JAKOB Antriebstechnik

Product Range

ATEX-COUPLINGS

Product Overview: ATEX Couplings

ATEX Couplings

Couplings for use in potentially explosive atmospheres (ATEX)

ATEX („Atmosphères Explosibles“) refers to the marking required by European product directive 2014/34/EU and confirms that components are suitable for use in potentially explosive atmospheres. Strict safety regulations apply to machine components wherever flammable gases, vapors, or dusts can create an explosive atmosphere. To meet these demanding requirements, JAKOB Antriebstechnik offers a wide range of proven servo couplings with official ATEX certification.

Typical industries for ATEX couplings:

- Mechanical Engineering
- Machine Tools
- Metal Forming Technology
- Automation and Robotics
- Measurement and Test Rig Technology
- Medical Technology and Pharmaceutical Industry
- Energy Technology
- Process Engineering
- Food Industry
- Vacuum Technology
- Transport and Systems Engineering
- Plant Engineering

Typical application areas for ATEX couplings:

- Painting and coating systems
- Chemical industry
- Food and feed industry
- Pharmaceutical industry
- Oil and gas industry
- Wood industry
- Process engineering
- Biogas and wastewater treatment plants

Marking of ATEX couplings:

ATEX Series

Metal bellows couplings

- KM-Ex
- KP-Ex
- KR-Ex
- KPH- / KMH- / KRH-Ex

Miniature couplings

- MKM-Ex
- MKP-Ex
- MKG-VA-Ex

Distance Couplings

- WDS-Ex
- WD-VA-Ex

Stainless Steel Couplings

- KG-VA-Ex
- KGH-VA-Ex
- KG-HS-VA-Ex
- WD-VA-Ex
- MKG-VA-Ex

Safety couplings and elastomer couplings on request.

Metal Bellows Couplings I Series KM - Ex

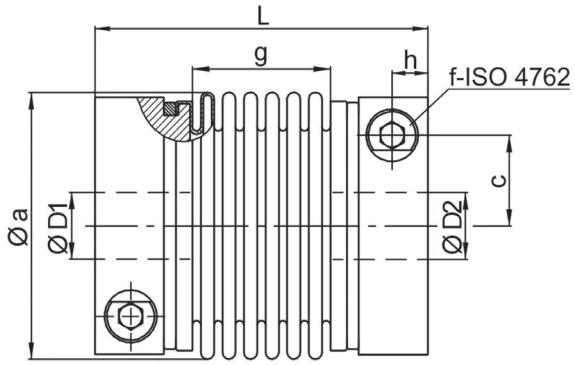
- 6-corrugation bellows • simple installation with lateral EASY-clamping hub
- low-cost standard series

technical data:

KM - Ex size	TN [Nm]	moment of inertia [10^{-3}kgm^2]	torsional stiffness [Nm/arcmin]	max. shaft misalignment (mm) axial±	lateral	axial spring rate [N/mm]	lateral spring rate [N/mm]	tightening torque of screws TA [Nm]	RPM n_{max} [1/min]
20	10	0,14	5,2	0,55	0,175	51	190	14 (8)	20000
35	17,5	0,14	5,8	0,55	0,175	51	190	14 (8)	20000
60	30	0,29	8,7	0,6	0,2	49	260	30 (15)	17000
80	40	0,79	14	0,7	0,2	45	280	50 (20)	14000
170	85	0,83	17	0,7	0,2	80	470	50 (20)	14000
270	135	2,2	32	0,7	0,2	70	450	90 (25)	11000
400	200	2,4	47	0,7	0,2	100	640	90 (25)	11000
600	300	5,3	67	0,7	0,2	100	980	140 (25)	9000
900	450	9	105	0,7	0,2	145	1000	180 (25)	8500
1300	650	14	170	0,7	0,2	130	920	240 (30)	7000

temperature range: -20°C bis +100°C
material: bellows: 1.4571 | hubs: 3.1325 | screws: 1.7220 with zinc flake coating | wire: CW508L

note:
The couplings are supplied with H7 finished bores as standard.
G6 is recommended for the shaft fit.



dimensions [mm]: length dimensions according to DIN ISO 2768 cH

KM - Ex	Øa [mm]	c [mm]	f FK 12.9	g [mm]	h [mm]	L [mm]	mass ca. [kg]	ØD1/2 min	ØD1/2 max
20	56	19	M6	30	8	70	0,3	10,5	32
35	56	19	M6	30	8	70	0,3	13	32
60	66	22	M8	33	9	77	0,5	17	35
80	82	28,5	M10	38	11,5	90	0,8	21	43
170	82	28,5	M10	40	11,5	92	0,8	23,5	43
270	101	35	M12	42	13	100	1,4	32,5	55
400	101	35	M12	48	13	106	1,5	36,5	55
600	122	42	M14	52	16	120	2,4	42	68
900	133	47	M14	53	18,5	143	3,5	52	75
1300	157	54	M16	55	20	145	4,2	62,5	85

order example: KM - Ex 170 - D1 = 30 ^{H7} D2 = 35 ^{H7}

Metal Bellows Couplings I Series KP - Ex

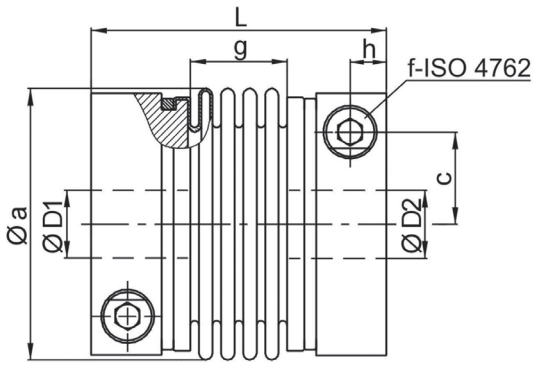
- 4-corrugation bellows • short design • high torsional stiffness
- simple installation with lateral EASY-clamping hub

technical data:

KP - Ex Size	T_N [Nm]	moment of inertia [10^{-3}kgm²]	torsional stiffness [Nm/arcmin]	max. shaft misalignment [mm] axial±	lateral	axial spring rate [N/mm]	lateral spring rate [N/mm]	tightening torque screws [Nm] (*)	RPM n_{max} [1/min]
25	12,5	0,064	4	0,35	0,1	36	180	8 (3)	23000
35	17,5	0,13	9	0,35	0,14	70	450	14 (8)	20000
60	30	0,27	14	0,4	0,14	70	650	30 (15)	17000
100	50	0,35	20	0,4	0,14	110	1200	30 (15)	16000
170	85	0,76	28	0,55	0,14	98	1000	50 (20)	14000
270	135	2	52	0,55	0,14	90	1300	90 (25)	11000
400	200	2,15	74	0,5	0,14	135	1500	90 (25)	11000
600	300	5	106	0,5	0,14	140	2800	140 (25)	9000
900	450	9	156	0,55	0,14	210	3050	140 (25)	8500

temperature range: -20°C bis +100°C
material: bellows: 1.4571 | hubs: 3.1325 | screws: 1.7220 with zinc flake coating | wire: CW508L

note:
The couplings are supplied with H7 finished bores as standard.
G6 is recommended for the shaft fit.



dimensions [mm]: length dimensions according to DIN ISO 2768 cH

KP - Ex	Øa	c	f FK 12.9	g	h	L	L*	mass ~ [kg]	ØD1/2 min	ØD1/2 max
25	50	17	M5	24	6	58	-	0,18	13	28
35	56	19	M6	21	8	61	72	0,3	13	32
60	66	22	M8	23	9	67	77	0,4	17	35
100	71	25	M8	23	9	68	-	0,5	18	38
170	82	28,5	M10	23	11,5	80	92	0,8	23,5	43
270	101	35	M12	29	13	87	93	1,3	32,5	55
400	101	35	M12	33	13	91	97	1,4	39	55
600	122	42	M14	36	16	104	-	2,3	42	68
900	133	47	M14	37	18,5	127	-	3,3	52	75

note: L* ≙ alternative installation length with larger clamping hub width

order example: KP - Ex 170 - D1 = Ø 28 H7 D2 = 35 H7
KP - Ex 170 | 92 - D1 = 32 H7 D2 = 42 H7

Metal Bellows Couplings I Series KR - Ex

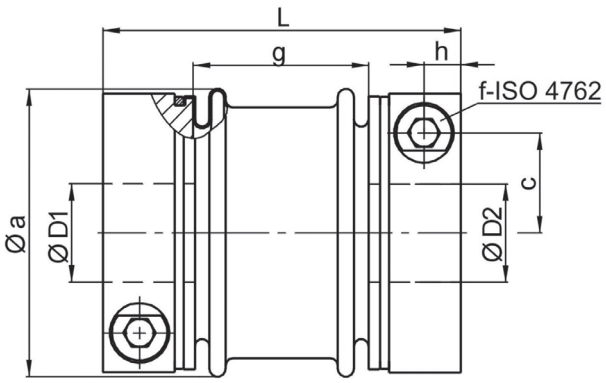
• straight bellows • simple installation with lateral EASY-clamping hub
• low restoring forces • high torsional stiffness • long design

technical data:

KR - Ex size	T_N [Nm]	moment of inertia [10^{-3}kgm^2]	torsional stiffness [Nm/arcmin]	max. shaft misalignment [mm] axial±	max. shaft misalignment [mm] lateral	axial spring rate [N/mm]	lateral spring rate [N/mm]	tightening torque screws TA [Nm] (*)	RPM n_{max} [1/min]
25	12,5	0,12	9	0,21	0,14	150	150	14 (8)	20000
50	25	0,12	10	0,21	0,14	160	170	14 (8)	20000
65	32,5	0,25	12	0,21	0,21	90	80	30 (15)	17000
100	50	0,7	23	0,35	0,28	100	95	50 (20)	14000
200	100	0,84	30	0,21	0,21	220	120	50 (20)	14000
300	150	2	53	0,28	0,21	210	160	90 (25)	11000
450	225	2,15	80	0,28	0,21	300	260	90 (25)	11000
550	275	4,7	98	0,35	0,35	300	360	140 (25)	9000
1500	750	13	280	0,42	0,35	520	490	240 (30)	7000

temperature range: -20°C bis +100°C
material: bellows: 1.4571 | hubs: 3.1325 | screws: 1.7220 with zinc flake coating | wire: CW508L

note:
The couplings are supplied with H7 finished bores as standard.
G6 is recommended for the shaft fit.



dimensions [mm]: length dimensions according to DIN ISO 2768 cH

KR - Ex	Øa [mm]	c [mm]	f FK 12.9	g [mm]	h [mm]	L [mm]	L* [mm]	mass ~ [kg]	ØD1/2 min	ØD1/2 max
25	56	19	M6	33	8	73	84	0,3	10,5	32
50	56	19	M6	33	8	73	84	0,3	13	32
65	66	22	M8	41	9	85	95	0,4	17	35
100	82	28,5	M10	50	11,5	102	114	0,75	21	43
200	82	28,5	M10	56	11,5	108	120	0,8	23,5	43
300	101	35	M12	65	13	123	129	1,3	32,5	55
450	101	35	M12	65	13	123	129	1,4	45,5	55
550	122	42	M14	72	16	140	-	2,2	42	68
1500	157	54	M16	96	20	186	-	4,4	65	85

note: L* ≙ alternative installation length with larger clamping hub width

order example: KR - Ex 100 - D1 = 35 ^{H7} D2 = 35 ^{H7}

Metal Bellows Couplings I Series KPH / KMH / KRH - Ex

• simple installation • split-hub design • backlash-free • torsionally stiff • flexible
• stainless design • variable length

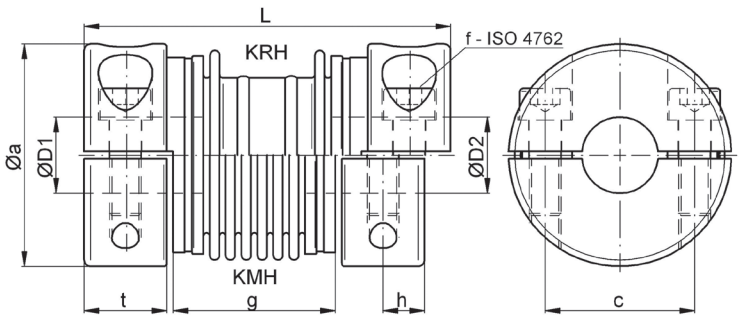
technical data:

KPH/ KMH/KRH - Ex size series	nominal torque	moment of inertia	torsional stiffness			max. lateral shaft misalignment			axial spring rate			lateral spring rate			RPM n_{max}
	[Nm]	[10^{-3}kgm^2]	[Nm/arcmin]			[mm]			[N/mm]			[N/mm]			[1/min]
			KPH	KMH	KRH	KPH	KMH	KRH	KPH	KMH	KRH	KPH	KMH	KRH	
10	5	0,02	1,7	1,1	-	0,11	0,18	-	70	45	-	224	60	-	28000
40	20	0,2	9	5,8	10	0,14	0,18	0,14	70	51	170	450	190	170	17000
80	40	0,5	14	8,7	12	0,14	0,21	0,21	70	49	95	650	260	80	13000
200	100	1,2	25	17	30	0,14	0,21	0,21	98	80	120	1000	470	120	11000
400	200	3	74	47	80	0,14	0,21	0,21	135	100	260	1500	640	260	9500
900	450	8	156	105	-	0,14	0,21	-	210	145	-	3050	1000	-	7000

temperature range: -20°C up to +100°C
material: hubs: 3.1325, bellows: 1.4571, wire: CW508L, screws: 1.7220 with zinc flake coating

Three design variants: Type KPH-EX with 4-wave bellows / Type KMH-EX with 6-wave bellows / Type KRH-EX with 2x 1-wave bellows.

note:
The couplings are supplied with H7 finished bores as standard.
G6 is recommended for the shaft fit.



dimensions [mm]: length dimensions according to DIN ISO 2768 cH

KPH/ KMH/KRH - Ex size	Øa*	c	f-T_A	g**			h	L			mass ~	ØD1/2 min. (H7)	ØD1/2 max. (H7)
	[mm]	[mm]	[Nm] FK 12.9	[mm] KPH	KMH	KRH	[mm]	[mm] KPH	KMH	KRH	[kg]	[mm]	[mm]
10	35	21	M5-8	33	43	-	9	73	83	-	0,1	7,8	15
40	58	36	M8-30	39	48	51	13	95	104	107	0,5	11,8	25
80	75	47	M10-50	41	51	59	13	97	107	115	0,8	16,3	35
200	89	56	M12-90	45,5	57,5	73	14	106	118	134	1,2	24,8	42
400	109	72	M14-140	52,5	67,5	84	15	117	132	149	2	31,2	55
900	132	94	M14-140	62	78	-	16	132	148	-	3,3	41,6	75

*For outer diameter Øa, the interference contour of the screw head must be taken into account.
**The distance between the input and output shafts must be greater than dimension g!

order example: **KPH - Ex 80 - D1 = 24 H7 D2 = 30 H7**
KMH - Ex 400 - D1 = 38 H7 D2 = 48 H7

Miniature-Metal Bellows Couplings I Series MKM - Ex

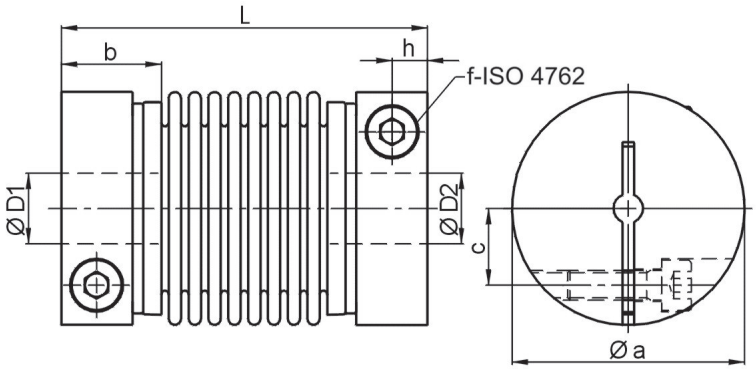
- Standard version with lateral clamping hub
- Temperature range: -20°C to +100°C

technical data:

MKM - Ex Size	T_N [Nm]	moment of inertia [kgmm²]	torsional stiffness (stat. 0,5 x T_N) [Nm/arcmin]	max. shaft misalignment [mm] axial ±	lateral	axial spring rate [N/mm] axial ±	lateral	mass ~ [g]	tightening torque screws "f" [Nm]
0,4	0,2	0,3	50	0,25	0,14	10	15	10	1
0,9	0,45	0,4	90	0,21	0,14	21	26	12	1
2	1	3,0	230	0,35	0,14	15	15	30	2
4	2	3,0	460	0,28	0,14	35	65	40	2
7	3,5	14	1100	0,42	0,18	45	60	80	4
8	4	26	1350	0,6	0,18	16	24	130	8
12	6	30	2050	0,49	0,18	40	70	140	8

maximum permissible operating speed: 20,000 rpm
material: bellows: stainless steel | hubs: high-strength aluminum | screws: ISO 4762 / 12.9

note:
The couplings are supplied with H7 finished bores as standard.
G6 is recommended for the shaft fit.



dimensions [mm]: length dimensions according to DIN ISO 2768 cH

MKM - Ex	Ø a	b	c	f	h	L ±0,5	Ø D 1/2 min	Ø D 1/2 max
0,4	16,5	9	4,6	M 2,5	3,3	30	3,9	6,35
0,9	16,5	9	4,6	M 2,5	3,3	31,5	3,9	6,35
2	24,5 (27,5)	13	7,5 (9,6)	M 3	4,4	42	3,9	10 (14)
4	24,5 (27,5)	13	7,5 (9,6)	M 3	4,4	44	6,5	10 (14)
7	34	14	11	M 4	5	57	6,5	17
8	40 (44,5)	16,5	13 (15,5)	M 5	6	60	7,8	19 (24)
12	40 (44,5)	16,5	13 (15,5)	M 5	6	62	7,8	19 (24)

optionally, sizes 2 to 12 can be supplied with EASY clamping hub design.

note: larger bore diameters are possible with special hub design "L" - see bracketed values in the dimension table.

order example: MKM - Ex 4 - D1 = Ø 8 H7 D2 = 10 H7

Miniatur-Metallbalgkupplungen I Reihe MKP - Ex

• kurze Baulänge • mit lateraler Klemmnabe

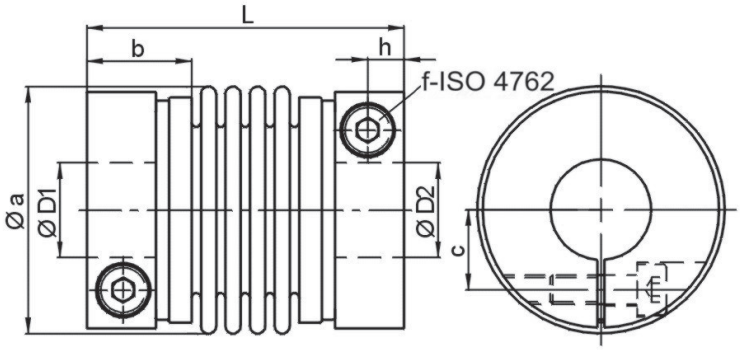
Technische Daten:

MKP - Ex Größe	Nenn-moment [Nm]	Trägheits-moment [10^{-3}kgm^2]	Torsions-steife [Nm/arcmin]	max. Wellen-versatz [mm] axial±	lateral	axiale Federsteife [N/mm]	laterale Federsteife [N/mm]	Drehzahl n_{max} [1/min]
2	1	2,5	0,4	0,21	0,07	32	100	20000
5	2,5	2,8	0,8	0,21	0,07	70	400	20000
7	3,5	12	1,7	0,28	0,105	70	220	20000
8	4	25	2,1	0,35	0,105	20	90	20000
12	6	28	2,6	0,28	0,105	45	190	20000

maximal zulässiger Temperaturbereich: -20°C bis +100°C
Werkstoffausführung: Balg: 1.4571 | Naben: 3.1325 | Schrauben: 1.7220 mit Zinklammellenbeschichtung | Draht: CW508L

optional können die Baugrößen 2 bis 12 mit EASY-Klemmnabenausführung geliefert werden.

Hinweis:
Die Kupplungen werden standardmäßig mit Fertigbohrungen H7 ausgeliefert.
Für die Ausführung der Wellenpassung wird g6 angeraten.



Abmessungen [mm]: Längenmaße nach DIN ISO 2768 cH

MKP - Ex	Ø a [mm]	b [mm]	c [mm]	f - TA	h	L ±0,5	Masse [kg]	Ø D 1/2 min	Ø D 1/2 max
2	24,5 (27,5)	13	7,5 (9,6)	M 3	4,4	35	0,03	3,9	10 (14)
5	24,5 (27,5)	13	7,5 (9,6)	M 3	4,4	36	0,04	7,8	10 (14)
7	34	14	11	M 4	5	47	0,08	7,8	17
8	40 (44,5)	16,5	13 (15,5)	M 5	6	51	0,125	7,8	19 (24)
12	40 (44,5)	16,5	13 (15,5)	M 5	6	51	0,13	7,8	19 (24)

Hinweis: Größere Bohrungsdurchmesser mit Sondernabe Ausf. "L" möglich - siehe Klammerwerte in Maßtabelle.

Bestellbeispiel: MKP - Ex 12 - D1 = Ø 8 H7 D2 = 19 H7

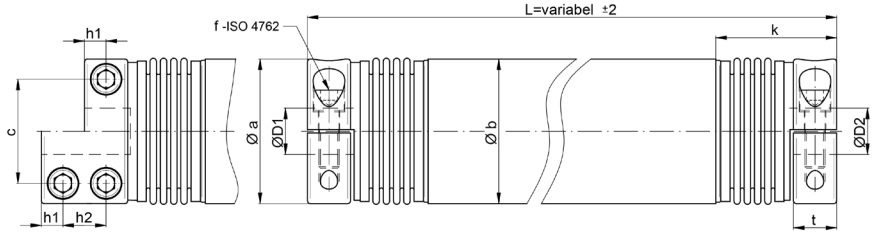
Metal Bellows Coupling with intermediate Pipe I WDS-Ex

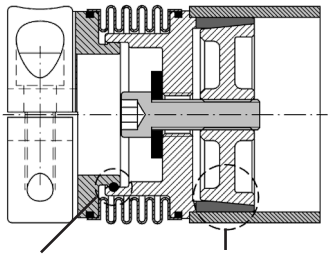
- backlash free, exact torque transfer • variable length up to 3 m
- very easy to fit with splitted hub design

technical data:

WDS-Ex	T_N	moment of inertia				torsional stiffness				mass				max. speed approx.			
	[Nm]	[10^{-3}kgm^2]				[Nm/arcmin]				[kg]				[1/min]			
size		0,5m	1m	2m	3m	0,5m	1m	2m	3m	0,5m	1m	2m	3m	0,5m	1m	2m	3m
15	7,5	0,4	0,2	0,15	-	0,2	0,4	0,6	-	0,9	1,5	2,3	-	3900	880	370	-
50	25	1,5	0,8	0,6	0,5	0,9	1,6	2,2	2,9	1,8	3	4,3	5,5	6000	1300	550	300
100	50	2,6	1,5	1	0,8	1,8	2,9	4,1	5,3	2,5	4	5,5	7	7300	1600	670	360
200	100	5,9	3,5	2,5	1,9	5,3	9,1	13	17	3,8	6	8	10	8000	2100	900	500
400	200	17	10	7,5	6	12	21	31	40	7	11	15	19	8000	2700	1100	600

maximum axial shaft misalignment: $\Delta A = \pm 1$ mm / maximum angular shaft misalignment: $\alpha = 0{,}7°$
maximum lateral shaft misalignment: $\Delta R = \tan \alpha \bullet Lx$ mit $Lx = L - (2 \bullet k) / \tan \alpha$





integrated cardanic intermediate tube support

coupling-pipe connection WDS: expanding cone clamp

maximum permissible temperature range:
-20° celsius to a maximum of +100° celsius.

material specifications: hub: 3.1325, tube: EN AW-6060, bellows: 1.4571, screw: 1.7220 with zinc coating FK12.9, clamping cone: 1.0503 oxidized.

note: bellows and hubs are connected using a micro-plasma welding process.
The couplings are supplied with H7 finished bores as standard.
For the shaft fit, g6 is recommended.

dimensions [mm]: length dimensions according to DIN ISO 2768 cH

WDS-Ex	Øa	Øb	c	f-T_A	h1/h2	k	t	L_{min}	ØD1/2 min. (H7)	ØD1/2 max. (H7)
size	[mm]	[mm]	[mm]	[Nm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
15	36	35	21	M5 - 8	9/-	54	18	160	7,8	15
50	58	50	36	M8 - 35	13/-	67	26	190	11,7	25
100	75	60	47	M10 - 65	13/-	69	26	210	16,25	31
200	89	80	56	M12 - 115	14/-	77	28	220	24,7	34
400	109	100	72	M14 - 180	15/-	84	30	240	31,2	48

*Øa: interfering edge - screw head

- larger lengths up to 6m and higher operating speeds available on request.
- Other sizes available upon request

order example: WDS -Ex 200 D1 = 32 ^{H7} D2 = 35 ^{H7} L = 800

Metal Bellows Couplings I Series KG-VA-Ex

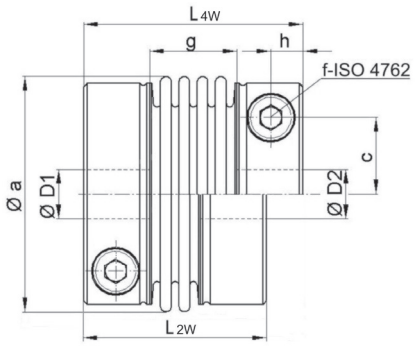
- Stainless steel construction • Wear-free and maintenance-free
- Very short, variable overall length • High torsional stiffness
- Easy-to-install clamping hub • Variable overall lengths - three standard types with 2W/4W/6W metal bellows

stainless steel

technical data:

KG-VA-Ex size	T_N [Nm]	moment of inertia [10^{-3}kgm^2]	torsional stiffness [Nm/arcmin]			max. shaft misalignment [mm] axial±				lateral		axiale spring rate [N/mm]			lateral spring rate [N/mm]			RPM n_{max} [1/min]
			2W	4W	6W	2W	4W	6W	2W	4W	6W	2W	4W	6W	2W	4W	6W	
30	15	0,18	16	9	6	0,21	0,24	0,55	0,07	0,14	0,21	130	70	50	2500	450	190	23.000
60	30	0,44	26	14	9	0,21	0,24	0,55	0,07	0,14	0,21	120	70	50	3500	600	260	20.000
100	50	0,74	32	20	13	0,21	0,24	0,7	0,07	0,14	0,21	210	110	80	7000	1200	400	18.000
180	90	1,22	50	28	17	0,28	0,5	0,7	0,07	0,14	0,21	170	95	70	5000	100	470	16.000
280	140	2,6	93	52	47	0,28	0,55	0,7	0,07	0,14	0,21	170	90	95	7000	1300	500	13.000
500	250	6	190	106	68	0,28	0,55	0,7	0,07	0,14	0,21	260	140	100	15000	2800	980	11.000
1000	500	24	400	225	170	0,28	0,5	0,7	0,07	0,14	0,21	310	160	120	13000	2100	920	8.500

temperature range: -20°C up to +100°C
material: *hub: 1.4301, bellows: 1.4571, screw: A4-80*



note:
connection between bellows and hub by plasma welding
Three standard variants with 6-corrugated metal bellows 6W, 4-corrugated metal bellows 4W or 2-corrugated metal bellows 2W

The couplings are supplied with H7 finished bores as standard.
G6 is recommended for the shaft fit.

Dimensions [mm]: length dimensions according to DIN ISO 2768 cH

KG-VA-Ex size	Ø a [mm]	c [mm]	f-TA [Nm]	g [mm]			h [mm]	L [mm]			mass	Ø D1/2 (H7) [mm]	Ø D1/2 (H7) [mm]
				2W	4W	6W		2W	4W	6W	ca.[kg]	min	max
30	56	18,5	M6 - 9	14	23	34	7,5	46	55	66	0,5	18,2	28
60	66	22,5	M8 - 24	16	24	35	9	53	61	72	0,9	20,8	35
100	71	25	M8 - 24	15	25	36	9	52	62	73	1,1	31,2	40
180	82	27,5	M10 - 45	18	28	41	11,5	63	73	86	1,5	36,4	42
280	101	32	M12 - 80	19	30	49	12,5	71	82	101	2,4	39	50
500	122	39,5	M14 - 110	22	37	52	15	82	97	112	3,8	54,6	62
1000	157	54	M16 - 180	23	40	56	17,5	94	111	127	8,5	70,2	90

- clamping hubs generally with stainless steel screws A4-80
- check transmission torques of hub-shaft connection for diameters below Dmin (further inquiry possible)
- alternative lenghts or hub versions available on request

order example: KG-VA - Ex 180 / 4W D1 = 37 ^{H7} D2 = 41 ^{H7}
KG-VA - Ex 30 / 2W D1 = 19 ^{H7} D2 = 22 ^{H7}

Metal bellows coupling I Series KGH-VA-Ex

- 2-, 4-, or 6-wave bellows
- easy-to-install clamping hubs in half-shell design
- wear-free and maintenance-free

stainless steel

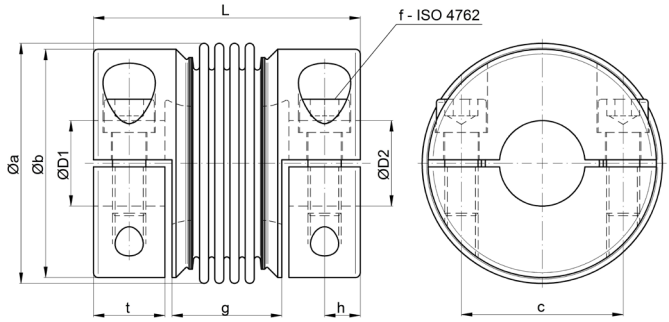
technical data:

KGH-VA-Ex size	T_N [Nm]	moment of inertia [10^{-3}kgm^2]	torsional stiffness [Nm/arcmin]			max. shaft misalignment [mm] axial±				lateral		axiale spring rate [N/mm]			lateral spring rate [N/mm]			RPM n_{max} [1/min]
			2W	4W	6W	2W	4W	6W	2W	4W	6W	2W	4W	6W	2W	4W	6W	
10	5	0,03	3,3	2,1	1,3	0,14	0,21	0,35	0,07	0,11	0,175	150	85	60	2300	400	130	28.000
50	25	0,3	16	9	6	0,21	0,42	0,56	0,07	0,14	0,21	130	70	50	2500	450	190	17.000
120	60	1,2	32	20	13	0,21	0,42	0,7	0,07	0,14	0,21	210	110	80	7000	1200	400	13.000
200	100	2,2	50	28	17	0,28	0,5	0,7	0,07	0,14	0,21	170	95	70	5000	1000	470	11.000
350	175	4,9	93	52	47	0,28	0,56	0,7	0,07	0,14	0,21	170	90	95	7000	1300	500	9.500
600	300	12	190	106	68	0,28	0,56	0,7	0,07	0,14	0,21	260	140	100	15000	2800	980	8.000
1200	600	39	400	225	210	0,28	0,5	0,7	0,07	0,14	0,21	310	160	200	13000	2100	1400	6.000

temperature range: *-20°C bis +100°C*
material: *hub*: 1.4301, *bellows*: 1.4571, *screw*: A4-80

note: Bellows and hubs are joined using a micro-plasma welding process.

The couplings are supplied with H7 finished bores as standard.
For the shaft fit, g6 is recommended.



dimensions [mm]: length dimensions according to DIN ISO 2768 cH

KGH-VA-Ex	Øa [mm]	Øb [mm]	c [mm]	f-T_A	g [mm]			h [mm]	L [mm]			t [mm]	mass ~ [kg]	ØD1/2 min	ØD1/2 max
				A4-80	2W	4W	6W		2W	4W	6W				
10	34	33	21	M5 - 5	18	23	30	6,5	48	53	60	13	0,2	9,1	15
50	56	55	38	M8 - 24	22	32	42	9	60	70	80	17	0,7	15,6	28
120	71	71	50	M10 - 45	32	42	53	12	82	92	103	23	1,7	24,7	38
200	82	82	56	M12 - 80	35	45	57	13	91	101	113	25,5	2,5	28,6	42
350	101	96	68	M14 - 110	35	46	65	15	101	112	131	30	3,9	35	50
600	122	116	80	M16 - 180	37,5	53,6	68	18	115,5	131,5	146	36	6,7	41,6	60
1200	157	152	110	M20 - 350	43	59,5	76	20,5	129	145,5	162	40	12,6	62,4	85

order example: KGH - VA - Ex 200 / 4W - D1 = 32 ^{H7} D2 = 35 ^{H7}

Metal Bellows Couplings I Series KG-HS-VA-Ex

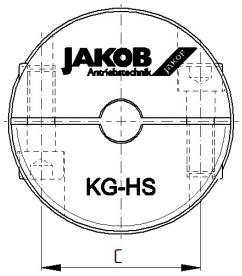
• Stainless steel metal bellows coupling, high-speed version for highest speeds • Rotationally symmetrical clamping hub for optimal balance quality

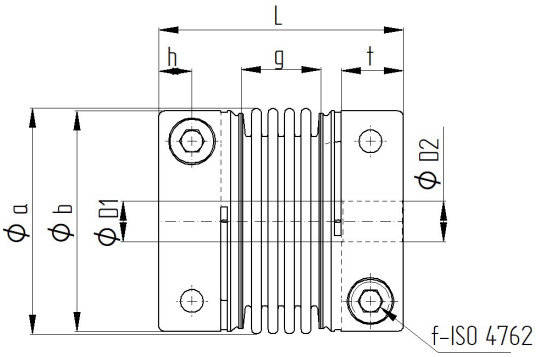
stainless steel

technical data:

KG-HS-VA-Ex size	T_N [Nm]	moment of inertia [10^{-3}kgm²]	torsional stiffness [Nm/arcmin]			max. shaft misalignment [mm] axial±				lateral		axiale spring rate [N/mm]			lateral spring rate [N/mm]			RPM n_{max} [1/min]
			2W	4W	6W	2W	4W	6W	2W	4W	6W	2W	4W	6W	2W	4W	6W	
5	2,5	0,006	1,3	0,9	0,6	0,14	0,21	0,35	0,04	0,07	0,14	135	75	45	2500	400	140	80.000
10	5	0,035	3,3	2,1	1,3	0,21	0,28	0,35	0,07	0,11	0,18	150	85	60	2300	400	130	57.000

temperature range: -20°C up to 100°C
material: *hub: 1.4301, bellows: 1.4571, screw: A4-80*





note:
Connection of bellows and hubs by micro-plasma welding process.
Three design variants: Type KPH with 4-wave bellows / Type KMH with 6-wave bellows / Type KRH with 2x 1-wave bellows.

The couplings are supplied with H7 finished bores as standard.
G6 is recommended for the shaft fit.

Dimensions [mm]: length dimensions according to DIN ISO 2768 cH

KG-HS -Va-Ex size	Ø a [mm]	Ø b [mm]	c [mm]	f-TA A4-80	g [mm]			h [mm]	L [mm]			t [mm]	mass	Ø D1/2 (H7) [mm]	Ø D1/2 (H7) [mm]
					2W	4W	6W		2W	4W	6W		[kg]	min	max
5	24		16	M3 - 2	6	11	14	5	10	33	38	41	0,07	7,8	12
10	34		22	M5 - 8	11	16	23	6,5	13	48	53	60	0,21	10,4	16

Note: We recommend additional balancing at operating speeds above approximately 0.3 x nmax.
This can achieve a balance grade of G 2.5.

Øb: Interfering edge - screw head

• Other sizes available on request

order example: KG-HS-VA-Ex 5 / 4W - D1 = 8 H7 D2 = 10 H7
KG-HS-VA-Ex 10 / 6W - D1 = 12 H7 D2 = 14 H7

Metal Bellows Couplings I Series MKG-VA-Ex

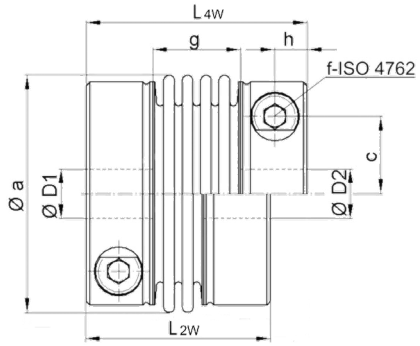
- Stainless steel miniature coupling
- Rotationally symmetrical clamping hub for optimal balancing quality

stainless steel

technical data:

MKG-VA-Ex size	T_N [Nm]	moment of inertia [10^{-3}kgm^2]	torsional stiffness [Nm/arcmin]			max. shaft misalignment [mm] axial±				lateral		axial spring rate [N/mm]			lateral spring rate [N/mm]			RPM n_{max} [1/min]
			2W	4W	6W	2W	4W	6W	2W	4W	6W	2W	4W	6W	2W	4W	6W	
1,5	0,75	1	-	0,3	-	-	0,21	-	-	0,07	-	-	34	-	-	140	-	20.000
4	2	4	1,3	0,9	14	0,14	0,21	0,35	0,04	0,07	0,14	135	75	45	2500	400	140	20.000
8	4	19	3,3	2,1	23	0,21	0,28	0,35	0,07	0,11	0,18	150	85	60	2300	400	130	20.000
15	7,5	44	6	3,4	23	0,21	0,28	0,35	0,07	0,11	0,18	100	55	50	2100	360	110	20.000

temperature range: -20°C bis 100°C
material: *hub: 1.4301, bellows: 1.4571, screws: A4-80*



note:
Bellows and hubs are joined using a micro-plasma welding process.
Three design variants: Type KPH with 4-wave bellows / Type KMH with 6-wave bellows / Type KRH with 2x 1-wave bellows.

The couplings are supplied with H7 finished bores as standard.
G6 is recommended for the shaft fit.

Dimensions [mm]: length dimensions according to DIN ISO 2768 cH

MKG -Va-Ex size	Ø a [mm]	c [mm]	f-TA A4-80	g [mm]			h [mm]	L [mm]			mass	Ø D1/2 (H7) [mm]	Ø D1/2 (H7) [mm]
				2W	4W	6W		2W	4W	6W	[kg]	min	max
1,5	19	4,3	M2,5 - 1	3,3	-	11	-	-	29	-	26	3,9	6,35
4	24	7,3	M3 - 1	4,5	6	10	14	25	29	33	60	10,4	11
8	34	10,5	M4 - 2,5	5	11	16	23	33	38	45	140	11,7	16
15	40	13	M5 - 5	6	12	17	23	38	43	49	220	14,3	20

Bemerkung: Wir empfehlen ab einer Betriebsdrehzahl von etwa 0,3 x nmax ein zusätzliches Auswuchten.
Hierdurch kann eine Wuchtgüte von G 2,5 erreicht werden.

Bestellbeispiel: MKG-VA-Ex 4 / 4W - D1 = 11 ^{H7} D2 = 11 ^{H7}
MKG-VA-Ex 8 / 6W - D1 = 12 ^{H7} D2 = 14 ^{H7}

Metal Bellows Coupling with intermediate Pipe I WD-VA-Ex

• backlash free, exact torque transfer • variable length up to 3 m
• very easy to fit with splitted hub design

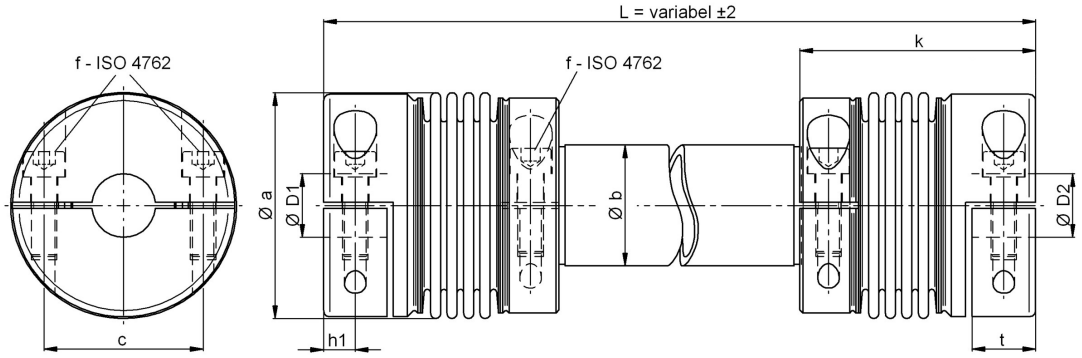
stainless steel

Ex

technical data:

WD -VA-Ex	T_N	moment of inertia [10^{-3}kgm²]				torsional stiffness [Nm/arcmin]				mass [kg]				max. speed approx. [1/min]			
size	[Nm]	0,5m	1m	2m	3m	0,5m	1m	2m	3m	0,5m	1m	2m	3m	0,5m	1m	2m	3m
10	5	0,07	0,09	0,13	0,17	0,22	0,11	0,06	0,04	0,8	1,2	2,2	3,1	6000	1550	350	150
50	25	0,63	0,81	1,18	1,55	1,6	0,88	0,46	0,31	1,9	2,9	5	7	6000	3400	740	310
120	60	2,1	2,5	3,2	3,9	3,7	2	1	0,7	3,3	4,6	7,3	9,9	6000	4700	1000	400
200	100	3,9	4,5	5,7	6,9	5,7	3	1,5	1	4,7	6,5	10	13	6000	5500	1100	470
350	175	8,4	9,3	11	13	9,7	4,8	2,4	1,6	8,4	9,3	12,3	16	6000	6000	1300	550
600	300	29	22	26	30	22	11	5,3	3,5	11,5	14	19	24	6000	6000	1700	700
1200	600	66	74	89	104	66	36	19	13	21	25	33	42	6000	6000	2650	1050

maximum axial shaft misalignment: Δ A = ±1 mm / maximum angular shaft misalignment: α = 0,7°
maximum lateral shaft misalignment: Δ R = tan α • Lx mit Lx = L - (2 • k) / tan α



material specifications: hub: 1.4301, tube: AISI 304 (A2) or AISI 316 (A4), bellows: 1.4571, screw: A4-80
maximum permissible temperature range: -20° celsius to +100° celsius

note: bellows and hubs are joined using micro-plasma welding.

The couplings are supplied with H7 finished bores as standard.
G6 is recommended for the shaft fit.

dimensions [mm]: length dimensions according to DIN ISO 2768 cH

WD-VA-Ex size	Øa	Øb	c	f-T_A	h	k	t	L_{min}	ØD1/2 min	ØD1/2 max
10	36	16	21	M5 - 5	6,5	46	13	92	9,1	15
50	60	30	28	M8 - 24	9	63	17	126	15,6	28
120	76	38	38	M10 - 45	12	77	23	154	24,7	38
200	82	42	56	M12 - 80	13	86,5	25,5	173	28,6	42
350	101	48	68	M14 - 110	15	97	30	194	39	50
600	122	60	80	M12 - 180	18	115	36	230	41,6	60
1200	157	89	110	M16 - 350	20	128	40	256	62,4	85

*Øa: interfering edge - screw head

• clamping hubs generally with stainless steel screws A4/80 without EASY pin.
• larger lengths up to 6m and higher operating speeds available on request.

order example: WD - VA -Ex 200 D1 = 32 H7 D2 = 35 H7 L = 800

Metal bellows coupling for use in potentially explosive atmospheres

The ATEX marking according to 2014/34/EU of the coupling provides information on its suitability and operating conditions.

CE		II	2G	Ex h	IIC	T6…T4	Gb	x
		II	2D	Ex h	IIIC	T135°C	Db	x

Conformity mark	Features: Prevention of Explosions	Equipment group	Device category	Ex: Applicable EN standards h: Type of ignition protection	Explosion group	Temperature class	Device protection level	Additional information

Equipment group	Meaning
I *	Approval for underground operation (mining)*
II	Approved for all other areas of use

Category	Permitted zone	Zone description
1G *	0 (incl. 1, 2) *	Area in which an explosive atmosphere is present constantly, for long periods, or frequently as a mixture of flammable substances in the form of gas, vapor, or mist with air.*
2G	1 (incl. 2)	Area where it is expected that an explosive atmosphere, consisting of a mixture of flammable substances in the form of gas, vapor or fumes with air, may occasionally occur during normal operation.
3G	2	Area where, under normal operating conditions, an explosive atmosphere is not expected to occur as a mixture of flammable substances in the form of gas, vapor or mist with air, but if it does occur, then only for a short time.
1D *	20 (inkl. 21, 22) *	Area with conditions like Zone 0 with a cloud of combustible dust in air *
2D	21 (inkl. 22)	Area with conditions similar to Zone 1 with a cloud of combustible dust in the air
3D	22	Area with conditions similar to Zone 2 with a cloud of combustible dust in the air

Type of ignition protection	Description
Ex h	Design safety: Ignition hazards are avoided through device design.

Example of the classification of gases, mists and vapors according to temperature class and explosion group:

Temperature class: Max. surface temperature	IIA (Hazard level of the gases: low)	IIB (incl. IIA) (Hazard level of the gases: medium)	IIC (incl. IIA + IIB) (Hazard level of the gases: high)
T1: 450° C	Acetone, ammonia, benzene, methane, …	Town gas	Hydrogen
T2: 300° C	i-Amyl acetate, n-butyl alcohol, acetic anhydride, …	Ethyl alcohol, ethylene, ethylene oxide	Acetylene
T3: 200° C	Gasoline, diesel, heating oil, …Acetaldehyde	Hydrogen sulfide	
T4: 135° C	Acetaldehyde	Diethyl ether	
T5: 100° C *			
T6: 85° C *			Carbon disulfide *

Device protection level (IEC 60079)	Meaning
Ga *	A very high level of security is guaranteed. *
Gb	A high level of security is guaranteed.
Gc	A normal level of safety is guaranteed.
Da *	A very high level of security is guaranteed. *
Db	A high level of security is guaranteed.
Dc	A normal level of safety is guaranteed.

Type of ignition protection	Description
X	Special operating conditions from manufacturer's description
U	A component is a part. Conformity must be declared after installation.

* Use of the JAKOB metal bellows couplings is not permitted

Product Overview I JAKOB

Company JAKOB Antriebstechnik

Based in Kleinwallstadt, JAKOB Antriebstechnik GmbH is an internationally renowned specialist in high-quality drive components, clamping technology, and vacuum technology.

Thanks to decades of experience and customized special solutions, JAKOB is a sought-after partner for the global mechanical and plant engineering industry.

more about the company history

Drive Technology

- Metal bellows couplings
- Elastomer couplings
- Miniature couplings
- Spacer couplings
- Stainless steel couplings
- Safety couplings
- ATEX-certified couplings
- Motor spindle protection system

go to website
go to catalogue

Clamping Technology

- Clamping nuts
- Clamping screws
- Clamping spindles
- Spring-actuated clamping cylinders
- Force measurement

go to webseite
go to catalogue

Vacuum Technology

- ISO-KF Small Flanges
- ISO-K Flanges
- CF Ultra-High Vacuum
- Valves
- Gas Locks
- Services

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DRIVE TECHNOLOGY

Clamping Technology
Vacuum Technology

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