









# 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
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	●	●
Double acting non-rotating with yoke: TACE 	●	●	●	●	●	●	●	●		50	●	●
Double rod non-rotating with yoke: TACED 	●	●	●	●	●	●	●	●		63	●	●
	●	●	●	●	●	●	●	●		80	●	●
	●	●	●	●	●	●	●	●		100	●	●
	●	●	●	●	●	●	●	●		125	●	●
Page	242											397
	246											

## 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 (mm <sup>2</sup> )	Operating pressure (MPa)							Bore size (mm)	Rod size (mm)	Acting type		Pressure area (mm <sup>2</sup> )	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	Push side	113.1	-	6.1	17.4	28.7	40.0	51.4	62.7	40	12	Single acting	Push side	1256.6	54.2	179.8	305.5	431.2	556.8	682.5	808.1
			Pull side	84.8	-	0.5	8.9	17.4	25.9	34.4	42.9				1143.5	42.9	157.2	271.6	385.9	500.3	614.6	729.0	
		Double acting	Push side	113.1	11.3	22.6	33.9	45.2	56.5	67.9	79.2			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			1143.5	114.4	228.7	343.1	457.4	571.8	686.1	800.5		
16	8	Single acting	Push side	201.1	-	18.1	38.2	58.3	78.4	98.5	118.6	50	16	Single acting	Push side	1963.5	90.1	286.5	482.8	679.2	875.5	1071.9	1268.2
			Pull side	150.8	-	8.1	23.1	38.2	53.3	68.4	83.5				1762.4	70.0	246.3	422.5	598.8	775.0	951.3	1127.5	
		Double acting	Push side	201.1	20.1	40.2	60.3	80.4	100.5	120.6	140.7			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			1762.4	176.2	352.5	528.7	705.0	881.2	1057.5	1233.7		
20	10	Single acting	Push side	314.2	-	33.1	64.5	96.0	127.4	158.8	190.2	63	16	Single acting	Push side	3117.2	173.6	485.3	797.1	1108.8	1420.5	1732.2	2044.0
			Pull side	235.6	-	17.4	41.0	64.5	88.1	111.7	135.2				2916.2	153.5	445.1	736.8	1028.4	1320.0	1611.6	1903.2	
		Double acting	Push side	314.2	31.4	62.8	94.2	125.7	157.1	188.5	219.9			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			2916.2	291.6	583.2	874.9	1166.5	1458.1	1749.7	2041.3		
25	10	Single acting	Push side	490.9	-	13.8	28.9	43.4	57.9	72.4	86.9	80	20	Single acting	Push side	5026.5	305.6	808.2	1310.9	1813.5	2316.2	2818.8	3321.5
			Pull side	412.3	-	5.9	16.6	25.9	35.4	44.9	54.4				4712.4	274.1	745.4	1216.6	1687.9	2159.1	2630.3	3101.6	
		Double acting	Push side	490.9	49.1	98.2	147.3	196.3	245.4	294.5	343.6			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			4712.4	471.2	942.5	1413.7	1885.0	2356.2	2827.4	3298.7		
32	12	Single acting	Push side	804.2	-	30.8	64.5	96.0	127.4	158.8	190.2	100	20	Single acting	Push side	7854.0	499.1	1284.5	2069.9	2855.3	3640.7	4426.1	5211.5
			Pull side	691.2	-	19.5	48.6	72.9	97.4	121.9	146.4				7539.8	467.7	1221.7	1975.7	2729.6	3483.6	4237.6	4991.6	
		Double acting	Push side	804.2	80.4	160.8	241.3	321.7	402.1	482.5	563.0			7854.0	785.4	1570.8	2356.2	3141.6	3927.0	4712.4	5497.8		
			Pull side	691.2	69.1	138.2	206.2	276.5	346.6	416.7	486.8			7539.8	754.0	1508.0	2262.0	3015.9	3769.9	4523.9	5277.9		
Double acting	Push side	804.2	80.4	160.8	241.3	321.7	402.1	482.5	563.0	12271.8	1227.2	2454.4	3681.5	4908.7	6135.9	7363.1	8590.3						
	Pull side	691.2	69.1	138.2	206.2	276.5	346.6	416.7	486.8	11780.9	1178.1	2356.2	3534.3	4712.4	5890.5	7086.5	8246.6						







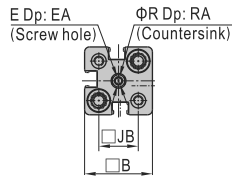
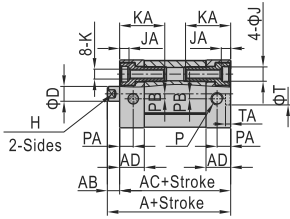
# Compact cylinder



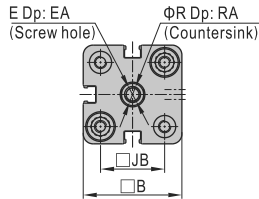
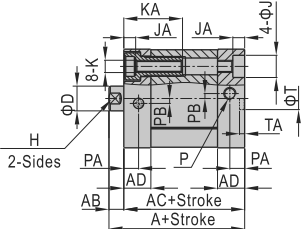
## ACE Series

### ASE

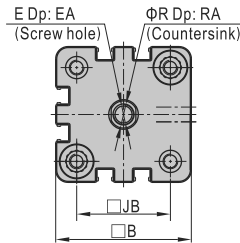
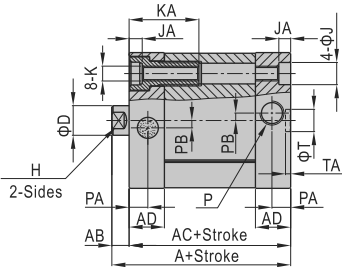
Φ12



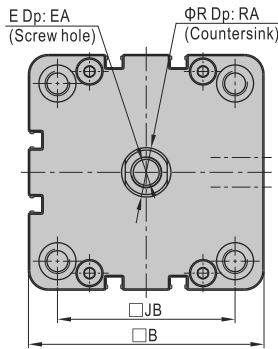
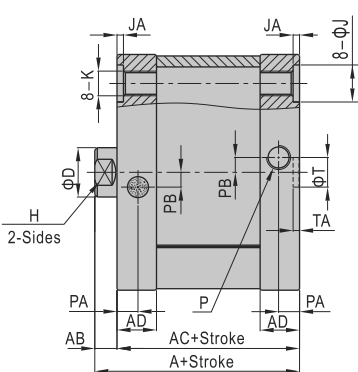
Φ16~Φ25



Φ32~Φ63



Φ80/Φ100



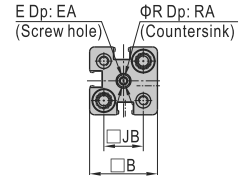
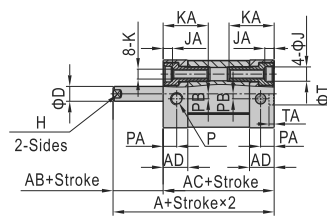
Bore size\Item	A	AB	AC	AD	B	D	E	EA	H	J	JA	JB
12	40	5	35	10	27.5	6	M3 × 0.5	8	5	6	3.5	16
16	40	5	35	10	30	8	M4 × 0.7	10	7	6	3.5	18
20	43	6	37	10.5	35.5	10	M6 × 1.0	14	9	9	4.5	22
25	45	6	39	11	40	10	M6 × 1.0	14	9	9	4.5	26
32	51	7	44	14	49.5	12	M8 × 1.25	16	10	9	4.5	32.5
40	52.5	7	45.5	14.5	55	12	M8 × 1.25	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

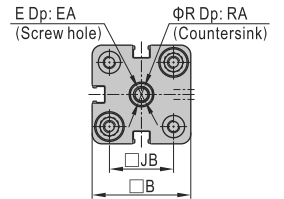
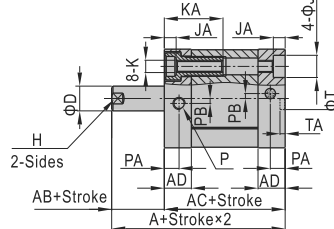
Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder. Please refer to page 245 for male thread dimensions.

### ATE

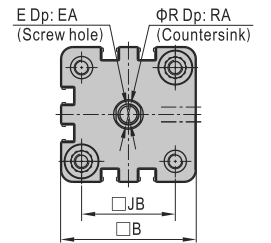
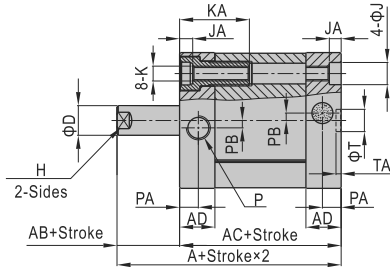
Φ12



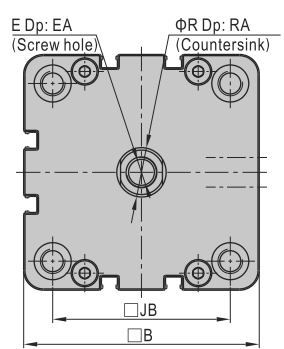
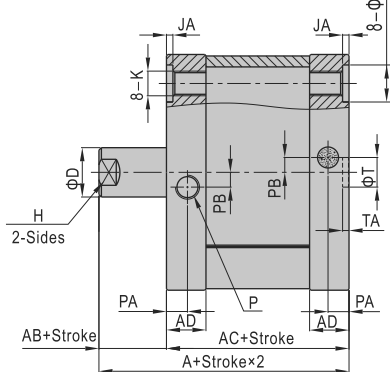
Φ16~Φ25



Φ32~Φ63



Φ80/Φ100



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

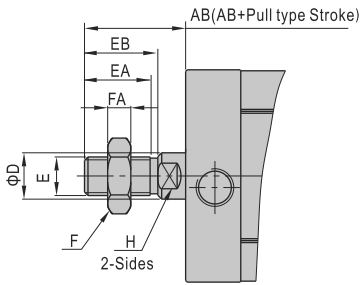
Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder. Please refer to page 245 for male thread dimensions.



# Compact cylinder

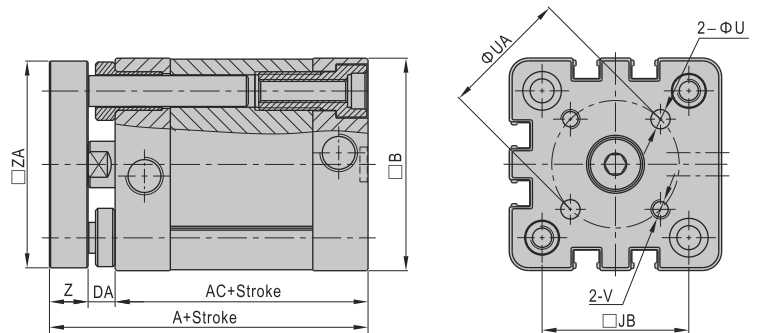
## ACE Series

### Male thread

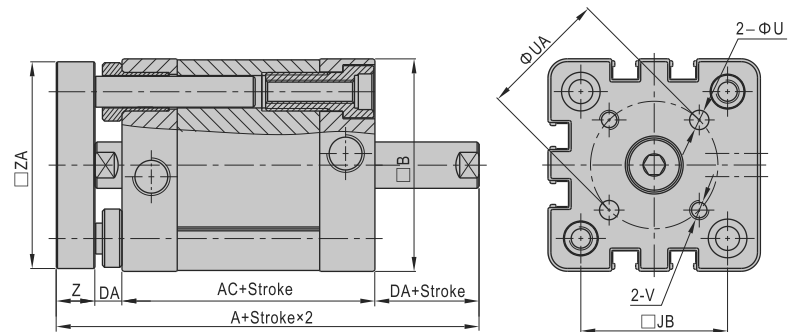


Bore size\Item	AB	D	E	EA	EB	F	FA	H
12	15	6	M5 × 0.8	9	10	8	4	5
16	17	8	M6 × 1.0	11	12	10	5	7
20	22	10	M8 × 1.25	15	16	12	6	9
25	22	10	M8 × 1.25	15	16	12	6	9
32	26	12	M10 × 1.25	17	19	17	6	10
40	26	12	M10 × 1.25	17	19	17	6	10
50	30	16	M12 × 1.25	20	22	17	7	13
63	30	16	M12 × 1.25	20	22	17	7	13
80	37	20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

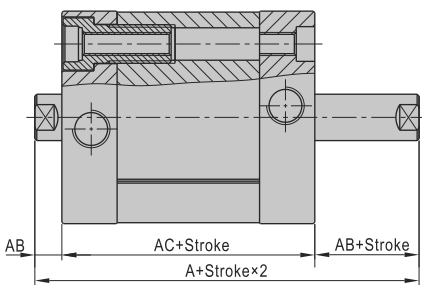
### TACE



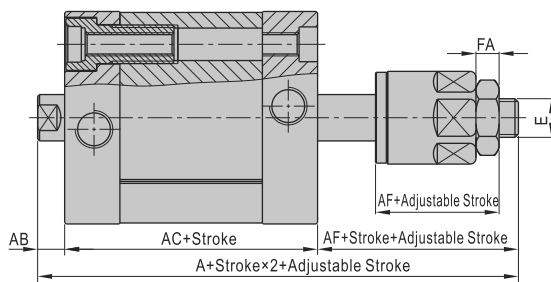
### TACED



### 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.

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.

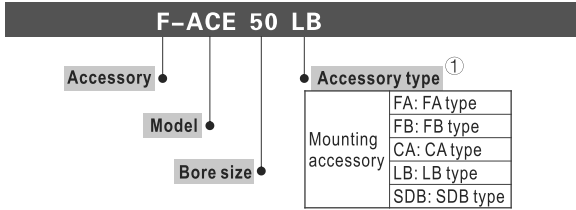


ACE

# Compact cylinder

## Accessories

### Ordering code



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	×	×	×	×	●	●
ACE	Male thread	Standard	●	●	●	●	×	×
		With magnet	●	●	●	●	●	●
ASE/ATE	Female thread	Standard	×	×	×	×	×	×
		With magnet	×	×	×	×	●	●
ASE/ATE	Male thread	Standard	●	●	●	●	×	×
		With magnet	●	●	●	●	●	●
ACED/ACEJ	Female thread	Standard	×	×	×	×	×	×
		With magnet	●	●	●	●	●	●
ACED/ACEJ	Male thread	Standard	×	×	×	×	×	×
		With magnet	●	●	●	●	●	●
TACE/TACED	Female thread	Standard	×	×	×	×	×	×
		With magnet	×	×	×	×	●	●

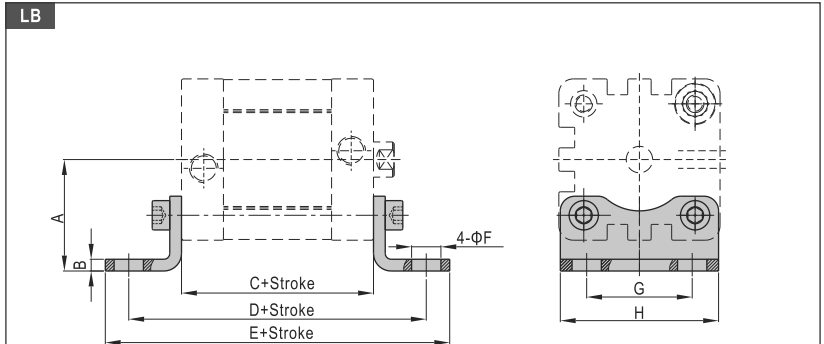
① The I knuckle and Y knuckle for bore  $\Phi 12$  are adaptable to ACQ cylinders, and other knuckles are common parts. Please refer to P393~396 for knuckle detail.  
 ② Please refer to P397~420 for detail of sensor switch.

### 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;

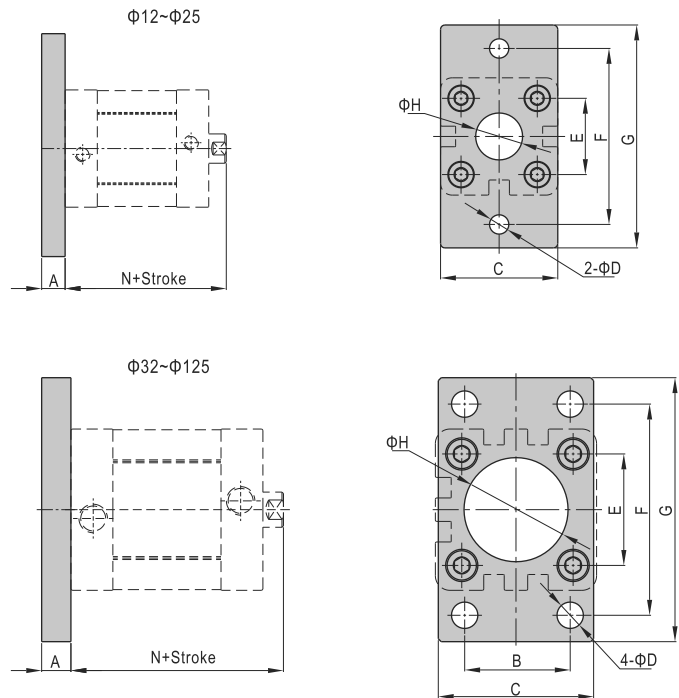
### Dimensions



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

