coupling components conveniences coupling installation and replacement on the spot.

TRUMY diaphragm couplings are divided into 4 main series: HM, H2M, DM and D2M on their structure and performances.

HM series, a conventional design, has a single diaphragm for each half coupling structure. The two flexible elements are fastened respectively to spacer flanges by bolts to be combined into a factory assembly. The flexible transmitting assembly enables the coupling to be easily installed on the spot. The series can satisfy the requirements of most processing power equipment (such as pumps, fans and compressors etc.). A typical HM series coupling structure is as shown in Fig.2.

分析和型面优化，具有最佳的综合性能。图6、图7为在不同载荷作用下膜盘型面应力分布情况。

product catalogue are made of high strength steel and have passed finite element analyses to get optimized profile and comprehensive performances. Fig.6 and Fig.7 represent stress distributions in a diaphragm profile exposed to various loading conditions.

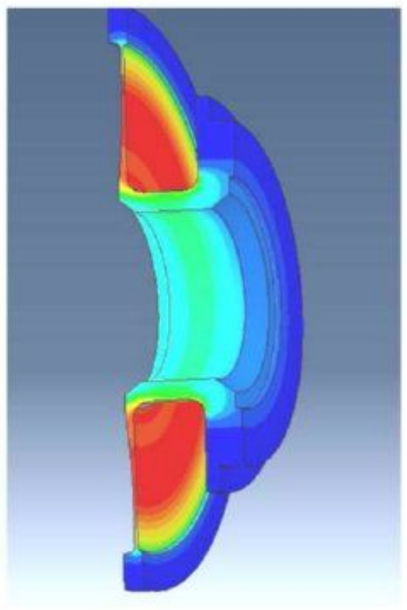


图6 扭矩作用下膜盘应力分布图
Fig.6 Diaphragm stress distribution under torque action

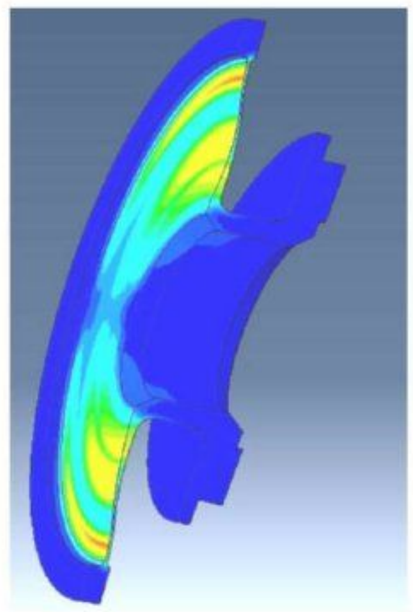


图7 角向不对中作用下膜盘应力分布图
Fig.7 Diaphragm stress distribution under angular misalignment action

传扭螺栓采用优质合金钢制造，强度等级达10.8级以上。不含挠性元件的安装盘（半联轴器）、间隔轴（隔套）和其它受力大件的材质均为合金钢。因此，创明膜盘联轴器具有以下突出优点：

- 高强度，大柔度，综合性能更好；
- 重量更轻，附加弯矩更小，更容易实现与机组的匹配；
- 补偿不对中能力更大；
- 使用寿命更长；
- 免维护。

Torque transmitting bolts with strength class above 10.8 made of high quality alloy steel. Flange (half-coupling) except for the flexible element, spacer (sleeve) and other force bearing components are also made of high quality alloy steel. Consequently, TRUMY diaphragm couplings possess outstanding advantages such as:

- High strength, big flexibility , better comprehensive performances;
- Lighter weight, less additional bending moment, more commensurate with the requirement of the machines coupled;
- More accommodating capacity for misalignments;
- Longer service life;
- Maintenance free .

产品系列型号说明 Coupling series designation

本公司生产的膜盘挠性联轴器，其编号由四段组成，例如：

TRUMY coupling designation consists of 4 groups as follows:

HM	–	3	17	–	00T1
A		B	C		D

A段：表示联轴器型式代号，具体如下：
HM–单膜盘挠性联轴器；
H2M–双膜盘挠性联轴器；
DM–低附加弯矩型单膜盘挠性联轴器；
D2M–低附加弯矩型双膜盘挠性联轴器。

Group A represents coupling type as follows:
HM–single diaphragm flexible coupling;
H2M–double diaphragm flexible coupling;
DM–single diaphragm flexible coupling with low additional bending moment;
D2M–double diaphragm flexible coupling with low additional bending moment

B段：表示单个膜盘的最大角向不对中补偿能力，具体含义如下：
3–最大角向不对中1/3° ；

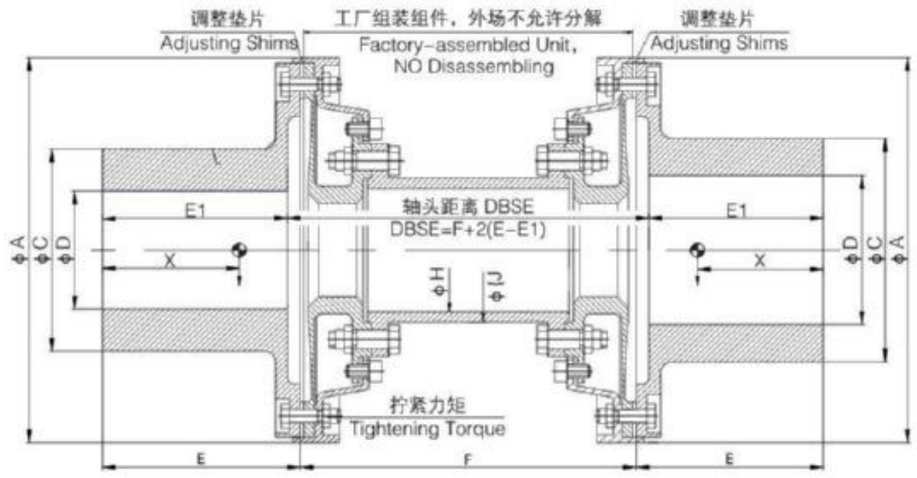
Group B indicates maximum angular misalignment accommodation of one diaphragm as follows:
3–maximum angular misalignment accommodation of one diaphragm 1/3° ;

HM3系列

角向不对中 1/3°
Angular Misalignment

大轮毂设计，角向不对中1/3° 。如需较小的外形尺寸，可选HM5或HM4系列；如需较大不对中能力，可选H2M系列。

- 中间传动单元整体组装出厂，安装方便，是各类流程动力设备（如：泵、风机、压缩机）的主要选择；
- 大轮毂设计，特别适用于轴径较大的应用，如电机拖动部位或发电机组；
- 设有调整垫片，可调整轴向安装误差。



性能和主要尺寸
Coupling capacity and main dimensions

型号 Type	公称扭矩 Continuous torque rating (KNm)	峰值扭矩 Peak torque rating (7) (KNm)	瞬时扭矩 Momentary torque limit (7) (KNm)	最大许用转速 Max speed (r/min)	A (mm)	C_{max} (1) (mm)	D_{max} (1) (mm)	E1 (1) (mm)	E (1) (mm)	F (1)(5) (mm) 标准值 Std	F (1)(5) (mm) 最小值 Min	J (mm)	H (mm)
HM308	0.28	0.37	0.49	60000	87	60	40	45	50	460	80	24	18
HM310	0.63	0.84	1.11	46000	112	80	50	55	60	460	96	36	31
HM315	2.24	2.98	3.96	33000	159	115	75	80	87	460	112	55	48
HM317	4.5	5.98	7.96	28000	185	140	95	105	112	460	128	68	58
HM322	10	13.3	17.7	22000	237	190	125	135	142	460	160	92	81
HM327	20	26.6	35.3	18000	284	234	155	170	177	460	180	118	104
HM332	35.5	47.2	62.8	16000	335	285	190	210	217	460	220	149	135
HM337	50	66.5	88.5	14000	379	325	215	235	242	460	250	165	148
HM342	80	106	142	12000	436	380	250	275	282	460	275	181	158
HM347	112	148	198	11000	484	423	280	310	317	460	310	221	200
HM356	200	266	353	9000	575	512	340	375	382	460	360	282	260
HM366	224	298	394	6500	670	600	400	440	452	660	360	296	270
HM382	450	598	792	5200	832	745	490	540	552	820	360	402	376
HM399	800	1060	1400	4000	1009	910	600	660	672	820	360	487	458
HM3115	1400	1860	3270	3600	1164	1050	700	770	782	820	360	633	606

1. 孔径D、轮毂外径C、轮毂长度E和E1、法兰面间距F可根据机组匹配的需要而另行设计。推荐选用法兰面间距F的标准值。
2. 根据需要，与主、从动机的连接可以设计为直孔（有键或无键）、锥孔（有键或无键）、胀紧套、法兰盘、花键等形式。无键连接的过盈量可根据GB/T5371或API671计算确定。对于有键的轴孔连接，创明推荐以下配合类型：

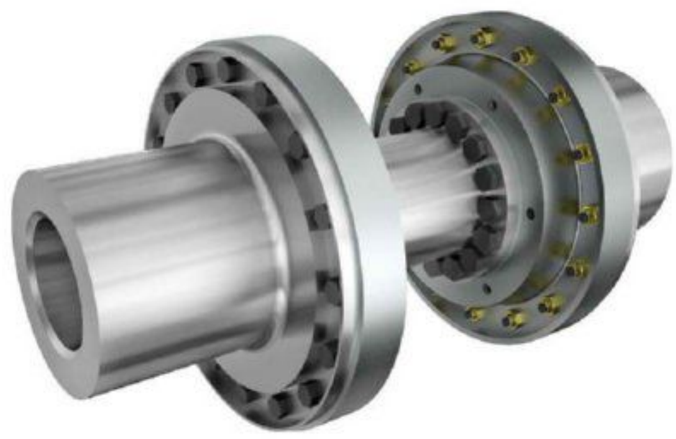
配合类型 Fit type	半联轴器孔公差 Bore tolerance for half coupling	推荐轴公差 Recommendation for shaft tolerance	装配方法 Mounting method	推荐应用场合 Recommended application
间隙配合，单键或双键 Clearance fit, with single or double key connection	F7	h6	冷装，键槽顶部带紧定螺钉 Cold mounting, with a set screw on keyway top	低速 Low speed
过度配合，单键或双键 Transition fit, with single or double key connection	H7	k6 m6 n6	热装 Hot mounting	中、低速 Medium , low speed
过盈配合，单键或双键 Interference fit, with single or double key connection	H7	r6 s6 t6 u6	热装 Hot mounting	中、高速 Medium , high speed
	P7	h6	热装 Hot mounting	

3. 总质量、质心、扭转刚度、转动惯量为按最大许用轴孔直径D_{max}、最大轮毂外径C_{max}和法兰面间距标准值F_{std}计算得出，其它尺寸下的上述参数需另行计算或换算。其中扭转刚度已计入轴的配合段,不同轴头间距下的扭转刚度K按下式换算：$1/K = 1/K_T + \Delta L/\Delta K_T$ 。
   (式中: K–指定轴头间距下的扭转刚度，K_T–样本上的扭转刚度，ΔK_T–样本上的每米扭转刚度变量，ΔL–尺寸F相对于标准值的变化量)
4. 最大角向不对中 θ_{max}和角向刚度为一个挠性单元的指标。联轴器的径向不对中补偿能力ΔY是其角向不对中补偿能力和挠性组件长度(两个挠性单元之间的距离)的函数，可用下式近似计算：$\Delta Y_{max} \approx F \times \tan \theta_{max}$ 。
5. 法兰面间距F之“标准值”符合API 671（第四版）第8.3节的规定，“最小值”是指在满足零件加工工艺和结构安装空间的情况下的最短法兰面间距，尽量不要选用。如需更短的值，可向我公司咨询。
6. 对于热涨量较大的机组，安装时可采用预拉伸，以便使膜盘长期工作在小变形和低应力状态。
7. “峰值扭矩”是指联轴器在短时间内能耐受的最大扭矩，“瞬时扭矩”是指在转速、角向不对中和轴向不对中的共同作用下，联轴器中应力水平最高的受力元件在其应力达到材料屈服极限（此时安全系数为1.0）时能承受的扭矩。
8. 有任何疑问或其它特殊需求，请向创明销售工程师咨询。

HM3 series

Big hub design, maximum allowable angular misalignment 1/3°. If smaller dimensions are required, HM5 or HM4 series should be selected. If bigger misalignment accommodation is required, H2M series should be selected.

- Convenient to install, with factory–assembled middle transmitting unit , Primary choice for various kinds of processing power equipment (e.g. pumps, fans, compressors);
- Big hub design, particularly suitable for big diameter shafts applications (e.g. electric motor or electric generation sets).
- Shims supplied to adjust the axial mounting gap.



技术数据表 Technical data

型号 Type	拧紧力矩 Tightening torque (Nm)	总质量 Weight of total couping[3] (Kg)	重心 Centre of gravity X[3] (mm)	扭转刚度 Torsional stiffness K_t[3] (MNm/rad)	转动惯量 Moment of Inertia[3] (Kgm^2)	间隔轴每米长 Spacer tube per m			角向不对中 Angular misalignment		轴向不对中 Axial displacement	
						质量 Weight (Kg)	扭转刚度 Torsional stiffness ΔK_t (MNm/rad)	转动惯量 Moment of Inertia (Kgm^2)	最大 Max θ_{max}[4] (deg)	角向刚度 Restoring moment[4] (KNm/rad)	最大 Max (±mm)	轴向力 Axial force (N)
HM308	5	2.5	30.6	0.003	0.002	1.550	0.002	0.0002	1/3	0.09	0.8	133.8
HM310	5	4.7	34.7	0.012	0.005	2.070	0.006	0.0006	1/3	0.27	1.0	274.4
HM315	8	12.1	48.9	0.053	0.029	4.450	0.030	0.003	1/3	0.78	1.6	570.3
HM317	8	20.5	63.7	0.129	0.069	7.770	0.079	0.008	1/3	1.62	2.0	965.8
HM322	15	45.2	77.0	0.340	0.284	11.733	0.225	0.022	1/3	3.68	2.6	1617.2
HM327	15	81.0	96.1	0.843	0.764	19.162	0.604	0.059	1/3	8.21	3.3	3001.4
HM332	15	140.7	117.1	1.646	1.975	24.514	1.262	0.124	1/3	14.40	4.0	4258.0
HM337	25	203.6	130.3	2.498	3.684	32.806	2.053	0.201	1/3	18.08	4.4	4571.6
HM342	25	321.0	150.7	4.302	7.897	48.071	3.535	0.347	1/3	29.79	5.2	6598.8
HM347	45	433.3	167.2	6.607	13.476	54.508	6.169	0.605	1/3	43.11	5.8	8494.1
HM356	45	751.7	200.7	13.242	34.393	73.516	13.778	1.352	1/3	80.25	7.0	13170.5
HM366	45	1255.7	245.9	16.933	78.912	90.730	18.552	1.820	1/3	84.40	7.7	11250.0
HM382	100	2357.3	296.2	33.911	228.480	124.710	48.135	4.723	1/3	164.39	9.7	17770.0
HM399	180	4218.2	358.7	67.637	615.118	168.960	96.197	9.439	1/3	327.27	11.9	28990.0
HM3115	350	6430.5	418.5	123.892	1252.046	206.250	201.764	19.798	1/3	571.87	14.0	43750.0

1. Bore diameter D, hub outside diameter C, hub length E and E1, distance between flange mating faces F may be designed separately according to the matching requirements of the machines. Standard values of F are recommended.
2. Based on the needs the connection between the driving and driven machines may be designed with straight bore hub(with or without key), tapered bore hub (with or without key), expansion sleeve, flange, spline, etc. The degree of interference for keyless connection can be defined through calculation according to GB/T5371 or API 671. For bore keyed hub connection the hub–to–shaft fits list in the left table are recommended.
3. The total mass, centre of mass, torsional stiffness and moment of inertia are calculated according to max. allowable bore diameter D_{max}, max. hub outside diameter C_{max}, standard distance between flange mating faces F_{std}. For other sizes of bore diameter, hub outside diameter and distance between flange mating faces, above mentioned parameters should be calculated or corrected separately, where the torsional stiffness is taken in the fitting section of the shaft. For various distances between flange mating faces the torsional stiffness K can be calculated using the formula as follows:

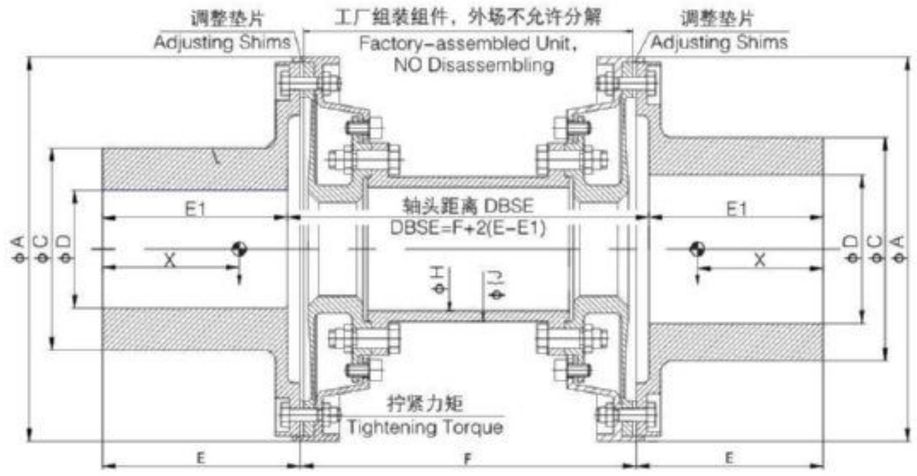
   $1/K = 1/K_T + \Delta L/\Delta K_T$ (where K– torsional stiffness for a given distance between flange mating faces, K_T– torsional stiffness shown in the catalogue, ΔK_T– torsional stiffness for spacer tube per meter as shown in the catalogue, ΔL– variation of size F relative to TRUMY standard distance between flange mating faces.)
4. The maximum angular misalignment θ_{max} and angular stiffness can be taken as an indication of one flexible element. Parallel offset accommodating capacity ΔY, a function of angular misalignment accommodation and flexible assembly length (distance between the two flexible elements), can be approximately calculated with the formula: $\Delta Y_{max} \approx F \times \tan \theta_{max}$
5. The standard distance between flange mating faces F is in accordance with the requirements in section 8.3, API671(the 4–th edition).The "minimum" distance between flange mating faces is referred to as the shortest distance between flange mating faces which meets the conditions of part machining technology and installing space for the structure. The "minimum " distance should not be selected as far as possible. If shorter distances are needed, please consult TRUMY engineers.
6. For the machines with larger thermal expansion the coupling may be processed by pre–stretching so that the diaphragms work in a small deformation and low stress state during long term operation.
7. Peak torque rating is the max. torque the coupling can tolerate for short period.Momentary torque limit is the torque that corresponds to a fator of safety of 1.0 with respect to the most highly stressed component' s material yield strength,allowing for a combination of speed,angular misalignment and axial displacement.
8. If you have any questions or any other particular requirements, please consult TRUMY sales engineer.

HM4系列

角向不对中 1/4°
Angular Misalignment

大轮毂设计，角向不对中1/4° 。如需较小的外形尺寸，可选HM5系列；如需较大不对中能力，可选HM3或H2M系列。

- 中间传动单元整体组装出厂，安装方便，是各类流程动力设备（如：泵、风机、压缩机）的主要选择；
- 大轮毂设计，特别适用于轴径较大的应用，如电机拖动部位或发电机组；
- 设有调整垫片，可调整轴向安装误差。



性能和主要尺寸
Coupling capacity and main dimensions

型号 Type	公称扭矩 Continuous torque rating (KNm)	峰值扭矩 Peak torque rating (7) (KNm)	瞬时扭矩 Momentary torque limit (7) (KNm)	最大许用转速 Max speed (r/min)	A (mm)	C_{max} (1) (mm)	D_{max} (1) (mm)	E1 (1) (mm)	E (1) (mm)	F (1)(5) (mm) 标准值 Std	F (1)(5) (mm) 最小值 Min	J (mm)	H (mm)
HM408	0.35	0.46	0.62	60000	87	60	40	45	50	460	80	24	18
HM410	0.8	1.06	1.42	46000	112	80	50	55	60	460	96	36	31
HM415	2.8	3.72	4.95	33000	159	115	75	80	87	460	112	55	46
HM417	5.6	7.45	9.91	28000	185	140	95	105	112	460	128	68	54
HM422	12.5	16.6	22.1	22000	237	190	125	135	142	460	160	92	78
HM427	25	33.2	44.2	18000	284	234	155	170	177	460	180	118	100
HM432	45	59.8	79.6	16000	335	285	190	210	217	460	220	149	130
HM437	63	83.8	111	14000	379	325	215	235	242	460	250	165	144
HM442	100	133	177	12000	436	380	250	275	282	460	275	181	150
HM447	140	186	248	11000	484	423	280	310	317	460	310	221	195
HM456	250	332	442	9000	575	512	340	375	382	460	360	282	255
HM466	280	372	493	6500	670	600	400	440	452	660	360	296	266
HM482	560	745	986	5200	832	745	490	540	552	820	360	402	370
HM499	1120	1330	1970	4000	1009	910	600	660	672	820	360	487	450
HM4115	1800	2390	3180	3600	1164	1050	700	770	782	820	360	633	600

1. 孔径D、轮毂外径C、轮毂长度E和E1、法兰面间距F可根据机组匹配的需要而另行设计。推荐选用法兰面间距F的标准值。
2. 根据需要，与主、从动机的连接可以设计为直孔（有键或无键）、锥孔（有键或无键）、胀紧套、法兰盘、花键等形式。无键连接的过盈量可根据GB/T5371或API671计算确定。对于有键的轴孔连接，创明推荐以下配合类型：

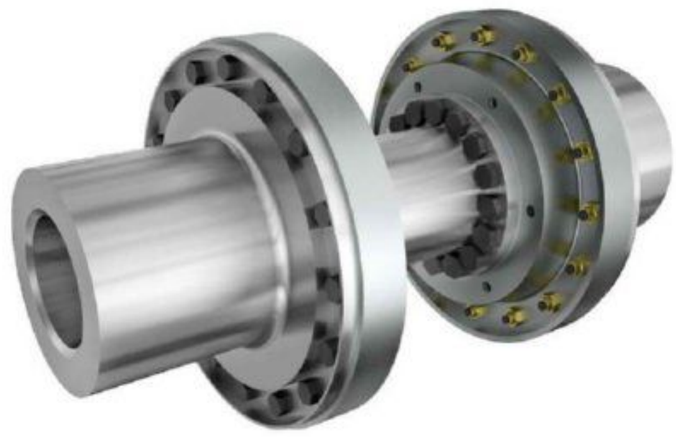
配合类型 Fit type	半联轴器孔公差 Bore tolerance for half coupling	推荐轴公差 Recommendation for shaft tolerance	装配方法 Mounting method	推荐应用场合 Recommended application
间隙配合，单键或双键 Clearance fit, with single or double key connection	F7	h6	冷装，键槽顶部带紧定螺钉 Cold mounting, with a set screw on keyway top	低速 Low speed
过度配合，单键或双键 Transition fit, with single or double key connection	H7	k6 m6 n6	热装 Hot mounting	中、低速 Medium , low speed
过盈配合，单键或双键 Interference fit, with single or double key connection	H7	r6 s6 t6 u6	热装 Hot mounting	中、高速 Medium , high speed
	P7	h6	热装 Hot mounting	

3. 总质量、质心、扭转刚度、转动惯量为按最大许用轴孔直径D_{max}、最大轮毂外径C_{max}和法兰面间距标准值F_{std}计算得出，其它尺寸下的上述参数需另行计算或换算。其中扭转刚度已计入轴的配合段,不同轴头间距下的扭转刚度K按下式换算：$1/K = 1/K_T + \Delta L/\Delta K_T$ 。
   (式中: K–指定轴头间距下的扭转刚度，K_T–样本上的扭转刚度，ΔK_T–样本上的每米扭转刚度变量，ΔL–尺寸F相对于标准值的变化量)
4. 最大角向不对中 θ_{max}和角向刚度为一个挠性单元的指标。联轴器的径向不对中补偿能力ΔY是其角向不对中补偿能力和挠性组件长度(两个挠性单元之间的距离)的函数，可用下式近似计算：$\Delta Y_{max} \approx F \times \tan \theta_{max}$ 。
5. 法兰面间距F之“标准值”符合API 671（第四版）第8.3节的规定，“最小值”是指在满足零件加工工艺和结构安装空间的情况下的最短法兰面间距，尽量不要选用。如需更短的值，可向我公司咨询。
6. 对于热涨量较大的机组，安装时可采用预拉伸，以便使膜盘长期工作在小变形和低应力状态。
7. “峰值扭矩”是指联轴器在短时间内能耐受的最大扭矩，“瞬时扭矩”是指在转速、角向不对中和轴向不对中的共同作用下，联轴器中应力水平最高的受力元件在其应力达到材料屈服极限（此时安全系数为1.0）时能承受的扭矩。
8. 有任何疑问或其它特殊需求，请向创明销售工程师咨询。

HM4 series

Big hub design, maximum allowable angular misalignment 1/4°. If smaller dimensions are required, HM5 series should be selected. If bigger misalignment accommodation is required, HM3 or H2M series should be selected.

- Convenient to install, with factory–assembled middle transmitting unit , Primary choice for various kinds of processing power equipment (e.g. pumps, fans, compressors);
- Big hub design, particularly suitable for big diameter shafts applications (e.g. electric motor or electric generation sets).
- Shims supplied to adjust the axial mounting gap.



技术数据表 Technical data

型号 Type	拧紧力矩 Tightening torque (Nm)	总质量 Weight of total couping[3] (Kg)	重心 Centre of gravity X[3] (mm)	扭转刚度 Torsional stiffness K_T[3] (MNm/rad)	转动惯量 Moment of Inertia[3] (Kgm^2)	间隔轴每米长 Spacer tube per m			角向不对中 Angular misalignment		轴向不对中 Axial displacement	
						质量 Weight (Kg)	扭转刚度 Torsional stiffness ΔK_T (MNm/rad)	转动惯量 Moment of Inertia (Kgm^2)	最大 Max θ_{max}[4] (deg)	角向刚度 Restoring moment[4] (KNm/rad)	最大 Max (±mm)	轴向力 Axial force (N)
HM408	5	2.5	30.6	0.004	0.002	1.550	0.002	0.0002	1/4	0.18	0.6	195.0
HM410	5	5.0	36.1	0.013	0.005	2.440	0.007	0.0007	1/4	0.44	0.8	361.9
HM415	8	12.6	50.3	0.063	0.029	5.600	0.037	0.004	1/4	1.48	1.3	866.5
HM417	8	21.4	65.6	0.158	0.070	10.531	0.101	0.010	1/4	3.07	1.6	1448.0
HM422	15	46.3	78.6	0.398	0.286	14.674	0.272	0.027	1/4	6.51	2.1	2315.3
HM427	15	82.9	97.9	1.001	0.769	24.193	0.737	0.072	1/4	16.38	2.6	4735.9
HM432	15	143.6	119.2	1.971	1.802	32.683	1.628	0.160	1/4	26.42	3.2	6254.4
HM437	25	206.0	131.6	2.887	3.697	40.007	2.444	0.240	1/4	34.08	3.6	7104.6
HM442	25	326.0	152.7	5.122	7.926	63.263	4.454	0.437	1/4	56.47	4.2	10040.1
HM447	45	437.1	168.6	7.658	13.513	66.685	7.379	0.724	1/4	83.38	4.7	13399.7
HM456	45	756.2	201.8	15.319	34.469	89.392	16.461	1.615	1/4	108.30	5.7	15381.5
HM466	45	1257.0	245.3	19.414	78.831	103.950	20.971	2.058	1/4	153.99	6.2	16310.0
HM482	100	2372.1	297.9	40.371	229.394	152.310	57.917	5.683	1/4	320.63	7.8	27980.0
HM499	180	4239.9	360.5	80.385	616.711	213.750	119.717	11.747	1/4	595.88	9.6	42680.0
HM4115	350	6429.6	418.4	146.801	1252.767	250.860	243.094	23.854	1/4	1080.37	11.2	66220.0

1. Bore diameter D, hub outside diameter C, hub length E and E1, distance between flange mating faces F may be designed separately according to the matching requirements of the machines. Standard values of F are recommended.
2. Based on the needs the connection between the driving and driven machines may be designed with straight bore hub(with or without key), tapered bore hub (with or without key), expansion sleeve, flange, spline, etc. The degree of interference for keyless connection can be defined through calculation according to GB/T5371 or API 671. For bore keyed hub connection the hub–to–shaft fits list in the left table are recommended.
3. The total mass, centre of mass, torsional stiffness and moment of inertia are calculated according to max. allowable bore diameter D_{max}, max. hub outside diameter C_{max}, standard distance between flange mating faces F_{std}. For other sizes of bore diameter, hub outside diameter and distance between flange mating faces, above mentioned parameters should be calculated or corrected separately, where the torsional stiffness is taken in the fitting section of the shaft. For various distances between flange mating faces the torsional stiffness K can be calculated using the formula as follows:

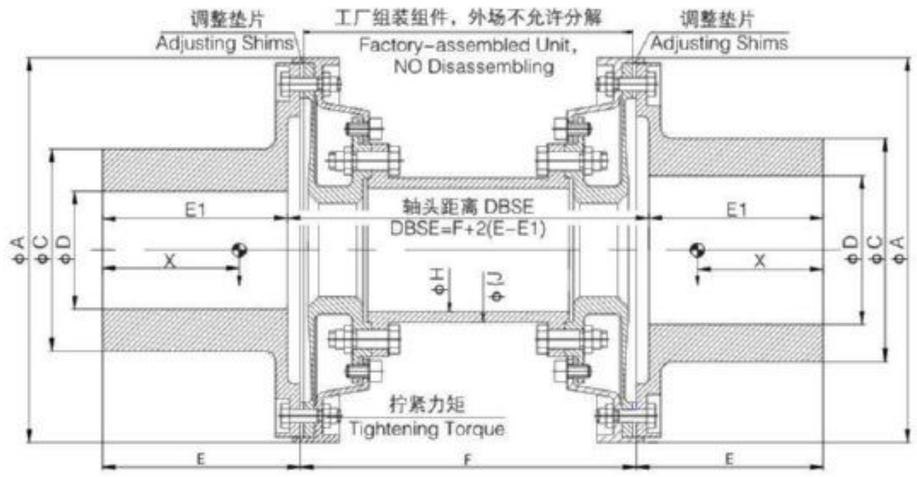
   $1/K = 1/K_T + \Delta L/\Delta K_T$ (where K– torsional stiffness for a given distance between flange mating faces, K_T– torsional stiffness shown in the catalogue, ΔK_T– torsional stiffness for spacer tube per meter as shown in the catalogue, ΔL– variation of size F relative to TRUMY standard distance between flange mating faces.)
4. The maximum angular misalignment θ_{max} and angular stiffness can be taken as an indication of one flexible element. Parallel offset accommodating capacity ΔY, a function of angular misalignment accommodation and flexible assembly length (distance between the two flexible elements), can be approximately calculated with the formula: $\Delta Y_{max} \approx F \times \tan \theta_{max}$
5. The standard distance between flange mating faces F is in accordance with the requirements in section 8.3, API671(the 4–th edition).The "minimum" distance between flange mating faces is referred to as the shortest distance between flange mating faces which meets the conditions of part machining technology and installing space for the structure. The "minimum " distance should not be selected as far as possible. If shorter distances are needed, please consult TRUMY engineers.
6. For the machines with larger thermal expansion the coupling may be processed by pre–stretching so that the diaphragms work in a small deformation and low stress state during long term operation.
7. Peak torque rating is the max. torque the coupling can tolerate for short period.Momentary torque limit is the torque that corresponds to a fator of safety of 1.0 with respect to the most highly stressed component' s material yield strength,allowing for a combination of speed,angular misalignment and axial displacement.
8. If you have any questions or any other particular requirements, please consult TRUMY sales engineer.

HM5系列

角向不对中 1/5° Angular Misalignment

大轮毂设计，角向不对中1/5° 。如需较大不对中能力，可选HM4、HM3或H2M系列。

- 中间传动单元整体组装出厂，安装方便，是各类流程动力设备（如：泵、风机、压缩机）的主要选择；
- 大轮毂设计，特别适用于轴径较大的应用，如电机拖动部位或发电机组；
- 设有调整垫片，可调整轴向安装误差。



性能和主要尺寸 Coupling capacity and main dimensions

型号 Type	公称扭矩 Continuous torque rating (KNm)	峰值扭矩 Peak torque rating (7) (KNm)	瞬时扭矩 Momentary torque limit (7) (KNm)	最大许用转速 Max speed (r/min)	A (mm)	C_{max} (1) (mm)	D_{max} (1) (mm)	E1 (1) (mm)	E (1) (mm)	F (1)(5) (mm) 标准值 Std	F (1)(5) (mm) 最小值 Min	J (mm)	H (mm)
HM508	0.5	0.66	0.88	60000	87	60	40	45	50	460	80	24	15
HM510	1.12	1.49	1.98	46000	112	80	50	55	60	460	96	36	27
HM515	4	5.32	7.08	33000	159	115	75	80	87	460	112	55	42
HM517	8	10.6	14.2	28000	185	140	95	105	112	460	128	68	54
HM522	18	23.9	31.8	22000	237	190	125	135	142	460	160	92	75
HM527	35.5	47.2	62.8	18000	284	234	155	170	177	460	180	118	98
HM532	63	83.8	111	16000	335	285	190	210	217	460	220	149	127
HM537	90	119	159	14000	379	325	215	235	242	460	250	165	140
HM542	140	186	248	12000	436	380	250	275	282	460	275	181	145
HM547	200	266	353	11000	484	423	280	310	317	460	310	221	190
HM556	355	472	628	9000	575	512	340	375	384	460	360	282	250
HM566	400	532	704	6500	670	600	400	440	452	660	360	296	262
HM582	800	1060	1400	5200	832	745	490	540	552	820	360	402	366
HM599	1600	2130	2820	4000	1009	910	600	660	672	820	360	487	442
HM5115	2500	3330	4400	3600	1164	1050	700	770	782	820	360	633	592

1. 孔径D、轮毂外径C、轮毂长度E和E1、法兰面间距F可根据机组匹配的需要而另行设计。推荐选用法兰面间距F的标准值。
2. 根据需要，与主、从动机的连接可以设计为直孔（有键或无键）、锥孔（有键或无键）、胀紧套、法兰盘、花键等形式。无键连接的过盈量可根据GB/T5371或API671计算确定。对于有键的轴孔连接，创明推荐以下配合类型：

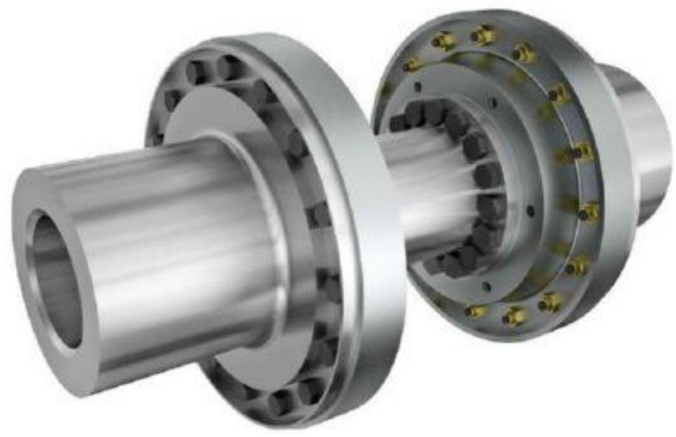
配合类型 Fit type	半联轴器孔公差 Bore tolerance for half coupling	推荐轴公差 Recommendation for shaft tolerance	装配方法 Mounting method	推荐应用场合 Recommended application
间隙配合，单键或双键 Clearance fit, with single or double key connection	F7	h6	冷装，键槽顶部带紧定螺钉 Cold mounting, with a set screw on keyway top	低速 Low speed
过度配合，单键或双键 Transition fit, with single or double key connection	H7	k6 m6 n6	热装 Hot mounting	中、低速 Medium , low speed
过盈配合，单键或双键 Interference fit, with single or double key connection	H7	r6 s6 t6 u6	热装 Hot mounting	中、高速 Medium , high speed
	P7	h6	热装 Hot mounting	

3. 总质量、质心、扭转刚度、转动惯量为按最大许用轴孔直径D_{max}、最大轮毂外径C_{max}和法兰面间距标准值F_{std}计算得出，其它尺寸下的上述参数需另行计算或换算。其中扭转刚度已计入轴的配合段,不同轴头间距下的扭转刚度K按下式换算：$1/K = 1/K_T + \Delta L/\Delta K_T$ 。
   (式中: K–指定轴头间距下的扭转刚度，K_T–样本上的扭转刚度，ΔK_T–样本上的每米扭转刚度变量，ΔL–尺寸F相对于标准值的变化量)
4. 最大角向不对中 θ_{max}和角向刚度为一个挠性单元的指标。联轴器的径向不对中补偿能力ΔY是其角向不对中补偿能力和挠性组件长度(两个挠性单元之间的距离)的函数，可用下式近似计算：$\Delta Y_{max} \approx F \times \tan \theta_{max}$ 。
5. 法兰面间距F之“标准值”符合API 671（第四版）第8.3节的规定，“最小值”是指在满足零件加工工艺和结构安装空间的情况下的最短法兰面间距，尽量不要选用。如需更短的值，可向我公司咨询。
6. 对于热涨量较大的机组，安装时可采用预拉伸，以便使膜盘长期工作在小变形和低应力状态。
7. “峰值扭矩”是指联轴器在短时间内能耐受的最大扭矩，“瞬时扭矩”是指在转速、角向不对中和轴向不对中的共同作用下，联轴器中应力水平最高的受力元件在其应力达到材料屈服极限（此时安全系数为1.0）时能承受的扭矩。
8. 有任何疑问或其它特殊需求，请向创明销售工程师咨询。

HM5 series

Big hub design, maximum allowable angular misalignment 1/5°. If a bigger misalignment accommodation is required, HM4, HM3 or H2M series should be selected.

- Convenient to install, with factory–assembled middle transmitting unit , Primary choice for various kinds of processing power equipment (e.g. pumps, fans, compressors);
- Big hub design, particularly suitable for big diameter shafts applications (e.g. electric motor or electric generation sets).
- Shims supplied to adjust the axial mounting gap.



技术数据表 Technical data

型号 Type	拧紧力矩 Tightening torque (Nm)	总质量 Weight of total couping[3] (Kg)	重心 Centre of gravity X[3] (mm)	扭转刚度 Torsional stiffness K_T[3] (MNm/rad)	转动惯量 Moment of Inertia[3] (Kgm^2)	间隔轴每米长 Spacer tube per m			角向不对中 Angular misalignment		轴向不对中 Axial displacement	
						质量 Weight (Kg)	扭转刚度 Torsional stiffness ΔK_T (MNm/rad)	转动惯量 Moment of Inertia (Kgm^2)	最大 Max θ_{max}[4] (deg)	角向刚度 Restoring moment[4] (KNm/rad)	最大 Max (±mm)	轴向力 Axial force (N)
HM508	5	2.8	32.3	0.005	0.002	2.160	0.002	0.0002	1/5	0.51	0.4	361.2
HM510	5	5.4	37.9	0.016	0.006	3.550	0.009	0.0009	1/5	1.31	0.6	789.0
HM515	8	13.4	52.6	0.080	0.029	7.770	0.047	0.005	1/5	4.33	0.9	1727.1
HM517	8	21.6	66.0	0.170	0.070	10.531	0.101	0.010	1/5	9.14	1.1	2926.0
HM522	15	47.4	80.0	0.470	0.287	17.504	0.314	0.031	1/5	19.16	1.4	4552.1
HM527	15	83.8	98.8	1.147	0.771	26.634	0.798	0.078	1/5	45.75	1.8	8996.4
HM532	15	145.3	120.3	2.313	1.995	37.436	1.828	0.179	1/5	75.39	2.2	12012.0
HM537	25	208.4	133.0	3.442	3.709	47.011	2.804	0.275	1/5	89.52	2.4	12108.0
HM542	25	329.0	154.0	6.006	7.943	72.357	4.958	0.486	1/5	159.60	2.8	18720.0
HM547	45	440.8	169.9	9.185	13.547	78.553	8.500	0.834	1/5	221.90	3.2	23970.0
HM556	45	760.7	202.9	18.500	34.540	104.959	18.990	1.863	1/5	407.90	3.9	36250.5
HM566	45	1267.1	247.0	23.130	79.168	116.990	23.284	2.285	1/5	414.49	4.2	29430.0
HM582	100	2389.3	299.7	48.653	230.405	170.460	64.180	6.298	1/5	911.20	5.3	53280.0
HM599	180	4272.3	362.8	99.673	619.485	257.740	142.016	13.935	1/5	1675.74	6.5	80140.0
HM5115	350	6442.3	419.2	184.017	1255.601	309.660	296.304	29.075	1/5	2856.49	7.7	118800.0

1. Bore diameter D, hub outside diameter C, hub length E and E1, distance between flange mating faces F may be designed separately according to the matching requirements of the machines. Standard values of F are recommended.
2. Based on the needs the connection between the driving and driven machines may be designed with straight bore hub(with or without key), tapered bore hub (with or without key), expansion sleeve, flange, spline, etc. The degree of interference for keyless connection can be defined through calculation according to GB/T5371 or API 671. For bore keyed hub connection the hub–to–shaft fits list in the left table are recommended.
3. The total mass, centre of mass, torsional stiffness and moment of inertia are calculated according to max. allowable bore diameter D_{max}, max. hub outside diameter C_{max}, standard distance between flange mating faces F_{std}. For other sizes of bore diameter, hub outside diameter and distance between flange mating faces, above mentioned parameters should be calculated or corrected separately, where the torsional stiffness is taken in the fitting section of the shaft. For various distances between flange mating faces the torsional stiffness K can be calculated using the formula as follows:

   $1/K = 1/K_T + \Delta L/\Delta K_T$ (where K– torsional stiffness for a given distance between flange mating faces, K_T– torsional stiffness shown in the catalogue, ΔK_T– torsional stiffness for spacer tube per meter as shown in the catalogue, ΔL– variation of size F relative to TRUMY standard distance between flange mating faces.)
4. The maximum angular misalignment θ_{max} and angular stiffness can be taken as an indication of one flexible element. Parallel offset accommodating capacity ΔY, a function of angular misalignment accommodation and flexible assembly length (distance between the two flexible elements), can be approximately calculated with the formula: $\Delta Y_{max} \approx F \times \tan \theta_{max}$
5. The standard distance between flange mating faces F is in accordance with the requirements in section 8.3, API671(the 4–th edition).The "minimum" distance between flange mating faces is referred to as the shortest distance between flange mating faces which meets the conditions of part machining technology and installing space for the structure. The "minimum " distance should not be selected as far as possible. If shorter distances are needed, please consult TRUMY engineers.
6. For the machines with larger thermal expansion the coupling may be processed by pre–stretching so that the diaphragms work in a small deformation and low stress state during long term operation.
7. Peak torque rating is the max. torque the coupling can tolerate for short period.Momentary torque limit is the torque that corresponds to a fator of safety of 1.0 with respect to the most highly stressed component' s material yield strength,allowing for a combination of speed,angular misalignment and axial displacement.
8. If you have any questions or any other particular requirements, please consult TRUMY sales engineer.