

US
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GERWAH[®]

**Metal Bellows &
Servo-Insert Couplings,
Line Shafts**



Partner for Performance
www.ringfeder.com

 **RINGFEDER**
POWER TRANSMISSION

Overview



Metal Bellows Couplings

Servo-Insert Couplings



Line Shafts



Metal Bellows Couplings Basics

Backlash-free Metal Bellows Couplings

Characteristics of Metal Bellows Couplings:

- Backlash-free transmission of torque
- High torsional stiffness, precise transmission of rotational angle
- Different torsional stiffness
- Compact design, low moment of inertia
- Metal bellows made of stainless steel
- Simple and safe assembly
- Compensation of radial, axial and angular misalignment
- Free of wear, maintenance-free, no downtimes
- Not sensitive to temperatures between -22 °F and +212 °F
- Nominal torques between 0.4 ft-lbs – 3688 ft-lbs



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**Premium
Metal Bellows Couplings
with 20% higher torques!**

Advantages

- 100% inspection and traceability through individual marking
- Higher torques at same dimensions
- Compact design
- Extended bore ranges
- Customer-specific solutions
- Higher safety in application, e.g. no wrong screw tightening torques

Metal Bellows Couplings Basics

Backlash-free Metal Bellows Couplings are used in the sector of mechanical engineering, where torque or rotary motion has to be transmitted from shaft to shaft with the highest accuracy of angle.

- Pumps with axial and vertical drives
- High dynamic portal drives
- Spindle lifting units
- Linear units
- Packaging machines
- Machine tools
- Special machines



Overview Metal Bellows Couplings



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EKN

Miniature metal bellows coupling with radial set screws

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DKN

Miniature metal bellows coupling with clamping hubs

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DKN/S

Miniature metal bellows coupling with clamping hubs and expanding clamps

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PKA

Metal bellows coupling with axial pluggable clamping hub

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PKB

Metal bellows coupling with axial pluggable locking ring

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PKN

Metal bellows coupling with pluggable clamping hub

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Overview Metal Bellows Couplings



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AKN

Metal bellows coupling with clamping hubs, short length and higher torsional stiffness

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AKN-H

Metal bellows coupling with clamping hubs, short length and higher torsional stiffness in split hub design

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AKD

Metal bellows coupling with clamping hubs

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AKD-H

Metal bellows coupling with clamping hubs in split hub design

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AK

Metal bellows coupling with inner conical hub

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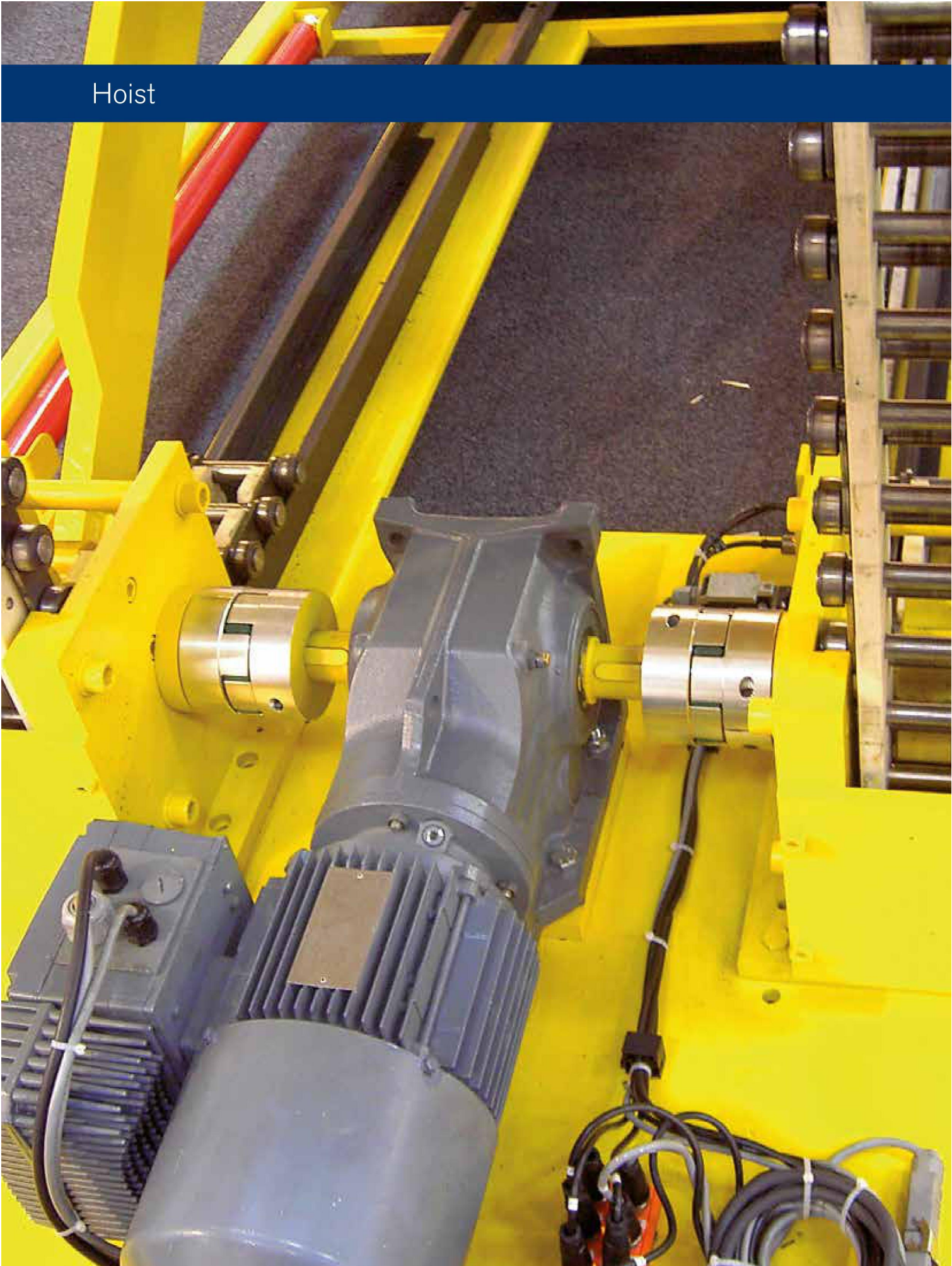
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CKN

Metal bellows coupling with flange

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CAD data available:
www.ringfeder.com

Hoist



Automation



Overview Servo-Insert Couplings



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GWE 5102

Miniature servo-insert coupling with set screw hubs

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GWE 5103

Miniature servo-insert coupling with clamping hubs, short length and single slit

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GWE 5103.1

Miniature servo-insert coupling with clamping hubs and single slit

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GWE 5107

Servo-insert coupling with clamping hubs and expanding clamps

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GWE 5104

Servo-insert coupling with clamping hubs and dual slits

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GWE 5106

Servo-insert coupling with clamping hubs in split hub design

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GWE 5112

Servo-insert coupling with outer cone

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CAD data available: www.ringfeder.com

Technical Information Servo-Insert Couplings

Backlash-free Servo-Insert Couplings

Technical description

The couplings can be fine tuned to the specific application requirements in terms of torsional stiffness and vibration behaviour by selecting from various colour coded elastomeric spiders having different grades of shore hardness.

Technical terms for the coupling design

Pre-Compression:

The elastic pre-compression varies in dependence from the shore hardness of spiders, the size of the coupling and the machining tolerances. From this the axial insertion force results: From light (as a push fit with torsionally soft spider) to heavy (with high pre-compression with torsionally stiff spider).

T_N – Nominal torque of coupling (Nm):

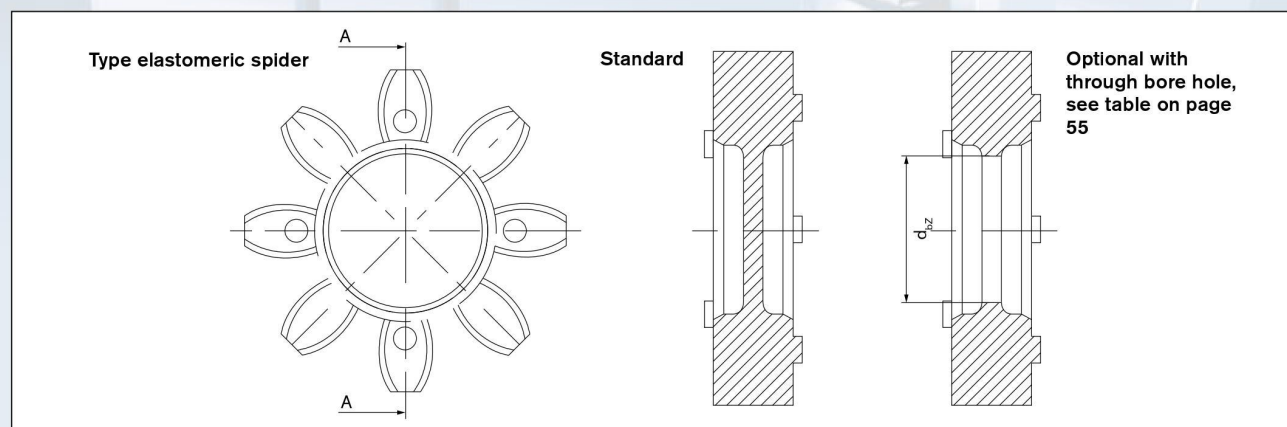
Continuous torque which can be transmitted throughout the entire speed range, taking into consideration operational factors such as ambient temperatures and torsional stiffness.

T_{max} – Maximum torque of coupling (Nm):

Torque which can be transmitted $>10^5$ time as a peak load or $5 \cdot 10^4$ times as an alternating load during the entire life of the coupling taking into consideration factors such as temperatures, torsional stiffness and shock loading.

Spider Durometer (shore hardness)	Colour	Material	Allowable temperature °F		Available for size	Typical applications
			Continuous temperature	Max. temp. short term		
80 SH A	blue	Polyurethane	-58 to +176	-76 to +248	5-19	Drives in electronic measuring systems; backlash-free when pre-compressed
92 SH A	yellow	Polyurethane	-40 to +194	-58 to +248	5-55	Main spindle drives; backlash-free when pre-compressed
*95/98 SH A	red	Polyurethane	-22 to +194	-40 to +248	5-75	Positioning drives; backlash-free when pre-compressed
64 SH D-H	green	HytreI	-58 to +248	-76 to +302	7-38	Machine tool spindles, control drives, lead units, planetary gearboxes; heavy loads, torsionally stiff, high ambient temperature, water proof
64 SH D	green	Polyurethane	-4 to +230	-22 to +248	42-75	

* From size 65 \geq 95° A



Packaging Machine



Overview Line Shafts



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GWZ 5104.1

Servo-insert coupling with clamping hubs

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GWZ 5106.1

Servo-insert coupling with clamping hubs in half shell construction

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GWZ 5116

Metal bellows coupling with clamping hubs in flange construction

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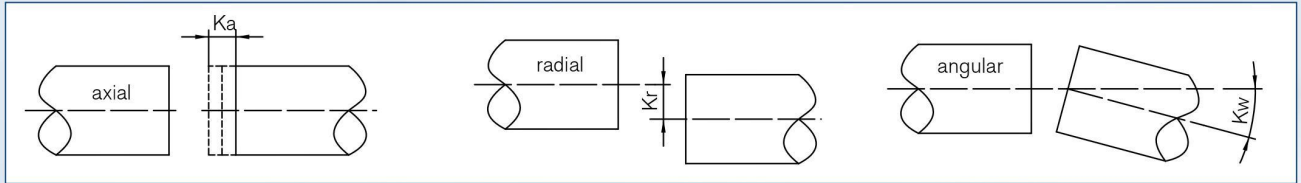


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GWZ 5106

Metal bellows coupling with clamping hubs in split hub design

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GERWAH Line Shafts · Mounting Instructions



Alignment of the shafts:

The picture shows the several types of misalignment. It is necessary to adjust the shafts before assembly. The more accurate the initial alignment, the better the shaft can absorb additional misalignments during operation. Durability of the line shafts and quietness of the drive are favourably influenced.

In case all three types of misalignment occur simultaneously, each type must not reach the maximum allowable value, but have to be aligned.

Mounting:

Slide the clamping hubs on the clean and degreased shafts (or fit it when half-shell variant).

After checking the axial dimensions tighten the screws according to the technical data (Ma) for wrench torque listed in the catalogue.

The dimension on the shaft distance X (see technical drawing) should be kept.

Removal:

Remove the locking screws of the hubs. Line Shafts in split hub designs GWZ 5106 and GWZ 5106.1 lift up. For an easy removing of the GWZ 5116 intermediate pipe, shift the unfastened clamping hubs outwards (on GWZ 5104.1 to the center).

Please ask for detailed mounting instructions or find information on www.ringfeder.com!

Misalignments Servo-Insert Line Shafts

Size	Shifting		
	mm radial* ΔKr	mm axial ΔKa	Degree angular ΔKw
14	0,197 in	$\pm 0,039$ in	1,5°
19	0,197 in	$\pm 0,039$ in	1,5°
24	0,197 in	$\pm 0,039$ in	1,5°
28	0,197 in	$\pm 0,039$ in	1,5°
38	0,197 in	$\pm 0,039$ in	1,5°
42	0,197 in	$\pm 0,039$ in	1,5°
48	0,197 in	$\pm 0,039$ in	1,5°

*Radial/parallel misalignment depends on the length of the tube.

