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

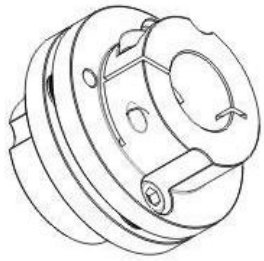
HUB EXECUTION SELECTION GUIDE (TYPE A VS. TYPE B VS. TYPE C) A 型 / B 型 / C 型轴套结构选型说明（依据两端轴径大小自动匹配最优低惯量构型）

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

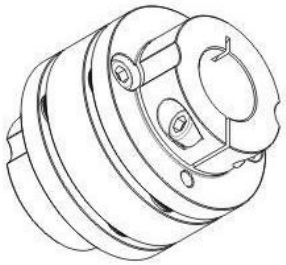
SERVO DISC COUPLING CONFIGURATIONS & OVERVIEW — SINGLE-DISC VS. DOUBLE-DISC COUPLING

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)



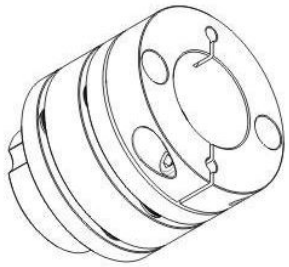
RIC-XXX-T-A 双膜片 A型 (双阶梯轴套)



RIC-XXX-0-B 单膜片 B型 (单阶梯轴套)



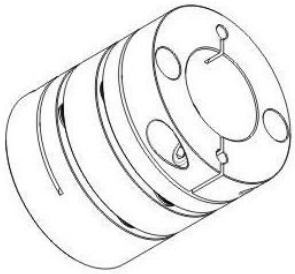
RIC-XXX-T-B 双膜片 B型 (单阶梯轴套)



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

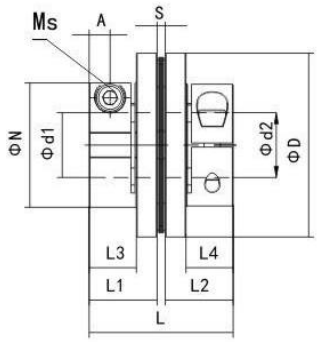
MISHKIN RIC series couplings are engineered for precision motion control and automation systems—including **CNC machine tools, ball screw linear actuators, multi-axis gantry robots, pharmaceutical & medical diagnostic equipment, food & beverage packaging lines, semiconductor wafer handling, and optical 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。

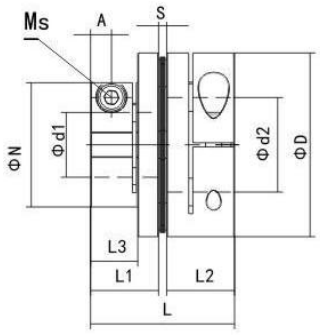
SINGLE-DISC COUPLING (RIC-XXX-0 SERVO DISC COUPLING) — STRUCTURAL DRAWINGS & DIMENSIONS

单膜片联轴器（RIC-XXX-0）结构尺寸图与安装尺寸表（单位：mm）

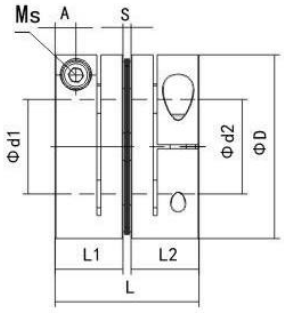
RIC-XXX-0-A (双阶梯轴套)

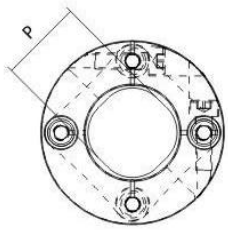


RIC-XXX-0-B (单阶梯轴套)



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:

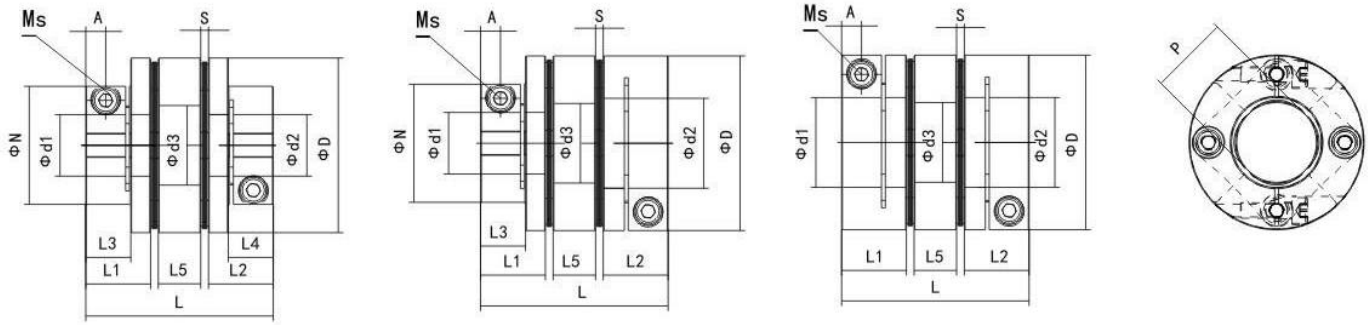
The permissible misalignments in each axis are mutually dependent and cannot reach 100% of their maximum catalog ratings simultaneously. Specifically, when angular deflection ΔK_w reaches 70% of its maximum limit, the simultaneous axial displacement ΔK_a must not exceed 30% of its maximum rating: **$(\Delta K_w / \Delta K_{w,max}) + (\Delta K_a / \Delta K_{a,max}) \leq 100\%$**. 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。

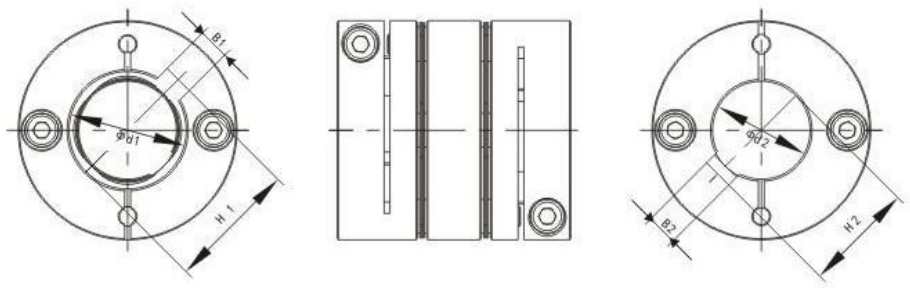
3. Custom Imperial & Non-Standard Bores:

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