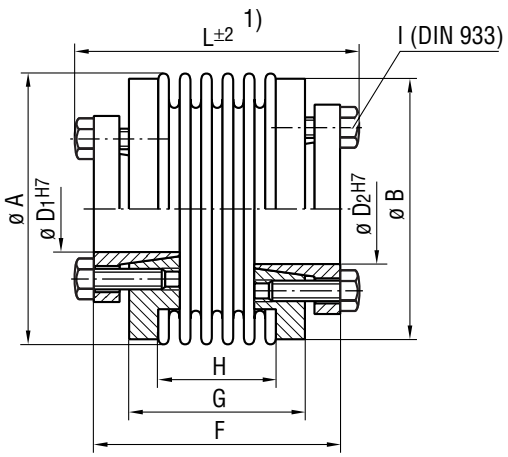
Metal bellows couplings

Series AK with conical hubs



Technical Data – Series AK

TYPE			30	60	80	150	200	300	500	800	1400	3000	5000
Nominal moment	(Nm)	T_{KN}	30	60	80	150	200	300	500	800	1400	3000	5000
Torsional stiffness	(10^3 Nm/rad)	$C_{T\,dyn}$	36 / 26	73 / 49	126 / 74	151 / 101	173 / 116	499 / 280	310	758	1266	2800	4800
Radial spring	(N/mm)	C_r	718 / 222	1125 / 333	1218 / 403	2030 / 601	2531 / 450	6328 / 1470	972	512	706	2950	4920
Axial spring	(N/mm)	C_a	48 / 27	91 / 53	84 / 53	147 / 86	147 / 85	284 / 153	86	186	278	310	510
Moment of inertia	(10^{-3} Kgm²)	J	0.15	0.4	0.8	0.8	1.5	4.0	7.2	26.1	26.1	48	62
Tightening torque of retaining screws	(Nm)	M_A	4.5	8.5	10	14	14	18	26	45	80	85	210
Weight	(ca. kg)	m	0.4	0.8	1.3	1.3	1.6	3.4	4.2	8.5	8.5	15	21
Max. approved misalignment													
- radial	(mm)	ΔK_r	0.1 / 0.2	0.1 / 0.2	0.2 / 0.2	0.2 / 0.2	0.2 / 0.2	0.2 / 0.2	0.2	0.2	0.2	0.2	0.2
- axial	(mm)	ΔK_a	0.4 / 0.5	0.4 / 0.5	0.4 / 0.5	0.4 / 0.5	0.4 / 0.5	0.4 / 0.5	1.0	1.0	1.0	1.0	1.0
- angular	(degree)	ΔK_w	1.0 / 1.5	1.0 / 1.5	1.0 / 1.5	1.0 / 1.5	1.0 / 1.5	1.0 / 1.5	1.5	1.5	1.5	1.5	1.5
Max. rotating speed at V = 30 m/s	(rpm)	n_{max}	11000	9100	7000	7000	6700	5200	4600	3700	3700	2800	2800

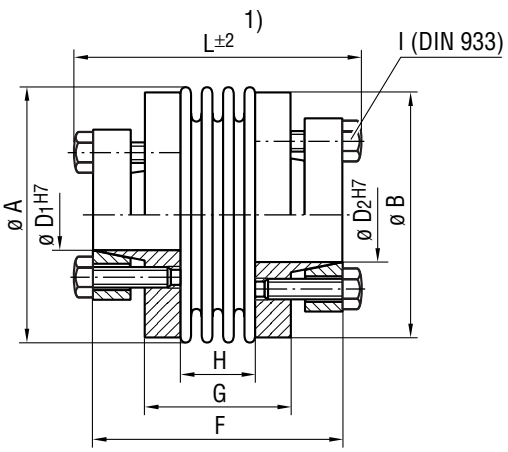
Dimensions (mm) – Series AK

TYPE	30	60	80	150	200	300	500	800	1400	3000	5000
L±2	52 / 60	63 / 73	80 / 91	80 / 92	80 / 93	91 / 104	113	170	170	206	206
Ø A	56	66	82	82	90	110	122	157	157	157	208
Ø B	52	63	80	80	85	110	122	152	152	152	190
Ø D_1^{H7} / Ø D_2^{H7}											
- min.	12	15	20	20	20	25	35	50	50	55	60
- max.	20	25	35	35	40	50	55	70 2)	70 2)	75 2)	85 2)
F	45 / 53	55 / 65	72 / 83	72 / 84	72 / 85	80 / 93	102	150	150	190	186
G	29 / 37	37 / 47	50 / 61	50 / 62	50 / 63	54 / 67	72	110	110	150	146
H	16/24	21/31	24/36	24/36	25/37	29/40	40	84	84	84	94
I (DIN 933)	6 x M5	6 x M6	6 x M6	6 x M6	6 x M6	6 x M8	6 x M8	6 x M16	6 x M16	6 x M12	6 x M16

1) Keep space for the releasing screws.
2) Larger bores on request.
3) Stainless steel version also available.

Metal bellows couplings

Series AK/SB with outer conical hubs – release during dismantling



Technical Data – Series AK/SB

TYPE			18	30	60	150	200	300	500	800	1400	3000	5000
Nominal moment	(Nm)	T_{KN}	18	30	60	150	200	300	500	800	1400	3000	5000
Torsional stiffness	(10^3 Nm/rad)	$C_{T\,dyn}$	8 /6	36 / 26	73 / 49	151 / 101	173 / 116	499 / 280	310	758	1266	2800	4800
Radial spring	(N/mm)	C_r	204 / 86	718 / 222	1125 / 333	2030 / 601	2531 / 450	6328 / 1470	972	512	706	2950	4920
Axial spring	(N/mm)	C_a	52 /39	48 / 27	91 / 53	147 / 86	147 / 85	284 / 153	86	186	278	310	510
Moment of inertia	(10^{-3} Kgm²)	J	0.1	0.15	0.4	0.8	1.5	4	14	48	48	54	136
Tightening torque of retaining screws	(Nm)	M_A	5.9	5.9	8.7	15	15	25	36	85	115	125	210
Weight	(ca. kg)	m	0.3	0.4	0.8	1.3	1.6	3.4	4	7.5	7.5	16	27
Max. approved misalignment													
- radial	(mm)	ΔK_r	0.1 / 0.2	0.1 / 0.2	0.1 / 0.2	0.2 / 0.2	0.2 / 0.2	0.2 / 0.2	0.2	0.2	0.2	0.2	0.2
- axial	(mm)	ΔK_a	0.4 / 0.5	0.4 / 0.5	0.4 / 0.5	0.4 / 0.5	0.4 / 0.5	0.4 / 0.5	1.0	1.0	1.0	1.0	1.0
- angular	(degree)	ΔK_w	1.0 / 1.5	1.0 / 1.5	1.0 / 1.5	1.0 / 1.5	1.0 / 1.5	1.0 / 1.5	1.5	1.5	1.5	1.5	1.5
Max. rotating speed at V = 30 m/s	(rpm)	n_{max}	12700	1100	9100	7000	6700	5200	4600	3700	3700	2800	2800

Dimensions (mm) – Series AK/SB

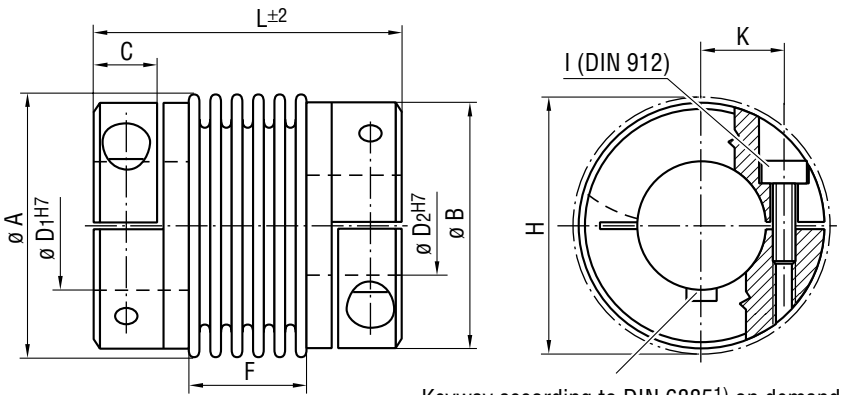
TYPE	18	30	60	150	200	300	500	800	1400	3000	5000
L ±2	65 / 73	60 / 68	80 / 90	98/110	98/110	111/122	135	180	180	220	245
Ø A	45	56	66	82	90	110	122	157	157	157	208
Ø B	45	52	65	80	85	110	122	152	152	152	190
Ø D_1^{H7} / Ø D_2^{H7}											
- min.	9	12	15	20	20	25	35	50	50	55	60
- max.	15	20	32	35	42	50	55	70	70	75	85
F	58 / 66	53 / 61	73 / 83	90 / 102	90 / 102	100/111	124	164	164	204	225
G	38 / 46	31 /39	37 / 47	50 / 62	51 / 63	56 / 67	72	110	110	146	146
H	24 / 32	16 / 24	21 / 31	24 / 36	25 / 37	29 / 40	40	84	84	84	94
I (DIN 933)	4 x M5	6 x M5	6 x M5	6 x M6	6 x M6	6 x M8	6 x M8	6 x M12	6 x M12	6 x M12	6 x M16

1) Keep space for the releasing screws.

2) Stainless steel version also available.

Metal bellows couplings

Series AKD with collet clamp



Keyway according to DIN 6885[1] on demand

Technical Data – Series AKD

TYPE			18	30	60	80	150	200	300	500
Nominal moment	(Nm)	T_{KN}	18	30	60	80	150	200	300	500
Torsional stiffness	(10^3 Nm/rad)	$C_{T\,dyn}$	6	26	49	74	101	116	280	310
Radial spring	(N/mm)	C_r	86	222	333	403	601	450	1470	972
Axial spring	(N/mm)	C_a	39	27	53	53	86	85	153	86
Moment of inertia	(10^{-3} Kgm²)	J	0.08	0.1 / 0.16	0.3 / 0.5	1.4 / 2.3 / 2.8	1.4 / 2.3 / 2.8	2.6 / 4.2	4.6 / 6.2	9
Tightening torque of retaining screws	(Nm)	M_A	6 / 6	15 / 12	40 / 30	60 / 55 / 50	80 / 70 / 50	100 / 80	110 / 90	145
Weight	(ca. kg)	m	0.2	0.2 / 0.3	0.5 / 0.6	1.7 / 2.1 / 2.3	1.7 / 2.1 / 2.3	2.5 / 3.3	3.4 / 4.1	4.9
Max. approved misalignment										
- radial	(mm)	ΔK_r	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
- axial	(mm)	ΔK_a	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1
- angular	(degree)	ΔK_w	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Max. rotating speed at V = 30 m/s	(rpm)	n_{max}	12700	10200	8600	6800	6800	6300	5900	4900

Dimensions (mm) – Series AKD

TYPE	18	30	60	80	150	200	300	500
L±2	71	73	89	103	104	113	115	122
Ø A	45	56	66	82	82	90	110	112
Ø B	45	47 / 56	57 / 66	68 / 80 / 84	68 / 80 / 84	80 / 90	90 / 96	110
C	12	15	19.5	21.5	21.5	25.5	28	29.5
Ø D_1^{H7} / Ø D_2^{H7} 2)								
- min.	10 / 20	10 / 20	14 / 23	20 / 28 / 35	20 / 28 / 35	25 / 32	32 / 40	40
- max.	20 / 25	20 / 25	23 / 35	28 / 35 / 40	28 / 35 / 40	32 / 42	40 / 45	60
F	32	24	31	35	36	37	40	40
I	M5	M6	M8	M10	M10	M12	M12	M12
K	17.5	16 / 20	20 / 24	24 / 27 / 28	24 / 27 / 28	26 / 31	32 / 35	40
H (parasitic disturbance)	48	56	70	84	84	93	102	108

Hubs 18 to 60 made of aluminum, Hubs 80 to 500 made of steel, other materials available on request.

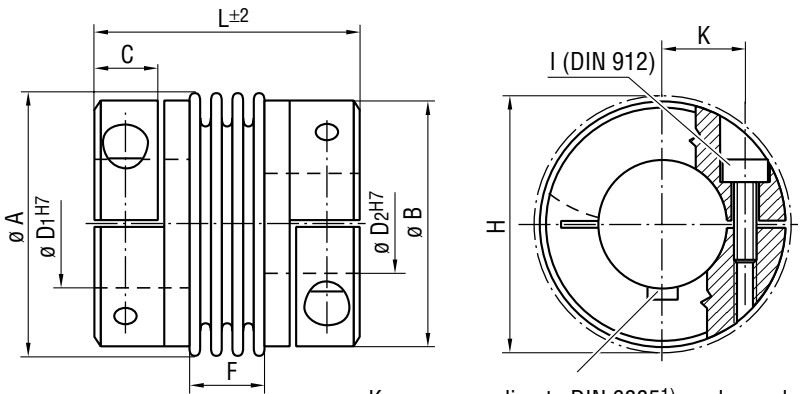
1) Tolerance of keyway: Standard JS9.

2) Smaller Ø possible for lower torque of transmission.

3) Stainless steel version also available.

Metal bellows couplings

Series AKN with retaining hub and increased torsional stiffness



Keyway according to DIN 6885[1] on demand

Technical Data – Series AKN

TYPE			18	30	60	80	150	200	300	500
Nominal moment	(Nm)	T_{KN}	18	30	60	80	150	200	300	500
Torsional stiffness	(10^3 Nm/rad)	$C_{T\,dyn}$	8	36	73	126	151	173	499	680
Radial spring	(N/mm)	C_r	204	718	1125	1218	2030	2531	6328	8800
Axial spring	(N/mm)	C_a	52	48	91	84	147	147	284	105
Moment of inertia	(10^{-3} Kgm²)	J	0.08	0.1 / 0.16	0.3 / 0.5	1.4 / 2.3 / 2.8	1.4 / 2.3 / 2.8	2.6 / 4.2	4.6 / 6.2	9
Tightening torque of retaining screws	(Nm)	M_A	6 / 6	15 / 12	40 / 30	60 / 55 / 50	80 / 70 / 50	100 / 80	110 / 90	145
Weight	(ca. kg)	m	0.2	0.2 / 0.3	0.5 / 0.6	1.7 / 2.1 / 2.3	1.7 / 2.1 / 2.3	2.5 / 3.3	3.4 / 4.1	4.8
Max. approved misalignment										
- radial	(mm)	ΔK_r	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2
- axial	(mm)	ΔK_a	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5
- angular	(degree)	ΔK_w	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Max. rotating speed at V = 30 m/s	(rpm)	n_{max}	12700	10200	8600	6800	6800	6300	5900	4900

Dimensions (mm) – Series AKN

TYPE	18	30	60	80	150	200	300	500
L±2	63	65	78	91	91	100	102	110
Ø A	45	56	66	82	82	90	110	122
Ø B	45	47 / 56	57 / 66	68 / 80 / 84	68 / 80 / 84	80 / 90	90 / 96	110
C	12	15	19.5	21.5	21.5	25.5	28	29.5
Ø D_1^{H7} / Ø D_2^{H7}								
- min.	10 / 20	10 / 20	14 / 23	20 / 28 / 35	20 / 28 / 35	25 / 32	32 / 40	40
- max.	20 / 25	20 / 25	23 / 35	28 / 35 / 40	28 / 35 / 40	32 / 42	40 / 45	60
F	24	16	20	24	24	24	27	28
I	M5	M6	M8	M10	M10	M12	M12	M12
K	17.5	16 / 20	20 / 24	24 / 27 / 28	24 / 27 / 28	26 / 31	32 / 35	40
H (clearance diameter)	48	56	70	84	84	93	102	108

Hubs 18 to 60 made of aluminum, Hubs 80 to 500 made of steel, other materials available on request.

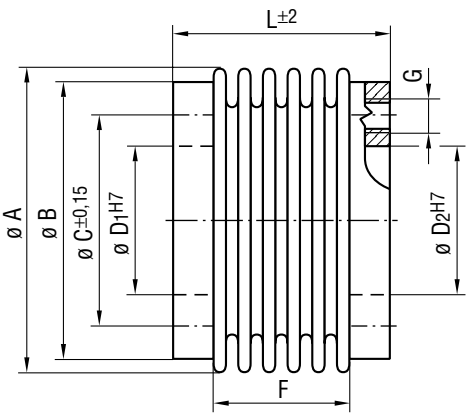
1) Tolerance of keyway: Standard JS9.

2) Smaller ø possible for lower torque of transmission.

3) Stainless steel version also available.

Metal bellows couplings

Series CK for flange mounting



Technical Data – Series CK

TYPE			18	30	60	80	150	200	300	500	800	1400	3000	5000
Nominal moment	(Nm)	T_{KN}	18	30	60	80	150	200	300	500	800	1400	3000	5000
Torsional stiffness	(10^3 Nm/rad)	$C_{T\,dyn}$	8 / 6	39 / 26	73 / 49	126 / 74	150 / 101	173 / 116	499 / 280	310	758	1266	2800	4800
Radial spring	(N/mm)	C_r	204 / 86	718 / 222	1125 / 330	1218 / 403	2030 / 601	2531 / 450	6328/1470	972	512	706	2950	4920
Axial spring	(N/mm)	C_a	52 / 39	48 / 27	91 / 53	84 / 53	147 / 86	147 / 85	284 / 153	86	186	278	310	510
Moment of inertia	(10^{-3} Kgm²)	J	0.05	0.09	0.3	0.67	0.84	1.48	3.75	5.1	10.6	10.6	10.6	62
Weight	(ca. kg)	m	0.2 / 0.25	0.2 / 0.3	0.3 / 0.4	0.6 / 0.7	0.65 / 0.75	1.0 / 1.15	1.6 / 1.8	1.8	2.9	2.9	2.9	16
Max. approved misalignment														
- radial	(mm)	ΔK_r	0.2	0.1 / 0.2	0.1 / 0.2	0.2 / 0.2	0.2 / 0.2	0.2 / 0.2	0.2 / 0.2	0.2	0.2	0.2	0.2	0.2
- axial	(mm)	ΔK_a	0.5	0.4 / 0.5	0.4 / 0.50	0.4 / 0.5	0.4 / 0.5	0.4 / 0.5	0.4 / 0.5	1.0	1.0	1.0	1.0	1.0
- angular	(degree)	ΔK_w	1.5	1.0 / 1.5	1.0 / 1.5	1.0 / 1.5	1.0 / 1.5	1.0 / 1.5	1.0 / 1.5	1.5	1.5	1.5	1.5	1.5
Max. rotating speed at V = 30 m/s	(rpm)	n_{max}	13900	11000	9000	7100	7100	6600	5200	4600	3700	3700	3700	3000

Dimensions (mm) – Series CK

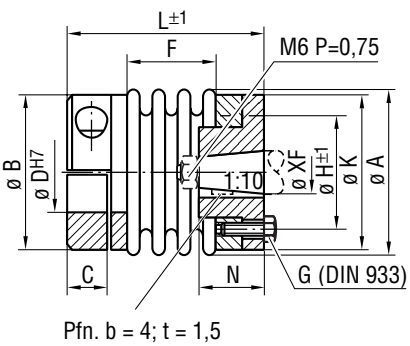
TYPE	18	30	60	80	150	200	300	500	800	1400	3000	5000
L±2	36 / 44	30 / 37	41 / 51	51 / 61	52 / 62	51 / 63	47 / 67	73	130	130	135	145
Ø A	45	56	66	82	82	90	110	122	157	157	157	208
Ø B	41	52	63	80	80	86	110	122	152	152	152	208
Ø C	31	37	46	62	62	62	80	94	110	110	110	130
Ø D_1^{H7} / Ø D_2^{H7} 1)	22	28	38	50	50	50	65	70	85	85	85	100
F	24 / 32	16 / 24	21 / 31	24 / 35	24 / 36	24 / 37	28 / 41	41	87	87	84	94
G	6 x M5	6 x M5	6 x M6	6 x M6	6 x M6	6 x M6	6 x M8	6 x M8	6 x M16	6 x M16	6 x M16	6 x M16
Thread depth	6	7	10	13	13	13	13	16	18	18	22	25

1) Other bore diameters available on request. 2) Stainless steel version also available.

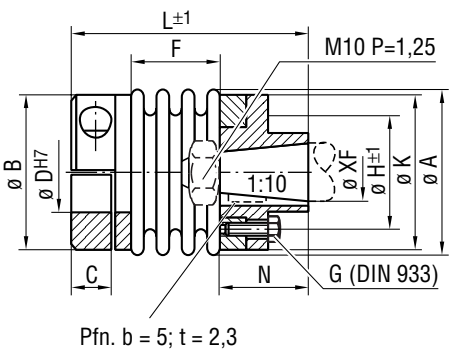
Metal bellows couplings

Series AKD-Fanuc

Series 18



Series 30 – 60



Technical Data – Series AKD-Fanuc

TYPE			18/54 … XF11	18/62 … XF11	30/70 … XF16	30/78 … XF16	60/78 … XF16	60/89 … XF16
Ø A			45	45	56	56	66	66
Ø B			45	45	56	56	66	66
C		from/to	12	12	15	15	19	19
Ø D^{H7}	2)	from/to	10 – 20	10 – 20	14 – 25	14 – 25	14 – 28	14 – 28
L			54	62	70	78	78	89
F			24	32	16	24	20	31
N			16	16	29	29	29	29
Ø H			31	31	37	37	46	46
G (DIN 912)			M5	M5	M6	M6	M8	M8
Ø K			45	45	52	52	63	63
XF			11	11	16	16	16	16
Nominal moment	(Nm)	T_{KN}	18	18	30	30	60	60
Moment of inertia	(kg cm²)	J	0.75	0.75	2.35	2.35	4.85	4.85
Weight	(Kg)	m	0.25	0.25	0.5	0.5	0.75	0.75
Torsional stiffness	(Nm/rad)	$C_{T\,dyn}$	7.5 x 10^3	5.5 x 10^3	36 x 10^3	26 x 10^3	73 x 10^3	49 x 10^3
Max. approved misalignment								
- radial	(mm)	ΔK_r	0.1	0.2	0.1	0.2	0.1	0.2
- axial	(mm)	ΔK_a	0.4	0.5	0.4	0.5	0.4	0.5
- angular	(degree)	ΔK_w	1	1.5	1	1.5	1	1.5
Max. rotating speed at V = 30 m/s	(rpm)	n_{max}	13900	13900	11000	11000	9000	9000

Selection table – Series AKD-Fanuc

Motortyp 1) Fanuc		Model 2-OS	Model 1-OS	Model OS	Model 5S	Model OL	Model 5L	Model 6L
Coupling type		AKD18/54XF11	AKD18/62XF11	AKD30/78XF16	AKD60/89XF16	AKD30/70XF16	AKD30/70XF16	AKD60/78XF16
Bores D_1 (mm)	from/to	10 – 20	10 – 20	14 – 25	14 – 28	14 – 25	14 – 25	14 – 25
M_{RAT-T}		1	2	2.9	6	2.9	5.9	8.8
M_{MAX-T}		7.8	16	26	53	11.8	24	47

1) Other motor types on demand.

2) Keyway according to DIN 6885[1)] alternatively on demand.

3) Stainless steel version also available.