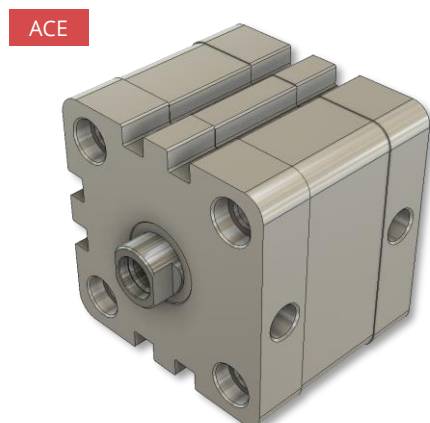




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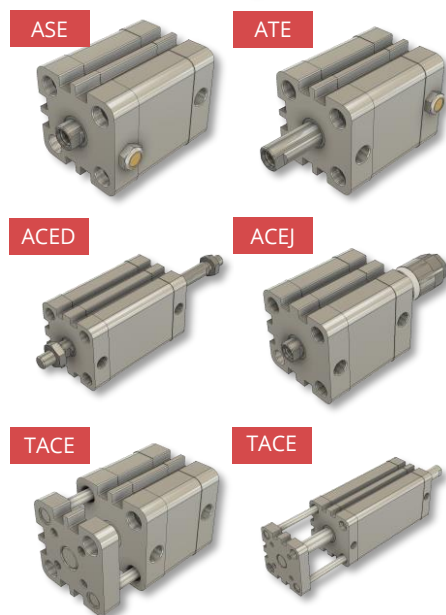
ACE	standard
ASE	with piston rod retraction spring
ATE	with piston rod extension spring
ACED	two site piston rods
ACEJ	with stroke adjustment
TACE	with plate and guide rods
TACED	with plate and guide rods and two site piston rods

Specification



Bore size [mm]		12	16	20	25	32	40	50	63	80	100	125
Acting type		double acting										
		single acting, retraction and extension spring -										
Fluid		compressed air filtered 40µm										
Operating pressure	double acting	0.15÷1.0MPa										
	single acting	0.2÷1.0MPa										
Proof pressure		1.5MPa										
Ambient temperature		-20÷70°C (-40÷70°C for low temperature version)										
Piston speed [mm/s]		double acting 30÷500, single acting 50÷500										
Stroke tolerance		≤100 ^{+1.0} / ₀ >100 ^{+1.5} / ₀										
Cushion type		bumper										
Port size		M5x0.8					1/8				1/4	

Stroke

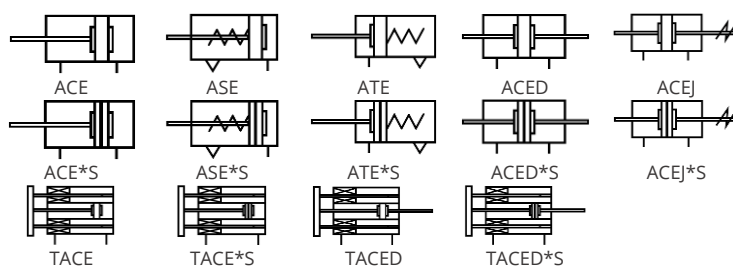


Bore size		Standard stroke [mm]											Max.	
ACE, ASE, ATE, ACED, ACEJ	double acting	12	5 10 15 20 25 30 35 40 45 50											50
		16	5 10 15 20 25 30 35 40 45 50 55 60 70 75											75
		20	5 10 15 20 25 30 35 40 45 50 55 60 70 75 80 90 100											100
		25	5 10 15 20 25 30 35 40 45 50 55 60 70 75 80 90 100 110 120 125 150											150
		32 40	5 10 15 20 25 30 35 40 45 50 55 60 70 75 80 90 100 110 120 125 150 160 175 200											200
	50 63	5 10 15 20 25 30 35 40 45 50 55 60 70 75 80 90 100 110 120 125 150 160 175 200 225 250											250	
	80 100	5 10 15 20 25 30 35 40 45 50 55 60 70 75 80 90 100 110 120 125 150 160 175 200 225 250 300											300	
	125													
	single acting	12	5 10											10
		16+100	5 10 15 20 25											25
TACE, TACED	double acting	12	5 10 15 20 25 30 35 40 45 50											50
		16	5 10 15 20 25 30 35 40 45 50 55 60 70 75											75
		20 25	5 10 15 20 25 30 35 40 45 50 55 60 70 75 80 90 100											100
		32 40	5 10 15 20 25 30 35 40 45 50 55 60 70 75 80 90 100											100
		50 63	5 10 15 20 25 30 35 40 45 50 55 60 70 75 80 90 100											100
		80 100	5 10 15 20 25 30 35 40 45 50 55 60 70 75 80 90 100											100

Note 1: Contact us for custom strokes.

Note 2: Dimensions of non-standard stroke actuators are the same as for the nearest higher standard stroke, and for example an actuator with 23mm stroke has the dimensions of the actuator with a stroke of 25mm.

Pneumatic symbols



Actuator catalogue numbers

ACE	20 X 30	S	B	□	G
ACED	20 X 30	S	B	□	G
ACEJ	20 X 30 - 30	S	B	□	G

①	②	③	④	⑤	⑥	⑦	⑧
Type	Bore size	Stroke	Stroke adjustment	Magnet	Rod type	Sealings	Port thread type
ACE: standard	12 16 20 25 32 40 50 63 80 100 125	See the table above	Not applicable	Blank: no magnet S: with magnet	Blank: female thread B: male thread	Blank: standard H: Viton (for temp. up to 150°C)	Blank: M5 or Rc* *internal taper thread G: G* *parallel thread T: NPT* *American pipe thread
ACED: two site piston rod			10 20 30 40 50 75 100mm				
ACEJ: stroke adjustment			Not applicable		Not applicable	Not applicable	
ASE: retraction spring	12 16 20 25 32 40 50 63 80 100	See the table above	Not applicable	Blank: no magnet S: with magnet	Not applicable	Not applicable	Blank: M5 or Rc* *internal taper thread G: G* *parallel thread T: NPT* *American pipe thread
ATE: extension spring							
TACE: plate and guides							
TACED: plate and guides, two site piston rod							

Piston position auto switch catalogue numbers

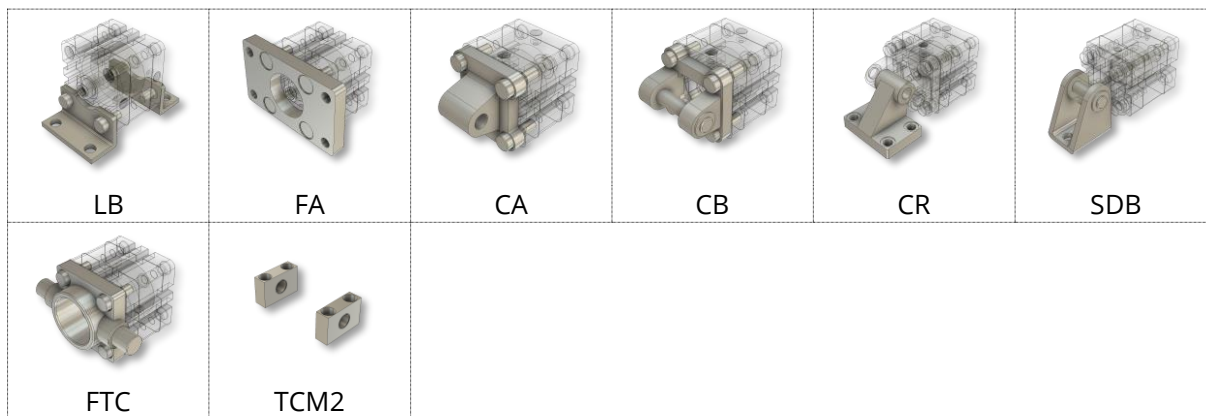
Solid state switch

DMS E - □ 020 - □				
①	②	③	④	⑤
Type	Groove	Output	Cable	Option
DMS: solid state switch	E: T-groove	Blank: 2-wire N: NPN P: PNP	020: 2m 030: 3m 050: 5m M08: 0.5m socket M8 M12: 0.5m socket M12	Blank: standard W: IP67

Reed switch

CMS E - 020 - □			
①	②	③	④
Type	Groove	Cable	Option
CMS: reed switch	E: T-groove	020: 2m 030: 3m 050: 5m M08: 0.5m socket M8 M12: 0.5m socket M12	Blank: standard H: temp. up to 125°C

Mounting accessories for actuators body



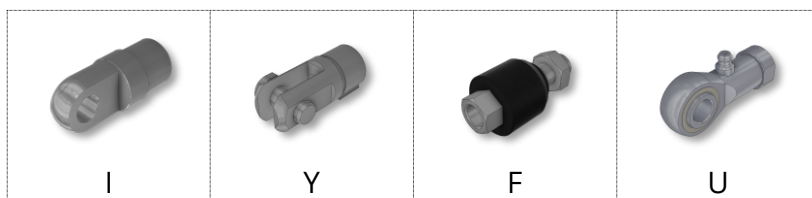
Mounting accessories catalogue numbers

Bore size Ø	LB	FA	CA	CB	CR	SDB	FTC	TCM2
12	F-ACE12LB	F-ACE12FA	F-ACE12CA	-	-	F-MI12SDB	-	-
16	F-ACP12LB	F-ACE16FA	F-ACE16CA	-	-	F-MI12SDB	-	-
20	F-ACP20LB	F-ACE20FA	F-ACE20CA	-	-	F-MI20SDB	-	-
25	F-ACP25LB	F-ACE25FA	F-ACE25CA	-	-	F-MI20SDB	-	-
32	F-ACE32LB	F-SI32FA	F-SE32CA	F-SE32CB	F-SI32CR	-	F-SI32FTC	F-SI32TCM2
40	F-ACE40LB	F-SI40FA	F-SE40CA	F-SE40CB	F-SI40CR	-	F-SI40FTC	F-SI40TCM2
50	F-ACE50LB	F-SI50FA	F-SE50CA	F-SE50CB	F-SI50CR	-	F-SI50FTC	F-SI50TCM2
63	F-ACE63LB	F-SI63FA	F-SE63CA	F-SE63CB	F-SI63CR	-	F-SI63FTC	F-SI63TCM2
80	F-ACE80LB	F-SI80FA	F-SE80CA	F-SE80CB	F-SI80CR	-	F-SI80FTC	F-SI80TCM2
100	F-ACE100LB	F-SI100FA	F-SE100CA	F-SE100CB	F-SI100CR	-	F-SI100FTC	F-SI100TCM2
125	-	F-SI125FA	F-SE125CA	F-SE125CB	F-SI125CR	-	F-SI125FTC	F-SI125TCM2

Actuators and mounting types (○ - available)

	LB	FA	CA	CB	CR	TC	FTC	TCM2
ACE	○	○	○	○	○	○	○	○
ASE, ATE	○	○	○	○	○	○	○	○
ACED, ACEJ	○	○					○	○
TACE			○	○	○	○	○	○
TACED								

Mounting accessories for piston rod



Mounting accessories catalogue numbers

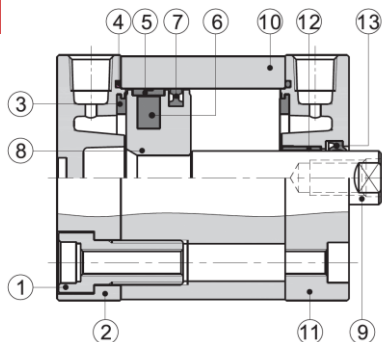
Bore size Ø	I	Y	F	U
12	F-ACQ12I	F-ACQ12Y	F-M5X080F	F-M5X080U
16	F-M6X100I	F-M6X100Y	F-M6X100F	F-M6X100U
20	F-M8X125I	F-M8X125Y	F-M8X125F	F-M8X125U
25	F-M8X125I	F-M8X125Y	F-M8X125F	F-M8X125U
32	F-M10X125I	F-M10X125Y	F-M10X125F	F-M10X125U
40	F-M10X125I	F-M10X125Y	F-M10X125F	F-M10X125U
50	F-M12X125I	F-M12X125Y	F-M12X125F	F-M12X125U
63	F-M12X125I	F-M12X125Y	F-M12X125F	F-M12X125U
80	F-M16X150I	F-M16X150Y	F-M16X150F	F-M16X150U
100	F-M16X150I	F-M16X150Y	F-M16X150F	F-M16X150U
125	F-M20X150I	F-M20X150Y	F-M20X150F	F-M20X150U

Piston rod force [N] as a function of the operating pressure

Bore size [mm]	Piston rod size [mm]	Acting type		Pressure area [mm²]	Operating pressure [MPa]						
					0.1	0.2	0.3	0.4	0.5	0.6	0.7
12	6	single acting	extraction	113.1	-	6.1	17.4	28.7	40.0	51.4	62.7
			retraction	84.8	-	0.5	8.9	17.4	25.9	34.4	42.9
		double acting	extraction	113.1	11.3	22.6	33.9	45.2	56.5	67.9	79.2
			retraction	84.8	8.5	17.0	25.4	33.9	42.4	50.9	59.4
16	8	single acting	extraction	201.1	-	18.1	38.2	58.3	78.4	98.5	118.6
			retraction	150.8	-	8.1	23.1	38.2	53.3	68.4	83.5
		double acting	extraction	201.1	20.1	40.2	60.3	80.4	100.5	120.6	140.7
			retraction	150.8	15.1	30.2	45.2	60.3	75.4	90.5	105.6
20	10	single acting	extraction	314.2	-	33.1	64.5	96.0	127.4	158.8	190.2
			retraction	235.6	-	17.4	41.0	64.5	88.1	111.7	135.2
		double acting	extraction	314.2	31.4	62.8	94.2	125.7	157.1	188.5	219.9
			retraction	235.6	23.6	47.1	70.7	94.2	117.8	141.4	164.9
25	10	single acting	extraction	490.9	13.8	62.9	112.0	161.0	210.1	259.2	308.3
			retraction	412.3	5.9	47.2	88.4	129.6	170.9	212.1	253.3
		double acting	extraction	490.9	49.1	98.2	147.3	196.3	245.4	294.5	343.6
			retraction	412.3	41.2	82.5	123.7	164.9	206.2	247.4	288.6
32	12	single acting	extraction	804.2	30.8	111.2	191.7	272.1	352.5	432.9	513.4
			retraction	691.2	19.5	88.6	157.7	226.9	296.0	365.1	434.2
		double acting	extraction	804.2	80.4	160.8	241.3	321.7	402.1	482.5	563.0
			retraction	691.2	69.1	138.2	270.3	376.5	482.5	588.6	694.7
40	12	single acting	extraction	1256.6	54.2	179.8	305.5	431.2	556.8	682.5	808.1
			retraction	1143.5	42.9	157.2	271.6	385.9	500.3	614.6	729.0
		double acting	extraction	1256.6	125.7	251.3	377.0	502.7	628.3	754.0	879.6
			retraction	1143.5	114.4	228.7	343.1	457.4	571.8	686.1	800.5
50	16	single acting	extraction	1963.5	90.1	286.5	482.8	679.2	875.5	1071.9	1268.2
			retraction	1762.4	70.0	246.3	422.5	598.8	775.0	951.3	1127.5
		double acting	extraction	1963.5	196.3	392.7	589.0	785.4	981.7	1178.1	1374.4
			retraction	1762.4	176.2	352.5	528.7	705.0	881.2	1057.5	1233.7
63	16	single acting	extraction	3117.2	173.6	485.3	797.1	1108.8	1420.5	1732.2	2044.0
			retraction	2916.2	153.5	445.1	736.8	1028.4	1320.0	1611.6	1903.2
		double acting	extraction	3117.2	311.7	623.4	935.2	1246.9	1558.6	1870.3	2182.1
			retraction	2916.2	291.6	583.2	874.9	1166.5	1458.1	1749.7	2041.3
80	20	single acting	extraction	5026.5	305.6	808.2	1310.9	1813.5	2316.2	2818.8	3321.5
			retraction	4712.4	274.1	745.4	1216.6	1687.9	2159.1	2630.3	3101.6
		double acting	extraction	5026.5	502.7	1005.3	1508.0	2010.6	2513.3	3015.9	3518.6
			retraction	4712.4	471.2	942.5	1413.7	1885.0	2356.2	2827.4	3298.7
100	20	single acting	extraction	7854.0	499.1	1284.5	2069.9	2855.3	3640.7	4426.1	5211.5
			retraction	7539.8	467.7	1221.7	1975.7	2729.6	3483.6	4237.6	4991.6
		double acting	extraction	7854.0	785.4	1570.8	2356.2	3141.6	3927.0	4712.4	5497.8
			retraction	7539.8	754.0	1508.0	2262.0	3015.9	3769.9	4523.9	5277.9
125	25	double acting	extraction	12271.8	1227.2	2454.4	3681.5	4908.7	6135.9	7363.1	8590.3
			retraction	11780.9	1178.1	2356.2	3534.3	4712.4	5890.5	7086.5	8246.6

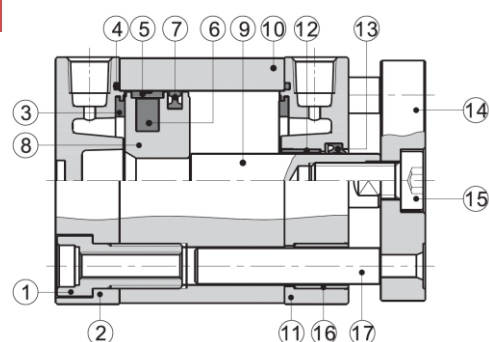
Inner structure and material of major parts

ACE*S



No.	Item	Material
1	screw	carbon steel
2	rear cover	aluminum casting
3	bumper	polyurethane
4	O-ring	NBR rubber
5	guide ring	low-abrasive material/none for Ø12÷20
6	magnet	special material/sintered metal for Ø12÷20
7	piston seal	NBR rubber
8	piston	aluminum casting
9	piston rod	constructional steel S45C

TACE*S

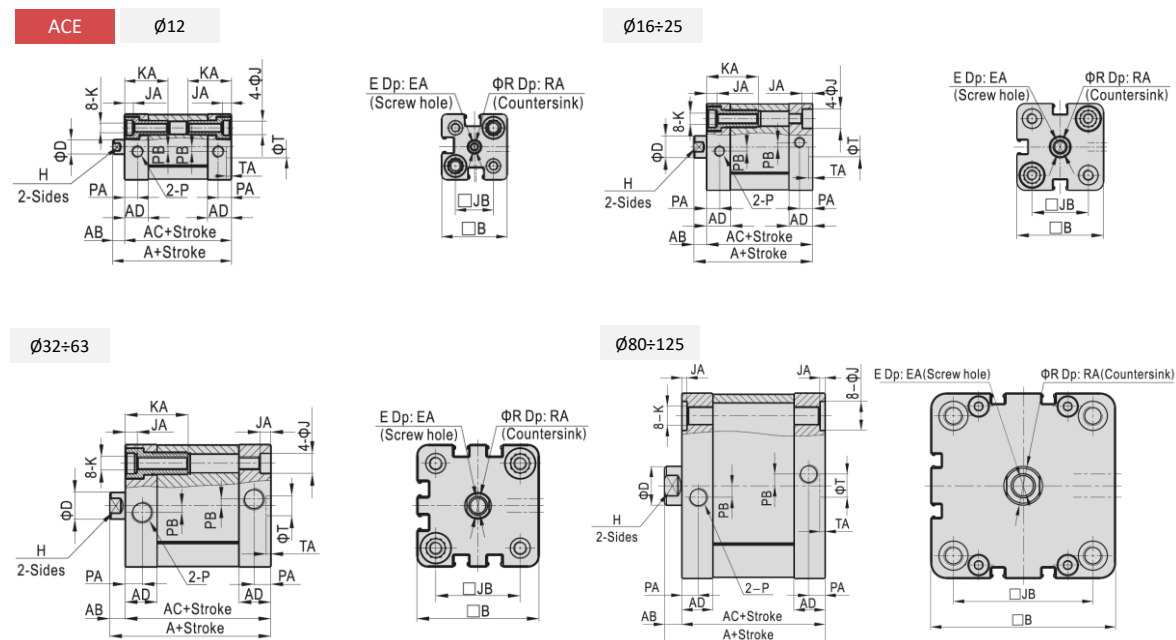


No.	Item	Material
10	body	aluminum casting
11	front cover	aluminum casting
12	guide sleeve	low-abrasive material/none for Ø12÷25
13	piston gasket	NBR rubber
14	front plate	aluminum casting
15	fastening screw	carbon steel
16	guide sleeve	low-abrasive material
17	guide rod	constructional steel S45C/stainless steel Ø12÷40

Mounting accessories materials

Accessories/ /bore size	Mounting accessories for actuator body									Mounting accessories for piston rod			
	LB	FA	FB	CA	CB	CR	SDB	FTC	TCM2	I	Y	F	U
12+25	rolled steel	aluminum	aluminum	aluminum	-	-	rolled steel	cast iron	aluminum	carbon steel	carbon steel	carbon steel	carbon steel
32+100	rolled steel	aluminum	aluminum	ductile iron	ductile iron	ductile iron	-	cast iron	aluminum	carbon steel	carbon steel	carbon steel	carbon steel
125	-	ductile iron	ductile iron	ductile iron	ductile iron	ductile iron	-	cast iron	aluminum	carbon steel	carbon steel	carbon steel	carbon steel

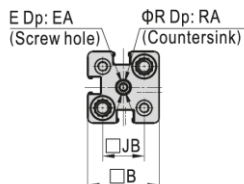
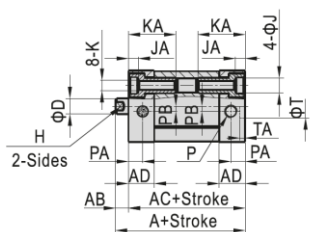
Dimensional drawings of actuators



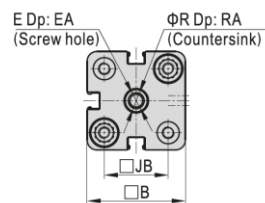
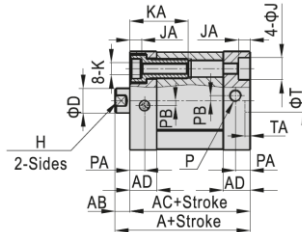
Bore\ dimension	A	AB	AC	AD	B	D	E	EA	H	J	JA	JB	K	KA	P	PA	PB	R	RA	T	TA
12	40.0	5	35.0	10.0	27.5	6	M3x0.5	8	5	6	3.5	16.0	M4x0.7	18.5	M5x0.8	5.5	2	3.5	1.5	9	2.1
16	40.0	5	35.0	10.0	30.0	8	M4x0.7	10	7	6	3.5	18.0	M4x0.7	18.5	M5x0.8	5.5	2	4.5	1.5	9	2.1
20	43.0	6	37.0	10.5	35.5	10	M6x1.0	14	9	9	4.5	22.0	M5x0.8	23.5	M5x0.8	6.0	2	6.5	2.5	9	2.1
25	45.0	6	39.0	11.0	40.0	10	M6x1.0	14	9	9	4.5	26.0	M5x0.8	23.5	M5x0.8	6.0	2	6.5	2.5	9	2.1
32	51.0	7	44.0	14.0	49.5	12	M8x1.25	16	10	9	4.5	32.5	M6x1.0	28.5	1/8	7.5	3	8.5	3.5	9	2.1
40	52.5	7	45.5	14.5	55.0	12	M8x1.25	16	10	9	4.5	38.0	M6x1.0	28.5	1/8	7.5	3	8.5	3.5	9	2.1
50	53.5	8	45.5	14.5	65.5	16	M10x1.5	20	13	11	4.5	46.5	M8x1.25	30.5	1/8	7.5	3	10.5	4.5	12	2.6
63	57.0	8	49.0	15.0	75.5	16	M10x1.5	20	13	11	4.5	56.5	M8x1.25	30.5	1/8	7.5	4	10.5	4.5	12	2.6
80	63.0	9	54.0	16.0	95.5	20	M12x1.75	20	17	15	2.5	72.0	M10x1.5	-	1/8	8.5	6	12.5	6	12	2.6
100	76.0	9	67.0	19.0	113.5	20	M12x1.75	20	17	15	2.5	89.0	M10x1.5	-	1/8	10.5	7	12.5	6	12	2.6
125	92.0	11	81.0	20.0	134.5	25	M16x2.0	25	21	-	-	110.0	M12x1.75	-	1/4	10.5	8	16.5	7	12	2.6

ASE

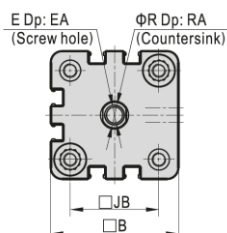
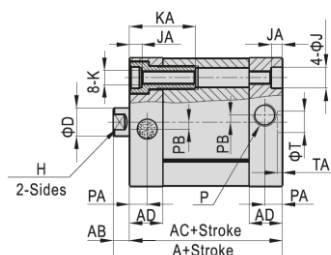
Ø12



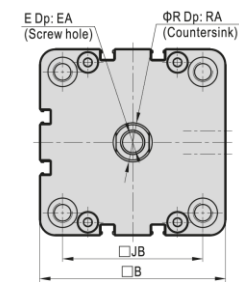
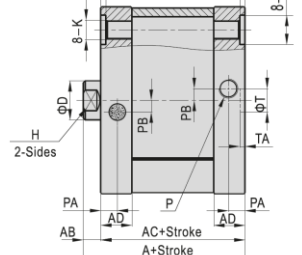
Ø16÷25



Ø32÷63

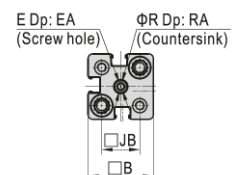
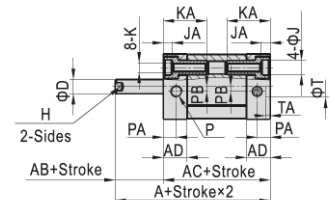


Ø80/100

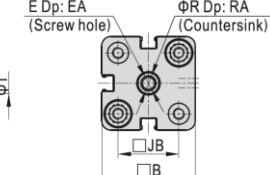
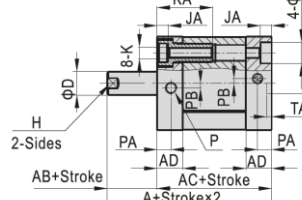


ATE

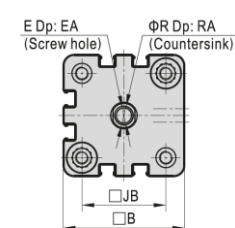
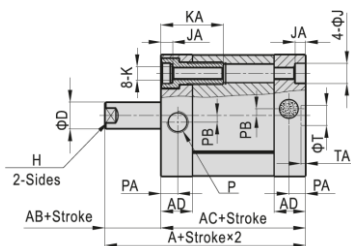
Ø12



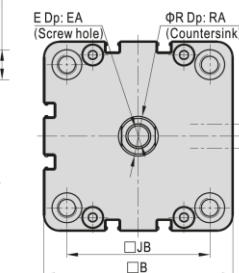
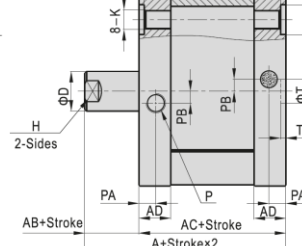
Ø16÷25



Ø32÷63

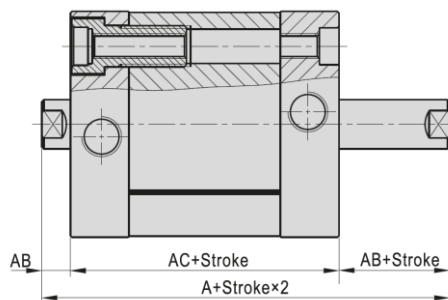


Ø80/100

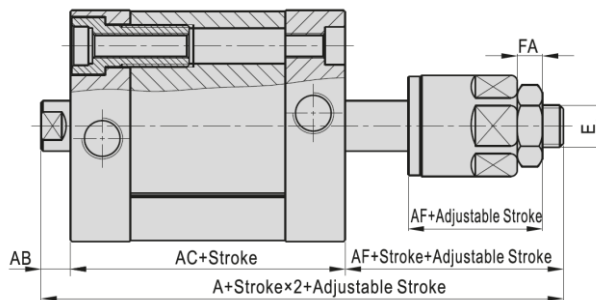


Bore\ dimension	A	AB	AC	AD	B	D	E	EA	H	J	JA	JB	K	KA	P	PA	PB	R	RA	T	TA
12	40.0	5	35.0	10.0	27.5	6	M3x0.5	8	5	6	3.5	16.0	M4x0.7	18.5	M5x0.8	5.5	2	3.5	1.5	9	2.1
16	40.0	5	35.0	10.0	30.0	8	M4x0.7	10	7	6	3.5	18.0	M4x0.7	18.5	M5x0.8	5.5	2	4.5	1.5	9	2.1
20	43.0	6	37.0	10.5	35.5	10	M6x1.0	14	9	9	4.5	22.0	M5x0.8	23.5	M5x0.8	6.0	2	6.5	2.5	9	2.1
25	45.0	6	39.0	11.0	40.0	10	M6x1.0	14	9	9	4.5	26.0	M5x0.8	23.5	M5x0.8	6.0	2	6.5	2.5	9	2.1
32	51.0	7	44.0	14.0	49.5	12	M8x1.25	16	10	9	4.5	32.5	M6x1.0	28.5	1/8	7.5	3	8.5	3.5	9	2.1
40	52.5	7	45.5	14.5	55.0	12	M8x1.25	16	10	9	4.5	38.0	M6x1.0	28.5	1/8	7.5	3	8.5	3.5	9	2.1
50	53.5	8	45.5	14.5	65.5	16	M10x1.5	20	13	11	4.5	46.5	M8x1.25	30.5	1/8	7.5	3	10.5	4.5	12	2.6
63	57.0	8	49.0	15.0	75.5	16	M10x1.5	20	13	11	4.5	56.5	M8x1.25	30.5	1/8	7.5	4	10.5	4.5	12	2.6
80	63.0	9	54.0	16.0	95.5	20	M12x1.75	20	17	15	2.5	72.0	M10x1.5	-	1/8	8.5	6	12.5	6.0	12	2.6
100	76.0	9	67.0	19.0	113.5	20	M12x1.75	20	17	15	2.5	89.0	M10x1.5	-	1/8	10.5	7	12.5	6.0	12	2.6

ACED



ACEJ

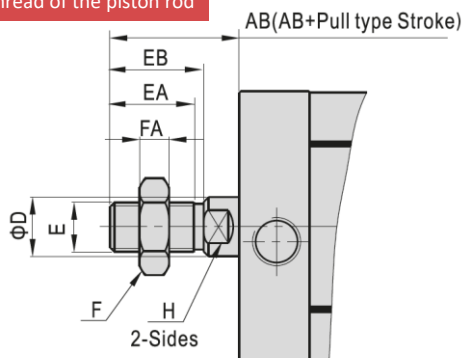


Bore\ dimension	A (ACED)	A (ACEJ)	AB	AC	AF	FA	E
12	45.0	57.0	5	35.0	17.0	4	M5x0.8
16	45.0	61.0	5	35.0	21.0	5	M6x1.0
20	49.0	68.0	6	37.0	25.0	6	M8x1.25
25	51.0	70.0	6	39.0	25.0	6	M8x1.25
32	58.0	78.0	7	44.0	27.0	6	M10x1.25
40	59.5	79.5	7	45.5	27.0	6	M10x1.25
50	61.5	81.5	8	45.5	28.0	7	M12x1.25
63	65.0	85.0	8	49.0	28.0	7	M12x1.25
80	72.0	92.0	9	54.0	29.0	8	M16x1.5
100	85.0	105.0	9	67.0	29.0	8	M16x1.5
125	103.0	127.5	11	81.0	35.5	10	M20x1.5

Comments:

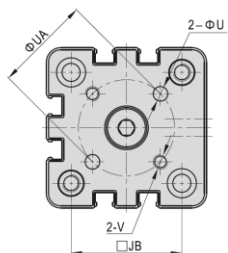
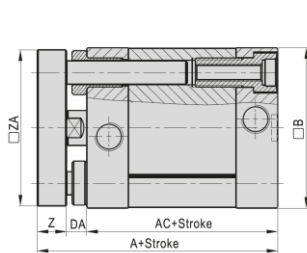
1. Unsized dimensions are the same as for ACE type
2. The dimensions for the version with the magnet are the same as for the version without a magnet

Male thread of the piston rod

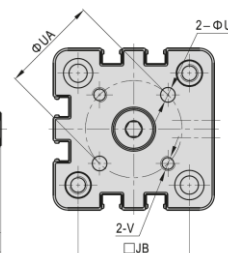
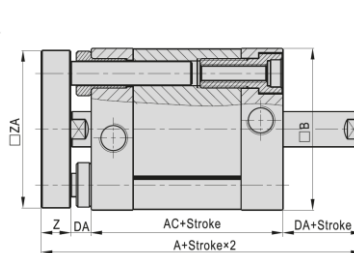


Bore\ dimension	AB	D	E	EA	EB	F	FA	H
12	15	6	M5x0.8	9	10	8	4	5
16	17	8	M6x1.0	11	12	10	5	7
20	22	10	M8x1.25	15	16	12	6	9
25	22	10	M8x1.25	15	16	12	6	9
32	26	12	M10x1.25	17	19	17	6	10
40	26	12	M10x1.25	17	19	17	6	10
50	30	16	M12x1.25	20	22	17	7	13
63	30	16	M12x1.25	20	22	17	7	13
80	37	20	M16x1.5	26	28	23	8	17
100	37	20	M16x1.5	26	28	23	8	17
125	51	25	M20x1.5	38	40	26	10	21

TACE



TACED



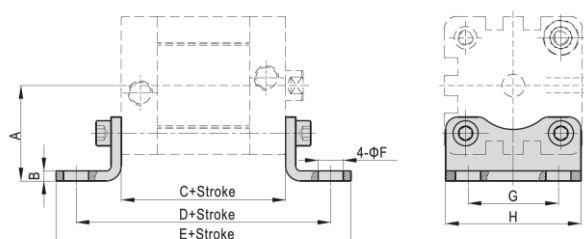
Bore\ dimension	A (TACE)	A (TACED)	AC	B	DA	JB	U	UA	V	Z	ZA
12	46.0	51.0	35.0	27.5	5	16.0	3	12	M3x0.5	6	26.5
16	46.0	51.0	35.0	30.0	5	18.0	3	14	M3x0.5	6	29.0
20	51.0	57.0	37.0	35.5	6	22.0	4	17	M4x0.7	8	34.5
25	53.0	59.0	39.0	40.0	6	26.0	5	22	M5x0.8	8	39.0
32	61.0	68.0	44.0	49.5	7	32.5	5	28	M5x0.8	10	48.0
40	62.5	69.5	45.5	55.0	7	38.0	5	33	M5x0.8	10	53.5
50	65.5	73.5	45.5	65.5	8	46.5	6	42	M6x1.0	12	64.0
63	69.0	77.0	49.0	75.5	8	56.5	6	50	M6x1.0	12	74.0
80	77.0	86.0	54.0	95.5	9	72.0	8	65	M8x1.25	14	94.0
100	90.0	99.0	67.0	113.5	9	89.0	10	80	M10x1.5	14	112.0

Comments:

1. Unsized dimensions are the same as for ACE type
2. The dimensions for the version with the magnet are the same as for the version without a magnet

Dimensional drawings of mounting accesories

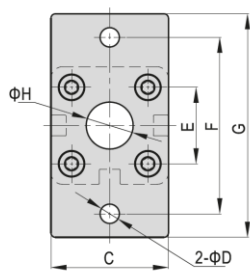
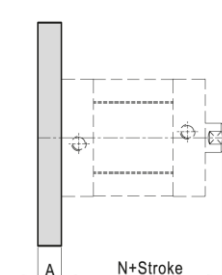
LB



Bore\ dimension	A	B	C	D	E	F	G	H
12	21.0	3.0	35.0	61.0	71.0	5.5	16	25
16	22.0	3.0	35.0	61.0	70.6	5.5	18	27
20	27.0	3.8	37.0	69.0	81.6	6.5	22	34
25	29.0	3.8	39.0	71.0	83.6	6.5	26	38
32	33.5	4.0	44.0	76.0	89.0	7.0	32	48
40	38.0	4.0	45.5	81.5	97.5	10.0	36	54
50	45.0	5.0	45.5	87.5	103.5	10.0	45	65
63	50.0	5.0	49.0	91.0	107.0	10.0	50	75
80	63.0	6.0	54.0	106.0	127.0	12.0	63	95
100	74.0	6.0	67.0	121.0	146.0	14.5	75	112

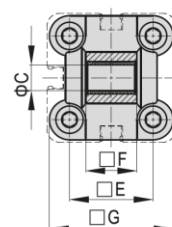
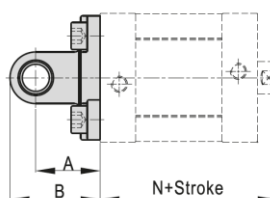
FA/FB

Ø12÷25

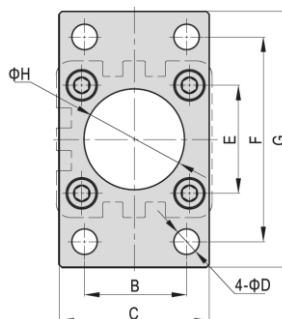
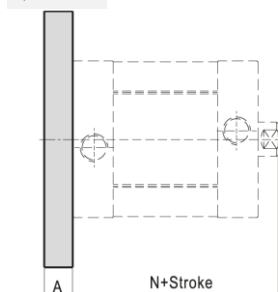


CA

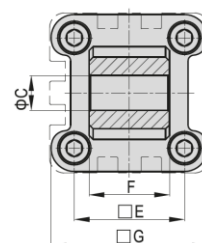
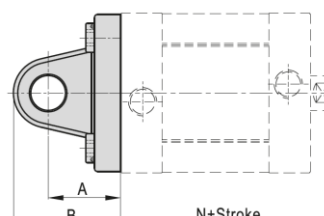
Ø12÷25



Ø32÷125



Ø32÷125

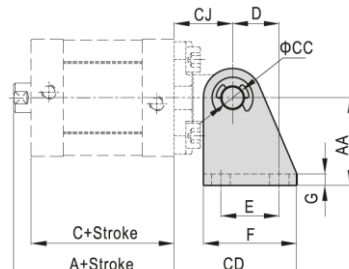
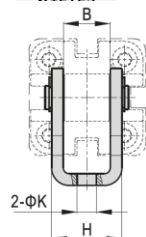


Bore\ dimension	A	B	C	D	E	F	G	H	N
12	8	-	25.0	5.5	16.0	40	55	10.0	40.0
16	8	-	30.0	5.5	18.0	43	55	10.0	40.0
20	8	-	35.0	6.6	22.0	55	68	16.0	43.0
25	8	-	39.5	6.6	26.0	60	76	16.0	45.0
32	10	32	47.0	7.0	32.5	64	80	30.5	51.0
40	10	36	53.0	9.0	38.0	72	90	35.5	52.5
50	12	45	65.0	9.0	46.5	90	108	40.5	53.5
63	12	50	75.0	9.0	56.5	100	118	45.5	57.0
80	16	63	95.0	12.5	72.0	126	150	45.5	63.0
100	16	75	115.0	14.5	89.0	150	176	55.5	76.0
125	20	90	139.0	16.5	110.0	180	218	60.5	92.0

Bore\ dimension	A	B	C	E	F	G	N
12	16	22.0	6	16.0	11.9	24.0	40.0
16	16	22.0	6	18.0	11.9	28.5	40.0
20	20	28.0	8	22.0	15.9	34.5	43.0
25	20	28.0	8	26.0	15.9	38.5	45.0
32	22	32.5	10	32.5	25.8	46.5	51.0
40	25	37.0	12	38.0	27.8	54.0	52.5
50	27	39.0	12	46.5	31.7	64.0	53.5
63	32	47.0	16	56.5	39.7	75.0	57.0
80	36	51.5	16	72.0	49.7	93.0	63.0
100	41	61.0	20	89.0	59.7	110.0	76.0
125	50	74.0	25	110.0	69.7	134.0	92.0

SDB

Ø12÷25

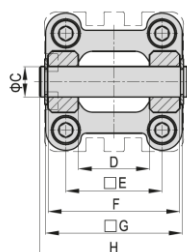
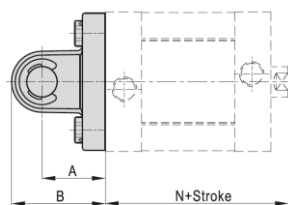


Bore\ dimension	A	AA	B	C	CC	CD	CJ	D	E	F	G	H	K
12	40	27	12.1	35	6	34	16	13	15	25	2.0	18.1	5.5
16	40	27	12.1	35	6	34	16	13	15	25	2.0	18.1	5.5
20	43	30	16.1	37	8	42	20	16	20	32	2.5	24.1	6.6
25	45	30	16.1	39	8	42	20	16	20	32	2.5	24.1	6.6

Note: The SDB is a set with CA

CB

Ø32÷125

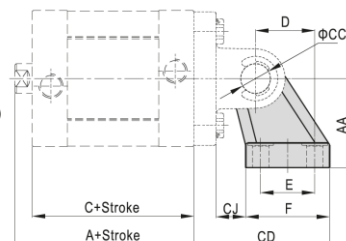
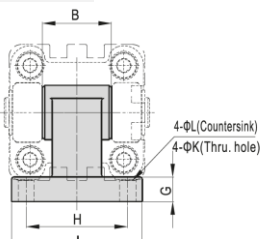


Bore\ dimension	A	B	C	D	E	F	G	H	N
32	22	32.5	10	26	32.5	45	46.5	51	51.0
40	25	37.0	12	28	38.0	52	54.0	59	52.5
50	27	39.0	12	32	46.5	60	64.0	67	53.5
63	32	47.0	16	40	56.5	70	75.0	77	57.0
80	36	51.5	16	50	72.0	90	93.0	97	63.0
100	41	61.0	20	60	89.0	110	110.0	119	76.0
125	50	74.0	25	70	110.0	130	134.0	139	92.0

Note: CB is supplied with a bolt

CR

Ø32÷125

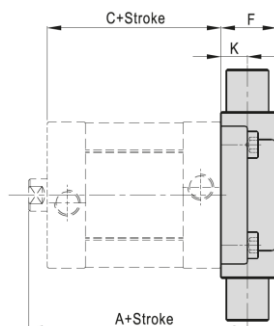
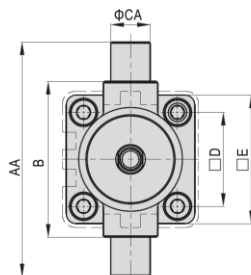
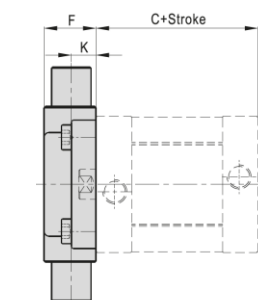


Bore\ dimension	A	AA	B	C	CC	CD	CJ	D	E	F	G	H	I	K	L
32	51.0	32	26	44.0	10	50	10	21	18	31	8	38	51	6.6	11
40	52.5	36	28	45.5	12	56	12	24	22	35	10	41	54	6.6	11
50	53.5	45	32	45.5	12	68	13	33	30	45	12	50	65	9.0	14
63	57.0	50	40	49.0	16	77	17	37	35	50	12	52	67	9.0	14
80	63.0	63	50	54.0	16	93	19	47	40	60	14	66	86	11.0	17
100	76.0	71	60	67.0	20	106	22	55	50	70	15	76	96	11.0	17
125	92.0	90	70	81.0	25	135	26	70	60	90	20	94	124	14.0	20

Note: The CB is a set with CR

FTC

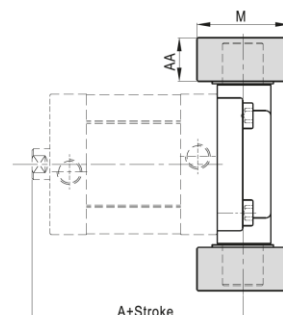
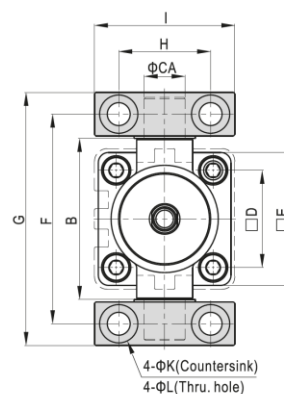
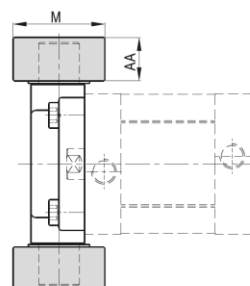
Ø32÷125



Bore\ dimension	A	AA	B	C	CA	D	E	F	K
32	63.0	74	50	44.0	12	32.5	46	19	10
40	66.5	95	63	45.5	16	38.0	52	21	10
50	71.5	107	75	45.5	16	46.5	64	26	12
63	77.0	130	90	49.0	20	56.5	74	28	12
80	85.0	150	110	54.0	20	72.0	94	31	16
100	102.0	185	132	67.0	25	89.0	114	35	16
125	124.0	210	160	81.0	25	110.0	139	43	20

TCM2

Ø32÷125

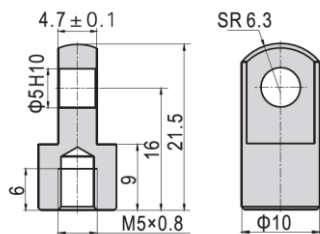


Bore\ dimension	A	AA	B	CA	D	E	F	G	H	I	K	L	M
32	63.0	14.0	52	12	32.5	46	66.0	80	32	46	11	7	30
40	66.5	17.0	65	16	38.0	52	82.0	99	36	55	15	9	36
50	71.5	17.0	75	16	46.5	64	94.0	111	36	55	15	9	36
63	77.0	20.5	90	20	56.5	74	113.5	134	42	65	18	11	40
80	85.0	20.5	112	20	72.0	94	133.5	154	42	65	18	11	40
100	102.0	24.5	135	25	89.0	114	159.5	184	50	75	20	14	50
125	124.0	24.5	170	25	110.0	139	187.5	212	50	75	20	14	50

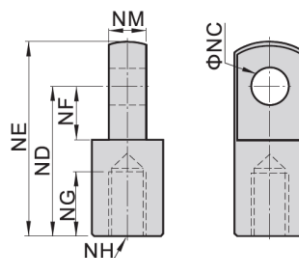
Note: The TCM2 is a set with FTC

Single knuckle joints I

F-ACQ12I



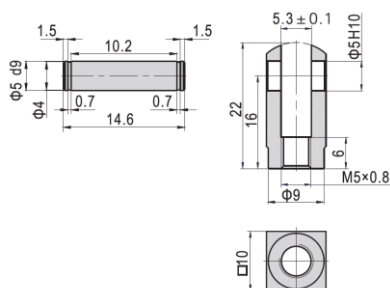
others



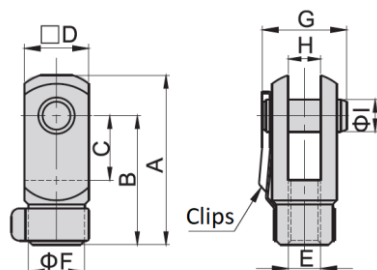
Model/dimension	NC	ND	NE	NF	NG	NH	NM
F-M3x050I	3	12	15.5	5.0	5.0	M3x0.5	3.0
F-M4x070I	4	16	21.0	6.8	8.0	M4x0.7	4.0
F-M5x080I	5	25	32.0	14.1	7.5	M5x0.8	6.3
F-M6x100I	6	21	28.0	8.5	8.0	M6x1.0	6.0
F-M8x125I	8	30	40.0	11.0	15.0	M8x1.25	8.0
F-M10x125I	10	40	50.0	15.0	20.0	M10x1.25	10.0
F-M12x125I	12	48	62.0	24.0	20.0	M12x1.25	12.0
F-M16x150I	16	64	82.0	32.0	23.0	M16x1.5	16.0
F-M20x150I	20	80	102.0	40.0	30.0	M20x1.5	20.0
F-M27x200I	30	110	139.0	51.0	45.0	M27x2.0	30.0
F-M36x200I	35	144	181.0	65.0	55.0	M36x2.0	35.0
F-M42x200I	40	168	211.0	85.0	62.0	M42x2.0	40.0

Rod clevis Y

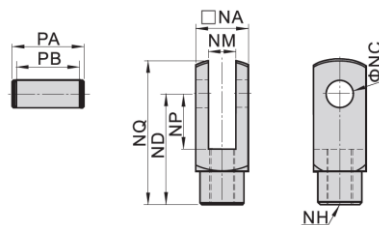
F-ACQ12Y



M10 and smaller



M12 and bigger

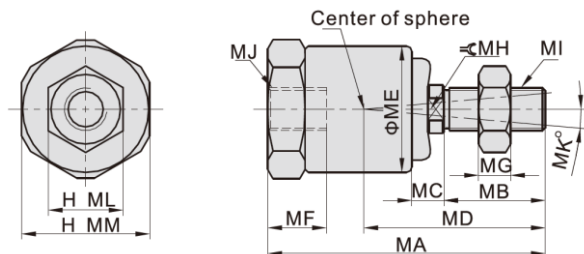


Model/dimension	A	B	C	D	F	E	G	H	I
F-M3X050Y	15.5	12	5.0	6	6	M3x0.5	9.0	3.0	3
F-M4X070Y	22.0	16	8.0	8	7	M4x0.7	11.5	4.0	4
F-M5X080Y	28.0	21	10.2	12	10	M5x0.8	15.5	6.5	5
F-M6X100Y	32.0	24	12.0	12	10	M6x1.0	16.0	6.0	6
F-M8X125Y	42.0	32	16.0	16	14	M8x1.25	21.0	8.0	8
F-M10X125Y	52.0	40	20.0	19	18	M10x1.25	25.0	10.0	10

Model/dimension	NA	NC	ND	NP	NQ	NM	NH	PA	PB
F-M12X125Y	25.4	12	48	24	62	12	M12x1.2	32.4	26.2
F-M16X150Y	32.0	16	64	32	80	16	M16x1.5	39.0	32.8
F-M20X150Y	44.4	20	80	40	102	20	M20x1.5	53.4	45.2
F-M27X200Y	54.0	30	110	55	139	30	M27x2.0	64.2	54.8
F-M36X200Y	70.0	35	144	73	179	35	M36x2.0	80.2	70.8
F-M42X200Y	85.0	40	168	86	211	40	M42x2.0	115.0	93.0

Floating joint F

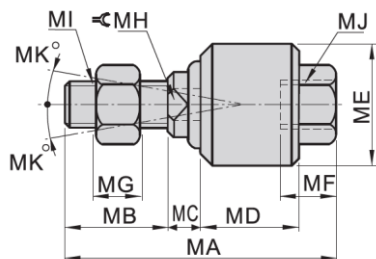
M6 and smaller



Model/dimension	MA	MB	MC	MD	ME	MF	MG	MH	MI/MJ	ML	MM
F-M3X050F	23.5	7.5	3.0	15.0	11.8	5.5	2.4	4	M3x05	5.5	12
F-M4X070F	26.0	9.5	3.0	17.0	11.8	6.0	3.0	4	M4x0.7	7.0	12
F-M5X080F	34.5	13.5	3.5	22.8	13.8	8.0	4.0	6	M5x0.8	8.0	14
F-M6X100F	34.5	13.5	3.5	22.8	13.8	8.0	4.0	6	M6x1.0	10.0	14

Note: angular compensation $\pm 5^\circ$, axial compensation 0.5mm

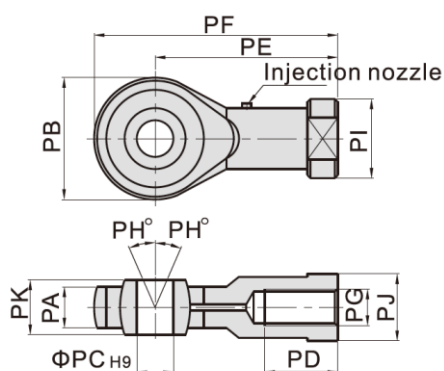
M8 and bigger



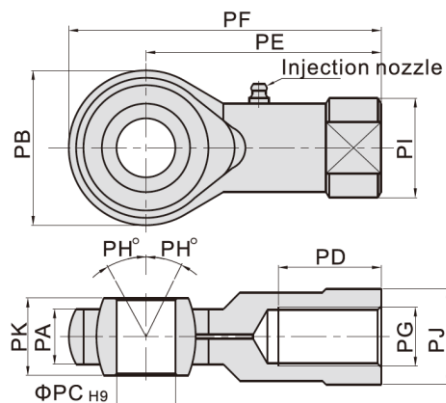
Model/dimension	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK
F-M8X125F	51	20.0	6.0	17	24.0	10.5	6	8	M8x1.25	M8x1.25	13
F-M10X125F	58	22.0	7.0	21	26.0	11.0	6	10	M10x1.25	M10x1.25	12
F-M12X125F	58	22.0	8.0	21	28.0	11.5	7	12	M12x1.25	M12x1.25	12
F-M14X150F	70	22.5	8.5	28	34.5	16.0	8	15	M14x1.5	M14x1.5	12
F-M16X150F	90	27.0	10.0	41	44.5	19.0	8	17	M16x1.5	M16x1.5	7
F-M18X150F	92	27.0	10.0	41	44.5	21.0	11	18	M18x1.5	M18x1.5	7
F-M20X150F	102	29.0	13.0	46	53.0	22.0	10	22	M20x1.5	M20x1.5	10

Rod end U

M8 and smaller



M10 and bigger



Model/dimension	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK
F-M4X070U	6.0	18	5	10	27	36	M4x0.7	13	12.5	10	8
F-M5X080U	6.0	18	5	10	27	36	M5x0.8	13	12.5	10	8
F-M6X100U	6.8	20	6	12	30	40	M6x1.0	13	13.0	11	9
F-M8X125U	9.0	24	8	16	36	48	M8x1.25	13	16.0	14	12
F-M10X125U	11.0	26	10	20	43	56	M10x1.25	13	19.0	17	14
F-M12X125U	12.0	32	12	22	50	66	M12x1.25	13	22.0	19	16
F-M14X150U	14.0	36	14	28	57	75	M14x1.5	13	25.0	22	19
F-M16X150U	15.0	40	16	28	64	84	M16x1.5	15	27.0	22	21
F-M18X150U	16.5	46	18	30	71	94	M18x1.5	15	31.0	27	23
F-M20X150U	18.0	46	20	33	77	100	M20x1.5	15	34.0	30	25
F-M27X200U	25.0	70	30	51	110	145	M27x2.0	15	50.0	41	37
F-M36X200U	27.5	80	35	56	125	165	M36x2.0	15	57.5	50	43