GICL、GIICL系列 鼓形齿式联轴器

Curved Tooth Coupling GICL & GIICL

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1. 概述

1.1 鼓形齿式联轴器是由齿数相同的沿齿长方向的齿厚为鼓形的外齿轴套和带凸缘的内齿圈等零件组成的一种挠性联轴器，用于联接有径向位移和轴线偏角的同轴线两轴同步回转以传递运动和转矩。

1.2 我公司生产的鼓形齿式联轴器具有如下特点：

1.2.1 外齿轮套的齿厚呈鼓形，中间厚两端薄，可避免齿端棱角接触，因此允许两轴线有较大的角位移，一般设计为±**1.5**°，特殊设计为**3**°；

1.2.2 由于鼓形齿有效地避免了轮齿端部接触引起的应力集中，因此能承受较大的转矩和冲击载荷，过载能力大，工作平稳可靠；在相同的角位移时，比直齿联轴器的承载能力提高**15－20%**；

1.2.3鼓形齿的轮齿啮合参数和整体结构经过优化设计，外形尺寸小，重量轻，转动惯量小，传动效率高达**99.7%**；

1.2.4鼓形齿式联轴器可正、反方向回转；

1.2.5 鼓形齿式联轴器不承受轴向力，结构上能补偿运转中的少量轴向位移；

1.2.6 由干外齿轮套的轮齿外圆制成球面因此易于安装和调整；

1.2.7 鼓形齿式联轴器既可水平安装，也可设计成立式安装的形式；但不适宜用于要求减振、缓冲以及两轴严格对中的场合。若需立式安装的，请在订货时说明；

1.2.8 由于选用了优质合金钢锻件，合理的齿部硬化工艺，以及良好的润滑设计，因此我公司生产的鼓形齿式联轴器具有承载能力大、耐磨损、噪声低、工作寿命长、使用维护简单等优点。

1. General

1.1 Curved Tooth coupling consists of the hub with external Curved along teeth length direction teeth and the flanged internal gearing with the same number of teeth. It is used for coupling and transmission of synchronized rotation and torque between two coaxial shafts with a certain radial and angular misalignment

1.2 The Curved Tooth coupling produced by us has the following features:

1.2.1 The hub with external teeth has Curved teeth which allow angular displacement between two axial lines as high as ±1.5° for ordinary design and as 3° and above for special design.

1.2.2 It is able to withstand relatively high torque and impact load and has rather high overload capacity since the Curved Tooth can prevent concentrated stress and thus operation is smooth and reliable. The load capacity is higher than the gear coupling with straight teeth by 15-20% under the same angular misalignment.

1.2.3 Design of the meshing parameters of the Curved Tooth and the entire construction is optimized and thus the coupling has compact overall dimensions, light weight and lower moment of inertia. Transmission efficiency is as high as 99.7%.

1.2.4 The Curved Tooth coupling may rotate in two directions and any one side may be used as driven input end.

1.2.5 The Curved Tooth coupling can't withstand axial load and only a small axial displacement can be compensated by the construction during running.

1.2.6 It can be easily assembled and adjusted due to the curved (spherical) teeth.

1.2.7 Curved Tooth coupling may be designed for either horizontal or vertical installation. However, it is not suitable for applications requiring cushioning and buffering and strict alignment of the two axes.

1.2.8 The Curved Tooth coupling by our company has the advantages such as high load capacity, high wear-resistance, low noise level, long service life, and simple maintenance resulted from using high quality alloy steel forging stocks, rational teeth hardening process and perfect lubrication design.

2. 订货须知

2. Ordering code

2.1、订购鼓形齿式联轴器时，
规定的标记方法如下：

2.1 Identify Curved tooth coupling as below when ordering:

主动端轴孔型式代号Bore type of active end
主动端键槽型式代号Keyway type of active end
主动端轴孔直径 d1Diameter of bore at active end
主动端轴孔配合长度 L1Fitting length of bore at active end

GICL10 联轴器 COUPLING $\dfrac{\text{YA }90\times 172}{\text{YA }100\times 212}$ (联轴器标准代号) (Code of coupling standard)

从动端轴孔配合长度Fitting length of bore at driven end L2
从动端轴孔直径Diameter of bore at driven endd2
从动端键槽型式代号Keyway type of driven end
从动端轴孔型式代号Diameter of bore at driven end
联轴器系列规格代号Size of coupling
联轴器型号Series of coupling

2.2 标记示例：欲订购**GICL10**型鼓形齿式联轴器，已知：
主动端：**Z1**型轴孔，**C**型键槽，**dz=90mm**，**L1=132mm**，
从动端：**Y**型轴孔，**A**型键槽，**d2=95 mm**， **L2＝177 mm**，

标记为：

2.2 Ordefinge example:： if a Curved tooth coupling of type GICL10 is requested and the following data are known：
Driven end：Shaft Bore Z1 type，Keyway is C type，dz＝90mm，L1=132mm
Idle end：Bore type Y, Keyway A type，d2=95mm and L2=177mm
Then the ordering code is：

GICL10联轴器 **Coupling GICL10** $\dfrac{\text{Z1C }90\times 132}{\text{YA }95\times 177}$

当主、从动端轴孔的配合长度**L1**、**L2**都符合选型表中**L**的标准值时，可以省略标注配合长度。但我们建议不管主、从动端轴孔的配合长度**L1**、**L2** 是否符合选型表中**L**的标准尺寸值，都应完整地标注联轴器的型号、规格和尺寸。

the bore fitting length of both driven and idle ends L1 and L2 can be omitted in the ordering code if both of them from the table are standard. However we recommend that the fitting length of bores L1 add L2 are always indicated in the Ordering code.

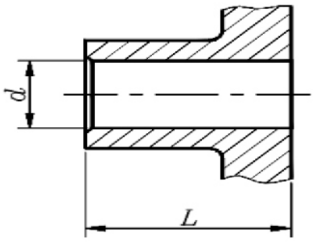
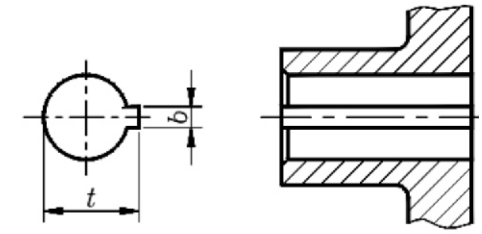
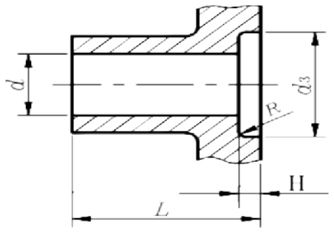
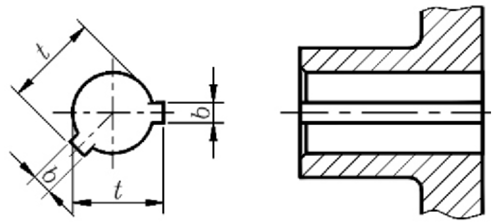
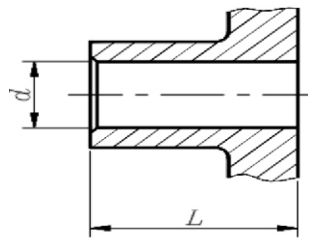
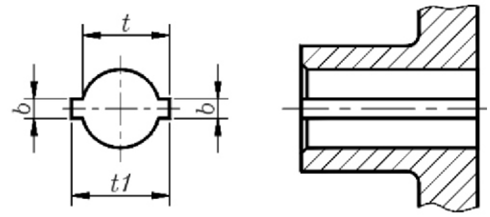
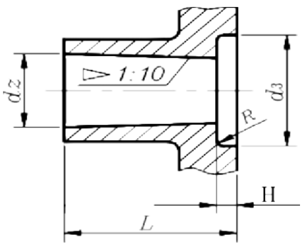
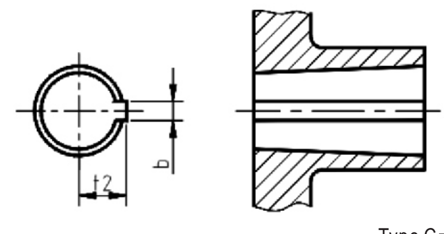
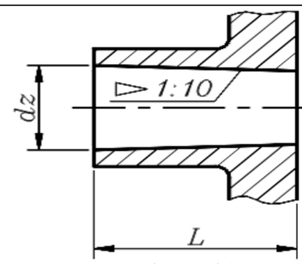
表 1： 圆柱形轴孔与轴伸的配合
Table 1: Fitting of the cylindrical bore and shaft extension

直径Diameter d(mm)	配合代号 Fitting code	
＞6—30	H7/j6	根据使用要求，也可选用如下配合 Can also be used depending on application requirement H7/n6 H7/p6 H7/r6
＞30—50	H7/k6	
＞50	H7/m6	

注：选用过盈大于表中的配合时，应验算半联轴器轮毂的强度。采用无键过盈联接配合，按要求另行确定。

Note: If the interference of tight fit is bigger than listed in above table 1, Intension of the hubs of coupling have to be checked by calculate. if fitting does not by key, the fitting code should be consulted.

表2 联轴器轴孔键槽及其联接的型式和代号 Table 2 Type and Code of Coupling Bore, keyway and its Connection

轴孔型式和代号 Shaft Bore Type & Code	键槽型式和代号 Connection Type and Code
 Y型-长圆柱形轴孔 Type Y一Long Cylindrical Bore	 A型-平键单键槽 Type A一Flat Key, Single Keyway
 J型-有沉孔的短圆柱形轴孔 Type J一Short Cylindrical Bore with Counter Bore	 B型-120°布置平键双键槽 Type B一Flat Key, Double Keyways Apart from 120° Each Other
 J_1型-无沉孔的短圆柱形轴孔 Type J_1一Short Cylindrical Bore without Counter Bore	 B_1型-180°布置平键双键槽 Type B_1 一Flat Key, Double Keyway Apart from 180° Each Other
 Z型-有沉孔的长圆锥形轴孔 Type Z一Long Tapered Bore with Counter Bore	 C型-圆锥形轴孔平键单键槽 Type C一Flat Kkey, Single Key way for Tapered Bore
 Z_1型-无沉孔的长圆锥形轴孔 Type Z_1一Long Tapered Bore without Counter Bore	矩形花键联接轴孔按GB/T 1444 圆柱直齿渐开线花键按GB/T3478.1 Square Splined Bore in accordance with GB/T 1444. Cylindrical Evolate Spline in accordance with GB/T 3478.1

约定：圆柱形轴孔的尺寸精度为H7，键槽宽度b选用GB1095-1979《平键 键槽的剖面尺寸》标准值，宽度b的尺寸精度为该标准规定的Js9。圆锥形轴孔的键槽型式和尺寸则按GB/T3852-1997《联轴器轴孔和联接型式及尺寸》的规定。若用户所需轴孔、键槽的尺寸和配合与上述约定不符，务必在订货时说明。

Note: If there is no special indication fitting accuracy of cylindrical shaft bore is H7, the width "b" of the keyway is selected as standard value from GB1095<Section Dimensions of the key, and key way >, and the tolerance of width "b" is specified as Js9. The keyway type and dimensions of tapered bore is specified in GB/T3852-1997 <Type and Dimensions of shaft bore and connection of the coupling>. If the requested dimensions and fitting of shaft bore and keyway do not meet the above mentioned standards it must be noted when ordering

3、选型指南

3.1 选用程序

正确选择能满足使用目的、并能安全运转的联轴器，需要考虑的因素很多，主要有以下几点：

3.1.1 选用标准联轴器　我公司生产的联轴器都是成熟的、符合国家和机械行业标准的联轴器，而选型样本中尚无国家或行业标准代号的联轴器，则是我公司参考引进样机和国外标准消化吸收和自行研制的，都已经过实际使用考验。这些标准联轴器的结构型式和规格基本上能满足不同转矩、转速和工况条件的要求。

3.1.2 选择联轴器品种、型式　根据联轴器在传动系统中的综合功能以及配套主机的需要选择联轴器的结构型式。例如：当长距离传动、联接的轴向尺寸较大时，宜选用接中间轴型或接中间套型联轴器；当联轴器与制动器配套使用时，则宜选用带制动轮或制动盘型式的联轴器；等等。

3.1.3 联轴器的转矩计算　在计算联轴器的传递转矩时，必须考虑传动装置的负荷状态、转速以及两轴轴线偏移量等因素。原则上，传动系统中动力机的功率应大于工作机所需功率，低速端的转矩应大于高速端的理论转矩；具体计算见下所述。

3.1.4 初选联轴器型号　根据计算转矩，从标准系列中可选定相近似的公称转矩，初步选定联轴器的型号。所谓公称转矩，是指根据系列化要求，设计每一规格联轴器所能长期传递的转矩。

3.1.5 根据轴径调整型号　初步选定的联轴器联接尺寸，应符合主、从动端轴径的要求，否则应根据轴径d调整联轴器的规格。当主、从动端轴径不相同时，应按大轴径选择联轴器的型号。

3. Guide for type selection

3.1 Selection procedure

Correct selection of the coupling allows it to meet the application requirement and to be safety run. For this reason many factors have to be considered among which the major items are as follows:

3.1.1 Selection of standard coupling

The couplings produced by our company as successful products which are in compliance with National Mechanical Trade Standards. However those that are not yet the national or trade standard in the catalogue are coupling that our company introduced from abroad and designed and manufactured which have been proved in practical service. These coupling can meet requirement for different torque, revolution and duty cycle with their different constructions and sizes.

3.1.2 Selection of type

Construction type of coupling is to be selected in accordance with the comprehensive function of the coupling in the transmission system and the requirement of the machine for which the coupling serves. For example, when transmission is provided for a long distance and the axial dimension of connection is rather large the coupling with intermediate shaft or intermediate sleeve should be selected, when the coupling is to be used in conjunction with brake the coupling with brake wheel or brake disc should be selected, etc.

3.1.3 Torque calculation of the coupling

In calculation of the transmitted torque of the coupling the factors such as loading condition and speed of the transmission unit, the misalignment between the two axial lines have to be taken into account. In principle, the horsepower of the prime mover should be higher than that required by operation of the machine, the torque at lower speed end should be higher than theoretical torque at high speed end. Calculation is shown below.

3.1.4 Primary selection of the coupling model

According to calculated torque a closer nominal torque. can be chosen from the standard series and primarily select a coupling model. The nominal torque is referred to a torque for which the coupling is designed to transmit for a long term.

3.1.5 Adjustment of the Model According to Shaft Diameter

The primarily selected coupling should have dimensions coupling with shaft diameters at both the driven and idle ends. otherwise the coupling size should be adjusted in accordance with shaft diameter. Where the shaft diameters at driven and idle ends, are different the coupling size shall be selected in accordance with the larger one.

3.1.6 选择联接型式

联轴器联接型式的选择，取决于主、从动端与轴的联接型式，一般多采用平键联接，用得较多的是A型键联接。

3.1.7 选定联轴器品种、型式、规格（型号）

为了保证轴和键的强度，在选定了联轴器型号（规格）后，应对轴和键的强度作校核验算，以最后确定联轴器的型号。

3.2 联轴器传递转矩的计算

联轴器的传递转矩应取机械不稳定运转时的动载荷及过载状态下的最大转矩，同时要考虑两轴轴线的偏移量及工作转速等因素。如果不能精确计算时，传递转矩可按以下方法求得。

3.2.1 联轴器的理论转矩

根据动力机驱动功率和工作转速计算而得，即:

3.1.6 Selection of connection type

Connection type of coupling is selected depending on connection type with the shafts at driven and idle ends. Usually key type connection is used and more commonly "A" type of key connection is used.

3.1.7 Selection of the coupling type and model

After the coupling type, model (size) have been selected the strength of the shaft and the key has to be checked to finally determine the coupling size.

3.2 Calculation of coupling transmitted torque

Coupling transmitted torque shall be taken as the max torque under unstable running of the machine and under dynamic load and overload condition, and at the same time the displacement between the two axial lines and running speed etc. have to be considered. If it is impossible to calculate accurately, the transmitted torque can be obtained thorough the following method.

3.2.1 Theoretical torque of coupling

Based on the driving power of prime mover and operation speed the torque will be

$$T=9550\frac{P_w}{n}$$

式中:

T——理论转矩，Nm；

Pw——驱动功率，kw；

n——工作转速，r／min。

3.2.2联轴器的计算转矩 由理论转矩和动力机系数、工况系数及其它有关系数计算而得，即:

Where:

T---Theoretical torque, in Nm

Pw--- Driving power, in kW

n --- Running speed, in r/min

3.2.2 Calculation torque of coupling

The torque is obtained based on theoretical torque, drive prime mover factor, duty factor and other factors:

$$Tc=TKwKKz$$

式中:

TC——计算转矩，Nm；

Kw—— 动力机系数，根据动力机类别不同，将动力机分成四类，见附录表1；

K——工况系数，考虑传动系统由于载荷变化、冲击载荷、工作环境等因素对联轴器在实际传递转矩时的影响系数，标准工作状态下的平均值见附录表5；

Where:

Tc -- Calculation torque, in Nm

Kw -- Prime mover factor, it depends on the prime mover type (see A.1)

K -- Duty factor, considering the effect of transmission system on the actual transmitted torque due to load variation, impact load, environmental circumstances etc. its average values under standard running condition are shown in A.5,

Kz——起动系数，主动端起动频率**Z**形成的附加载荷，见附录表**2**；

3.3 联轴器转矩与转速的修正计算

联轴器标准系列表中的公称转矩和许用转速是在被联接两轴轴间偏角Δα=0°和恒载荷的情况下确定的。当联轴器的实际转速超过规定的许用转速，以及被联接两轴可能产生两轴轴线偏移时，应取较小的许用传递转矩。鼓形齿式联轴器的计算转矩按下式修正：

Kz -- Starting factor, additional load imposed due to starting frequency Z, see A.2.

3.3 Corrected calculation of coupling torque and speed

In the coupling standard series table the nominal torque and permissible revolution(speed) is determined at angular misalignment Δα between two coupled shaft Δα=0° and under constant load. Where the actual speed of sible transmitted torque shall be taken. The calculated torque of flexible gear coupling is to be corrected as follows:

$$T_C \leqslant K_l T_n$$

式中：

T_n——联轴器的公称转矩，**Nm**；

K_l——转矩修正系数，按图**1**中的线图查取；

Where:

Tn-- Nominal torque of coupling, in Nm

Kl-- Correction factor of torque, and is taken from the diagram shown in Fig.1.

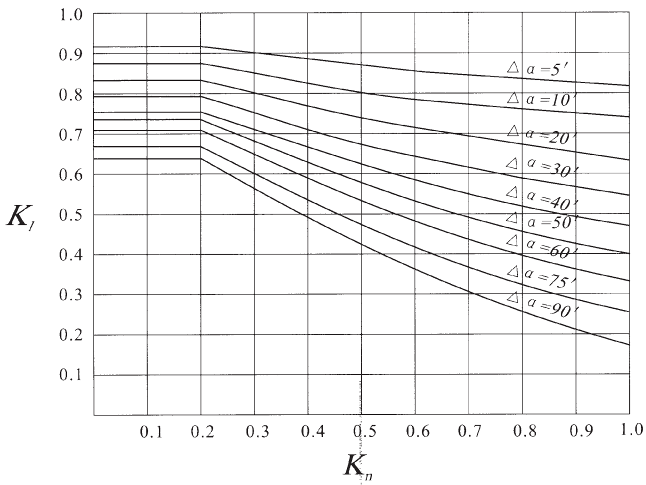


图 1 转矩修正系数

Fig.1 Torque correction factor

图中：

Δα——被联接两轴间的轴偏角；

K_n——转速系数，用下式计算：

In diagram:

Δα -- Angle misalignment between the two shafts;

Kn -- Revolution factor, calculated below:

$$K_n = \frac{n}{[n]}$$

式中：

n ——联轴器的工作转速，**r/min**；

[n]——联轴器的许用转速，**r/min**。

Where:

n -- Running speed of coupling, in r/min.

[n] -- Permissible speed of coupling, in r/min.

3.4 联轴器临界转速的验算

接中间轴或接中间套的鼓形齿式联轴器，在中间轴或中间套过长、过重及转速较高时，应验算临界转速。

3.4.1接中间轴鼓形齿式联轴器的临界转速按下式计算：

3.4 Check of coupling for critical speed Critical speed has to be checked for curved tooth coupling with intermediate shaft or intermediate sleeve when the intermediate shaft or sleeve is excessive long, heavy and speed is higher.

3.4.1 Critical speed of curved tooth coupling with intermediate shaft is calculated through the following formula:

$$n_k = 1.2 \times 10^8 \frac{d}{A^2}$$

接中间套鼓形齿式联轴器的临界转速按下式计算：

Critical speed of the coupling with intermediate sleeve is Calculated as:

$$n_k = 1.2 \times 10^8 \frac{\sqrt{D^2 - d_1^2}}{A^2}$$

式中：

n_k——联轴 器的 临界转速，r/min；

d——中间轴的外径，mm；

D——中间套的外径，mm；

d_1——中间套的内径，mm；

A——两端外齿齿宽中线间距离，mm。

Where:

n_k-- Critical speed of coupling, in r/min,

d-- Outer diameter of intermediate shaft, in mm,

D -- Diameter of intermediate sleeve, in mm,

d1--, Internal diameter of inter-sleeve, in mm,

A -- Distance between the teeth center lines of the hub with external teeth at both ends, in mm,

3.4.2 鼓形齿式联轴器的工作转速与其临界转速应符合以下规定：

工作转速低于一阶临界转速：

3.4.2 The operation speed and critical speed of coupling shall meet the following rules:

When it is lower than first order critical speed:

$$n \le 0.75 n_k$$

工作转速高于一阶临界转速时：

When it is higher than first order critical speed:

$$n \ge 1.35 n_k$$

3.5 鼓形齿式联轴器的齿面磨损验算

鼓形齿式联轴器的承载能力和使用寿命受齿面磨损的限制，为了避免齿面过度磨损，选定联轴器的型号和尺寸后，应验算齿面的压强：

3.5 Check of coupling for wear of teeth face

The service life and load capacity of the curved tooth coupling is limited by the wear of tooth face To avoid excessive wear of tooth face the pressure on tooth face has to be checked after selection of the type and size of the coupling:

$$p = \frac{2T_c}{Zbhd} \le [P]$$

式中：

Z—齿数；

Where:

Z -- Number of teeth,

d一齿轮分度圆直径，mm；
b一外齿轴 套的 齿宽，mm；
h一齿轮的工作高度，mm；
[n]一许用压强，其值与材料及热处理、润滑条件、制造和安装精度、工作转速等因素有关，通常可取 [p]＝1O-15N／mm^2。

3.6 联轴器齿面相对滑动速度验算
当鼓形齿式联轴器的工作转速较高时，按下式验算齿面轴向相对滑动速度：

d-- diameter of graduated circle, in mm,
b -- external tooth width of the hub,
h-- operating height of the gear, in mm,
[P]-- permissible pressure, depending on material, heat treatment, lubrication condition, accuracy and installation, operating seed etc.
usually taken as [P] = 10一15 N/ mm^2

3.6 Check of relative slipping speed on the tooth face
where the operating revolution is rather high the axial relative slipping speed on tooth face is checked through the following equation:

$$V_c = \frac{nd\tan\Delta\alpha}{30000} \le [V_{c\max}]$$

式中
Vc一 联轴器齿面轴向相对滑动速度，m／s；
[Vcmax]一允许的最大轴向相对滑动速度，一般可取0.12m/s。

Where:
Vc-- Axial relative slipping speed on coupling tooth face, in m/s, [Vcmax]-- Permissible axial relative slipping max speed, normally taken as 0.12 m/s.

3.7 鼓形齿式联轴器的许用补偿量

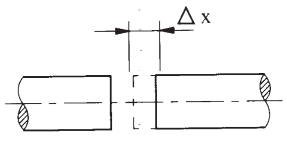
联轴器的许用补偿量是指由于联轴器的制造和安装误差、工作时载荷变化所引起的冲击、振动、受载变形和热变形、机座不均匀的下沉以及轴承磨损等多种因素所造成的 两轴线相 对偏移的补偿能力，而不是允许的安装误差。安装误差应小于所规定的许用补偿量，一般不得大于许用补偿量的1/2一1/4。

联轴器产生相对偏移的可能情况如下图2所示。此外，在工作状态中还可能出现同时兼有两种或三种偏移情况的综合偏移。

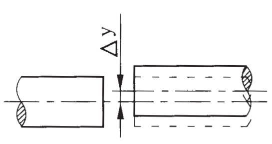
3.7 Permissible compensation value of coupling

The permissib1e compensation value of the coupling means the capability to compensate misalignment between the two shafts resulted from many factors such as machining and assembling errors, impact, vibration due to load variation during operation, deformation due to loading and hearing, uneven sinking of the base frame and bearing wear etc.. It is not the permissible installation tolerance. The installation tolerance should be smaller than the specified permissible compensation value, and shou1d not be greater than 1/2一1/4 of permissible compensation value.

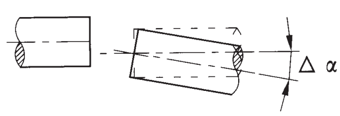
The possible misalignment of the coupling is shown in Fig.2. In addition, combined misalignment which involves two or three type of displacement may appear.



a）轴向位移
a) Axial displacement



b）径向位移
b) Radial displacement



c）角向位移
c) Angular displacement

图2 轴线的相对位移
Fig2. Relative displacement of the axes

3.7.1当被联接两轴轴线间无径向偏移时鼓形齿式联轴器的每一对内外齿啮合的许用角向补偿量为$\Delta\alpha=1.5°$，两对内外齿啮合的许用角向补偿量则为$\Delta\alpha max=2\times1.5°=3°$

3.7.2 当被联接两轴轴线间无角向偏移时GICL和GIICL型鼓形齿式联轴器的许用径向补偿量Δy见附录表3和表4；接中间轴和中间套型鼓形齿式联轴器的许用径向补偿量Δy按下式计算，式中符号的意义同上。

3.7.1 Where there is no radial displacement between two shafts the permissible angular compensation amount for each pair of external and internal teeth meshing is $\Delta\alpha=1.5°$. For two pairs of interna1 and external teeth meshing $\Delta\alpha$ max=$2\times1.5°=3°$.

3.7.2 Where no angular displacement between two axial lines appears the permissible radial compensation amount Δy for gear coupling of type GICL and GIICL are given in A.3 and A.4. Δy for coupling with intermediate shaft and intermediate sleeve is calculated as the following, Where the symbols have the same meaning as above stated.

$$\Delta y = A\tan\Delta\alpha = 0.0262A$$

3.7.3 鼓形齿式联轴器的许用轴向补偿量ΔX见选型表。

3.8 其他

3.8.1 选用接中间轴和接中间套型鼓形齿式联轴器时，由于联轴器在运转中自动对中的需要，中间轴或中间套的重量值不得大于根据公称转矩计算得到的轮齿节圆处啮合圆周力的2%。

3.8.2当选用带制动轮或制动盘鼓形齿式联轴器时，若制动器的功率大于动力机的功率，则应按制动器的功率计算理论转矩T。

3.8.3在校核联接轴强度时，应当考虑到鼓形齿式联轴器的轮齿啮合所产生的对轴附加弯曲力矩，其值大约为0.1Tmax并作用在通过轴线的平面上，其中Tmax为长期作用在联轴器上的最大转矩。

3.8.4 在联轴器型号选定后，还应对轴和键的强度作校核验算。

3.7.3 Permissible axial compensation amount Δx for coupling is given in table type selection.

3.8 Others

3.8.1 When a gear coupling with intermediate shaft or intermediate sleeve is selection the weight of the intermediate shaft or intermediate sleeve should not be grater than 2% of tangential force at pitch circle meshing point of the gear and this force is obtained from calculation based on nominal torque.

3.8.2 When a gear coupling with brake wheel or brake disc is selected and if brake power is greater than the prime mover power then the theoretical torque T shou1d be calculated based on the brake power.

3.8.3 In checking of the strength of connecting shaft the additional bending moment due to teeth meshing of the curved tooth coupling has to be considered, it is approximately 0.1Tmax and acts on the plane passing through the axis. Tmax is the max. torque frequently imposed on the coupling

敬告用户：
随着技术进步，今后此样本中所列各系列联轴器的某些尺寸会有修正，届时恕不另行通知。

Notice consumers:
All details subject to intermediate alter actions without notice, adaption to new standards or new scientific knowledge.

4. GICL型—基本型鼓形齿式联轴器的结构型式、参数和尺寸

4.Type GICL-Curved tooth coupling and its construction, parameters and dimensions

GICL基本型鼓形齿式联轴器（符合Q/WL003-2007，参照J B/T88543 －2001），其特征是内齿圈较宽，能补偿较大的轴线偏移，适用于联接水平两同轴线轴系传动。其结构型式见图3，基本参数和主要尺寸见表3。

GICL基本型鼓形齿式联轴器允许正、反方向回转，可将任一侧外齿轴套作为主动输入端，传递公称转矩为630~2800000 Nm。

为增强润滑密封效果、减少零件数量，提高运行可靠性，特别建议选用密封端盖与内齿圈作成一体的整体结构型式。

Curved tooth coupling type GICL (In compliance with Q/WL003-2007, Reference JB/T8854.3-2001) has rather wide internal gear ring to compensate fairly large axes disp1acement and is suitable for connecting two horizontal co-axial shaft. Its construction is shown in Fig.3, the basic parameters and main dimensions are given in Table 3.

Coupling type GICL may be rotated in two directions and any one side external geared hub can be used as the driven input end. The torque transmitted can be in the range of 63 0 through 2, 800,000N. m

To increase lubrication and sealing effects, to reduce number of parts and to enhance operating reliability it is recommended to use integrated structure of sealing end cover with internal gearring

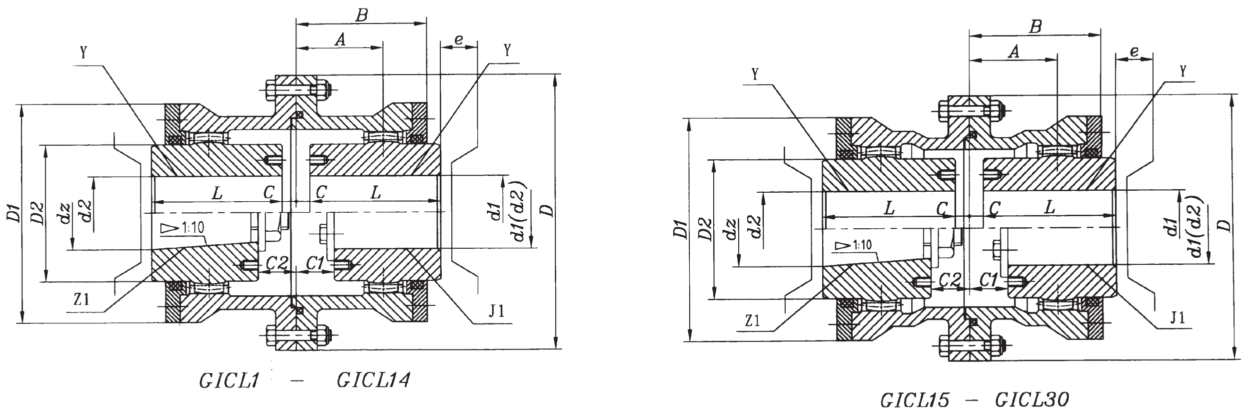


图3 GIC L型鼓形齿式联轴器结构型式
Fig.3 Construction of the curved tooth coupling GICL
Y一Y型轴 孔 J1一J1型轴 孔 Z1一Z1型轴 孔
Y -- Bore Type Y J1 --Bore Type J1, Z1--Bore Type Z1

表 3　GICL型鼓形齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007，参照JB/T8854.3-2001）

Tab.3 Parameters and Dimensions of the Couplings Type GICL (In compliance with Q/WL003-2007, ref. JB/T8854.3-2001) mm

型号 Type	公称转矩 Torque Tn (N·m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d1,d2,dz 从 Form	到 To	轴孔长度 Length of bore L Y	J_1Z_1	D	D1	D2	A	B	C	C1	C2	e	润滑脂用量 Qty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg·m²)
GICL1	630	4000	16	19	42	-	125	85	55	30	58	20	-	-	30	55	5.9	0.01
			20	24	52	38						10		24				
			25	28	62	44						2.5		19				
			30	38	82	60							15	22				
GICL2	1120	4000	25	28	62	44	144	105	65	37	66	10.5	-	29	30	100	9.7	0.02
			30	38	82	60						2.5	12.5	30				
			40	45	112	84							13.5	28				
GICL3	2240	4000	30	38	82	60	174	125	85	43	75	3	24.5	25	30	140	17.2	0.05
			40	55	112	84							17	28				
			60		142	107								35				
GICL4	3550	3600	32	38	82	60	196	148	105	47	82	14	3.7	32	30	170	24.9	0.09
			40	55	112	84						3	17	28				
			60	70	142	107								35				
GICL5	5000	3300	40	55	112	84	224	168	120	51	90	3	25	28	30	270	38	0.17
			60	75	142	107							20	35				
			80	85	172	132							22	40				
GICL6	7100	3000	48	55	112	84	241	188	135	56	97	6	35	35	30	380	48.2	0.27
			60	75	142	107						4	20	35				
			80	90	172	132							22	43				
GICL7	10000	2680	60	75	142	107	265	210	150	62	104	4	25	35	30	570	68.9	0.45
			80	95	172	132							22	43				
			100	105	212	167								48				
GICL8	14000	2500	65	75	142	107	285	232	165	63	107	5	35	35	30	660	83.3	0.65
			80	95	172	132							22	43				
			100	115	212	167								48				
GICL9	18000	2350	70	75	142	107	314	247	190	66	112	10	45	45	30	700	110	1.04
			80	95	172	132						5	22	43				
			100	120	212	167								49				
GICL10	31500	2150	80	95	172	132	346	278	210	73	121	5	43	43	30	900	157	1.88
			100	125	212	167							22	49				
			130	140	252	202							29	54				
GICL11	40000	1880	100	120	212	167	385	317	250	86	143	6	29	49	40	1200	217	3.28
			130	150	252	202								54				
			160	170	302	242								64				
GICL12	56000	1680	100	120	212	167	442	363	280	94	157	6	57	57	40	2000	305	5.08
			130	150	252	202							29	55				
			160	180	302	242								68				

表 3　GICL型鼓形齿式联轴器的基本参数和主要尺寸（符合JB/T8854.3-2001）

Tab.3 Parameters and Dimensions of the Couplings Type GICL (in compliance with JB/T8854.3-2001)

mm

型号 Type	公称转矩 Torque Tn (N·m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d1,d2,dz		轴孔长度 Length of bore L		D	D1	D2	A	B	C	C1	C2	e	润滑脂用量 Qty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg·m²)
			从 Form	到 To	Y	J_1Z_1												
GICL13	80000	1530	140	150	252	202	482	402	310	109	175	7	54	57	40	3000	419	10.06
			160	180	302	242							32	70				
			190	210	352	282								80				
GICL14	112000	1300	160	180	302	242	520	441	350	110	179	8	42	70	40	4500	594	16.77
			190	220	352	282							32	80				
GICL15	160000	1180	190	220	352	282	590	495	390	113	190	10	34	80	40	5000	783	26.55
			240	260	410	330							38	-				
GICL16	250000	1000	200	220	352	282	680	585	455	118	200	10	58	80	50	8000	1134	52.22
			240	260	410	330							38	-				
			280	300	470	380												
GICL17	280000	980	200	220	352	282	728	636	485	123	210	10	74	80	50	10000	1305	69.00
			240	260	410	330							39	-				
			280	320	470	380												
GICL18	355000	900	240	260	410	330	782	666	510	130	219	10	46	-	50	11000	1626	96.16
			280	340	470	380							41					
GICL19	450000	830	240	260	410	330	815	698	550	138	230	10	67	-	50	13000	1773	115.60
			280	320	470	380							41					
			340	360	550	450												
GICL20	500000	790	280	340	470	380	855	738	575	148	247	13	44	-	50	16000	2263	167.41
			340	370	550	450												
GICL21	630000	750	300	320	470	380	915	795	625	305	404	13	59	-	50	20000	2593	215.70
			340	380	550	450							44					
GICL22	710000	720	340	380	550	450	960	840	665	316	415	13	44	-	60	26000	3036	278.07
			400	-	650	540												
GICL23	800000	680	360	380	550	450	1010	890	710	333	435	13	44	-	60	29000	3668	379.40
			400	410	650	540							48					
GICL24	1000000	650	-	380	550	450	1050	925	730	342	445	15	46	-	60	32000	3946	448.10
			400	440	650	540							50					
GICL25	1120000	610	400	470	650	540	1120	975	770	362	465	15	50	-	60	34000	4443	564.64
GICL26	1250000	580	420	490	650	540	1160	990	800	366	475	15	50	-	60	37000	4791	637.40
GICL27	1400000	560	450	500	650	540	1210	1060	850	369	479	15	50	-	70	45000	5758	866.26
			530	-	800	680												
GICL28	1600000	540	480	500	650	540	1250	1080	890	402	517	20	55	-	70	47000	6232	1020.76
			530	550	800	680												
GICL29	2240000	520	-	500	650	540	1340	1200	960	396	517	20	57	-	80	50000	7549	1450.84
			530	590	800	680							55					
GICL30	2800000	500	560	620	800	680	1390	1240	1005	403	525	20	55	-	80	59000	9541	1974.17

注：1、联轴器质量和转动惯量是按各型号中最小轴孔直径和最大轴孔长度计算的近似值；
2、推荐选用J1型轴孔长度。

Note: 1. Coupling's mass and inertia is a approximation which is calculated according to the min bore diameter and max bore length of each size;
2. Type J1 bore length is recommendation first.

5. GICLZ型-接中间轴鼓形齿式联轴器的结构型式、参数和尺寸

5. Type GICLZ-Curved tooth coupling and its construction, parameters and dimensions

GICLZ型接中间轴鼓形齿式联轴器（符合Q/WL003-2007，参照JB/T8854.3－2001)，内齿圈较宽，能补偿较大的轴线偏移，适用于联接长距离传动、联接的轴向尺寸较大的水平两同轴线轴系传动其结构型式见图4，基本参数和主要尺寸见表4。

GICLZ型接中间轴鼓形齿式联轴器允许正、反方向回转，可将任一侧作为主动输入端，传递公称转矩为630－2800000Nm。一般情况下，应成对使用，外齿轴套端与中间轴联接，两端半联轴器则分别与工作机轴和动力机轴联接。

由于联轴器在运转中自动对中的需要，中间轴的重量值不得大于根据公称转矩计算得到的轮齿节圆处啮合圆周力的2%; 在中间轴过长、过重及转速较高时，应验算临界转速。

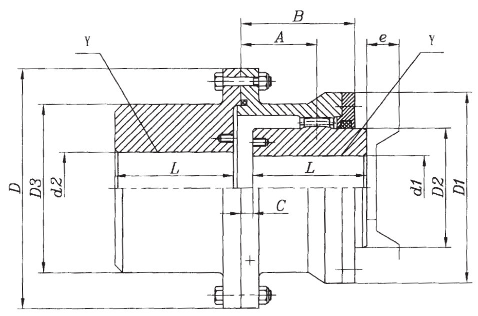
为增强润滑密封效果、减少零件数量，提高运行可靠性，建议选用密封端盖与内齿圈作成一体的整体结构型式。

Curved tooth coupling Type GICLZ with intermediate shaft (in compliance with Q/WL003-2007,ref JB-T8854.3- l999) has rather wider internal gear ring and is capable of compensating relatively large axes displacement and suitable for long distance transmission to couple two horizontal co-axial shaft system with large axial dimensions. Its main dimensions are given in Table4.

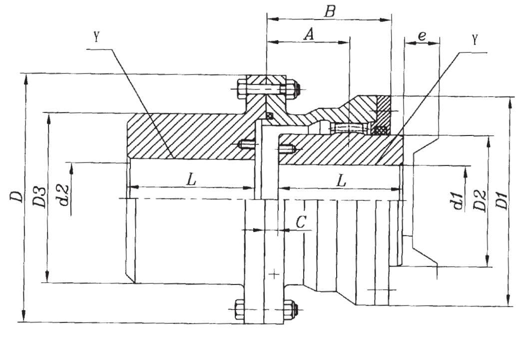
Gear coupling of Type GICLZ allows rotation in two directions.Any one side may be used as driven input end. Nominal transmitted torque lies in a range of 63 0 through 2,800,000Nm. Normally it is used in pairs, the hub with external teeth is connected with intermediate shaft and the two coupling halves are connected with the shafts of working machine and of prime mover respectively.

The weight of the intermediate shaft should not be greater than 2% of tangential force at the meshing points This is due to requirement for self alignment of the coupling during operation. Critical revolution should be checked in the case of excessive length and weight of intermediate shaft and under high revolution.

To increase lubrication sealing effect, to reduce number of parts and enhance operation reliability it is recommended to use integrated sealing end cover withinternal gearring.



GICLZ1 – GICLZ14



GICLZ15 – GICLZ30

图4 GICLZ型鼓形齿式联轴器结构型式
Fig. 4 Construction of the curved tooth coupling Type GICLZ
Y—Y型轴孔
Y—Bore Type Y

表 4　GICLZ型鼓形齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007, 参照JB/T8854.3-2001）

Tab.4 Parameters and Dimensions of the Couplings Type GICLZ(in compliance with Q/WL003-2007)

mm

型号 Type	公称转矩 Torque Tn (N•m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d1,d2,dz 从 Form	轴孔直径 Bore d1,d2,dz 到 To	轴孔长度 Length of bore L Y	D	D1	D2	D3	A	B	C	e	润滑脂用量 Qty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg•m²)
GICLZ1	630	4000	16	19	42	125	85	55	80	30	58	20	30	30	5.4	0.008
			20	24	52							10				
			25	28	62											
			30	38	82							2.5				
			40	**50**	112											
GICLZ2	1120	4000	25	28	62	144	105	65	95	37	66	10.5	30	60	9.2	0.018
			30	38	82							2.5				
			45	**50**	112											
			55	**65**	142											
GICLZ3	2240	4000	30	38	82	174	125	85	115	43	75	3	30	80	16.4	0.042
			40	55	112											
			60	**75**	142											
GICLZ4	3550	3600	32	38	82	196	148	105	130	47	82	14	30	90	22.7	0.076
			40	55	112							3				
			70	**75**	142											
			80	**85**	172											
GICLZ5	5000	3300	40	55	112	224	168	120	150	51	90	3	30	140	36.2	0.148
			60	75	142											
			85	**95**	172											
GICLZ6	7100	3000	48	55	112	241	188	135	170	56	97	6	30	200	46.2	0.238
			60	75	142							4				
			90	**95**	172											
			100	**110**	212											
GICLZ7	10000	2680	60	75	142	265	210	150	190	62	104	4	30	290	68.4	0.425
			80	95	172											
			105	**120**	212											
GICLZ8	14000	2500	65	75	142	285	232	165	210	63	107	5	30	350	81.1	0.605
			80	95	172											
			100	115	212											
			130	**140**	252											
GICLZ9	18000	2350	70	75	142	314	247	190	225	66	112	10	30	370	100.1	0.935
			80	95	172							5				
			100	120	212											
			130	**150**	252											
GICLZ10	31500	2150	80	95	172	346	278	210	250	73	121	5	30	500	147.1	1.65
			100	125	212											
			140	**150**	252											
			160	**165**	302											
GICLZ11	40000	1880	100	120	212	385	317	250	285	86	143	6	40	650	206.3	2.95
			130	150	252											
			170	**190**	302											
GICLZ12	56000	1680	–	120	212	442	363	280	325	94	157	6	40	1100	284.5	5.26
			130	150	252											
			160	180	302											
			190	**210**	352											

表 4　GICLZ型鼓形齿式联轴器的基本参数和主要尺寸（符合JB/T8854.3-2001）

Tab.4 Parameters and Dimensions of the Couplings Type GICLZ(in compliance with B/T8854.3-2001) mm

型号 Type	公称转矩 Torque Tn (N・m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d1,d2,dz 从 Form	轴孔直径 Bore d1,d2,dz 到 To	轴孔长度 Length of bore L Y	D	D1	D2	D3	A	B	C	e	润滑脂用量 Qty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg・m²)
GICLZ13	80000	1530	140	150	252	482	402	310	360	109	175	7	40	1600	402	9.16
			160	180	302											
			210	**220**	352											
GICLZ14	112000	1300	160	180	302	520	441	350	410	110	179	8	40	2300	582.2	15.92
			190	220	352											
			240	**250**	410											
GICLZ15	160000	1180	190	220	352	590	495	390	450	113	190	10	40	2600	778.2	25.79
			240	260	410											
			280	**300**	470											
GICLZ16	250000	1000	200	220	352	680	585	455	500	118	200	10	50	4100	1071	46.89
			240	260	410											
			300	**320**	352											
GICLZ17	280000	980	200	220	410	728	636	485	530	123	210	10	50	5100	1210	60.59
			240	260	470											
			320	**340**	550											
GICLZ18	355000	900	240	260	410	782	666	510	540	130	219	10	50	6000	1475	81.75
			280	320	470											
			340	**360**	550											
GICLZ19	450000	830	—	260	410	815	698	550	580	138	230	10	50	6700	1603	101.57
			280	320	470											
			360	**380**	550											
GICLZ20	500000	790	280	320	470	855	738	575	600	148	247	13	50	8100	2033	140.03
			370	**390**	550											
GICLZ21	630000	750	300	320	650	915	795	625	640	305	404	13	50	10500	2385	183.49
			340	380	550											
			400	**410**	650											
GICLZ22	710000	720	340	380	550	960	840	665	680	316	415	13	60	14000	2458	235.04
			400	**420**	650											
GICLZ23	800000	680	360	380	550	1010	890	710	720	333	435	13	60	15000	3332	323.16
			410	**450**	650											
GICLZ24	1000000	650	—	380	550	1050	925	730	760	342	445	15	60	16500	3639	387.97
			440	**480**	650											
GICLZ25	1120000	610	470	**500**	650	1120	975	770	800	362	465	15	60	18000	4073	485.96
GICLZ26	1250000	580	420	490	650	1160	990	800	850	366	475	15	60	19000	4527	573.64
			530	—	800											
GICLZ27	1400000	560	450	500	650	1210	1060	850	900	369	479	15	70	23000	5485	789.74
			530	**560**	800											
GICLZ28	1600000	540	480	500	650	1250	1080	890	960	402	517	20	70	24000	6050	960.26
			550	**600**	800											
GICLZ29	2240000	520	530	500	650	1340	1200	960	1010	396	517	20	80	26000	7090	1268.98
			590	**630**	800											
GICLZ30	2800000	500	560	620	800	1390	1240	1005	1070	403	525	20	80	30000	9264	1822.02
			670	—	900											

注：1. 联轴器质量和转动惯量是按各型号中最小轴孔直径和最大轴孔长度计算的近似值；2. 表中粗体字的轴孔尺寸只适用于d2选用。

Note:1.Mass & Inertia approximate based on min. bore and max. length;
2.Bold figures in the table suitable only for d2

6．GICLT型-接中间套鼓形齿式联轴器的结构型式、参数和尺寸

GICLT型宽型接中间套鼓形齿式联轴器（符合Q／WL 003－2007），内齿圈较宽，能补偿较大的轴线偏移，适用于联接长距离传动、联接的轴向尺寸较大时的水平两同轴线轴系传动。其结构型式见图5，基本参数和主要尺寸见表5。

GICLT型接中间套鼓形齿式联轴器允许正、反方向回转，也可将任一侧作为主动输入端，传递公称转矩为630－2800000Nm。

由于联轴器在运转中自动对中的需要，中间套的重量值不得大于根据公称转矩计算得到的轮齿节圆处啮合圆周力的2%；在中间套过长、过重及转速较高时，应验算临界转速。

为了增强润滑密封效果、减少零件数量，提高运行可靠性，特别建议选用密封端盖与内齿圈作成一体的整体结构型式。中间套的质量和转动惯量见表15。

6. Type giclt-curved tooth coupling and its construction, parameters and dimensions

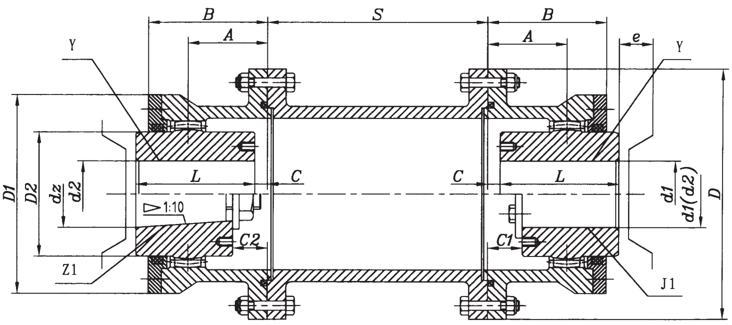
Curved tooth coupling with intermediate sleeve (in compliance with Q/WL0l.01-2002) has rather wide internal gear rings and is able to compensate relatively large axes displacement. It is suitable for long distance transmission and to connect two horizontal co-axial shaft system with large axial dimensions. Construction is shown in Fig.5. Basic parameter s and main dimensions are given in Table.5.

Curved tooth coupling with intermediate sleeve type GICLT may be rotated in two directions. Any one side may be used as driven input end. Transmitted nominal torque ranges from 630 to 2,800,00Nm.

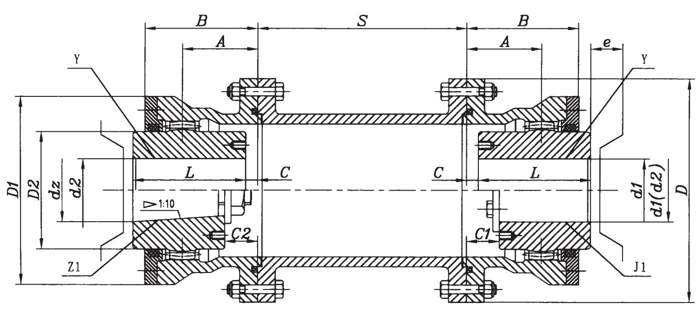
The weight of intermediate sleeve should not be greater than 2% of tangential force at the meshing point on pitch circle. The tangential force is obtained by calculation based on nominal torque. This is because of requirement for self alignment during coupling running. In case of excessive length and weight of the intermediate sleeve and high speed the critical revolution must be checked.

To increase lubrication sealing effect, to reduce number of parts and increase operation reliability it is recommended to use integrated construction of sealing end cover with internal gearing.

The mass and moment of inertia1 of intermediate sleeve are given in Table 15.



GICLT1 － GICLT14



GICLT15 － GICLT30

图5 GICLT型鼓形齿式联轴器结构型式
Figs Construction of the curved tooth coupling GICLT
Y—Y型轴孔J1一J1型轴孔Z1一 Z1型轴孔
Y—bore type Y J—bore type J Z—bore type Z1

表5　GICLT型鼓形式齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007）
Tab.5 Parameters and Dimensions of the Coupling Type GICLT(in compliance with Q/WL003-2007　mm

型号 Type	公称转矩 Torque Tn (N·m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d1,d2,dz		轴孔长度 Length of bore L		D	D1	D2	A	B	s min	C	C1	C2	e	润滑脂用量 Qty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I ($kg \cdot m^2$)
			从 Form	到 To	Y	J_1Z_1													
GICLT1	630	3600	16	19	42	-	125	85	55	30	58	75	20	-	-	30	55	5.9	0.01
			20	24	52	38							10		24				
			25	28	62	44							2.5		19				
			30	38	82	60								15	22				
GICLT2	1120	3600	25	28	62	44	144	105	65	37	66	80	10	-	29	30	100	9.7	0.02
			30	38	82	60							2.5	12	30				
			40	45	112	84								13	28				
GICLT3	2240	3600	30	38	82	60	174	125	85	43	75	80	3	25	25	30	140	17.2	0.05
			40	56	112	84								17	28				
			60	-	142	107									35				
GICLT4	3550	3300	32	38	82	60	196	148	105	47	82	100	14	37	32	30	170	24.9	0.09
			40	56	112	84							3	17	28				
			60	70	142	107									35				
GICLT5	5000	3000	40	56	112	84	224	168	120	51	90	100	3	25	28	30	270	38	0.17
			60	75	142	107								20	35				
			80	85	172	132								22	43				
GICLT6	7100	2700	48	56	112	84	241	188	135	56	97	100	6	35	35	30	380	48.2	0.27
			60	75	142	107							4	20	35				
			80	90	172	132								22	43				
GICLT7	10000	2400	60	75	142	107	265	210	150	62	104	120	4	25	35	30	570	68.9	0.45
			80	95	172	132								22	43				
			100	105	212	167									48				
GICLT8	14000	2250	65	75	142	107	285	232	165	63	107	120	5	35	35	30	660	83.3	0.65
			80	95	172	132								22	43				
			100	115	212	167									48				
GICLT9	18000	2150	70	75	142	107	314	247	190	66	112	155	10	45	45	30	700	110	1.04
			80	95	172	132							5	22	43				
			100	120	212	167									49				
GICLT10	31500	1950	80	95	172	132	346	278	210	73	121	155	5	43	43	30	900	157	1.88
			100	125	212	167								22	49				
			130	140	252	202								29	54				
GICLT11	40000	1700	100	120	212	167	385	317	250	86	143	175	6	29	49	40	1200	217	3.28
			130	150	252	202									54				
			160	170	302	242									64				
GICLT12	56000	1500	100	120	212	167	442	363	280	94	157	205	6	57	57	40	2000	305	5.08
			130	150	252	202								29	55				
			160	180	302	242									68				

(续）表5　GICLT型鼓形式齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007）
(Continuation)Tab.5 Parameters and Dimensions of the Coupling Type GICLT(in compliance with Q/WL003-2007　mm

型号 Type	公称转矩 Torque Tn (N·m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d_1,d_2,d_z 从 Form	到 To	轴孔长度 Length of bore L Y	J_1Z_1	D	D1	D2	A	B	s min	C	C1	C2	e	润滑脂用量 Qty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg·m²)
GICLT13	80000	1380	140	150	252	202	482	402	310	109	175	205	7	54	57	40	3000	419	10.06
			160	180	302	242								32	70				
			190	210	352	282									80				
GICLT14	112000	1180	160	180	302	242	520	441	350	150	179	240	8	42	70	40	4500	594	16.77
			190	220	352	282								32	80				
GICLT15	160000	1050	190	220	352	282	590	495	390	113	190	240	10	34	80	40	5000	783	26.55
			240	260	410	330								38	—				
GICLT16	250000	900	200	220	352	282	680	585	455	118	200	280	10	58	80	50	8000	1134	52.22
			240	260	410	330								38	—				
			280	300	470	380													
GICLT17	280000	900	200	220	352	282	728	636	485	123	210	280	10	74	80	50	10000	1305	69.00
			240	260	410	330								39	—				
			280	320	470	380													
GICLT18	355000	810	240	260	410	330	782	666	510	130	219	350	10	46	—	50	11000	1626	96.16
			280	340	470	380								41	—				
GICLT19	450000	750	-	260	410	330	815	698	550	138	230	350	10	67	—	50	13000	1773	115.60
			280	340	470	380								41					
			340	360	550	450													
GICLT20	500000	710	280	340	470	380	855	738	575	148	247	350	13	44		50	16000	2263	167.41
			340	370	550	450													
GICLT21	630000	680	300	320	470	380	915	795	625	611	808	350	13	59		50	20000	2593	215.70
			340	380	550	450								44					
GICLT22	710000	650	340	380	550	450	960	840	665	632	830	400	13	44		60	26000	3036	278.07
			400	-	650	540													
GICLT23	800000	610	360	380	550	450	1010	890	710	666	870	400	13	44		60	29000	3668	379.40
			400	410	650	540								48					
GICLT24	1000000	580	-	380	550	450	1050	925	730	685	890	400	15	46		60	32000	3946	448.10
			400	440	650	540								50					
GICLT25	1120000	550	400	470	650	540	1120	975	770	724	930	400	15	50		60	34000	4443	564.64
GICLT26	1250000	520	20	490	650	540	1160	990	800	733	950	400	15	50		60	37000	4791	637.40
GICLT27	1400000	500	450	500	650	540	1210	1060	850	739	958	500	15	55		70	45000	5758	866.26
			530	-	800	680													
GICLT28	1600000	480	480	500	650	540	1250	1080	890	805	1034	500	20	55		70	47000	6232	1020.76
			530	550	800	680													
GICLT29	2240000	460	-	500	650	540	1340	1200	960	792	1034	500	20	57		80	50000	7549	1450.84
			530	590	800	680								55					
GICLT30	2800000	450	560	620	800	680	1390	1240	1005	806	1050	500	20	25		80	59000	9541	1974.17

注：1、联轴器质量和转动惯量是按各型号中最小轴孔直径和最大轴孔长度计算的近似值,未计算中间套；
2、联轴器的许用转速[n]取决于中间套的长度和质量，并应验算临界转速，表中值为Smin时的许用值。

Note: 1. Coupling's mass and inertia is a approximation which is calculated according to the min bore diameter and max bore length of each size, the intermediate sleeve is not calculated;
2. Speed [n] is determined by intermediate sleeve's length and mass, and max speed must be calculated, the value in table ispermission value when S is min .

7. GGCL型-套管型双鼓形齿式联轴器的结构型式、参数和尺寸

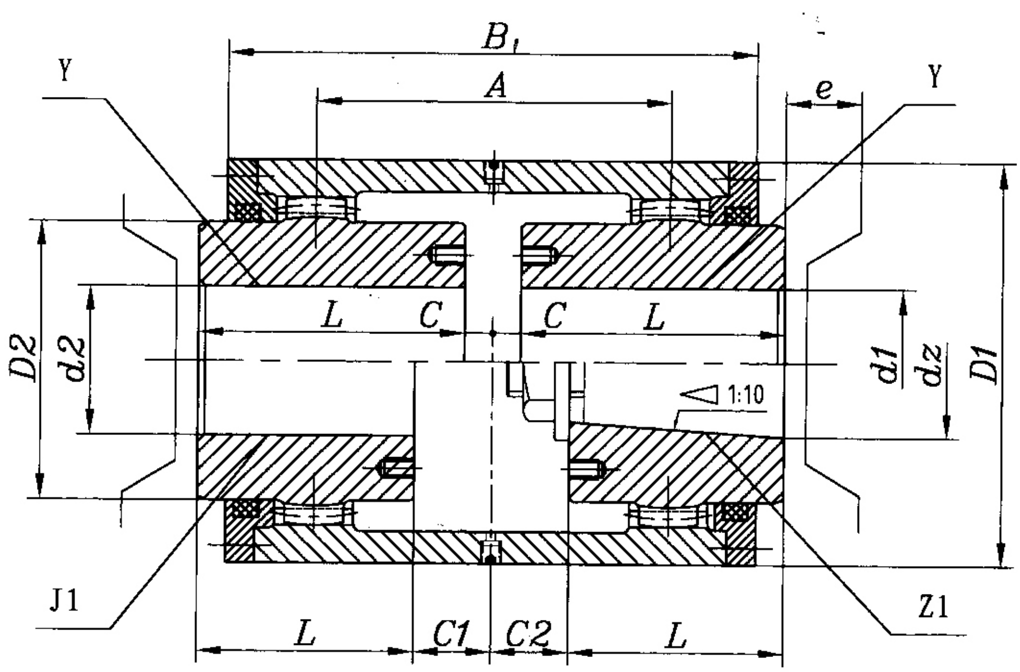
7.type GGCL-Curved tooth coupling and its construction,parameters and dimensions

GGCL 型套管型双鼓形齿式联轴器(符合Q / WL 003-2007) 内齿圈较宽结构轻巧，转动惯量小，能补偿较大的轴线偏移，适用于联接水平两同轴线传动轴系、中小载荷高速场合。其结构型式见图6、基本参数和主要尺寸见表6。

GGCL型套管型双鼓形齿式联轴器允许正、反方向回转，可将任一侧外齿轴套作为主动输入端，传递公称转矩为630-112000N・m

Curved tooth coupling type GGCL(incompliance with Q / WL01.02—2002)has rather wide internal geare ring, light structure and low moment of inertia and is able to com pensate large axes misallgnment . It is suitable for connection of two horizontal CO-axial transmission shaft systems with low and medium load and high speed. Construction is shown in Fig6 and basic parameters and main dimensions are given in Table 6.

Coupling type GGCL may rotate in both directions and any side external gear—hub can be used as the driven input end. Transmitted nominal torque lies. In the range from 630 to 11200 N・m.



GGCL1一 GGCL14

图6 GGCL型鼓形齿式联轴器结构型式

Fig•6 Construction of the curved tooth coupling Type GGCL

Y—Y型轴孔 J1—J1型轴孔 Z1—Z1型轴孔

Y—Bore Type Y J1—Bore Type J1 Z1—Bore Type Z1

表6 GGCL型套管型双鼓形齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007）
Tab.6 Parameters and Dimensions of the Coupling Type GGCL(in compliance with Q/WL003-2007) mm

型号 Type	公称转速 Torque Tn (N•m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d1 d2 dz 从 Form	轴孔直径 Bore d1 d2 dz 到 To	轴孔长度 Length of bore L Y	轴孔长度 Length of bore L J_1Z_1	D_1	D_2	A	B_1	C	C_1	C_2	e	润滑脂用量 Q'ty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg m)
GGCL1	630	4000	16	19	42	-	100	55	60	116	20			30	55	5.0	0.01
			20	24	52	38					10		24				
			25	28	62	44					2.5		19				
			30	38	82	60						15	22				
GGCL2	1120	4000	25	28	62	44	120	65	74	132	10.5		29	30	100	8.3	0.02
			30	38	82	60					2.5	12.5	30				
			40	45	112	84						13.5	28				
GGCL3	2240	4000	30	38	82	60	140	85	86	150	3	24.5	25	30	140	14.6	0.04
			40	35	112	84						17	28				
			60	-	142	107							35				
GGCL4	3550	3600	32	38	82	60	162	105	94	164	14	37	32	30	170	21.2	0.07
			40	55	112	84					3	17	28				
			60	70	142	107							35				
GGCL5	5000	3000	40	56	112	84	190	120	102	180	3	25	28	30	270	32.3	0.14
			60	75	142	107						20	35				
			80	85	172	132						22	43				
GGCL6	7100	3000	48	56	112	84	205	135	112	194	6	35	35	30	380	41.2	0.26
			60	75	142	107					4	20	35				
			80	90	172	132						22	43				
GGCL7	10000	2680	60	75	142	107	230	150	124	208	4	25	35	30	570	58.6	0.36
			80	95	172	132						22	43				
			100	105	212	167							48				
GGCL8	14000	2500	65	75	142	107	255	165	126	214	5	35	35	30	660	70.8	0.52
			80	95	172	132						22	43				
			100	115	212	167							48				
GGCL9	18000	2350	70	75	142	107	272	190	132	224	10	45	45	30	700	93.5	0.83
			80	95	172	132					5	22	43				
			100	120	212	167							49				
GGCL10	31500	2150	80	95	175	132	300	210	146	242	5	43	43	30	900	133.5	1.50
			100	125	212	167						22	49				
			130	140	252	202						29	54				
GGCL11	40000	1880	100	120	212	167	342	250	172	286	6	29	49	40	1200	184.5	2.62
			130	150	252	202							54				
			160	170	302	242							64				
GGCL12	56000	1680	100	120	212	167	384	280	188	214	6	57	58	40	2000	259.3	4.06
			130	150	252	202						29	55				
			160	180	302	242							68				
GGCL13	80000	1550	140	150	252	202	430	310	218	350	7	54	57	40	3000	356.2	8.05
			160	180	302	242						32	70				
			190	210	352	282							80				
GGCL14	112000	1500	160	180	302	242	465	350	220	358	8	42	70	40	4500	504.9	13.4
			190	220	282	282						32	80				

注：1. 联轴器质量和转动惯量是按各型号中 J_1 型轴伸计算的近似值；
2. e为更换密封所需尺寸；

Note:1.Mass & Inertia approximate based on min.bore and max.Lenth;
2."e"is used for seal replacement.

8. NGICLZ型-带制动轮鼓形齿式联轴器的结构型式、参数和尺寸

8.Type NGICLZ-Curved tooth coupling and its construction,parameters and dimensions

NGICLZ型接中间轴带制动轮鼓形齿式联轴器(符合Q／W L 003--2007)，内齿圈较宽，能补偿较大的轴线偏移，适用于瓦块式制动器配套的场合，允许正反方向旋转，其结构型式见图7,基本参数和主要尺寸表7。

一般情况下,NGICLZ型联轴器应与GICLZ型联轴器配套使用，外齿轴套端与中间轴联接， 两端半联轴器则分别与工作机轴和动力机轴联接。

由于制动轮与半联轴器连接在一起,制动轮的重量以及工作制动负荷与振动完全由半联轴器承受， 改善了制动时鼓形齿的啮合性能， 因此特别适用于重载场合,传递公称转矩为630Nm~112kNm。

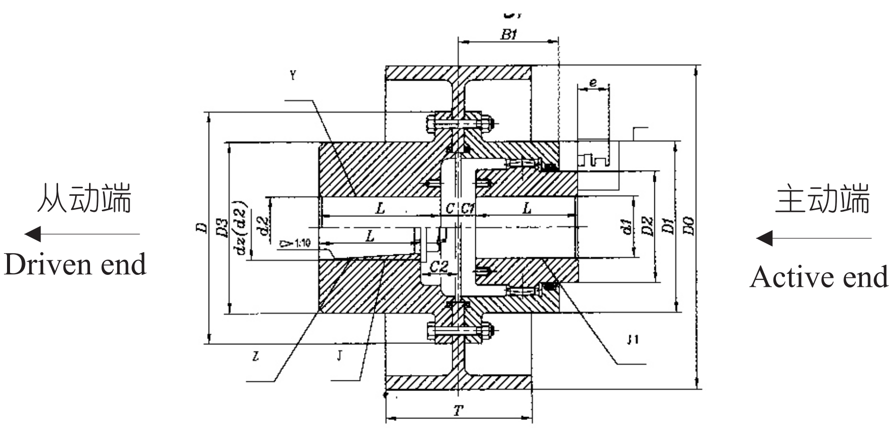
不同规格制动轮的主要参数列于表16中。

Curved tooth coupling with intermediate shaft and brake wheel NGICLZ (in compl liance with Q/WL 003-2007), It has wide inner gear ring, can compensate large axial displacement, suit for working place with slipper brake, and can be use in forward and reverse rotatory , Its construction is shown in Fig7 and its basic parameters basic parameters and dimensions are given in Table7.

Normally，coupling type NGICLZ should be used in pairs with type GICLZ. External toothed hub is connected with intermediate shaft，and the two coupling halves at both ends are connected with shafts of working machine and prime mover respectively.

Since the brake wheel is connected with the coupling half anthus the weight of brake wheel and braking load and vibration is borne by the coupling half that improves meshing per formance of the crowned teeth during braking. Therefore,it is particularly suitable for heavy load duty application, the nominal transferring torque is 630Nm~112kNm.

Parameters of brake wheels，of various sizes are given in table 16.



NGICLZ1 - NGICLZ14

图7 NGICLZ 型鼓形齿式联器结构式

Fig.7 construction of the curved tooth coupling NGICLZ

Y — Y型轴孔　　J₁ — J1型轴孔　　Z — Z型轴孔　　Z₁ — Z₁型轴孔

Y — Bore Type Y　　J₁ —Bore Type　　ZBore Type Z　　Z₁ —Bore Type Z₁

表 7　NGICLZ型带制动轮鼓形式齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007）
Tab.7 Parameters and Dimensions of the Coupling Type NGICLZ(in compliance with Q/WL003-2007　　mm

型号 Type	公称转速 Torque Tn (Nm)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d_1 d_2 dz 从 Form	到 To	轴孔长度 Length of bore L Y	J_1Z_1	D0	D	D1	D2	D3	B1	T	C	C1	C2	e	润滑脂用量 Q'ty of Lub V (L)	质量 Mass m (kg)	转动惯量 Inertia I (kg·m²)
			20	24	52	38								14	-	28				
NGICLZ1	630	3800	25	28	62	44	200	125	85	55	80	61	85	6.5		23	30	0.11	10.6	0.053
			30	38	82	60									19	26				
			25	28	62	44								14.5		33				
NGICLZ2	1120	3800	30	38	82	60	200	144	105	65	95	71	85	6.5	16.5	24	30	0.12	14.4	0.063
			45	**56**	112	84									17.5	32				
			30	38	82	60									29.5	30				
NGICLZ3	2240	3000	40	56	112	84	250	174	125	85	115	80	105	8	22	33	30	0.20	26.5	0.168
			60	**70**	142	107										40.				
			32	38	82	60								20	43	38				
NGICZL4	3550	2400	40	55	112	84	315	196	148	105	130	88	135	9	23	34	30	0.28	39.9	0.434
			70	**75**	142	107										39				
			40	56	112	84									32	35				
NGICLZ5	5000	1900	60	75	142	107	400	224	168	120	150	97	170	10	27	42	30	0.45	69.6	1.26
			85	**90**	172	132									29	47				
			48	56	112	84								13	42	42				
NGICLZ6	7100	1900	60	75	142	107	400	241	188	135	170	104	170	11	27	42	30	0.65	79.6	1.35
			90	**95**	172	132									29	50				
			60	75	142	107									34	44				
NGICLZ7	10000	1500	80	95	172	132	500	265	210	150	190	113	210	13	31	52	30	0.80	124.7	3.50
			105	**120**	212	167										57				
			65	75	142	107									46	46				
NGICLZ8	14000	1200	80	95	172	132	630	285	232	165	210	118	265	16	33	54	30	0.95	182.4	9.16
			115	**120**	212	167										59				
			70	75	142	107								21	56	56				
NGICLZ9	18000	1200	80	95	172	132	630	314	247	190	225	123	265	16	33	54	30	1.30	201.4	9.49
			100	125	212	167										60				
			80	95	175	132									54	54				
NGICLZ10	31500	1200	100	125	212	167	710	346	278	210	250	132	300	16	33	60	30	1.60	292.9	17.19
			140	**150**	252	202									40	65				
			100	120	212	167										60				
NGICLZ11	40000	1050	130	150	252	202	710	385	317	250	285	154	300	17	40	65	40	2.00	352.1	18.50
			170	**180**	302	242										75				
			100	120	212	167									70	70				
NGICLZ12	56000	950	130	150	252	202	800	442	363	280	325	170	340	19	42	68	40	3.40	487.5	32.07
			160	180	302	242										81				
			140	150	252	202									67	83				
NGICLZ13	80000	950	160	180	302	242	800	482	402	310	360	188	340	20	45	70	40	4.40	605.0	35.92
			210	**220**	352	282										93				
NGICLZ14	112000	950	160	220	302	242	800	520	441	350	410	192	340	21	55	83	40	6.60	785.2	42.68
			190	220	352	282									45	93				

注：　1.　联轴器质量和转动惯量是按各型号中 J_1 型轴伸计算的近似值；(制动轮未计)
　　　2.　表中粗体字的轴孔尺寸只适用于d_2选用；　　　　4.　联轴器轴孔组合有*Z1/J1,Y/Y,J1/J1,Y/J1*；
　　　3.　e为更换密封所需尺寸；　　　　　　　　　　　5.　不同规格制动轮的有关参数见表16.

note: 1.Mass & Intertia appromimate based on min.bore and max.Length;（Brake wheel exluded）
2. Bold figures in the table suitable only for d_2;　　4. The shaft bore combination of the coupling are *Z1/J1,Y/Y,J1/J1,Y/J1*;
3.e is used for seal replacement　　5. Parameters of various brake wheels are shown in Table 16.

9. PGCLZ型-带制动盘鼓形齿式联轴器的结构型式、参数和尺寸

9.Type PGCLZ-Curved tooth coupling and its consturction,parameters and dimensions

PGCLZ型接中间轴带制动盘鼓形齿式联轴器（符合Q / WL003-2007），内齿圈较宽，能补偿较大的轴线偏移，适用于与盘式制动器配套的场合，允许正、 反方向回转。其结构型式见图8，基本参数和主要尺寸见表8。

一般情况下，PGCLZ 型联轴器应与GICLZ型联轴器配对使用，外齿轴套端与中间轴联接，两端半联轴器则分别与工作机轴和动力机轴联接。由于制动盘与半联轴器连接在一起，制动盘的重量以及工作制动负荷与振动完全由半联轴器承受，改善了制动时鼓形齿的啮合性能，因此适用于重载场合，传递公称转矩为630-112000 N・m 。

为增强润滑密封效果、减少零件数量，提高运行可靠性，特别建议：PGCLZ型带制动盘鼓形齿式联轴器选用密封端盖与内齿圈作成一体的整体结构型式。

当配用不同规格的制动盘时，制动盘的有关参数见表17。

Curved tooth coupling with intermediate shaft and brake disc PGCLZ(in compliance with Q/WL 01.05—2002) has relatively wide internal geared ring and can rather large axes misalignment. It is suitable for application in conjunction with disc brake for rotation in both directions. Its construction is shown in Fig.8 and basic parameters and main dimensions are given in Table 8.

Normally, coupling type PGCLZ should be used in conjunction with coupling of type GICLZ. External toothed hub is connected with intermediate shaft,the coupling halves at both ends are connected with shaft of the working machine and the prime mover respectively. Since the brake disc is connected with the coupling half the weight of brake disc，braking load and vibration are borne by the coupling half and thus the meshing performance of crowned teeth during braking is improve d. Therefore，it is suitable for application with heavy load，Transmitted nominal torque ranges from 63 0 to 112,00 N・m.

To increase lubrication sealing effect and operation reliability， to reduce parts number it is especially recommended that for gear coupling type PGCLZ with brake disc the integrated construction of sealing end cover with internal gear ring should beused.

Parameters of brake disc of differ ent sizes are

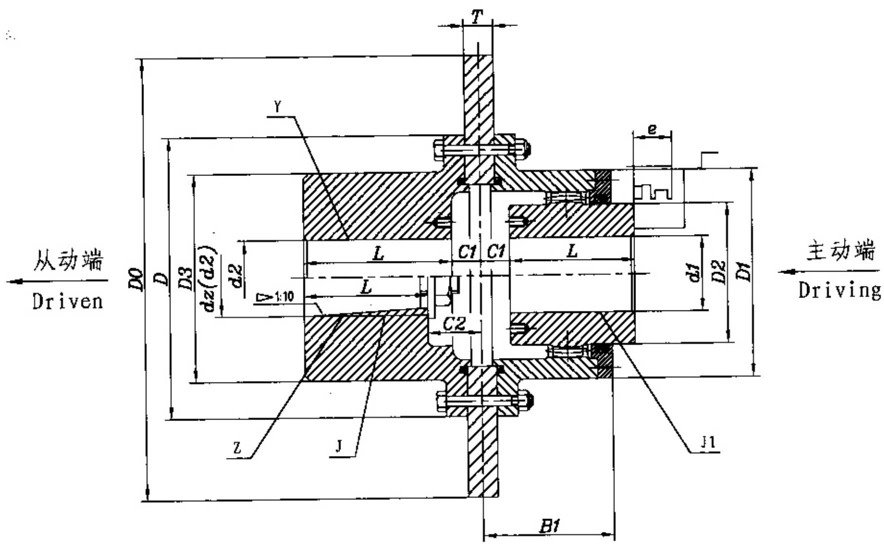


图8 PGCLZ型鼓形齿式联轴器结构型式

Figure 8 Construction of the curved tooth coupling PGCLZ

Y—Y型轴孔 J_1—J_1型轴孔 Z—Z型轴孔

Y-Bore TypeY J_1-BoreTypeJ₁ Z-BoreTypeZ

表8　　PGCLZ型带制动盘鼓形式齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007）
Tab.8 Parameters and Dimensions of the Coupling Type PGCLZ(in compliance with Q/WL003-2007)　mm

型号 Type	公称转速 Torque Tn (N・m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d_1 d_2 d_z 从 Form	 到 To	轴孔长度 Length of bore L Y	 J_1Z_1	D_0	D	D_1	D_2	D_3	B_1	T	C_1	C_2	e	润滑脂用量 Qty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg・m²)
PGCLZ1	630	4000	20 25 30	24 28 38	52 62 82	38 44 60	315	125	85	55	80	72	30	25 17.5	39 34 37	30	60	22.4	0.24
PGCLZ2	1120	4000	25 30 40	28 38 48	62 82 112	44 60 84	315	144	105	65	95	82	30	25.5 17.5	44 45 43	30	110	26.2	0.25
PGCLZ3	2240	3550	30 40 60	38 56 -	82 112 142	60 84 107	355	174	125	85	115	92	30	18	40 43 50	30	155	39.2	0.42
PGCLZ4	3550	2500	32 40 60	38 56 70	82 112 142	60 84 107	400 450 500	193	148	105	130	104	30	29 18	47 43 50	30	190	53.1 62.1 72.7	0.72 1.17 1.74
PGCLZ5	5000	2500	40 60 80	56 75 85	112 142 172	60 84 107	400 450 500	224	168	120	150	114	30	18	43 50 58	30	300	66.6 75.6 86.2	0.79 1.25 1.81
PGCLZ6	7100	2000	48 60 80	56 75 90	112 142 172	84 107 132	450 500 560 630	241	188	135	170	124	30	21 19	50 50 55	30	420	85.6 96.2 107.6 123.8	1.34 1.90 2.80 4.36
PGCLZ7	10000	1700	60 80 100	75 95 105	142 172 212	84 107 132	450 500 560 630	265	210	150	190	137	30	19	50 58 63	30	630	107.8 118.4 129.8 146.0	1.53 2.09 2.99 4.55
PGCLZ8	14000	1700	65 80 100	75 95 115	142 172 212	107 132 167	500 560 630 710	285	232	165	210	147	30	20	50 58 63	30	730	131.1 158.7 142.5 174.1	2.27 3.17 4.73 7.25
PGCLZ9	18000	1600	70 80 100	75 95 120	142 172 212	107 132 167	560 630 710 800	314	247	190	225	157	30	25 20	60 58 64	30	770	161.5 177.7 193.1 235.7	3.50 5.06 7.58 12.35
PGCLZ10	31500	1600	80 100 130	95 125 140	172 212 252	132 167 202	630 710 800	346	278	210	250	180	30	20	58 64 69	30	990	224.7 240.1 282.7	5.77 8.29 13.40
PGCLZ11	40000	1400	100 130 160	125 150 170	212 252 302	167 202 242	710 800 900	385	317	250	285	195	30	21	64 69 79	40	1300	299.3 341.9 379.5	9.60 14.70 21.56
PGCLZ12	56000	1400	- 130 160	120 150 180	212 252 302	167 202 242	710 800 900	442	363	280	325	223	30	21	72 70 83	40	2200	377.5 420.1 457.7	11.90 17.0 23.86
PGCLZ13	80000	1400	140 160 190	150 180 210	252 302 352	202 242 282	800 900	482	402	310	360	253	30	22	72 85 95	40	3300	537.6 575.2	20.80 27.76
PGCLZ14	112000	1200	160 190	180 220	302 352	242 282	900 1000	520	441	350	410	281	30	23	85 95	40	4900	755.4 755.4	34.42 41.92

注：　1. 联轴器质量和转动惯量是按各型号中 J_1 型轴伸计算的近似值；
　　　2. 联轴器的最大制动力矩T_m不得超过公称转矩Tn的2倍，即$T_m \leqslant 2T_n$　4. e为更换密封所需尺寸；
　　　3. 联轴器轴孔组合有$Z_1/J_1, Y/Y, J_1/J_1, Y/J_1$；

note: 1.Mass & Intertia appromimate based on min.bore and max.Length;
2. Max.braking torque Tm of the coupling should not exceed 2 times onminal torque Tn,i,e,$T_m \leqslant 2T_n$;
3.The shaft bore combination of the coupling are $Z_1/J_1, Y/Y, J_1/J_1, Y/J_1$;
4.e is used for seal replacement

10. PGCLK型-带制动盘鼓形齿式联轴器的结构型式、参数和尺寸

10。TYPE PGCLK-Curved tooth coupling and its construction,parameters and dimensions

PGCLK 型带制动盘鼓形齿式联轴器(符合Q／W L003-2007)，适用于与盘式制动器配套的场合,允许正、反方向回转。其特点是：双鼓形齿结构，能补偿较大的轴线偏移；制动盘布置在联轴器的被动端,制动盘的重量以及工作制动负荷与振动完全由半联轴器承受,从而改善了制动时鼓形齿的啮合性能；最大制动力矩不受联轴器结构强度的限制,安全可靠；结构紧凑,制动盘散热条件好；插入式制动盘可快速更换而不必移开设备。

因此特别适用于负荷、转速和方向变化频繁的重载场合,传递公称转矩为630-112000Nm。其结构型式见图9,基本参数和主要尺寸见表9。当配用不同规格的制动盘时,制动盘的有关参数见表17。

Coupling PGCLK with brake disc (in compliance with Q/WL003 一 2007) has the same application as above mentioned . It has features : double dcurved teeth to compensate rather large axes.displacement;the brake disc is located at the idle end of coupling and the weight of brake disc and braking load and vibration are fully borne by the coupling half and thus meshing performance of curved teeth during braking is improved; the max, braking torque is not limited by strength of coupling structure,and thus. it is safe and reliable; it has compact construction and good heat dissipation condition of brake disc; the brake disc is of inserted type that makes quick replacement possible without removing anything.

It Is particularly suitable for application with frequently varied load, speed and direction and heavy load. Transmitted nominal torque is in the range of 630-11200N・m. Its construction is shown in Fig.9 and basic parameters and major dimensions are given in Tab.9. Parameters of brake disc of different sizes are given in Tab.17.

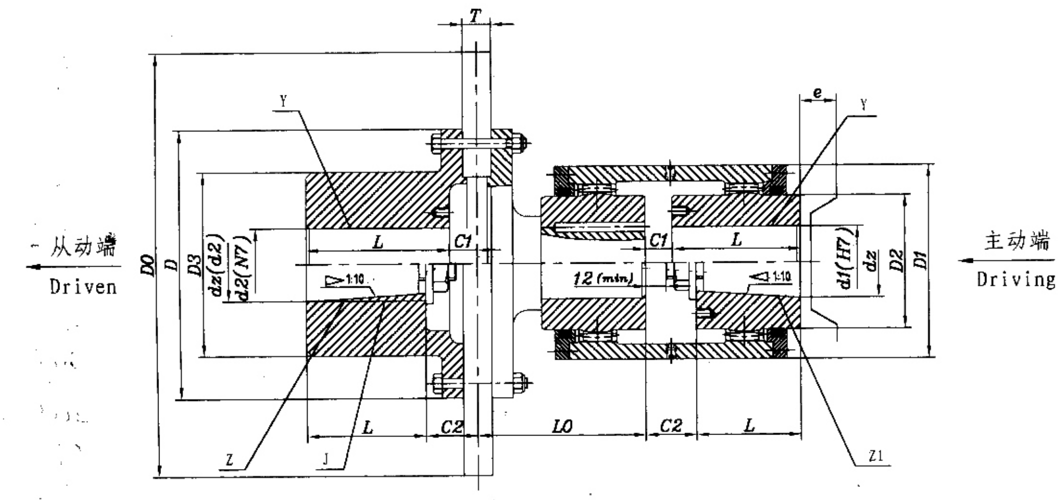


图9 PGCLK型鼓形齿式联轴器结构型式

Figure9 Construction of the Curved tooth coupling PGCLK
Y—Y型轴孔 J_1—J_1型轴孔 Z—Z型轴孔 Z_1—Z_1型轴孔
Y-BoreTypeY J_1-BoreTypeJ_1 Z-BoreTypeZ Z_1-BoreType Z_1

表 9　　PGCLK型带制动盘鼓形式齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007）
Tab.9 Parameters and Dimensions of the Coupling Type PGCLK(in compliance with Q/WL003-2007　　mm

型号 Type	公称转速 Torque Tn (Nm)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d1 d2 dz 从 Form	到 To	轴孔长度 Length of bore L Y	J_1Z_1	D0	D	D1	D2	D3	L0	T	C1	C2	e	润滑脂用量 Q'ty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg・m²)
PGCLK1	630	4000	20	24	52	38	315	125	100	55	80	90	20	25	39	30	55	18.30	0.16
			25	28	62	44								17.5	34				
			30	38	82	60									37				
PGCLK2	1120	4000	25	28	62	44	315	144	120	65	95	105	20	25.5	44	30	100	22.5	0.18
			30	38	82	60									45				
			40	48	112	84									43				
PGCLK3	2240	3550	30	38	82	60	355	174	140	85	115	130	20	18	40	30	140	36.5	0.31
			40	56	112	84									43				
			60	-	142	107									50				
PGCLK4	3550	2500	32	38	82	60	400	196	162	105	130	130	30	29	47	30	170	59.9	0.75
			40	56	112	84	450							18	43			68.9	1.21
			60	70	142	107	500								50			79.5	1.77
PGCLK5	5000	2500	40	56	112	60	400	224	190	120	150	150	30	18	43	30	270	67.5	0.84
			60	75	142	84	450								50			76.5	1.30
			80	85	172	107	500								58			87.1	1.86
PGCLK6	7100	2000	48	56	112	84	450	241	205	135	170	155	30	21	50	30	380	99.1	1.41
			60	75	142	107	500 560							19	50			109.7 121.1	1.97 2.87
			80	90	172	132	630								55			137.3	4.43
PGCLK7	10000	1700	60	75	142	84	450	265	230	150	190	180	30	19	50	30	570	128.3	2.22
			80	95	172	107	500 560								58			138.9 150.3	3.12 4.68
			100	105	212	132	630								63			166.5	7.20
PGCLK8	14000	1700	65	75	142	107	500 560	285	255	165	210	180	30	20	50	30	660	155.4 166.4	2.45 3.35
			80	95	172	132	630								58			183.0	4.91
			100	115	212	167	710								63			201.1	7.43
PGCLK9	18000	1600	70	75	142	107	560 630	314	272	190	225	200	30	25	60	30	700	191.5 207.7	3.78 5.34
			80	95	172	132	710							20	58			223.1	7.86
			100	120	212	167	800								64			265.7	12.96
PGCLK10	31500	1600	80	95	172	132	630	346	300	210	250	230	30	20	58	30	900	268.8	6.29
			100	125	212	167	710								64			284.2	8.81
			130	140	252	202	800								69			326.8	13.91
PGCLK11	40000	1400	100	125	212	167	710	385	342	250	285	260	30	21	64	40	1200	361.2	10.52
			130	150	252	202	800								69			403.8	15.62
			160	170	302	242	900								79			441.4	22.48
PGCLK12	56000	1400	-	120	212	167	710	442	384	280	325	280	30	21	72	40	2000	462.5	13.54
			130	150	252	202	800								70			505.5	18.64
			160	180	302	242	900								83			543.1	25.5
PGCLK13	80000	1400	140	150	252	202	800	482	430	310	360	320	30	22	72	40	3000	658.2	23.65
			160	180	302	242	900								85			695.8	30.51
			190	210	352	282									95				
PGCLK14	112000	1200	160	180	302	242	900	520	465	350	410	360	30	23	85	40	4500	930.1	39.30
			190	220	352	282	1000								95			950.1	46.80

注：　1．联轴器质量和转动惯量是按各型号中 J_1 型轴伸计算的近似值；
　　　2．联轴器的最大制动力矩T_m 不得超过公称转矩Tn的2倍，即$T_m \leqslant 2T_n$　4．e为更换密封所需尺寸；
　　　3．联轴器轴孔组合有$Z_1/J_1, Y/Y, J_1/J_1, Y/J_1$.

note: 1.Mass & Intertia apprоmimate based on min.bore and max.Length;
2. Max.braking torque Tm of the coupling should not exceed 2 times onminal torque T_n,i,e,$T_m \leqslant 2T_n$;
3.The shaft bore combination of the coupling are $Z_1/J_1, Y/Y, J_1/J_1, Y/J_1$;
4.e is used for seal replacement

11. GIICL型-基本型鼓形齿式联轴器的结构型式、参数和尺寸

11.Type GIICL-Curved tooth coupling and its construction,parameters and dimensions

GIICL基本型鼓形齿式联轴器齿间距小，允许相对径向位移小，结构紧凑，转动惯量小。其结构型式见图10，基本参数和主要尺寸见表10。

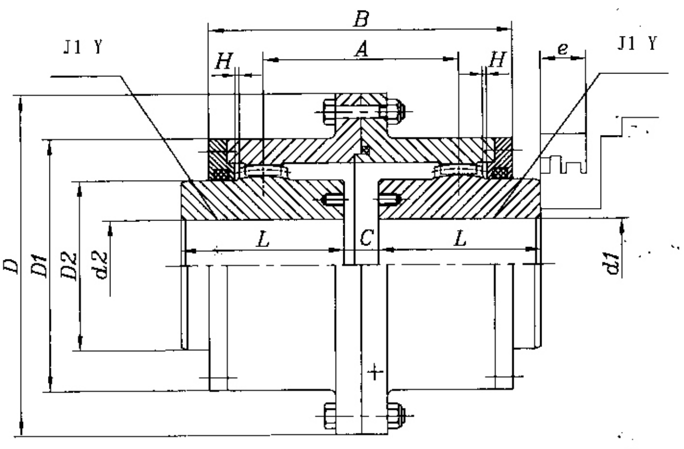
GIICL型鼓形齿式联轴器允许正、反方向回转,可将任一侧外齿轴套作为主动输入端,传递公称转矩为400~5000000Nm。

为增强润滑密封效果、减少零件数量，提高运行可靠性,特别建议选用密封端盖与内齿圈作成一体的整体结构型式。

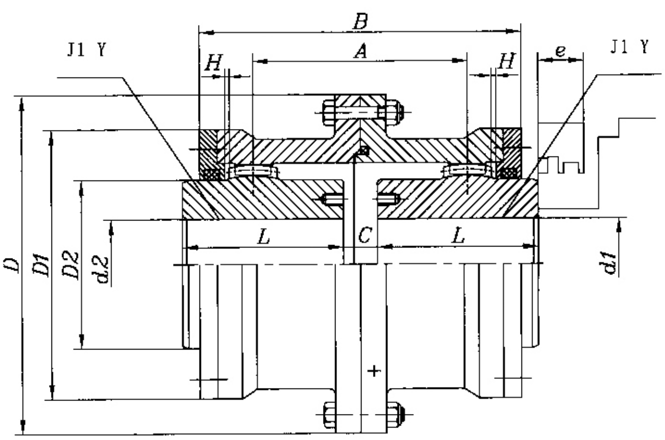
Flexible gear coupling GIICL has small teeth pitch and allows small radial relatived is placement, it has compacts tructure and low moment of inertia. Construction of Type GIICL is shown in Fig.10 and parameters and dimensions are given in Table.10.

Gear coupling GIICL allows rotati on in two directions and any one side external toothed hub may be used as the driven input end. Transmitted nominal torque ranges from 400 to 5,000,000 Nm.

To enhance lubrication sealing effect, to reduce number of parts and in crease operation reliability it is specially recommended to use integrated sealing end cover with inner gear.



GIICL1 - GIICL13



GIICL14 - GIICL25

图10 GIICL型鼓形齿式联轴器结构型式

Fig.10 Construction of the Curved tooth coupling GIICL

Y-Y型轴孔 J_1一J_1型轴孔

Y-Bore TypeY J_1-BoreTypeJ$_1$

表 10 GIICL型鼓形齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007,参照JB/T8854.2-2001） mm
Tab.10 Parameters and Dimensions of the Coupling Type GIICL(in compliance with Q/WL003-2007, ref.JB/T8854.2-2001)

型号 Type	公称转速 Torque Tn (N・m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d1 d2 从 Form	到 To	轴孔长度 Length of bore L Y	J_1Z_1	D	D_1	D_2	A	B	C	H	e	润滑脂用量 Qty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg・m²)
GIICL1	400	4000	16	19	442	-	109	74	50	28	76	8	4	38	51	5.1	0.0035
			20	24	52	38										3.0	0.0035
			25	28	62	44										3.1	0.0035
			30	35	82	60										3.6	0.0038
GIICL2	.710	4000	20	24	52	38	120	86	60	30	80	8	4	42	70	4.9	0.0058
			25	28	62	44										4.5	0.0058
			30	38	82	60										5.1	0.006
			40	45	112	84										6.2	0.0068
GIICL3	1120	4000	22	24	52	38	133	98	75	34	88	8	4	42	68	7.5	0.012
			25	28	62	44										7.0	0.011
			30	38	82	60										6.9	0.011
			40	55	112	84										8.6	0.012
GIICL4	1800	4000	-	38	82	60	150	116	90	38	100	8	4	42	87	10.1	0.02
			40	56	112	84										12.2	0.022
			60	65	142	107										14.5	0.024
GIICL5	3150	4000	40	56	112	84	170	134	105	44	108	10	3	42	125	16.4	0.038
			60	75	142	107										19.6	0.04.
GIICL6	5000	4000	45	56	112	84	190	153	125	46	112	10	3	42	148	22.1	0.066
			60	75	142	107										26.5	0.075
			80	90	172	132										31.2	0.084
GIICL7	7100	3750	50	56	112	84	206	170	140	50	120	10	3	42	175	27.6	0.105
			60	75	142	107										33.1	0.115
			80	95	172	132										39.2	0.13
			100	-	212	167										47.5	0.15
GIICL8	10000	3300	55	56	112	84	232	188	155	60	140	12	5	47	268	35.5	0.17
			60	75	142	107										42.3	0.19
			80	95	172	132										49.7	0.21
			100	110	212	167										60.2	0.25
GIICL9	16000	3000	60	75	142	107	262	214	180	64	146	12	5	47	310	55.6	0.32
			80	95	172	132										65.6	0.36
			100	125	212	167										79.6	0.42
			130	-	252	202										95.8	0.47
GIICL10	22400	2650	65	75	142	107	292	242	200	72	160	14	5	47	472	72.0	0.52
			80	95	172	132										84.4	0.58
			100	125	212	167										101	0.66
			130	150	252	202										119	3075
GIICL11	35500	2350	70	75	142	107	328	278	235	84	180	14	5	47	550	95	1.40
			80	95	172	132										114	1.10
			100	125	212	167										138	1.20
			130	150	252	202										161	1.30
			160	170	302	252										189	1.58
GIICL12	50000	2100	-	75	142	107	365	315	270	92	194	16	5	49	695	128	1.62
			80	95	172	132										150	1.83
			400	125	212	167										205	2.11
			130	150	252	202										213	2.41
			160	170	302	242										248	2.74
			190	200	352	282										285	3.06

（续）表 10　GIICL型鼓形齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007,参照JB/T8854.2-2001） mm
(Continue)Tab.10 Parameters and Dimensions of the Coupling Type GIICL(in compliance with Q/WL003-2007)

型号 Type	公称转速 Torque T_n (N·m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d_1 d_2 从 Form	到 To	轴孔长度 Length of bore L Y	J_1Z_1	D	D_1	D_2	A	B	C	H	e	润滑脂用量 Qty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg·m²)
GIICL13	71000	1850	-	150	252	202	415	350	300	100	208	18	5	49	1019	269	3.93
			160	180	302	242										315	4.43
			190	220	352	282										360	4.92
GIICL14	112000	1650	170	180	302	242	468	405	335	172	296	22	7	63	3900	421	8.03
			190	220	352	282										476	8.80
			230	250	410	330										544	9.73
GIICL15	180000	1500	190	220	352	282	512	450	380	188	316	22	6	63	3700	608	14.30
			240	260	410	330										696	15.85
			280	-	470	380										786	17.45
GIICL16	250000	1300	-	220	352	282	580	502	435	206	340	28	6	67	4500	799	23.93
			240	260	410	330										913	26.45
			280	320	470	380										1027	29.10
GIICL17	355000	1200	250	260	410	330	665	570	490	220	364	28	6	67	4900	1176	43.10
			280	320	470	380										1322	47.53
			340	360	550	450										1532	53.73
GIICL18	500000	1050	280	320	470	380	726	640	540	278	430	28	6	75	7000	1698	98.53
			340	380	550	450										1948	87.75
			400	-	650	540										2278	99.50
GIICL19	710000	950	300	320	470	380	818	724	630	280	466	32	8	75	8900	2249	136.75
			340	380	550	450										2591	153.75
			400	460	650	540										3026	175.50
GIICL20	4000000	800	360	380	550	450	928	834	720	282	478	32	8	75	11000	3384	264.75
			400	500	650	540										3984	299.10
			530	-	800	680										4430	360.75
GIICL21	1400000	750	400	500	650	540	1022	928	810	282	490	40	8	75	13000	4977	468.75
			530	600	800	680										6152	561.50
GIICL22	1800000	650	450	500	650	540	1134	1036	915	262	510	40	13	75	16000	6318	753.75
			530	630	800	680										7738	904.75
			-	-	-	-										-	-
GIICL23	2500000	600	530	630	800	680	1282	1178	1035	299	580	50	14.5	80	28000	10013	1517.0
			670	740	900	780										11553	1725.0
GIICL24	3550000	550	560	630	800	680	1428	1322	1175	317	610	50	16.5	80	33000	12915	2486.0
			670	750	900	780										15015	2838.5
			800	840	1000	880										16615	3131.75
GIICL25	5000000	460	670	750	900	780	1644	1538	1390	325	620	50	19	80	43000	19837	5174.25
			800	850	1000	880										22381	5836.5
			900	950	-	980										24765	6413.0
			990	-	-	1100										27797	7198.25

注：1.联轴器质量和转动惯量是按各型号中J_1轴伸计算的近似值；　2.推荐选用轴孔长度J_1型
NOTE:1.Mass & Inertia approximate based on the shaft extension of type J_1 of respective model;　2Model J_1 of bore is recommended.

12. GCLD型-接电机轴伸鼓形齿式联轴器的结构型式、参数和尺寸

12. Type GCLD-Curved tooth coupling and its construction,parameters and dimensions

GCLD型接电机轴伸鼓形齿式联轴器采用GIICL基本型的齿形啮合参数，齿间距小,允许相对径向位移小,结构紧凑,转动惯量小,适用于与电机配套的场合。其结构型式见图11,基本参数和主要尺寸见表11。

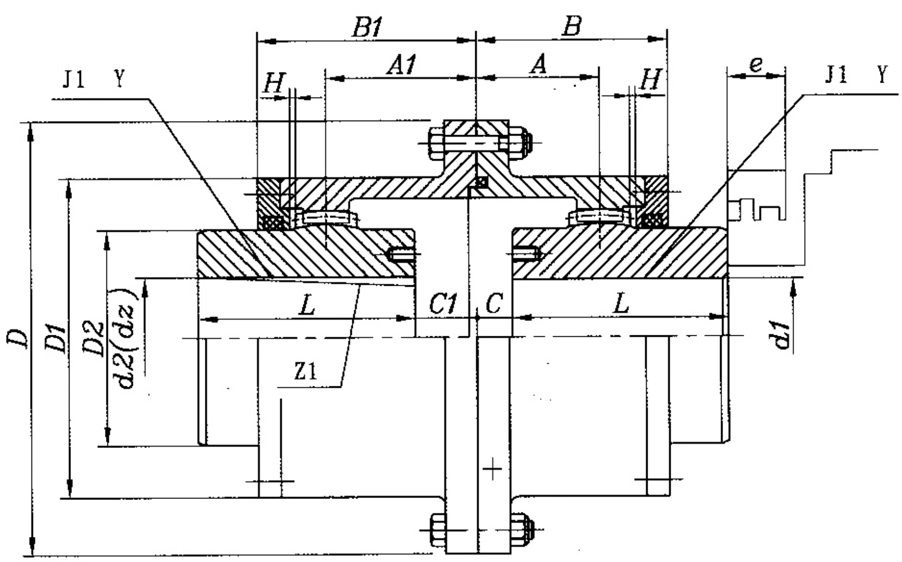
GCLD型接电机轴伸鼓形齿式联轴器允许正、反方向回转，可将任一侧外齿轴套作为主动输入端,传递公称转矩为1120-50000N·m .

为增强润滑密封效果、减少零件数量，提高运行可靠性,特别建议选用密封端盖与内齿圈作成一体的整体结构型式。

Curued tooth coupling connected with electric motor shaft extension Type GCLD has the teeth meshing parameters of type GIICL with small pitch and small permissible radial displace ment，compact structure，low moment of inertia and is suitable for using in conjunction with electric motor. Its construction is shown in Fig.11 and basic parameters and dimensions are given in Table 11.

Type GCLD may rotate in two directions and any one side external toothed hub may be used as input end.Transmitted nominal torque ranges from 1120 to 50000 Nm.

To enhancelubrication sealing effec, to reduce number of parts and increase operation reliability it is specially recommended to use integrated sealed end cover with internal gear ring.



GCLD1 — GCLD10

图11 GCLD型鼓形齿式联轴器结构型式

Fig.11 Construction of the curved tooth coupling GCLD

Y-Y型轴孔 J_1-J_1型轴孔

Y-BoreTypeY J_1-BoreTypeJ_1

表 11　GCLD型带制动轮鼓形式齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007,参照JB/T8854.1-2001）
Tab.11 Parameters and Dimensions of the Coupling Type GCLD(in compliance with Q/WL003-2007)　mm

型号 Type	公称转速 Torque Tn (N·m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d_1 d_2		轴孔长度 Length of bore L		D	D_1	D_2	A	A_1	B	B_1	C	C_1	H	e	润滑脂用量 Qty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg·m²)
			从 Form	到 To	Y	J1Z1														
GCLD1	1120	4000	22	24	52	38	133	98	75	22	43	45	66	4	15	4	42	107	6.2	0.009
			25	28	62	44													7.2	0.010
			30	38	82	60													7.8	0.011
			40	56	112	84													9.6	0.012
GCLD2	1800	4000	-	38	82	60	150	116	90	24.5	44.5	49	70	4	25	4	42	137	11.2	0.021
			40	56	112	84													14.0	0.024
			60	65	142	107													16.4	0.025
GCLD3	3150	4000	40	56	112	84	170	134	105	27.5	53.5	54	80	5	31	3	42	238	17.2	0.041
			60	75	142	107													22.4	0.048
GCLD4	5000	4000	45	56	112	84	190	153	125	28	54	55	81	5	31	3	42	238	25.2	0.073
			60	75	142	107													26.4	0.083
			80	90	172	132													35.6	0.095
GCLD5	7100	3750	50	56	112	84	206	170	140	30	60	59	89	5	35	3	42	298	31.6	0.113
			60	75	142	107													38.0	0.128
			80	95	172	132													44.6	0.0145
			100	-	212	167													53.9	0.168
GCLD6	10000	3300	55	56	112	84	232	188	155	33.5	68.5	71	106	6	41	5	47	465	40.5	0.188
			60	75	142	107													49.8	0.212
			80	95	172	132													56.3	0.240
			100	110	212	167													67.5	0.268
GCLD7	16000	3000	60	75	142	107	262	214	180	34.5	73.5	73	112	6	45	5	47	561	63.9	0.36
			80	95	172	132													74.7	0.42
			100	125	212	167													88.0	0.46
			130	-	252	202													106.7	0.53
GCLD8	22400	2650	65	75	142	107	292	242	200	39	69	82	122	7	47	5	47	734	81.7	0.56
			80	95	172	132													95.5	0.63
			100	125	212	167													114	0.72
			130	150	252	202													123	0.82
GCLD9	35500	2350	70	75	142	107	328	278	235	40.5	80.5	85	125	7	47	5	47	956	112	1.08
			80	95	172	132													10	1.21
			100	125	212	167													156	1.38
			130	150	252	202													181	1.56
			160	170	302	242													212	1.77
GCLD10	50000	2100	-	75	142	107	365	315	270	44.5	98.5	95	149	8	62	5	49	1320	161	1.97
			80	95	172	132													172	2.08
			100	125	212	167													206	2.38
			130	150	252	202													239	2.56
			160	170	302	252													280	3.06
			190	200	352	282													319	3.43

注：1. 联轴器质量和转动惯量是按各型号中J_1型轴孔计算近似值(包括轴伸在内)；
　2. e为更换密封所需尺寸。

NOTE:1.Mass & Inertia approximate based on the shaft extension of type J_1 of respective model(in including shaft extension);
　2.e is used for seal replacement.

13.GIICLZ型-接中间轴鼓形式联轴器的结构型式、参数和尺寸

13.Type GIICLZ-Curved tooth coupling and its constuction,parameters and dimensions

GIICLZ型接中间轴鼓形齿式联轴器,齿间距小,允许相对径向位移小,结构紧凑,适用联接长距离传动的水平两同轴线轴系传动。其结构型式见图12，基本参数和主要尺寸见表12。

GIICLZ型接中间轴鼓形齿式联轴器允许正、反方向回转，也可将任一侧作为主动输入端，传递公称转矩为400-5000000N·m。一般情况下，应成对使用,外齿轴套端与中间轴联接,两端半联轴器则分别与工作机轴和动力机轴联接。

由于联轴器在运转中自动对中的需要,中间轴的重量值不得大于根据公称转矩计算得到的轮齿节圆处啮合圆周力的2%;在中间轴过长、过重及转速较高时,应验算临界转速。

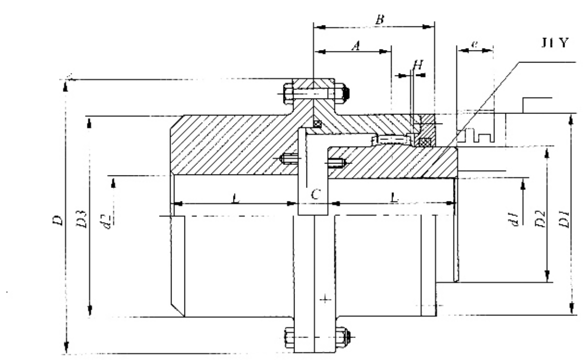
为增强润滑密封效果、减少零件数量,提高运行可靠性，特别建议选用密封端盖与内齿圈作成一体的整体结构型式。

Curved tooth coupling with intermediate shaft GIICLZ has small teeth pitch and compact suitable for long distance axial transmission.Its construction is shown in Fig.12 and basic parameters and dimensions are given in Table 12.

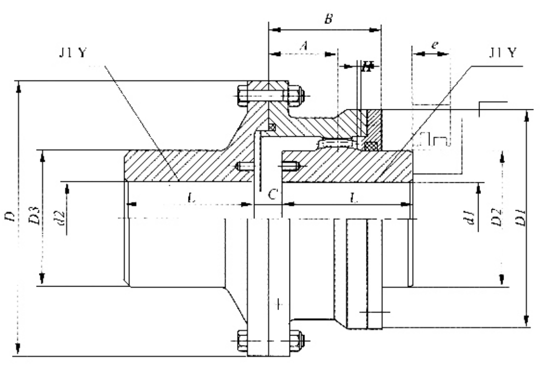
Coupling Type GIICLZ allows to rotate in two directions and any one side may be used as inputend.Trans mitted nomina1 torque ranges from 400 to 5,000，000 Nm.Normally it should be used in pairs,the external toothed hub is connected with intermediate shaft and the two coupling halves at both ends are connected with shafts of the working machine and prime mover respectively.

The weight of intermediate shaft should not be greater than 2%of the tangential force at meshing point on pitch circle.In case of excessive long and heavy intermediate shaft and under high speed critical speed should be checked.

To enhance lubrication sealing effect,to reduce number of parts and increase operation reliability it is recommended to use integrated sealed end Cover with internal geared ring.



GIICLZ1 - GIICLZ13



GIICLZ14 - GIICLZ25

图12 GIICLZ型鼓形齿式联轴器结构型式

Fig.12 Construction of the carved tooth coupling e GIICLZ

Y-Y型轴孔　　J_1-J_1型轴孔

Y-BoreTypeY　　J_1-BoreTypeJ_1

表12 GIICLZ型带鼓形齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007, 参照JB/T8854.2-2001）
Tab.12 Parameters and Dimensions of the Coupling Type GIICLZ(in compliance with Q/WL003-2007) mm

型号 Type	公称转速 Torque T_n (N·m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d_1 d_2		轴孔长度 Length of bore L		D	D_1	D_2	D_3	A	B	C	H	e	润滑脂用量 Qty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg·m²)
			从 Form	到 To	Y	J_1Z_1												
GIICLZ1	400	4000	16	19	42	-	109	71	50	71	18	38	8	2	38	31	3.5	0.004
			20	24	52	38											3.5	0.004
			25	28	62	44											3.5	0.004
			30	38	82	60											4.1	0.005
			40	50	112	84											5.7	0.007
GIICLZ2	710	4000	20	24	52	38	120	83	60	83	21	44	8	2	42	42	5.3	0.0067
			25	28	62	44											4.8	0.0063
			30	38	82	60											5.7	0.007
			40	56	112	84											7.2	0.008
			60	-	142	107											9.2	0.010
GIICLZ3	1120	4000	22	24	52	38	133	95	75	95	22	45	8	2	42	42	6.8	0.009
			25	28	62	44											8.8	0.011
			30	38	82	60											8.6	0.011
			40	56	112	84											9.8	0.013
			60	70	142	107											12.5	0.017
GIICLZ4	1800	4000	-	38	82	60	149	116	90	116	24.5	49	8	2	42	53	10.5	0.021
			40	56	112	84											13.5	0.025
			60	75	142	107											16.5	0.039
			80	-	172	132											19.4	0.049
GIICLZ5	3150	4000	40	56	112	84	170	134	105	134	27.5	54	10	2.5	42	77	18.1	0.044
			60	75	142	107											23.1	0.052
			80	90	172	132											28.5	0.063
GIICLZ6	5000	4000	45	56	112	84	187	153	125	153	28	55	10	2.5	42	91	23.9	0.075
			60	75	142	107											29.3	0.089
			80	95	172	132											35.4	0.105
			100	-	212	167											36.2	0.106
GIICLZ7	7100	3750	50	56	112	84	206	170	140	170	30	59	10	2.5	42	108	29.6	0.115
			60	75	142	107											36.3	0.134
			80	95	172	132											43.8	0.157
			100	110	212	167											54.3	0.190
GIICLZ8	10000	3300	55	56	112	84	230	186	155	186	33.5	71	12	3	47	161	37.8	0.184
			60	75	142	107											46.1	0.215
			80	95	172	132											54.9	0.249
			100	125	212	167											67.4	0.297
GIICLZ9	16000	3000	60	75	142	107	260	212	180	222	34.5	73	12	3	47	184	60.0	0.358
			80	95	172	132											71.8	0.415
			100	125	212	167											88.0	0.499
			130	150	252	202											104.4	0.575
GIICLZ10	22400	2650	65	75	142	107	292	239	200	239	39	82	14	3.5	47	276	76.1	0.582
			80	95	172	132											91.1	0.673
			100	125	212	167											111.5	0.803
			130	150	252	202											133.5	0.935
GIICLZ11	35500	2350	100	125	212	167	325	276	235	250	40.5	85	14	3.5	47	322	137	1.225
			130	150	252	202											162	1.415
			160	170	302	242											193	1.630
GIICLZ12	50000	2100	130	150	252	202	362	313	270	286	44.5	95	16	4	49	404	213	2.39
			160	170	302	242											268	2.76
			190	200	352	282											290	3.09

(续)表12 GIICLZ型带鼓形齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007, 参照**JB/T8854.2-2001**）
(Continue）Tab.12 Parameters and Dimensions of the Coupling Type **GIICLZ**(in compliance with Q/WL003-2007) mm

型号 Type	公称转速 Torque Tn (Nm)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d1 d2 从 Form	到 To	轴孔长度 Length of bore L Y	J_1Z_1	D	D_1	D_2	D_3	A	B	C	H	e	润滑脂用量 Q'ty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg・m²)
			-	150	252	202											272	3.93
GIICLZ13	71000	1850	160	180	302	242	412	350	300	322	49	104	18	4.5	49	585	320	4.54
			190	220	352	282											370	6.347
			170	180	302	242											389	6.95
GIICLZ14	112000	1650	190	220	352	282	468	420	335	420	86	148	22	5.5	63	1600	438	7.69
			240	250	410	330											509	8.63
			190	220	352	282											566	12.43
GIICLZ15	180000	1500	240	260	410	330	512	470	380	470	91	158	22	5.5	63	2100	650	13.98
			280	-	470	380											740	15.58
			-	220	352	282											751	21.21
GIICLZ16	250000	1300	240	260	410	330	580	522	430	522	104.5	177	28	7	67	2500	857	23.12
			280	320	470	380											974	26.35
			250	260	410	330											1110	38.90
GIICLZ17	355000	1200	280	320	470	380	644	582	490	582	99	182	28	7	67	2700	1255	43.30
			340	360	550	450											1465	49.60
			280	320	470	380											1580	69.50
GIICLZ18	500000	1050	340	380	550	450	726	658	540	658	111	215	28	8	75	3900	1830	78.75
			400	-	650	540											2160	90.50
			300	320	470	380											2115	122.50
GIICLZ19	710000	950	340	380	550	450	818	748	630	748	116	220	32	8	75	5000	2457	139.50
			400	460	650	540											2892	161.25
			360	380	550	450											3223	240.0
GIICLZ20	1000000	800	400	500	650	540	928	834	720	838	123.5	235	32	10.5	75	6200	3793	277.25
			530	-	800	680											4680	335.0
GIICLZ21	1400000	750	400	500	650	540	1022	928	810	928	127.5	245	40	11.5	75	7000	4780	435.0
			530	600	800	680											5905	527.75
			450	500	650	540											6069	701.25
GIICLZ22	1800000	650	530	630	800	680	1134	1036	915	1036	131	255	40	13	75	8700	-	852.25
			670	-	900	780											7504	-
GIICLZ23	2500000	600	530	630	800	680	1282	1178	1035	1178	149.5	290	50	14.5	80	15000	9633	1415.75
			67	750	900	780											11133	1638.75
			0560	630	800	680											12460	2230.75
GIICLZ24	3550000	550	670	750	900	780	1428	1322	1175	1322	158.5	305	50	16.5	80	18000	14465	2685.75
			800	850	1000	880											16110	2976.25
			670	750	900	780											19837	5174.25
			800	850	1000	880											22381	5836.50
GIICLZ25	5000000	460	900	950	-	980	1644	1538	1390	1538	162.5	310	50	19	80	23000	24765	6413.0
			1000	-	-	1100											27797	7198.25

注：1. 联轴器质量和转动惯量是按各型号中J_1型轴伸计算的近似值；2. 推荐选用J1型轴孔长度；3. 表中粗体字的轴孔尺寸只适用于d2选用。
Note: 1.Mass & Intiatia approximate based on the shaft extension of type J_1 of respective model; 2.Model J_1 of bore is recommended. 3.Bold figures in the table suitable only for d_2.

14. GIICLT型-接中间套鼓形齿式联轴器的结构型式、参数和尺寸

14.Type GIICLT-Curved tooth coupling and its construction,parameters and dimensions

GIICLT型窄型接中间套鼓形齿式联轴器,齿间距小,允许相对径向位移小,结构紧凑,适用范围同上。其结构型式见图13，基本参数和主要尺寸见表13。

GIICLT型接中间套鼓形齿式联轴器允许正、反方向回转，也可将任一侧作为主动输入端，传递公称转矩为400-5000000N·m。一般情况下,应成对使用,内齿圈，与中间套联接，两端外齿轴套则分别与工作机轴和动力机轴联接。

由于联轴器在运转中自动对中的需要中间套的重量值不得大于根据公称转矩计算得到的轮齿节圆处啮合圆周力的2%；在中间套过长、过重及转速较高时,应验算临界转速。

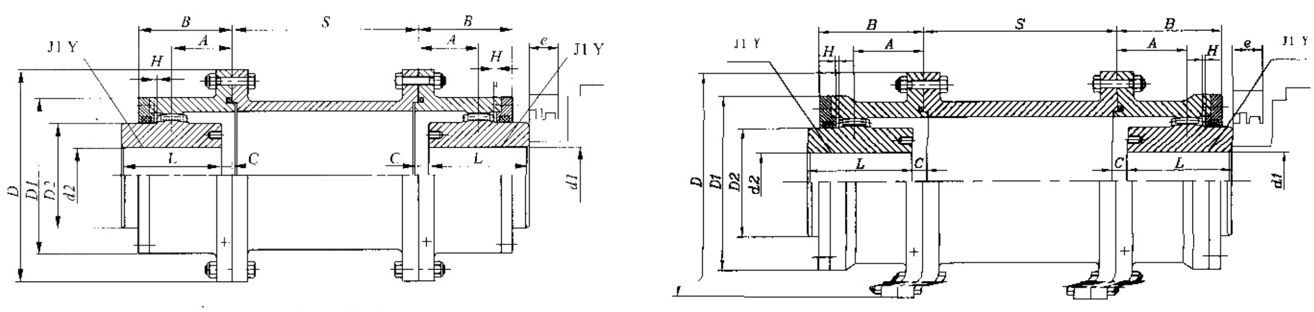
为增强润滑密封效果、减少零件数量，提高运行可靠性，特别建议选用密封端盖与内齿圈作成一体的整体结构型式。

Curved tooth coupling with intermediate sleeve GIICLT has small teeth pitch and allows small relative radial displacement. It has compact structure and is suitable for the application as above mentioned. Its construction is shown in Fig.13 and basic parameters and dimensions are given in Table 13.

Curved tooth coupling with in termediate sleeve GIICLT may be rotated in either direction and any one side may be used as input en d. Transmitted nominal torque rages from 400 to 5,0 0 0, 0 0 Nm. Normally it will be used in pairs. The internal gear ring is connected with intermediate sleeve and the external tooth hubs at both ends are connected with the shafts of machine and prime mover respectively.

The weight of intermediate sleeve should not be greater than 2% of tangential force at meshing point on pitch circle due to requirement for self-alignment of coupling during running.In case of excessive long and heavy intermediate sleeve and high speed critical revolution shall be checked.

To enhance lubrication sealing effect. To reduce number of parts and increase running reliability it is specially recommended recommended to use integrated structure of sealed end cover with internal gearring.



GIICLT1 - GIICLT13　　GIICLT14 – GIICLT25

图 13 GIICLT型鼓形齿式联轴器结构型式

Fig.13 construction of the curved tooth coupling GIICLT

Y-Y型轴孔 J_1-J_1型轴孔

Y-BoreTypeY J_1一BoreTypeJ_1

表13　GIICLT型接中间套鼓形式齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007）
Tab.13 Parameters and Dimensions of the Coupling Type GIICLT(in compliance with Q/WL003-2007　mm

型号 Type	公称转速 Torque Tn (N·m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d_1 d_2		轴孔长度 Length of bore L		D	D1	D2	A	B	S min	C	H	e	润滑脂用量 Qty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg·m²)
			从 Form	到 To	Y	J1												
GIICLT1	400	3600	16	19	42		109	71	50	18	38	75	8	2	38	51	2.5	0.0035
			20	24	52	38											3.0	0.0035
			25	28	62	44											3.1	0.0035
			30	35	82	60											3.6	0.0038
GIICLT2	710	3600	20	24	52	38	120	83	60	21	44	75	8	2	42	70	4.9	0.0058
			25	28	62	44											4.5	0.0058
			30	38	82	60											5.1	0.006
			40	45	112	84											6.2	0.0068
GIICLT3	1120	3600	22	24	52	38	133	95	75	22	45	75	8	2	42	68	7.5	0.012
			25	28	62	44											7.0	0.011
			30	38	82	60											6.9	0.011
			40	55	112	84											8.6	0.012
GIICLT4	1800	3600	-	38	82	60	149	116	90	24.5	49	80	8	2	42	87	10.1	0.02
			40	56	112	84											12.2	0.022
			60	65	142	107											14.5	0.024
GIICLT5	3150	3600	40	56	112	84	167	134	105	27.5	54	80	10	2.5	42	125	16.4	0.038
			60	75	142	107											19.6	0.04.
GIICLT6	5000	3600	45	56	112	84	187	153	125	28	55	80	10	2.5	42	148	22.1	0.066
			60	75	142	107											26.5	0.075
			80	90	172	132											31.2	0.084
GIICLT7	7100	3350	50	56	112	84	204	170	140	30	59	100	10	2.5	42	175	27.6	0.105
			60	75	142	107											33.1	0.115
			80	95	172	132											39.2	0.13
			100	-	212	167											47.5	0.15
GIICLT8	10000	3000	55	56	112	84	230	186	155	33.5	71	100	12	3	47	268	35.5	0.17
			60	75	142	17											42.3	0.19
			80	95	172	132											49.7	0.21
			100	110	212	167											60.2	0.25
GIICLT9	16000	2700	60	75	142	107	260	212	180	34.5	73	100	12	3	47	310	55.6	0.32
			80	95	172	132											65.6	0.36
			100	125	212	167											79.6	0.42
			130	-	252	202											95.8	0.47
GIICLT10	22400	2350	65	75	142	107	292	239	200	39	82	120	14	3.5	47	472	72.0	0.52
			80	95	172	132											84.4	0.58
			100	125	212	167											101	0.66
			130	150	252	202											119	3075
GIICLT11	35500	2100	70	75	142	107	325	276	235	40.5	85	155	14	3.5	47	550	97	1.40
			80	95	172	132											-	1.10
			100	125	212	167											138	1.20
			130	150	252	202											161	1.30
			160	170	302	242											189	1.58
GIICLT12	50000	1850	-	75	142	107	362	313	270	44.5	95	155	16	4	49	695	128	1.62
			80	95	172	132											150	1.83
			100	125	212	167											205	2.11
			130	150	252	202											213	2.41
			160	170	302	242											248	2.74
			190	200	352	282											285	3.06

（续）表13　GIICLT型接中间套鼓形式齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007）
(Continue)Tab.13 Parameters and Dimensions of the Coupling Type GIICLT(in compliance with Q/WL003-2007　mm

型号 Type	公称转速 Torque Tn (Nm)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d1 d2 从 Form	轴孔直径 Bore d1 d2 到 To	轴孔长度 Length of bore L Y	轴孔长度 Length of bore L J_1	D	D1	D2	A	B	S min	C	H	e	润滑脂用量 Q'ty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg・m²)
GIICLT13	71000	1850	-	150	252	202	412	350	300	49	104	175	18	4.5	49	1019	269	3.93
			160	180	302	242											315	4.43
			190	220	352	282											360	4.92
GIICLT14	112000	1650	170	180	302	242	468	420	335	86	148	205	22	5.5	63	3900	421	8.03
			190	220	352	282											476	8.80
			240	250	410	330											544	9.73
GIICLT15	180000	1350	190	220	352	282	512	470	380	91	158	205	22	5.5	63	3700	608	14.30
			240	260	410	330											696	15.85
			280	-	470	380											786	17.45
GIICLT16	250000	1200	-	220	352	282	580	522	435	104.5	177	240	28	7	67	4500	799	23.93
			240	260	410	330											913	26.45
			280	320	470	380											1027	29.10
GIICLT17	355000	1050	250	260	410	330	644	582	490	99	182	240	28	7	67	4900	1176	43.10
			280	320	470	380											1322	47.53
			340	360	550	450											1532	53.73
GIICLT18	50000	950	280	320	470	380	726	658	540	111	215	280	28	8	75	7000	1698	98.53
			340	380	550	120											1948	87.75
			400	-	650	540											2278	99.50
GIICLT19	710000	850	300	320	470	380	818	748	630	116	220	350	32	8	75	8900	2249	136.75
			340	380	550	450											2591	153.75
			400	460	650	540											3026	175.50
GIICLT20	1000000	750	360	380	550	450	928	838	720	123.5	235	350	32	8	75	11000	3384	264.75
			400	500	650	540											3984	299.10
			530	-	800	680											4430	360.75
GIICLT21	1400000	700	400	500	650	540	1022	928	810	127.5	245	400	40	8	75	13000	4977	468.75
			530	600	800	680											6152	561.50
GIICLT22	1800000	600	450	500	650	540	1134	1036	915	131	255	400	40	13	75	16000	6318	753.75
			530	630	800	680											7738	904.75
			670	-	900	780											-	-
GIICLT23	2500000	550	530	630	800	680	1282	1178	1035	149.5	290	500	50	14.5	80	28000	10013	1517.0
			670	750	900	780											11553	1725.0
GIICLT24	3550000	500	560	630	800	680	1428	1322	1175	158.5	305	500	50	16.5	80	33000	12915	2486.0
			670	750	900	780											15015	2838.5
			800	850	1000	880											16615	3131.75
GIICLT25	5000000	450	670	750	900	780	1644	1538	1390	162.5	310	500	50	19	80	43000	19837	5174.25
			800	850	1000	880											22381	5836.5
			900	950	-	980											24765	6413.0
			1000	-	-	1100											27797	7198.25

注：1.联轴器质量和转动惯量是按各型号中J_1型轴伸计算的近似值，未计算中间套；
　　2.联轴的许用转速[n]取决于中间套的长度和质量，并应验算临界转速，表中值为S_{min}时的许用值。

Note: 1.Mass & Inertia approximate based on the shaft extension of type J_1 and intermediate sleeve is not taken into account;
　　2.The critical revolution should be checked and the value in the table is permissible at Smin

16. NGIICLZ型-带制动轮鼓形齿联轴器的结构式、参数和尺寸

16.Type NGIICLZ-Curved tooth coupling and its construction,parameters and dimensions

NGIICLZ型接中间轴带制动轮鼓形齿式联轴器,齿间距小,允许相对径向位移小，结构紧凑，转动惯量小,适用于与瓦块式制动器配套的场合，允许正、反方向回转,其结构型式见图14，基本参数和主要尺寸见表14。

一般情况下,NGIICLZ型联轴器应与GIICLZ型联轴器配套使用,外齿轴套端与中间轴联接，两端半联轴器则分别与工作机轴和动力机轴联接，由于制动轮与半联轴器连接在一起，制动轮的重量以及工作制动负荷与振动完全由半联轴器承受，改善了制动时鼓形齿的啮合性能,因此特别适用于重载场合，传递公称转矩为400-112000Nm,

为增强润滑密封效果、减少零件数量,提高运行可靠性,特别建议选用密封端盖与内齿圈作成一体的整体结构型式。

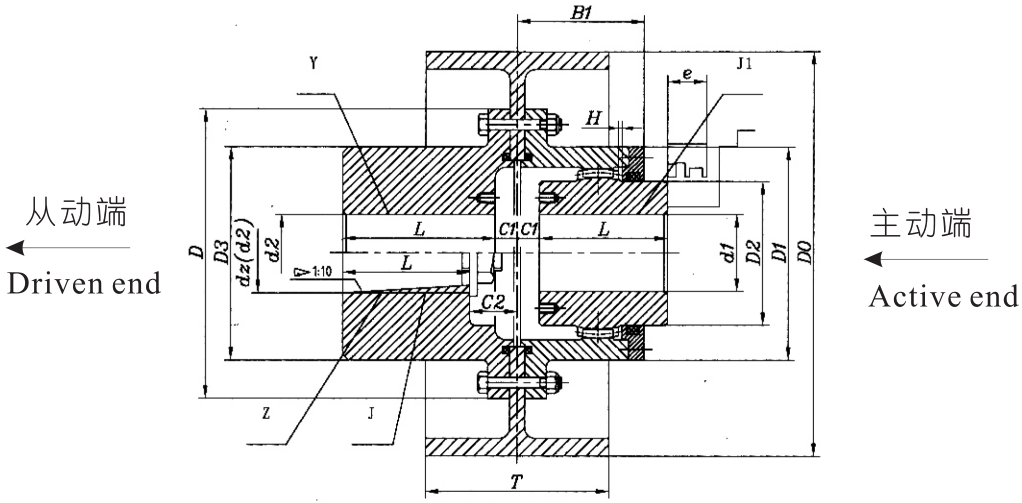
不同规格制动轮的有关参数见表16。

Gear coupling connected with intermediate shaft and brake wheel type NGIICLZ has small teeth pitch and allows small radial relative displacement. It has compact structure and low moment of inertia and is suitable for application with brake of brake shoe type.It allows to rotate in two directions. Its construction is shown in Fig.10 and essential parameters and dimensions are given in Table 16.

Normally coupling type NGIICLZ is used in pairs or in conjunction with coupling type GIICLZ.The external teethed hubs are connected with intermediate shaft and the two coupling halves at both ends are connected with machine shaft and prime mover shaft respectively. Since the brake wheel is connected with coupling half the weight of brake wheel and braking load as well as vibration are borne fully by the coupling half This improves meshing performance of crowned teeth during braking Therefore，it is specially suitable for application with heavy load. Transmitted nominal torque ranges from 400 to 112000Nm.

To enhance lubrication sealing effect，toreduce number of parts and increase running reliability it is specially recommeded to use integrated structure of sealed end cover with internal gear ring.

Parameters of brake wheel are shown in Table 16.



NGIICLZ1—NGIICLZ14

图14 NGIICLZ型鼓形齿式联轴器结构型式

Fig.14 Construction of the curved tooth coupling NGIICLZ

Y-Y型轴孔 J-J型轴孔 J_1-J_1型轴孔 Z-Z型轴孔

Y-Bore Type Y J-Bore Type J J_1-Bore Type J_1 Z-Bore TypeZ

表14 NGIICLZ型带制动轮鼓形式齿式联轴器的基本参数和主要尺寸（符合Q/WL003-2007）
Tab.14 Parameters and Dimensions of the Coupling Type NGIICLZ(in compliance with Q/WL003-2007 mm

型号 Type	公称转速 Torque Tn (N·m)	许用转速 Speed [n] (r/min)	轴孔直径 Bore d_1 d_2 从 Form	到 To	轴孔长度 Length of bore L Y	J_1Z_1	D_0	D	D_1	D_2	D_3	B_1	T	C_1	C_2	H	e	润滑脂用量 Qty of Lub V (mL)	质量 Mass m (kg)	转动惯量 Inertia I (kg·m²)
NGIICLZ1	400	4000	20	24	52	38	160	109	71	50	71	42	70	7	23	2	38	31	6.2	0.018
			25	28	62	44													6.5	0.018
			30	35	82	60													6.9	0.018
NGIICLZ2	710	4000	25	28	62	44	160	120	83	60	83	48	70	7	29	2	42	42	7.7	0.019
			30	38	82	60													8.6	0.020
			40	45	112	84													10.1	0.021
NGIICLZ3	1120	3800	-	28	62	44	200	133	95	75	95	49	85	8	33	2	42	65	12.0	0.054
			30	38	82	60													13.2	0.055
			40	56	112	84													15.0	0.057
NGIICLZ4	1800	3800	-	38	82	60	200	149	116	90	116	53	85	8	33	2	42	82	15.7	0.064
			40	56	112	84													17.7	0.068
			60	65	142	107													21.7	0.083
NGIICLZ5	3150	3000	40	56	112	84	250	167	134	105	134	58	105	10	38	2.5	42	120	28.2	0.172
			60	75	142	107													34.0	0.18
NGIICLZ6	5000	3000	45	56	112	84	250	187	153	125	153	59	105	10	39	2.5	42	143	34.0	0.203
			60	75	142	107													39.4	0.217
			80	90	172	132													45.5	0.233
NGIICLZ7	7100	2400	50	56	112	84	315	204	170	140	170	63	135	11	42	2.5	42	179	16.8	0.469
			60	75	142	107													53.5	0.488
			80	95	172	132													61.0	0.511
			100	-	212	167													71.5	0.544
NGIICLZ8	10000	1900	55	56	112	84	400	230	186	155	186	77	170	13	51	3	47	274	71.2	1.294
			60	75	142	107													79.5	1.325
			80	95	172	132													88.3	1.359
			100	110	212	167													100.8	1.397
NGIICLZ9	16000	1500	60	75	142	107	500	260	212	180	212	80	210	15	56	3	47	337	116.3	3.428
			80	95	172	132													128.1	3.485
			100	125	212	167													144.3	3.569
			130	-	252	202													160.7	3.645
NGIICLZ10	22400	1200	65	75	142	107	630	292	239	200	239	90	265	18	57	3.5	47	440	177.4	9.132
			80	95	172	132													192.4	9.223
			100	125	212	167													212.8	9.353
			130	150	252	202													234.8	9.485
NGIICLZ11	35500	1050	70	75	142	107	710	325	276	235	270	94	300	18	59	3.5	47	574	240.5	15.25
			80	95	172	132													262.8	15.83
			100	125	212	167													282.8	16.75
			130	150	252	202													307.8	16.94
			160	170	302	242													325.7	17.15
NGIICLZ12	50000	1050	-	75	142	107	710	362	313	270	310	104	300	19	65	4	49	792	324.5	16.45
			80	95	172	132													335.0	16.98
			100	125	212	167													345.3	17.38
			130	150	252	202													358.8	17.91
			160	170	302	242													403.8	18.28
			190	200	352	282													435.8	18.61
NGIICLZ13	71000	950	-	150	252	202	800	412	350	300	322	113	340	22	66	4.5	49	960	475.0	30.69
			160	180	302	242													523.0	31.30
			190	220	352	282													573.0	33.10
NGIICLZ14	112000	950	170	180	302	242	800	468	420	335	380	157	340	24	68	5.5	63	2100	592.0	33.71
			190	220	352	282													641.0	34.45
			240	250	410	330													712.0	35.39

注： 1. 联轴器质量和转动惯量是按各型号中 J_1 型轴伸计算的近似值；（制动轮未计） 3. e为更换密封所需尺寸；
2. 联轴器轴孔组合有$Z_1/J_1, Y/Y, J_1/J_1, Y/J_1$ ； 4. 不同规格制动轮的有关参数见表16

note: 1.Mass & Intertia appromimate based on the shaft extension of type J_1 （Brake wheel excluded） 3. e is used for seal replacement;
2.The shaft bore combination of the coupling are $Z_1/J_1, Y/Y, J_1/J_1, Y/J_1$; 4. parameters of various brake wheels are shown in Table 16.

表15 中间套的质量和转动惯量 Table 15 Mass and Inertia of INtermediate Sleeve

型号 Type	中间套最小长度 Min Length S_{min}(mm)	质量 Mass m (kg)	转动惯量 Inertia I (kg • m^2)	中间套每加长10mm的质量 Mass of every add.10 mm length m (kg)	中间套每加长10mm的转动惯量 inertia of every add.10 mm length I (kg • m^2)
GICLT 01	75	1.58	0.0032	0.088	0.00011
GICLT 02	80	2.68	0.082	0.13	0.00022
GICLT 03	80	3.5	0.015	0.16	0.00041
GICLT 04	100	5.2	0.032	0.20	0.0008
GICLT 05	100	6.0	0.048	0.23	0.0012
GICLT 06	100	6.6	0.061	0.26	0.0017
GICLT 07	120	10.5	0.134	0.32	0.0030
GICLT 08	120	11.5	0.164	0.32	0.0039
GICLT 09	155	15.7	0.25	0.42	0.0045
GICLT 10	155	22.2	0.46	0.46	0.0064
GICLT 11	175	28.5	0.82	0.52	0.0091
GICLT 12	205	37.3	1.21	0.71	0.015
GICLT 13	205	46.4	1.61	0.83	0.024
GICLT 14	240	6.4	3.49	0.96	0.037
GICLT 15	240	73.4	4.42	1.03	0.044
GICLT 16	280	98.1	7.02	1.50	0.072
GICLT 17	280	132.4	10.78	2.50	0.16
GICLT 18	350	177.6	17.2	2.76	0.22
GICLT 19	350	182.4	19.3	2.96	0.27
GICLT 20	350	203.1	24.7	3.16	0.32
GICLT 21	350	261.6	38.1	4.20	0.50
GICLT 22	400	304.6	47.1	4.47	0.59
GICLT 23	400	391.6	70.9	5.77	0.88
GICLT 24	400	412	78.0	6.07	1.02
GICLT 25	400	450	84.2	6.33	1.16
GICLT 26	400	495	92.9	6.61	1.31
GICLT 27	500	560	106.6	8.01	1.66
GICLT 28	500	600	113.2	8.42	1.80
GICLT 29	500	650	120.7	8.75	1.94
GICLT 30	500	700	129.0	9.14	2.07

表 16 制动轮的主要尺寸、质量和转动惯量 Table 16 dimensions,Mass and Inertia of Brake Wheel

制动轮直径 Diameter D_0 (mm)	制动轮宽度 Wide T (mm)	幅板厚度 Thickness K (mm)	质量 Mass m (mm)	转动惯量 Inertia I (kg • m^2)	制动轮直径 Diameter D_0 (mm)	制动轮宽度 Wide T (mm)	幅板厚度 Thickness K (mm)	质量 Mass m (mm)	转动惯量 Inertia I (kg • m^2)
160	70	6	2.83	0.014	500	210	18	56.3	3.07
200	85	8	5.2	0.043	630	265	22	101.3	8.55
250	105	10	10.1	0.128	710	300	22	145.8	15.52
315	135	12	17.2	0.354	800	340	26	203	26.76
400	170	14	33.4	1.11					

表 17 制动盘的主要尺寸、质量和转动惯量 Table 17 dimensions,Mass and Inertia of Brake Disk

制动盘直径 Diameter D_0 (mm)	制动盘厚度 Thickness T (mm)	质量 Mass m (mm)	转动惯量 Inertia I (kg • m^2)	制动盘直径 Diameter D_0 (mm)	制动盘厚度 Thickness T (mm)	质量 Mass m (mm)	转动惯量 Inertia I (kg • m^2)
315	30	17.0	0.232	630	30	77.6	4.12
355	30	22.8	0.384	710	30	93.6	6.64
400	30	30.4	0.64	800	30	135.6	11.74
450	30	39.4	1.10	900	30	173.2	18.6
500	30	50.0	1.66	1000	30	193.2	26.1
560	30	61.4	2.56				

附录 *Appendices*

附表 1 动力机系数 K_w
A.1 Prime Mover Factor K_w

动力机类型代号 Code of Prime mover	动力机名称 Description	动力机系数 Factor Kw	动力机类型代号 Code of Prime mover	动力机名称 Description	动力机系数 Factor Kw
I	电动机、透平 Motor & Turbine	1.0	III	二缸内燃机 I.C.E.with two Cylinders	1.4
II	四缸及四缸以上内燃机 Internal Combustion Engine with four and above Cylinders	1.2	IV	单缸内燃机 Single Cylinder Internal Combustion Engine	1.6

附表 2 起动系数 Kz
A.2 Starting Factor Kz

主动端起动频率 Z	≤120	>120～240	>240
起动系数 Kz	1.0	1.3	由制作厂确定 determined by manufacturer

附表 3 GICL型联轴器许用径向补偿量△y
A.3 Permissible Radial Compensation Value of Coupling Type GIGL (mm)

型号 Type	GIGL 01	GIGL 02	GIGL 03	GIGL 04	GIGL 05	GIGL 06	GIGL 07	GIGL 08
许用径向补偿量 Permissible radial compensation △y	1.0	1.1	1.3	1.6	1.7	1.9	2.1	2.4
型号 Type	GIGL 08	GIGL 09	GIGL 10	GIGL 11	GIGL 12	GIGL 13	GIGL 14	GIGL 15
许用径向补偿量 Permissible radial compensation △y	2.6	3.1	3.4	4.0	4.8	5.1	5.2	6.0
型号 Type	GIGL 17	GIGL 18	GIGL 19	GIGL 20	GIGL 21	GIGL 22	GIGL 23	GIGL 24
许用径向补偿量 Permissible radial compensation △y	6.3	6.6	7.04	7.48	7.74	7.85	8.2	8.5
型号 Type	GIGL 25	GIGL 26	GIGL 27	GIGL 28	GIGL 29	GIGL 30		
许用径向补偿量 Permissible radial compensation △y	8.8	9.0	9.0	9.6	9.6	9.9		

附表 4 GIICL型联轴器许用径向补偿量△y
A.4 Permissible Radial Compensation Value of Coupling Type GIIGL (mm)

型号 Type	GIIGL 01	GIIGL 02	GIIGL 03	GIIGL 04	GIIGL 05	GIIGL 06	GIIGL 07	GIIGL 08	GIIGL 09
许用径向补偿量 Permissible radial compensation △y	1.0	1.0	1.1	1.2	1.4	1.4	1.5	1.7	1.8
型号 Type	GIIGL 10	GIIGL 11	GIIGL 12	GIIGL 13	GIIGL 14	GIIGL 15	GIIGL 16	GIIGL 17	GIIGL 18
许用径向补偿量 Permissible radial compensation △y	2.0	2.1	2.3	2.6	4.5	4.8	5.3	5.4	5.8
型号 Type	GIIGL 19	GIIGL 20	GIIGL 21	GIIGL 22	GIIGL 23	GIIGL 24	GIIGL 25		
许用径向补偿量 Permissible radial compensation △y	5.8	6.4	6.6	6.8	8.0	8.4	8.5		

附表 5 联轴器工况系数 K

工作机名称 Description of Working Machinery			载荷类代号 Code of Load Type	工况系数 Duty Facto K
转向机构 Steering machine			I类 Type 1	1.20
加煤机 Coal feder				
风筛 Pneumatic screen				
装罐机械 Filler,Packing machine				
鼓风机 Blower	离心式	Centrifugal		
	轴流式	Axial		1.80
风扇 Fan	离心式	Centrifugal		1.20
	轴流式	Axial		1.80
泵 Pump	离心泵	Centrifugal		1.20
	回转泵（齿轮泵、螺杆泵、滑片泵、叶形泵）	Rotating(gear,screw,vane pump		1.80
压缩机 Compressor	离心式	Centrifugal		1.50
	轴流式	Axial		1.80
搅拌设备 Mixer	纯液体	Pure liquid		1.20
	液体加固体	liquid plus solid		1.50
	液体可变密度	liquid with varied density		
泵酿造和蒸馏设备 Brewing and distilling equipment	装瓶机械	Bottling machine		1.20
	过滤桶	Filter tank		1.50
均匀加载运输机 Evenly loaded conveyor	组装运输机	assembly for conveyor		1.20
	带式输送机	belt conveyor		
	斗式运输机	bucket conveyor		1.50
	板式运输机	apron conveyor		
	链条式输送机	chain conveyor		
	链板式输送机	plate conveyor		
	箱式运输机	box type conveyor		
	螺旋式运输机	crew conveyor		
不均匀加载机 Unevenly loaded conveyor	组装运输机	conveyor for assembly		
	带式输送机	belt conveyor		
	斗式运输机	bucket conveyor		1.80
	链条式输送机	chain conveyor		
	链板式输送机	plate conveyor		
	箱式运输机	box type conveyor		
给料机 Feeder	板式给料机	plate conveyor		1.50
	带式给料机	belt conveyor		
	圆盘给料机	disc type feeder		
	螺旋给料机	dscrew feeder		
提升机械 Elevator	自动升降机	Automatic elevator		1.50
	重力卸料提升机	unloading by gravity		1.80
造纸设备 Paper machine	漂白机	bleaching machine		1.20
	校平机	smoother		1.50
	卷取机	coiling machine		1.80
	清洗机	cleaning machine		
食品机械 Food processing equipment	瓶装罐装机械	botting machine and can filler		1.20
	谷类脱粒机	Grain sheller		1.50
其他机床 other machine tools	辅助传动装置	auxiliary transmission devices		1.50
	主传动装置	main drive unit		1.80

续附表 5

工作机名称 Description of Working Machinery			载荷类代号 Code of Load Type	工况系数 Duty Facto K
纺织机械 Textile processing machine	开清棉机	cotton opener & beating machine	I类 Type 1	1.20
	定量给料机	feeder with constant amount		1.50
	印花机	printing machine		
	浆纱机	sizing machine		
	染色机	dyeing machine		
	压光机	roling press		
	起毛机	flubbing machine		
	压榨机	mangle		1.80
	轧光机	planishing mill		
	棉花精整机（清洗、拉幅、碾压机等）	finishing equipment (cleaning, tenter,grounding)		
	黄化机	yanthator		
	罐蒸机	Pot evaporator		
	织布机	loom		
	梳理机	carding machine		
	卷取机	coiling machine		
印刷机械	Printing machine			1.50
废水处理设备 Waste water processing equipment	网筛	mesh screen		
	化学处理设备	chemical processing equipment		
	环形集尘器	ring type dust arrester		
	脱水筛	dewatering screen		
	砂粒集尘器	send dust arrester		
	废渣破碎机	Waste residue crusher		
	快慢搅拌机	rapid and slow mixer		
	污泥收集器	much collector		
	浓缩机	decker machine		
	真空过滤器	vacuum filter		
流动水进料网滤器	Flowing water feeding strainer mesh			
石油机械冷却设备	cooling equipment for petroleum processing machine			
往复多缸式压缩机	Reciprocating compressor with multi-		II类 Type II	2.40
通风机 Ventilator	冷却塔式	cooling tower type		
	引风机（无风门控制）	air attraction type(without throttle control)		
泵 Pump	三缸或多缸单动活塞泵	three or multi-cylinder single action piston pump		2.10
搅拌机 Mixer	筒形搅拌机	barrel type mixer		2.10
	混凝土搅拌机	concrete mixer		1.80
不均匀加载运输机 Unevenly load conveyor	板式运输机	apron conveyor		2.10
	螺旋式运输机	screw type conveyor		
	往复式运输机	Reciprocating conveyor		1.80
提升机械 Elevator	离心式卸料机	centrifugal unloader		3.00
	料斗式提升机	bucket elevator		1.80
	普通货车用提升机	bucket elevator		2.40
石油机械 Petroleum machine	石蜡过滤机	paraffin filtering machine		2.10
	油井泵	oil well pump		2.40
	旋转窑	rotary kiln		

续附表 5

工作机名称 Description of Working Machinery			载荷类代号 Code of Load Type	工况系数 Duty Facto K
造纸设备 Paper machine	卷绕机	coiler	II类 type II	1.80
	搅拌器和破碎机	mixer and crusher		2.10
	叠层机	paper device		
	卷筒装置	drying machine		
	烘干机	rolling mill		
	吸入滚轧机	hydraulic peeling machine		
	液压式剥皮机	mechanical peeling machine		2.40
	机械式剥皮机	roling press		
	压光机	cutting machine bander		
	切断机	bander		
	打捆机	tinker tractor		
	原木拖运机			
	压力机	press		
	压皮滚筒（齿轮传动）	press drum(gear transmission)		2.70
食品机械 Food processing machine	甜菜切割机	feet cutting machine		2.10
	搅面机	flour and water mixer		
	绞肉机	meat chopper		
	甘蔗切割机	cxan cuter		2.40
木材加工机械 tinker processing equipment	分料机	stock sorter		1.80
	板坯运输机	conveyor for plate blank		
	刨床进给装置	feeding device of planer		2.10
	刨床传动装置	transmission of planer		
	剪切机进给装置	feeding device of shearer		
	剥皮机（筒形）	peeler(drum type)		2.40
	修边机	edge trimmer		
	传动辊装置	edge trimmer		
	拖木机（倾斜式）	timber tractor(inclined)		
	拖木机（竖式）	timber tractor(vertical)		
	送料辊装置	feeding roller gear		
工具机 Machine tool	刨床	planer		1.80
	弯曲机	bending machine		2.40
	冲压机（齿轮驱动装置）	punching machine(grearing)		
	攻丝机	tapping machine		3.00
橡胶机械 Rubber machine	橡胶压延机	rubber rolling machine		2.40
	压片机	enclosed freeger		
	胶料粉碎机	rubber tyred forming mill		2.70
	密闭式冷冻机			3.00
	轮胎式成型机			
轧制设备 Roling equipment	纵剪切机	longitudinal Shearer		1.80
	绕线机	enwinding machine		2.10
	拉拔机小车架	Main drive of drwing machine		2.40
	拉拔机主传动			
	成型机			
	拉线机和压延机			
	不可逆输送辊道	forming machine		2.70

续附表 5

工作机名称 Description of Working Machinery			载荷类代号 Code of Load Type	工况系数 Duty Facto K
水泥设备 Cement equip ment	水泥窑	cement kiln	II类 type II	2.40
	干燥机和冷却机	drying and cooling machine		
	烘干机	drying stove		
	砂石粉碎机	Gravel crusher		
	棒式粉碎机	bar type crusher		
	旋转式粉碎机	rotary crusher		
	滚筒式粉碎机	drum type rusher		
	球磨机	ball mill		2.70
起重机和卷扬机 crane and hoist	斜坡式卷扬机	inclined hoist		1.80
	抓斗起重机	grab crane		2.10
	吊钩起重机	hook crane		
	桥式起重机	bridge crane		
	主卷扬机	main hoist winch		2.40
	可逆式卷扬机	revesible hoist		
绞车（卷扬机）	Hoist winch			2.10
粘土加工设备	Clay processing equipment			
球团机（压坯机械）	blank rolling machine(pelleter)			2.40
拖拉式卸货机（间断负载）	Towed type unloader(intermittent load)			1.80
挖泥机 Dredger	运输机	Conveyor		
	通用绞车	universal winch		
	电缆盘装置	cable drum		2.10
	机动绞车	powered winch		
	泵	pump		
	网筛传动装置	mesh screen drive		
	堆积机	stacker		
	切割头传动装置	cutter head transmission		2.70
	夹具传动装置	fixture tranmission		
洗衣机 Washing machine	可逆式洗衣机	Revesible Mashing machine		2.40
	滚筒式洗衣机	barrel type washing machine		
锤式粉碎机	Hammer-type crusher			
旋转式筛石机	Rotary gravel screen-machine			1.80
摆动运输机	Swining conveyor		III类 type III	3.00
破碎机 Breaker	碎矿机			3.30
	碎石机			
往复式给料机	Reciprocating feeder	ore breaker		3.00
可逆输送辊道	Reversible table roller	rock breaker	IV类 type IV	
重型机械 Heavy duty machine	初轧机	blooming mill		>3.30
	中厚板轧机	rolling mill for plate of medium and large thickness		
	机架辊	machine frame roller		
	剪切机	Shearer		
	冲压机	punching machine		