
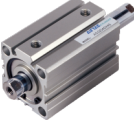






# Compact cylinder—ACQ Series

## Product series

Series name	Mounting type					Acting type	Bore size	Collocation of sensor switch						
	Basic	FA	FB	CB	LB			CS1-J	DS1-J	CS1-G	DS1-G	DS1-H		
Double acting type: ACQ 	•	•	•	•	•	Double acting	12			•	•			
Double rod type: ACQD 	•	•	•	•	•		16			•	•			
Adjustable stroke type: ACQJ 	•	•	•	•	•		20			•	•			
Single acting type: ASQ, ATQ 	•	•	•	•	•		25			•	•			
	•	•	•	•	•		32	•	•	•	•			
	•	•	•	•	•		40	•	•	•	•			
	•	•	•	•	•		50	•	•	•	•			
	•	•	•	•	•		63	•	•	•	•			
	•	•	•	•	•		80	•	•	•	•			
	•	•	•	•	•		100	•	•	•	•			
	•	•	•	•	•		125			•	•			
	•	•	•	•	•		140			•	•			
	•	•	•	•	•		160			•	•			
	•	•	•	•	•		Single acting	12			•	•		
	•	•	•	•	•			16			•	•		
	•	•	•	•	•			20			•	•		
	•	•	•	•	•	25				•	•			
	•	•	•	•	•	32		•	•	•	•			
	•	•	•	•	•	40		•	•	•	•			
	•	•	•	•	•	50	•	•	•	•				
	•	•	•	•	•	63	•	•	•	•				
Page	274					281	403							



## 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.
- C clip Installation:
  - Removal & Installation of C clip must be done with proper tool & care.
  - Ensure C clip is securely fitted into the proper slot to prevent leakage.

## 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	131.1	-	13.6	24.9	36.2	47.5	58.9	70.2	40	16	Single acting	Push side	1256.6	44.7	170.3	296.0	421.7	547.3	673.0	798.6
			Pull side	84.8	-	8.0	16.4	24.9	33.4	41.9	50.4				Pull side	1055.6	24.6	130.1	235.7	341.2	446.8	552.3	657.9
		Double acting	Push side	131.1	11.3	22.6	33.9	45.2	56.5	67.9	79.2			Double acting	Push side	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	1055.6	105.6	211.1	316.7	422.2	527.8	633.3	738.9
16	8	Single acting	Push side	201.1	-	27.0	47.1	67.2	87.3	107.4	127.5	50	20	Single acting	Push side	1963.5	96.3	292.7	489.0	685.4	881.7	1078.1	1274.4
			Pull side	150.8	-	17.0	32.0	47.1	62.2	77.3	92.4				Pull side	1649.3	64.9	229.9	394.8	559.7	724.7	889.6	1054.5
		Double acting	Push side	201.1	20.1	40.2	60.3	80.4	100.5	120.6	140.7			Double acting	Push side	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	1649.3	164.9	329.9	494.8	659.7	824.7	989.6	1154.5
20	10	Single acting	Push side	314.2	-	36.8	68.2	99.7	131.1	162.5	193.9	63	20	Single acting	Push side	3117.2	141.7	453.4	765.2	1076.9	1388.6	1700.3	2012.1
			Pull side	235.6	-	21.1	44.7	68.2	91.8	115.4	138.9				Pull side	2803.1	110.3	390.6	670.9	951.2	1231.5	1511.9	1792.2
		Double acting	Push side	314.2	31.4	62.8	94.2	125.7	157.1	188.5	219.9			Double acting	Push side	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	2803.1	280.3	560.6	840.9	1121.2	1401.5	1681.9	1962.2
25	12	Single acting	Push side	490.9	18.1	67.2	116.3	165.3	214.4	263.5	312.6	80	25	Double acting	Push side	5026.5	502.7	1005.3	1508.0	2010.6	2513.3	3015.9	3518.6
			Pull side	377.8	6.8	44.6	82.3	120.1	157.9	195.7	233.4				Pull side	4535.7	453.6	907.1	1360.7	1814.3	2267.8	2721.4	3175.0
		Double acting	Push side	490.9	49.1	98.2	147.3	196.3	245.4	294.5	343.6			Double acting	Push side	7854.0	785.4	1570.8	2356.2	3141.6	3927.0	4712.4	5497.8
			Pull side	377.8	37.8	75.6	113.3	151.1	188.9	226.7	264.4				Pull side	7049.7	705.0	1409.9	2114.9	2819.9	3524.9	4229.8	4934.8
32	16	Single acting	Push side	804.2	27.4	107.8	188.3	268.7	349.1	429.5	510.0	125	32	Double acting	Push side	12271.8	1227.2	2454.4	3681.5	4908.7	6135.9	7363.1	8590.2
			Pull side	603.2	7.3	67.6	128.0	188.3	248.6	308.9	369.2				Pull side	11467.6	1146.8	2293.5	3440.3	4587.0	5733.8	6880.6	8027.3
		Double acting	Push side	804.2	80.4	160.8	241.3	321.7	402.1	482.5	563.0			Double acting	Push side	15393.8	1539.4	3078.8	4618.1	6157.5	7696.9	9236.3	10775.7
			Pull side	603.2	60.3	120.6	181.0	241.3	301.6	361.9	422.2				Pull side	14589.6	1459.0	2917.9	4376.9	5835.8	7294.8	8753.8	10212.7
140	32	Double acting	Push side	20106.2	2010.6	4021.2	6031.9	8042.5	10053.1	12063.7	14074.3	160	40	Double acting	Push side	20106.2	2010.6	4021.2	6031.9	8042.5	10053.1	12063.7	14074.3
			Pull side	18849.6	1885.0	3769.9	5654.9	7539.8	9424.8	11309.8	13194.7				Pull side	18849.6	1885.0	3769.9	5654.9	7539.8	9424.8	11309.8	13194.7



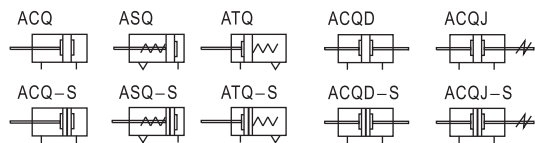
# Compact cylinder



## ACQ Series



### Symbol



### Product feature

- JIS standard is implemented.
- C clip is adopted to connect the cylinder body and back cover or front cover, and riveted structure is adopted to connect piston and piston rod to make it compact and reliable.
- The internal diameter of the body is treated with rolling followed by the treatment of hard anodizing, forming an excellent abrasion resistance and durability.
- The seal of piston adopts heterogeneous two-way seal structure. It has compact dimension and the function of grease reservation.
- Compact structure can effectively save installation space.
- There are magnetic switch slots around the cylinder body, which is convenient to install inducting switch.
- Installing accessories with various specifications are optional.

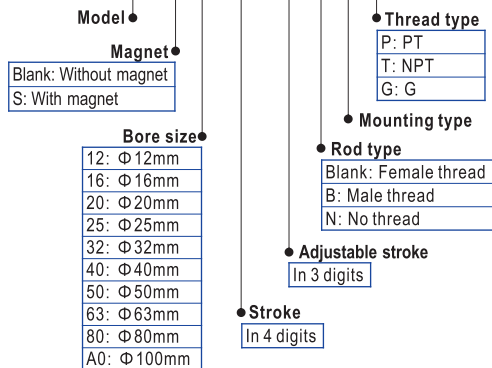
### Ordering code

Model can be changed Ordering code. Example:

Production type: ACQJ  
Magnet: With magnet  
Bore size: 50mm  
Stroke: 80mm  
Adjustable stroke: 50mm  
Rod type: Male thread  
Mounting type: LB  
Thread type: NPT

Model: ACQJ S-50 × 80-50-B-LB-T

Ordering code: ACQJ S 50 0080 050 B LB T



### Specification

Bore size (mm)	12	16	20	25	32	40	50	63	80	100
Acting type	Double acting									
	Single acting-Push type, Single acting-Pull type									
Fluid	Air(to be filtered by 40 μ m filter element)									
Operating pressure	Double acting	0.1~1.0MPa(15~145psi)(1.0~10.0bar)								
	Single acting	0.2~1.0MPa(28~145psi)(2.0~10.0bar)								
Proof pressure	1.5MPa(215psi)(15bar)									
Temperature °C	-20~80									
Speed range mm/s	Double acting: 30~500					Single acting: 50~500				
Stroke tolerance	0~150 <sup>+1.0</sup> <sub>0</sub>					>150 <sup>+1.4</sup> <sub>0</sub>				
Cushion type	Bumper									
Port size ①	M5 × 0.8					1/8"		1/4"		3/8"

① PT thread, NPT thread and G thread are available. Add) Refer to P403~426 for detail of sensor switch.

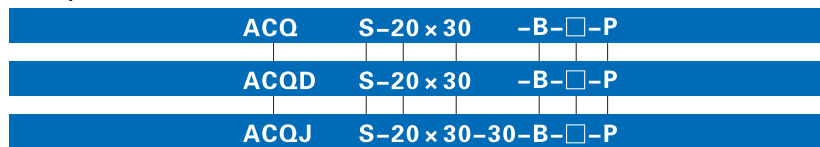
### Stroke

Bore size (mm)	Standard stroke (mm)	Max. std stroke		Max. stroke	
		Without magnet	With magnet	Without magnet	With magnet
12	Double acting	5 10 15 20 25 30 35 40 45 50	50	80	70
	Single acting	5 10 15 20	20	-	-
16	Double acting	5 10 15 20 25 30 35 40 45 50 55 60	60	80	70
	Single acting	5 10 15 20	20	-	-
20	Double acting	5 10 15 20 25 30 35 40 45 50 60 70 75 80 90 100	100	140	130
	Single acting	5 10 15 20 25 30	30	-	-
32	Double acting	5 10 15 20 25 30 35 40 45 50 60 70 75 80 90 100	100	100	100
	Single acting	5 10 15 20 25 30	-	-	-
50	Double acting	5 10 15 20 25 30 35 40 45 50 60 70 75 80 90 100	100	-	-
	Single acting	5 10 15 20 25 30	-	-	-
80	Double acting	5 10 15 20 25 30 35 40 45 50 60 70 75 80 90 100	100	-	-
	Single acting	5 10 15 20 25 30	-	-	-
100	Double acting	5 10 15 20 25 30 35 40 45 50 60 70 75 80 90 100	100	-	-
	Single acting	5 10 15 20 25 30	-	-	-

Note) 1. Please contact the company for other special strokes.

2. The dimensions of non-std stroke cylinder has the same dimensions as the next longer stroke std. stroke cylinder. e.g. 23mm stroke cylinder has the same dimensions of 25 std. stroke cylinder.

### Explain of model



Model	Model	Model	Model	Model	Model	Model
ACQ: Compact cylinder(Double acting)	ACQD: Compact cylinder(Double rod)	ACQJ: Compact cylinder(Adjustable stroke)	Thread type	Mounting type	Rod type	Adjustable stroke
ASQ: Compact cylinder(Single acting-push)			P: PT	Blank: No accessories	Blank: Female thread	Model
ATQ: Compact cylinder(Single acting-pull)			T: NPT	FA: FA type	B: Male thread	Adjustable stroke
ACQD: Compact cylinder(Double rod)			G: G	FB: FB type	N: No thread	10: 10mm
ACQJ: Compact cylinder(Adjustable stroke)				CB: CB type		20: 20mm
				LB: LB type		30: 30mm
						40: 40mm
						50: 50mm
						75: 75mm
						100: 100mm
						Others: No this code

① Please refer to page 281 for accessory parts.

② Standard thread is blank here.





# Compact cylinder



## ACQ Series

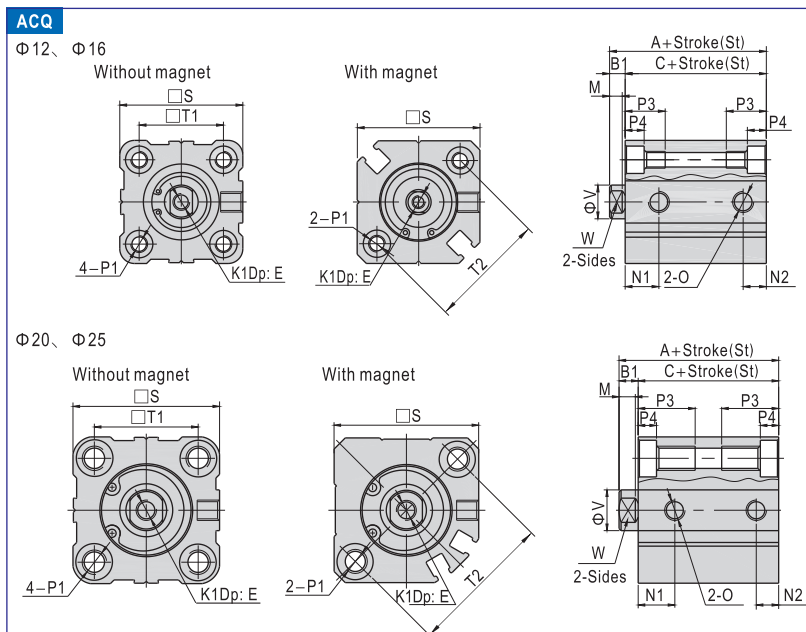
### Inner structure and material of major parts

**ACQ**

**ACQS**

NO.	Item	Material
1	Back cover	No(Φ 12, 16)\Aluminum alloy(Others)
2	Bumper	TPU(Φ 12~25)\NBR(Others)
3	Piston	Brass(Φ 12, 16)\Aluminum alloy(Others)
4	Wear ring	No(Φ 12~32)\Wear resistant material(Others)
5	Piston seal	NBR
6	Piston rod	Carbon steel with 20 μ m chrome plated
7	Body	Aluminum alloy
8	Bushing	No(Φ 12~32)\Wear resistant material(Others)
9	O-ring	NBR
10	Front cover	Aluminum alloy
11	C clip	Spring steel
12	Front cover packing	NBR
13	Magnet	Φ 12~25 Sintered metal(Neodymium-iron-boron) Others Plastic
14	Magnet holder	Brass(Φ 12, 16)\Aluminum alloy(Others)

### Dimensions

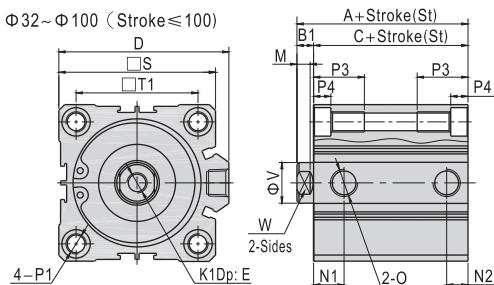


Model	Without magnet						With magnet										
	A		C		N1	N2	A	C	N1	N2	B1	D	E	M	K1		
Bore size	St≤50	St=55	St≥60	St≤50	St=55	St≥60											
12	20.5	-	-	17	-	-	7.5	5	31.5	28	9	7	3.5	-	6	3.5	M3×0.5
16	22	22	-	18.5	18.5	-	8	5.5	34	30.5	9.5	5.5	3.5	-	8	3	M4×0.7
20	24	-	34	19.5	-	29.5	9	5.5	36	31.5	9.5	5.5	4.5	-	7	4	M5×0.8
25	27.5	-	37.5	22.5	-	32.5	11	5.5	37.5	32.5	11	5.5	5	-	12	4.5	M6×1.0

Bore size\Item	O	P1	P3	P4	S	T1	T2	V	W
12	M5×0.8	2-Sides: Φ 6.5 Thread:M4×0.7 Thru.hole: Φ 3.4	11	3.5	25	15.5	22	6	5
16	M5×0.8	2-Sides: Φ 6.5 Thread:M4×0.7 Thru.hole: Φ 3.4	11	3.5	29	20	28	8	6
20	M5×0.8	2-Sides: Φ 9.0 Thread:M6×1.0 Thru.hole: Φ 5.2	17	7	36	25.5	36	10	8
25	M5×0.8	2-Sides: Φ 9.0 Thread:M6×1.0 Thru.hole: Φ 5.2	17	7	40	28	40	12	10

### Φ 32~Φ 100 (Stroke≤100)



Model	Without magnet						With magnet										
	A		C		N1	N2	A	C	N1	N2	B1	D	E	M	K1	O	
Bore size	St≤50	St≥60	St≤50	St≥60													
32	St=5	30	40	23	33	7.5	6.5	40	33	10.5	7.5	7	49.5	13	6	M8×1.25	1/8"
	St>5					10.5	7.5										
40		36.5	46.5	29.5	39.5	11	8	46.5	39.5	11	8	7	57	13	6	M8×1.25	1/8"
50	St=5	38.5	48.5	30.5	40.5	9	9	48.5	40.5	10.5	10.5	8	71	15	6.5	M10×1.5	1/4"
	St>5					10.5	10.5										
63	St=5	44	54	36	46	14	9.5	54	46	15	10.5	8	84	15	6.5	M10×1.5	1/4"
	St>5					15	10.5										
80		53.5	63.5	43.5	53.5	16	14	63.5	53.5	16	14	10	104	20	8.5	M16×2.0	3/8"
100		65	75	53	63	20	17.5	75	63	20	17.5	12	123.5	26	9.5	M20×2.5	3/8"

Bore size\Item	P1	P3	P4	S	T1	T2	V	W
32	2-Sides: Φ 9 Thread:M6×1.0 Thru.hole: Φ 5.2	17	7	45	34	-	16	14
40	2-Sides: Φ 9 Thread:M6×1.0 Thru.hole: Φ 5.2	17	7	53	40	-	16	14
50	2-Sides: Φ 11 Thread:M8×1.25 Thru.hole: Φ 6.8	22	8	64	50	-	20	17
63	2-Sides: Φ 14 Thread:M10×1.5 Thru.hole: Φ 8.5	28.5	10.5	77	60	-	20	17
80	2-Sides: Φ 17.5 Thread:M12×1.75 Thru.hole: Φ 10.3	35.5	13.5	98	77	-	25	22
100	2-Sides: Φ 17.5 Thread:M12×1.75 Thru.hole: Φ 10.3	35.5	13.5	117	94	-	32	27

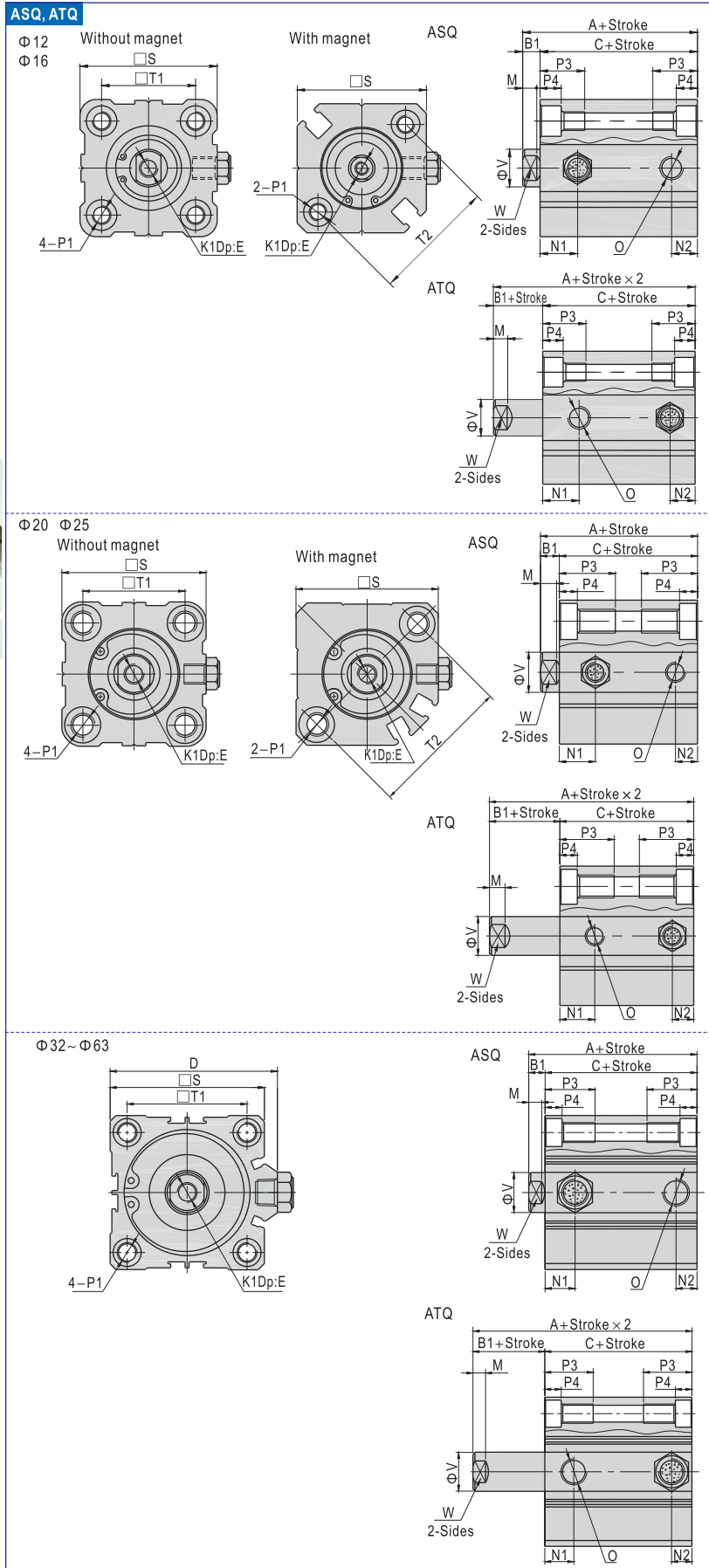


ACQ

# Compact cylinder



## ACQ Series



Model	Without magnet										
	A			C			N1	N2	B1	D	E
Bore size\Item	5,10	15,20	25,30	5,10	15,20	25,30					
Stroke	5,10	15,20	25,30	5,10	15,20	25,30	N1	N2	B1	D	E
12	25.5	30.5	-	22	27	-	7.5	5	3.5	-	6
16	27	32	-	23.5	28.5	-	8	5.5	3.5	-	8
20	29	34	39	24.5	29.5	34.5	9	5.5	4.5	-	7
25	32.5	37.5	42.5	27.5	32.5	37.5	11	5.5	5	-	12
32	35	40	45	28	33	38	10.5	7.5	7	49.5	13
40	41.5	46.5	51.5	34.5	39.5	44.5	11	8	7	57	13
50	48.5	53.5	58.5	40.5	45.5	50.5	10.5	10.5	8	71	15
63	54	59	64	46	51	56	15	10.5	8	84	15

Model	With magnet									
	A			C			N1	N2	K1	
Bore size\Item	5,10	15,20	25,30	5,10	15,20	25,30	N1	N2	K1	
Stroke	5,10	15,20	25,30	5,10	15,20	25,30	N1	N2	K1	
12	36.5	41.5	-	33	38	-	9	7	M3 × 0.5	
16	39	44	-	35.5	40.5	-	9.5	5.5	M4 × 0.7	
20	41	46	51	36.5	41.5	46.5	9.5	5.5	M5 × 0.8	
25	42.5	47.5	52.5	37.5	42.5	47.5	11	5.5	M6 × 1.0	
32	45	50	55	38	43	48	10.5	7.5	M8 × 1.25	
40	51.5	56.5	61.5	44.5	49.5	54.5	11	8	M8 × 1.25	
50	58.5	63.5	68.5	50.5	55.5	60.5	10.5	10.5	M10 × 1.5	
63	64	69	74	56	61	66	15	10.5	M10 × 1.5	

Bore size\Item	O	P1
	12	M5 × 0.8
16	M5 × 0.8	2-Sides: Φ6.5 Thread:M4 × 0.7 Thru.hole: Φ3.4
20	M5 × 0.8	2-Sides: Φ9.0 Thread:M6 × 1.0 Thru.hole: Φ5.2
25	M5 × 0.8	2-Sides: Φ9.0 Thread:M6 × 1.0 Thru.hole: Φ5.2
32	1/8"	2-Sides: Φ9.0 Thread:M6 × 1.0 Thru.hole: Φ5.2
40	1/8"	2-Sides: Φ9.0 Thread:M6 × 1.0 Thru.hole: Φ5.2
50	1/4"	2-Sides: Φ11 Thread:M8 × 1.25 Thru.hole: Φ6.8
63	1/4"	2-Sides: Φ14 Thread:M10 × 1.5 Thru.hole: Φ8.5

Bore size\Item	P3	P4	M	S	T1	T2	V	W
12	11	3.5	3.5	25	15.5	22	6	5
16	11	3.5	3	29	20	28	8	6
20	17	7	4	36	25.5	36	10	8
25	17	7	4.5	40	28	40	12	10
32	17	7	6	45	34	-	16	14
40	17	7	6	53	40	-	16	14
50	22	8	6.5	64	50	-	20	17
63	28.5	10.5	6.5	77	60	-	20	17





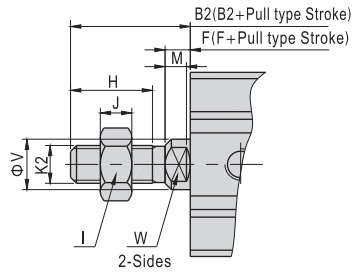
# Compact cylinder



## ACQ Series

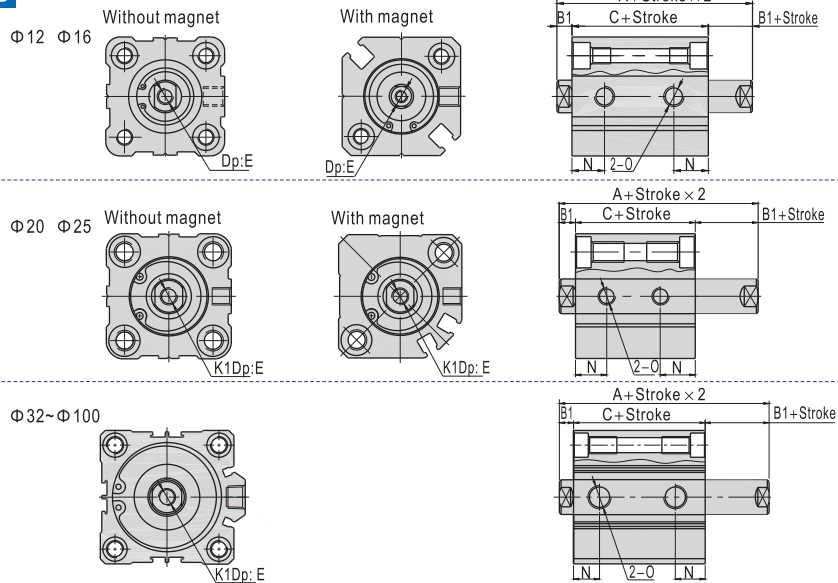
### Male thread

(Bore size:  $\Phi 12 \sim \Phi 100$ , Stroke  $\leq 100$ )



Bore size\Item	B2	F	H	I	J	K2	M	V	W
12	14	3.5	9	8	4	M5 × 0.8	3.5	6	5
16	15.5	3.5	10	10	5	M6 × 1.0	3	8	6
20	18.5	4.5	12	12	6	M8 × 1.25	4	10	8
25	22.5	5	15	17	6	M10 × 1.25	4.5	12	10
32	28.5	5	20.5	19	8	M14 × 1.5	4	16	14
40	28.5	5	20.5	19	8	M14 × 1.5	4	16	14
50	33.5	5	26	27	11	M18 × 1.5	4	20	17
63	33.5	5	26	27	11	M18 × 1.5	4	20	17
80	43.5	8	32.5	32	13	M22 × 1.5	6	25	22
100	43.5	8	32.5	36	13	M26 × 1.5	5.5	32	27

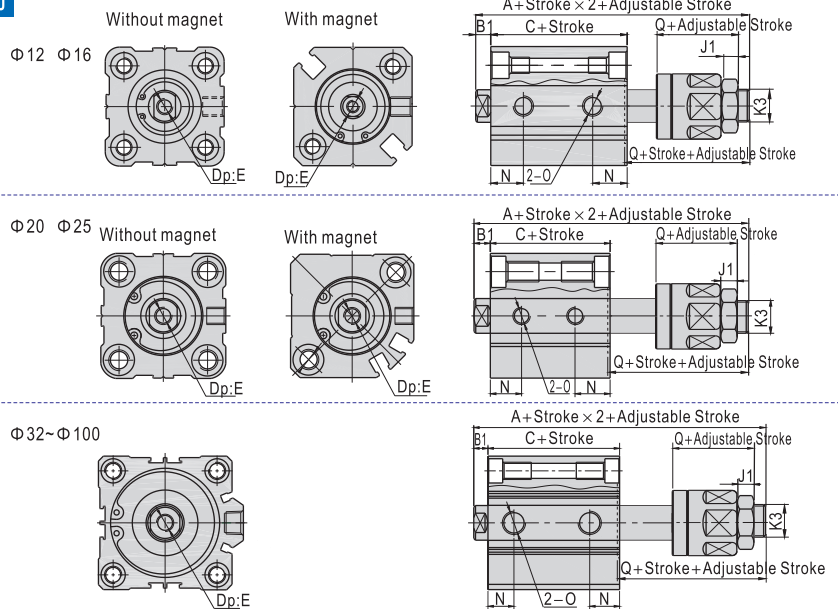
### ACQD



Bore size\Item	A		C		B1	E	N
	Without magnet	With magnet	Without magnet	With magnet			
12	32.2	39.4	25.2	32.4	3.5	6	9
16	33	43	26	36	3.5	8	9.5
20	35	47	26	38	4.5	7	9.5
25	39	49	29	39	5	9.5(St=5)/12(St>5)	11
32	44.5	54.5	30.5	40.5	7	9(St≤10)/13(St>10)	10
40	54	64	40	50	7	11(St≤10)/13(St>10)	13
50	56.5	66.5	40.5	50.5	8	12(St≤10)/15(St>10)	13.5
63	58	68	42	52	8	12(St≤10)/15(St>10)	14.5(St=5)/16(St>5)
80	71	81	51	61	10	14(St≤15)/20(St>15)	16
100	84.5	94.5	60.5	70.5	12	20(St≤25)/26(St>25)	21

Remark) The unmarked dimension is the same as ACQ standard type. Please refer to this page for male thread dimensions.

### ACQJ



Item	A		C		B1	E	N	Q	J1	K3
	Without magnet	With magnet	Without magnet	With magnet						
12	45.2	52.4	25.2	32.4	3.5	6	9	17	4	M5 × 0.8
16	50	60	26	36	3.5	8	9.5	21	5	M6 × 1.0
20	55	67	26	38	4.5	7	9.5	25	6	M8 × 1.25
25	60.5	70.5	29	39	5	9.5(St=5)/12(St>5)	11	27	6	M10 × 1.25
32	64.9	74.9	30.5	40.5	7	9(St≤10)/13(St>10)	10	28	7	M12 × 1.25
40	74.5	84.5	40	50	7	11(St≤10)/13(St>10)	13	28	7	M12 × 1.25
50	77	87	40.5	50.5	8	12(St≤10)/15(St>10)	13.5	29	8	M16 × 1.5
63	78.4	88.4	42	52	8	12(St≤10)/15(St>10)	14.5(St=5)/16(St>5)	29	8	M16 × 1.5
80	95.8	105.8	51	61	10	14(St≤15)/20(St>15)	16	35.5	10	M20 × 1.5
100	114.3	124.3	60.5	70.5	12	20(St≤25)/26(St>25)	21	42.5	13.5	M27 × 2.0

Remark) The unmarked dimension is the same as ACQ standard type. Please refer to this page for male thread dimensions.



ACQ

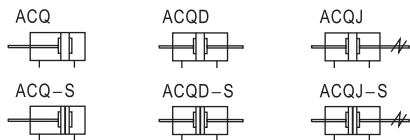


# Compact cylinder

## ACQ Series(Big bore size)



### Symbol



### Product feature

1. JIS standard is implemented.
2. C clip is adopted to connect the cylinder body and back cover or front cover to make it compact and reliable.
3. The internal diameter of the body is treated with rolling followed by the treatment of hard anodizing, forming an excellent abrasion resistance and durability.
4. The seal of piston adopts heterogeneous two-way seal structure. It has compact dimension and the function of grease reservation.
5. Compact structure can effectively save installation space.
6. There are magnetic switch slots around the cylinder body, which is convenient to install inducting switch.

### Ordering code

Model can to be changed Ordering code. Example:

Production type: ACQJ

Magnet: With magnet

Bore size: 160mm

Stroke: 175mm

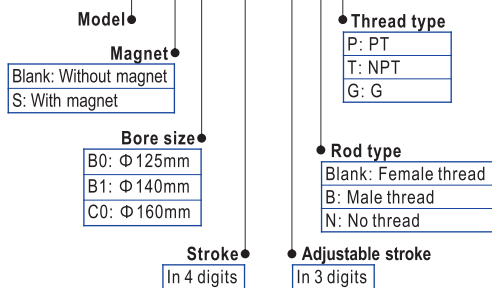
Adjustable stroke: 50mm

Rod type: Male thread

Thread type: NPT

Model: ACQJ S-160 × 175-50-B-T

Ordering code: ACQJ S C0 0175 050 B T



### Specification

Bore size(mm)	125	140	160
Acting type	Double acting		
Fluid	Air(to be filtered by 40 μ m filter element)		
Operating pressure	0.05~1.0MPa(7~145psi)		
Proof pressure	1.5MPa(215psi)		
Temperature °C	-20~80		
Speed range mm/s	30~500		
Stroke tolerance mm	+1.4 0		
Cushion type	Bumper		
Port size ①	3/8"		

① PT thread, NPT thread and G thread are available. Add) Refer to P403~426 for detail of sensor switch.

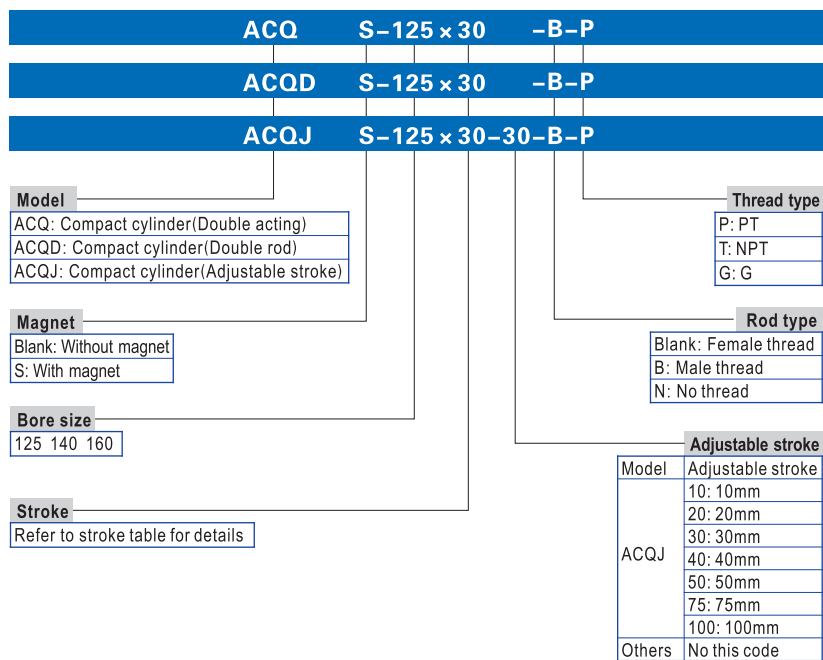
### Stroke

Bore size (mm)	Standard stroke (mm)	Max. std stroke	Max. stroke
125	10 20 30 40 50 75 100 125 150 175 200 250 300	300	300
140			
160			

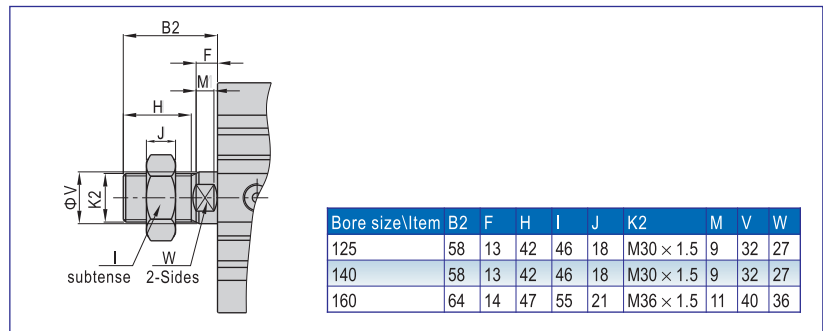
Note) 1. Please contact the company for other special strokes.

2. The dimensions of non-std stroke cylinder has the same dimensions as the next longer stroke std. stroke cylinder. e.g. 23mm stroke cylinder has the same dimensions of 25 std. stroke cylinder.

### Explain of model



### Male thread



# Compact cylinder

## ACQ Series(Big bore size)

### Inner structure and material of major parts

**ACQ**

**ACQS**

NO.	Item	Material
1	Back cover	Aluminum alloy
2	Screw	Carbon steel
3	C clip	Spring steel
4	O-ring	NBR
5	Piston	Aluminum alloy
6	Wear ring	Wear resistant material
7	Piston seal	NBR
8	Bumper	NBR
9	Body	Aluminum alloy
10	O-ring	NBR
11	Front cover	Aluminum alloy
12	Bushing	Wear resistant material
13	Front cover packing	NBR
14	Piston rod	Carbon steel with 20 μ m chrome plated
15	Magnet	Rubber

### Dimensions

**ACQ**

Bore size\Item	A	B1	C	D	E		K1	M	N	O	S	T1	V
					St≤10	St>10							
125	99	16	83	153	22.5	30	M22 × 2.5	12	24.5	3/8"	142	114	32
140	99	16	83	168	22.5	30	M22 × 2.5	12	24.5	3/8"	158	128	32
160	108	17	91	188	26.5	33	M24 × 3.0	14	27.5	3/8"	178	144	40

Bore size\Item	P1	P3	P4	W
125	2-Sides: Φ21.2 Thread:M14 × 2.0 Thru.hole: Φ12.3	43.4	18.4	27
140	2-Sides: Φ21.2 Thread:M14 × 2.0 Thru.hole: Φ12.3	43.4	18.4	27
160	2-Sides: Φ24.2 Thread:M16 × 2.0 Thru.hole: Φ14.3	49.2	21.2	36

Remark) Washer must be used when the cylinder be mounted by through hole.  
Please refer to page 278 for male thread dimensions.



**ACQD**

Bore size\Item	A	B1	C	E		N
				St≤10	St>10	
125	115	16	83	22.5	30	24.5
140	115	16	83	22.5	30	24.5
160	125	17	91	26.5	33	27.5

Remark) The unmarked dimension is the same as ACQ standard type.  
Please refer to page 278 for male thread dimensions.

**ACQJ**

Bore size\Item	A	B1	C	E		N	Q	J1	K3
				St≤10	St>10				
125	140.8	16	83	22.5	30	24.5	42.5	13.5	M27 × 2.0
140	140.8	16	83	22.5	30	24.5	42.5	13.5	M27 × 2.0
160	175.3	17	91	26.5	33	27.5	68	18	M36 × 2.0

Remark) The unmarked dimension is the same as ACQ standard type.  
Please refer to page 278 for male thread dimensions.

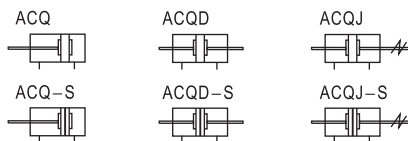


# Compact cylinder

## ACQ Series(Longer stroke)



### Symbol



### Product feature

- JIS standard is implemented.
- C clip is adopted to connect the cylinder body and back cover or front cover, and riveted structure is adopted to connect piston and piston rod to make it compact and reliable.
- The internal diameter of the body is treated with rolling followed by the treatment of hard anodizing, forming an excellent abrasion resistance and durability.
- The seal of piston adopts heterogeneous two-way seal structure. It has compact dimension and the function of greasel reservation.
- Compact structure can effectively save installation space.
- There are magnetic switch slots around the cylinder body, which is convenient to install inducting switch.
- Installing accessories with various specifications are optional.

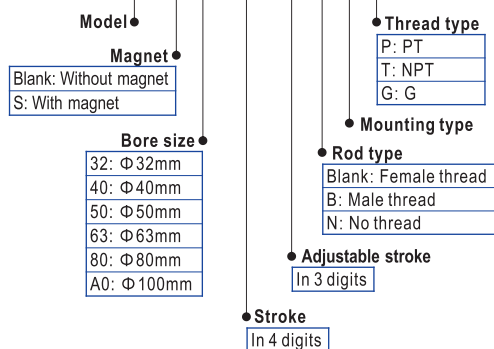
### Ordering code

Model can be changed Ordering code. Example:

Production type: ACQJ  
Magnet: With magnet  
Bore size: 50mm  
Stroke: 200mm  
Adjustable stroke: 75mm  
Rod type: Male thread  
Mounting type: LB  
Thread type: NPT

Model: ACQJ S-50 × 200-75-B-LB-T

Ordering code: ACQJ S 50 0200 075 B LB T



### Specification

Bore size(mm)	32	40	50	63	80	100
Acting type	Double acting					
Fluid	Air(to be filtered by 40 μm filter element)					
Operating pressure	0.1~1.0MPa(15~145psi)					
Proof pressure	1.5MPa(215psi)					
Temperature °C	-20~80					
Speed range mm/s	30~500					
Stroke tolerance mm	101~150 <sup>+1.0</sup> <sub>0</sub> >150 <sup>+1.4</sup> <sub>0</sub>					
Cushion type	Bumper					
Port size ①	1/8"		1/4"		3/8"	

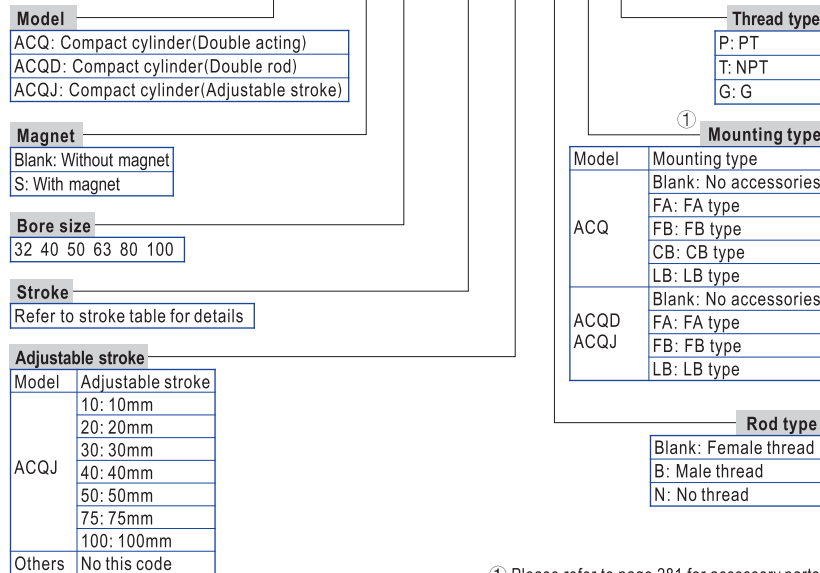
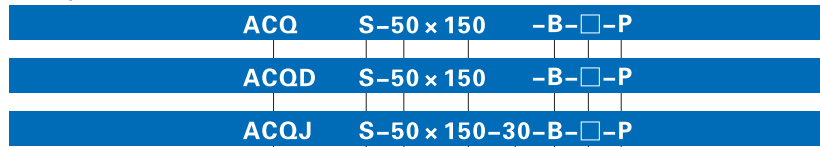
① PT thread, NPT thread and G thread are available. Add) Refer to P403~426 for detail of sensor switch.

### Stroke

Bore size (mm)	Standard stroke (mm)						Max. std stroke	Max. stroke
32 40 50 63 80 100	125	150	175	200	250	300	350	

Note) Within allowable stroke scope, when the stroke is larger than the maximum value, it shall be treated as non-standard one. Please contact the company for other special strokes.

### Explain of model



① Please refer to page 281 for accessory parts.

### Inner structure and material of major parts

NO.	Item	Material	NO.	Item	Material
1	Magnet washer	NBR	9	Wear ring	No(Φ32)Wear resistant material(Others)
2	Magnet	Plastic	10	Piston seal	NBR
3	Body	Aluminum alloy	11	Magnet holder	Aluminum alloy
4	O-ring	NBR	12	Piston rod	Carbon steel with 20 μm chrome plated
5	Bumper	NBR	13	Front cover	Aluminum alloy
6	Back cover	Aluminum alloy	14	Bushing	No(Φ32)Wear resistant material(Others)
7	Piston	Aluminum alloy	15	Front cover packing	NBR
8	C clip	Spring steel			



# Compact cylinder



## Accessories

### Dimensions

**ACQ**  $\Phi 32 \sim \Phi 100$  (Stroke > 100)

Bore size\Item	A	B1	C	D	E	K1	M	N	O
32	62.5	17	45.5	49.5	13	M8 × 1.25	6	12.5	1/8"
40	72	17	55	57	13	M8 × 1.25	6	14	1/8"
50	73.5	18	55.5	71	15	M10 × 1.5	6.5	14	1/4"
63	75	18	57	84	15	M10 × 1.5	6.5	16.5	1/4"
80	86	20	66	104	21	M16 × 2.0	8.5	19	3/8"
100	97.5	22	75.5	123.5	27	M20 × 2.5	9.5	23	3/8"

Bore size\Item	P1	P2	Q	R	S	T1	V	W
32	2-Sides:M6 × 1.0 Thru.hole: $\Phi 5.2$	10	12	22	45	34	16	14
40	2-Sides:M6 × 1.0 Thru.hole: $\Phi 5.2$	10	12	28	53	40	16	14
50	2-Sides:M8 × 1.25 Thru.hole: $\Phi 6.8$	14	13	35	64	50	20	17
63	2-Sides:M10 × 1.5 Thru.hole: $\Phi 8.5$	18	13	35	77	60	20	17
80	2-Sides:M12 × 1.75 Thru.hole: $\Phi 10.3$	22	15	43	98	77	25	22
100	2-Sides:M12 × 1.75 Thru.hole: $\Phi 10.3$	22	17	59	117	94	32	27

**ACQD**  $\Phi 32 \sim \Phi 100$  (Stroke > 100)

**ACQJ**  $\Phi 32 \sim \Phi 100$  (Stroke > 100)

Bore size\Item	A		A1		C		B1	E	N	Q	J1	K3
	Without magnet	With magnet	Without magnet	With magnet	Without magnet	With magnet						
32	79.5	89.5	95.5	105.5	45.5	55.5	17	13	12.5	28	7	M12 × 1.25
40	89	99	105	115	55	65	17	13	14	28	7	M12 × 1.25
50	91.5	101.5	107.5	117.5	55.5	65.5	18	15	14	29	8	M16 × 1.5
63	93	103	109	119	57	67	18	15	16.5	29	8	M16 × 1.5
80	106	116	126.5	136.5	66	76	20	21	19	35.5	10	M20 × 1.5
100	119.5	129.5	145	155	75.5	85.5	22	27	23	42.5	13.5	M27 × 2.0

Remark) The unmarked dimension is the same as ACQ standard type.

### Male thread (Bore size: $\Phi 32 \sim \Phi 100$ , Stroke > 100, Longer type)

Bore size\Item	B2	H	J	K2	M	R	V	W
32	38.5	23.5	8	M14 × 1.5	6	22	16	14
40	38.5	23.5	8	M14 × 1.5	6	28	16	14
50	43.5	28.5	11	M18 × 1.5	6.5	35	20	17
63	43.5	28.5	11	M18 × 1.5	6.5	35	20	17
80	53.5	35.5	13	M22 × 1.5	8.5	43	25	22
100	53.5	35.5	13	M26 × 1.5	10	59	32	27

### Ordering code

**F-ACQ 50 LB**

Accessory: **Model** | Bore size

Accessory type: LB: LB type, FA: FA type, FB: FB type, CB: CB type ②

Mounting accessory: ①

- ① Please refer to accessory list for selection and ordering information.
- ② CB is attached with relevant PIN.

### Accessory selection

Cylinder model	Accessories	Mounting accessory				Knuckle ①			Sensor switch ②			
		LB	FA	FB	CB	I	Y	F	U	DS1-J	DS1-G	DS1-H
ACQ	Female thread	Standard	●	●	●	●	×	×	×	×	×	×
	With magnet	●	●	●	●	●	×	×	×	●	●	●
ASQ	Female thread	Standard	●	●	●	●	×	×	×	×	×	×
	With magnet	●	●	●	●	●	×	×	×	●	●	●
ATQ	Male thread	Standard	●	●	●	●	●	●	●	×	×	×
	With magnet	●	●	●	●	●	●	●	●	●	●	●
ACQD	Female thread	Standard	●	●	●	×	×	×	×	×	×	×
	With magnet	●	●	●	●	×	×	×	×	●	●	●
ACQJ	Female thread	Standard	●	●	●	×	×	×	×	×	×	×
	With magnet	●	●	●	●	×	×	×	×	●	●	●

- ① Please refer to P397~402 for knuckle detail.
- ② Please refer to P403~426 for detail of sensor switch.
- ③ Mounting accessories and Knuckle unavailable for bore size 125, 140, 160 cylinder. DS1-H sensor switch only available for bore size 125, 140, 160 cylinder.

### Material of accessories

Bore size	Accessories				Mounting accessories				Knuckle			
	LB	FA	FB	CB	LB	FA	FB	CB	I	Y	F	U
12, 16	△	●	●	●	△	△	△	△	△	△	△	△
20, 25	△	◆	◆	◆	△	△	△	△	△	△	△	△
32~100	△	◆	◆	■	△	■	■	■	△	■	■	■

● Aluminum alloy, ◆ Cray cast iron, ▲ S45C, ■ Cast iron, △ SPCC

### List for ordering code of accessories

Bore size	Accessories				Mounting accessory				Sensor switch
	LB	FA	FB	CB	LB	FA	FB	CB	
12	F-ACQ12LB	F-ACQ12FA	F-ACQ12FB	F-ACQ12CB					
16	F-ACQ16LB	F-ACQ16FA	F-ACQ16FB	F-ACQ16CB					CS1-G
20	F-ACQ20LB	F-ACQ20FA	F-ACQ20FB	F-ACQ20CB					DS1-G
25	F-ACQ25LB	F-ACQ25FA	F-ACQ25FB	F-ACQ25CB					
32	F-ACQ32LB	F-ACQ32FA	F-ACQ32FB	F-ACQ32CB					
40	F-ACQ40LB	F-ACQ40FA	F-ACQ40FB	F-ACQ40CB					CS1-J
50	F-ACQ50LB	F-ACQ50FA	F-ACQ50FB	F-ACQ50CB					DS1-J
63	F-ACQ63LB	F-ACQ63FA	F-ACQ63FB	F-ACQ63CB					CS1-G
80	F-ACQ80LB	F-ACQ80FA	F-ACQ80FB	F-ACQ80CB					DS1-G
100	F-ACQ100LB	F-ACQ100FA	F-ACQ100FB	F-ACQ100CB					
125	-	-	-	-					DS1-H
140	-	-	-	-					CS1-G
160	-	-	-	-					DS1-G

Bore size	Accessories				Knuckle			
	I: I Knuckle	Y: Y Knuckle	F: F Knuckle	U: U Knuckle	I: I Knuckle	Y: Y Knuckle	F: F Knuckle	U: U Knuckle
12	F-M05080IQ	F-M05080YQ	-	-	F-M05080U			
16	F-M06100IQ	F-M06100YQ	-	-	F-M06100U			
20	F-M08125IQ	F-M08125YQ	F-M08125F	F-M08125U				
25	F-M10125IQ	F-M10125YQ	F-M10125F	F-M10125U				
32	F-M14150IQ	F-M14150YQ	F-M14150F	F-M14150U				
40	F-M14150IQ	F-M14150YQ	F-M14150F	F-M14150U				
50	F-M18150IQ	F-M18150YQ	F-M18150F	F-M18150U				
63	F-M18150IQ	F-M18150YQ	F-M18150F	F-M18150U				
80	F-M22150IQ	F-M22150YQ	-	-				
100	F-M26150IQ	F-M26150YQ	-	-				



# Compact cylinder

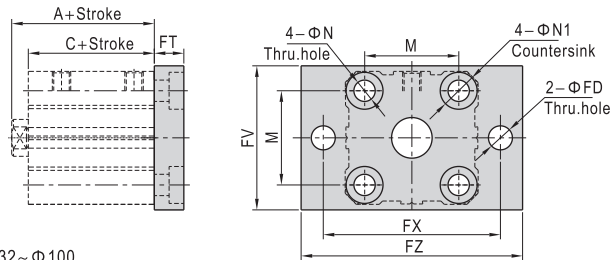


## Accessories

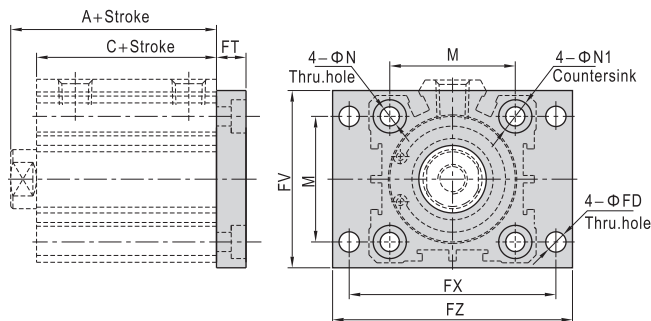
### ■ Dimensions

#### FA, FB

Φ12~Φ25



Φ32~Φ100



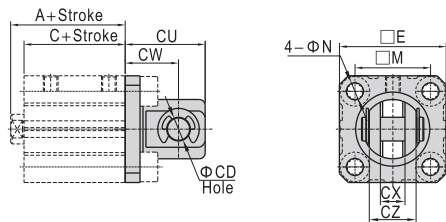
Item	A				C				M	N	N1	FD	FT	FV	FX	FZ
	Without magnet		With magnet		Without magnet		With magnet									
Bore size	≤50	55	≥60	≥60	≤50	55	≥60	≥60								
12	20.5	-	-	31.5	17	-	-	28	15.5	4.5	7.5	4.5	5.5	25	45	55
16	22	22	-	34	18.5	18.5	-	30.5	20	4.5	7.5	4.5	5.5	30	45	55
20	24	-	34	36	19.5	-	29.5	31.5	25.5	6.5	10.5	6.5	8	39	48	60
25	27.5	-	37.5	37.5	22.5	-	32.5	32.5	28	6.5	10.5	6.5	8	42	52	64
32	30	-	40	40	23	-	33	33	34	6.5	10.5	5.5	8	48	56	65
40	36.5	-	46.5	46.5	29.5	-	39.5	39.5	40	6.5	10.5	5.5	8	54	62	72
50	38.5	-	48.5	48.5	30.5	-	40.5	40.5	50	8.5	13.5	6.5	9	67	76	89
63	44	-	54	54	36	-	46	46	60	10.5	16.5	9	9	80	92	108
80	53.5	-	63.5	63.5	43.5	-	53.5	53.5	77	12.5	18.5	11	11	99	116	134
100	65	-	75	75	53	-	63	63	94	12.5	18.5	11	11	117	136	154



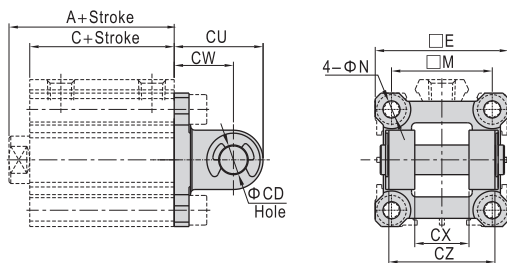
ACQ

#### CB

Φ12~Φ25



Φ32~Φ100

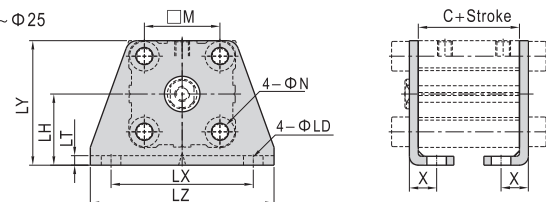


Item	A ①				C				E	M	N	CD	CU	CW	CX	CZ
	Without magnet		With magnet		Without magnet		With magnet									
Bore size	≤50	55	≥60	≥60	≤50	55	≥60	≥60								
12	20.5	-	-	31.5	17	-	-	28	25	15.5	4.5	5	20	14	5.3	9.8
16	22	22	-	34	18.5	18.5	-	30.5	29	20	4.5	5	21	15	6.8	11.8
20	24	-	34	36	19.5	-	29.5	31.5	36	25.5	6.5	8	27	18	8.3	15.8
25	27.5	-	37.5	37.5	22.5	-	32.5	32.5	40	28	6.5	10	30	20	10.3	19.8
32	30	-	40	40	23	-	33	33	45.5	34	6.5	10	30	20	18.3	35.8
40	36.5	-	46.5	46.5	29.5	-	39.5	39.5	53.5	40	6.5	10	32	22	18.3	35.8
50	38.5	-	48.5	48.5	30.5	-	40.5	40.5	64.5	50	8.5	14	42	28	22.3	43.8
63	44	-	54	54	36	-	46	46	77.5	60	10.5	14	44	30	22.3	43.8
80	53.5	-	63.5	63.5	43.5	-	53.5	53.5	98.5	77	12.5	18	56	38	28.3	55.8
100	65	-	75	75	53	-	63	63	117.5	94	12.5	22	67	45	32.3	63.8

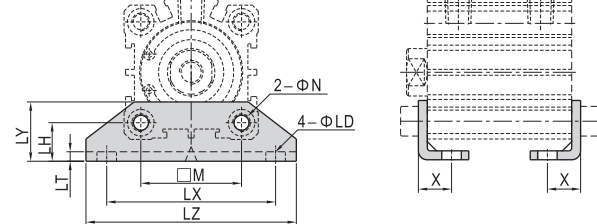
① Value A and value C in the above table is only for ACQ series.  
Please refer to relevant content for value C of other series.

#### LB

Φ12~Φ25



Φ32~Φ100



Item	C ①				M	N	X	LD	LH	LT	LX	LY	LZ
	Without magnet		With magnet										
Bore size	≤50	55	≥60	≥60									
12	17	-	-	28	15.5	4.5	8	4.5	17	2	34	29.5	44
16	18.5	18.5	-	30.5	20	4.5	8	4.5	19	2	38	33.5	48
20	19.5	-	29.5	31.5	25.5	6.5	9.2	6.5	24	3	48	42	62
25	22.5	-	32.5	32.5	28	6.5	10.7	6.5	26	3	52	46	66
32	23	-	33	33	34	6.5	11.2	6.5	13	3	57	20	71
40	29.5	-	39.5	39.5	40	6.5	11.2	6.5	13	3	64	20	78
50	30.5	-	40.5	40.5	50	8.5	12.2	8.5	14	3	79	22	95
63	36	-	46	46	60	10.5	13.7	10.5	16	3	95	26	113
80	43.5	-	53.5	53.5	77	13	16.5	13	20.5	4.5	118	32	140
100	53	-	63	63	94	13	23	13	24	6	137	36	162

① Value C in the above table is only for ACQ series.  
Please refer to relevant content for value C of other series.

