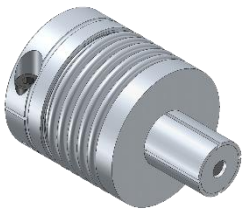
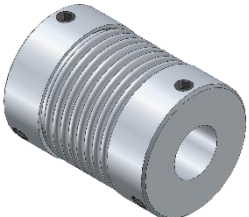
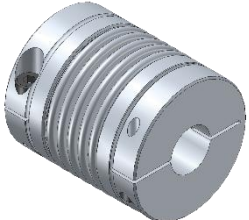
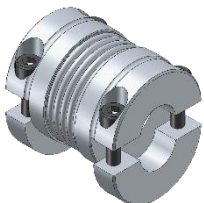


**Installation and Operating Instructions for
WK Metal Bellows Coupling**

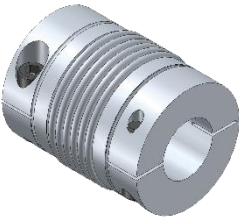
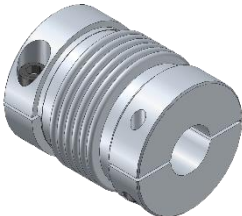
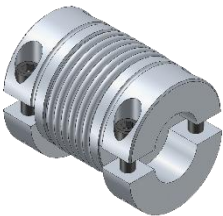
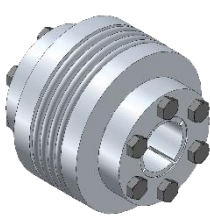
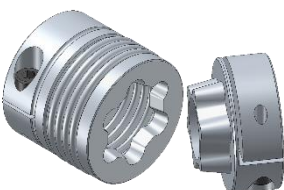
E 06.713en



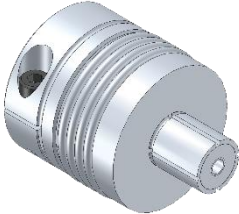
WK – Metal bellows couplings

WK1		Miniature coupling with expansion mandrel 1x WK3 - hub 1x WK1 - hub with expansion mandrel 1x bellows 2x clamping screw – ISO 4762
WK2		Miniature coupling with clamping screw 2x WK2 - hub 1x bellows 2x (4x) clamping screws – ISO 4029
WK2-E		Miniature coupling with clamping screw (stainless steel) 2x WK2-E - hub 1x bellows 2x (4x) clamping screws – ISO 4029
WK3		Miniature coupling with clamping hub 2x WK3 - hub 1x bellows 2x clamping screws – ISO 4762
WK3-E		Miniature coupling with clamping hub (stainless steel) 2x WK3-E - hub 1x bellows 2x clamping screws – ISO 4762
WK3-H		Miniature coupling with split clamping hub 2x WK3-H - hub 1x bellows 4x clamping screws – ISO 4762

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 3

WK4		Coupling with clamping hub 2x WK4 - hub 1x bellows 2x clamping screws – ISO 4762
WK4-E		Coupling with clamping hub (stainless steel) 2x WK4-E - hub 1x bellows 2x clamping screws – ISO 4762
WK4-H		Coupling with split clamping hub 2x WK4-H - hub 1x bellows 4x clamping screws – ISO 4762
WK5		Coupling with cone clamping ring 2x WK5- hub 2x clamping bushing 1x bellows 12x clamping screw ISO 4017
WK6		Coupling with cone clamping hub 2x WK6 - hub 2x cone bushing 1x bellows 12x clamping screw ISO 4017
WK7		Coupling with flange mounting 2x WK7 - hub 1x bellows
WK8		Coupling with clamping hub – axial plug-in 1x WK4 - hub 1x WK8 - hub 1x WK8 - ring 2x clamping screw ISO 4762

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 4

WK9		Coupling with expansion mandrel 1x WK4 - hub 1x WK9 – hub with expansion mandrel 1x bellows 2x clamping screw ISO 4762
ZWK4		Coupling with clamping hub 2x WK4 - hub 2x pipe attachment 2x bellows mount 2x bellows 2x clamping screw ISO 4762 8 – 16x clamping screw ISO 4017
ZWK4-H		Coupling with split clamping hub 2x WK4-H - hub 2x connectors 2x bellows 4x clamping screw ISO 4762

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 5

Content

1.	Introduction	7
1.1.	About these instructions.....	7
1.2.	Copyright	7
2.	Safety instructions.....	7
2.1.	General information	7
2.2.	Intended use.....	8
2.3.	General warnings.....	9
3.	Description.....	10
3.1.	Description	10
3.2.	Metal bellows.....	13
3.3.	Technical data	14
4.	Operational planning.....	31
4.1.	Operational planning.....	31
4.2.	Transport of the coupling	31
4.3.	Storage of the coupling	31
5.	Assembling	32
5.1.	Overview of the preparatory work	32
5.2.	Assembling the coupling.....	32
5.3.	Aligning the coupling.....	34
5.3.1.	Purpose of aligning	34
5.3.2.	Possible offsets.....	35
6.	Startup.....	36
6.1.	Tests before startup.....	36
6.2.	Guard	36
6.3.	Coupling coating.....	37
7.	Operations	37
7.1.	Normal operation of the coupling	37
7.2.	Fault – causes and remedy.....	37
8.	Service.....	41
8.1.	Maintenance intervals.....	41
8.2.	Dismantling the coupling.....	41
9.	Service and Support	42
10.	Disposal	43
11.	Spare parts.....	43

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 6

11.1.	Ordering spare parts.....	43
12.	Annex 1.....	44
12.1.	Intended use in hazardous areas 	44
12.2.	Control intervals for couplings in  areas	45
12.3.	Permissible material in  areas	46
12.4.	Marking example	46
12.5.	Metal bellows couplings.....	47
12.6.	EU Declaration of Conformity	48

1. Introduction

1.1. About these instructions

These instructions provide information on handling, installing and maintaining the coupling. Please keep them near the coupling.
Read the instructions carefully before using the coupling and follow the instructions.
Pay special attention to the safety information!
We reserve the right to make technical changes in the interest of further development.

1.2. Copyright

The copyright in these instructions remains with RINGSPANN StS GmbH.
This operating manual may not be used in whole or in part without authorization or made available to third parties without our consent.
Contact our factory with any technical questions.

2. Safety instructions

2.1. General information



The WK coupling is suitable for and is confirmed for use in areas subject to explosion hazards. When using the coupling use in areas subject to explosion hazards, areas subject to explosion hazards, please note the special safety instructions and regulations in this manual.

Only authorized and professionally trained persons may carry out work on the coupling after carefully reading the assembly instructions.

If you are unsure, consult a technician from the supplier and do not start maintenance or assembly/disassembly until all ambiguities have been cleared up.

Furthermore, the coupling may only be used in accordance with the technical data. Unauthorized structural changes to the elements are not permitted.

2.1.1. Symbols

	Warning of areas subject to explosion hazards	This symbol alerts you to the risk of explosion.
	General warning	This symbol warns you to be particularly careful.
	Warning of hot surfaces	This symbol alerts you to the risk of burns.
	Warning of hand injuries	This symbol alerts you to the risk of crushing.

	General information	This symbol alerts you to special features.
---	----------------------------	---

2.1.2. Explanation of the Machinery Directive 2006/42/EC

The couplings described here are components within the meaning of the Machinery Directive and a declaration of incorporation is not provided.
Information on safe installation, startup and on safe operation can be found taking the warnings in these operating and assembly instructions into account.

2.1.3. Using the coupling

During transport, assembly and disassembly, operation, care and maintenance, observe the relevant regulations on occupational safety and environmental protection.
Only qualified personnel are allowed to operate, install, maintain and repair the coupling. Information on qualified personnel can be found in the legal information at the beginning of this guide.
If hoists or load handling equipment are used for transport, then they must be suitable for the weight of the coupling.
If the coupling shows noticeable damage, it must not be installed or put into operation.
The coupling may only be operated with a suitable housing or contact protection in accordance with applicable standards. This also applies to test runs and rotation direction checks.

2.1.4. Working on the coupling

Work on the coupling only when it is stationary and in an idle state. Secure the drive unit against unintentional switching. Place a sign at the switch-on point indicating that the coupling is being worked on. Ensure that the entire system is idle. Do not reach into the working area of the coupling when it is still in operation. Secure the coupling from accidental contact. Install appropriate guards and covers.

2.2. Intended use

Use the coupling only within the framework of the conditions set out in the service and supply contract and the technical data. Deviating operating conditions are considered not to be in accordance with their intended purpose. The user or operator of the machine or system is solely liable for any damage resulting from this.

When using the coupling, pay particular attention to the following:

- Do not make any modifications to the coupling beyond the permitted machining described in this manual. This also applies to the devices for contact protection.
- The purchaser is solely responsible for all subsequent machining of undrilled or pre-drilled coupling and spare parts as well as of finished machining of coupling and spare parts that they carried out. RINGSPANN StS GmbH does not accept warranty claims arising from improperly carried out reworking.

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 9

- Only use original spare parts from RINGSPANN StS. RINGSPANN StS only provides a warranty for original spare parts from RINGSPANN StS. Other spare parts are not tested and approved by RINGSPANN StS GmbH. Spare parts that have not been approved may change the design characteristics of the coupling and thus lead to an impairment of active and/or passive safety. Any liability and warranty on the part of RINGSPANN StS is excluded for damage caused by the use of spare parts that have not been approved. The same applies to any accessories not supplied by RINGSPANN StS.
- In the event of changes in the operating conditions (power, speed, changes to the power and work machine), a check of the coupling design is mandatory. Please note that the technical data regarding torque refer exclusively to the sprocket. The transmittable torque of the shaft-hub connection is to be checked by the customer and is their responsibility.
-  When used in explosion-proof areas, the coupling size must be selected so that there is at least a safety of $s = 2.0$ from the system torque to the nominal coupling torque or shaft-hub connection.

Contact our customer service team if you have any questions.

2.3. General warnings



Danger of the coupling bursting

If not used as intended, the coupling may burst.
Flying fragments pose a danger to life.
→ Use the coupling as intended.



Danger from heated coupling parts

Risk of injury due to hot surfaces.
→ Wear appropriate protective equipment (gloves, goggles).



Risk of chemical burns

When handling aggressive cleaning agents, there is a risk of chemical burns.
→ Observe the manufacturer's instructions for handling cleaning agents and solvents.
→ Wear appropriate protective equipment (gloves, goggles).



Physical injury

Risk of injury from falling coupling parts.
→ Secure the coupling against falling.

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 10

3. Description

3.1. Description

WK metal bellows couplings described here are torsionally rigid and backlash-free bellows couplings in various designs and sizes.

3.1.1. Application area

WK couplings are designed for use in the entire mechanical and plant engineering industry. They are mainly used in drives with backlash-free torque transmission and low offsets.

3.1.2. Design

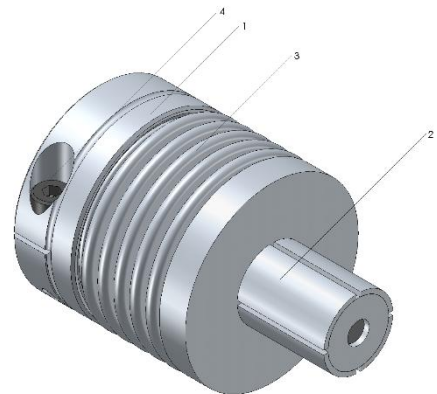
WK metal bellows couplings described here consist of two hub parts. These are connected to each other by a metal bellows. The connection between the hubs and the metal bellows is inseparable.

The hub parts are connected to the shaft by finished bores with keyways or different clamping connections.

3.1.2.1. WK1 + WK9

WK1 or WK9 metal bellows couplings consist of a clamping hub and an expansion mandrel hub including clamping cone. These are connected to each other by a metal bellows made of stainless steel.

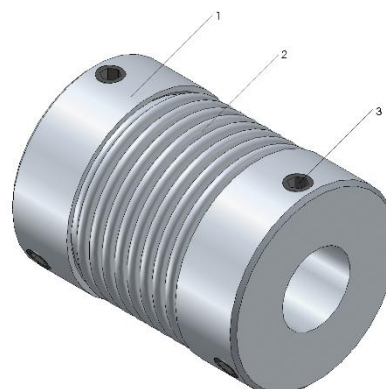
- 1 – Clamping hub
- 2 – Expansion mandrel hub incl. clamping cone
- 3 – Metal bellows
- 4 – Cylinder screw ISO 4762



3.1.2.2. WK2 + WK2-E

WK2 or WK2-E metal bellows couplings consist of two clamping hubs. These are connected to each other by a metal bellows made of stainless steel.

- 1 – Clamping hub
- 2 – Metal bellows
- 3 – Stud screw ISO 4029

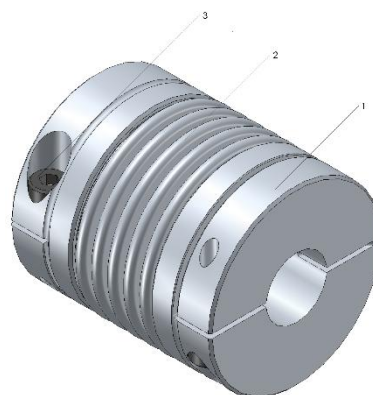


RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 11

3.1.2.3. WK3 + WK3-E + WK4 + WK4-E

WK3, WK3-E, WK4 and WK4-E metal bellows couplings consist of two clamping hubs. These are connected to each other by a metal bellows made of stainless steel.

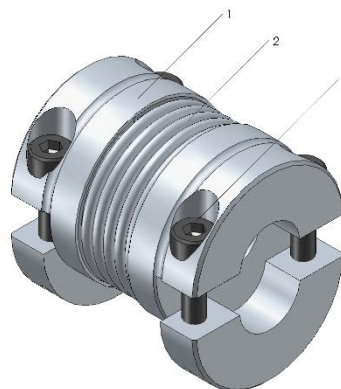
- 1 – Clamping hub
- 2 – Metal bellows
- 3 – Cylinder screw ISO 4762



3.1.2.4. WK3-H + WK4-H

WK3-H and WK4-H metal bellows couplings consist of two split clamping hubs. These are connected to each other by a metal bellows made of stainless steel.

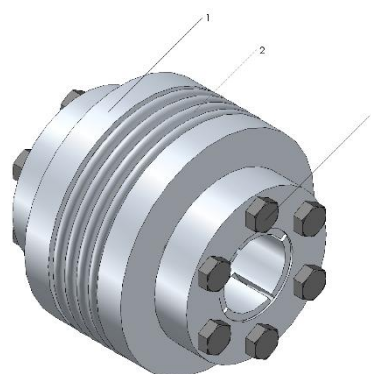
- 1 – Split clamping hub
- 2 – Metal bellows
- 3 – Cylinder screw ISO 4762



3.1.2.5. WK5

WK5 metal bellows couplings consist of two cone hubs with a clamping ring. These are connected to each other by a metal bellows made of stainless steel.

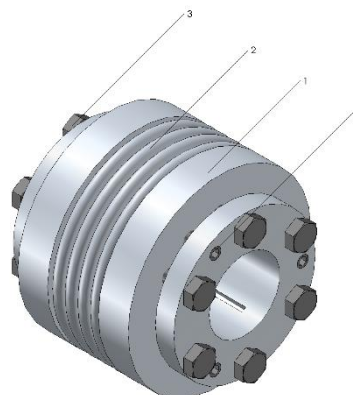
- 1 – Cone hub incl. clamping ring
- 2 – Metal bellows
- 3 – Hexagon screw ISO 4017



3.1.2.6. WK6

WK6 metal bellows couplings consist of two cone hubs with a collet. These are connected to each other by a metal bellows made of stainless steel.

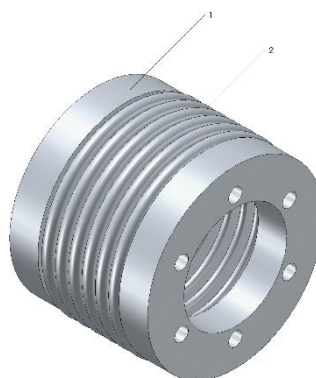
- 1 – Cone hub incl. collet
- 2 – Metal bellows
- 3 – Hexagon screw ISO 4017



3.1.2.7. WK7

WK7 metal bellows couplings consist of two flanges. These are connected to each other by a metal bellows made of stainless steel.

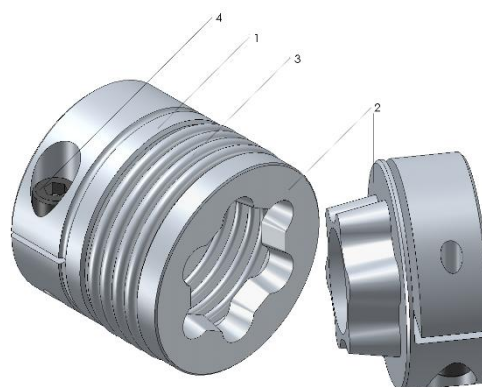
- 1 – Flange
- 2 – Metal bellows



3.1.2.8. WK8

WK8 metal bellows couplings consist of a clamping hub and an axial plug-in clamping hub. These are connected to each other by a metal bellows made of stainless steel.

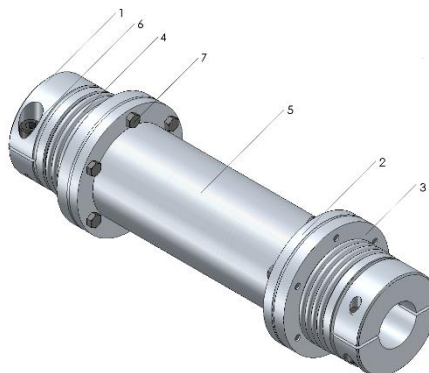
- 1 – Clamping hub
- 2 – Axial plug-in clamping hub
- 3 – Metal bellows
- 4 – Cylinder screw ISO 4762



3.1.2.9. ZWK4

Z WK4 intermediate shaft couplings consist of two assemblies. These include a clamping hub, a bellows mount, a pipe connection and the metal bellows. These two assemblies are connected to each other by an aluminium tube.

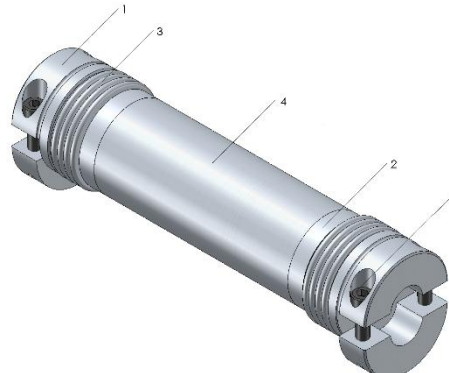
- 1 – Clamping hub
- 2 – Pipe connection
- 3 – Bellows mount
- 4 – Metal bellows
- 5 – Tube
- 6 – Cylinder screw ISO 4762
- 7 – Hexagon screw ISO 4017



3.1.2.10. ZWK4-H

Z WK4-H intermediate shaft couplings consist of two assemblies, which include a split clamping hub, a connector and the metal bellows. These two assemblies are connected to each other by an aluminium tube.

- 1 – Split clamping hub
- 2 – Connector
- 3 – Metal bellows
- 4 – Tube
- 5 – Cylinder screw ISO 4762



3.2. Metal bellows

3.2.1. Function

The compensating element of the metal bellows coupling is the metal bellows. This transfers the torque without backlash and with torsional resistance. The metal bellows made of thin-walled, stainless steel decisively determines the properties of the entire coupling or the entire drive train. It compensates for lateral, axial and angular shaft misalignment with low restoring forces.

3.2.2. Torques and offset values

Miniature metal bellows coupling

Size	Bellows design	Offset			TKN [Nm]
		ΔK_r	ΔK_a	ΔK_w	
		[mm]	[mm]	[°]	
1	-	0.12	0.2	1.5	0.1
5	Short	0.1	0.2	1.5	0.5
	Medium	0.15	0.3	1.5	
	Long	0.2	0.4	2	
10	Short	0.1	0.2	1.5	1
	Medium	0.15	0.3	1.5	
	Long	0.2	0.4	2	
15	Short	0.1	0.3	1.5	1.5
	Long	0.15	0.4	2	
20	Short	0.15	0.3	1.5	2
	Medium	0.2	0.4	1.5	
	Long	0.25	0.5	2	
45	Short	0.1	0.3	1.5	4.5
	Long	0.2	0.5	2	
100	Short	0.15	0.4	1.5	10
	Long	0.3	0.6	2	

Metal bellows coupling

Size	Length	Offset			TKN [Nm]
		ΔK_r	ΔK_a	ΔK_w	
		[mm]	[mm]	[°]	
18	Short				18
	Medium	0.15	0.5	1.5	
	Long	0.25	0.5	2	
30	Short	0.15	0.6	1.5	30
	Long	0.2	1	2	
60	Short	0.15	0.6	1.5	60
	Long	0.2	1	2	
80	Short	0.2	0.5	1.5	80
	Long	0.25	1	2	
150	Short	0.2	0.5	1.5	150
	Long	0.25	1	2	
200	Short	0.2	0.5	1.5	200
	Long	0.25	1	2	
300	Short	0.2	0.5	1.5	300
	Long	0.25	1	2	
500	Short	0.2	0.5	1.5	500
	Long	0.25	1	2	
800	-	0.2	0.8	1.8	800
1400	-	0.2	0.8	1.8	1400
3000	-	0.2	0.8	1.5	3000
5000	-	0.2	0.8	1.5	5000

3.3. Technical data



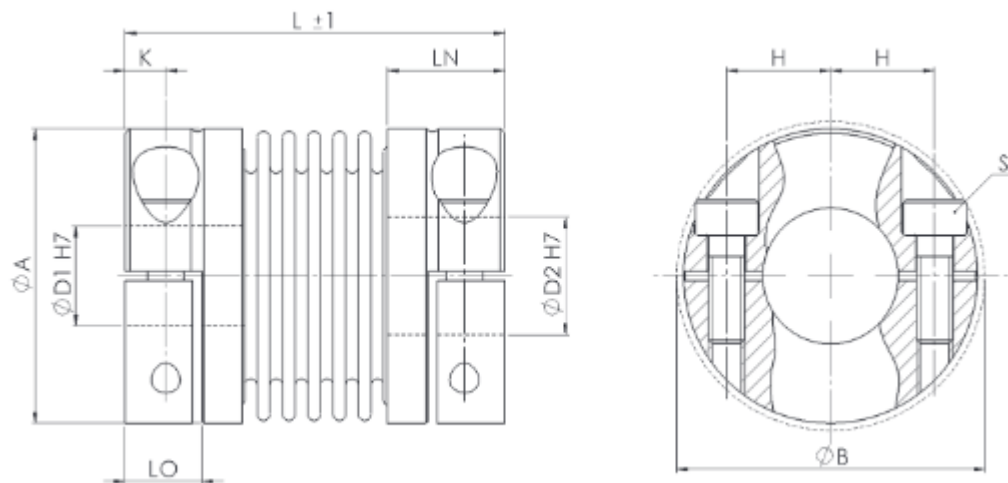
WK couplings with attachments that can generate heat, sparks and static charge (e.g. combinations with brake drums/discs, fan wheels, etc.) are initially not permitted for areas subject to explosion hazards. A separate test must be carried out.

WK2		Abmessungen Dimensions					ISO 4029	Technische Daten Technical Data		
Größe Size	TKN	L	ØA	ØD1 / ØD2	LN	K	S	TA	J	M
	[Nm]	[mm]						[Nm]	[kg cm²]	[kg]
1	0,1	22	10	2 - 5	4,2	2	1x M3	0,5	0,00045	0,003
5	0,5	19	15	3 - 8	6	2,2	1x M3	0,5	0,002	0,006
		23							0,00214	0,006
		27							0,0023	0,007
10	1	21	15	3 - 8	6	2,2	1x M3	0,5	0,00249	0,007
		25							0,0027	0,008
		29							0,0029	0,008
15	1,5	26	20,5	3 - 10	8	3	2x M4	1,5	0,0087	0,013
		30							0,0092	0,014
20	2	27	24,5	3 - 14	8,5	2,7	2x M4	1,5	0,0192	0,02
		33							0,023	0,024
		37							0,026	0,027
45	4,5	40	32	6 - 19	12,3	4,5	2x M6	3	0,08	0,051
		48							0,11	0,068
100	10	45	40	6 - 25	12,5	4,5	2x M6	3	0,188	0,074
		55							0,292	0,11

WK3		Abmessungen Dimensions							ISO 4762	Technische Daten Technical Data		
Größe Size	TKN	L	ØA	ØD1 / ØD2	LN	ØB	K	H	S	TA	J	M
	[Nm]	[mm]								[Nm]	[kg cm²]	[kg]
5	0,5	21	15,5	3 - 8	6,75	17,5	2,4	5,2	M2	0,5	0,0024	0,006
		25									0,0025	0,007
		28									0,0027	0,008
10	1	23	15,5	3 - 8	6,75	17,5	2,4	5,2	M2	0,5	0,0029	0,01
		27									0,0031	0,009
		31									0,0033	0,009
15	1,5	27	20	3 - 10	8,5	21	3	7	M2,5	1,3	0,0077	0,013
		31									0,0083	0,014
20	2	32	25	3 - 14	11	27	3,5	9	M3	2	0,024	0,025
		38									0,0275	0,028
		42									0,031	0,031
45	4,5	42	32,5	6 - 18	13	34	4,5	11,5	M4	5	0,08	0,049
		50									0,11	0,066
100	10	48	40	6 - 25	14	41,5	4,7	15,5	M4	5	0,193	0,074
		57									0,298	0,11

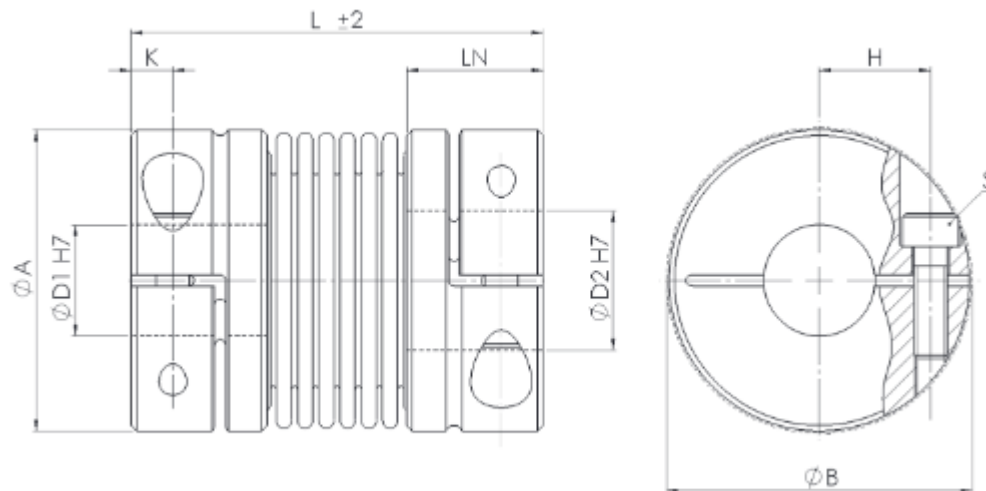
WK3-E		Abmessungen Dimensions							ISO 4762	Technische Daten Technical Data		
Größe Size	TKN	L	ØA	ØD1 / ØD2	LN	ØB	K	H	S	TA	J	M
	[Nm]	[mm]								[Nm]	[kg cm²]	[kg]
5	0,5	26	15,5	3 - 8	7	17,5	2,9	5	M2	0,5	0,0064	0,018
		29									0,0065	0,019
		32									0,0067	0,02
10	1	28	15,5	3 - 8	7	17,5	2,9	5	M2	0,5	0,0064	0,02
		31									0,0066	0,02
		35									0,0072	0,021
15	1,5	33	20	3 - 10	8,5	21	3	7	M2,5	1,3	0,0222	0,037
		37									0,0227	0,038
20	2	35	25	3 - 14	9,8	27	4,1	9	M3	2	0,0619	0,068
		41									0,0652	0,071
		45									0,0689	0,075
45	4,5	47	32,5	6 - 18	12,5	34	5	11,5	M4	5	0,202	0,129
		55									0,233	0,146
100	10	53	40	6 - 25	12,5	41,5	5	15,5	M4	5	0,4356	0,173
		64									0,5428	0,209

3.3.1.6. WK3-H



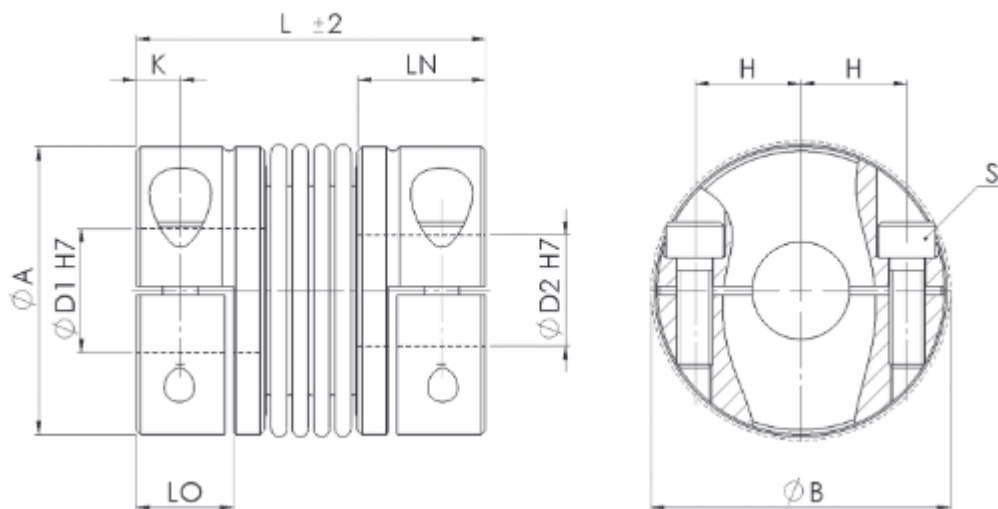
WK3-H		Abmessungen Dimensions								ISO 4762	Technische Daten Technical Data		
Größe Size	TKN	L	ØA	ØD1 / ØD2	LO	LN	ØB	K	H	S	TA	J	M
	[Nm]	[mm]									[Nm]	[kg cm²]	[kg]
5	0,5	21	15,5	3 - 8	4,4	6,75	17,5	2,4	5,2	M2	0,5	0,00144	0,004
		25										0,00261	0,007
		28										0,00281	0,008
10	1	23	15,5	3 - 8	4,4	6,75	17,5	2,4	5,2	M2	0,5	0,00296	0,01
		27										0,0032	0,009
		31										0,00337	0,01
15	1,5	27	20	3 - 10	5,7	8,5	21	3	7	M2,5	1,3	0,00844	0,013
		31										0,00846	0,014
20	2	32	25	3 - 14	6,5	11	27	3,5	9	M3	2	0,0248	0,025
		38										0,0283	0,029
		42										0,03185	0,032
45	4,5	42	32,5	6 - 18	8,5	13	34	4,5	11,5	M4	5	0,082	0,05
		50										0,113	0,068
100	10	48	40	6 - 25	8,8	14	41,5	4,7	15,5	M4	5	0,196	0,075
		57										0,3	0,11

3.3.1.7. WK4



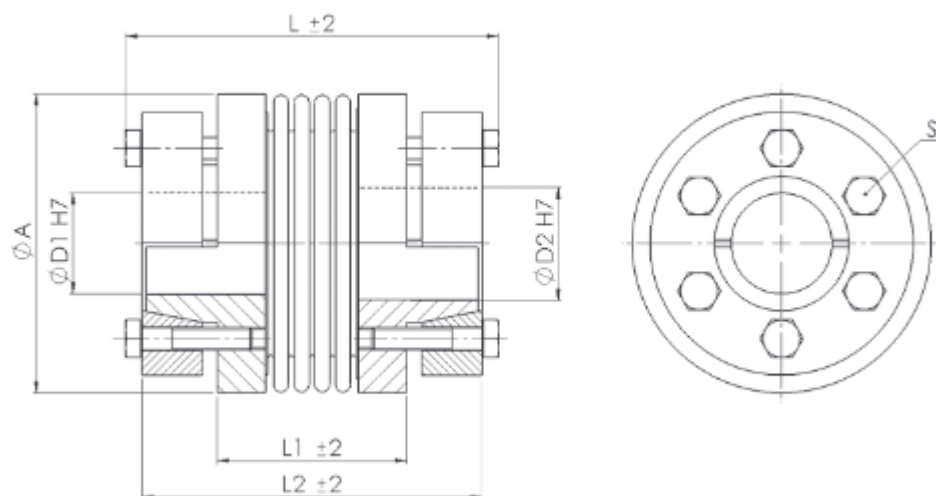
WK4		Abmessungen Dimensions							ISO 4762	Technische Daten Technical Data		
Größe Size	TKN	L	ØA	ØD1 / ØD2	LN	ØB	K	H	S	TA	J	M
	[Nm]	[mm]								[Nm]	[kg cm²]	[kg]
18	18	57	45	8 - 25,4	20,5	47	5,75	17,5	M5	11	0,4	0,13
		63									0,5	0,14
		72									0,6	0,15
30	30	65	54	10 - 30	24,5	56	7,5	20	M6	19	1,1	0,23
		74									1,2	0,25
60	60	79	65	12 - 35	29	67	10	24	M8	42	3,1	0,44
		89									3,2	0,45
80	80	92	79	14 - 42	34	84	11,75	28	M10	83	7,6	0,74
		103									8,2	0,79
150	150	92	79	14 - 42	34	84	11,75	28	M10	83	7,6	0,74
		103									8,2	0,79
200	200	101	90	20 - 45	38	93	12,5	31,5	M12	145	14,1	1,1
		113									15	1,17
300	300	103	109	24 - 60	38	109	13	39	M12	145	30,4	1,7
		116									31,5	1,75
500	500	111	119	35 - 62	41,5	119	14,25	42	M14	255	45	1,99
		123									47	2,05
800	800	169	157	40 - 75	55	157	22,5	55	M20	708	439,3	12,4
1400	1400	169	157	50 - 80	55	157	22,5	55	M20	708	458,2	12,5

3.3.1.9. WK4-H



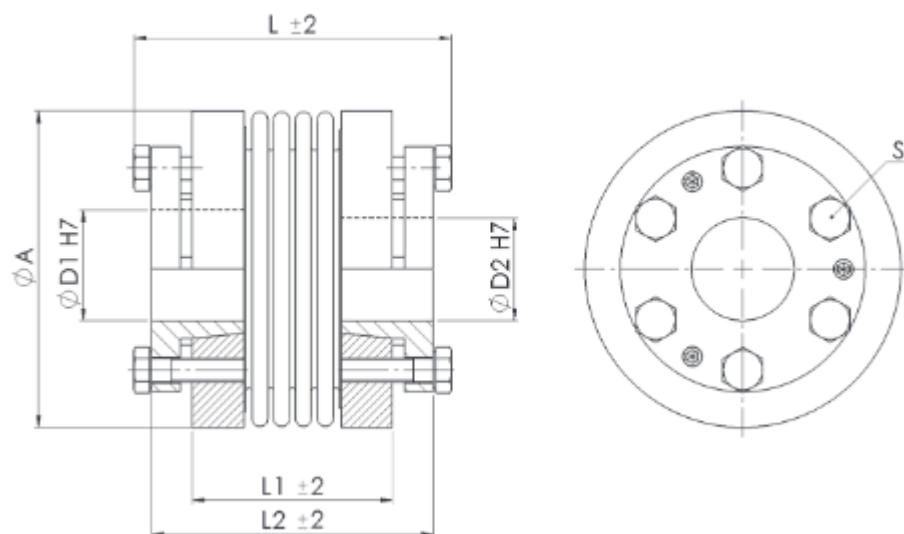
WK4-H		Abmessungen Dimensions								ISO 4762	Technische Daten Technical Data		
Größe Size	TKN	L	ØA	ØD1 / ØD2	LO	LN	ØB	K	H	S	TA	J	M
	[Nm]	[mm]									[Nm]	[kg cm²]	[kg]
18	18	57	45	8 - 25,4	13,5	20,5	47	5,75	17,5	M5	11	0,48	0,14
		63										0,51	0,15
		72										0,53	0,16
30	30	65	54	10 - 30	17	24,5	56	7,5	20	M6	19	1,1	0,23
		74										1,24	0,25
60	60	79	65	12 - 35	22	29	67	10	24	M8	42	3,17	0,46
		89										3,25	0,49
80	80	92	79	14 - 42	24	34	84	11,75	28	M10	83	8,34	0,81
		103										8,92	0,85
150	150	92	79	14 - 42	24	34	84	11,75	28	M10	83	8,34	0,81
		103										8,92	0,85
200	200	101	90	20 - 45	28	38	93	12,5	31,5	M12	145	14,48	1,14
		113										15,49	1,21
300	300	103	109	24 - 60	28	38	109	13	39	M12	145	30,38	1,69
		116										31,45	1,73
500	500	111	119	35 - 62	31,5	41,5	119	14,25	42	M14	255	45,89	2,05
		123										47,7	2,11
800	800	169	157	40 - 75	48	55	157	22,5	55	M20	708	439,3	12,4
1400	1400	169	157	50 - 80	48	55	157	22,5	55	M20	708	458,2	12,5

3.3.1.10. WK5



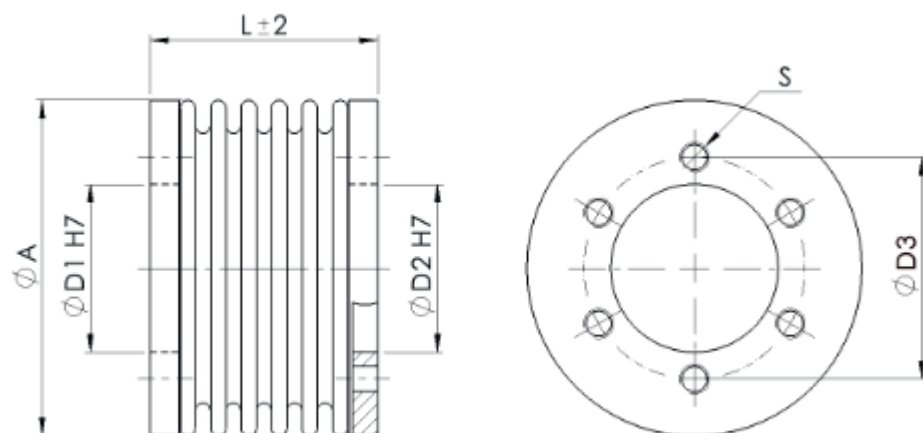
WK5		Abmessungen Dimensions					ISO 4017	Technische Daten Technical Data		
Größe Size	TKN [Nm]	L	ØA	ØD1 / ØD2 [mm]	L1	L2	S	TA [Nm]	J [kg cm²]	M [kg]
4,5	4,5	42	32	6 - 10	25	37	3x M3	2	0,1	0,05
		50			33	45			0,2	0,07
10	10	48	40	8 - 14	29	43	4x M3	2	0,3	0,08
		57			38	52			0,4	0,12
18	18	59	45	8 - 15	31	51	4x M5	11	0,6	0,29
		65			37	57			0,7	0,3
		73			45	65			0,8	0,31
30	30	60	55	12 - 20	30	52	6x M5	11	1,2	0,43
		68			38	60			1,7	0,44
60	60	79	63	15 - 32	34	70	6x M6	19	5,7	0,89
		89			44	80			5,7	0,9
80	80	97	80	20 - 35	48	88	6x M6	19	14,2	1,63
		109			60	100			14,4	1,66
150	150	97	80	20 - 35	48	88	6x M6	19	14,2	1,63
		109			60	100			14,4	1,66
200	200	98	85	20 - 42	50	89	6x M6	19	15	1,8
		110			62	101			16	1,85
300	300	110	110	25 - 50	55	99	6x M8	42	49	3,05
		120			65	109			50	3,09
500	500	125	119	35 - 55	60	113	6x M12	145	83	4,39
		135			70	123			85	4,45
800	800	182	157	50 - 70	105	166	6x M12	145	356	10,88
1400	1400	182	157	50 - 70	105	166	6x M12	145	356	10,88
3000	3000	182	150	55 - 75	105	166	6x M12	145	356	10,88
5000	5000	240	210	60 - 85	140	219	6x M16	360	1652	30,4

3.3.1.11. WK6



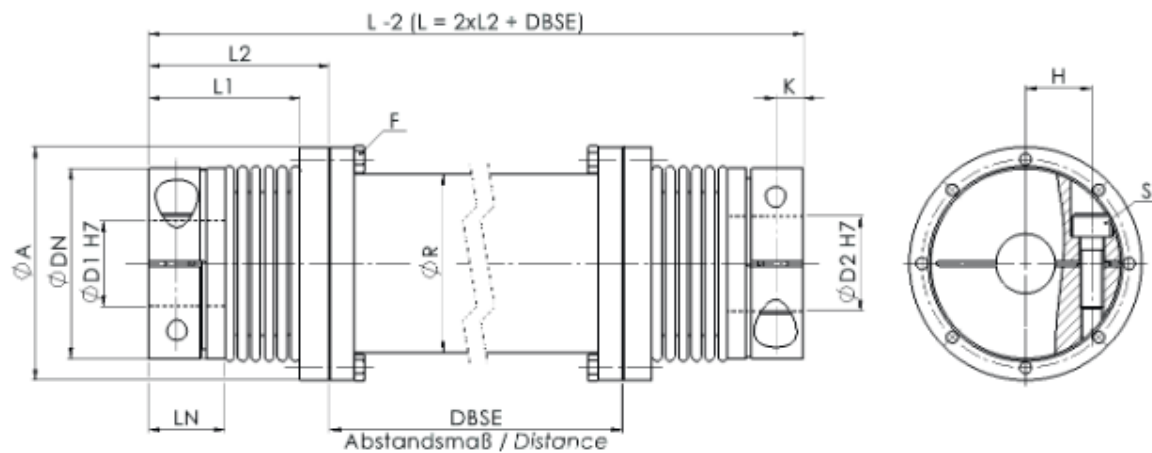
WK6		Abmessungen Dimensions					ISO 4017	Technische Daten Technical Data		
Größe Size	TKN	L	ØA	ØD1 / ØD2	L1	L2	S	TA	J	M
	[Nm]	[mm]						[Nm]	[kg cm²]	[kg]
18	18	56	47	8 - 15	35,5	49,5	6x M4	5	0,47	0,19
		62			41,5	55,5			0,5	0,2
		70			49,5	63,5			0,51	0,21
30	30	53	53	9 - 20	31	46,6	6x M4	5	0,76	0,24
		61			39	54,6			0,91	0,27
60	60	62	65	12 - 25	34	53	6x M6	19	2,22	0,46
		73			45	64			2,47	0,48
80	80	79	80	20 - 35	50	70	6x M6	19	6,52	0,82
		90			61	81			7,1	0,87
150	150	79	80	20 - 35	50	70	6x M6	19	6,52	0,82
		90			61	81			7,1	0,87
200	200	80	85	20 - 42	51	71	6x M6	19	8,46	0,92
		92			63	85			9,46	0,94
300	300	90	110	25 - 50	52,2	78,2	6x M8	42	25,79	1,85
		103			65,6	91,2			28,49	1,86
500	500	103	122	30 - 55	65,2	91,2	6x M8	42	42,04	2,34
		113			75,2	101,2			44,22	2,4
800	800	170	157	30 - 70	105	148	6x M16	360	283,53	9,69
1400	1400	170	157	30 - 70	105	148	6x M16	360	283,53	9,69
3000	3000	170	150	30 - 75	105	148	6x M16	360	324,51	10,23
5000	5000	202	210	60 - 85	140	180	6x M16	360	1147,4	20,92

3.3.1.12. WK7



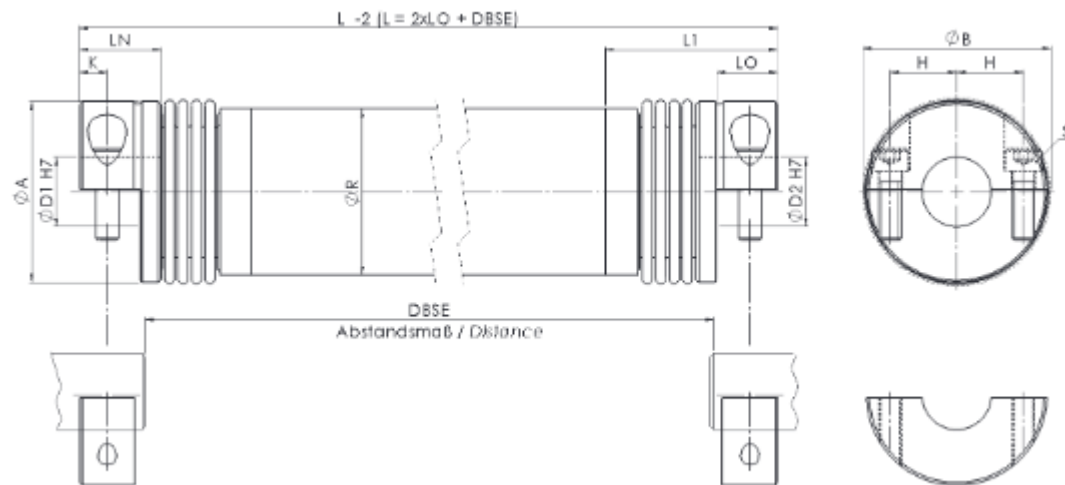
WK7		Abmessungen Dimensions					Technische Daten Technical Data	
Größe Size	TKN	L	ØA	ØD1 / ØD2	ØD3	s	J	M
	[Nm]	[mm]					[kg cm²]	[kg]
18	18	30	46	22	31	6x M5	0,41	0,05
		36					0,44	0,06
		44					0,48	0,07
30	30	30	53	28	37	6x M5	0,85	0,12
		38					0,95	0,13
60	60	41	65	38	46	6x M6	1,98	0,19
		51					2,2	0,2
80	80	50	82	50	62	6x M6	4,5	0,36
		61					5	0,37
150	150	50	82	50	62	6x M6	4,5	0,36
		61					5	0,37
200	200	51	89	50	62	6x M6	8,5	0,48
		63					9	0,49
300	300	54	109	65	80	6x M8	18	0,59
		66					19	0,6
500	500	62	119	70	94	6x M8	23	0,88
		72					24	0,89
800	800	131	157	85	110	6x M16	108	3,74
1400	1400	131	157	85	110	6x M16	108	3,74
3000	3000	131	150	85	110	6x M16	108	3,9
5000	5000	140	210	100	130	6x M16	633	7,5

3.3.1.15. ZWK4



ZWK4		Abmessungen Dimensions										ISO 4762	ISO 4017	Technische Daten Technical Data		
Größe Size	TKN [Nm]	L	ØA	ØDN	ØD1 / ØD2	LN	L1	L2	ØR	K	H	S	F	TA (S) [Nm]	TA (F) [Nm]	CT [Nm/rad]
18	22	140 - 3000	60	45	8 - 25,4	20,5	44	53	40	5,75	17,5	M5	4x M4	11	5	4006
30	36	145 - 3000	70	54	10 - 30	24,5	41,5	57,5	50	7,5	20	M6	6x M4	19	5	9781
60	75	190 - 3000	85	65	12 - 35	29	50	71	60	10	24	M8	6x M5	42	11	22600
150	180	210 - 3000	98	79	14 - 42	34	57,5	70	75	11,75	28	M10	8x M6	83	19	47169
200	240	220 - 3000	120	90	20 - 45	38	62,5	74,5	90	12,5	31,5	M12	8x M6	145	19	75797
300	360	230 - 3000	135	109	24 - 60	38	65	79	100	13	39	M12	8x M8	145	42	160700
500	600	250 - 3000	148	119	35 - 62	41,5	70,5	84,5	100	14,25	42	M14	8x M8	255	42	240740

3.3.1.16. ZWK4-H



ZWK4-H		Abmessungen Dimensions										ISO 4762	Technische Daten Technical Data	
Größe Size	TKN	L	ØA	ØD1 / ØD2	LN	LO	L1	ØR	ØB	K	H	S	TA	CT
	[Nm]	[mm]											[Nm]	[Nm/rad]
10	10	82 - 3000	40	6 - 25	14	8,8	42	35	41,5	4,7	15,5	M4	5	3521
18	22	132 - 3000	45	8 - 25,4	20,5	13,5	55	40	47	5,75	17,5	M5	11	4006
30	36	130 - 3000	54	10 - 30	24,5	17	52	50	56	7,5	20	M6	19	9781
60	75	165 - 3000	65	12 - 35	29	22	61	60	67	10	24	M8	42	22600
150	180	196 - 3000	79	14 - 42	34	24	70,5	75	84	11,75	28	M10	83	47169
200	240	218 - 3000	90	20 - 45	38	28	74	90	93	12,5	31,5	M12	145	75797
300	360	220 - 3000	109	24 - 60	38	28	82	100	109	13	39	M12	145	160700
500	600	250 - 3000	119	35 - 62	41,5	31,5	84,5	100	119	14,25	42	M14	255	240740

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 31

4. Operational planning

4.1. Operational planning

Check the delivery for damage and completeness. Report any damage and/or missing parts immediately in writing or by telephone to RINGSPANN StS GmbH.

4.2. Transport of the coupling



Serious physical injury due to improper transport

To avoid injuries of any kind, use only hoists and load handling equipment with sufficient load capacity during transport.

4.3. Storage of the coupling



Material damage through improper storage

Negative changes in the physical properties of the coupling and/or damage to the coupling.

→ Please note the instructions for storing the coupling.

Unless expressly ordered otherwise, the coupling hub is delivered preserved and can be stored for up to 3 months.

Tips on storing the coupling

- Make sure that the storage space is dry (humidity <65 %) and dust-free.
- Make sure that there is no condensation.
- Do not store the coupling with corrosive chemicals, acids, alkalis, etc.
- Make sure that there is no ozone-generating equipment in the storage room, e.g. fluorescent light sources, mercury vapour lamps or high-voltage electrical equipment.
- Store the couplings on suitable supports or in suitable containers.

4.3.1. Long-term storage



Material damage through incorrect long-term storage

Negative changes in the physical properties of the coupling and/or damage to the coupling.

→ Please note the information on long-term storage.

1. See the following table for the required type of corrosion protection

Corrosion protection	Properties	Indoor storage	Outdoor storage
Spray oil	Corrosion inhibitors	Up to 12 months	Up to 4 months
Tectyl 846 or similar	Long-term wax-based corrosion protection	Up to 36 months	Up to 12 months
Emulsion cleaner + VCI film	Casting system, reusable	Up to 5 years	Up to 5 years

2. Clean the coupling parts.
3. Apply the specified preservation.
4. Store the coupling parts.

5. Assembling



Instructions for assembling the coupling

- Use only undamaged components for assembling the coupling.
- Keep to the assembly sequence.
- To ensure that the coupling is installed without danger, ensure that there is sufficient space and the installation site is tidy and clean.
- If a dimensional drawing was created for the coupling, give priority to the entries in this.
- We recommend checking the holes, shaft, groove and key for dimensional accuracy before assembly.
- Be aware of the risk of ignition in areas subject to explosion hazards!



5.1. Overview of the preparatory work

Preparatory work is not necessary, as the coupling is delivered drilled, grooved and balanced.

The balancing is carried out according to customer requirements or according to the half-key agreement (DIN ISO 21940-32) with balancing quality G16 (DIN ISO 1940).

5.2. Assembling the coupling

5.2.1. WK1 + WK9

1. Loosen the cylinder screw and the expansion mandrel
2. Clean, degrease/de-oil and dry the hollow shaft bore and the clamping seat of the clamping hub with expansion mandrel.
3. Slide the coupling with the clamping cone and the cylinder screw into the hollow shaft and hold or support the coupling.
4. Tighten the cylinder screw with the specified tightening torque TA.
5. Slide the shaft into the coupling hub.
6. Align the coupling according to the specifications.
7. Tighten the cylinder screw with the specified tightening torque TA.

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 33

5.2.2. WK2 + WK2-E

1. Unscrew the set screws so that a collision with the key or shaft is no longer possible.
2. Clean the bores and shaft ends.
3. Put the coupling on the shaft with a suitable device and hold or support the coupling.
4. Tighten the set screws with the specified tightening torque TA.
5. Slide the shaft into the coupling hub.
6. Align the coupling according to the specifications.
7. Tighten the set screws with the specified tightening torque TA.

5.2.3. WK3 + WK3-E + WK4 + WK4-E + ZWK4

1. Loosen the cylinder screws.
2. Clean the bores and shaft ends.
3. Put the coupling on the shaft with a suitable device and hold or support the coupling.
4. Tighten the cylinder screws with the specified tightening torque TA.
5. Slide the shaft into the coupling hub.
6. Align the coupling according to the specifications.
7. Tighten the set screws with the specified tightening torque TA.

5.2.4. WK3-H + WK4-H + ZWK4-H

1. Loosen the cylinder screw
2. Remove the half-shells from the base body.
3. Clean the bores and shaft ends.
4. Put the coupling on the shaft with a suitable device and hold or support the coupling.
5. Place the assembled unit with the half shells and the clamping screws on the shaft ends of the drive and driven machine.
6. First, screw the parts together by hand until the hub base bodies with the half shells are firmly attached to the shaft.
7. Align the coupling according to the specifications.
8. Secure the clamping hub by alternating the cylinder screws. Tighten the cylinder screws alternately in several stages up to the specified tightening torque TA.

5.2.5. WK5

1. Loosen the hexagon screw and pull the tension ring slightly away from the hub part.
2. Clean the bores and shaft ends.
3. Put the coupling on the shaft with a suitable device and hold or support the coupling.
4. Tighten the hexagon screw crosswise in several stages up to the specified tightening torque TA.
5. Slide the shaft into the coupling.
6. Align the coupling according to the specifications.
7. Tighten the hexagon screw crosswise in several stages up to the specified tightening torque TA.

5.2.6. WK6

1. Loosen the hexagon screws and pull the collet slightly off the hub part.
2. Clean the bores and shaft ends.
3. Put the coupling on the shaft with a suitable device and hold or support the coupling.
4. Tighten the hexagon screw crosswise in several stages up to the specified tightening torque TA.
5. Slide the shaft into the coupling.
6. Align the coupling according to the specifications.
7. Tighten the hexagon screw crosswise in several stages up to the specified tightening torque TA.

5.2.7. WK7

1. Clean the bores and shaft ends.
2. Place the coupling with suitable device on the hubs manufactured by the customer and hold or support the coupling.
3. Tighten the fastening screws of the flange to the tightening torque TA specified by the customer.

5.2.8. WK8

For backlash-free torque transmission, determine the total length before assembly. To do this, plug the coupling together without backlash. Measure the total length without applying an additional axial force.

1. Loosen the cylinder screws.
2. Clean the bores and shaft ends.
3. Put the coupling on the shaft with a suitable device and hold or support the coupling.
4. Tighten the cylinder screw with the specified tightening torque TA.
5. Slide the pluggable coupling part into the metal bellows until the previously determined total length reduced by the preload v is reached.
6. Align the coupling according to the specifications.
7. Tighten the set screws with the specified tightening torque TA.

WK8	2	4,5	10	18	30	60	80	150	200	300	500
v	0.5	0.5	1	0.5-1	0.5-1	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5	0.5-2

5.3. Aligning the coupling

5.3.1. Purpose of aligning

The shafts connected by the coupling are never on an ideally accurate axis, but have a certain offset.

Offset in the coupling leads to resetting forces that can put undue strain on the adjacent machine parts (e.g. the bearing).

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 35

The offset values during operation result from the following:

- Assembly-related offset
Misalignment due to inaccuracy in alignment
- Operational offset
e.g.: load-related deformation, thermal expansion

By aligning after mounting, you minimize offset. Low misalignment in the coupling has the following advantages:

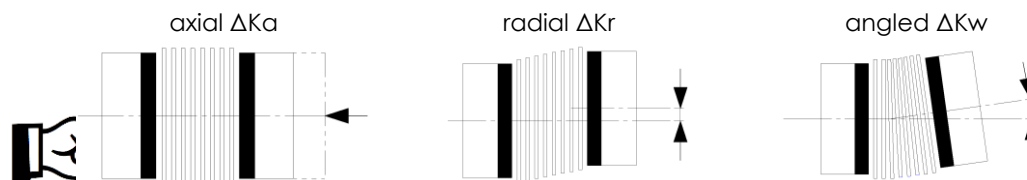
- Reduced wear
- Reduced reset forces
- Offset reserves for the operation of the coupling



To ensure a long life of the coupling and avoid hazards when used in areas subject to explosion hazards, the shaft ends must be precisely aligned. Be sure to comply with the specified displacement values. If the values are exceeded, the coupling will be damaged.

The more precisely the coupling is aligned, the longer its service life. When used in areas subject to explosion hazards for explosion group IIC (marking II 2GD c IIC T X), only half the displacement values are permissible.

5.3.2. Possible offsets



On page 12+13 you will find max. permissible guideline values for the individual offset types. They offer security against operational influences, such as thermal expansions and or subsidence of foundations. If multiple offset types occur at the same time, the max. permissible offset values must be reduced. The total actual offsets as a percentage of the maximum value may not exceed 100%.

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 36



Precise alignment of the metal bellows couplings significantly increases the service life of the metal bellows. The loads on the adjacent bearings are reduced and the smoothness of the entire drive train is positively influenced. For drives with very high speeds, we recommend aligning the metal bellows coupling with a dial gauge.

6. Startup

Carry out various tests beforehand to ensure a safe startup.



When used in hazardous areas, all screw connections must also be secured against self-loosening, e.g. gluing with Loctite (medium-strength).

6.1. Tests before startup



Danger

Overload conditions can occur during the startup of the coupling. The coupling can burst and metal parts can be blown off.

Flying fragments pose a danger to life.

→ Perform the tests before startup.

→ Do not touch the rotating coupling.

→ Remove the cover only allowed when the coupling is stationary.

1. Check the bolt tightening torques of the coupling according to tightening torques and spanner sizes.
2. Check the tightening torques of the foundation screws of the coupled machines.
3. Check that the housings (coupling protection, contact protection) are mounted and that the function of the coupling is not impaired by the housing. This also applies to the test runs and rotation direction checks.

6.2. Guard

The cover must be electrically conductive and included in the equipotential bonding.

Aluminium pump supports (magnesium content less than 7.5%) and damping rings (NBR) are approved as connecting elements between the pump and the electric motor. The cover may only be removed when the coupling is stationary.



When using the coupling in areas at risk of dust explosion, the operator must ensure that dust does not accumulate **in dangerous quantities** between the cover and the coupling.

The coupling must not run in a dust fill.

For covers with unsealed openings in the top, light metals should not be used if the couplings are used as devices of device group II (preferably made of stainless steel).

The minimum distance "Sr" of the guard for parts to be rotated must be at least the values mentioned below.

If the protective device is designed as a cover, regular openings can be arranged from the point of view of explosion protection, which must not exceed the following dimensions:

Openings	Cover [mm]		
	Top	Sides	Spacing "Sr"
Circular – max. diameter	4	8	≥ 10
Rectangular – side length	4	8	≥ 10
Straight or curved slot – max. side length/height	Not permitted	8	≥ 20

6.3. Coupling coating



If coated (primer, paints, ...) couplings are used in hazardous areas, the requirements for conductivity and layer thickness must be observed. For paint applications up to 200 µm, an electrostatic charge is not to be expected. Multiple applications with layer thicknesses of more than 200 µm for explosion group IIC are not permitted.

7. Operations

7.1. Normal operation of the coupling

In normal operation, the coupling runs quietly and vibration-free.

7.2. Fault – causes and remedy

Behaviour that deviates from normal operation is a fault and must be rectified immediately.

During the operation of the coupling, pay attention to the following:

- Changed running noises
- Sudden shocks/vibrations
- Fracture of the bellows and/or hub

7.2.1. What to do in the event of malfunctions



Danger of bursting the coupling

Flying fragments pose a danger to life.

- Shut the system down immediately in the event of malfunctions.
- When carrying out repair work, please note the possible causes of the fault and the instructions for remedying faults.

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 38

If there is a fault in the coupling during operation, follow these steps:

1. Switch off the drive immediately.
2. Initiate the necessary repair measures in compliance with the applicable safety regulations.

If you cannot determine the cause or cannot carry out the repair with your own resources, please contact us.

7.2.2. Identify the cause of the fault

Faults often occur due to application errors, or they are caused by operational reasons due to wear and tear of wear parts or changes to the system.

The faults and causes of faults listed below are only indications for troubleshooting. In the case of a complex system, involve all components of the system in troubleshooting.



Bodily injury

Injury caused by rotating parts.

- Carry out work on the coupling only when it is stationary.
- Secure the drive unit against unintentional startup.
- Attach a sign to the switch-on point indicating that work is being done on the coupling.
- Before starting work, make sure that the system is idle.

The coupling is only approved for the areas of application specified in this manual. Follow the guidelines in the section on intended use (s. 2.2.).



Improper use can turn the coupling into an ignition source. EU Directive 2014/34/EU requires special care from the manufacturer and user.

7.2.2.1. Possible faults

Fault	Cause	Danger warnings for areas subject to explosion hazards	Remediation
Altered running noise and/or vibrations/vibrations	Changed alignment	Danger of ignition	Follow the instructions in the "Correct altered alignment" section (page 14).
	Coupling unsuitable for the operating conditions. Check the possible causes in the section "Unsuitable couplings" (page 13).	Danger of ignition	Use a coupling suitable for the operating conditions.
	Incorrect assembly of the coupling. Check the possible causes in the section "Assembly-related causes" and "Specific assembly- and maintenance-related causes" (page 13).	Danger of ignition	Reinstall the coupling according to these instructions. Observe all specifications and regulations in the "Assembly" chapter.
	Screws for axial hub locking loose	Danger of ignition	Tighten the screws to secure the hubs and secure them against self-loosening.
Fracture of the bellows and/or hub	Coupling unsuitable for the operating condition.	Danger of ignition	Use a coupling suitable for the operating conditions.

	Check the possible causes in the section "Unsuitable coupling" (page 13).		
	Incorrect assembly of the coupling. Check the possible causes in the section "Assembly-related causes" and "Specific assembly- and maintenance-related causes" (page 13).	Danger of ignition	Replace the coupling. Assemble the coupling according to these instructions. Observe all specifications and regulations in the "Assembly" chapter.
	Operating errors of the system unit	Danger of ignition	Replace the coupling. Instruct the operating personnel.



Damaged metal bellows lead to sparks and explosions. Inspections as maintenance according to DIN EN 80079-36 are to be carried out as a more elementary component of explosion protection.

7.2.2.2. Possible causes

7.2.2.2.1. Unsuitable coupling

- Important information on the description of the drive and the environment was not available when the coupling was selected.
- System torque too high and/or torque dynamics not permissible.
- System speed too high.
- Application factor not selected correctly.
- When the hubs were installed in a heated condition, the permissible temperature was exceeded.
- Chemically aggressive environment not taken into account.
- Coupling not suitable for ambient temperature.
- Diameter and/or fit assignment of the finished bore inadmissible.
- Groove dimensions of keyways greater than groove dimensions for keyways according to DIN 6885/1 with maximum permissible bore.
- Shaft-hub connection incorrectly dimensioned.
- Maximum permissible load conditions not taken into account.
- Maximum permissible overload conditions not taken into account.
- Dynamic load states not taken into account.
- Coupling and machine and/or drive train form critical torsional, axial or bending vibration system.
-  The coupling or the coupling protection used is not suitable for operation in areas subject to explosion hazards or not within the meaning of EU Directive 2014/34/EU.

7.2.2.2.2. Assembly-related causes

- Damaged components assembled.
- Shaft diameter outside the prescribed tolerance range.
- Hubs swapped and therefore not assigned to the intended shaft.
- Prescribed securing elements against axial movements not installed.
- Prescribed tightening torques not complied with.

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 40

- Screws inserted dry or greased.
- Flange surfaces of bolted joints not cleaned.
- Alignment and/or shaft displacement values not set according to instructions.
- Coupled machines are not correctly connected to the foundation, so that moving the machine leads to impermissible mounting of the coupling parts.
- Coupled machines not sufficiently earthed.
- Used coupling protection not suitable.

7.2.2.2.3. Maintenance-related causes

- Maintenance intervals not adhered to.
- Used individual parts not original spare parts from RINGSPANN StS.
- RINGSPANN StS spare parts used are old or damaged.
- Leakage in the vicinity of the coupling is not detected, so that chemically aggressive agents damage the coupling.
- Indications of disturbances, such as noise or vibrations, are not heeded.
- Prescribed tightening torques not complied with.
- Orientation and/or shaft displacement values not set according to instructions.

7.2.3. Rectifying faults

7.2.3.1. Correcting a changed orientation

A change in the orientation of the coupling during operation often occurs when coupled machines shift against each other. One cause for this can be loose foundation screws.

Procedure

1. Eliminate the cause of the alignment change.
2. Check the securing elements against axial movement and correct them if necessary.
3. Realign the coupling.

8. Service

8.1. Maintenance intervals



Risk of injury due to coupling rupture

The coupling can burst if the maintenance intervals are not complied with.
Flying fragments pose a danger to life.

→ Observe all maintenance requirements in this section.



Risk of injury due to coupling bursting

If the maximum permissible backlash is exceeded, the coupling can burst.
Flying fragments pose a danger to life.

→ Check the actual wear and tear of the sprocket as well.



Bodily injury caused by rotating parts

→ Carry out work on the coupling only when it is stationary.

→ Secure the drive unit against unintentional startup.

→ Attach a sign to the switch-on point indicating that work is being done on the coupling.

→ Before starting work, make sure that the system is idle.

Carry out a visual inspection. Particular attention must be paid to the condition of the metal bellows of the coupling. Replace the coupling if damage or cracks are visible.

Service intervals

Initial service	Follow-up service
3 months after startup	Every 12 months



→ After the first startup of the coupling, check the tightening torques of the screws at normal service intervals.



For use in areas subject to explosion hazards, Chapter 12.2 *Control intervals for couplings in areas subject to explosion hazards* must be observed.

8.2. Dismantling the coupling

8.2.1. WK1 + WK9

- 1 Secure the coupling against falling.
- 2 Loosen the cylinder screw
- 3 Move the coupled machines apart and use them to pull the drive shaft out of the coupling hub.
- 4 Loosen the cylinder screw.
- 5 Remove the coupling.

When reassembling the coupling parts, observe the instructions in the chapters "Assembly" (5.3.) and "Startup" (6.).

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 42

8.2.2. WK2 + WK2-E + WK3 + WK3-E + WK3-H + WK4 + WK4-E + WK4-H + WK8 + ZWK4 + ZWK4-H

- 1 Secure the coupling against falling.
- 2 Loosen the cylinder screws or setscrews
- 3 Move the coupled machines apart.
- 4 Remove the coupling.

When reassembling the coupling parts, observe the instructions in the chapters "Assembly" (5.3.) and "Startup" (6.).

8.2.3. WK5

- 1 Secure the coupling against falling.
- 2 Loosen the hexagon screws and pull the tension ring slightly off the hub part.
- 3 Move the coupled machines apart.
- 4 Remove the coupling.

When reassembling the coupling parts, observe the instructions in the chapters "Assembly" (5.3.) and "Startup" (6.).

8.2.4. WK6

- 1 Secure the coupling against falling.
- 2 Loosen the hexagon screws and pull the collet slightly off the hub part.
- 3 Move the coupled machines apart.
- 4 Remove the coupling.

When reassembling the coupling parts, observe the instructions in the chapters "Assembly" (5.3.) and "Startup" (6.).

9. Service and Support

Contact

For spare parts orders or technical questions, please contact us.

RINGSPANN StS GmbH

Hansaring 6

63843 Niedernberg

Deutschland

Tel.: +49 (0) 6028 40642-0

Fax.: +49 (0) 6028 40642-19

www.ringspann-sts.de

info@ringspann-sts.de

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 43

10. Disposal

Disposing of the coupling

Dispose of the coupling parts in accordance with applicable national regulations or recycle them.

11. Spare parts

10.1. Ordering spare parts

To ensure the operational readiness of the coupling, keep important spare parts in stock at the installation site.



Original spare parts

Only use original spare parts from RINGSPANN StS GmbH. RINGSPANN StS GmbH only assumes liability for original spare parts. Other spare parts are not approved by RINGSPANN StS.

Spare parts may alter the design characteristics of the coupling and thus impair active and/or passive safety.

Any liability and warranty on the part of RINGSPANN StS is excluded for damage caused by the use of spare parts that have not been approved.

The same applies to any accessories not supplied by RINGSPANN StS.

The spare parts available for the coupling described here can be found under technical data (3.2.).

Information when ordering spare parts

- StS order number with item
- StS drawing number (if available)
- Coupling design and coupling size
- Part number (3.2.2)
- Dimensions of the spare part (e.g. bore, bore tolerance, keyway, balancing, ...)
- Special dimensions (e.g. flange connection dimensions, intermediate sleeve length or brake drum dimensions)
- Any special features of the spare part (e.g. temperature resistance, electrical insulation, operating fluid, use in areas subject to explosion hazards)
- Number of units

12. Annex 1

Information and regulations for use in areas

Coupling type	Design	Size	Material
WK1 + WK9	Expansion mandrel design	5 – 300	Aluminium
WK2	Clamping screw design	1 – 100	Aluminium
WK2-E	Clamping hub design	1 – 100	Stainless steel
WK3 + WK4	Clamping hub design	5 – 500	Aluminium
WK4	Clamping hub design	800 – 1400	Steel
WK3-H + WK4-H	Half-shell design	5 – 500	Aluminium or steel
WK3-E + WK4-E	Clamping hub design	5 – 500	Stainless steel
WK5	Cone clamping ring design	4,5 – 5000	Steel
WK6	Cone clamp hub design	18 – 5000	Aluminium or steel
WK7	Flange design	18 – 5000	Aluminium or steel
WK8	Axial plug-in	2 – 500	Aluminium

Valid only for the above mentioned coupling types and sizes

Steel with a yield strength $R_{p0.2} \geq 275 \text{ N/mm}^2$

Aluminium with a yield strength $R_{p0.2} \geq 250 \text{ N/mm}^2$



Hubs, clamping hubs or similar variants without a keyway may only be used in category 3.

When used in explosion-proof areas, the size of the coupling must be chosen in such a way that at least a safety of $s=2.0$ can be guaranteed (from the system moment to the coupling moment or shaft-hub connection).

11.1. Intended use in hazardous areas



RINGSPANN StS metal bellows couplings are suitable for use in accordance with EU Directives 2014/34/EU.

12.1.1. Industry (except mining)

- Device group II in Category 2 and 3
→ Coupling is not **approved** for device group 1
- Substance group G (Gas, Mist, Vapours), Zone 1 und 2
→ Coupling is **not approved** for Zone 0
- Substance group D (Dusts), Zone 21 und 22
→ Coupling is **not approved** for Zone 20
- Explosion group IIC
→ Explosion group IIA and IIB are included in IIC

12.1.1.1 Temperature class

Temperature class	Ambient or operating temperature T_a	Max. surface temperature
T4, T3, T2, T1	-30°C to +90°C ^{a)}	+110°C ^{b)}
T5	-30°C to +80°C	+100°C
T6	-30°C to +65°C	+85°C

Explanation:

The max. surface temperatures result from the maximum permissible ambient or operating temperature T_a . The maximum temperature increase ΔT of 20 K to be taken into account.

a) The ambient or operating temperature is limited by the permissible continuous service temperature.

b) The max. surface temperature of +110°C also applies to use in potentially explosive dust areas.

12.1.2. Mining

Equipment groups I and II of category M2 and 2 and protection systems (metal bellows coupling) are **not approved** for equipment category M1). Permissible ambient temperature -30°C to +120°C.

11.2. Control intervals for couplings in areas

Explosion group	Control interval
3G 3D	For couplings classified in category 3G or 3D, the usual operating and assembly instructions for normal operation apply. The couplings are free of ignition sources in normal operation, which is to be used as a basis for the ignition hazard analysis. Only the temperature increase caused by self-heating and depending on the coupling type is to be taken into account: For WK: ΔT of 20 K
II 2GD c IIB T4, T5, T6	Visual inspection of the metal bellows must be carried out for the first time after 3,000 operating hours after startup of the coupling, and after six months at the latest. If this initial inspection reveals insignificant or no breakage, further inspection intervals can be carried out after 6,000 operating hours, or after 1.5 years at the latest, provided that the operating parameters are the same. If there is a fracture during the initial inspection, the cause must be determined – as far as possible – in accordance with the "Faults" table (see point 7). The maintenance intervals must then be adapted to the changed operating parameters.
II 2GD c IIC T4, T5, T6	Visual inspection of the metal bellows must be carried out for the first time after 2,000 operating hours after startup of the coupling, and after three months at the latest. If this initial inspection reveals no breakage, further inspection intervals can be carried out after 4,000 operating hours, or after one year at the latest, provided that the operating parameters are the same. If there is a fracture during the initial inspection, the cause must be determined – as far as possible – in accordance with the "Faults" table (see point 7).



Hubs, clamping hubs or similar variants without a keyway may only be used in category 3.

11.3. Permissible materials in the area

The following materials may be combined in explosion groups **IIA**, **IIB** and **IIC**:

- EN-GJL-250 (GG 25)
- EN-GJS-400-15 (GGG 40)
- Steel
- Stainless steel

Semi-finished aluminium products with a magnesium content of up to 7.5% and a yield strength of $R_{p0.2} \geq 250 \text{ N/mm}^2$ are approved for hazardous areas.

Die-cast aluminium is generally excluded for hazardous areas.

11.4. Marking example

Couplings for use in areas subject to explosion hazards are marked for the respective permissible operating conditions completely on at least one component and on the other components by an  mark on the outer diameter of the hub or on the front side.

		II	2G	Ex h	IIA T6	Gb	X
		II	2D	Exh	IIIA T85°C	Db	X
		Device group	Category	Ignition protection type	Explosion group / Temperature class / Max. surface temperature	Device protection level	Additional marking

Device group	Meaning
I	Approved for underground operation
II	Approved for all other areas of application

Category	Approved for zone	Zone description
2G	1	Area in which an explosive atmosphere can form as a mixture of air and flammable gases, vapours or mists during normal operation.
3G	2	Area in which an explosive atmosphere as a mixture of air and flammable gases, vapours or mists normally does not occur or only occurs for a short time during normal operation.
2D	21	Area with conditions such as Zone 1, with air-dust atmosphere.
3D	22	Area with conditions such as Zone 2, with air-dust atmosphere.

(Device category: G = Gas | D = Dust)

Ignition protection type	Description
Ex h	Constructive safety: the risk of ignition is avoided by the design of the device.

Temperature class / max. surface temperature	IIA	IIB (includes IIA)	IIC (includes IIA + IIB)
--	-----	-----------------------	-----------------------------

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 47

T1 / 450°C	Acetone, ammonia, methane	Town (illuminating) gas	Hydrogen
T2 / 300°C	Ethyl alcohol, n- butane, cyclohexane	Ethylene, ethylene oxide	Ethin /Acetylene)
T3 / 200°C	Petrol, heating oil, diesel fuel	Ethyl glycol, hydrogen sulphide	
T4 / 135°C	Acetaldehyde	Ethyl ether	
T5 / 100°C			
T6 / 85°C			Carbon disulphide

Device protection level in accordance with IEC 60079	Significance
Ga	Very high level of protection
Gb	High level of protection
Gc	Extended level of protection
Da	Very high level of protection
Db	High level of protection
Dc	Extended level of protection

Additional marking	Significance
X	Special conditions of use (from description)
U	The part is a component. Conformity must be declared after installation in a device.

11.5. Metal bellows couplings

CE		II	2G	Ex h	IIB T4	Gb	X
		II	2D	Exh	IIIC T135°C	Db	X

All dimensions and materials of the standard models are largely retained.
The design corresponds to all permissible offset values of the standard coupling. The transmittable torque of the standard coupling is reduced by approx. 30% (guideline).



For other safety reasons, such as machinery directives, ATEX metal bellows couplings may only be operated in an enclosed housing. Input and output sides must be monitored to ensure immediate shutdown in the event of a cam breakage.

RINGSPANN	Installation and Operating Instructions for WK Metal Bellows Coupling			E 06.713en	
Issue: 29.07.2026	Version: 01	Signed.: SCHW	Checked.: ARTA	Pages: 48	Page: 48

11.6. EU Declaration of Conformity

EU Declaration of Conformity

*within the meaning of EU Directive 2014/34/EU of 26.02.2014
and with the legislation adopted for its implementation*

The manufacturer RINGSPANN StS GmbH, D-63843 Niedernberg - declares that the

WK Metal Bellows Couplings

described in this operating/assembly manual and realised with explosion-proof designs

are devices within the meaning of Article 2, 1 of Directive 2014/34/EU
and meet the essential safety and health requirements set out in Annex II of Directive 2014/34/EU.

The coupling referred to here meets the requirements of the following standards/directives:

DIN EN 1127-1
EN ISO 80079-36
EN ISO 80079-37
CLC/TR 50404

The WKE coupling complies with the requirements of Directive 2014/34/EU.

Can be used in:  II 2GD c IIC T X/I M2 c X

StS Coupling GmbH, as the manufacturer, also declares compliance with the new
requirements of the new standard editions for the above-mentioned product.

In accordance with Article 13 (1) b) ii of Directive 2014/34/EU, the technical documentation
is deposited with the notified body under deposit number 192/24:

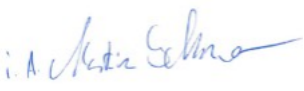
IBExU
Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7

09599 Freiburg

Niedernberg
Place

29.07.2026
Date


Ernst Fritzemeier
Managing Director


p.p. Martin Schneeweis
Product Manager