

EUROPEAN ENGINEERING STANDARDS & DESIGN HIGHLIGHTS
欧洲工程设计标准与核心技术特性

Feature / Standard · 特性与标准	Specification · 技术规范
Design & Sizing Standard 设计与选型计算标准	DIN 740-2 & ISO 14691 符合欧洲轴系挠性联轴器设计规范
Disc Pack / Lamina Pack Material 挠性膜片组（叠片包）材料	EN 1.4310 (AISI 301) Spring Steel 高强度奥氏体不锈钢弹簧钢片 (EN 10151)
Backlash & Maintenance 传动背隙与维护需求	100% Zero-Backlash, Maintenance-Free 纯金属摩擦/螺栓传扭，绝对零背隙、终身免维护
Fasteners & Shaft Fits 紧固件与轴孔配合公差	ISO 4762 / ISO 4017 · ISO 286-2 H7/h7 欧标高强度内六角/外六角螺钉 · H7/h7 精密配合
Operating Temp. Range 允许工作温度范围	-30 °C to +270 °C (All-Metal Design) 全金属结构，耐受严苛高低温与腐蚀工况
ATEX Explosion Protection 欧盟防爆指令合规性	ATEX 2014/34/EU (EN ISO 80079-36) 适用于防爆危险区域 (Ex h IIC T6..T4)

GENERAL TECHNICAL OVERVIEW
联轴器技术概述

MISHKIN metallic disc couplings (flexible disc couplings / steel lamina couplings) provide torsionally rigid, zero-backlash, and maintenance-free power transmission. The flexible elements consist of laminated high-tensile stainless steel spring discs (EN 1.4310 / AISI 301), delivering exceptional torsional stiffness, reliable compensation of axial, angular, and radial shaft misalignments, low restoring forces on adjacent bearings, and high thermal stability.

MISHKIN 金属膜片联轴器是一种零背隙、免维护的高精度挠性传动联轴器。其挠性膜片组由高强度奥氏体不锈钢弹簧钢片（EN 1.4310）叠合而成，兼具极高的扭转刚度、优异的轴向/角向/径向偏差补偿能力、极低的轴承附加载荷（回复力）以及卓越的耐高温性能。

1. FINITE ELEMENT ANALYSIS (FEA) PROFILED DISC PACK (LAMINA PACK) OPTIMIZATION
1. 膜片组有限元分析法（FEA）拓扑轮廓优化设计

Finite Element Analysis (FEA) is utilized to optimize the waisted outer contour of the stainless steel spring discs. This stress-equalized geometry eliminates localized stress concentrations during alternating flexural deflection, ensuring infinite fatigue strength under continuous rated load and significantly extending operational service life.

不锈钢弹簧钢膜片采用有限元分析法（FEA）进行应力拓扑优化。膜片外缘特殊的流线型束腰轮廓有效消除了联轴器在补偿轴系偏差时产生的局部应力集中，显著提升了抗疲劳极限与长期工作寿命。

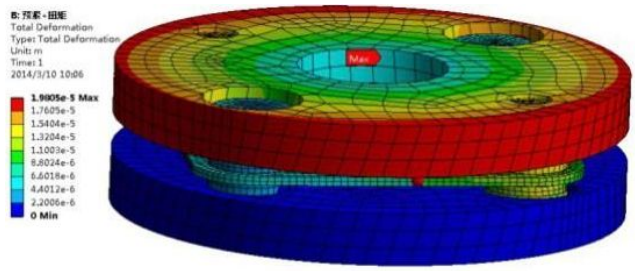


Fig. 3-6 FEA Axial & Angular Deformation Distribution
图 3-6 膜片组轴向与角向变形分布云图

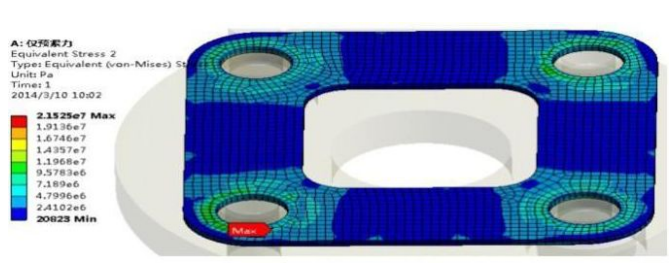


Fig. 3-4 von Mises Equivalent Stress Distribution
图 3-4 膜片组等效应力（von Mises）分布云图

2. EXPLOSION-PROOF SUITABILITY (ATEX DIRECTIVE 2014/34/EU)
2. 防爆安全性能（符合欧盟 ATEX 2014/34/EU 防爆标准）

Thanks to their all-metal, wear-free power transmission without sliding elastomer components, MISHKIN RIC, REC, and RDC series metallic disc couplings are inherently suitable for potentially explosive atmospheres in accordance with EU ATEX Directive 2014/34/EU and EN ISO 80079-36.

凭借纯金属无磨损挠性结构，MISHKIN（米什金）RIC、REC 及 RDC 系列膜片联轴器在运转中无摩擦火花风险，符合欧盟 ATEX 2014/34/EU 与 EN ISO 80079-36 防爆规范，广泛适用于防爆要求的工业场合。

CHARACTERISTIC TORQUE PARAMETERS (ACC. TO DIN 740-2 & ISO 14691)
联轴器核心扭矩特征参数（依据 DIN 740-2 与 ISO 14691 标准）

Parameter · 技术参数	Symbol · 符号	Definition & Engineering Criterion (DIN 740-2) · 定义与工程校核说明
Nominal Coupling Torque 联轴器许用额定扭矩	T_{KN} [Nm]	**Torque that can be transmitted continuously across the entire permissible speed range without fatigue failure of the disc pack.** 在允许的工作转速范围内，联轴器能够长期连续安全传递的额定工作扭矩。
Permissible Alternating Torque 联轴器许用交变扭矩	T_{KW} [Nm]	**Permissible amplitude of periodic alternating torque at a frequency of f = 10 Hz superimposed on a mean operating torque up to T_N.** 在频率为 10 Hz、平均工作扭矩或动态载荷达到额定力矩 T_N 时所允许长期承受的交变扭矩振动幅值。
Maximum Permissible Peak Torque 联轴器许用最大峰值扭矩	T_{Kmax} [Nm]	**Maximum transient peak torque permissible for up to 10^5 unidirectional load pulses or 5×10^4 reversing load cycles over the service life.** 在联轴器整个工作寿命期内，允许承受不少于 10^5 次单向脉冲载荷或 5×10^4 次正反向交变冲击载荷的最大瞬时扭矩。

1. PERMISSIBLE SHAFT MISALIGNMENTS (ΔK_A, ΔK_W, ΔK_R)
1. 许用轴系安装偏差（轴向 ΔK_a、角向 ΔK_w、径向 ΔK_r）

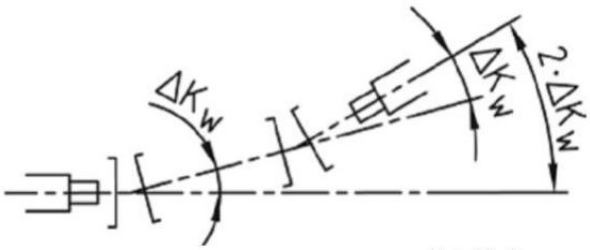
ΔK_a [mm]: Permissible Axial Displacement 许用轴向位移偏差

ΔK_w [°]: Permissible Angular Misalignment per Disc Pack 单组膜片许用角向偏差

ΔK_r [mm]: Permissible Radial (Parallel) Offset 许用径向（平行）偏差

Single-Disc vs. Double-Disc Coupling Kinematics: ΔK_W denotes the maximum permissible angular deflection of a single disc pack (lamina pack). Consequently, a double-disc coupling (two lamina packs separated by a center spacer) accommodates up to **2 · ΔK_W** total angular misalignment and compensates radial offset ΔK_r. Refer to the technical data tables for exact per-size values.

单节式与双节式运动学关系：膜片联轴器选型时，每组膜片的最大许用角向偏差为 ΔK_W；双节式（双膜片组）联轴器的总许用角向偏差可达 **2 · ΔK_W**，并具备径向偏差补偿能力。各规格具体限值参见技术参数表。



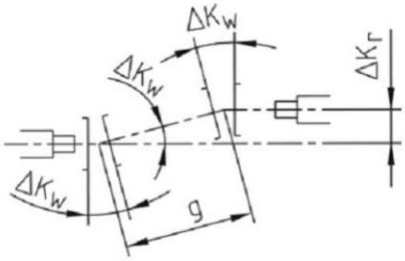
Angular Misalignment (ΔK_W / 2·ΔK_W)
角向偏差示意图 (ΔK_W / 2·ΔK_W)

Kinematic Relationship Between Permissible Radial Offset ΔK_r and Disc Pack (Lamina Pack) Spacing g:双膜片组许用径向偏差 ΔK_r 与两组膜片中心间距 g 的几何关系：

$$\Delta K_r = g \cdot \tan(\Delta K_W)$$

Coupled Misalignment Interdependency: The catalog ratings for ΔK_r, ΔK_W, and ΔK_a represent non-simultaneous maximum limits. Because all three deflections induce combined bending and tensile stresses in the spring discs, an increase in axial displacement ΔK_a proportionally reduces the available angular (ΔK_W) and radial (ΔK_r) misalignment capacity: **(ΔK_a / $\Delta K_{a,max}$) + (ΔK_W / $\Delta K_{W,max}$) + (ΔK_r / $\Delta K_{r,max}$) ≤ 100%.**

三向偏差耦合折减原则：技术参数表中所列的径向偏差 ΔK_r、角向偏差 ΔK_W 和轴向偏差 ΔK_a 均为单项独立极限值。三项偏差相互关联：当轴向位移 ΔK_a 增大时，所允许的角向偏差 ΔK_W 和径向偏差 ΔK_r 相应减小，三项实际偏差百分比之和不得超过 100%。



Radial Offset (ΔK_r = g · tan ΔK_W)
径向偏差与膜片间距 g 关系图

2. SIZING FOR DRIVES WITHOUT PERIODIC ALTERNATING TORQUES (DIN 740-2)
2. 无周期性交变扭矩的稳态/冲击驱动选型校核（依据 DIN 740-2）

For drives without significant periodic torsional vibrations (such as centrifugal blowers, fans, belt conveyors, and screw compressors), coupling selection is governed by the nominal coupling torque **T_{KN}** and the maximum peak torque **T_{Kmax}**.

对于无显著周期性扭振交变载荷的传动系统（例如离心风机、鼓风机、输送机、螺杆压缩机等），联轴器选型主要校核许用额定扭矩 **T_{KN}** 与许用最大峰值扭矩 **T_{Kmax}**。

2.1 Nominal Torque Verification · 2.1 额定扭矩载荷校核：

The nominal coupling torque T_{KN} must exceed the nominal drive torque T_N multiplied by the application service factor S_B, load reversal factor S_R, and ambient temperature factor S_T.

在综合计入工况服务系数 S_B、旋向系数 S_R 和环境温度系数 S_T 的影响后，联轴器的许用额定扭矩 T_{KN} 必须大于驱动设备的额定工作扭矩 T_N。

$$T_N\ [Nm] = 9550 \times P\ [kW] / n\ [min^{-1}] \quad \bullet \quad T_{KN} \geq T_N \times S_B \times S_R \times S_T$$

T_N [Nm]: Nominal drive torque of the machine 驱动设备的额定工作扭矩

S_B: Application service factor (load severity) 工况服务系数（取决于负载特性）

S_R: Load reversal factor 旋向系数 — **S_R = 1.0:** Unidirectional drive (单向连续运转); **S_R = 1.7:** Reversing drive (频繁正反转运转)

S_T: Ambient temperature factor (for elevated temperature environments) 环境温度折减系数

APPLICATION SERVICE FACTOR S_B BY DRIVEN MACHINERY (DIN 740-2 REFERENCE) 典型工业驱动设备工况服务系数 S_B 对照表

Driven Machinery / Application · 驱动设备与应用场合	Factor S_B	Driven Machinery / Application · 驱动设备与应用场合	Factor S_B
Construction & Earthmoving Machinery 工程机械	2.0	Mixers & Injection Molding Machines 搅拌机与注塑机	2.0
Agitators & Chemical Mixers 化工搅拌机	1.0–2.0	Punching & Forming Presses 冲压机与锻压设备	2.5
Industrial Centrifuges 工业离心机	1.5	CNC Machine Tools & Machining Centers 数控机床与加工中心	2.0
Material Handling & Conveyors 物料输送设备	2.0	Pulverizers & Grinding Mills 粉碎机与球磨机	2.5
Hoists, Cranes & Winches 起重机与卷扬设备	2.0	Packaging & Labeling Machinery 包装与灌装机械	1.0
Centrifugal Blowers & Industrial Fans 离心鼓风机与风机	1.5	Rolling Mill Roller Table Drives 冶金辊道驱动	2.5
Synchronous & Induction Generators 发电机组	1.0	Reciprocating Piston & Plunger Pumps 往复活塞泵与柱塞泵	2.5
Cooling Tower Fans & Chillers 冷却塔与冷风机	2.0	Centrifugal Process Pumps 离心泵	1.5
Ore & Stone Crushers 矿山破碎机	2.5	Reciprocating Piston Compressors 活塞式压缩机	2.5
Textile Spinning & Weaving Frames 纺织印染机械	2.0	Rotary Screw Compressors 螺杆式压缩泵	2.0
Steel Rolling Mill Main Drives 轧钢主传动设备	2.5	Woodworking & Timber Machinery 木工加工设备	1.5

AMBIENT TEMPERATURE FACTOR S_T 工作环境温度折减系数 S_T

Ambient Temperature · 环境温度 [°C]	-30 °C	0 °C	+150 °C	+200 °C	+230 °C	+270 °C
Temperature Factor S_T 温度系数 S_T	1.00	1.00	1.00	1.10	1.25	1.43

Note: All operating service factors (S_B, S_R, S_T) must be combined multiplicatively when sizing the coupling. 注：用户选型计算时请务必同时计入上述全部工况服务系数。

2.2 PEAK & SHOCK LOAD VERIFICATION (T_{KMAX} CRITERION) 2.2 瞬态冲击与起动峰值载荷校核（最大许用扭矩 T_{Kmax} 准则）

Taking into account the load reversal factor S_R and temperature factor S_T, the maximum permissible peak torque of the coupling T_{Kmax} must exceed the sum of the transient shock torque T_S (e.g., motor start-up or emergency braking peak) and the nominal drive torque T_N. Where the driven machine exhibits a high mass moment of inertia J_L relative to the driving side, consult MISHKIN Application Engineering for a two-mass torsional shock calculation acc. to DIN 740-2.

在计入旋向系数 S_R 和温度系数 S_T 后，联轴器的最大许用峰值扭矩 T_{Kmax} 必须大于设备瞬态冲击扭矩 T_S 与额定工作扭矩 T_N 之和。若从动端转动惯量 J_L 较大，建议联系米什金技术部门按 DIN 740-2 进行双质量系统冲击扭振校核。

$$T_{Kmax} \geq (T_N + T_S) \times S_R \times S_T$$ (where T_S [Nm] = Transient Peak / Shock Torque · 瞬态峰值冲击力矩)

3. DRIVES SUBJECT TO PERIODIC ALTERNATING TORQUES (DIN 740-2 TORSIONAL VIBRATION ANALYSIS)

3. 存在周期性交变扭矩的传动选型（依据 DIN 740-2 扭振计算准则）

For powertrains excited by pronounced periodic alternating torques—such as internal combustion engines, reciprocating piston compressors, plunger pumps, and synchronous generators—a torsional vibration analysis (TVA) according to **DIN 740-2** must be performed to verify that resonance does not occur within the operating speed range and that the alternating torque amplitude does not exceed T_{KW}. Please consult MISHKIN Application Engineering for torsional spectrum analysis and coupling selection.

对于存在显著周期性交变扭矩激励的传动系统（如内燃机、活塞式压缩机、柱塞泵、发电机组等），必须依据 **DIN 740-2** 标准进行轴系扭转振动计算，避开共振转速区并确保交变扭矩幅值不超过许用交变扭矩 T_{KW}。此类工况请与米什金技术部门联系以获取精准选型支持。

$$T_{KW} \geq T_W \times S_T \quad \text{(at reference frequency f = 10 Hz · 基准频率 10 Hz 下的交变扭矩幅值校核)}$$

ENGINEERING GUIDELINES FOR INSTALLATION & DYNAMIC BALANCING

安装工程规范与动平衡标准（ISO 21940-11）

1. Stress-Free Axial Mounting · 1. 无轴向预应力安装准则

Ensure the laminated stainless steel disc packs remain completely free of axial tension or compression during installation. Maintain the catalog assembly dimension **S** within the permissible axial tolerance.

安装时必须确保不锈钢膜片组在轴向处于自然平直状态，严禁产生过大的轴向拉伸或压缩预变形，严格控制装配间距 **S**。

2. Horizontal & Vertical Shaft Orientation · 2. 水平与垂直安装支撑要求

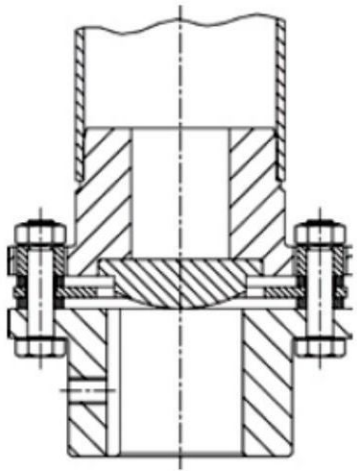
Standard MISHKIN RIC, REC, and RDC couplings are suitable for both horizontal and vertical installation. For double-disc spacer couplings mounted vertically, the center spacer weight must be supported by thrust washers or an internal support ring (see diagram) to prevent continuous static sag of the disc packs.

标准型 RIC、REC 及 RDC 联轴器均支持水平与垂直安装。若带有较长中间体的双节式产品采用垂直安装，中间体必须配置轴向托盘或内部支撑结构（如右图所示），以防止中间体自重造成膜片组长期下垂变形。

3. Dynamic Balancing (ISO 21940-11) · 3. 动平衡等级标准（ISO 21940-11）

Precision CNC-machined hubs and symmetrical disc packs satisfy standard balance requirements up to medium-high speeds without additional balancing. For high-speed spindles and turbo drives, factory dynamic balancing to **ISO 21940-11 Balance Grade G6.3 or G2.5** is provided upon request.

全数控精密加工的对称轴套与膜片组在常规中高速工况下无需额外动平衡即可满足平稳运行。针对高速主轴与精密传动需求，米什金可按客户要求提供符合 **ISO 21940-11 G6.3 或 G2.5 级**的出厂动平衡服务。



Vertical Spacer Support Arrangement
双膜片中间体垂直安装支撑结构图

4. MACHINERY SAFETY DIRECTIVES (EU 2006/42/EC & EN ISO 13857)

4. 欧盟机械安全指令与防护规范（2006/42/EC & EN ISO 13857）

1. Load Limit Verification 工作载荷上限校核	**Under no operating condition may the actual peak or continuous load exceed the permissible coupling ratings (T_{KN}, T_{KW}, T_{Kmax}).** 在任何运行工况下，实际工作载荷均不得超出联轴器的许用额定扭矩与峰值扭矩限值。
2. Rotating Shaft Guarding 旋转部件安全防护罩	**In compliance with EU Machinery Directive 2006/42/EC and EN ISO 13857, fixed protective guards must be installed around rotating couplings to prevent accidental contact.** 依据欧盟机械指令 2006/42/EC 与 EN ISO 13857 安全距离标准，必须在联轴器外部配置刚性安全防护罩，严禁人员触碰旋转部件。
3. Overload Protection 极端过载安全保护	**Where severe jamming or torque spikes may occur, integrate a MISHKIN safety torque limiter to prevent catastrophic disc pack (lamina pack) overload rupture.** 在存在卡死或极端过载风险的传动链中，建议选配 MISHKIN 安全扭力限制器，防止联轴器因过载发生断裂。

MISHKIN METALLIC DISC COUPLING (STEEL LAMINA COUPLING) PORTFOLIO — RIC, REC & RDC SERIES

MISHKIN 金属膜片联轴器产品家族：RIC 铝合金系列、REC 锥套胀紧系列与 RDC 重载碳钢系列

RIC Series — Servo Disc Coupling (Precision Aluminum Alloy Clamping Hub)

RIC 系列 — 轻量化高强度铝合金精密膜片联轴器（适用于伺服与自动化设备）

- **High-Strength Wrought Aluminum Hubs & Stainless Discs:** Clamping hubs are precision-machined from high-strength wrought aluminum alloy (**EN AW-7075 T6 / EN AW-2024 T4 acc. to EN 573-3**), paired with laminated stainless steel disc packs / lamina packs (**EN 1.4310 / AISI 301**). This achieves high torsional stiffness and rapid dynamic response with ultra-low mass moment of inertia.
  高强度航空铝合金轴套与不锈钢膜片组：主体轴套采用轻质高强度铝合金（EN AW-7075 T6）精密加工，挠性膜片组采用高强度不锈钢弹簧钢片（EN 1.4310）叠合制造，在实现高扭转刚度、高动态响应的同时具有极低的转动惯量。
- **Single-Disc & Double-Disc Coupling Configurations:** Available as a **Single-Disc Coupling (RIC-□-0)** and a **Double-Disc Coupling with Center Spacer (RIC-□-T)**, featuring precision **Clamping Hubs** (full radial, angular, and axial compensation) across Hub Styles A, B, and C.
  单膜片与双膜片结构齐全：提供高刚性单膜片 **RIC-□-0** 型与高纠偏能力双膜片 **RIC-□-T** 型，并细分 A 型、B 型、C 型三种阶梯轴套构型。
- **Target Applications:** Servo drives, CNC machine tool axes, linear actuators, semiconductor & medical equipment, packaging machinery, textile machinery, and high-speed printing presses.
  典型应用领域：伺服电机驱动、数控机床、精密直线模组、半导体与医疗自动化、包装机械、纺织机械及高速印刷设备。



RIC-□-0 Single-Disc Coupling



RIC-□-T Double-Disc Coupling

RDC Series — Heavy-Duty Disc Coupling / Industrial Steel Disc Coupling (All-Steel Lamina Coupling)

RDC 系列 — 超高刚性碳钢/合金钢重载工业膜片联轴器（最高扭矩达 9,000 Nm）

- **All-Steel Heavy-Duty Construction:** Hubs and spacers are manufactured from high-grade tempered carbon/alloy steel (**C45E / 42CrMo4 acc. to EN ISO 683**) with multi-bolt laminated stainless steel disc packs / lamina packs (**EN 1.4310**), delivering ultrahigh torsional stiffness up to **3.48 × 10^6 Nm/rad**.
  全钢重载高刚性结构：主体轴套与中间体采用优质碳素结构钢/合金结构钢（C45E / 42CrMo4）制造，配以高强度不锈钢膜片组（EN 1.4310），具备超高扭转刚度（最高达 3.48×10^6 Nm/rad），专为重载精密传动打造。
- **Modular Structural Executions (Type A, B & C):** Engineered as a **Single-Disc Coupling (Type A)**, spacer **Double-Disc Coupling (Type B)**, and compact **Double-Disc Coupling (Type C)**—serving as a maintenance-free drop-in replacement for crowned-tooth gear couplings.
  A 型 / B 型 / C 型模块化结构：涵盖单节式 A 型、标准双节式 B 型与紧凑双节式 C 型，可直接替代传统需润滑的鼓形齿式联轴器。
- **Target Applications:** Industrial compressors, process pumps, mixers, extruders, rolling mills, wind/power generators, and heavy-duty mechanical drives.
  典型应用领域：工业压缩机、大功率泵组、重型搅拌机、挤出机、冶金轧机及各类重载动力传输系统。



RDC Single-Disc Coupling



RDC Double-Disc Coupling

QUICK TECHNICAL COMPARISON — SERVO DISC COUPLINGS VS. HEAVY-DUTY INDUSTRIAL STEEL DISC COUPLINGS

MISHKIN 三大膜片联轴器系列核心技术参数对比表

Series · 产品系列	Hub Material · 轴套材料 (欧标)	Shaft Connection · 轴连接方式	Nominal Torque T_{KN} · 扭矩范围	Bore Range d_1/d_2 · 孔径范围	Pages · 页码
RIC Series Servo Disc Coupling	EN AW-7075 T6 Aluminum Clamping Hub 精密铝合金夹紧轴套	Radial Clamping Hub (ISO 4762) ± DIN 6885 Keyway 径向螺钉夹紧式（可选配 DIN 6885 键槽）	0.6 – 250 Nm	Ø3 – Ø45 mm	Pages 6–17
REC Series Heavy-Duty Servo Disc	C45E / 42CrMo4 Steel Conical Hub 优质发黑结构钢锥套	Conical Shrink-Fit Clamping Ring (ISO 4762 Class 10.9) 锥套压环轴向锁紧胀套式（高同轴度无键连接）	70 – 300 Nm	Ø18 – Ø60 mm	Pages 18–26
RDC Series Industrial Steel Disc	C45E / 42CrMo4 All-Steel Hub 工业重载全钢轴套	DIN 6885-1 Keyway (J) or Conical Shrink Disc (Z) DIN 6885 标准键槽连接 (J) 或键槽+胀套连接 (Z)	15 – 9,000 Nm	Ø20 – Ø115 mm	Pages 27–29

ORDERING CODE & MODEL DESIGNATION SYSTEM 型号命名规则与订货代码说明

RIC	–	060	–	T	–	A	–	15	B	–	20	B
O8 Series 系列代码		O7 Size (OD) 规格代码		O6 Disc Pack 膜片组数		O5 Hub Style 轴套构型		O4 Bore d_1 主动轴孔径	O3 Hub 1 Fix 主动轴连接		O2 Bore d_2 从动轴孔径	O1 Hub 2 Fix 从动轴连接

O1 **Driven Shaft Connection Type:** B = Radial clamping screw (ISO 4762); BJ = Clamping + DIN 6885-1 keyway
从动轴连接方式代码（B — 径向螺钉夹紧式；BJ — 螺钉夹紧带 DIN 6885 标准键槽）

O2 **Driven Shaft Bore Diameter Code (d_2 [mm]):** Finish-machined to ISO 286-2 H7
从动轴（较大端）孔径尺寸代码 d_2（单位：mm，标准内孔公差 ISO 286-2 H7）

O3 **Driving Shaft Connection Type:** B = Radial clamping screw (ISO 4762); BJ = Clamping + DIN 6885-1 keyway
主动轴连接方式代码（B — 径向螺钉夹紧式；BJ — 螺钉夹紧带 DIN 6885 标准键槽）

O4 **Driving Shaft Bore Diameter Code (d_1 [mm]):** Finish-machined to ISO 286-2 H7
主动轴（较小端）孔径尺寸代码 d_1（单位：mm，标准内孔公差 ISO 286-2 H7）

O5 **Hub Geometric Execution (A / B / C):** Stepped low-inertia hub (A/B) or full-OD cylindrical hub (C)
轴套几何结构代码 2（A 型：双端缩径阶梯轴套 / B 型：单端缩径阶梯轴套 / C 型：直筒标准轴套）

O6 **Disc Coupling Configuration (0 / T):** 0 = Single-Disc Coupling; T = Double-Disc Coupling with Center Spacer
挠性膜片组结构代码 1（0：单膜片组结构 / T：带中间体的双膜片组结构）

O7 **Coupling Size Code (005 to 100):** Nominal outer diameter code
联轴器规格代码（005 至 100）

O8 **Product Series Code:** RIC = Precision Aluminum Clamping Hub Servo Disc Coupling
产品系列代码（RIC 系列轻质高强度铝合金膜片联轴器）



RIC-XXX-0 Single-Disc Coupling
RIC-XXX-0 单膜片型实物图



RIC-XXX-T Double-Disc Coupling
RIC-XXX-T 双膜片型实物图

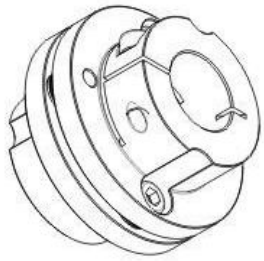
HUB EXECUTION SELECTION GUIDE (TYPE A VS. TYPE B VS. TYPE C) A 型 / B 型 / C 型轴套结构选型说明（依据两端轴径大小自动匹配最优低惯量构型）

Hub Style · 轴套构型	Geometry Description · 轴套几何结构特征	Applicable Sizes · 适用规格	Engineering Advantage · 工程选型优势
Type A (A型)	**Both clamping hubs feature stepped reduced outer diameter N** 两端轴套外径均缩径至阶梯直径 ØN（适用于两端均为小孔径 d_1, d_2）	**RIC-030 to RIC-060**	**Minimum mass moment of inertia J for ultra-fast servo acceleration** 转动惯量最低，最适合高加减速响应的伺服驱动轴
Type B (B型)	**One stepped reduced-OD hub (ØN) + one full-OD cylindrical hub (ØD)** 一端为缩径阶梯轴套（ØN，配小孔 d_1），另一端为直筒全外径轴套（ØD，配大孔 d_2）	**RIC-030 to RIC-060**	**Optimal transition between small motor shaft and larger driven ball screw** 完美匹配小轴径电机端与大轴径丝杆/负载端的跨径连接
Type C (C型)	**Both clamping hubs feature full outer diameter ØD (cylindrical execution)** 两端轴套外径均与联轴器外径 ØD 齐平（直筒标准构型）	**RIC-005 to RIC-100 (All)**	**Maximum bore capacity and highest clamping torque capacity** 支持最大轴孔直径范围，提供最大的径向夹紧摩擦力矩

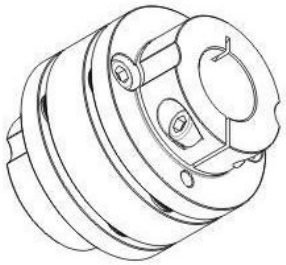
SERVO DISC COUPLING CONFIGURATIONS & OVERVIEW — SINGLE-DISC VS. DOUBLE-DISC COUPLING

产品结构型式一览与技术参数概览 — 单膜片型 (RIC-XXX-0) 与双膜片型 (RIC-XXX-T)

RIC-XXX-0-A 单膜片 A型 (双阶梯轴套)



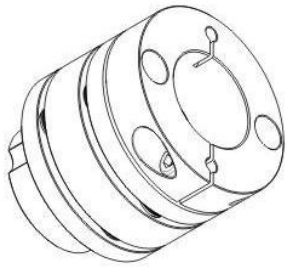
RIC-XXX-T-A 双膜片 A型 (双阶梯轴套)



RIC-XXX-0-B 单膜片 B型 (单阶梯轴套)



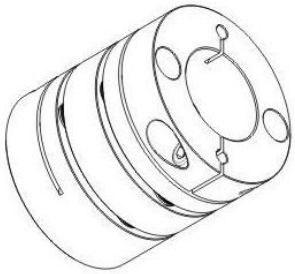
RIC-XXX-T-B 双膜片 B型 (单阶梯轴套)



RIC-XXX-0-C 单膜片 C型 (直筒标准轴套)



RIC-XXX-T-C 双膜片 C型 (直筒标准轴套)



SERIES PERFORMANCE RANGE SUMMARY (RIC-005 TO RIC-100)

RIC 系列单膜片与双膜片联轴器性能参数范围总表

Technical Parameter · 技术参数项目		RIC-XXX-0 Single-Disc Coupling RIC-XXX-0 单膜片联轴器	RIC-XXX-T Double-Disc Coupling RIC-XXX-T 双膜片联轴器
Nominal / Peak Permissible Torque T_{Kmax} [Nm] 许用额定/最大扭矩范围 (Nm)		**0.6 – 250 Nm**	**0.6 – 250 Nm**
Standard Finish-Machined Bore Range d_1, d_2 [mm] 精加工轴孔直径范围 (mm, ISO 286-2 H7)		**Ø3 – Ø45 mm**	**Ø3 – Ø45 mm**
Permissible Operating Temperature [°C] 允许工作环境温度范围 (°C)		**-30 °C to +100 °C**	**-30 °C to +100 °C**
Max. Permissible Shaft Misalignment **最大许用安装偏差**	Radial Offset ΔK_r [mm] 径向偏差 (mm)	**0.02 mm** (installation tolerance only)	**0.05 – 0.44 mm**
	Angular Deflection ΔK_w [°] 角向偏差 (°)	**0.5° – 1.0°**	**1.0° – 2.0°**
	Axial Displacement ΔK_a [mm] 轴向偏差 (mm)	**±0.05 – ±0.74 mm**	**±0.10 – ±1.48 mm**

ENGINEERING DESIGN FEATURES & MATERIAL SPECIFICATIONS 产品核心工程特点与欧标材料规范

01 · High-Strength Aluminum Alloy Hubs (EN AW-7075)

The clamping hubs are CNC-machined from high-strength wrought aluminum alloy (EN AW-7075 T6 / EN AW-2024 T4 acc. to EN 573-3) with anodic oxidation surface protection, delivering high torsional stiffness and rapid servo response with minimal rotational inertia.

1、RIC 系列膜片联轴器主体（夹紧轴套）采用高强度航空铝合金（EN AW-7075 T6）精密加工并经阳极氧化表面处理，在实现高扭转刚度和高动态响应速度的同时，具有极低的转动惯量。

02 · Zero-Backlash Stainless Steel Disc Pack (Lamina Pack)

The flexible disc pack is stacked from high-tensile spring stainless steel sheets (EN 1.4310 / AISI 301 acc. to EN 10151) via precision bushings, providing a compact, 100% zero-backlash design that compensates angular, axial, and radial (double-flex) shaft misalignments.

2、挠性部件（膜片组）采用高强度奥氏体不锈钢弹簧钢片（EN 1.4310）叠合制造，结构紧凑、绝对无背隙，可可靠吸收两轴间的角向、轴向及径向（双膜片型）安装偏差。

03 · Single-Disc (RIC-0) & Double-Disc (RIC-T) Coupling Modularity

Available as both a higher-stiffness **Single-Disc Coupling (RIC-XXX-0)** and a higher-flexibility **Double-Disc Coupling (RIC-XXX-T)** with a center spacer to accommodate parallel shaft offset ΔK_r.

3、同时提供扭转刚度更高的 RIC-XXX-0 单膜片结构（适用于具备自调心支撑的轴系），以及挠性纠偏能力更强的 RIC-XXX-T 双膜片结构（可吸收平行径向偏差）。

04 · Low-Inertia Stepped Hub Geometries (Styles A & B)

For smaller shaft diameters, stepped Hub Styles A and B reduce the outer diameter of the clamping ring section to ØN, further lowering the mass moment of inertia J for high-acceleration start/stop servo cycles.

4、当两端或单端轴孔直径较小时，可选用 A 型或 B 型阶梯缩径结构型式，将联轴器转动惯量降至更低，非常适合高启动加速度、高频往复定位的伺服场合。

05 · Jig-Centered Factory Assembly for High Coaxiality

Every coupling is pre-assembled and torqued at the factory on a dedicated optical/mechanical centering fixture, guaranteeing superior concentricity and coaxiality between both finish-machined H7 bores prior to shipment.

5、每套产品出厂前均在专用高精度定心治具上完成预组装与螺栓定扭锁紧，确保两端 H7 精密内孔具备极高的原始同轴度与动平衡品质。

06 · Friction-Fit Radial Clamping Hubs (ISO 4762)

Both driving and driven hubs utilize radial slot clamping with ISO 4762 socket head cap screws, enabling quick, score-free axial positioning, effortless installation, and maintenance-free operation without shaft damage.

6、输入端与输出端轴套均采用 ISO 4762 内六角螺钉径向夹紧设计，不损伤轴表面，使客户的现场安装、轴向微调与维护拆装极其便捷。

RECOMMENDED MATING SHAFT TOLERANCES & SURFACE FINISH (ACC. TO ISO 286-2) 推荐配合轴径公差与表面粗糙度规范（依据 ISO 286-2 标准）

Connection Type · 连接方式	Coupling Bore Tolerance · 联轴器内孔公差	Recommended Shaft Tolerance · 推荐配合轴公差	Shaft Surface Roughness · 轴表面粗糙度	Fastener Standard · 紧固螺钉标准
Standard Friction Clamping (Code B) 标准无键摩擦夹紧连接 (代码 B)	**ISO 286-2 H7**	**ISO 286-2 h7 / k6**	**Ra ≤ 1.6 µm (Rz ≤ 6.3 µm)**	**ISO 4762 Class 10.9 / 12.9**
Clamping + Keyway (Code BJ) 夹紧带键槽正锁连接 (代码 BJ)	**ISO 286-2 H7 + DIN 6885 JS9**	**ISO 286-2 h7 / j6**	**Ra ≤ 3.2 µm (Rz ≤ 12.5 µm)**	**ISO 4762 + DIN 6885-1 Key**

TYPICAL INDUSTRIAL APPLICATIONS IN THE EUROPEAN MARKET 典型高端工业应用领域

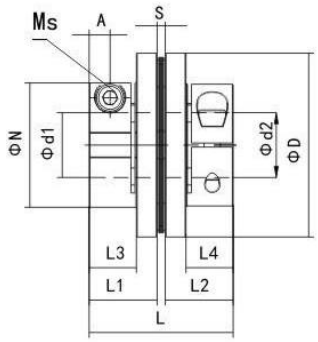
MISHKIN RIC series couplings are engineered for precision motion control and automation systems—including **CNC machine tools, ball screw linear actuators, multi-axis gantry robots, pharmaceutical & medical diagnostic equipment, food & beverage packaging lines, semiconductor wafer handling, and optical inspection stages** requiring ultra-low inertia, high acceleration, zero backlash, corrosion resistance, and cleanroom-compatible operation.

本系列产品广泛应用于：**数控机床进给轴、精密滚珠丝杆模组、滑台、直角坐标机械手、医药与医疗器械、食品包装机械、半导体晶圆传输设备及各类自动化生产线**等要求转动惯量低、加减速响应快、传动精度高、耐腐蚀、无油污洁净运行的场合。

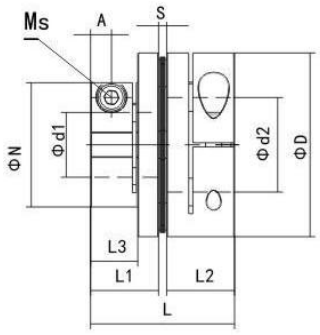
SINGLE-DISC COUPLING (RIC-XXX-0 SERVO DISC COUPLING) — STRUCTURAL DRAWINGS & DIMENSIONS

单膜片联轴器（RIC-XXX-0）结构尺寸图与安装尺寸表（单位：mm）

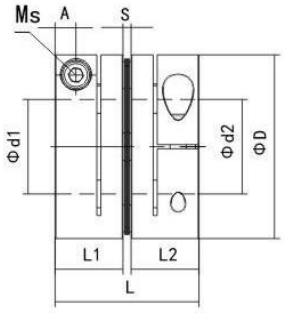
RIC-XXX-0-A (双阶梯轴套)

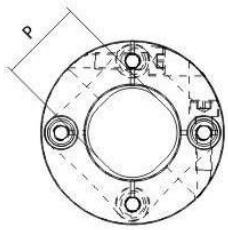


RIC-XXX-0-B (单阶梯轴套)



RIC-XXX-0-C (直筒标准轴套)





Note: Hub clamping screw orientation may vary by production batch; refer to official approval drawing. 注：产品实际装配方向可能与上图略有差异，请以实际确认图为准。

Model · 型号	d_1 [H7]		d_2 [H7]		D	N	L	L_1	L_2	L_3	L_4	S	A	P	Screw M_S (ISO 4762)	Tightening Torque 锁紧力矩 T_A [Nm]
	min	max	min	max												
RIC-005-0-C	3	6	3	6	16	—	16.6	7.85	7.85	—	—	0.9	2.50	6.5	M2	0.4 – 0.5
RIC-010-0-C	3	8	3	8	19	—	19.2	9.15	9.15	—	—	0.9	3.15	8.5	M2	0.4 – 0.5
RIC-020-0-C	4	10	4	11	26	—	23.0	10.75	10.75	—	—	1.5	3.30	10.5	M2.5	1.0 – 1.1
RIC-025-0-C	5	14	5	14	29	—	23.3	10.75	10.75	—	—	1.8	3.30	14.5	M2.5	1.0 – 1.1
RIC-030-0-A	5	10	5	10	34	21.6	27.4	12.4	12.4	8.9	8.9	2.6	3.80	14.5	M3	1.5 – 1.9
RIC-030-0-B	5	10	5	16		21.6				8.9	—					
RIC-030-0-C	5	14	5	16		—				—	—					
RIC-035-0-C	6	16	6	18	39	—	34.2	15.5	15.5	—	—	3.2	4.50	17	M4	3.4 – 4.1
RIC-040-0-A	8	15	8	15	44	29.6	34.2	15.5	15.5	10.5	10.5	3.2	4.50	19.5	M4	3.4 – 4.1
RIC-040-0-B	8	15	8	22		29.6				10.5	—					
RIC-040-0-C	8	22	8	22		—				—	—					
RIC-050-0-A	8	19	8	19	56	38	43.4	20.5	20.5	14	14	2.4	6.00	26	M5	7.0 – 8.5
RIC-050-0-B	8	19	8	30		38				14	—					
RIC-050-0-C	8	25	8	30		—				—	—					
RIC-060-0-A	11	24	11	24	68	46	53.4	25.2	25.2	17.5	17.5	3.0	7.75	31	M6	14 – 15
RIC-060-0-B	11	24	11	35		46				17.5	—					
RIC-060-0-C	11	30	11	35		—				—	—					
RIC-080-0-C	18	35	18	40	82	—	68.0	30	30	—	—	8.0	9.00	38	M8	27 – 30
RIC-090-0-C	25	40	25	45	94	—	68.3	30	30	—	—	8.3	9.00	42	M8	27 – 30
RIC-100-0-C	32	45	32	45	104	—	69.8	30	30	—	—	9.8	9.00	48	M8	27 – 30

ENGINEERING SPECIFICATIONS — FASTENERS, BORE FITS & ASYMMETRIC BORE LIMITS

紧固件标准、轴孔配合公差与孔径组合说明（ISO 4762 & ISO 286-2）

1. Asymmetric Bore Combination Limit (d_1 vs. d_2):

Due to the internal clearance of the stainless steel disc pack, the maximum catalog bores $d_{1,max}$ and $d_{2,max}$ cannot always be combined simultaneously (refer to Page 13 for valid bore combinations).

1、因内部结构限制，两端孔径（d_1、d_2）的最大值并非均可同时取用，选型时请核对第13页标准孔径表。

2. European Standard Fasteners & Shaft Fits:

Clamping screws M_S conform to **ISO 4762 (DIN 912) Property Class 10.9 / 12.9**. Standard coupling bores are finish-machined to **ISO 286-2 H7**; recommended mating shaft tolerance is **ISO 286-2 h7 / k6**.

2、夹紧螺钉 M_S 符合 **ISO 4762 (10.9/12.9级)** 标准；联轴器内孔公差为 **ISO 286-2 H7**，推荐配合轴公差为 **h7 或 k6**。

SINGLE-DISC COUPLING (RIC-XXX-0 SERVO DISC COUPLING) — TECHNICAL PERFORMANCE PARAMETERS

单膜片联轴器（RIC-XXX-0）技术性能参数表

Model · 型号	Permissible Torque T_{Kmax} [Nm] 许用扭矩	Max. Speed n_{max} [min^{-1}] 最高转速	Torsional Stiffness C_T [Nm/rad] 扭转刚度	Axial Stiffness C_a [N/mm] 轴向刚度	Max. Permissible Misalignment · 最大许用安装偏差			Moment of Inertia J [$kg·m^2$] 转动惯量	Mass m [kg] 质量
					Radial ΔK_r [mm]	Angular ΔK_w [°]	Axial ΔK_a [mm]		
RIC-005-0-C	0.6	10000	500	140	0.02	0.5	±0.05	$0.27×10^{-6}$	0.007
RIC-010-0-C	1.0	10000	1400	140	0.02	1.0	±0.10	$0.60×10^{-6}$	0.011
RIC-020-0-C	2.0	10000	3700	64	0.02	1.0	±0.15	$2.47×10^{-6}$	0.025
RIC-025-0-C	4.0	10000	5600	60	0.02	1.0	±0.19	$3.78×10^{-6}$	0.030
RIC-030-0-A	5.0	10000	8000	64	0.02	1.0	±0.20	$4.18×10^{-6}$	0.035
RIC-030-0-B								$6.27×10^{-6}$	0.041
RIC-030-0-C								$8.44×10^{-6}$	0.050
RIC-035-0-C	8.0	10000	18000	112	0.02	1.0	±0.25	$19.12×10^{-6}$	0.086
RIC-040-0-A	10.0	10000	20000	80	0.02	1.0	±0.30	$17.19×10^{-6}$	0.079
RIC-040-0-B								$23.63×10^{-6}$	0.090
RIC-040-0-C								$30.49×10^{-6}$	0.105
RIC-050-0-A	25.0	10000	32000	48	0.02	1.0	±0.40	$57.71×10^{-6}$	0.164
RIC-050-0-B								$78.78×10^{-6}$	0.182
RIC-050-0-C								$102.1×10^{-6}$	0.213
RIC-060-0-A	60.0	10000	70000	76	0.02	1.0	±0.45	$147.2×10^{-6}$	0.286
RIC-060-0-B								$208.1×10^{-6}$	0.331
RIC-060-0-C								$273.6×10^{-6}$	0.392
RIC-080-0-C	100.0	10000	140000	128	0.02	1.0	±0.55	$733.7×10^{-6}$	0.736
RIC-090-0-C	180.0	10000	100000	108	0.02	1.0	±0.65	$1268×10^{-6}$	0.973
RIC-100-0-C	250.0	10000	120000	111	0.02	1.0	±0.74	$1937×10^{-6}$	1.229

ENGINEERING NOTES & COMBINED MISALIGNMENT DERATING GUIDELINES (DIN 740-2)

技术参数说明与多向复合偏差折减规范（DIN 740-2）

1. Reference Bore Basis for J & m:

Mass moment of inertia J and mass m are theoretical values calculated at the maximum permissible bore diameters ($d_{1,max}$, $d_{2,max}$) on both hubs.

1、表中转动惯量 J 和质量 m 均为两端轴孔取最大孔径时的理论计算值。

2. Torsional Stiffness C_T:

The listed torsional stiffness C_T represents the theoretical stiffness of the laminated stainless steel disc pack assembly.

2、表中扭转刚度 C_T 为不锈钢膜片组组件的理论扭转刚度值。

3. Maximum Rotational Speed n_{max}:

Maximum speed n_{max} is determined by peripheral stress and structural integrity without dynamic balancing. For high-speed operation requiring ISO 21940-11 G6.3 / G2.5 balancing, consult MISHKIN.

3、最高转速 n_{max} 为依据离心应力与结构强度校核所得（未计入动平衡因素）。

4. Combined Misalignment Derating Rule:

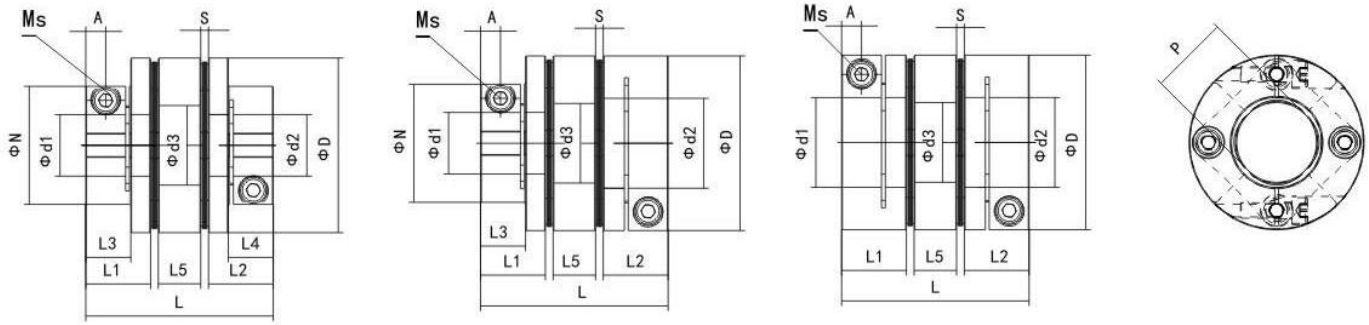
The permissible misalignments in each axis are mutually dependent and cannot reach 100% of their maximum catalog ratings simultaneously. Specifically, when angular deflection ΔK_w reaches 70% of its maximum limit, the simultaneous axial displacement ΔK_a must not exceed 30% of its maximum rating: **$(\Delta K_w / \Delta K_{w,max}) + (\Delta K_a / \Delta K_{a,max}) \leq 100\%$**. Note that a Single-Disc Coupling cannot accommodate radial shaft offset; select a Double-Disc Coupling (RIC-XXX-T) where radial offset is present.

4、表中各向许用误差相互关联，不可同时达到最大值。例如：当角向偏差达到最大允许值的 70% 时，同时存在的轴向偏差不得超过最大允许值的 30%。单膜片联轴器原则上不承受径向偏心，若存在径向偏差请选用双膜片 RIC-XXX-T 型。

DOUBLE-DISC COUPLING (RIC-XXX-T SERVO DISC COUPLING) — STRUCTURAL DRAWINGS & DIMENSIONS

双膜片联轴器（RIC-XXX-T）结构尺寸图与安装尺寸表（单位：mm）

RIC-XXX-T-A (双阶梯轴套) **RIC-XXX-T-B** (单阶梯轴套) **RIC-XXX-T-C** (直筒标准轴套)



Note: Hub clamping screw orientation may vary by production batch; refer to official approval drawing. 注：产品实际装配方向可能与上图略有差异，请以实际确认图为准。

Model · 型号	d_1 [H7]		d_2 [H7]		d_3	D	N	L	L_1	L_2	L_3	L_4	L_5	S	A	P	Screw M_S (ISO 4762)	Tightening Torque 锁紧力矩 T_A [Nm]
	min	max	min	max														
RIC-005-T-C	3	6	3	6	6.5	16	—	23.6	7.85	7.85	—	—	6.1	0.9	2.50	6.5	M2	0.4 – 0.5
RIC-010-T-C	3	8	3	8	8.5	19	—	26.3	9.15	9.15	—	—	6.2	0.9	3.15	8.5	M2	0.4 – 0.5
RIC-020-T-C	4	10	4	11	11	26	—	33.6	10.75	10.8	—	—	9.1	1.5	3.30	10.5	M2.5	1.0 – 1.1
RIC-025-T-C	5	14	5	14	15	29	—	33.6	10.75	10.8	—	—	8.5	1.8	3.30	14.5	M2.5	1.0 – 1.1
RIC-030-T-A	5	10	5	10			21.6				8.9	8.9						
RIC-030-T-B	5	10	5	16	15	34	21.6	38.0	12.4	12.4	8.9	—	8.0	2.6	3.80	14.5	M3	1.5 – 1.9
RIC-030-T-C	5	14	5	16			—				—	—						
RIC-035-T-C	6	16	6	18	17	39	—	48.4	15.5	15.5	—	—	11.0	3.2	4.50	17	M4	3.4 – 4.1
RIC-040-T-A	8	15	8	15			29.6				10.5	10.5						
RIC-040-T-B	8	15	8	22	20	44	29.6	48.4	15.5	15.5	10.5	—	11.0	3.2	4.50	19.5	M4	3.4 – 4.1
RIC-040-T-C	8	22	8	22			—				—	—						
RIC-050-T-A	8	19	8	19			38				14	14						
RIC-050-T-B	8	19	8	30	26	56	38	59.8	20.5	20.5	14	—	14.0	2.4	6.00	26	M5	7.0 – 8.5
RIC-050-T-C	8	25	8	30			—				—	—						
RIC-060-T-A	11	24	11	24			46				17.5	17.5						
RIC-060-T-B	11	24	11	35	31	68	46	72.9	25.2	25.2	17.5	—	16.5	3.0	7.75	31	M6	14 – 15
RIC-060-T-C	11	30	11	35			—				—	—						
RIC-080-T-C	18	35	18	40	40	82	—	101.0	30	30	—	—	25.0	8.0	9.00	38	M8	27 – 30
RIC-090-T-C	25	40	25	45	47	94	—	101.6	30	30	—	—	25.0	8.3	9.00	42	M8	27 – 30
RIC-100-T-C	32	45	32	45	50	104	—	104.6	30	30	—	—	25.0	9.8	9.00	48	M8	27 – 30

ENGINEERING SPECIFICATIONS — FASTENERS, BORE FITS & CENTER SPACER CLEARANCE D_3

紧固件标准、轴孔配合公差与中间体通孔说明（ISO 4762 & ISO 286-2）

1. Asymmetric Bore Combination Limit & Spacer Clearance d_3:

Due to the disc pack ID and center spacer bore d_3, the maximum catalog bores $d_{1,max}$ and $d_{2,max}$ cannot always be combined simultaneously (refer to Page 13). Ensure mating shafts do not protrude beyond hub fit lengths L_1, L_2.

1、因膜片组内径及中间体通孔 d_3 限制，两端孔径（d_1、d_2）的最大值不能同时取用（详见第13页）。

2. European Standard Fasteners & Shaft Fits:

Clamping screws M_S conform to **ISO 4762 (DIN 912) Property Class 10.9 / 12.9**. Standard coupling bores are finish-machined to **ISO 286-2 H7**; recommended mating shaft tolerance is **ISO 286-2 h7 / k6**.

2、夹紧螺钉 M_S 符合 **ISO 4762 (10.9/12.9级)** 标准；联轴器内孔公差为 **ISO 286-2 H7**，推荐配合轴公差为 **h7 或 k6**。

DOUBLE-DISC COUPLING (RIC-XXX-T SERVO DISC COUPLING) — TECHNICAL PERFORMANCE PARAMETERS

双膜片联轴器（RIC-XXX-T）技术性能参数表

Model · 型号	Permissible Torque T_{Kmax} [Nm] 许用扭矩	Max. Speed n_{max} [min^{-1}] 最高转速	Torsional Stiffness C_T [Nm/rad] 扭转刚度	Axial Stiffness C_a [N/mm] 轴向刚度	Max. Permissible Misalignment · 最大许用安装偏差			Moment of Inertia J [$kg·m^2$] 转动惯量	Mass m [kg] 质量
					Radial ΔK_r [mm]	Angular ΔK_w [°]	Axial ΔK_a [mm]		
RIC-005-T-C	0.6	10000	250	70	0.05	1.0	±0.10	$0.39×10^{-6}$	0.011
RIC-010-T-C	1.0	10000	700	70	0.11	2.0	±0.20	$0.84×10^{-6}$	0.016
RIC-020-T-C	2.0	10000	1850	32	0.16	2.0	±0.30	$3.72×10^{-6}$	0.038
RIC-025-T-C	4.0	10000	2800	30	0.15	2.0	±0.38	$5.58×10^{-6}$	0.043
RIC-030-T-A	5.0	10000	4000	32	0.14	2.0	±0.40	$7.65×10^{-6}$	0.055
RIC-030-T-B								$9.74×10^{-6}$	0.062
RIC-030-T-C								$11.91×10^{-6}$	0.070
RIC-035-T-C	8.0	10000	9000	56	0.19	2.0	±0.55	$27.92×10^{-6}$	0.127
RIC-040-T-A	10.0	10000	10000	40	0.19	2.0	±0.65	$30.89×10^{-6}$	0.127
RIC-040-T-B								$37.33×10^{-6}$	0.139
RIC-040-T-C								$44.19×10^{-6}$	0.154
RIC-050-T-A	25.0	10000	16000	24	0.24	2.0	±0.80	$102.1×10^{-6}$	0.259
RIC-050-T-B								$123.2×10^{-6}$	0.277
RIC-050-T-C								$146.5×10^{-6}$	0.308
RIC-060-T-A	60.0	10000	35000	38	0.28	2.0	±0.90	$258.3×10^{-6}$	0.451
RIC-060-T-B								$319.2×10^{-6}$	0.495
RIC-060-T-C								$384.7×10^{-6}$	0.556
RIC-080-T-C	100.0	10000	70000	64	0.44	2.0	±1.10	$1103×10^{-6}$	1.102
RIC-090-T-C	180.0	10000	50000	54	0.44	2.0	±1.30	$1895×10^{-6}$	1.444
RIC-100-T-C	250.0	10000	60000	55.5	0.44	2.0	±1.48	$2901×10^{-6}$	1.827

ENGINEERING NOTES & COMBINED MISALIGNMENT DERATING GUIDELINES (DIN 740-2)

技术参数说明与多向复合偏差折减规范（DIN 740-2）

1. Reference Bore Basis for J & m:

Mass moment of inertia J and mass m are theoretical values calculated at the maximum permissible bore diameters ($d_{1,max}$, $d_{2,max}$) on both hubs.

1、表中转动惯量 J 和质量 m 均为两端轴孔取最大孔径时的理论计算值。

2. Torsional Stiffness C_T:

The listed torsional stiffness C_T represents the theoretical combined stiffness of the two laminated stainless steel disc packs in series.

2、表中扭转刚度 C_T 为两组串联膜片组组件的理论扭转刚度值。

3. Maximum Rotational Speed n_{max}:

Maximum speed n_{max} is verified for centrifugal stress and structural rigidity without dynamic balancing. For high-speed operation requiring ISO 21940-11 G6.3 / G2.5 balancing, consult MISHKIN.

3、最高转速 n_{max} 为依据离心应力与强度校核所得（未考虑动平衡因素）。

4. Combined Misalignment Derating Rule:

Permissible radial (ΔK_r), angular (ΔK_w), and axial (ΔK_a) misalignments are mutually dependent and cannot reach their maximum catalog values simultaneously. The sum of percentage utilizations must satisfy: $\mathbf{(\Delta K_r / \Delta K_{r,max}) + (\Delta K_w / \Delta K_{w,max}) + (\Delta K_a / \Delta K_{a,max}) \leq 100\%}$. For example, if angular misalignment reaches 70% of $\Delta K_{w,max}$, axial misalignment must not exceed 30% of $\Delta K_{a,max}$ (with zero radial offset).

4、表中各向许用误差相互关联，不可同时达到最大值。例如：当角向偏差达到最大允许值的 70% 时，轴向偏差值不得超过最大允许值的 30%。

STANDARD BORE SIZES (ISO 286-2 H7) & FRICTION-FIT TRANSMITTABLE TORQUE [NM]

标准孔径（ISO 286-2 H7）及无键摩擦夹紧许用传递扭矩表（单位：Nm）

Model · 型号	Bore · 孔径	3	4	5	6	6.35	7	8	9	9.525	10	11	12	14	15	16	17	18
RIC-005-0/T	d_1	0.6	0.6	0.6	0.6	—	—	—	—	—	—	—	—	—	—	—	—	—
	d_2	0.6	0.6	0.6	0.6	—	—	—	—	—	—	—	—	—	—	—	—	—
RIC-010-0/T	d_1	1	1	1	1	1	1	1	—	—	—	—	—	—	—	—	—	—
	d_2	1	1	1	1	1	1	1	—	—	—	—	—	—	—	—	—	—
RIC-020-0/T	d_1	—	2	2	2	2	2	2	2	2	2	—	—	—	—	—	—	—
	d_2	—	2	2	2	2	2	2	2	2	2	2	—	—	—	—	—	—
RIC-025-0/T	d_1	—	—	2.1	4	4	4	4	4	4	4	4	4	4	—	—	—	—
	d_2	—	—	2.1	4	4	4	4	4	4	4	4	4	4	—	—	—	—
RIC-030-0/T	d_1	—	—	2.8	3.4	5	5	5	5	5	5	5	5	5	—	—	—	—
	d_2	—	—	2.8	3.4	5	5	5	5	5	5	5	5	5	5	5	—	—
RIC-035-0/T	d_1	—	—	—	5	5	6.6	8	8	8	8	8	8	8	8	8	—	—
	d_2	—	—	—	5	5	6.6	8	8	8	8	8	8	8	8	8	8	8

Model · 型号	Bore · 孔径	8	9	9.525	10	11	12	14–17	18, 19	20, 22	24	25	28, 30	32	35	38, 40	42–45
RIC-040-0/T	d_1	9	10	10	10	10	10	10	10	—	—	—	—	—	—	—	—
	d_2	9	10	10	10	10	10	10	10	10	—	—	—	—	—	—	—
RIC-050-0/T	d_1	18	20	22	22	25	25	25	25	25	25	25	—	—	—	—	—
	d_2	18	20	22	22	25	25	25	25	25	25	25	25	—	—	—	—
RIC-060-0/T	d_1	—	—	—	—	50	51	60	60	60	60	60	60	—	—	—	—
	d_2	—	—	—	—	50	51	60	60	60	60	60	60	60	60	—	—
RIC-080-0/T	d_1	—	—	—	—	—	—	—	100	100	100	100	100	100	100	—	—
	d_2	—	—	—	—	—	—	—	100	100	100	100	100	100	100	100	—
RIC-090-0/T	d_1	—	—	—	—	—	—	—	—	—	—	180	180	180	180	180	—
	d_2	—	—	—	—	—	—	—	—	—	—	180	180	180	180	180	180
RIC-100-0/T	d_1	—	—	—	—	—	—	—	—	—	—	—	—	226	250	250	250
	d_2	—	—	—	—	—	—	—	—	—	—	—	—	226	250	250	250

ENGINEERING VERIFICATION NOTES (ISO 286-2 FIT & CLAMPING FRICTION)

孔径选择与摩擦传递扭矩校核说明

1. Asymmetric Maximum Bore Limitation (d_1 vs. d_2):

Due to the inner diameter of the laminated disc pack, only one hub side (d_2) can accommodate a shaft passing through the disc pack ID; therefore, d_1 and d_2 cannot both take the absolute maximum catalog bore simultaneously.

1、受膜片组内孔尺寸限制，两端孔径（d_1、d_2）不能同时取相同的最大极限值。

2. Mating Shaft Tolerance Basis (ISO 286-2 h7):

All friction-fit transmittable torque values [Nm] in the tables above are verified assuming a solid steel shaft machined to **ISO 286-2 tolerance class h7** (dry/degreased shaft-bore interface, clamping screws tightened to specified T_A).

2、上述摩擦传递扭矩值均是在配合轴外径公差符合 **ISO 286-2 h7**、轴与孔表面除油洁净且螺钉按规定力矩锁紧的条件下校核所得。

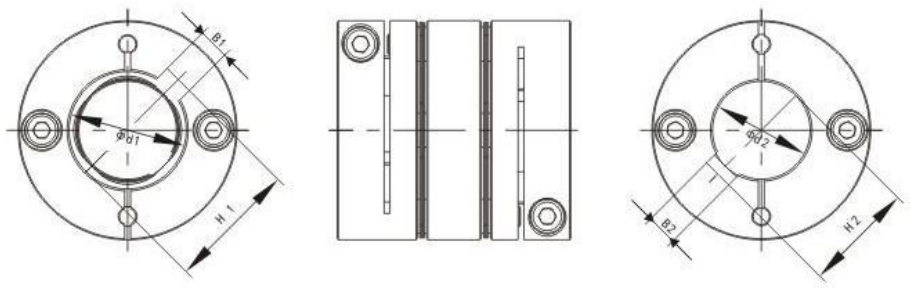
3. Custom Imperial & Non-Standard Bores:

Within the minimum/maximum bore limits of each model, MISHKIN can custom-machine inch bores (e.g., 6.35 mm [1/4"], 9.525 mm [3/8"]) or special ISO tolerances upon request.

3、在上表所列的孔径范围内，米什金可按客户要求定制英制孔径（如 6.35 mm、9.525 mm）或特殊公差带。

OPTIONAL PARALLEL KEYWAY MACHINING (ACC. TO DIN 6885-1 / ISO 2491 JS9) 定制服务 — 欧标平键键槽加工规范（符合 DIN 6885-1 / ISO 2491 标准）

Parallel Keyway Orientation & Dimension Drawing (DIN 6885 / ISO 2491) · 键槽方向与尺寸结构图



Keyway Dimensions [mm] (DIN 6885-1 / ISO 2491 JS9) · 键槽尺寸与公差表

Bore $Ød_1$, $Ød_2$ [mm] (H7)	Keyway Width B_1, B_2 [mm] (JS9)	Keyway Depth H_1, H_2 [mm]	Bore $Ød_1$, $Ød_2$ [mm] (H7)	Keyway Width B_1, B_2 [mm] (JS9)	Keyway Depth H_1, H_2 [mm]
8	2 ± 0.012	9.0 (+0.1 / 0)	22	6 ± 0.015	24.8 (+0.2 / 0)
9	3 ± 0.012	10.4 (+0.1 / 0)	24	8 ± 0.018	27.3 (+0.2 / 0)
10	3 ± 0.012	11.45 (+0.1 / 0)	25	8 ± 0.018	28.3 (+0.2 / 0)
11	4 ± 0.015	12.8 (+0.1 / 0)	28	8 ± 0.018	31.3 (+0.2 / 0)
12	4 ± 0.015	13.8 (+0.1 / 0)	30	8 ± 0.018	33.3 (+0.2 / 0)
14	5 ± 0.015	16.3 (+0.1 / 0)	32	10 ± 0.018	35.3 (+0.2 / 0)
15	5 ± 0.015	17.3 (+0.1 / 0)	35	10 ± 0.018	38.3 (+0.2 / 0)
16	5 ± 0.015	18.3 (+0.1 / 0)	38	10 ± 0.018	41.3 (+0.2 / 0)
17	5 ± 0.015	19.3 (+0.1 / 0)	40	12 ± 0.021	43.3 (+0.2 / 0)
18	6 ± 0.015	20.8 (+0.2 / 0)	42	12 ± 0.021	45.3 (+0.2 / 0)
19	6 ± 0.015	21.8 (+0.2 / 0)	45	14 ± 0.021	48.8 (+0.2 / 0)
20	6 ± 0.015	22.8 (+0.2 / 0)	—	—	—

Engineering Guidelines for Keyed Hubs · 键槽加工与装配技术准则

1. Friction-Fit Sufficiency: RIC clamping hubs transmit full rated torque via frictional clamping force alone; a keyway is optional and only required if positive form-fit indexing is specified.
一、RIC 膜片联轴器依靠夹紧轴套与轴之间的摩擦力即可可靠传递许用扭矩，孔内增加键槽并非必需设计。

2. DIN 6885-1 / ISO 2491 Verification: Verify the angular position of the keyway relative to the clamping slot (shown above) and ensure the parallel key width conforms to DIN 6885-1.
二、需在孔内加工键槽时，请确认上图及左表中的键槽方向与尺寸公差（DIN 6885-1 JS9），确保所用平键宽度与键槽匹配。

3. No Taper / Gib-Head Keys: Never drive in tapered keys or gib-head keys (DIN 6886/6887), as radial wedging forces will distort or fracture the slotted aluminum hub.
三、严禁使用钩头楔键等需要压入安装的锥度键，否则会导致铝合金轴套在装配或运行中发生破损。

4. Prevent Axial Preload on Disc Pack: Sliding a keyed hub onto a tight key can exert axial thrust; always relieve any axial compression on the stainless steel disc pack before tightening the clamping screws.
四、由于键与键槽的摩擦阻力，安装到轴上时可能对联轴器产生较大轴向推力，锁紧前请务必消除膜片组承受的轴向压缩力。

5. Key Fit & Fretting Prevention: Avoid loose key fits, which can cause fretting wear or key walk-out under reversing loads.
五、若平键配合过松，在交变运转中易因晃动产生微动磨损粉尘甚至脱出，请注意避免。

6. Ordering Code Suffix (BJ): Replace connection code B with BJ for each keyed hub (e.g., `RIC-060-T-C-15BJ-20BJ`).
六、带键槽订货时，将对应端孔径后的代码"B"改为"BJ"，示例：RIC-060-T-C-15BJ-20BJ。

ORDERING CODE EXAMPLE FOR KEYED EXECUTION: RIC-060-T-C-15BJ-20BJ 带欧标平键键槽（DIN 6885-1）订货型号示例：RIC-060-T-C-15BJ-20BJ

RIC-060	T	C	15BJ	20BJ
MISHKIN RIC Series, Size 060 MISHKIN RIC 060 规格	Double-Disc Coupling 双膜片组结构	Hub Style C (Cylindrical) C 型直筒轴套形式	d_1 = 15 mm (H7) + DIN 6885 Keyway (BJ) 主动轴孔径 15mm 螺钉夹紧带键槽	d_2 = 20 mm (H7) + DIN 6885 Keyway (BJ) 从动轴孔径 20mm 螺钉夹紧带键槽

ENGINEERING SIZING & TORQUE VERIFICATION PROCEDURE (ACC. TO DIN 740-2)

RIC 系列膜片联轴器选型计算与扭矩校核步骤（依据 DIN 740-2）

1. Sizing for Servo Motors, Stepper Motors & VFD Spindle/Feed Drives

1. 伺服电机、步进电机及变频调速电机驱动的扭矩校核

○1 Determine Maximum Peak Motor Torque (T_m [Nm]):

Establish the peak stall/acceleration torque T_m of the servo, stepper, or VFD motor (typically $\mathbf{T_m \approx 3 \times T_{rated}}$ for AC servo motors).

○1 确定伺服、步进或变频电机的最大瞬态峰值扭矩 T_m：通常取电机额定扭矩的 3 倍（$T_m \approx 3 \times T_{rated}$）。

○2 Calculate Required Coupling Design Torque (T_n [Nm]):

Apply the servo dynamic safety factor K_s = 1.5: $\mathbf{T_n = T_m \times 1.5}$ (where T_n [Nm] is the required coupling design torque and T_m [Nm] is the motor peak torque).

○2 计算联轴器所需设计扭矩（T_n）：$\mathbf{T_n = T_m \times 1.5}$（式中 T_n 为联轴器所需容许扭矩 [Nm]；T_m 为电机标称最大扭矩 [Nm]）。

○3 Select Coupling Size & Verify Bore Torque:

Select a coupling size whose permissible torque $\mathbf{T_{Kmax} \geq T_n}$ (Pages 10/12) AND verify on Page 13 that the friction-fit transmittable torque for the specific shaft bores (d_1, d_2) is also ≥ T_n.

○3 依据 T_n 值初选联轴器基本规格，确保所选规格及对应孔径（第13页）下的许用传递扭矩满足：$\mathbf{T_{Kmax} \geq T_n}$。

2. Sizing for Standard Three-Phase Induction Motors & Industrial Drives

2. 普通工业三相异步电机或常规驱动设备的扭矩校核

○1 Calculate Nominal Operating Torque (T [Nm]):

Compute nominal torque from rated motor power P_W [kW] and operating speed n [min^{-1}]: $\mathbf{T = 9550 \times P_W / n}$.

○1 计算驱动轴系传递的额定工作扭矩（T）：$\mathbf{T = 9550 \times P_W / n}$（$P_W$ 为电机额定功率 [kW]；n 为实际工作转速 [min^{-1}]）。

○2 Apply Load Service Factor K (DIN 740-2):

Calculate required design torque: $\mathbf{T_n = T \times K}$, where K depends on load uniformity: ❶ **Uniform load: K = 1.00**; ❷ **Light shock load: K = 1.25**; ❸ **Moderate shock load: K = 1.75**; ❹ **Heavy shock load: K = 2.25**.

○2 计算联轴器所需设计扭矩（T_n）：$\mathbf{T_n = T \times K}$（K 为工况服务系数：❶ 恒定载荷 K=1.0；❷ 小变动载荷 K=1.25；❸ 中等冲击载荷 K=1.75；❹ 大冲击载荷 K=2.25）。

○3 Select Coupling Size:

Select a coupling size satisfying $\mathbf{T_{Kmax} \geq T_n}$ across both the performance table and the bore-torque table (Page 13).

○3 依据 T_n 值确定联轴器规格，确保所选联轴器许用扭矩满足：$\mathbf{T_{Kmax} \geq T_n}$。

3. Drives with High Periodic Alternating Torques & 4. Shaft Misalignment Verification

3. 高交变扭矩工况校核 & 4. 安装与运行偏差校核

High Alternating Torque Drives:

For reciprocating engines, piston compressors, plunger pumps, and generators, consult MISHKIN Application Engineering for a DIN 740-2 torsional vibration calculation.

高交变扭矩场合：对于内燃机、活塞式压缩机、柱塞泵、发电机等高交变激励场合，请联系 MISHKIN 工程师协助进行扭振计算与选型。

Misalignment Verification:

Ensure actual radial (ΔK_r), angular (ΔK_w), and axial (ΔK_a) misalignments remain within the catalog limits (proportionally derated when combined). Since a Single-Disc Coupling (RIC-XXX-0) cannot accommodate radial offset ΔK_r, always select a **Double-Disc Coupling (RIC-XXX-T)** whenever parallel radial misalignment is unavoidable.

安装与运行偏差校核：确保实际径向、角向、轴向偏差不超过参数表限值（复合偏差按比例折减）。单膜片联轴器不能承受径向偏心，若存在不可避免的径向偏差，请务必选用双膜片 **RIC-XXX-T** 型。

WORKED SIZING EXAMPLE — CNC BALL SCREW SERVO AXIS

工程选型计算实例 — 数控机床进给轴伺服电机选型

Input Parameters · 已知工况参数	**AC Servo Motor: Rated torque T_{rated} = 4.8 Nm, Peak torque T_m = 14.4 Nm, Motor shaft d_1 = Ø19 mm (h7), Ball screw shaft d_2 = Ø15 mm (h7), Max speed n = 3000 min^{-1}, parallel offset present.** 交流伺服电机：额定扭矩 4.8 Nm，最大峰值扭矩 T_m = 14.4 Nm，电机轴径 d_1 = 19 mm，丝杆轴径 d_2 = 15 mm，需要吸收径向偏差。
Calculation & Selection · 校核结果	**Required design torque: $\mathbf{T_n = 14.4 \times 1.5 = 21.6}$ Nm. Select RIC-050-T-A-15B-19B (Double-Disc Coupling, T_{Kmax} = 25 Nm ≥ 21.6 Nm; Page 13 bore torque at Ø15/Ø19 mm = 25 Nm ≥ 21.6 Nm).** 所需设计扭矩：$\mathbf{T_n = 14.4 \times 1.5 = 21.6}$ Nm。选用双膜片阶梯型 **RIC-050-T-A-15B-19B**（T_{Kmax} = 25 Nm ≥ 21.6 Nm，15/19孔径摩擦扭矩均为 25 Nm，满足要求）。

INSTALLATION, COMMISSIONING & SAFETY INSTRUCTIONS (PART I — EU MACHINERY DIRECTIVE 2006/42/EC)

安装、调试与安全维护说明（一）（符合欧盟机械指令 2006/42/EC 与 EN ISO 12100）

1. Pre-Installation Inspection & Verification

1. 安装使用前检查确认事项

O1 Model & Bore Verification:

Verify that the coupling model code and finish-machined bore diameters (d_1, d_2 acc. to ISO 286-2 H7) match the design specification.

O1 核对该产品型号代码及两端内孔尺寸（d_1、d_2）是否与订购规格一致；

O2 Transit Integrity Check:

Inspect the clamping hubs, ISO 4762 screws, and stainless steel disc packs to confirm no mechanical deformation or damage occurred during transit.

O2 检查联轴器轴套、锁紧螺钉及不锈钢膜片组在运输过程中是否存在磕碰或变形损伤。

2. Safety Precautions (acc. to EN ISO 12100 & EN ISO 13857)

2. 安全防护与操作准则（符合 EN ISO 12100 与 EN ISO 13857 机械安全标准）

O1 Ambient Operating Environment & Safety Guarding · O1 运行环境与安全防护装置

• Mandatory Safety Guarding:

Rotating shaft couplings pose severe entanglement hazards. Install a fixed protective guard conforming to **EN ISO 13857** equipped with an emergency-stop safety interlock. Do not operate standard aluminum RIC couplings in environments with flammable/explosive gases or liquids without prior ATEX zone verification. Equip the drive train with an emergency brake where necessary.

• 危险事项：高速旋转的联轴器可能对人员造成伤害，必须配置符合 EN ISO 13857 标准的安全防护罩并设置急停联锁保护装置；请勿在有易燃、易爆液体或气体泄漏的场所违规使用；建议驱动端配置安全制动装置。

• Environmental Restrictions:

Do not expose aluminum alloy RIC couplings to corrosive chemical splashes, acid/alkali mist, excessive condensation, or thermal shocks outside -30 °C to +100 °C. (For corrosive/high-temp environments, select all-stainless JKS or steel RDC series.)

• 注意事项：请勿将铝合金联轴器直接暴露于化学腐蚀液体泄漏、强酸强碱、高湿度凝露或超出允许温度范围的剧烈冷热冲击环境中。

O2 Assembly & Mounting Safety · O2 装配作业安全规范

• Lockout / Tagout & Calibrated Torque Tightening:

Before mounting or dismounting, completely shut down the machinery, isolate all electrical/hydraulic power sources, and secure against accidental restart. Tighten all ISO 4762 clamping screws strictly to the specified tightening torque **T_A [Nm]** using a calibrated torque wrench.

• 危险事项：螺钉锁紧力矩 T_A 对传递扭矩与运行安全至关重要，必须按尺寸表规定力矩用扭力扳手锁紧；安装或拆卸时，必须确保设备完全停机并切断电源（执行上锁挂牌程序）。

• Pre-Alignment & Fastener Grade (EN ISO 898-1):

Prior to tightening, align both shafts so radial runout / coaxiality error is **≤ 0.02 mm** (for Single-Disc Coupling RIC-0) or **≤ 0.05 mm** (for Double-Disc Coupling RIC-T). Use only original MISHKIN factory screws (ISO 4762 Property Class 10.9 / 12.9). Wear protective gloves and use certified lifting gear for heavy assemblies.

• 注意事项：安装前请先利用百分表找正两轴同轴度，使径向同轴度误差小于 0.02 mm（单膜片型）或小于 0.05 mm（双膜片型）；请务必使用米什金原厂提供或同等性能等级（ISO 898-1 10.9/12.9级）的内六角螺钉；装配时请佩戴防护手套。

O3 Operational Monitoring · O3 运行监控准则

• Speed & Load Limits:

Never exceed the catalog maximum rotational speed **n_{max}** or permissible torque **T_{Kmax}**. If abnormal noise or vibration is detected, stop the drive immediately and inspect shaft alignment and screw torque. Provide adequate ventilation in enclosed housings to prevent heat buildup.

• 危险与注意事项：严禁超速（n_{max}）或超扭矩（T_{Kmax}）运行；若出现异常噪音或振动，应立即停机检查安装对中精度及螺钉锁紧状态；在狭小密闭空间内运行时需注意散热温升。

QUICK-REFERENCE TABLE — ISO 4762 CLAMPING SCREW TIGHTENING TORQUES & ALIGNMENT LIMITS

RIC 系列内六角锁紧螺钉（ISO 4762）规定拧紧力矩与安装对中控制基准表

Screw Size M_s (ISO 4762)	M2	M2.5	M3	M4	M5	M6	M8
Applicable RIC Sizes 适用规格	005, 010	020, 025	030	035, 040	050	060	080, 090, 100
Tightening Torque T_A [Nm] 规定锁紧力矩	0.4 – 0.5	1.0 – 1.1	1.5 – 1.9	3.4 – 4.1	7.0 – 8.5	14 – 15	27 – 30
Hex Socket Wrench Width [mm] 内六角扳手对边	1.5 mm	2.0 mm	2.5 mm	3.0 mm	4.0 mm	5.0 mm	6.0 mm

INSTALLATION, COMMISSIONING & SAFETY INSTRUCTIONS (PART II — STEP-BY-STEP MOUNTING PROCEDURE)

安装、调试与安全维护说明（二）— 标准七步装配规程

2. Safety Precautions (Continued) — O4 General Handling, Factory Pre-Assembly & Recycling

2. 安全注意事项（续）— O4 禁止拆解膜片组与环保回收准则

• Unauthorized Personnel & Child Safety:

Store and operate precision transmission components out of reach of unauthorized personnel and children.

• 危险事项：请妥善保管产品，确保不被无关人员或儿童触碰玩耍。

• Factory-Torqued Disc Pack Integrity:

Do not disassemble the factory-riveted/bolted stainless steel disc pack assembly, as this destroys factory concentricity and voids warranty coverage. At end-of-life, dispose of aluminum and stainless steel components via certified metal recycling channels in accordance with European WEEE/RoHS environmental directives.

• 注意事项：严禁私自拆解出厂已精密定心锁紧的膜片组组件，否则将破坏同轴度且本公司概不承担质保责任；报废产品请交由专业金属回收机构分类处理。

3. Step-by-Step Mounting & Alignment Procedure (O1 to O7)

3. 标准安装与对中操作规程（步骤 O1 至 O7）

O1 Shaft & Bore Degreasing:

Loosen the ISO 4762 radial clamping screws completely. Thoroughly clean the mating shafts and coupling H7 bores to remove rust, burrs, dust, and grease using lint-free cloth and a volatile degreasing solvent. Do NOT use MoS_2 or grease inside friction-clamping bores.

O1 先将夹紧轴套上的内六角螺钉旋松，并用洁净棉布配合除油剂彻底清除传动轴表面及联轴器内孔中的锈迹、毛刺、灰尘与油污（摩擦夹紧孔内严禁涂抹润滑脂）。

O2 Force-Free Axial Insertion:

Slide the coupling hub gently onto the first shaft without applying axial impact, tension, or compression to the laminated stainless steel disc pack. Take particular care when mating the second shaft after one hub is already fixed to the motor shaft so the disc pack is never over-compressed axially.

O2 将联轴器平稳推入轴端，严禁对不锈钢膜片组施加过大的轴向敲击、压缩或拉伸力。特别是在一端已固定于电机轴、再将另一端套入从动轴时，必须避免误操作导致膜片组承受过大轴向预压变形。

O3 Free Axial & Rotational Check:

With both clamping screws slightly loose, verify that the coupling slides axially and rotates smoothly without binding. If binding is felt, re-align the two shafts using a dial indicator or laser shaft alignment system.

O3 在两端夹紧螺钉处于微松状态下，确认联轴器能否在轴上顺畅地轴向微移和无阻滞旋转。若存在卡滞，请使用百分表或激光对中仪重新调整两轴同轴度。

O4 Orientation on D-Cut / Keyed Shafts:

When mounting onto a shaft with a flat (D-cut) or keyway, never position the flat or keyway directly under the open radial clamping slot of the hub. Full-round cylindrical shafts (ISO 286-2 h7) are recommended to achieve 100% clamping contact area.

O4 在带有扁位（D型削平轴）或键槽的轴上安装 RIC 联轴器时，严禁将轴上的扁位或键槽正对准轴套开有径向夹紧槽的一侧。为获得完整的夹持抱紧力矩，推荐使用标准圆柱轴（h7）。

O5 Full Shaft Insertion Depth (L_1, L_2):

Ensure the shaft insertion depths match the catalog hub fit lengths **L_1** and **L_2** (Pages 9 & 11) so the full clamping bore length engages the shaft.

O5 确保两端传动轴插入联轴器轴套的深度完全达到尺寸表规定的配合长度 **L_1**、**L_2**，使轴与联轴器内孔充分接触。

O6 Axial Spacing Control (Dimension S):

Position the coupling axially so the actual disc pack spacing matches dimension **S** within the permissible axial displacement ΔK_a (remembering that permissible ΔK_a is derated proportionally when angular or radial misalignment is present).

O6 将联轴器实际装配间距控制在尺寸表规定的 **S** 值及轴向位移允许误差范围内（注意：表中轴向允差为偏心与偏角均为零时的极限值，实际安装应尽量调零）。

O7 Calibrated Torque Wrench Tightening:

After confirming zero axial preload on the disc pack, tighten the clamping screws on both hubs using a calibrated torque wrench to the exact tightening torque **T_A [Nm]** specified in the dimension tables.

PRE-COMMISSIONING SHAFT ALIGNMENT VERIFICATION CHECKLIST

开机运行前轴系安装精度最终点检表

Check Item · 点检项目	RIC-XXX-0 (Single-Disc Coupling · 单膜片)	RIC-XXX-T (Double-Disc Coupling · 双膜片)	Verification Method · 检验工具
Initial Radial Coaxiality Target 安装初始径向同轴度控制目标	**≤ 0.02 mm TIR**	**≤ 0.05 mm TIR**	**Dial Indicator / Laser Alignment** 百分表或激光对中仪
Shaft Insertion Depth 轴插入配合深度	**Full L_1 / L_2 (≥ 95%)**	**Full L_1 / L_2 (≥ 95%)**	**Vernier Caliper / Depth Gauge** 游标卡尺或深度尺
Disc Pack Axial Preload 膜片组轴向残余预变形	**S ± 0.10 mm (Stress-Free)**	**S ± 0.15 mm (Stress-Free)**	**Feeler Gauge / Caliper Check** 塞尺检查 S 间距

ORDERING CODE & MODEL DESIGNATION SYSTEM (CONICAL CLAMPING EXECUTION)

REC 系列型号命名规则与订货代码说明（锥套压环无键胀紧式）

REC	–	080	–	0	–	A	–	25	Z	–	30	Z
08		07		06		05		04	03		02	01
Series 系列代码		Size (OD) 规格代码		Disc Pack 膜片组数		Design Series 结构系列		Bore d_1 主动轴孔径	Hub 1 Fix 主动轴连接		Bore d_2 从动轴孔径	Hub 2 Fix 从动轴连接

01 **Driven Shaft Connection Type:** Z = Conical Clamping Ring / Shrink-Fit Sleeve Connection (backlash-free 360° frictional lock)
从动轴连接方式代码（Z — 锥套压环轴向锁紧胀紧式无键连接）

02 **Driven Shaft Bore Diameter Code (d_2 [mm]):** Larger shaft bore diameter (ISO 286-2 H7)
从动轴（较大轴端）孔径尺寸代码 d_2（单位：mm，内孔公差 ISO 286-2 H7）

03 **Driving Shaft Connection Type:** Z = Conical Clamping Ring / Shrink-Fit Sleeve Connection
主动轴连接方式代码（Z — 锥套压环轴向锁紧胀紧式无键连接）

04 **Driving Shaft Bore Diameter Code (d_1 [mm]):** Smaller shaft bore diameter (ISO 286-2 H7)
主动轴（较小轴端）孔径尺寸代码 d_1（单位：mm，内孔公差 ISO 286-2 H7）

05 **Structural Design Series (A / B / C):** A = Standard cap screw design; B = High-torque fitted bolt design; C = High-speed spindle execution
产品结构系列代码（A：标准内六角螺钉型 / B：大扭矩铰制孔螺栓型 / C：高速机床主轴型）

06 **Disc Coupling Configuration (0 / T):** 0 = Single-Disc Coupling; T = Double-Disc Coupling with Center Spacer
挠性膜片组结构代码 1（0：单膜片组结构 / T：带中间体的双膜片组结构）

07 **Coupling Size Code (070 to 100):** Nominal outer diameter D in mm (70, 80, 90, 100 mm)
联轴器外径规格代码（070、080、090、100）

08 **Product Series Code:** REC = Heavy-Duty Steel Servo Disc Coupling (with Conical Clamping Hub)
产品系列代码（REC 系列数控机床进给轴/主轴专用锥套胀紧膜片联轴器）



REC-XXX-0 Single-Disc Coupling
REC 单膜片型实物图



REC-XXX-T Double-Disc Coupling
REC 双膜片型实物图



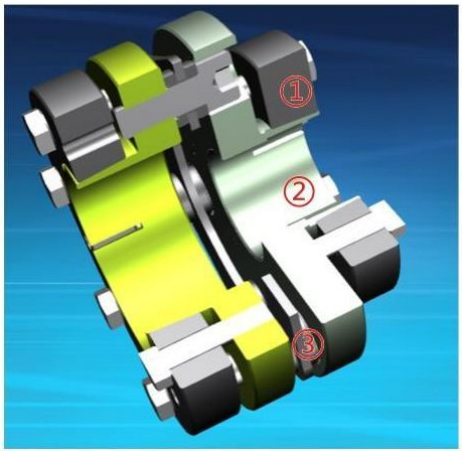
REC Conical Clamping Ring Detail
REC 锥套压环多螺栓锁紧结构

REC SERIES MATERIAL & EUROPEAN STANDARD COMPLIANCE SUMMARY

REC 系列核心材料与欧洲标准合规一览表

Component · 核心部件	Material Specification · 欧标材料牌号	Surface & Fastener Standard · 表面处理与紧固标准
Conical Hub & Clamping Ring 锥套半联轴节与压环	C45E (EN 1.1191) / 42CrMo4 (EN 1.7225) 优质高强度结构钢	Black Oxide · Clamping Screws ISO 4762 Class 10.9 发黑防锈 · 10.9级螺栓
Disc Pack / Lamina Pack 挠性不锈钢膜片组（叠片包）	X10CrNi18-8 (EN 1.4310 / AISI 301) 高强度奥氏体弹簧不锈钢	Pack Bolts ISO 4762 Class 12.9 · Bore Fit ISO 286-2 H7/h6 12.9级膜片组螺栓

INTERNAL STRUCTURAL CUTAWAY & COMPONENT ARCHITECTURE (PART I) REC 系列内部剖视结构与核心组件材料规范（一）



REC-XXX-0 Single-Disc Coupling Cutaway
REC 单膜片联轴器内部剖视结构图

O1 External Conical Clamping Ring (压环 · C45E / 42CrMo4 Steel)
Precision-machined from high-strength structural steel (**C45E / 42CrMo4 acc. to EN ISO 683**) with black oxide corrosion protection. Its tapered internal bore compresses the slotted hub sleeve uniformly around the shaft; outer diameter N_1/N_2 scales with bore diameter.
O1 锥套压环：采用优质高强度结构钢（C45E / 42CrMo4），表面发黑防锈处理；内锥面与半联轴节外锥面精密配合，依据孔径不同其外径 N_1/N_2 相应变化。

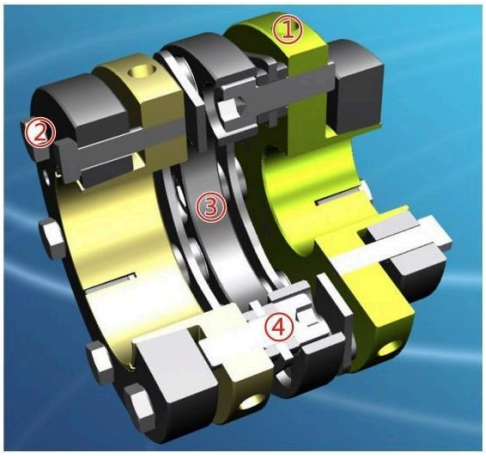
O2 Slotted Tapered Coupling Hub (半联轴节 · C45E / 42CrMo4 Steel)
Manufactured from high-strength structural steel with black oxide finish. Features an axial tapered clamping sleeve that works in tandem with the external clamping ring to create a concentric, high-torque 360° shrink-fit connection on the transmission shaft.
O2 半联轴节：采用优质结构钢，表面发黑处理；一体式开槽锥套段与外部压环配合，在轴向螺栓预紧力下360°均匀抱紧传动轴，实现极高的同轴度与摩擦力矩。

O3 Laminated Stainless Steel Disc Pack / Lamina Pack (挠性膜片组/叠片包 · EN 1.4310)
Unitized flexible pack stacked from high-tensile spring stainless steel discs (**EN 1.4310 / AISI 301**) via precision spacer washers and bushings to compensate installation misalignments while transmitting torque with zero backlash.
O3 不锈钢膜片组：由多层高强度奥氏体不锈钢弹簧片（EN 1.4310）通过精密垫圈、衬套叠合铆接为一体式挠性组件，吸收轴系安装误差并零背隙传递扭矩。

O1 Radial Holding Pin Bore on Outer Flange (法兰外圆止动销孔)
Radial blind holes (n–ØH) on the flange periphery allow insertion of a holding pin or tommy bar to react counter-torque while tightening or loosening the axial clamping screws.
O1 法兰外圆止动销孔（n–ØH）：用于在拧紧或松开轴向胀紧螺栓时插入止动销杆，限制联轴器随轴旋转。

O2 Axial Clamping Ring Screws M_2 (胀紧螺栓 · ISO 4762 Class 10.9)
High-tensile alloy steel socket head cap screws (**ISO 4762 Property Class 10.9**). Must be tightened progressively in a star/cross sequence to the prescribed torque T_A.
O2 胀紧螺栓（M_2）：采用符合 ISO 4762 标准的 10.9 级高强度内六角螺栓，安装时需按对角交叉顺序分次锁紧至规定力矩。

O3 Center Spacer (O3 中间体) & O4 Disc Pack Bolts M_1 (膜片组螺栓 · ISO 4762 Class 12.9)
O 3 Center Spacer: Precision-balanced structural steel spacer unique to Double-Disc (REC-T) couplings. **O 4 Disc Pack Bolts (M_1):** Ultra-high-strength **ISO 4762 Class 12.9** bolts pre-torqued at the factory—never loosen or disassemble.
O3 中间体：双膜片联轴器独有高同轴度钢制隔套。**O4 膜片组螺栓（M_1）：**采用 ISO 4762 12.9 级超高强度内六角螺钉，出厂前已精密定扭锁紧，严禁自行拆装。



REC-XXX-T Double-Disc Coupling Cutaway
REC 双膜片联轴器内部剖视结构图

TECHNICAL OVERVIEW & ENGINEERING FEATURES (PART II)
REC 系列性能概览与产品核心特点（二）

Technical Parameter · 技术参数项目		REC-XXX-0 Single-Disc Coupling REC 单膜片联轴器	REC-XXX-T Double-Disc Coupling REC 双膜片联轴器
Nominal / Peak Permissible Torque T_{Kmax} [Nm] 许用额定/最大扭矩范围 (Nm)		70 – 300 Nm	70 – 300 Nm
Standard Finish-Machined Bore Range d_1, d_2 [mm] 精加工轴孔直径范围 (mm, ISO 286-2 H7)		Ø18 – Ø60 mm	Ø18 – Ø60 mm
Permissible Operating Temperature [°C] 允许工作环境温度范围 (°C)		-30 °C to +120 °C	-30 °C to +120 °C
Max. Permissible Shaft Misalignment 最大许用安装偏差	Radial Offset ΔK_r [mm] 径向偏差 (mm)	0.02 mm	0.25 – 0.30 mm
	Angular Deflection ΔK_w [°] 角向偏差 (°)	1.0°	2.0°
	Axial Displacement ΔK_a [mm] 轴向偏差 (mm)	±0.50 – ±0.70 mm	±1.00 – ±1.40 mm

KEY ENGINEERING FEATURES & CNC MACHINE TOOL APPLICATIONS
REC 系列六大核心设计特点与数控机床应用场合

MISHKIN REC series heavy-duty servo disc couplings (steel lamina couplings with conical clamping rings) are purpose-engineered for high-thrust ball screw feed drives and high-speed auxiliary spindles in **CNC turning centers, 5-axis machining centers, and heavy-duty gantry mills**:

REC 系列产品专为各类高速数控车床、五轴立/卧式加工中心的进给轴滚珠丝杆与大功率伺服电机联接而开发，具备以下六大核心优势：

01 · Ultrahigh Torsional Stiffness for CNC Contouring
All-steel hubs and high-density stainless disc packs provide torsional stiffness up to 160,000 Nm/rad, eliminating wind-up lag for sub-micron CNC positioning.
1、超高扭转刚性：专为机床高刚性进给轴开发，扭转刚度高达 160,000 Nm/rad，实现精准的轴旋转跟随与超精密插补控制。

02 · High-Torque Large-Bore Shrink-Fit Connection
The multi-bolt conical clamping ring supports shaft diameters up to Ø60 mm and transmits significantly higher frictional torque than radial slot clamps.
2、支持大直径无键摩擦连接：与常规径向单螺钉夹紧相比，多螺栓锥套压环结构支持达 Ø60 mm 的大轴径高扭矩锁紧。

03 · EN ISO 898-1 Class 12.9 Alloy Steel Pack Bolts
The disc pack assembly utilizes ultra-high-tensile ISO 4762 Property Class 12.9 alloy steel socket head cap screws for maximum shear and fatigue security.
3、超高强度膜片组螺栓：膜片组紧固采用符合 ISO 4762 标准的 12.9 级合金钢内六角圆柱头螺钉，抗疲劳与抗冲击能力极强。

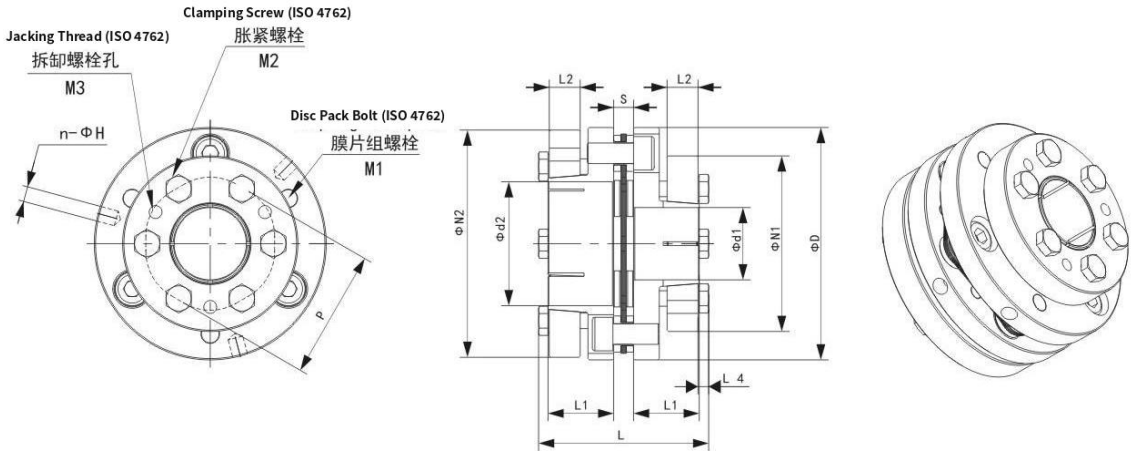
04 · Rotationally Symmetrical Balance (Up to 18,000 min^{-1})
The slot-free external clamping ring eliminates radial imbalance and stress concentrations, achieving intrinsic ISO 21940-11 balance quality for speeds up to 18,000 min^{-1}.
4、回转对称高动平衡结构：锥套胀紧消除了偏心切槽等应力集中部位，几何完全对称，无需特殊配重即可满足高达 18,000 rpm 的高速平衡要求。

05 · Zero-Backlash Stainless Disc Pack / Lamina Pack (EN 1.4310)
Compensates angular, axial, and radial (REC-T) misalignments with zero backlash and low bearing reaction loads.
5、零背隙不锈钢膜片组：结构紧凑、绝对无背隙，可靠吸收两轴角向、轴向及径向（双膜片型）偏差。

06 · Optical Jig-Centered Factory Assembly
Assembled on dedicated centering fixtures prior to delivery to ensure superior initial coaxiality between both bores.
6、出厂精密治具定心组装：每套产品出厂前均采用专用治具定心组装，确保两端内孔具备极高的原始同轴度。

SINGLE-DISC COUPLING WITH CONICAL CLAMPING HUB (REC-XXX-0-A) — CAD DRAWING & DIMENSIONS

单膜片锥套胀紧式联轴器（REC-XXX-0-A）结构尺寸图与安装尺寸表（单位：mm）



Model · 型号	D	L	Bore d_1 / d_2 [H7] 标准孔径组合	N_1 / N_2	L_1	L_2	L_4	S	P	Pin Bore n–ØH	Pack Bolt M_1 (ISO 4762 12.9)	M_1 Torque 锁紧力矩 [Nm]	Clamping M_2 (ISO 4762 10.9)	M_2 Torque 锁紧力矩 [Nm]	Jacking 拆卸孔 M_3
REC-070-0-A	70	60.5	18, 19	53	23.5	12	4	6.5	31	4–Ø5.1	M6	14	4–M6	12	2–M6
			20, 22, 24, 25	58											
			28, 30	63											
			32, 35	68											
REC-080-0-A	80	66.3	22, 24, 25	58	25.5	12	4	8.3	37	4–Ø5.1	M8	34	4–M6	12	2–M6
			28, 30	63											
			32, 35	68											
REC-090-0-A	90	66.0	28	68	25.5	12	4	7.7	50	3–Ø6.5	M8	34	6–M6	12	3–M6
			30, 32, 35	73											
			38, 40	78											
			42, 45	83											
			48	88											
REC-100-0-A	100	66.0	32, 35	73	25.5	12	4	8.0	58	3–Ø6.5	M8	34	6–M6	12	3–M6
			38, 40	78											
			42, 45	83											
			48, 50, 52	88											
			55	93											
			60	98											

FASTENER & FIT SPECIFICATIONS (ACC. TO ISO 4762, EN ISO 898-1 & ISO 286-2)

紧固件等级与轴孔配合规范（依据 ISO 4762、EN ISO 898-1 与 ISO 286-2）

1. Per-Hub Fastener Quantities:

All screw quantities and thread specifications (M_2, M_3, n–ØH) listed in the table refer to **one single hub side**.

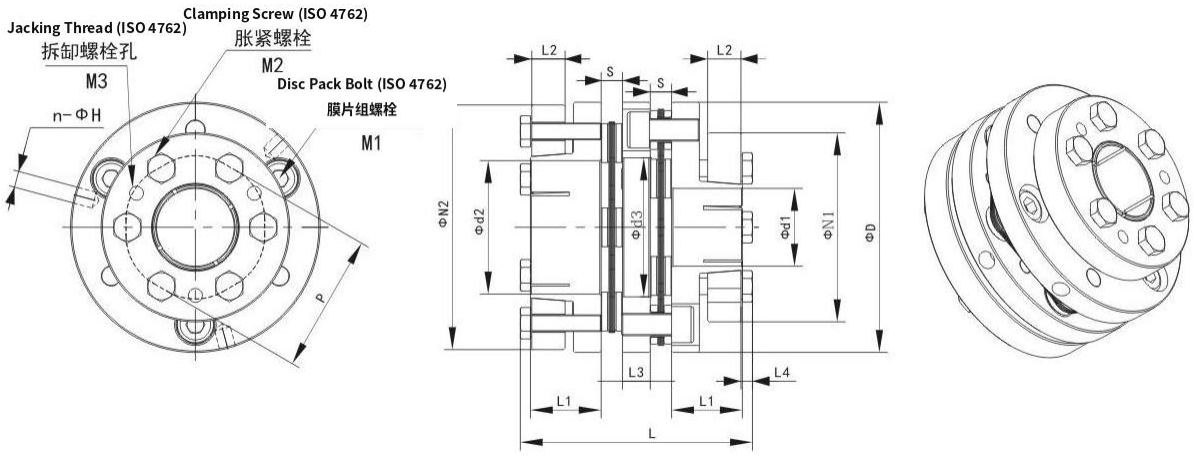
1、表中所列各螺栓、销孔及拆卸孔数量（M_2、M_3、n–ØH）均为单侧半联轴节的数量。

2. Fastener Property Classes (EN ISO 898-1):

Tightening torques are specified for **ISO 4762 Property Class 12.9** disc pack bolts (**M_1**, factory-locked) and **ISO 4762 Property Class 10.9** axial clamping ring screws (**M_2 = 12 Nm**). Recommended mating shaft tolerance: **ISO 286-2 h6 / h7**.

2、表中锁紧力矩核定依据：膜片组螺栓 M_1 为 ISO 4762 12.9 级高强度内六角螺钉（出厂已锁紧），压环胀紧螺栓 M_2 为 ISO 4762 10.9 级螺栓（规定锁紧力矩 12 Nm）。推荐配合轴公差为 h6 或 h7。

DOUBLE-DISC COUPLING WITH CONICAL CLAMPING HUB (REC-XXX-T-A) — CAD DRAWING & DIMENSIONS 双膜片锥套胀紧式联轴器（REC-XXX-T-A）结构尺寸图与安装尺寸表（单位：mm）



Model · 型号	D	L	Bore d_1 / d_2 [H7] 标准孔径组合	N_1 / N_2	L_1	L_2	L_3	d_3	L_4	S	P	Pin Bore n–ØH	Pack Bolt M_1 (12.9) [Nm]	Clamping M_2 (10.9) [Nm]	Jacking 拆卸孔 M_3
REC-070-T-A	70	75.0	18, 19	53	23.5	12	8	35	4	6.5	31	4–Ø5.1	M6 (14 Nm)	4–M6 (12 Nm)	2–M6
			20, 22, 24, 25	58											
			28, 30	63											
			32, 35	68											
REC-080-T-A	80	84.6	22, 24, 25	58	25.5	12	10	40	4	8.3	37	4–Ø5.1	M8 (34 Nm)	4–M6 (12 Nm)	2–M6
			28, 30	63											
			32, 35	68											
REC-090-T-A	90	83.4	28	68	25.5	12	10	50	4	7.7	50	3–Ø6.5	M8 (34 Nm)	6–M6 (12 Nm)	3–M6
			30, 32, 35	73											
			38, 40	78											
			42, 45	83											
			48	88											
REC-100-T-A	100	84.0	32, 35	73	25.5	12	10	60	4	8.0	58	3–Ø6.5	M8 (34 Nm)	6–M6 (12 Nm)	3–M6
			38, 40	78											
			42, 45	83											
			48, 50, 52	88											
			55	93											
			60	98											

FASTENER & FIT SPECIFICATIONS (ACC. TO ISO 4762, EN ISO 898-1 & ISO 286-2) 紧固件等级与轴孔配合规范（依据 ISO 4762、EN ISO 898-1 与 ISO 286-2）

1. Per-Hub Fastener Quantities:

All screw quantities and thread specifications (M_2, M_3, n–ØH) listed in the table refer to **one single hub side**.

1、表中所列各螺栓、销孔及拆卸孔数量（M_2、M_3、n–ØH）均为单侧半联轴节的数量。

2. Fastener Property Classes (EN ISO 898-1):

Tightening torques are specified for **ISO 4762 Property Class 12.9** disc pack bolts (**M_1**, factory-locked) and **ISO 4762 Property Class 10.9** axial clamping ring screws (**M_2 = 12 Nm**). Ensure shaft insertion depth equals L_1 without protruding into the center spacer bore d_3.

2、表中锁紧力矩核定依据：膜片组螺栓 M_1 为 ISO 4762 12.9 级内六角螺钉（出厂已锁紧），压环胀紧螺栓 M_2 为 ISO 4762 10.9 级螺栓（规定锁紧力矩 12 Nm）。安装时轴套入深度为 L_1，不得与膜片组或中间体干涉。

TECHNICAL PERFORMANCE PARAMETERS — SINGLE-DISC (REC-0) & DOUBLE-DISC (REC-T) COUPLINGS

单膜片及双膜片锥套胀紧式联轴器技术参数表

1. Single-Disc Coupling (REC-XXX-0-A Heavy-Duty Servo Disc Coupling) · 1. 单膜片联轴器技术参数表

Model · 型号	Permissible Torque T_{Kmax} [Nm] 许用扭矩	Max. Speed n_{max} [min^{-1}] 最高转速	Torsional Stiffness C_T [Nm/rad] 扭转刚度	Axial Stiffness C_a [N/mm] 轴向刚度	Max. Permissible Misalignment · 最大许用安装偏差			Moment of Inertia J [$kg·m^2$] 转动惯量	Mass m [kg] 质量
					Radial ΔK_r [mm]	Angular ΔK_w [°]	Axial ΔK_a [mm]		
REC-070-0-A	70	18000	60000	105	0.02	1.0	±0.5	$0.55×10^{-3}$	0.88
REC-080-0-A	130	17000	64000	96	0.02	1.0	±0.5	$0.93×10^{-3}$	1.20
REC-090-0-A	200	15000	140000	320	0.02	1.0	±0.6	$1.73×10^{-3}$	1.57
REC-100-0-A	300	13000	160000	360	0.02	1.0	±0.7	$2.52×10^{-3}$	1.78

2. Double-Disc Coupling (REC-XXX-T-A Heavy-Duty Servo Disc Coupling) · 2. 双膜片联轴器技术参数表

Model · 型号	Permissible Torque T_{Kmax} [Nm] 许用扭矩	Max. Speed n_{max} [min^{-1}] 最高转速	Torsional Stiffness C_T [Nm/rad] 扭转刚度	Axial Stiffness C_a [N/mm] 轴向刚度	Max. Permissible Misalignment · 最大许用安装偏差			Moment of Inertia J [$kg·m^2$] 转动惯量	Mass m [kg] 质量
					Radial ΔK_r [mm]	Angular ΔK_w [°]	Axial ΔK_a [mm]		
REC-070-T-A	70	14000	30000	55	0.25	2.0	±1.0	$0.70×10^{-3}$	1.08
REC-080-T-A	130	13000	32000	50	0.30	2.0	±1.0	$1.26×10^{-3}$	1.54
REC-090-T-A	200	12000	70000	160	0.30	2.0	±1.2	$2.26×10^{-3}$	1.98
REC-100-T-A	300	10000	80000	180	0.30	2.0	±1.4	$3.28×10^{-3}$	2.26

ENGINEERING NOTES & COMBINED MISALIGNMENT DERATING GUIDELINES (DIN 740-2)

技术参数说明与复合安装偏差折减准则（DIN 740-2）

1. Reference Bore Basis for J & m:

In both tables above, mass moment of inertia J and mass m are measured with one hub bore at its maximum catalog diameter (d_{max}) and the opposite hub bore at its minimum catalog diameter (d_{min}).

1、表中转动惯量 J 和质量 m 均是在一端孔径取最大值、另一端孔径取最小值时的标定值。

2. Torsional Stiffness C_T:

The listed torsional stiffness C_T is the theoretical value of the stainless steel disc pack assembly (single pack for REC-0; two packs in series for REC-T).

2、表中扭转刚度 C_T 为膜片组挠性组件的理论扭转刚度值。

3. Maximum Speed n_{max} & Dynamic Balance (ISO 21940-11):

Maximum speed n_{max} is verified based on centrifugal stress and structural rigidity without additional dynamic balancing. Due to the slot-free symmetrical conical ring design, REC couplings exhibit high intrinsic balance quality.

3、最高转速 n_{max} 为依据离心应力与结构强度校核所得（未考虑额外配重动平衡，其无切槽对称压环结构本身具有极佳的平衡品质）。

4. Combined Misalignment Derating Rule:

Permissible radial (ΔK_r), angular (ΔK_w), and axial (ΔK_a) misalignments are mutually dependent and cannot reach their maximum catalog values simultaneously: $\mathbf{(\Delta K_r / \Delta K_{r,max}) + (\Delta K_w / \Delta K_{w,max}) + (\Delta K_a / \Delta K_{a,max}) \leq 100\%}$. For example, if angular deflection reaches 70% of $\Delta K_{w,max}$, axial displacement must not exceed 30% of $\Delta K_{a,max}$.

4、表中各向许用误差相互关联，不可同时达到最大值。例如：当角向误差达到最大允许值的 70% 时，同时存在的轴向误差不得超过最大允许值的 30%。

ENGINEERING SIZING & TORQUE VERIFICATION PROCEDURE (ACC. TO DIN 740-2)
REC 系列锥套胀紧式膜片联轴器选型计算与扭矩校核步骤（依据 DIN 740-2）

1. Sizing for CNC Servo Feed Drives, Spindle Motors & VFD Drives
1. 数控机床伺服电机、步进电机及主轴变频电机的扭矩校核

O1 Determine Maximum Peak Motor Torque (T_m [Nm]):

Establish the maximum instantaneous peak torque T_m of the servo, stepper, or VFD spindle motor (typically $\mathbf{T_m \approx 3 \times T_{rated}}$ during rapid traverse acceleration or emergency stop).

O1 确定伺服、步进或变频电机的最大瞬态峰值扭矩 T_m：一般取电机额定扭矩的 3 倍（$T_m \approx 3 \times T_{rated}$）。

O2 Calculate Required Coupling Design Torque (T_n [Nm]):

Apply the servo dynamic overload factor K_s = 1.5: $\mathbf{T_n = T_m \times 1.5}$ (where T_n [Nm] is the required coupling design torque and T_m [Nm] is the motor peak torque).

O2 计算联轴器所需设计扭矩（T_n）：$\mathbf{T_n = T_m \times 1.5}$（$T_n$ 为联轴器所需容许扭矩 [Nm]；T_m 为电机标称最大扭矩 [Nm]）。

O3 Select REC Size:

Select a coupling size whose permissible torque satisfies $\mathbf{T_{Kmax} \geq T_n}$ (Page 23) and verify that both shaft diameters (d_1, d_2) fall within the standard bore combinations (Pages 21 & 22).

O3 依据 T_n 值确定联轴器基本规格，确保所选联轴器许用扭矩满足：$\mathbf{T_{Kmax} \geq T_n}$，并核对两端孔径组合。

2. Sizing for Standard Industrial Motors & Auxiliary Drives
2. 普通工业电机或驱动设备的扭矩校核

O1 Calculate Nominal Operating Torque (T [Nm]):

Compute nominal torque from rated power P_W [kW] and operating speed n [min^{-1}]: $\mathbf{T = 9550 \times P_W / n}$.

O1 计算联轴器所需传递的额定工作扭矩（T）：$\mathbf{T = 9550 \times P_W / n}$（$P_W$ 为驱动机额定功率 [kW]；n 为实际工作转速 [min^{-1}]）。

O2 Apply Load Service Factor K (DIN 740-2):

Calculate required design torque: $\mathbf{T_n = T \times K}$, where K depends on load severity: ❶ **Constant load: K = 1.00**; ❷ **Light fluctuating load: K = 1.25**; ❸ **Moderate shock load: K = 1.75**; ❹ **Heavy shock load: K = 2.25**.

O2 计算联轴器所需设计扭矩（T_n）：$\mathbf{T_n = T \times K}$（K 为工况服务系数：❶ 恒定载荷 K=1.0；❷ 小变动载荷 K=1.25；❸ 中等变动载荷 K=1.75；❹ 大变动载荷 K=2.25）。

O3 Select REC Size:

Select a coupling size satisfying $\mathbf{T_{Kmax} \geq T_n}$ from Page 23.

O3 依据 T_n 值初选联轴器基本规格，确保所选联轴器许用扭矩满足：$\mathbf{T_{Kmax} \geq T_n}$。

3. High Alternating Torque Drives & 4. Shaft Misalignment Verification
3. 高交变扭矩场合 & 4. 安装与使用偏差校核

High Alternating Torque Drives:

For combustion engines, piston compressors, plunger pumps, and generators, contact MISHKIN Application Engineering for a DIN 740-2 torsional vibration calculation.

高交变扭矩场合：对于存在高交变扭矩的场合（如内燃发动机、活塞式压缩机、柱塞泵、发电机等），请联系 MISHKIN 工程师协助计算选型。

Misalignment Verification:

Ensure radial, angular, and axial errors do not exceed the limits in Page 23 (proportionally reduced when combined). A Single-Disc Coupling (REC-0) cannot sustain radial offset; select a **Double-Disc Coupling (REC-XXX-T-A)** if unavoidable radial offset exists.

偏差校核：确保安装与运行时径向、角向、轴向偏差不超过参数表限定值。单膜片联轴器不能承受径向偏差，如存在不可避免的径向偏差，请选择双膜片 **REC-XXX-T-A** 型。

WORKED SIZING EXAMPLE — CNC MACHINING CENTER Z-AXIS BALL SCREW DRIVE
工程选型计算实例 — 立式加工中心 Z 轴大推力滚珠丝杆伺服驱动选型

Input Parameters · 已知工况参数	**AC Servo Motor: Rated torque T_{rated} = 22 Nm, Peak torque T_m = 66 Nm, Motor shaft d_1 = Ø35 mm (h6), Ball screw journal d_2 = Ø32 mm (h6), Max speed n = 4000 min^{-1}.** 交流伺服电机：额定扭矩 22 Nm，最大峰值扭矩 T_m = 66 Nm，电机轴径 d_1 = 35 mm，丝杆轴径 d_2 = 32 mm，最高转速 4000 rpm。
Calculation & Selection · 校核结果	**Required design torque: $T_n = 66 \times 1.5 = 99$ Nm. Select REC-080-0-A-32Z-35Z (Single-Disc Coupling, T_{Kmax} = 130 Nm ≥ 99 Nm, C_T = 64,000 Nm/rad, n_{max} = 17,000 min^{-1}) or REC-080-T-A-32Z-35Z if radial offset compensation is required.** 所需设计扭矩：$T_n = 66 \times 1.5 = 99$ Nm。选用 **REC-080-0-A-32Z-35Z**（单膜片型，许用扭矩 T_{Kmax} = 130 Nm ≥ 99 Nm；若存在径向偏差则选双膜片 **REC-080-T-A-32Z-35Z**）。

INSTALLATION, COMMISSIONING & SAFETY INSTRUCTIONS (PART I — EU MACHINERY DIRECTIVE 2006/42/EC)

REC 系列安装、调试与安全维护说明（一）（符合欧盟机械指令 2006/42/EC）

1. Pre-Installation Inspection & Verification

1. 安装使用前检查确认事项

O1 Model & Bore Verification:

Confirm that the delivered REC coupling model and bore diameters (d_1, d_2 acc. to ISO 286-2 H7) match the purchase specification.

O1 确认所收到的产品型号及两端孔径尺寸是否与所订购产品一致；

O2 Transit Integrity Check:

Inspect the conical clamping rings, ISO 4762 screws, and stainless steel disc packs to ensure no transit damage occurred.

O2 检查产品在运输过程中是否存在磕碰或变形损伤。

2. Safety Precautions (acc. to EN ISO 12100 & EN ISO 13857)

2. 安全注意事项（符合 EN ISO 12100 与 EN ISO 13857 机械安全标准）

O1 Ambient Conditions & Protective Devices · O1 环境及相关防护装置

• Mandatory Safety Guarding:

Rotating couplings can cause severe injury—install a fixed safety guard conforming to **EN ISO 13857** with an emergency-stop interlock switch. Avoid operating REC couplings near flammable/explosive liquids or gases without ATEX verification. Equip vertical or inclined axes with a safety holding brake.

• 危险事项：旋转的联轴器可能会对人体造成伤害，请为其设置符合 EN ISO 13857 标准的安全防护罩并配置打开急停保护装置；请勿违规应用于有易燃、易爆液体或气体泄漏的场所；建议电机或驱动装置配置安全刹车装置。

• Environmental Limits:

Do not operate standard blackened-steel REC couplings under chemical leakage, corrosive condensation, or extreme thermal shocks outside -30 °C to +120 °C.

• 注意事项：请勿将该类联轴器用于存在化学腐蚀泄漏、高湿度凝露或超出允许温差范围的场合。

O2 Assembly & Mounting Work · O2 装配作业规范

• Lockout / Tagout & Star-Sequence Tightening:

Bolt tightening torque is critical to conical shrink-fit grip and safety—ensure all M_2 clamping bolts are tightened to **12 Nm** (Pages 21 & 22). Before installing or dismounting, completely stop the machine and isolate all power sources.

• 危险事项：胀紧螺栓的拧紧力矩对产品性能和安全至关重要，请务必按尺寸表规定力矩（M_2 = 12 Nm）交替拧紧；安装、拆卸联轴器时，必须确保机器已完全停转并切断相关电源。

• Coaxiality Alignment & Fastener Grade (EN ISO 898-1):

Prior to final tightening, adjust shaft coaxiality error to **≤ 0.02 mm** (for Single-Disc Coupling REC-0) or **≤ 0.05 mm** (for Double-Disc Coupling REC-T). Use only MISHKIN factory bolts (ISO 4762 Class 10.9 / 12.9). Wear protective gloves and use hoisting equipment when handling heavy components.

• 注意事项：安装前请调整两端轴的同轴度，使同轴度误差小于 0.02 mm（单膜片型）或小于 0.05 mm（双膜片型）；请使用米什金原厂提供或同等性能等级（ISO 898-1 10.9/12.9级）的螺钉；作业时请佩戴防护手套。

O3 Operation & O4 General Disposal · O3 运行监控与 O4 环保回收

• Operating Limits & Vibration Check:

Never exceed catalog maximum speed n_{max} or permissible torque T_{Kmax}. If abnormal noise or vibration occurs, stop immediately and check alignment and bolt tightness. Account for thermal expansion in enclosed housings.

• 运行监控：严禁超速或超扭矩运行；出现异常噪音或振动时应立即停机检查安装对中及螺栓锁紧状态；狭窄空间内需注意散热温升。

• No Unauthorized Disassembly:

Keep out of reach of children. Never disassemble the factory-locked M_1 disc pack bolts. Dispose of end-of-life steel parts via certified recycling agencies.

• 其他事项：确保产品不被儿童触碰；严禁私自拆解膜片组螺栓 M_1；报废产品请交由专业回收机构处理。

REC CONICAL CLAMPING RING — SHAFT TOLERANCE & RUNOUT CONTROL SPECIFICATION

REC 锥套胀紧连接 — 配合轴公差、表面粗糙度与千分表跳动控制表

Model Size · 规格	Mating Shaft Tolerance · 推荐配合轴公差	Shaft Surface Finish · 轴表面粗糙度	Clamping Screws M_2 (ISO 4762 10.9)	Max. Dial Indicator Runout · 千分表跳动控制
REC-070 / REC-080	ISO 286-2 h6 (or h7)	Ra ≤ 0.8 – 1.6 µm	4 × M6 per side (T_A = 12 Nm)	≤ 0.01 – 0.02 mm TIR
REC-090 / REC-100	ISO 286-2 h6 (or h7)	Ra ≤ 0.8 – 1.6 µm	6 × M6 per side (T_A = 12 Nm)	≤ 0.01 – 0.02 mm TIR

INSTALLATION, DIAL-INDICATOR ALIGNMENT & DISMOUNTING MANUAL (PART II) REC 系列安装找正与锥套拆卸操作规程（二）

3. Conical Clamping Ring Mounting & Dial-Indicator Alignment Procedure ((1) to (11)) 3. 锥套胀紧连接安装与千分表打表找正规程（步骤 (1) 至 (11)）

(1) Loosen & Degrease:
Loosen all M_2 clamping ring screws and thoroughly clean rust, dust, and oil from the mating shafts and coupling H7 bores.
（1）先旋松联轴器压环上的各胀紧螺栓 M_2，并彻底清除轴表面及联轴器内孔中的锈迹、灰尘和油渍。

(2) Mount onto Driving Shaft:
Slide the coupling hub onto the driving shaft (CNC servo motor shaft) without applying excessive axial pull or push force to the disc pack.
（2）将联轴器套入动力输入轴（数控机床伺服电机轴）。套入时请勿在膜片组上施加过大的拉、压力。

(3) Verify Full Hub Insertion (L_1):
Ensure the shaft insertion length equals the full hub length **L_1** (Pages 21 & 22) and does not protrude into the disc pack or opposite shaft.
（3）联轴器套入电机轴的长度必须等于半联轴节全长（L_1 尺寸），且不得与膜片组及另一侧轴干涉。

(4) Hand-Tighten Clamping Screws:
Hold the coupling in position and lightly finger-tighten all M_2 clamping ring screws uniformly.
（4）保持联轴器轴向位置不动，先用手轻轻均匀拧紧各胀紧螺栓 M_2。

(5) Dial-Indicator Concentricity Tuning:
Mount a magnetic dial indicator stand on the machine bed with its stylus contacting the outer flange OD or end face on the motor side; slowly rotate the motor shaft by hand while tapping gently with a soft mallet until total indicator reading (TIR) runout approaches **0 mm**.
（5）将千分表表座固定在机床基础上，表针触头与电机侧联轴器法兰外圆或端面接触；用手缓慢旋转电机轴，同时用软槌轻击微调，使千分表跳动值尽可能接近 0。

(6) Star-Sequence Calibrated Torque Tightening:
While maintaining concentricity, tighten the M_2 clamping screws progressively in a cross/star sequence using a calibrated torque wrench to **12 Nm**. Insert a holding pin into the flange radial bore (n–ØH) to react tightening torque.
（6）在保持对中精度的同时按对角顺序分步拧紧胀紧螺栓，最后使用经校准的扭矩扳手交替拧紧至规定力矩（M_2 = 12 Nm）。拧紧时可利用法兰外圆止动销孔（n–ØH）限制联轴器转动。

(7) Re-Verify Motor-Side Runout:
Re-check that all M_2 bolts on the motor hub are torqued to 12 Nm and that dial-indicator runout remains near 0.
（7）再次确认电机轴端的胀紧螺栓均已按规定转矩拧紧，且千分表跳动值接近 0。

(8) Mate Driven Shaft & Align Coaxiality:
Slide the opposite hub onto the driven shaft (ball screw) to depth **L_1**. Mount the dial indicator on the motor hub with the stylus on the driven shaft, adjust the motor bracket until runout approaches 0 while rotating slowly, and lock the motor mounting bolts.
（8）将联轴器另一端套入动力输出轴（套入长度为 L_1）。将千分表表座固定在电机端轴套上，表针接触输出轴，调整电机座与输出轴相对位置并缓慢盘车使表针跳动接近 0，随后紧固电机底座。

(9) Set Axial Spacing S:
Position the driven hub axially so dimension **S** matches the catalog value within permissible axial tolerance ΔK_a.
（9）轴向微移输出轴侧半联轴节，调整尺寸表中的 S 尺寸，使实际值与 S 值的偏差控制在允许轴向误差范围内。

(10) Torque Driven-Side Clamping Screws:
Repeat steps (4) to (7) to tighten all M_2 clamping screws on the driven hub to **12 Nm**.
（10）按电机端胀紧螺栓锁紧方法（步骤 (4)~(7)），同样将输出轴侧的胀紧螺栓交替锁紧至 12 Nm。

(11) Post-Run-In Torque Check:
After an initial run-in period under load, re-verify all M_2 clamping screws in sequence at 12 Nm to prevent seating relaxation.
（11）为防止胀紧螺栓在初期运行后产生微动松弛，建议试运行一段时间后再次按规定扭矩和正确顺序复紧各胀紧螺栓。

4. Conical Clamping Ring Dismounting Procedure ((1) to (3)) 4. 锥套压环拆卸规程（步骤 (1) 至 (3) — 利用 M_3 顶出拆卸螺纹孔）

(1) Relieve All Torque & Axial Loads:
Dismount only when the drive train is completely free of residual torque and axial load. If equipped with a safety brake or clutch, release it so zero load acts on the coupling.
（1）联轴器必须在完全卸除转矩及轴向负载的状态下进行拆卸。若系统配有安全离合器或制动器，请确认其处于释放状态以确保联轴器不承受残余转矩。

(2) Back Out Clamping Screws M_2 by ~2 mm:
Loosen all axial clamping screws M_2 evenly until a gap of approximately **2 mm** exists between the screw heads and the clamping ring face.
（2）将压环上所有的胀紧螺栓 M_2 均匀旋松，直至螺栓头与压环端面之间留出约 2 mm 的间隙。

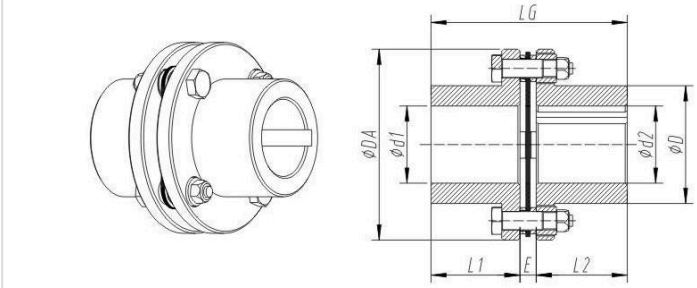
(3) Release Taper via Jacking Threads M_3:
Remove 2 to 3 loosened M_2 screws, thread them into the **M_3 jacking holes** (`Jacking Thread M3`) on the clamping ring, and tighten them evenly in sequence to push the conical clamping ring off the tapered hub sleeve. (If axial clearance is restricted, gently pry between the clamping ring and flange with a flat wedge tool.)
（3）取下 2~3 根已松开的胀紧螺栓 M_2，拧入压环上的拆卸螺栓孔 M_3 内，按对角顺序缓慢均匀拧紧，利用顶出力将锥套胀紧连接平稳解除。（若轴向无螺栓操作空间，可用一字扁平工具插入压环与法兰间隙内沿轴向轻撬解除锥面自锁。）

RDC SERIES — TYPE A: SINGLE-DISC COUPLING (HEAVY-DUTY INDUSTRIAL STEEL DISC COUPLING, 15–9,000 NM)

RDC 系列 — A 型（单节式重载全钢结构，额定扭矩 15 – 9,000 Nm）

Design Features & EU Standards · 结构特点与欧标规范

- **Single-Disc Heavy-Duty All-Steel Design:** One laminated stainless steel disc pack / lamina pack (EN 1.4310) bolted between two forged/machined industrial steel hubs (C45E / 42CrMo4 acc. to EN ISO 683).
  单节式高刚性结构：单组不锈钢膜片组件与两端高强度碳钢/合金钢轴套通过高强度螺栓（ISO 4017 / ISO 4762 10.9级）精密组装。
- **Angular & Axial Compensation:** Accommodates angular (ΔK_w up to 1.3°) and axial (ΔK_a up to ±1.6 mm) misalignments with high radial support stiffness.
  角向与轴向纠偏：具备优异的角向与轴向偏差补偿能力，同时提供极高的径向支承刚度。
- **Compact Axial Envelope:** Short overall length L_G ideal for close-coupled industrial drives.
  结构紧凑、扭向刚性极高：轴向安装空间小，传递扭矩大。



Dimensions of RDC Type A [mm] (Bore ISO 286-2 H7 · Keyway DIN 6885-1 JS9) · A 型结构尺寸表（单位：mm）

Size · 规格	$d_{1,max}$ [H7]	$d_{2,max}$ [H7]	D_A	D	L_G	L_1	E	L_2
20	20	20	56	32	45	20	5	20
25	25	25	68	40	56	25	6	25
35	35	35	82	54	86	40	6	40
38	38	38	94	58	98	45	8	45
42	42	42	104	68	100	45	10	45
50	50	50	126	78	121	55	11	55
60	60	60	138	88	121	55	11	55
70	70	70	156	102	141	65	11	65
80	80	80	179	117	164	75	14	75
85	85	85	191	123	175	80	15	80
90	90	90	210	132	175	80	15	80
105	105	105	225	147	200	90	20	90
115	115	115	265	163	223	100	23	100

Technical Performance Parameters of RDC Type A (DIN 740-2) · A 型技术性能参数表

Size · 规格	Nominal Torque T_{KN} [Nm] 额定扭矩	Max. Speed n_{max} [min^{-1}] 最高转速	Permissible Angular ΔK_w [°] 许用角向偏差	Permissible Axial ΔK_a [±mm] 许用轴向偏差	Permissible Radial ΔK_r [mm] 许用径向偏差	Moment of Inertia J [$kg \cdot m^2$] 转动惯量	Disc Pack Torsional Stiffness C_T [10^6 Nm/rad] 膜片组扭转刚度
20	15	20000	1.0	0.6	—	0.00010	0.017
25	30	16000	1.0	0.8	—	0.00026	0.028
35	60	13000	1.0	1.0	—	0.00080	0.092
38	120	12000	1.0	1.2	—	0.00160	0.198
42	180	10000	1.0	1.4	—	0.00270	0.282
50	330	8000	1.0	1.6	—	0.00610	0.501
60	690	6700	1.3	1.0	—	0.00820	0.560
70	1100	5900	1.3	1.1	—	0.01520	0.900
80	1500	5100	1.3	1.3	—	0.02900	1.140
85	2400	4750	1.3	1.3	—	0.04200	1.520
90	4500	4300	1.0	1.0	—	0.06400	1.940
105	5100	4000	1.0	1.2	—	0.09300	2.540
115	9000	3400	1.0	1.4	—	0.19900	3.480

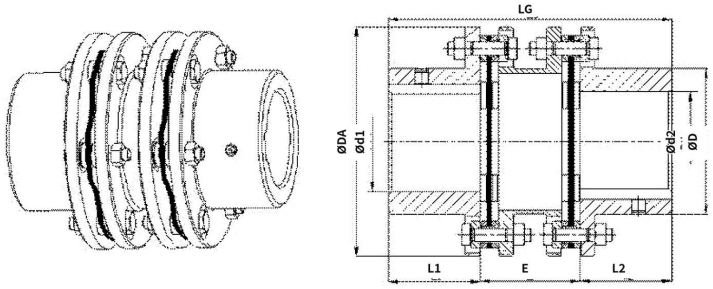
RDC Series RDC 系列 | **MISHKIN RDC Heavy-Duty Industrial Steel Disc Couplings** | MISHKIN RDC 工业重载全钢膜片联轴器

RDC SERIES — TYPE B: DOUBLE-DISC COUPLING WITH SPACER (HEAVY-DUTY STEEL LAMINA COUPLING, 15–9,000 NM)

RDC 系列 — B 型（标准双节式带中间体全钢结构，额定扭矩 15 – 9,000 Nm）

Design Features & EU Standards · 结构特点与欧标规范

- **Double-Disc Center Spacer Construction:** Two stainless steel disc packs / lamina packs (EN 1.4310) separated by a flanged industrial steel center spacer (C45E / 42CrMo4), allowing radial removal of the center section without disturbing driving/driven machines.
  1. 紧凑的双节式中间体结构：两组不锈钢膜片组通过法兰式中间体连接，支持在不移动两端主机设备的情况下径向拆装中间体组件。
- **Full 3-Axis Misalignment Compensation:** High radial (ΔK_r up to 1.6 mm), angular ($2 \cdot \Delta K_w$), and axial (ΔK_a up to ±3.2 mm) compensation.
  2. 三向综合纠偏能力强：可同时吸收较大的径向平行偏心、角向及轴向偏差。
- **Gear Coupling Replacement:** Maintenance-free, lubrication-free direct replacement for crowned-tooth gear couplings.
  3. 完美替代鼓形齿式联轴器：终身免润滑、免维护，可直接替换传统曲面齿联轴器。



Dimensions of RDC Type B [mm] (Bore ISO 286-2 H7 · Keyway DIN 6885-1 JS9) · B 型结构尺寸表（单位：mm）

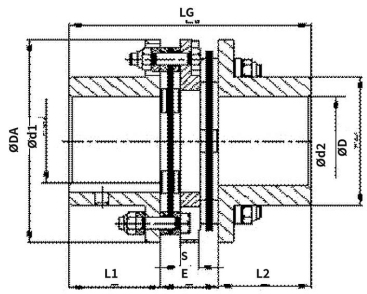
Size · 规格	$d_{1,max}$ [H7]	$d_{2,max}$ [H7]	D_A	D	L_G	L_1	E	L_2
20	20	20	56	32	—	20	—	20
25	25	25	68	40	—	25	—	25
35	35	35	82	54	—	40	—	40
38	38	38	94	58	—	45	—	45
42	42	42	104	68	—	45	—	45
50	50	50	126	78	—	55	—	55
60	60	60	138	88	170	55	60	55
70	70	70	156	102	200	65	70	65
80	80	80	179	117	233	75	83	75
85	85	85	191	123	246	80	86	80
90	90	90	210	132	251	80	91	80
105	105	105	225	147	281	90	101	90
115	115	115	265	163	309	100	109	100

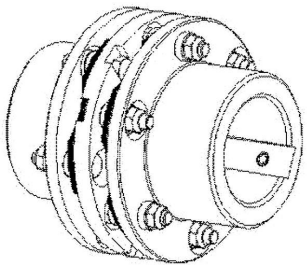
Technical Performance Parameters of RDC Type B (DIN 740-2) · B 型技术性能参数表

Size · 规格	Nominal Torque T_{KN} [Nm] 额定扭矩	Max. Speed n_{max} [min^{-1}] 最高转速	Permissible Angular ΔK_w [° per pack] 许用角向偏差	Permissible Axial ΔK_a [±mm] 许用轴向偏差	Permissible Radial ΔK_r [mm] 许用径向偏差	Moment of Inertia J [kg·m^2] 转动惯量	Disc Pack Torsional Stiffness C_T [10^6 Nm/rad] 膜片组扭转刚度
20	15	20000	1.0	1.2	0.1	—	0.0085
25	30	16000	1.0	1.6	0.2	—	0.0140
35	60	13000	1.0	2.0	0.2	—	0.0460
38	120	12000	1.0	2.4	0.3	—	0.0990
42	180	10000	1.0	2.8	0.3	—	0.1410
50	330	8000	1.0	3.2	0.4	—	0.2505
60	690	6700	1.3	2.0	1.0	0.012	0.2800
70	1100	5900	1.3	2.2	1.2	0.022	0.4500
80	1500	5100	1.3	2.6	1.5	0.042	0.5700
85	2400	4750	1.3	2.3	1.5	0.064	0.7600
90	4500	4300	1.0	2.0	1.4	0.103	0.9700
105	5100	4000	1.0	2.4	1.6	0.143	1.2700
115	9000	3400	1.0	2.8	1.3	0.333	1.7400

RDC SERIES — TYPE C: COMPACT DOUBLE-DISC COUPLING (ALL-STEEL DISC COUPLING) & ORDERING CODE

RDC 系列 — C 型（紧凑型双节式全钢结构）尺寸性能表与订货示例





Design Features & EU Standards · 结构特点与欧标规范

- **Ultra-Compact Double-Disc Architecture:** Integrates an internal center ring (dimension S) between two stainless steel disc packs / lamina packs (EN 1.4310), providing full double-disc radial, angular, and axial compensation in a minimal axial envelope L_G.
  紧凑的双节式结构：在极短的轴向总长 L_G 内集成两组不锈钢膜片与紧凑中间环（S），兼具双膜片三向纠偏能力与紧凑安装尺寸。
- **High Misalignment & Torque Density:** Ideal for compact industrial gearboxes, pumps, and test stands; directly replaces crowned-tooth gear couplings.
  纠偏能力强、扭矩密度高：可直接替换传统鼓形齿式联轴器，免润滑、无背隙。

Dimensions of RDC Type C [mm] (Bore ISO 286-2 H7 · Keyway DIN 6885-1 JS9) · C 型结构尺寸表（单位：mm）

Size · 规格	$d_{1,max}$ [H7]	$d_{2,max}$ [H7]	D_A	D	L_G	L_1	E	L_2	S
20	20	20	56	32	55	20	15	20	5
25	25	25	68	40	68	25	18	25	6
35	35	35	82	54	98	40	18	40	6
38	38	38	94	58	114	45	24	45	8
42	42	42	104	68	118	45	28	45	8
50	50	50	126	78	142	55	32	55	10
60	60	60	138	88	144	55	34	55	12
70	70	70	156	102	164	65	34	65	12

Technical Performance Parameters of RDC Type C (DIN 740-2) · C 型技术性能参数表

Size · 规格	Nominal Torque T_{KN} [Nm] 额定扭矩	Max. Speed n_{max} [min^{-1}] 最高转速	Permissible Angular ΔK_W [° per pack] 许用角向偏差	Permissible Axial ΔK_a [±mm] 许用轴向偏差	Permissible Radial ΔK_r [mm] 许用径向偏差	Moment of Inertia J [$kg \cdot m^2$] 转动惯量	Disc Pack Torsional Stiffness C_T [10^6 Nm/rad] 膜片组扭转刚度
20	15	20000	1.0	1.2	0.1	0.00010	0.0085
25	30	16000	1.0	1.6	0.2	0.00025	0.0140
35	60	13000	1.0	2.0	0.2	0.00850	0.0460
38	120	12000	1.0	2.4	0.3	0.00150	0.0990
42	180	10000	1.0	2.8	0.3	0.00240	0.1410
50	330	8000	1.0	3.2	0.4	0.00800	0.2505
60	690	6700	1.3	2.0	1.0	0.01000	0.2800
70	1100	5900	1.3	2.2	1.2	0.02000	0.4500

ORDERING CODE EXAMPLE: RDC-35-A-35JX28J (DIN 6885-1 KEYWAY & SHRINK DISC OPTIONS)

RDC 系列订货号码示例：RDC-35-A-35Jx28J

RDC-35-A	35J	28J
MISHKIN RDC Industrial Steel Disc Coupling, Size 35, Execution A MISHKIN（米什金）RDC 膜片联轴器 35 规格 A 型	Hub 1 Bore d_1 = 35 mm (H7), Keyway acc. to DIN 6885-1 (J) 主动端轴套孔径 35 mm，DIN 6885-1 键槽连接形式 (J)	Hub 2 Bore d_2 = 28 mm (H7), Keyway acc. to DIN 6885-1 (J) 从动端轴套孔径 28 mm，DIN 6885-1 键槽连接形式 (J)

Shaft Connection Codes: J = Finish bore (ISO 286-2 H7) with parallel keyway acc. to DIN 6885-1 (JS9) + set screw (ISO 4029); Z = Keyway + external conical shrink disc / locking assembly. **连接形式代码说明：**J 表示 DIN 6885-1 标准平键键槽连接形式；Z 表示键槽配外置锥套胀紧连接形式。