



Compact cylinder—ACE Series

In accordance with ISO21287 standard

Product series

Series name		Mounting type									Acting type	Bore size	Collocation of sensor switch	
		Basic	FA	FB	CA	CB	CR	FTC	LB	SDB			CS1-E	DS1-E
Double acting type: ACE		●	●	●	●	●	●	●	●	●	Double acting	12	●	●
Double rod type: ACED		●	●	●	●	●	●	●	●	●		16	●	●
Adjustable stroke type: ACEJ		●	●	●	●	●	●	●	●	●		20	●	●
Single acting type: ASE, ATE		●	●	●	●	●	●	●	●	●		25	●	●
		●	●	●	●	●	●	●	●	●		32	●	●
		●	●	●	●	●	●	●	●	●		40	●	●
		●	●	●	●	●	●	●	●	●		50	●	●
Double acting non-rotating with yoke: TACE		●	●	●	●	●	●	●	●	●	Double acting	63	●	●
Double rod non-rotating with yoke: TACED		●	●	●	●	●	●	●	●	●		80	●	●
Single acting type: ASE, ATE		●	●	●	●	●	●	●	●	●		100	●	●
		●	●	●	●	●	●	●	●	●		125	●	●
		●	●	●	●	●	●	●	●	●		12	●	●
		●	●	●	●	●	●	●	●	●		16	●	●
		●	●	●	●	●	●	●	●	●		20	●	●
		●	●	●	●	●	●	●	●	●		25	●	●
		●	●	●	●	●	●	●	●	●		32	●	●
		●	●	●	●	●	●	●	●	●		40	●	●
		●	●	●	●	●	●	●	●	●		50	●	●
		●	●	●	●	●	●	●	●	●		63	●	●
		●	●	●	●	●	●	●	●	●		80	●	●
		●	●	●	●	●	●	●	●	●		100	●	●
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Installation and application

- When load changes in the work, the cylinder with abundant output capacity shall be selected.
- Relative cylinder with high temperature resistance or corrosion resistance shall be chosen under the condition of high temperature or corrosion.
- Necessary protection measure shall be taken in the environment with higher humidity, much dust or water drops, oil dust and welding dregs.
- Dirty substances in the pipe must be eliminated before cylinder is connected with pipeline to prevent the entrance of particles into the cylinder.
- The medium used by cylinder shall be filtered to 40 μm or below.
- As both of the front cover and piston of the cylinder are short, typically too large stroke can not be selected.
- Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing.
- The cylinder shall avoid the influence of side load in operation to maintain the normal work of cylinder and extend the service life.
- If the cylinder is dismantled and stored for a long time, please conduct anti-rust treatment to the surface. Anti-dust caps shall be added in air inlet and outlet ports. The front and back cover can not be dismantled, which shall be especially noticed.

Criteria for selection: Cylinder thrust

Unit: Newton(N)

Bore size (mm)	Rod size (mm)	Acting type	Pressure area (mm²)	Operating pressure(MPa)								Bore size (mm)	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						0.1	0.2	0.3	0.4	0.5	0.6	0.7	
12	6	Single acting	113.1	-	6.1	17.4	28.7	40.0	51.4	62.7		40	12	Single acting	1256.6	54.2	179.8	305.5	431.2	556.8	682.5	808.1	
		Push side	84.8	-	0.5	8.9	17.4	25.9	34.4	42.9				Push side	1143.5	42.9	157.2	271.6	385.9	500.3	614.6	729.0	
		Double acting	113.1	11.3	22.6	33.9	45.2	56.5	67.9	79.2				Double acting	1256.6	125.7	251.3	377.0	502.7	628.3	754.0	879.6	
		Pull side	84.8	8.5	17.0	25.4	33.9	42.4	50.9	59.4				Pull side	1143.5	114.4	228.7	343.1	457.4	571.8	686.1	800.5	
16	8	Single acting	201.1	-	18.1	38.2	58.3	78.4	98.5	118.6		50	16	Single acting	1963.5	90.1	286.5	482.8	679.2	875.5	1071.9	1268.2	
		Push side	150.8	-	8.1	23.1	38.2	53.3	68.4	83.5				Push side	1762.4	70.0	246.3	422.5	598.8	775.0	951.3	1127.5	
		Double acting	201.1	20.1	40.2	60.3	80.4	100.5	120.6	140.7				Double acting	1963.5	196.3	392.7	589.0	785.4	981.7	1178.1	1374.4	
		Pull side	150.8	15.1	30.2	45.2	60.3	75.4	90.5	105.6				Pull side	1762.4	176.2	352.5	528.7	705.0	881.2	1057.5	1233.7	
20	10	Single acting	314.2	-	33.1	64.5	96.0	127.4	158.8	190.2		63	16	Single acting	3117.2	173.6	485.3	797.1	1108.8	1420.5	1732.2	2044.0	
		Push side	235.6	-	17.4	41.0	64.5	88.1	111.7	135.2				Push side	2916.2	153.5	445.1	736.8	1028.4	1320.0	1611.6	1903.2	
		Double acting	314.2	31.4	62.8	94.2	125.7	157.1	188.5	219.9				Double acting	3117.2	311.7	623.4	935.2	1246.9	1558.6	1870.3	2182.1	
		Pull side	235.6	23.6	47.1	70.7	94.2	117.8	141.4	164.9				Pull side	2916.2	291.6	583.2	874.9	1166.5	1458.1	1749.7	2041.3	
25	10	Single acting	490.9	-	13.8	62.9	112.0	161.0	210.1	259.2	308.3	80	20	Single acting	5026.5	305.6	808.2	1310.9	1813.5	2316.2	2818.8	3321.5	
		Push side	412.3	5.9	47.2	88.4	129.6	170.9	212.1	253.3				Push side	4712.4	274.1	745.4	1216.6	1687.9	2159.1	2630.3	3101.6	
		Double acting	490.9	49.1	98.2	147.3	196.3	245.4	294.5	343.6				Double acting	5026.5	502.7	1005.3	1508.0	2010.6	2513.3	3015.9	3518.6	
		Pull side	412.3	41.2	82.5	123.7	164.9	206.2	247.4	288.6				Pull side	4712.4	471.2	942.5	1413.7	1885.0	2356.2	2827.4	3298.7	
32	12	Single acting	804.2	-	30.8	111.2	191.7	272.1	352.5	432.9	513.4	100	20	Single acting	7854.0	499.1	1284.5	2069.9	2855.3	3640.7	4426.1	5211.5	
		Push side	691.2	19.5	88.6	157.7	226.9	296.0	365.1	434.2				Push side	7539.8	467.7	1221.7	1975.7	2729.6	3483.6	4237.6	4991.6	
		Double acting	804.2	80.4	160.8	241.3	321.7	402.1	482.5	563.0				Double acting	7854.0	785.4	1570.8	2356.2	3141.6	3927.0	4712.4	5497.8	
		Pull side	691.2	69.1	138.2	270.3	350.7	431.1	511.5	592.0				Pull side	7539.8	754.0	1508.0	2262.0	3015.9	3769.9	4523.9	5277.9	
125	25	Double acting	12271.8	1227.2	2454.4	3681.5	4908.7	6135.9	7363.1	8590.3		125	25	Double acting	11780.9	1178.1	2356.2	3534.3	4712.4	5890.5	7086.5	8246.6	
		Pull side	11780.9	1178.1	2356.2	3534.3	4712.4	5890.5	7086.5	8246.6				Pull side	11780.9	1178.1	2356.2	3534.3	4712.4	5890.5	7086.5	8246.6	



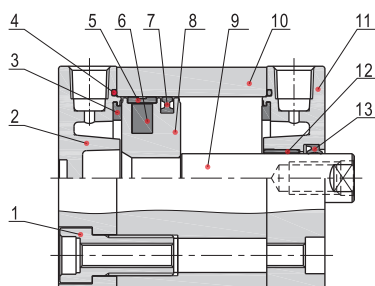


Compact cylinder

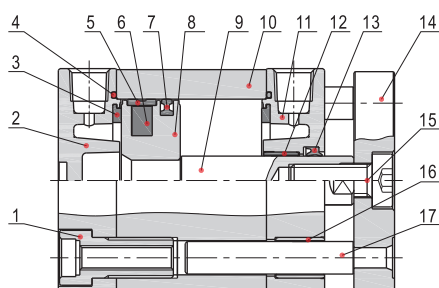
ACE Series

Inner structure and material of major parts

ACE - S



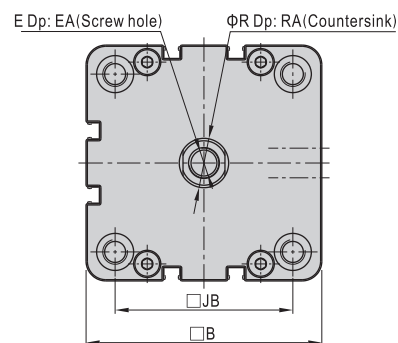
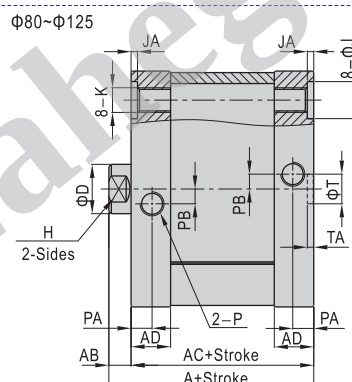
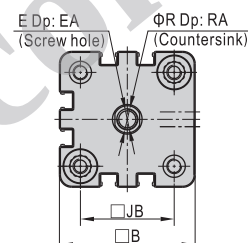
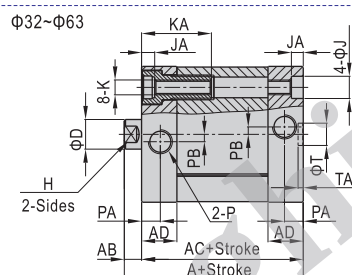
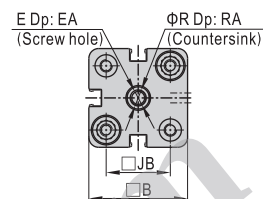
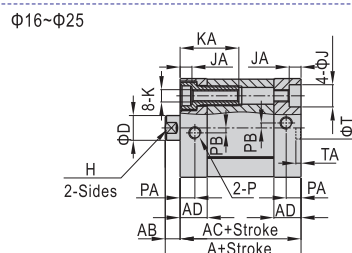
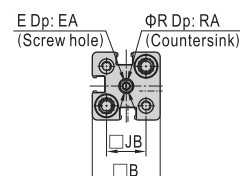
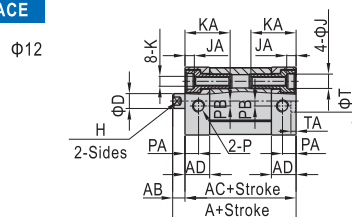
TACE - S



NO.	Item	Material
1	Screw	Carbon steel
2	Back cover	Aluminum alloy
3	Bumper	TPU
4	O-ring	NBR
5	Wear ring	No(Φ 12~20)\Wear resistant material(Others)
6	Magnet	Sintered metal(Neodymium-iron-boron)(Φ 12~20) Plastic(Others)
7	Piston seal	NBR
8	Piston	Aluminum alloy
9	Piston rod	S45C
10	Body	Aluminum alloy
11	Front cover	Aluminum alloy
12	Bushing	No(Φ 12~25)\Wear resistant material(Others)
13	Front cover packing	NBR
14	Panel	Aluminum alloy
15	Screw	Carbon steel
16	Bushing	Wear resistant material
17	Guide rod	Stainless steel(Φ 12~40)\S45C(Others)

Dimensions

ACE



Bore size\Item	A	AB	AC	AD	B	D	E	EA	H	J	JA	JB	K	KA
12	40	5	35	10	27.5	6	M3 × 0.5	8	5	6	3.5	16	M4 × 0.7	18.5
16	40	5	35	10	30	8	M4 × 0.7	10	7	6	3.5	18	M4 × 0.7	18.5
20	43	6	37	10.5	35.5	10	M6 × 1.0	14	9	9	4.5	22	M5 × 0.8	23.5
25	45	6	39	11	40	10	M6 × 1.0	14	9	9	4.5	26	M5 × 0.8	23.5
32	51	7	44	14	49.5	12	M8 × 1.25	16	10	9	4.5	32.5	M6 × 1.0	28.5
40	52.5	7	45.5	14.5	55	12	M8 × 1.25	16	10	9	4.5	38	M6 × 1.0	28.5
50	53.5	8	45.5	14.5	65.5	16	M10 × 1.5	20	13	11	4.5	46.5	M8 × 1.25	30.5
63	57	8	49	15	75.5	16	M10 × 1.5	20	13	11	4.5	56.5	M8 × 1.25	30.5
80	63	9	54	16	95.5	20	M12 × 1.75	20	17	15	2.5	72	M10 × 1.5	—
100	76	9	67	19	113.5	20	M12 × 1.75	20	17	15	2.5	89	M10 × 1.5	—
125	92	11	81	20	134.5	25	M16 × 2.0	25	21	—	—	110	M12 × 1.75	—

Bore size\Item	P	PA	PB	R	RA	T	TA
12	M5 × 0.8	5.5	2	3.5	1.5	9	2.1
16	M5 × 0.8	5.5	2	4.5	1.5	9	2.1
20	M5 × 0.8	6	2	6.5	2.5	9	2.1
25	M5 × 0.8	6	2	6.5	2.5	9	2.1
32	G1/8	7.5	3	8.5	3.5	9	2.1
40	G1/8	7.5	3	8.5	3.5	9	2.1
50	G1/8	7.5	3	10.5	4.5	12	2.6
63	G1/8	7.5	4	10.5	4.5	12	2.6
80	G1/8	8.5	6	12.5	6	12	2.6
100	G1/8	10.5	7	12.5	6	12	2.6
125	G1/4	10.5	8	16.5	7	12	2.6

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.
Please refer to page 245 for male thread dimensions.



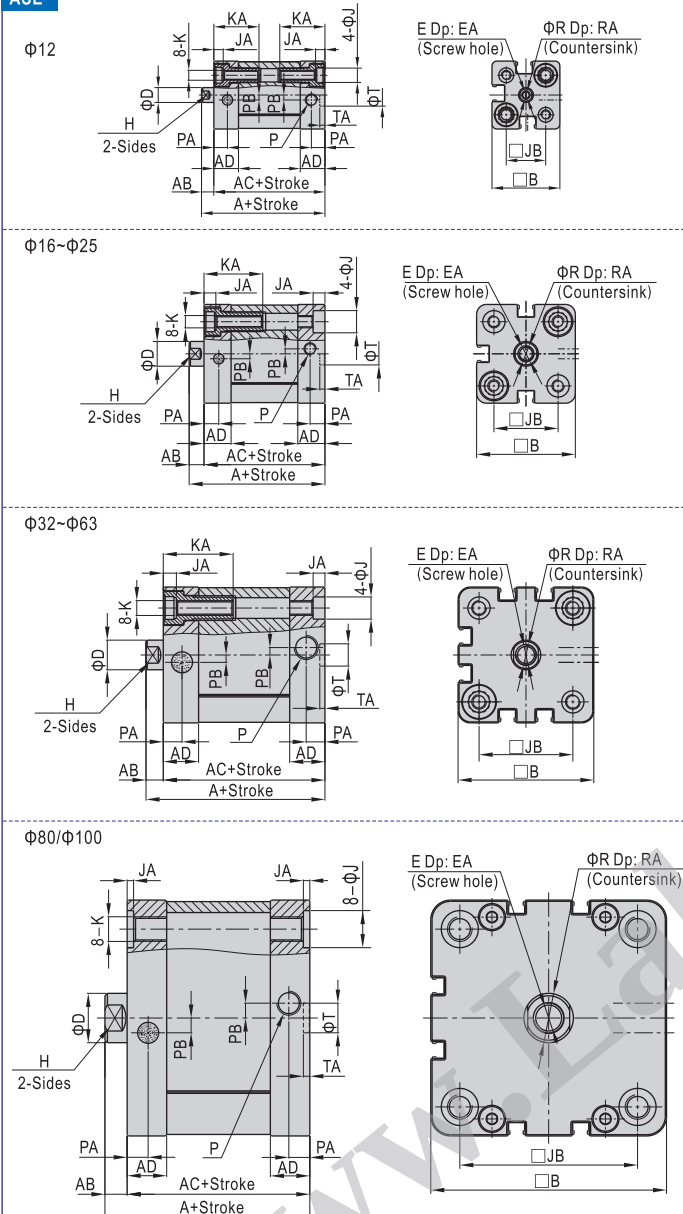
ACE

Compact cylinder

ACE Series



ASE

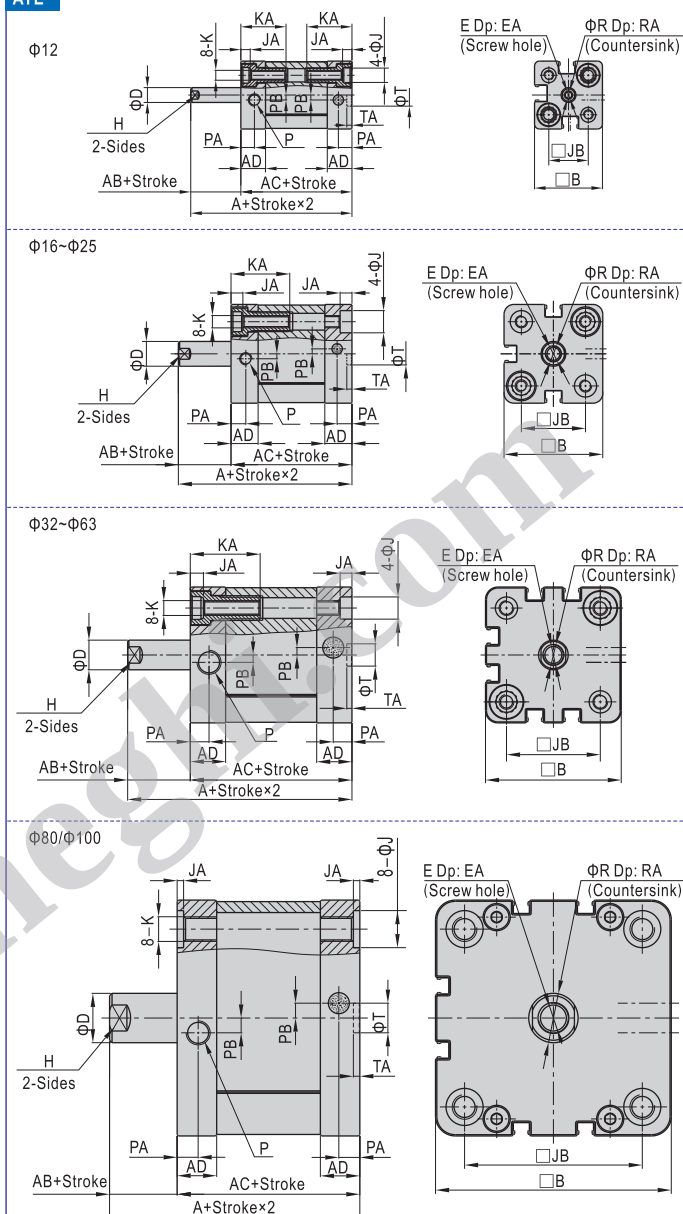


Bore size/Item	A	AB	AC	AD	B	D	E	EA	H	J	JA	JB
12	40	5	35	10	27.5	6	M3 × 0.5	8	5	6	3.5	16
16	40	5	35	10	30	8	M4 × 0.7	10	7	6	3.5	18
20	43	6	37	10.5	35.5	10	M6 × 1.0	14	9	9	4.5	22
25	45	6	39	11	40	10	M6 × 1.0	14	9	9	4.5	26
32	51	7	44	14	49.5	12	M8 × 1.25	16	10	9	4.5	32.5
40	52.5	7	45.5	14.5	55	12	M8 × 1.25	16	10	9	4.5	38
50	53.5	8	45.5	14.5	65.5	16	M10 × 1.5	20	13	11	4.5	46.5
63	57	8	49	15	75.5	16	M10 × 1.5	20	13	11	4.5	56.5
80	63	9	54	16	95.5	20	M12 × 1.75	20	17	15	2.5	72
100	76	9	67	19	113.5	20	M12 × 1.75	20	17	15	2.5	89

Bore size/Item	K	KA	P	PA	PB	R	RA	T	TA
12	M4 × 0.7	18.5	M5 × 0.8	5.5	2	3.5	1.5	9	2.1
16	M4 × 0.7	18.5	M5 × 0.8	5.5	2	4.5	1.5	9	2.1
20	M5 × 0.8	23.5	M5 × 0.8	6	2	6.5	2.5	9	2.1
25	M5 × 0.8	23.5	M5 × 0.8	6	2	6.5	2.5	9	2.1
32	M6 × 1.0	28.5	G1/8	7.5	3	8.5	3.5	9	2.1
40	M6 × 1.0	28.5	G1/8	7.5	3	8.5	3.5	9	2.1
50	M8 × 1.25	30.5	G1/8	7.5	3	10.5	4.5	12	2.6
63	M8 × 1.25	30.5	G1/8	7.5	4	10.5	4.5	12	2.6
80	M10 × 1.5	—	G1/8	8.5	6	12.5	6	12	2.6
100	M10 × 1.5	—	G1/8	10.5	7	12.5	6	12	2.6

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder. Please refer to page 245 for male thread dimensions.

ATE



Bore size/Item	A	AB	AC	AD	B	D	E	EA	H	J	JA	JB
12	40	5	35	10	27.5	6	M3 × 0.5	8	5	6	3.5	16
16	40	5	35	10	30	8	M4 × 0.7	10	7	6	3.5	18
20	43	6	37	10.5	35.5	10	M6 × 1.0	14	9	9	4.5	22
25	45	6	39	11	40	10	M6 × 1.0	14	9	9	4.5	26
32	51	7	44	14	49.5	12	M8 × 1.25	16	10	9	4.5	32.5
40	52.5	7	45.5	14.5	55	12	M8 × 1.25	16	10	9	4.5	38
50	53.5	8	45.5	14.5	65.5	16	M10 × 1.5	20	13	11	4.5	46.5
63	57	8	49	15	75.5	16	M10 × 1.5	20	13	11	4.5	56.5
80	63	9	54	16	95.5	20	M12 × 1.75	20	17	15	2.5	72
100	76	9	67	19	113.5	20	M12 × 1.75	20	17	15	2.5	89

Bore size/Item	K	KA	P	PA	PB	R	RA	T	TA
12	M4 × 0.7	18.5	M5 × 0.8	5.5	2	3.5	1.5	9	2.1
16	M4 × 0.7	18.5	M5 × 0.8	5.5	2	4.5	1.5	9	2.1
20	M5 × 0.8	23.5	M5 × 0.8	6	2	6.5	2.5	9	2.1
25	M5 × 0.8	23.5	M5 × 0.8	6	2	6.5	2.5	9	2.1
32	M6 × 1.0	28.5	G1/8	7.5	3	8.5	3.5	9	2.1
40	M6 × 1.0	28.5	G1/8	7.5	3	8.5	3.5	9	2.1
50	M8 × 1.25	30.5	G1/8	7.5	3	10.5	4.5	12	2.6
63	M8 × 1.25	30.5	G1/8	7.5	4	10.5	4.5	12	2.6
80	M10 × 1.5	—	G1/8	8.5	6	12.5	6	12	2.6
100	M10 × 1.5	—	G1/8	10.5	7	12.5	6	12	2.6

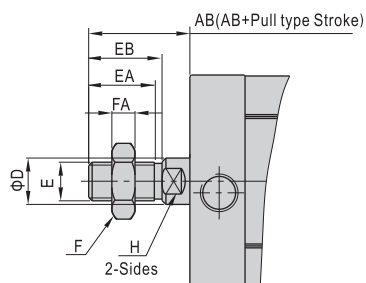
Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder. Please refer to page 245 for male thread dimensions.



Compact cylinder

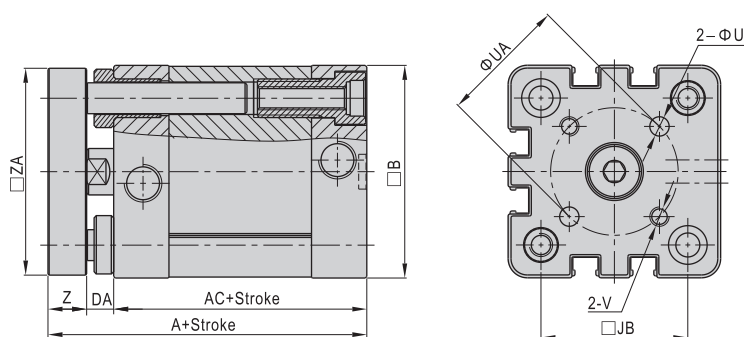
ACE Series

Male thread

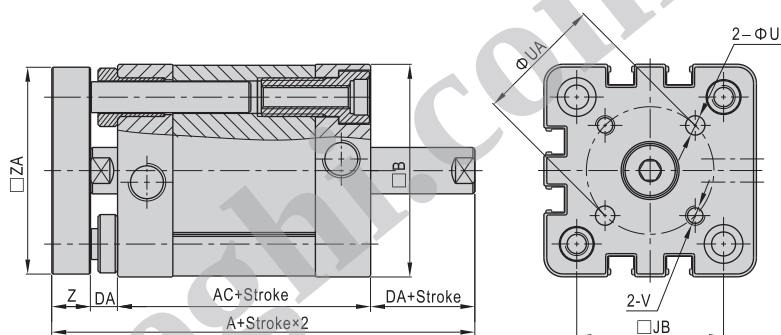


Bore size\Item	AB	D	E	EA	EB	F	FA	H
12	15	6	M5 × 0.8	9	10	8	4	5
16	17	8	M6 × 1.0	11	12	10	5	7
20	22	10	M8 × 1.25	15	16	12	6	9
25	22	10	M8 × 1.25	15	16	12	6	9
32	26	12	M10 × 1.25	17	19	17	6	10
40	26	12	M10 × 1.25	17	19	17	6	10
50	30	16	M12 × 1.25	20	22	17	7	13
63	30	16	M12 × 1.25	20	22	17	7	13
80	37	20	M16 × 1.5	26	28	23	8	17
100	37	20	M16 × 1.5	26	28	23	8	17
125	51	25	M20 × 1.5	38	40	26	10	21

TACE



TACED

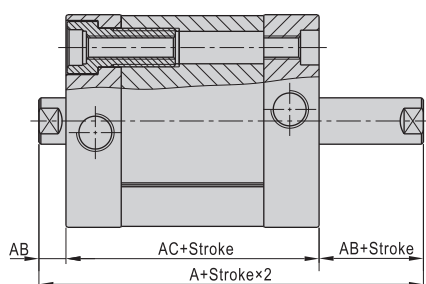


Bore size\Item	A(TACE)	A(TACED)	AC	B	DA	JB	U	UA	V	Z	ZA
12	46	51	35	27.5	5	16	3	12	M3 × 0.5	6	26.5
16	46	51	35	30	5	18	3	14	M3 × 0.5	6	29
20	51	57	37	35.5	6	22	4	17	M4 × 0.7	8	34.5
25	53	59	39	40	6	26	5	22	M5 × 0.8	8	39
32	61	68	44	49.5	7	32.5	5	28	M5 × 0.8	10	48
40	62.5	69.5	45.5	55	7	38	5	33	M5 × 0.8	10	53.5
50	65.5	73.5	45.5	65.5	8	46.5	6	42	M6 × 1.0	12	64
63	69	77	49	75.5	8	56.5	6	50	M6 × 1.0	12	74
80	77	86	54	95.5	9	72	8	65	M8 × 1.25	14	94
100	90	99	67	113.5	9	89	10	80	M10 × 1.5	14	112

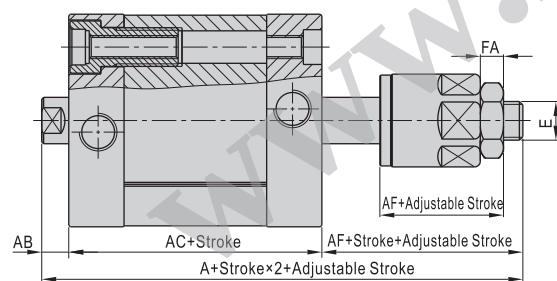
Remark:

1. The unmarked dimension is the same as ACE standard type
2. The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

ACED



ACEJ



Bore size\Item	A(ACED)	A(ACEJ)	AB	AC	AF	FA	E
12	45	57	5	35	17	4	M5 × 0.8
16	45	61	5	35	21	5	M6 × 1.0
20	49	68	6	37	25	6	M8 × 1.25
25	51	70	6	39	25	6	M8 × 1.25
32	58	78	7	44	27	6	M10 × 1.25
40	59.5	79.5	7	45.5	27	6	M10 × 1.25
50	61.5	81.5	8	45.5	28	7	M12 × 1.25
63	65	85	8	49	28	7	M12 × 1.25
80	72	92	9	54	29	8	M16 × 1.5
100	85	105	9	67	29	8	M16 × 1.5
125	103	127.5	11	81	35.5	10	M20 × 1.5

Remark:

1. The unmarked dimension is the same as ACE standard type
2. The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

Accessories

Ordering code

F-ACE 50 LB			
Accessory	Model	Bore size	Accessory type ^①
			FA: FA type
			FB: FB type
			CA: CA type
			LB: LB type
			SDB: SDB type

① The listed accessories are for ACE cylinder. Accessories that are adaptable to other cylinders are not shown. Please refer to accessory list on P248 for selection and ordering information.

Accessory selection

Cylinder model	Accessories		Mounting accessory						
	LB	FA	FB	CA	CB	CR	SDB	FTC	TCM2
ACE	●	●	●	●	●	●	●	●	●
ASE/ATE	●	●	●	●	●	●	●	●	●
ACED/ACEJ	●	●	×	×	×	×	×	●	●
TACE	×	×	●	●	●	●	●	●	●
TACED	×	×	●	×	×	×	×	×	×

Cylinder model		Accessories		Knuckle ①				Sensor switch ②	
				I	Y	F	U	CS1-E	DS1-E
ACE	Female thread	Standard	×	×	×	×	×	×	×
		With magnet	×	×	×	×	×	●	●
	Male thread	Standard	●	●	●	●	●	×	×
		With magnet	●	●	●	●	●	●	●
ASE/ATE	Female thread	Standard	×	×	×	×	×	×	×
		With magnet	×	×	×	×	×	●	●
	Male thread	Standard	●	●	●	●	×	×	×
		With magnet	●	●	●	●	●	●	●
ACED/ACEJ	Female thread	Standard	×	×	×	×	×	×	×
		With magnet	×	×	×	×	×	●	●
	Male thread	Standard	●	●	●	●	×	×	×
		With magnet	●	●	●	●	●	●	●
TACE/TACED	Female thread	Standard	×	×	×	×	×	×	×
		With magnet	×	×	×	×	×	●	●

① The I knuckle and Y knuckle for bore $\Phi 12$ are adaptable to ACQ cylinders, and other knuckles are common parts. Please refer to P393~396 for knuckle detail.

② Please refer to P397~420 for detail of sensor switch.

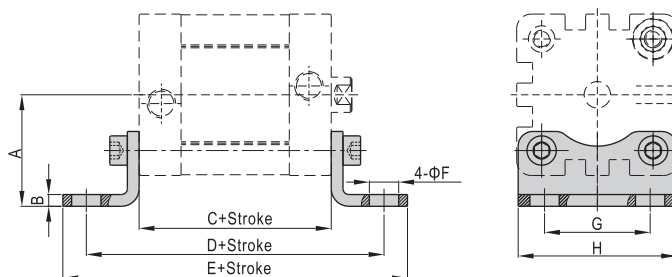
Material of accessories

Bore size	Accessories		Mounting accessory							Knuckle			
	LB	FA	FB	CA	CB	CR	SDB	FTC	TCM2	I	Y	F	U
12~25	△	●	●	●	—	—	△	■	●	□	□	□	□
32~100	△	●	●	◇	◇	◇	—	■	●	□	□	□	□
125	—	◇	◇	◇	◇	◇	—	■	●	□	□	□	□

● — Aluminum alloy; ■ — Cast iron;
◇ — Ductile Iron; △ — SPCC; □ — Carbon Steel;

Dimensions

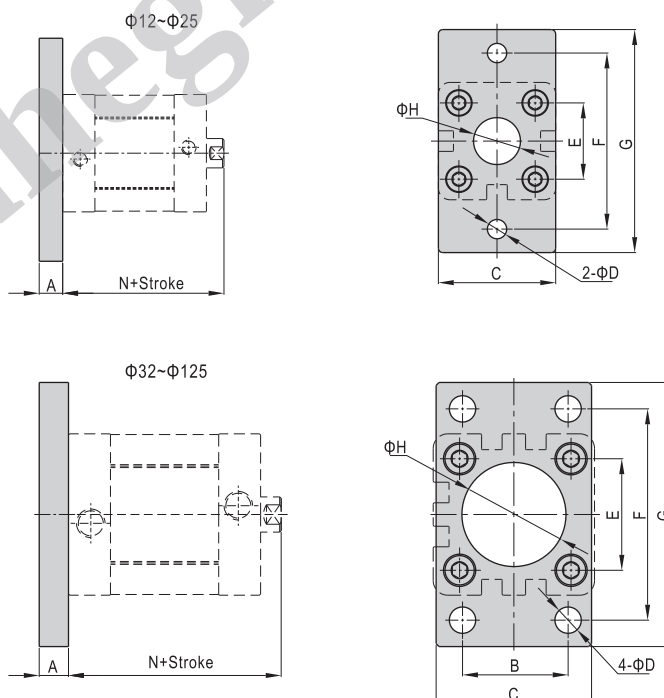
LB



Bore size\Item	A	B	C	D	E	F	G	H
12	21	3	35	61	71	5.5	16	25
16	22	3	35	61	70.6	5.5	18	27
20	27	3.8	37	69	81.6	6.5	22	34
25	29	3.8	39	71	83.6	6.5	26	38
32	33.5	4	44	76	89	7	32	48
40	38	4	45.5	81.5	97.5	10	36	54
50	45	5	45.5	87.5	103.5	10	45	65
63	50	5	49	91	107	10	50	75
80	63	6	54	106	127	12	63	95
100	74	6	67	121	146	14.5	75	112

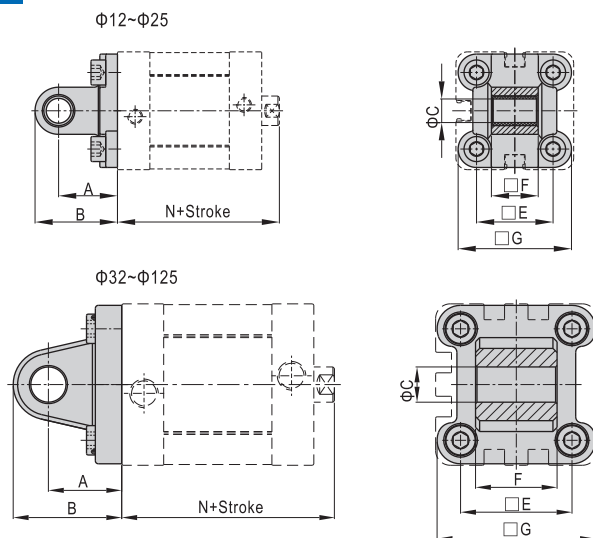
Note) Valve C in the above table is only for ACE series. Please refer to relevant content for valve C of other series.

FA/FB



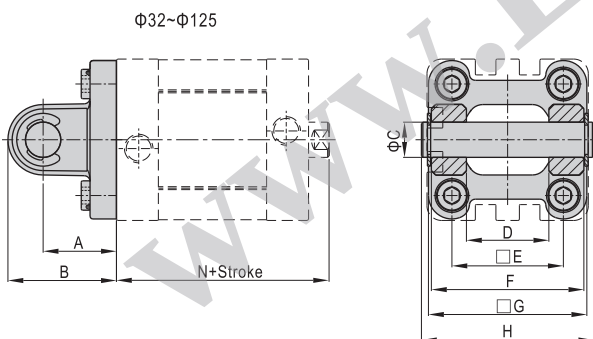
Bore size\Item	A	B	C	D	E	F	G	H	N
12	8	—	25	5.5	16	40	55	10	40
16	8	—	30	5.5	18	43	55	10	40
20	8	—	35	6.6	22	55	68	16	43
25	8	—	39.5	6.6	26	60	76	16	45
32	10	32	47	7	32.5	64	80	30.5	51
40	10	36	53	9	38	72	90	35.5	52.5
50	12	45	65	9	46.5	90	108	40.5	53.5
63	12	50	75	9	56.5	100	118	45.5	57
80	16	63	95	12.5	72	126	150	45.5	63
100	16	75	115	14.5	89	150	176	55.5	76
125	20	90	139	16.5	110	180	218	60.5	92

CA



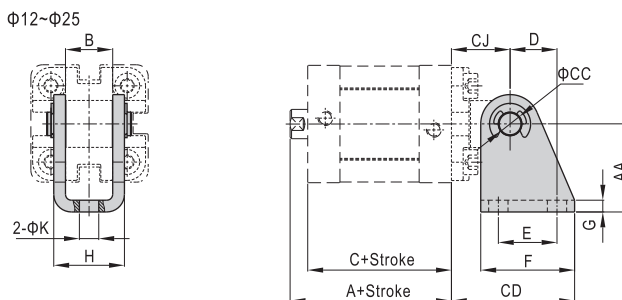
Bore size\Item	A	B	C	E	F	G	N
12	16	22	6	16	11.9	24	40
16	16	22	6	18	11.9	28.5	40
20	20	28	8	22	15.9	34.5	43
25	20	28	8	26	15.9	38.5	45
32	22	32.5	10	32.5	25.8	46.5	51
40	25	37	12	38	27.8	54	52.5
50	27	39	12	46.5	31.7	64	53.5
63	32	47	16	56.5	39.7	75	57
80	36	51.5	16	72	49.7	93	63
100	41	61	20	89	59.7	110	76
125	50	74	25	110	69.7	134	92

CB



Bore size\Item	A	B	C	D	E	F	G	H	N
32	22	32.5	10	26	32.5	45	46.5	51	51
40	25	37	12	28	38	52	54	59	52.5
50	27	39	12	32	46.5	60	64	67	53.5
63	32	47	16	40	56.5	70	75	77	57
80	36	51.5	16	50	72	90	93	97	63
100	41	61	20	60	89	110	110	119	76
125	50	74	25	70	110	130	134	139	92

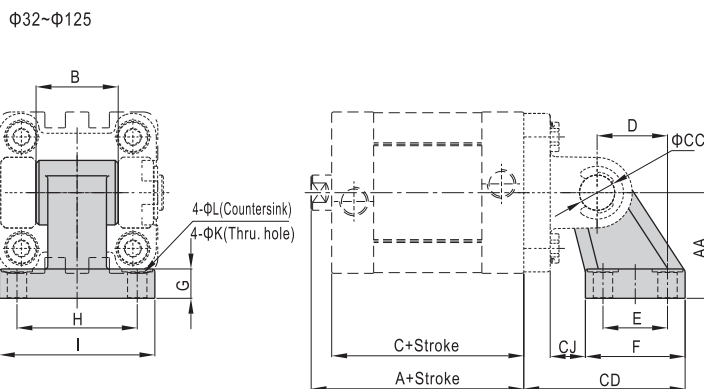
SDB



Bore size\Item	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	3	18.1	5.5
16	40	27	12.1	35	6	34	16	13	15	25	3	18.1	5.5
20	43	30	16.1	37	8	42	20	16	20	32	4	24.1	6.6
25	45	30	16.1	39	8	42	20	16	20	32	4	24.1	6.6

Note) SDB can't be used alone, it must be used with CA.

CR



Bore size\Item	A	AA	B	C	CC	CD	CJ	D	E	F	G	H	I	K	L
32	51	32	26	44	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	14
63	57	50	40	49	16	77	17	37	35	50	12	52	67	9	14
80	63	63	50	54	16	93	19	47	40	60	14	66	86	11	17
100	76	71	60	67	20	106	22	55	50	70	15	76	96	11	17
125	92	90	70	81	25	135	26	70	60	90	20	94	124	14	20

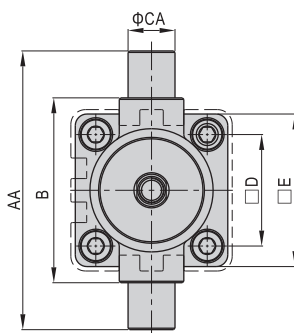
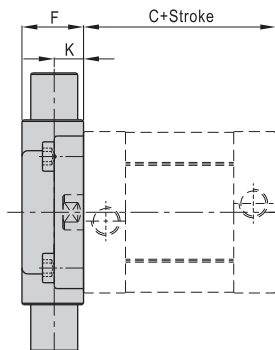
Note) CR can't be used alone, it must be used with CB.

Compact cylinder

Accessories

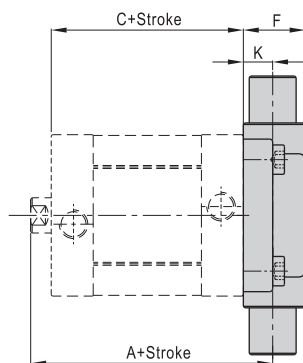
FTC

Φ32~Φ125



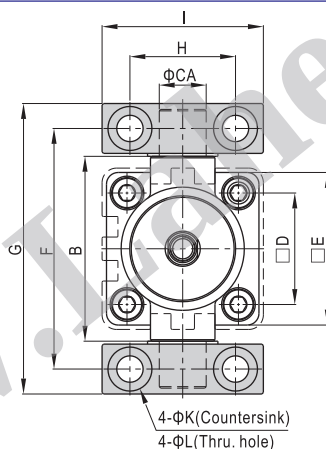
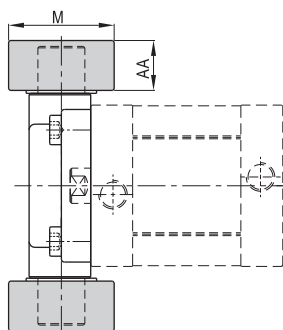
Bore size\Item	A	AA	B	C	CA
32	63	74	50	44	12
40	66.5	95	63	45.5	16
50	71.5	107	75	45.5	16
63	77	130	90	49	20
80	85	150	110	54	20
100	102	185	132	67	25
125	124	210	160	81	25

Bore size\Item	D	E	F	K
32	32.5	46	19	10
40	38	52	21	10
50	46.5	64	26	12
63	56.5	74	28	12
80	72	94	31	16
100	89	114	35	16
125	110	139	43	20



TCM2

Φ32~Φ125



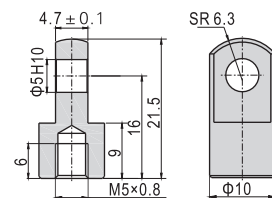
Bore size\Item	A	AA	B	CA	D	E	F	G	H	I	K	L	M
32	63	14	52	12	32.5	46	66	80	32	46	11	7	30
40	66.5	17	65	16	38	52	82	99	36	55	15	9	36
50	71.5	17	75	16	46.5	64	94	111	36	55	15	9	36
63	77	20.5	90	20	56.5	74	113.5	134	42	65	18	11	40
80	85	20.5	112	20	72	94	133.5	154	42	65	18	11	40
100	102	24.5	135	25	89	114	159.5	184	50	75	20	14	50
125	124	24.5	170	25	110	139	187.5	212	50	75	20	14	50

Note) TCM2 can't be used alone, it must be used with FTC.

The installation position of the accessories can not be adjusted arbitrarily.

I knuckle

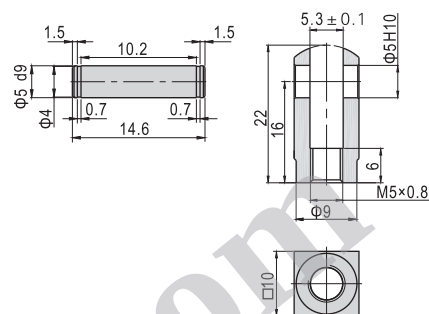
F-ACQ12I



Note) Other I knuckles are common parts. Please refer to P393 for knuckle detail.

Y knuckle

F-ACQ12Y



Note) Other Y knuckles are common parts. Please refer to P394 for knuckle detail.

List for ordering code of accessories

Accessories		Mounting accessory		
Bore size	LB	FA/FB	CA	CB
12	F-ACE12LB	F-ACE12FA	F-ACE12CA	-
16	F-ACP12LB	F-ACE16FA	F-ACE16CA	-
20	F-ACP20LB	F-ACE20FA	F-ACE20CA	-
25	F-ACP25LB	F-ACE25FA	F-ACE25CA	-
32	F-ACE32LB	F-SI32FA	F-SE32CA	F-SE32CB
40	F-ACE40LB	F-SI40FA	F-SE40CA	F-SE40CB
50	F-ACE50LB	F-SI50FA	F-SE50CA	F-SE50CB
63	F-ACE63LB	F-SI63FA	F-SE63CA	F-SE63CB
80	F-ACE80LB	F-SI80FA	F-SE80CA	F-SE80CB
100	F-ACE100LB	F-SI100FA	F-SE100CA	F-SE100CB
125	-	F-SI125FA	F-SE125CA	F-SE125CB

Accessories		Mounting accessory		
Bore size	CR	SDB	FTC	TCM2
12	-	F-MI12SDB	-	-
16	-	F-MI12SDB	-	-
20	-	F-MI20SDB	-	-
25	-	F-MI20SDB	-	-
32	F-SI32CR	-	F-SI32FTC	F-SI32TCM2
40	F-SI40CR	-	F-SI40FTC	F-SI40TCM2
50	F-SI50CR	-	F-SI50FTC	F-SI40TCM2
63	F-SI63CR	-	F-SI63FTC	F-SI63TCM2
80	F-SI80CR	-	F-SI80FTC	F-SI63TCM2
100	F-SI100CR	-	F-SI100FTC	F-SI125TCM2
125	F-SI125CR	-	F-SI125FTC	F-SI125TCM2

Accessories		Knuckle		
Bore size	I: I Knuckle	Y: Y Knuckle	F: F Knuckle	U: U Knuckle
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	-	-	-	-
32	F-M10X125I	F-M10X125Y	F-M10X125F	F-M10X125U
40	-	-	-	-
50	F-M12X125I	F-M12X125Y	F-M12X125F	F-M12X125U
63	-	-	-	-
80	F-M16X150I	F-M16X150Y	F-M16X150F	F-M16X150U
100	-	-	-	-
125	F-M20X150I	F-M20X150Y	F-M20X150F	F-M20X150U

Accessories		Sensor switch	
Bore size	CS1-E	DS1-E	
12~125	CS1-E	DS1-E	

