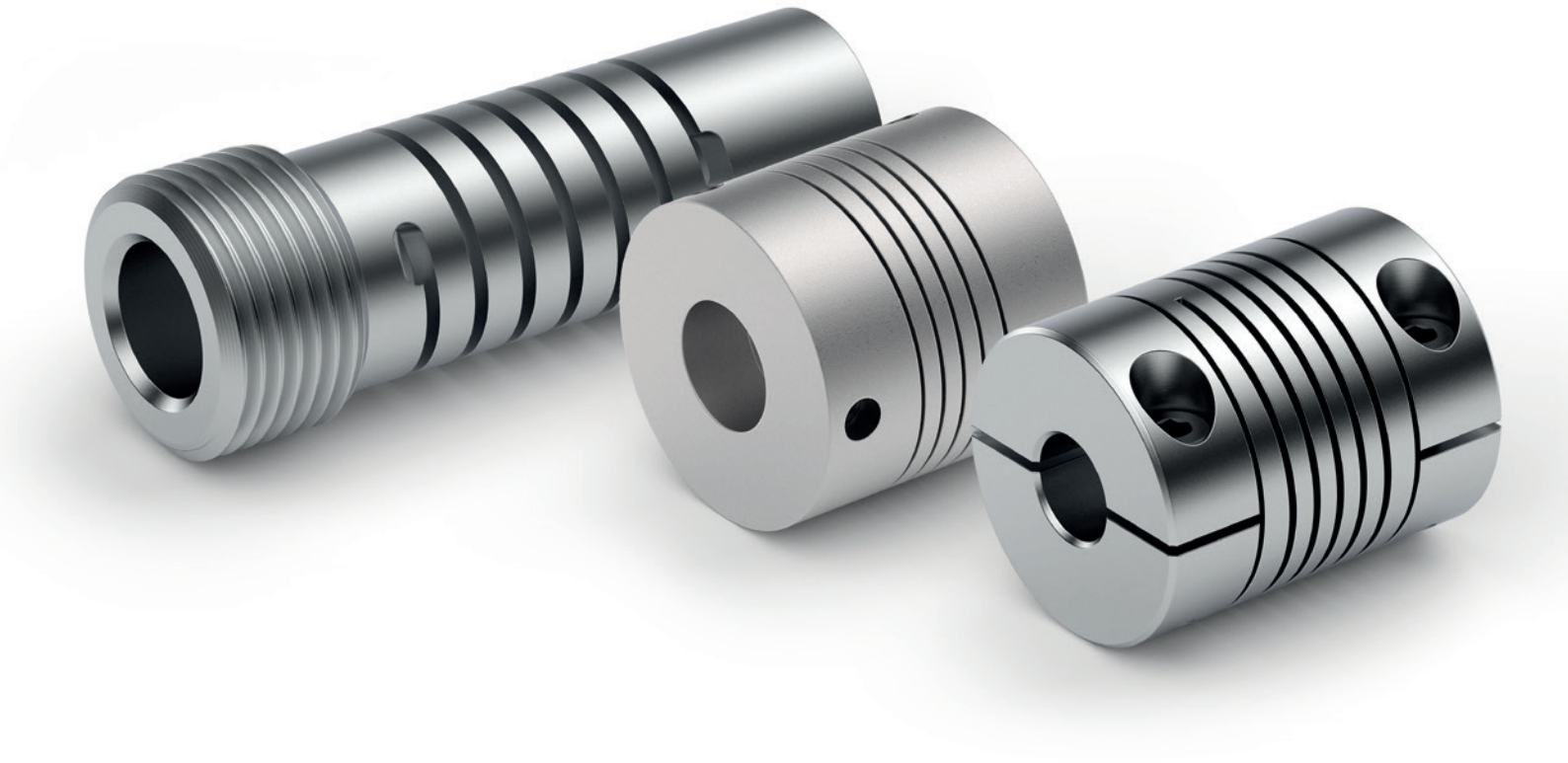
RINGSPANN AG



Helix couplings

Catalogue range and customer-specific versions

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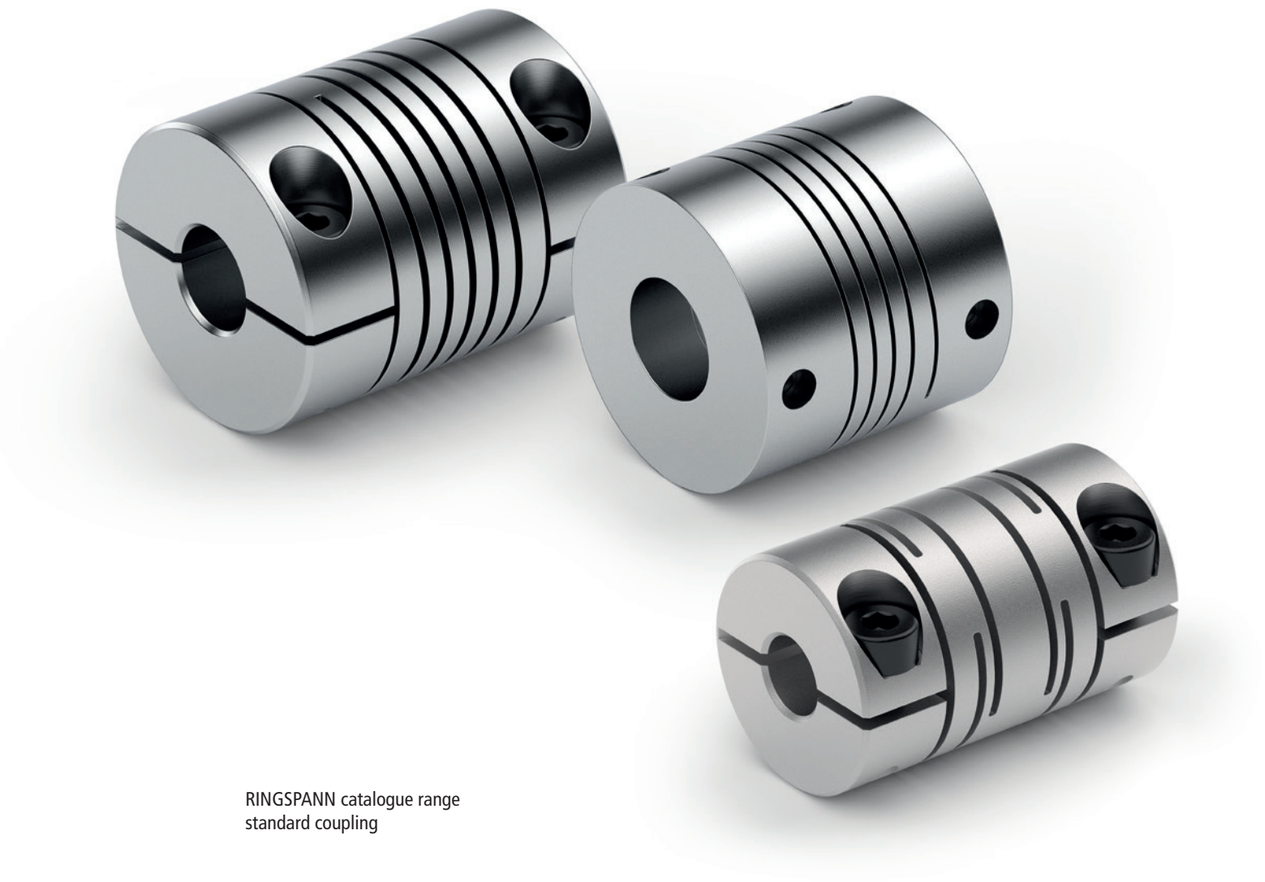


RINGSPANN catalogue range
standard coupling

Helix couplings

RINGSPANN helix couplings are machined from a single piece and made from homogeneous materials. Their basic form consists of a cylindrical body, into which a helical slot (helix) is cut. This helical shape gives rise to a precise flex zone, resulting in an elasticity that can be precisely calculated.

The advantage of a single-piece product is that it integrates several functions and individual parts into one single, space-saving unit. Helix couplings have no additional moving parts and are therefore wear-free This also results in high dynamic stability and vibration-free, smooth running bearing loads, even where there is a large misalignment between shafts.

With the standard couplings, you can choose clamping hubs or set screws to attach the connecting shafts.

As the adjacent image shows, you can also freely select the connections you require depending on your specific application. Any material can be used, as long as it is suitable for machining.

RINGSPANN helix couplings are used in a wide range of applications. The couplings can be used in any application in which movements need to be controlled and monitored.

Contents

Overview of standard couplings

	series RW series (formerly WA series)	series RM series (formerly MC series)	series RCA series (formerly XCA series)
			
Material			
Aluminium Stainless steel	Version RWA Version RWI	Version RMAC Version RMIC	Version RCA On request
Characteristics			
	Small coupling for universal use for zero-backlash, synchronous angle transmission of rotational forces for light (aluminium) and medium (steel) applications for optimum compensation of shaft misalignment.	High radial offset with high torque, wide variety of diverse shaft diameters.	Zero-backlash, torsionally rigid, robust crossslot coupling with resonance resistance. A low mass moment of inertia means that they are suitable for high-resolution measuring systems with rapid start/stop cycles. Cost-effective alternative to a bellows coupling.
Application areas			
	– Encoders – Tachogenerators – Spindle drives	– General mechanical engineering – Devices and equipment manufact. – Spindle drives – Pump manufacturing	– Servomotors – Control systems – Positioning systems – Step motors
Permissible shaft misalignment			
Angular Radial Axial	5° ± 0.25 mm ± 0.25 mm	5° ± 0.75 mm ± 0.25 mm	3° ± 0.2 mm ± 0.25 mm
Torques			
Aluminium Stainless steel	up to 9.5 Nm up to 18.5 Nm	up to 18.6 Nm up to 41.7 Nm	up to 10 Nm
Attachment (clamp/set screw)			
	Set screws Clamp	Clamp	Clamp
Temperature range			
Aluminium Stainless steel	100 °C 300 °C	100 °C 300 °C	100 °C
Speed (higher speeds available on request)			
	10 000 rpm	3600 rpm	10 000 rpm
	Dimensions: Page 10–13	Dimensions: Page 14–17	Dimensions: Page 18–19

Customer-specific couplings

As mentioned at the beginning, the versatile application possibilities of a precision shaft coupling are not limited to the catalogue series.
Customer-specific solutions are our speciality. Helical flexures have even been used for very smallest of couplings, such as those used in microdevices implanted in the human body. This is where the advantage of the free selection of materials for RINGSPANN couplings comes to the fore.

Customer benefit

The function integration (e.g. coupling/pinion) can increase the service life and safety of the component. At the same time, the overall costs (component costs, assembly, procurement) are also optimised.

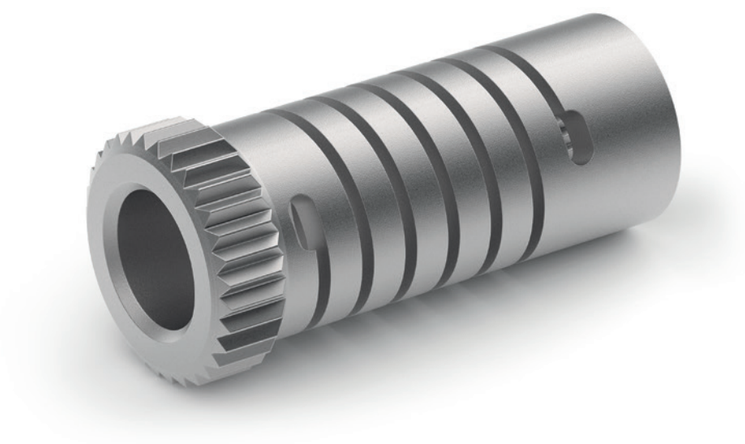
Advantages

Reduction in overall costs
- Fewer components for one function
- Shorter assembly times
- Minimised procurement work

Increased safety
- Only one component – clear interfaces
- A point of contact for several functions
- Increased system safety and quality standard

The storage and administration costs are optimised
- Fewer components in the warehouse
- Reduction in orders and suppliers

Reduced development workload
- We can compile design proposals on request, free of charge
- Use of our calculation software



Industry: Foodstuffs industry
Application: Rust-free coupling with an integrated pinion for an adjustment unit

Technical principles

The RINGSPANN couplings are suitable for a highly diverse range of applications. Precise transmission of the rotational movement with high angle accuracy is a typical feature of the single-piece coupling. As a flexible shaft connection, the coupling is able to correctly compensate different shaft misalignments simultaneously, such as angular, radial, axial, and skewed (three-dimensional) misalignments.

Angular misalignment

Angular misalignment is relatively common. With the helix coupling, the inner edges contract while the outer edges stretch. If there is sufficient space between the helical groove, misalignments of 20° or greater are possible.

Radial misalignment

The compensation of radial misalignment places high technical demands on a coupling. If the misalignments in a coupling system cannot be compensated, the resulting lateral forces damage the bearing points. Our helix principle offers the ideal solution. The maximum permissible values in the standard catalogue range are ± 0.8 mm. Customer-specific applications allow for even greater values.

Skewed misalignment (three-dimensional)

In this case, the drive shafts do not share a common plane. The helix coupling can even compensate for this three-dimensional misalignment. However, this requires a relatively long helix.

Optimised torque capacity

Factors such as dynamic load, vibrations, impacts, and additional offsets all have an influence on the transferable torque. The permissible coupling torque is calculated based on the technical material data. Once all operating conditions are known and if these do not deviate from the catalogue specifications, the helix coupling is suitable for an almost infinite service life in terms of torque transfer.

Smooth bearing load

As well the torques and forces to be transmitted, the design of the coupling means it also has an influence on the bearing load. Alternating forces in particular can cause damage to the bearing points or the driven elements. The spring constant of the helix couplings is the same for rotation at all points, thereby guaranteeing a constant radial bearing load at low and high speeds.

Adaptable speeds

The ability to adapt to low and high speed applications is a further advantage of the HELICAL flexure. The coupling transmits the motion evenly in a continuous helix along its whole length. Torsional loading tends to make the coupling draw towards the centreline, thereby preventing vibration movements that normally occur in rotating parts.

Configurable torsional stiffness

The torsional stiffness of the standard couplings can be foand in the table values. For customer-specific applications, the torsional stiffness can be configured to requirements and to suit the technical specifications of the application. A certain torsional flexibility nonetheless remains in all shaft connections.

Speeds

Thanks to low mass moments of inertia, helix couplings can be used over an extensive range of speeds, as well as in reverse operation and for a very high number of cycles. Our standard helix couplings are designed for maximum velocities of up to 10 000 rpm. For specific applications, speeds of 50 000 rpm have already been successfully achieved. Please contact our technology department for information on suitable applications.

Constant speed

Since the helix coupling is machined from a single piece, the minimal manufacturing tolerances enable high-precision work at a constant angular velocity at both the drive and output ends. Regardless of the misalignment, the angle synchronisation of the connected shafts remains constant at all times. The integrity of the one-piece design ensures there is zero backlash and no imbalance.

Axial compensation

Axial play may be a desirable feature in some systems, or can be a result of the different tolerances of the individual components during assembly, or due to temperature changes, distortion, etc. The permissible axial offset of the standard couplings is listed in the table values. The axial pressure generated by the torque is reduced to a negligible minimum. For customer-specific configurations, the required axial offset can be calculated and the coupling machined accordingly.

Vibration damping

The screw-shaped, flexible coupling profile helps to considerably reduce unwanted torsional vibrations of a rotating system. The helix couplings are smooth-running and do not generate any of their own vibrations.

Design features

Design parameters for customer-specific couplings

As described in the technical principles, the helix coupling can also be machined according to your specific requirements. The following parameters influence the properties of the coupling and can be taken into account for the application:

- Helix design
- Helix length
- Number of helices (multistart)
- Bore diameter
- Different coil crosssections
- Material

Coil thickness

By changing the helix pitch, the altered thickness of the coil influences the torque, torsional stiffness, and the axial motion.

Helix length

If the thread length is changed, the torque remains constant, while all other characteristics may vary depending on the configuration.

Number of helix starts

Depending on the design requirements, multistart threads can also be created:

- The single helix (standard version)
- The double helix with start offset by 180°
- The triple helix with start offset by 120°

When a multistart (double or triple) helix is used, the torque, torsional stiffness, and concentricity are increased, while misalignment capabilities are reduced compared to singlestart helices.

Bore diameter

Different bore diameters with the same helix configuration and the same external diameter can result in changes to the torque, torsional stiffness, and spring action.

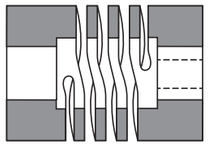
Material

The helix couplings are machined in series production from aluminium alloys (3.4365) with an anodised surface, or from corrosion-resistant chromium nickel steel (1.4542). For specific applications, the customer can also select their own material, such as plastic or titanium. The only prerequisite is that the material has to be suitable for machining.

Bore variants

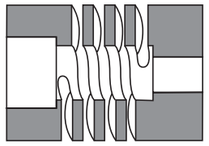
The flexures are essentially available in two basic forms:

Couplings with a continuous internal bore



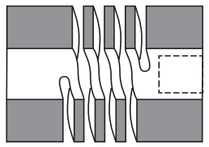
Recessed coupling

- Internal diameter is greater than the shaft diameter.
- Shafts can touch on both sides.



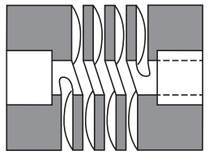
Offset alignment

- Internal diameter is smaller than the larger shaft diameter, but larger than the smaller shaft diameter.
- Shafts can touch on both sides.



Limited shaft length

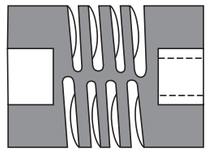
- Internal diameter and both shaft diameters are the same size.
- Shaft length must be limited to the length of the coupling hub.
- Coupling can be installed/ removed by sliding onto a shaft.



Offset shaft diameter

- Internal diameter is smaller than the shaft diameter.
- Shafts cannot touch.
- The advantage is that this offers a high torsional stiffness for small couplings.

Blind bores or non-continuous bore



Compared to the other designs, this design transmits a higher torque and higher torsional rigidity with a smaller external diameter and shorter length. However, the coupling is still axially rigid and can only be used to compensate for angular misalignment.

Attachments

In addition to the attachment types available as standard (set screws and clamps), we can also supply other common or customer-specific connection types:

- Set screw or clamp at different ends
- Pins, bolts, pegs
- Key
- Flange
- Threaded pin, threaded bore
- Conical bore
- Single or double flattened bore
- Spline toothing

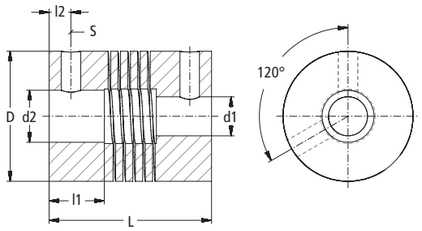
The attachment friction generated at the clamp connection is sufficient to transmit the required torque.
No additional key is required. However, we are able to supply a clamp connection with key on request and for specific applications.

Standard coupling RWA and RWAC series

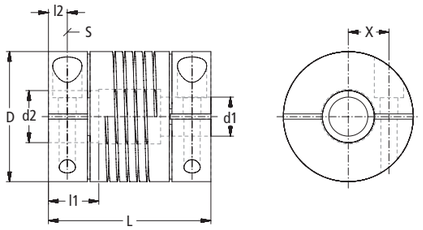
Aluminium

formerly WA and WAC

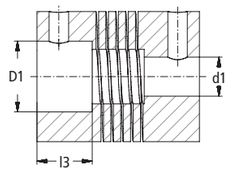
RWA series with set screw

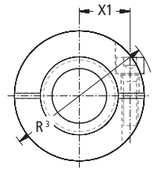


RWAC series with clamp



Blind bore, one or two-sided [2]





Technical data

Permissible shaft offset:	angular: 5° radial: ± 0.25 mm axial: ± 0.25 mm
Max. velocity:	10 000 rpm
Material:	Aluminium 7075-T6, Material no. 3.4365
Tolerances:	Bore: 0/+ 0.05 mm Shaft (recommended): – 0.005/– 0.013 mm

Custom dimensions [2]

Additional sizes:

RWA/RWAC 40:
D × L = 40 × 50 mm
Torque = 6.0 Nm

RWA/RWAC 50:
D × L = 50 × 54 mm
Torque = 9.5 Nm

Custom versions

Customer-specific bore diameter, also available in imperial dimensions (combined imperial/metric).

Limited bore tolerance:
0/+ 0.015 mm

Details for ordering

Version:	Set screw or clamp
Size:	d1 (mm) and d2 (mm) (larger ø always first)
Example:	RWAC 30 – 11 mm – 10 mm

Series	Standard version								Custom version with blind bore [2]					Torque (standard version)			Rigidity (standard version)			Mass moment of inertia [4]	Screw torque [4]	Weight [4]
	D	d1	d2	L	l1	l2	S	X	D1	l3	X1	øR [3]		short-term	one-sided	reversing	Torsional rig.	Radial spring rig.	Axial spring rig.			
With set screw	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		Nm	Nm	Nm	Nm/rad	N/mm	N/mm	x10^{-6} kgm^2	Nm	g
RWA 15	15.0	3.0	3.0	20.0	4.8	2.5	M3		5.1 up to 9.0	4.8				0.71	0.36	0.18	11.2	169	44	0.23	1.0	8
		4.0	3.0 [1]											0.66	0.33	0.17	8.0	131	29			
		4.0	4.0																			
		5.0	3.0 [1]											0.59	0.30	0.15	5.7	102	20			
		5.0	4.0 [1]																			
		5.0	5.0																			
RWA 20	20.0	4.0	4.0	20.0	4.8	2.5	M3		6.4 up to 14.0	4.8				1.3	0.7	0.4	21.2	179	29	0.78	1.0	15
		5.0	4.0 [1]											1.2	0.6	0.3	16.4	149	21			
		5.0	5.0																			
		6.0	4.0 [1]											1.1	0.6	0.3	12.7	124	15			
		6.0	5.0 [1]																			
		6.0	6.0																			
RWA 25	25.0	6.0	6.0	24.0	5.9	3.0	M4		10.1 up to 17.0	5.9				2.9	1.5	0.8	38.2	236	34	2.31	2.1	28
		8.0	6.0 [1]											2.6	1.3	0.7	26.0	175	21			
		8.0	8.0																			
		10.0	6.0 [1]											2.2	1.1	0.6	16.4	126	14			
		10.0	8.0 [1]																			
		10.0	10.0																			
RWA 30	30.0	10.0	10.0	30.0	6.8	3.5	M5		12.8 up to 20.0	6.8				4.6	2.3	1.2	44.1	192	25	5.50	4.7	47
		11.0	10.0 [1]											4.3	2.2	1.1	35.8	169	21			
		11.0	11.0																			
		12.0	10.0 [1]											4.0	2.0	1.0	30.2	147	18			
		12.0	11.0 [1]																			
		12.0	12.0																			
With clamp																						
RWAC 15	15.0	3.0	3.0	22.0	6.0	2.5	M2	4.3	5.1 up to 7.3	6.0	5.3	16.8		0.71	0.36	0.18	11.2	169	44	0.26	0.5	9
		4.0	3.0 [1]											0.66	0.33	0.17	8.0	131	29			
		4.0	4.0																			
		5.0	3.0 [1]											0.59	0.30	0.15	5.7	102	20			
		5.0	4.0 [1]																			
		5.0	5.0																			
RWAC 20	20.0	4.0	4.0	28.0	8.6	3.7	M3	5.5	6.4 up to 9.8	8.6	7.1	23.6		1.3	0.7	0.4	21.2	179	29	1.09	2.0	21
		5.0	4.0 [1]											1.2	0.6	0.3	16.4	149	21			
		5.0	5.0																			
		6.0	4.0 [1]											1.1	0.6	0.3	12.7	124	15			
		6.0	5.0 [1]																			
		6.0	6.0																			
RWAC 25	25.0	6.0	6.0	30.0	8.6	3.7	M3	7.7	10.1 up to 14.5	8.6	9.5	28.5		2.9	1.5	0.8	38.2	236	34	2.89	2.0	35
		8.0	6.0 [1]											2.6	1.3	0.7	26.0	175	21			
		8.0	8.0																			
		10.0	6.0 [1]											2.2	1.1	0.6	16.4	126	14			
		10.0	8.0 [1]																			
		10.0	10.0																			
RWAC 30	30.0	8.0	8.0	38.0	11.0	5.0	M4	8.8	12.8 up to 17.3	11.0	11.3	34.8		4.9	2.5	1.3	52.1	219	31	7.02	4.7	60
		10.0	8.0 [1]											4.6	2.3	1.2	44.1	192	25			
		10.0	10.0																			
		12.0	8.0 [1]											4.0	2.0	1.0	30.2	147	18			
		12.0	10.0 [1]																			
		12.0	12.0																			

1 Couplings with different bores (d1/d2): Delivery date for larger order quantities on request

2 Custom dimensions and customer versions with blind bore (bore greater than d1/d2) on request
For technical data, see the corresponding standard couplings with the largest bore

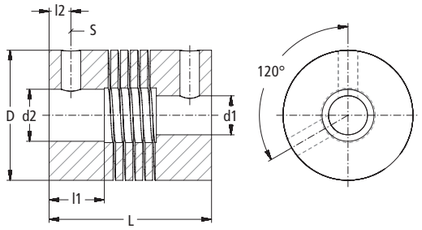
3 Consideration of clearance R from smallest blind bore diameter

4 Values based on d1

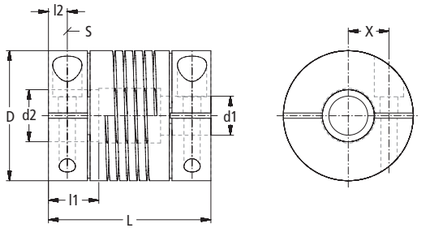
Standard coupling RWI and RWIC series
Stainless steel

formerly W7 and W7C

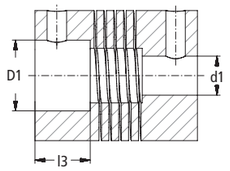
RWI series with set screw

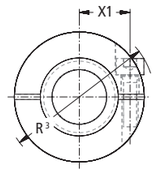


RWIC series with clamp



Blind bore, one or two-sided [2]





Technical data

Permissible shaft offset:	angular: 5° radial: ± 0.25 mm axial: ± 0.25 mm
Max. velocity:	10 000 rpm
Material:	Stainless steel 17-4PH, Material no. 1.4542
Tolerances:	Bore: 0/+ 0.05 mm Shaft (recommended): – 0.005/– 0.013 mm

Custom dimensions [2]

Additional sizes:	RWI/RWIC 40: D × L = 40 × 50 mm Torque = 11.5 Nm RWI/RWIC 50: D × L = 50 × 54 mm Torque = 18.5 Nm

Custom versions

Customer-specific bore diameter, also available in imperial dimensions (combined imperial/metric).

Limited bore tolerance: 0/+ 0.015 mm

Details for ordering

Version:	Set screw or clamp
Size:	d1 (mm) and d2 (mm) (larger ø always first)
Example:	RWIC 30 – 11 mm – 10 mm

Series	Standard version								Custom version with blind bore [2]					Torque (standard version)			Rigidity (standard version)			Mass moment of inertia [4]	Screw torque [4]	Weight [4]
	D	d1	d2	L	l1	l2	S	X	D1	l3	X1	øR [3]		short-term	one-sided	reversing	Torsional rig.	Radial spring rig.	Axial spring rig.			
With set screw	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		Nm	Nm	Nm	Nm/rad	N/mm	N/mm	x10^{-6} kgm^2	Nm	g
RWI 15	15.0	4.0	4.0	20.0	4.8	2.5	M3		5.1 up to 9.0	4.8				1.3	0.65	0.33	22.0	368	81	0.67	1.0	23
		5.0	4.0 [1]											1.2	0.6	0.3	15.5	285	55			
		5.0	5.0																			
RWI 20	20.0	5.0	5.0	20.0	4.8	2.5	M3		6.4 up to 14.0	4.8				2.5	1.3	0.7	44.1	418	58	2.13	1.0	41
		6.0	5.0 [1]											2.3	1.2	0.6	35.8	346	42			
		6.0	6.0																			
RWI 25	25.0	6.0	6.0	24.0	5.9	3.0	M4		10.1 up to 17.0	5.9				5.7	2.9	1.5	101	662	95	6.45	2.1	78
		8.0	6.0 [1]											5.1	2.6	1.3	69.9	490	58			
		8.0	8.0																			
		10.0	6.0 [1]											4.3	2.2	1.1	44.1	354	38			
		10.0	8.0 [1]																			
		10.0	10.0																			
RWI 30	30.0	10.0	10.0	30.0	6.8	3.5	M5		12.8 up to 20.0	6.8				8.9	4.5	2.3	119.4	538	71	16.2	4.7	132
		12.0	10.0 [1]											7.7	3.9	2.0	81.9	412	49			
		12.0	12.0																			
With clamp	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		Nm	Nm	Nm	Nm/rad	N/mm	N/mm	x10^{-6} kgm^2	Nm	g
RWIC 20	20.0	5.0	5.0	28.0	8.6	3.7	M3	5.5	6.4 up to 9.8	8.6	7.1	23.6		2.5	1.3	0.7	44.1	418	58	3.02	2.0	58
		6.0	5.0 [1]											2.3	1.2	0.6	35.8	346	42			
		6.0	6.0																			
RWIC 25	25.0	6.0	6.0	30.0	8.6	3.7	M3	7.7	10.1 up to 14.5	8.6	9.5	28.5		5.7	2.9	1.5	101	662	95	8.02	2.0	97
		8.0	6.0 [1]											5.1	2.6	1.3	69.9	490	58			
		8.0	8.0																			
		10.0	6.0 [1]											4.3	2.2	1.1	44.1	354	38			
		10.0	8.0 [1]																			
		10.0	10.0																			
RWIC 30	30.0	10.0	10.0	38.0	11.0	5.0	M4	8.8	12.8 up to 17.3	11.0	11.3	34.8		8.9	4.5	2.3	119.4	538	71	20.5	4.7	167
		11.0	10.0 [1]											8.3	4.2	2.1	98.8	473	58			
		11.0	11.0																			
		12.0	10.0 [1]											7.7	3.9	2.0	81.9	412	49			
		12.0	11.0 [1]																			
		12.0	12.0																			

1 Couplings with different bores (d1/d2): Delivery date for larger order quantities on request

2 Custom dimensions and customer versions with blind bore (bore greater than d1/d2) on request
For technical data, see the corresponding standard couplings with the largest bore

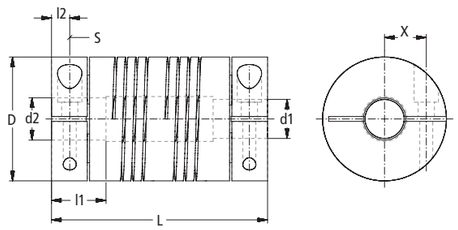
3 Consideration of clearance R from smallest blind bore diameter

4 Values based on d1

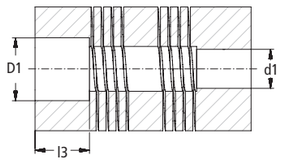
Standard coupling RMAC series
Aluminium

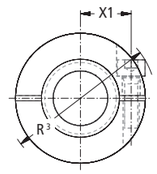
formerly MCAC

RMAC series with clamp



Blind bore, one or two-sided [2]





Technical data

Permissible shaft offset:	angular: 5° radial: ± 0.75 mm axial: ± 0.25 mm
Max. velocity:	3600 rpm
Material:	Aluminium 7075-T6, Material no. 3.4365
Tolerances:	Bore: 0/+ 0.05 mm Shaft (recommended): – 0.005/– 0.013 mm

Custom dimensions [2]

Additional sizes:

RMAC 200:
D × L = 50.8 × 76.2 mm
Torque = 12.9 Nm

RMAC 225:
D × L = 57.2 × 88.9 mm
Torque = 18.6 Nm

Custom versions

Customer-specific bore diameter, also available in imperial dimensions (combined imperial/metric).

Limited bore tolerance:
0/+ 0.015 mm

Details for ordering

Size: d1 (mm) and d2 (mm) (larger ø always first)

Example: RMAC 100 – 10 mm – 8 mm

Series	Standard version								Custom version with blind bore [2]					Torque (Standard version)			Rigidity (Standard version)		Mass moment of inertia [4]	Screw torque [4]	Weight [4]
	D	d1	d2	L	l1	l2	S	X	D1	l3	X1	øR [3]		short-term	one-sided	reversing	Torsional rig.	Axial spring rig.			
With clamp	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		Nm	Nm	Nm	Nm/rad	N/mm	x10⁻⁶ kgm²	Nm	g
RMAC 100	25.4	6.0	6.0	44.5	9.4	3.8	M3	7.9	10.1 up to 14.3	9.4	9.7	28.2		3.2	1.6	0.8	25.0	20.0	4.52	2.0	54
		8.0	6.0 [1]											2.7	1.4	0.7	17.0	13.0			
		8.0	8.0																		
		10.0	6.0 [1]											2.3	1.2	0.6	11.0	8.0			
		10.0	8.0 [1]																		
		10.0	10.0																		
RMAC 125	31.8	8.0	8.0	60.2	13.0	5.6	M4	9.7	13.1 up to 17.0	13.0	12.2	36.5		6.4	3.2	1.6	50.0	23.0	15.2	4.7	113
		10.0	8.0 [1]											5.5	2.8	1.4	34.0	16.0			
		10.0	10.0																		
		12.0	8.0 [1]											4.1	2.1	1.1	24.0	11.0			
		12.0	10.0 [1]																		
		12.0	12.0																		
RMAC 150	38.1	10.0	10.0	66.5	16.8	5.6	M4	13.0	13.1 up to 23.1	16.8	15.3	42.7		12.0	6.0	3.0	91.0	38.0	34.1	4.7	180
		12.0	10.0 [1]											10.3	5.2	2.6	69.0	28.0			
		12.0	12.0																		

1 Couplings with different bores (d1/d2): Delivery date for larger order quantities on request

2 Custom dimensions and customer versions with blind bore (bore greater than d1/d2) on request
For technical data, see the corresponding standard couplings with the largest bore

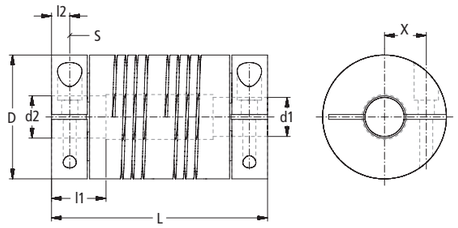
3 Consideration of clearance R from smallest blind bore diameter

4 Values based on d1

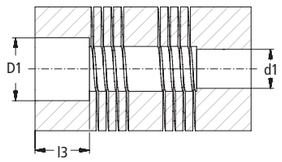
Standard coupling RMIC series
Stainless steel

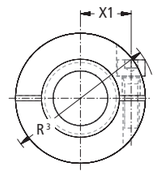
formerly MC7C

RMIC series with clamp



Blind bore, one or two-sided [2]





Technical data

Permissible shaft offset:	angular: 5° radial: ± 0.75 mm axial: ± 0.25 mm
Max. velocity:	3600 rpm
Material:	Stainless steel 17-4PH, Material no. 1.4542
Tolerances:	Bore: 0/+ 0.05 mm Shaft (recommended): – 0.005/– 0.013 mm

Custom dimensions [2]

Additional sizes:

RMIC 200:
D × L = 50.8 × 76.2 mm
Torque = 27.1 Nm

RMIC 225:
D × L = 57.2 × 88.9 mm
Torque = 41.7 Nm

Custom versions

Customer-specific bore diameter, also available in imperial dimensions (combined imperial/metric).

Limited bore tolerance:
0/+ 0.015 mm

Details for ordering

Size: d1 (mm) and d2 (mm) (larger ø always first)

Example: RMIC 100 – 10 mm – 8 mm

Series	Standard version								Custom version with blind bore [2]					Torque (Standard version)			Rigidity (Standard version)		Mass moment of inertia [4]	Screw torque [4]	Weight [4]
	D	d1	d2	L	l1	l2	S	X	D1	l3	X1	øR [3]		short-term	one-sided	reversing	Torsional rig.	Axial spring rig.			
With clamp	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		Nm	Nm	Nm	Nm/rad	N/mm	x10⁻⁶ kgm²	Nm	g
RMIC 100	25.4	6.0	6.0	44.5	9.4	3.8	M3	7.9	10.1 up to 14.3	9.4	9.7	28.2		6.8	3.4	1.7	70.0	56.0	12.6	2.0	150
		8.0	6.0 [1]											5.9	3.0	1.5	47.0	36.0			
		8.0	8.0																		
		10.0	6.0 [1]											5.0	2.5	1.3	30.0	22.0			
		10.0	8.0 [1]																		
		10.0	10.0																		
RMIC 125	31.8	8.0	8.0	60.2	13.0	5.6	M4	9.7	16.1 up to 17.0	13.0	12.2	36.5		14.2	7.1	3.6	130.0	64.0	42.3	4.7	315
		12.0	8.0 [1]											9.6	4.8	2.4	66.0	31.0			
		12.0	12.0																		
		15.0	8.0 [1]											7.3	3.7	1.8	29.0	17.0			
		15.0	12.0 [1]																		
		15.0	15.0																		
RMIC 150	38.1	12.0	12.0	66.5	16.8	5.6	M4	13.0	16.1 up to 23.0	16.8	15.3	42.7		23.5	11.8	5.9	190.0	78.0	96.1	4.7	507
		14.0	12.0 [1]											20.7	10.4	5.2	143.0	60.0			
		14.0	14.0																		
		16.0	12.0 [1]											17.5	8.8	4.4	105.0	46.0			
		16.0	14.0 [1]																		
		16.0	16.0																		

1 Couplings with different bores (d1/d2): Delivery date for larger order quantities on request

2 Custom dimensions and customer versions with blind bore (bore greater than d1/d2) on request
For technical data, see the corresponding standard couplings with the largest bore

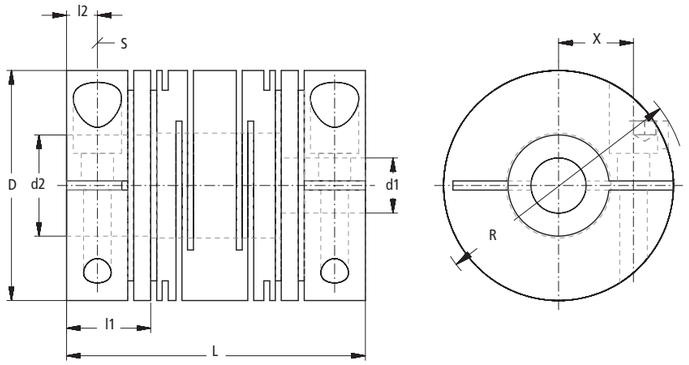
3 Consideration of clearance R from smallest blind bore diameter

4 Values based on d1

Standard coupling RCA series
Aluminium

formerly XCA

RCA series with clamp



Technical data

Permissible shaft offset:	s. Tabelle
Max. velocity:	10 000 rpm
Material:	Aluminium 7075-T6, Material no. 3.4365
Tolerances:	Bore: 0/+ 0.05 mm Shaft (recommended): – 0.005/– 0.013 mm

Custom dimensions [3]

Additional sizes:

RCA 40:
D × L = 40 × 60 mm
Torque = 5.0 Nm

RCA 50:
D × L = 50 × 65 mm
Torque = 10.0 Nm

Custom versions

Customer-specific bore diameter, also available in imperial dimensions (combined imperial/metric).

Limited bore tolerance:
0/+ 0.015 mm

Stainless steel versions.

Details for ordering

Size: d1 (mm) and d2 (mm) (larger ø always first)

Example: RCA 25 – 10 mm – 8 mm

Series	Standard version										Permissible shaft offset			Torque	Rigidity	Mass moment	Screw torque [4]	Weight [4]
	D	d1	d2	L	l1	l2	S	X	øR		angular	radial	axial	dauernd reversing	Torsional rig.	of inertia [4]		
With clamp	mm	mm	mm	mm	mm	mm	mm	mm	mm		°	± mm	± mm	Nm	Nm/rad	x10^{-6} kgm^2	Nm	g
RCA 15	15.0	3.0 5.0	3.0 5.0 [1]	24.0	6.3	3.0	M2.5	5.0	17.5		3	0.10	0.25	0.3	51.0	0.27	1.1	9.2
RCA 20	20.0	4.0 6.0 6.0	4.0 4.0 [1] 6.0	28.0	7.9	3.8	M3	5.4	21.8 [2]		3	0.10	0.25	0.5 0.5	125.0 125.0	1.04	2.0	20.0
RCA 25	25.0	6.0 8.0 8.0 10.0 10.0 10.0	6.0 6.0 [1] 8.0 6.0 [1] 8.0 [1] 10.0	30.0	8.0	3.8	M3	7.7			3	0.15	0.25	1.0 1.0 1.0	261.0 261.0 261.0	2.73	2.0	33.0
RCA 30	30.0	10.0 12.0 12.0	10.0 10.0 [1] 12.0	38.0	10.3	5.0	M4	9.1			3	0.15	0.25	2.0 2.0	441.0 441.0	7.36	4.7	60.0

1 Couplings with different bores (d1/d2): Delivery date for larger order quantities on request

2 from d1 or d2 greater ø 6.35 mm

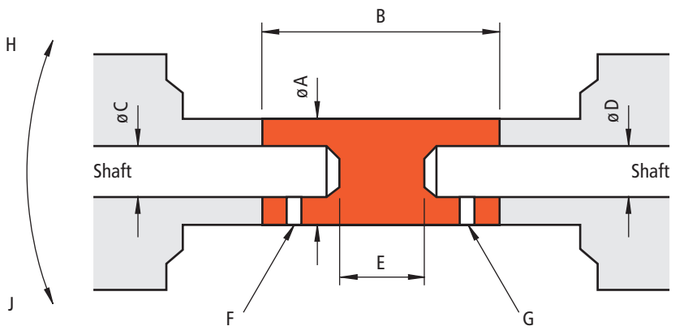
3 Custom dimensions and customer versions with blind bore (bore greater than d1/d2) on request
For technical data, see the corresponding standard couplings with the largest bore

4 Values based on d1

Request
Customer-specific helix coupling

Coupling and shaft dimensions

Drive — Helix couplings — Output



A	Permissible external ø		mm
B	Permissible overall length		mm
C	Shaft ø (drive)		mm
	☐ Bore tolerance (normal)	+ 0.05 0.00 mm	
	☐ Bore tolerance (precise)	+ 0.015 0.00 mm	
D	Shaft ø (output)		mm
	☐ Bore tolerance (normal)	+ 0.05 0.00 mm	
	☐ Bore tolerance (precise)	+ 0.015 0.00 mm	
E	Shaft distance		mm

Description of drive/output

Drive		
Output		
Dir. of rotation	☐ H ☐ J	
	☐ continuous	☐ reversing
Stop/start		×/sec.
Revolutions		rpm ☐ by hand

Fastening

		Drive side F	Output side G
Integrated clamps		☐	☐
2 locking screws 120°		☐	☐
2 locking screws 90°		☐	☐
1 locking screw		☐	☐
Cylindrical pins	mm	☐	☐
Dowel pins	mm	☐	☐
Key groove	mm	☐	☐
Other		☐	☐

Operating data

Torque	Nominal torque		Nm
	max. torque		Nm
Misalignment	☐ Angular misalignment		°
(see page 6/7)	☐ Radial misalignment		mm
	☐ Axial comp./Extension		mm
	☐ No overlap (drawing enclosed)		
Torsional rigidity	☐ < ☐ = ☐ >		Nm/rad
Moment of inertia	☐ < ☐ = ☐ >		kg/cm²
Weight	☐ < ☐ = ☐ >		g
Operating conditions	☐ Temperature		°C
	☐ Corrosion ☐ Dirt		

Notes

Attachments ☐ drawing ☐

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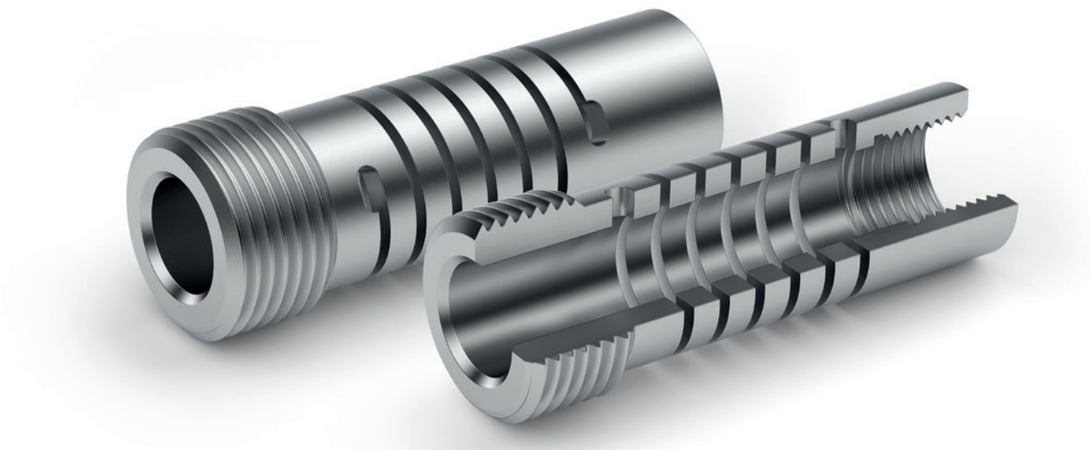
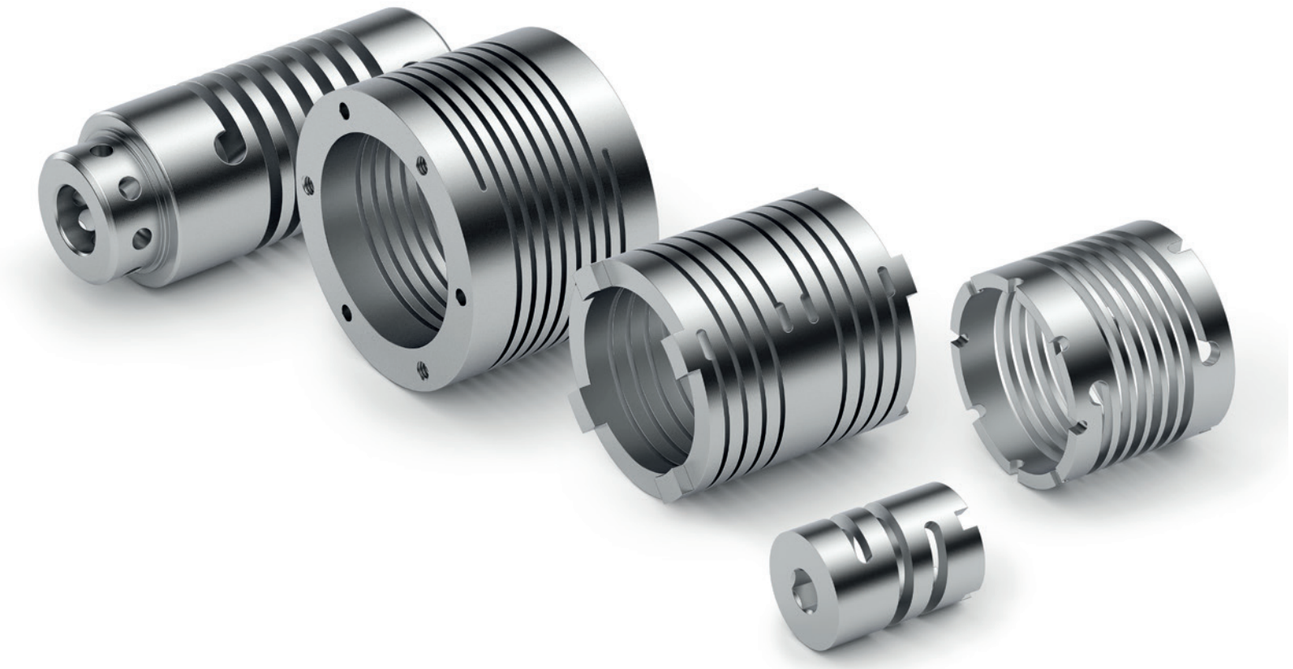


Industry: Printing machines
Application: Spiral clutch as pressure spring in clamping coupling

Customer-specific precision springs



The shape of a helix coupling respectively the helix basically corresponds to a spring. Due to this fact it is possible to produce not only couplings but also customized springs with a high precision.

Ask for our catalogue RINGSPANN Precision Springs.

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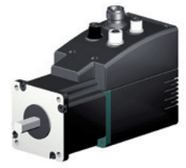

Rotary actuators

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Precision Clamping Fixtures

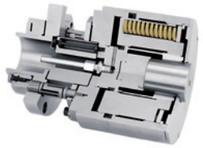
Clamping mandrels

Clamping chucks

Linear encoders

Position indicators

Customized clamping fixtures



Clamping clutches

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