

Series AQ

Compact Cylinder/Double Acting, Single Acting Type

Bore Size mm(inch) : $\phi 12(1/2\text{Nom.})$, $\phi 16(5/8\text{Nom.})$, $\phi 20(3/4\text{Nom.})$, $\phi 25(1\text{Nom.})$, $\phi 32(1 1/4\text{Nom.})$,
 $\phi 40(1 1/2\text{Nom.})$, $\phi 50(2\text{Nom.})$, $\phi 63(2 1/2\text{Nom.})$, $\phi 80(3 1/4\text{Nom.})$, $\phi 100(4\text{Nom.})$

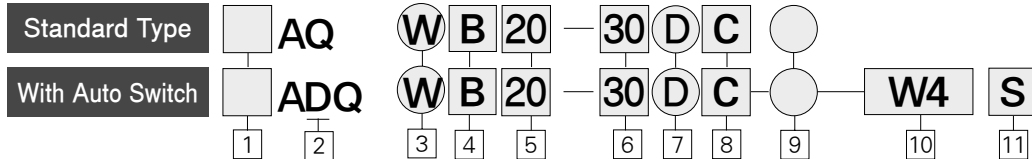


- SPACE SAVING DESIGN
- LIGHT WEIGHT
- 10 BORE SIZES
- AUTO SWITCH CAPABLE
- CYLINDERS FOR SPECIAL APPLICATIONS
- MANUFACTURING CERTIFIED TO ISO 9001 STANDARDS

Symbol



How to Order



1 Series

Blank : Rc(PT)
 U : NPT

2 Built-in Magnet

※For details, please refer to page A-213.

3 Model

Blank : Single Rod
 W : Double Rod
 K : Non-Rotating

4 Type

B : Through Hole
 (Standard Type)
 A : Both Ends Tapped

※For the Dimensions of "A" type please refer to page A-230.

5 Bore Size mm(inch)

12 : 12 (1/2Nom.)

16 : 16 (5/8Nom.)

20 : 20 (3/4Nom.)

25 : 25 (1Nom.)

32 : 32 (1 1/4Nom.)

40 : 40 (1 1/2Nom.)

50 : 50 (2Nom.)

63 : 63 (2 1/2Nom.)

80 : 80 (3 1/4Nom.)

100 : 100 (4Nom.)

6 Cylinder Stroke (mm)

※ For stroke refer to next page

7 Action

D : Double Acting
 S : Single Acting/Spring Return
 T : Single Acting/Spring Extended
 Blank : only $\phi 20$

8 Body Option (See list below)

Blank : Standard
 C : Rubber cushion

※ Not Compatible with Non-Rotating type

M : Rod end male thread
 F : Rear boss mount

9 Special Option

Blank : Standard type
 XC16 : Copper-free
 ※ $\phi 12-\phi 40$: XC16 is Standard type

10 Applicable Auto Switch

Blank: Without Auto Switch

W4 : W4(Reed Switch)
 W2P(L) : $\phi 50\sim\phi 100$

※ Suffix L for lead wire exceeding 3m length.
 Example) W4L

11 Number of Auto Switch

Blank : 2 pcs.
 S : 1 pc.

Standard/Specifications

Fluid	Air
Max. Operating Pressure	1.0MPa(140psi)
Ambient and Fluid Temperature	-5~60℃ (15~160 ° F)
Lubrication	Not Required
Cushion	None
Rod End Thread	Female (Standard Type)
Stroke Tolerance	+1 ⁰ mm (0.039 inch)
Mounting	Through Hole (Standard)
Piston Speed	50~500 mm/sec (2~20 inch/sec)


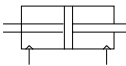

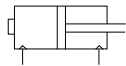
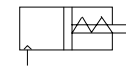
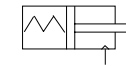
Body Option/Available

○ - Standard ⊙ -

Type	Action	Code	Single Rod								Double Rod				
			Blank	M	C	CM	F	FM	FC	FCM	Blank	M	C	CM	
Standard Type	Double Acting	(1/2Nom.~3/4Nom.)	○	○	○	⊙	○	○	○	○	○	○	○	○	○
		(1 ¹ /4Nom.~4Nom.)	○	○	○	○	○	○	○	○	○	○	○	○	○
	Single Acting	Spring return Spring extended	○	○	-	-	○	○	-	-	-	-	-	-	-
With Auto Switch	Double Acting	(1/2Nom.)	-	○	-	-	○	○	-	-	-	-	-	-	-
		(5/8Nom.~1Nom.)	○	○	○	⊙	○	○	○	○	○	⊙	○	⊙	⊙
		(1 ¹ /4Nom.~4Nom.)	○	○	○	○	○	○	○	○	○	○	○	○	○

Note) Single Acting(Spring return / Spring extended) is optional.

Model/Standard Stroke

Bore Size mm(inch)	Double Acting				Single Acting	
	Single Rod Type	Double Rod Type	Non-Rotating Rod Type	Rear Boss Mount Type	Spring Return Type	Spring Extended Type
						
Standard Stroke (mm)				Standard Stroke (mm)		
φ 12(1/2Nom.)	5, 10, 15	-	-	5, 10, 15	-	-
φ 16(5/8Nom.)	20, 25, 30	-	-	20, 25, 30	-	-
φ 20(3/4Nom.)	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75	5, 10, 15, 20, 25, 30, 35, 40, 45, 50,	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75	5, 10,	5, 10,
φ 25(1Nom.)	-	-	-	-	-	-
φ 32(1 1/4Nom.)	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100, 125, 150	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100, 125, 150	5, 10,	5, 10,
φ 50(2Nom.)	-	-	-	-	10,	10,
φ 63(2 1/2Nom.)	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100, 125, 150	10, 15, 20, 25, 25, 30, 35, 40, 45, 50, 75, 100	10, 15, 20, 25, 25, 30, 35, 40, 45, 50, 75, 100	10, 15, 20, 25, 25, 30, 35, 40, 45, 50, 75, 100, 125, 150	-	-
φ 80(3 1/4Nom.)	-	-	-	-	-	-
φ 100(4Nom.)	-	-	-	-	-	-

• Intermediate Stroke

A spacer of 5, 10, 15 and 20mm is used for intermediate strokes between 55 and 100mm stroke(55, 60, 65...).
(Example) AQB50-55D is produced by installing 20mm spacer in AQB50-75.

Series AQ

Options

Name	Applicable Type
Cushion	Rubber Cushion/Double Acting Only
Rod End MaleThread	Optional
Boss Mount	Optional
Non-Rotating Piston Rod Type	Double Acting/Single Rod Type Only

Minimum Operating Pressure

kgf/cm²(Psi)

Type	Bore Size mm (inch)									
	12 (1/2Nom.)	16 (5/8Nom.)	20 (3/4Nom.)	25 (1Nom.)	32 (1 1/4Nom.)	40 (1 1/2Nom.)	50 (2Nom.)	63 (2 1/2Nom.)	80 (3 1/4Nom.)	100 (4Nom.)
Double Acting (Single Rod)	0.7(10)	0.7(10)	0.49(7)	0.49(7)	0.49(7)	0.49(7)	0.49(7)	0.49(7)	0.49(7)	0.49(7)
Single Acting (Spring Return, Spring Extended)			1.79 (25.5)		1.69 (24.0)	1.51 (21.5)	1.3 (18.5)			

Non-Rotating Rod Accuracy

Bore Size mm (inch)	20 • 25 (³ / ₄ Nom.) (1Nom.)	32 (1 1/4Nom.)	40 (1 1/2Nom.)	50 (2Nom.)	63 (2 1/2Nom.)
Non-Rotating Rod Accuracy	±1 °			±0.8 °	

Theoretical Force

Single Acting

kgf (lbf)

Action	Bore Size mm (inch)	Operating pressure (kgf/cm ² (Psi))			Spring Force		
		3.52(50)	5.27(75)	7.03(100)	Spring Extended Position	Spring Return Position	Rod and Max. Axial Load
Spring Return	20(³ / ₄ Nom.)	9.43(20.8)	14.97(33.0)	20.5(45.1)	1.6(3.5)	0.6(1.3)	0.67(1.48)
	32(1 1/4Nom.)	25.9(57.0)	40.0(88.2)	0.54(1.2)	2.4(5.3)	1.5(3.3)	1.8(3.9)
	40(1 1/2Nom.)	41.1(90.6)	63.0(139.0)	85.3(188.0)	3.1(6.8)	1.3(2.9)	1.8(3.9)
Spring Extended	50(2Nom.)	63.5(140.0)	98.0(216.0)	132.4(292.0)	5.5(12.1)	2.5(5.5)	3.1(6.83)
	20(³ / ₄ Nom.)	5.44(12.0)	9.6(21.1)	13.7(30.3)	2.5(6.2)	0.5(1.1)	0.67(1.48)
	32(1 1/4Nom.)	18.23(40.2)	28.8(63.5)	39.4(86.9)	3.0(6.6)	2.0(4.4)	1.8(3.9)
	40(1 1/2Nom.)	34.11(75.2)	52.6(116.0)	71.2(157.0)	3.0(6.6)	2.0(4.4)	1.8(3.9)
	50(2Nom.)	49.44(109.0)	78.5(173.0)	107.5(237.0)	8.5(18.7)	2.5(5.5)	3.1(6.83)

Auto Switch Mounting Bracket/PART No.

Bore Size mm (inch)	Mounting Band	Note	Applicable Auto Switch
12 • 16 • 20 • 25 (¹ / ₂ Nom, ⁵ / ₈ Nom, ³ / ₄ Nom, 1Nom)	BQ-1	• Auto Switch Mounting Screw (M3×0.5×8 l) • Square Nut	W4
32 • 40 • 50 • 63 • 80 • 100 (³ / ₄ Nom, 1 1/4Nom, 1 1/2Nom, 2Nom)	BQ-2	• Auto Switch Mounting Screw (M3×0.5×10 l) • Auto Switch Spacer • Auto Switch Mounting Nut	

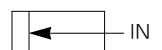
⚠ Cautions

- During a mounting procedure, fully flush piping, and note that dust and chips are prevented from entering the cylinder.
- It is needed to always align the piston rod load with the cylinder axis.
 - Cylinder should be installation with accurate alignment.
 - In the use as a stopper, a side loading of the piston rod is preferably avoided.
- Prevent the piston rod from damage. A damaged piston rod may cause a failure of the rod packing resulting in a failure in cylinder.
- So as to disassembling, the retaining ring (C-type) is removed with special tool. (Assembling tool for C-type retaining ring)

Double Acting Single Rod

kgf (lbf)

Bore size	Rod direction	Operating pressure (kgf/cm ² (Psi))		
		50	75	100
φ12(¹ / ₂ Nom.)	OUT	3.95(8.7)	5.9(13.1)	7.9(17.5)
	IN	3.0(6.6)	4.5(9.8)	5.9(13.1)
φ16(⁵ / ₈ Nom.)	OUT	7.08(15.6)	10.6(23.4)	14.2(31.2)
	IN	5.31(11.7)	7.9(17.5)	10.6(23.4)
φ20(³ / ₄ Nom.)	OUT	11.02(24.3)	16.6(36.5)	22.0(48.6)
	IN	8.26(18.2)	12.4(27.3)	16.6(36.5)
φ25(1Nom.)	OUT	17.2(38.0)	25.9(57.0)	34.5(76.0)
	IN	13.3(29.3)	19.9(43.9)	26.5(58.5)
φ32(1 1/4Nom.)	OUT	28.3(62.3)	42.4(93.5)	5.7(12.5)
	IN	21.2(46.8)	51.8(70.1)	42.4(93.5)
φ40(1 1/2Nom.)	OUT	44.2(97.4)	66.2(146)	88.4(195)
	IN	37.1(81.8)	55.8(123)	74.4(164)
φ50(2Nom.)	OUT	68.9(152)	103.4(228)	137.9(304)
	IN	58.1(128)	87.1(192)	116.1(256)
φ63(2 1/2Nom.)	OUT	109.8(242)	164.2(362)	219.1(483)
	IN	98.4(217)	147.9(326)	196.9(434)
φ80(3 1/4Nom.)	OUT	176.9(390)	264.9(584)	353.3(779)
	IN	159.7(352)	239.0(527)	318.9(703)
φ100(4Nom.)	OUT	276.2(609)	414.1(913)	552.1(1217)
	IN	251.3(554)	376.9(831)	502.6(1108)



Standard Type / Double Acting : Single rod

Weight Table

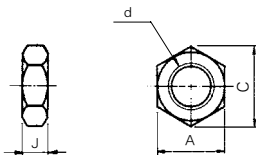
unit:kg(ozs)

Bore size mm(inch)	Stroke(mm(inch))											
	5 (0.2)	10 (0.39)	15 (0.59)	20 (0.79)	25 (0.98)	30 (1.18)	35 (1.38)	40 (1.57)	45 (1.77)	50 (1.97)	75 (2.95)	100 (3.93)
12(1/2)	1.13 (40)	1.33 (47)	1.53 (54)	1.73 (61)	1.93 (68)	2.13 (75)	-	-	-	-	-	-
16(5/8)	1.73 (61)	2.04 (72)	2.35 (83)	2.66 (94)	2.98 (105)	3.29 (116)	-	-	-	-	-	-
20(3/4)	2.58 (91)	3.18 (112)	3.74 (132)	4.31 (152)	4.9 (173)	5.47 (193)	6.04 (213)	6.63 (234)	7.2 (254)	7.77 (274)	-	-
25(1)	3.35 (118)	3.94 (139)	4.54 (160)	4.31 (181)	5.75 (203)	6.35 (224)	6.95 (245)	7.54 (266)	8.14 (287)	8.76 (309)	-	-
32(1 1/4)	4.45 (157)	5.10 (180)	5.73 (202)	6.38 (225)	7.03 (248)	7.65 (270)	8.28 (292)	8.96 (316)	9.61 (339)	10.26 (362)	14.8 (522)	18.03 (636)
40(1 1/2)	7.71 (271)	8.33 (294)	8.96 (316)	9.58 (338)	10.21 (360)	10.83 (382)	11.45 (404)	12.08 (426)	12.7 (448)	13.32 (470)	17.66 (623)	20.78 (733)
50(2)	-	11.37 (401)	12.45 (439)	13.49 (476)	14.57 (514)	15.62 (551)	16.7 (589)	17.75 (626)	18.8 (663)	19.87 (701)	27.16 (958)	31.24 (1,102)
63(2 1/2)	-	18.34 (647)	19.48 (687)	20.61 (727)	21.74 (767)	22.88 (807)	24.01 (847)	27.98 (987)	26.28 (927)	27.41 (967)	35.63 (1,257)	41.5 (1,464)
80(3 1/4)	-	40.9 (1,443)	43.49 (1,534)	46.04 (1,624)	48.59 (1,714)	51.14 (1,804)	53.69 (1,894)	56.27 (1,985)	56.85 (2,076)	61.4 (2,166)	80.23 (2,830)	93.44 (3,296)
100(4)	-	62.6 (2,208)	65.6 (2,314)	68.6 (2,420)	71.6 (2,526)	74.6 (2,632)	77.6 (2,738)	80.62 (2,844)	83.63 (2,950)	86.63 (3,056)	107.8 (3,801)	122.4 (4,318)

Specifications

Acting Type	Double Acting Single Rod
Bore size	φ12, φ16, φ20, φ25, φ32, φ40, φ50, φ63, φ80, φ100
proof pressure	1.5MPa{217.6psi}
Max. Operating Pressure	1.0MPa{140.8psi}
RUBBER Cushion	Non
Piping Type	Thread Type
Piston speed	50~500mm/s (0.2~19.7 in/s)
Moumting	Through hole
Auto Switch	Available

Parts



Rod End Nut

(unit : mm)

Material : Rolled steel

Model Number	Bore Size mm(inch)	d	J	A	C
NTJ-015A	12 (1/2)	M5×0.8	4	8	9.2
NT-015A	16 (5/8)	M6×1	5	10	11.5
NT-02	20 (3/4)	M8×1.25	5	13	15.0
NT-03	25 (1)	M10×1.25	6	17	19.6
NT-04	32 (1 1/4), 40 (1 1/2)	M14×1.5	8	22	25.4
NT-05	50 (2), 63 (2 1/2)	M18×1.5	11	27	31.2
NT-08	80 (3 1/4)	M22×1.5	13	32	37.0
NT-10	100 (4)	M26×1.5	16	41	47.3

Additional Weight Table

unit:kg(ozs)

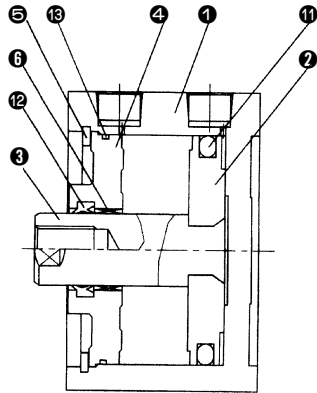
Bore size mm(inch)	12 (1/2)	16 (5/8)	20 (3/4)	25 (1)	32 (1 1/4)	40 (1 1/2)	50 (2)	63 (2 1/2)	80 (3 1/4)	100 (4)		
Both sides Tab Type	1.13 (0.04)	1.96 (0.07)	5.59 (0.21)	7.09 (0.25)	7.09 (0.25)	5.59 (0.21)	7.09 (0.25)	17 (0.6)	30.9 (1.09)	43.1 (1.52)		
male screw at the end of rod	Thread		1.41 (0.05)	3.12 (0.11)	5.59 (0.21)	11.9 (0.42)	26.1 (0.92)	26.9 (0.95)	53 (1.87)	62.9 (2.22)	120 (4.23)	175 (6.17)
	Nut		1.13 (0.04)	2.27 (0.08)	3.97 (0.14)	7.94 (0.28)	17 (0.6)	17 (0.6)	32 (1.13)	32 (1.13)	49 (1.73)	115.9 (4.09)
Rear Boss Mount	0.57 (0.02)	1.42 (0.05)	1.98 (0.07)	3.12 (0.11)	5.1 (0.18)	7.1 (0.25)	13 (0.46)	24.9 (0.88)	45.1 (1.59)	96.1 (3.39)		
Rubber Cushion Mount	1.13 (0.04)	2.27 (0.08)	5.1 (0.18)	3.97 (0.14)	-3.12 (-0.11)	-7.1 (-0.25)	-9.07 (-0.32)	-17.9 (-0.63)	-30.9 (-1.09)	-56.1 (-1.98)		

example

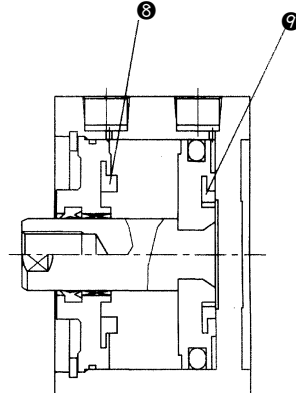
- 例) TCQ2A32-20DCM
- Basic weight : TCQ2B32-20D 225g(7.9ozs)
- Additional weight : Both ends Tab Type 7g(0.25ozs)
- Male Screw at the end of rod 43g(1.52ozs)
- Rubber cushion Mount -3g(-0.11ozs)
- 272g(9.59ozs)

Construction/Parts List

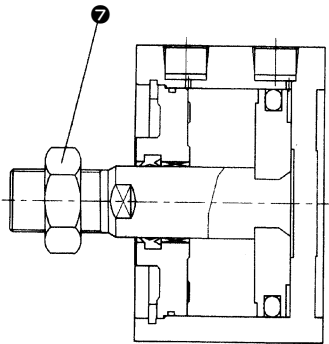
Double Acting/Single Rod Type



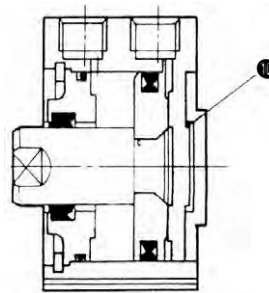
Standard Type



Rubber Cushion Mount



Rod End Male Thread Type



Rear boss mount type

Parts List

No.	Description	Material	Note
①	Cylinder Tube	Aluminum Alloy	
②	※ Piston	Aluminum Alloy	Chromate
③	※ Piston Rod	Carbon Steel	32(1 1/4Nom.)~100(4Nom.)Hard chrome
④	Collar	Aluminum Bearing Alloy	12(1 1/2Nom.)~40(1 1/2Nom.)
		Aluminum Alloy Casting	50(2Nom.)~100(4Nom.)
⑤	Retaining Ring	Carbon Tool Steel	Phosphate Casted

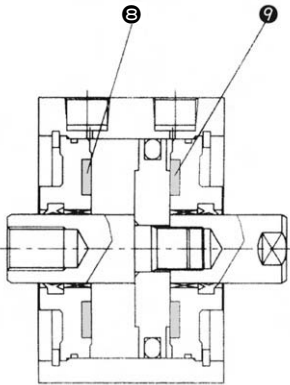
※ 12(1 1/2Nom.)~25(1Nom.)Piston rod---One piece construction(Stainless steel)

No	Description	Material	Note
⑥	Bushing	Lead Bronze Casting	Only above φ50(2Nom.)
⑦	Rod end nut	Carbon steel	Nickel Plated
⑧	A Bumper	Polyurethane rubber	
⑨	B Bumper	Polyurethane rubber	
⑩	Boss mount adapter	Aluminum alloy	20(3/4Nom.)~100(4Nom.)

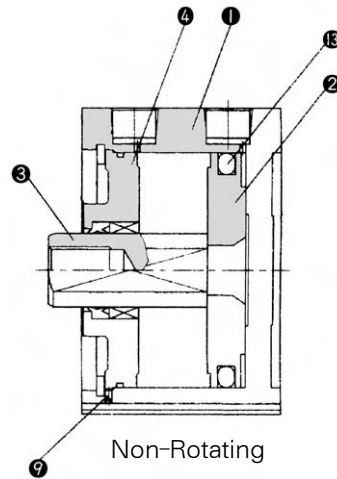
Seals List

No	Description	Material	Parts No.									
			12(1 1/2Nom.)	16(5/8Nom.)	20(3/4Nom.)	25(1Nom.)	32(1 1/4Nom.)	40(1 1/2Nom.)	50(2Nom.)	63(2 1/2Nom.)	80(3 1/4Nom.)	100(4Nom.)
⑪	Piston packing	NBR	PSD-12	PSD-16A	PSD-20A	PSD-25A	PPD-32A	PPD-40A	PPD-50A	PPD-63A	PPD-80A	PPD-100A
⑫	Rod packing	NBR	DYR-6	DYR-8	DYR-10SK-K	DYR-12	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z
⑬	Gasket	NBR	C-10	C-14	C-18	C-22	C-29	C-36	C-46	C-60	C-75	C-95

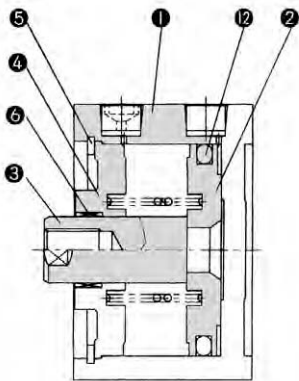
Construction/Parts List



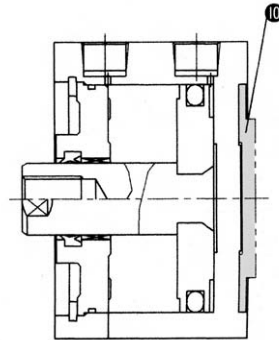
Double Rod Type



Non-Rotating



Spring Return Type



Spring Extended Type

Parts List

No.	Description	Material	Note
1	Cylinder Tube	Aluminum Alloy	
2	※ Piston	Aluminum Alloy	Chromate
3	※ Piston Rod	Carbon Steel	
4	Collar	Aluminum Bearing Alloy Aluminum Alloy Casting	
5	Retaining Ring	Carbon Tool Steel	Phosphate Coated

※ 12(1/2Nom.)~25(1Nom.)Piston rod...One piece construction(Stainless steel)

No.	Description	Material	Note
6	Bushing	Lead Bronze Casting	Only above ϕ 50(2Nom.)
7	Rod End Nut	Carbon Steel	Nickel Plated
8	A Bumper	Polyurethane Rubber	
9	B Bumper	Polyurethane Rubber	
10	Boss Mount Adapter	Aluminum Alloy	

Seals List

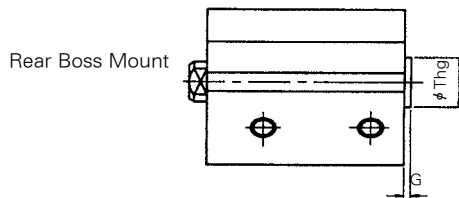
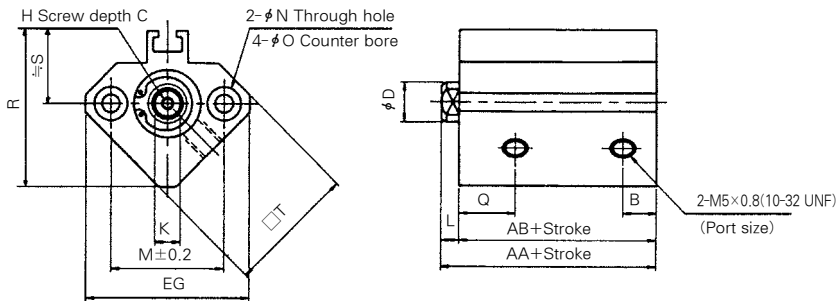
No	Description	Material	Parts No.									
			12(1/2Nom.)	16(5/8Nom.)	20(3/4Nom.)	25(1Nom.)	32(1 1/4Nom.)	40(1 1/2Nom.)	50(2Nom.)	63(2 1/2Nom.)	80(3 1/4Nom.)	100(4Nom.)
11	Piston Packing	NBR	PSD-12	PSD-16A	PSD-20A	PSD-25A	PSD-32A	PPD-40A	PPD-50A	PPD-63A	PPD-80A	PPD-100A
12	Rod Packing	NBR	DYR-6K	DYR-8K	DYR-10SK	DYR-12	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z
13	Gasket	NBR	C-10	C-14	C-18	C-22	C-29	C-36	C-46	C-60	C-75	C-95

Series AQ

Double Acting/Single Rod Type : Dimensions

Bore Size : $\phi 12 \sim \phi 25$ ($1/2$ Nom. \sim 1 Nom.)

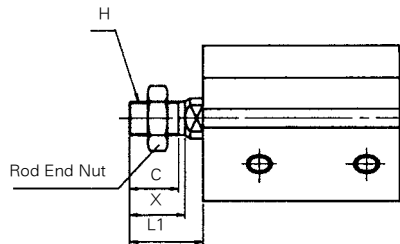
For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230



Rear Boss Mount (mm)

Bore size mm (inch)	G	Th9
$\phi 12(1/2 \text{Nom.})$	1.5	15 ⁰ _{-0.043}
$\phi 16(5/8 \text{Nom.})$	1.5	20 ⁰ _{-0.052}
$\phi 20(3/4 \text{Nom.})$	2	13 ⁰ _{-0.043}
$\phi 25(1 \text{Nom.})$	2	15 ⁰ _{-0.043}

Rod End Male Thread



Rod End Male Thread (mm)

Bore size mm (inch)	C	X	H		L1
			Rc(PT)	NPT	
$\phi 12(1/2 \text{Nom.})$	9	10.5	M5×0.8	#8-32 UNC	14.0
$\phi 16(5/8 \text{Nom.})$	10	12	M6×1.0	#8-32 UNC	15.5
$\phi 20(3/4 \text{Nom.})$	12	14	M8×1.25	#10-32 UNF	18.5
$\phi 25(1 \text{Nom.})$	15	17.5	M10×1.25	1/4-28 UNF	22.5

※ $\phi 20$ (75, 100 Stroke) : L₁ = 28.2mm

$\phi 25$ (75, 100 Stroke) : L₁ = 32mm

Standard Type

(Unit : mm)

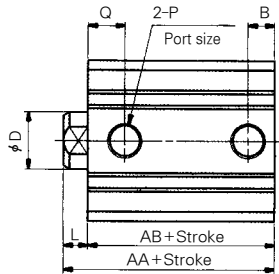
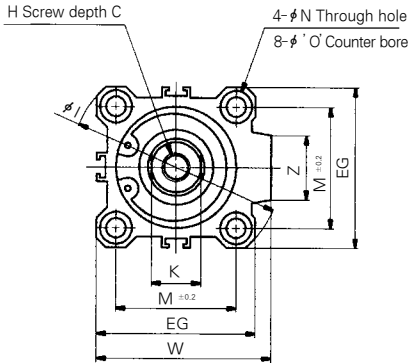
Bore size mm (inch)	Stroke Range (mm)	AA	AB	C	D	EG	B	H		K	L	M	N	φ O	Q	R	S	□ T
								Rc(PT)	NPT									
$\phi 12(1/2 \text{Nom.})$	5~30	20.5	17	6	6	32	5	M3×0.5	#8-32 UNC	5	3.5	22	3.5	6.5 Depth 3.5	11	35.5	19.5	25
$\phi 16(5/8 \text{Nom.})$	5~30	22	18.5	8	8	38	5.5	M4×0.7	#8-32 UNC	6	3.5	28	3.5	6.5 Depth 3.5	10	41.5	22.5	29
$\phi 20(3/4 \text{Nom.})$	5~50	24	19.5	7	10	47	5.5	M5×0.8	#10-32 UNF	8	4.5	36	5.5	9 Depth 7	10.5	48	24.5	36
$\phi 25(1 \text{Nom.})$	5~50	27.5	22.5	12	12	52	5.5	M6×1.0	1/4-28 UNF	10	5	40	5.5	9 Depth 7	11	53.5	27.5	40

※ The Cylinder with Rubber cushion has the same outer dimensions as standard type.

Double Acting/Single Rod Type : Dimensions

Bore Size : $\phi 32 \sim \phi 100$ (1 1/4 Nom. ~ 4 Nom.)

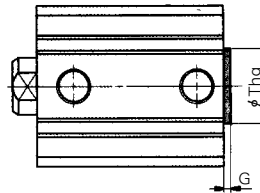
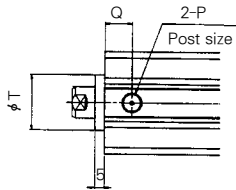
For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230



Rear Boss Mount (mm)

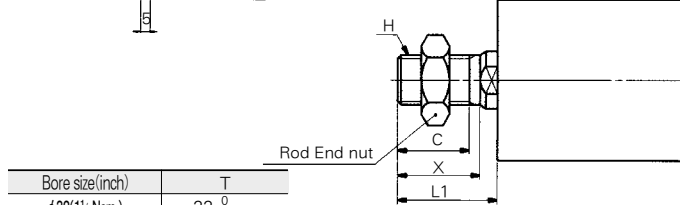
Bore size (inch)	G	Th9
$\phi 32$ (1 1/4 Nom.)	2	21 ⁰ / _{-0.052}
$\phi 40$ (1 1/2 Nom.)	2	28 ⁰ / _{-0.052}
$\phi 50$ (2 Nom.)	2	35 ⁰ / _{-0.062}
$\phi 63$ (2 1/2 Nom.)	2	35 ⁰ / _{-0.062}
$\phi 80$ (3 1/4 Nom.)	2	43 ⁰ / _{-0.062}
$\phi 100$ (4 Nom.)	2	59 ⁰ / _{-0.074}

Long Stroke (125st or more)



Rod End Male Thread (mm)

Bore size (inch)	C	X	H		L1 ※
			Rc(PT)	NPT	
$\phi 32$ (1 1/4 Nom.)	20.5	23.5	M14×1.5	5/16-24 UNF	28.5(38.5)
$\phi 40$ (1 1/2 Nom.)	20.5	23.5	M14×1.5	3/8-24 UNF	28.5(38.5)
$\phi 50$ (2 Nom.)	26	28.5	M18×1.5	1/2-20 UNF	33.5(43.5)
$\phi 63$ (2 1/2 Nom.)	26	28.5	M18×1.5	1/2-20 UNF	33.5(43.5)
$\phi 80$ (3 1/4 Nom.)	32.5	35.5	M22×1.5	5/8-18 UNF	43.5(53.5)
$\phi 100$ (4 Nom.)	32.5	35.5	M26×1.5	3/4-16 UNF	43.5(53.5)



Bore size (inch)	T
$\phi 32$ (1 1/4 Nom.)	22 ⁰ / _{-0.052}
$\phi 40$ (1 1/2 Nom.)	28 ⁰ / _{-0.052}
$\phi 50$ (2 Nom.), $\phi 63$ (2 1/2 Nom.)	35 ⁰ / _{-0.062}
$\phi 80$ (3 1/4 Nom.)	43 ⁰ / _{-0.062}
$\phi 100$ (4 Nom.)	59 ⁰ / _{-0.074}

※ Consult TPC concerning the stroke range except for standard type.

※ () : 125st or more

Standard Type

(Unit : mm)

Bore size mm (inch)	Stroke range mm	AA	AB	C	D	EG	B	H		I	J	K	L	M	N	φO	P	Q	W	Z
								Rc(PT)	NPT											
$\phi 32$ (1 1/4 Nom.)	5	30	23	13	16	45	5.5	M8×1.25	5/16-24 UNF	60	4.5	14	7	34	5.5	9Depth7	10-32 UNF(M8×0.8)	11.5	49.5	18
	10~50	40	33				7.5						10.5				(Rc(PT) 1/8)	12.5		
	75, 100	62.5	45.5				12.5													
$\phi 40$ (1 1/2 Nom.)	5~50	36.5	29.5	13	16	52	8	M8×1.25	3/8-24 UNF	69	5	14	7	40	5.5	9Depth7	NPT 1/8"	11	57	18
	75, 100	46.5	39.5				14						11				(Rc(PT) 1/8)	14		
	125, 150	72	55				17													
$\phi 50$ (2 Nom.)	10~50	38.5	30.5	15	20	64	10.5	M10×1.5	1/2-20 UNF	86	7	17	8	50	6.6	11Depth8	NPT 1/4"	10.5	71	22
	75, 100	48.5	40.5				14						14				(Rc(PT) 1/4)	14		
	125, 150	73.5	55.5				18													
$\phi 63$ (2 1/2 Nom.)	10~50	44	36	15	20	77	10.5	M10×1.5	1/2-20 UNF	103	7	17	8	60	9	14Depth10.5	NPT 1/4"	15	84	22
	75, 100	54	46				16.5						16.5				(Rc(PT) 1/4)	16.5		
	125, 150	75	57				18													
$\phi 80$ (3 1/4 Nom.)	10~50	53.5	43.5	21	25	98	12.5	M16×2.0	5/8-18 UNF	132	6	22	10	77	11	17.5Depth13.5	NPT 3/8"	16	104	26
	75, 100	63.5	53.5				19						20				(Rc(PT) 3/8)	19		
	125, 150	86	66				22													
$\phi 100$ (4 Nom.)	10~50	65	53	27	30	117	13	M20×2.5	3/4-16 UNF	156	6.5	27	12	94	11	17.5Depth13.5	NPT 3/8"	23	123.5	26
	75, 100	75	63				23						22				(Rc(PT) 3/8)	23		
	125, 150	97.5	75.5				22													

※ The Cylinder with Rubber cushion has the same outer dimensions as standard type.

- ACP
- UACP
- APM
- AX
- AS
- AM2
- AM
- AL ALX
- ARD
- AQ
- AQ2
- AJ
- AG
- AGX GX
- NDM
- ADR
- AMR
- NST
- AST
- NLCD
- NLCS
- NF
- NR
- ASL

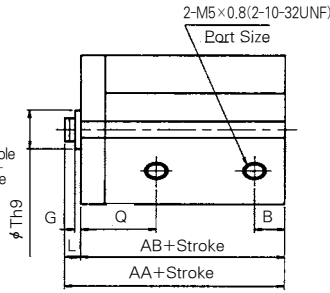
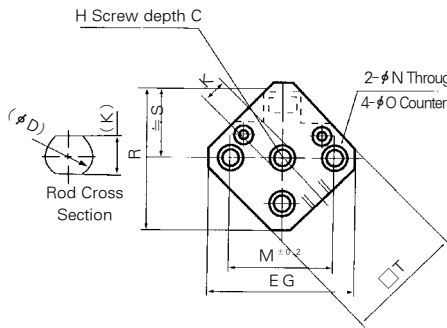
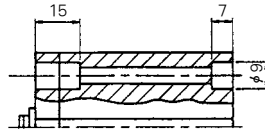
Series AQK

Double Acting/Non-Rotating Piston Rod/Single Rod Type : Dimensions

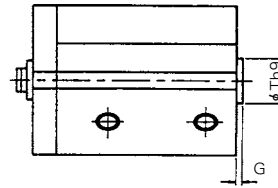
Bore Size : $\phi 20 \sim \phi 25$ ($3/4$ Nom. ~ 1 Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.

Through Hole



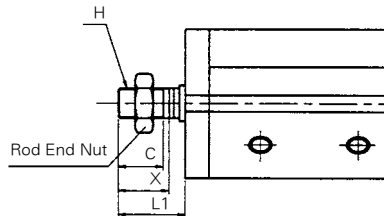
Rear Boss Mount



Rear Boss Mount (mm)

Bore Size mm (inch)	G	Th9
$\phi 20$ ($3/4$ Nom.)	2	$13 \begin{smallmatrix} 0 \\ -0.043 \end{smallmatrix}$
$\phi 25$ (1 Nom.)	2	$15 \begin{smallmatrix} 0 \\ -0.043 \end{smallmatrix}$

Rod End Male Thread



Rod End Male Thread (mm)

Bore Size mm (inch)	C	H		L1	X
		Rc(PT)	NPT		
$\phi 20$ ($3/4$ Nom.)	12	M8x1.25	#10-32 UNF	18.5	14
$\phi 25$ (1 Nom.)	15	M10x1.25	1/4-28 UNF	22.5	17.5

※ Consult TPC concerning the stroke range except for standard type.

Standard Type

mm

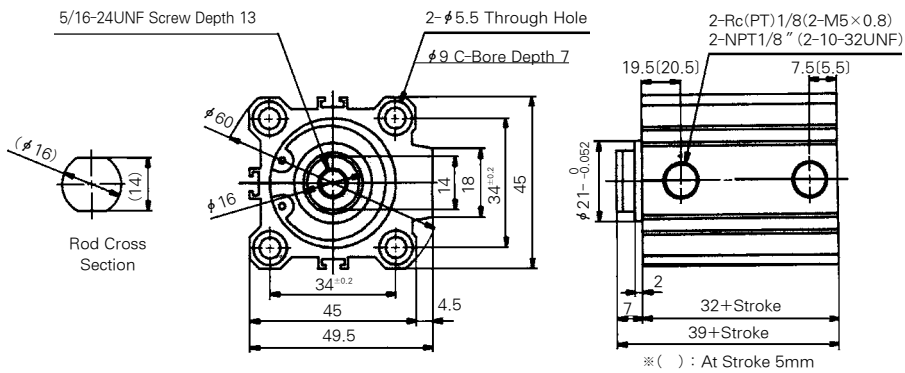
Bore size mm (inch)	Stroke range mm	AA	AB	C	D	EG	B	G	H		K	L	M	N	Q	R	S	□T
									Rc(PT)	NPT								
$\phi 20$ ($3/4$ Nom.)	5~50	32	27.5	7	10	47	5.5	2	M5x0.8	#10-32 UNF	8	4.5	36	5.5	17	48	24.5	36
$\phi 25$ (1 Nom.)	5~50	35.5	30.5	12	12	52	5.5	2	M6x1.0	1/4-28 UNF	10	5	40	5.5	19	53.5	27.5	40

Double Acting/Non-Rotating Rod/Single Rod Type : Dimensions

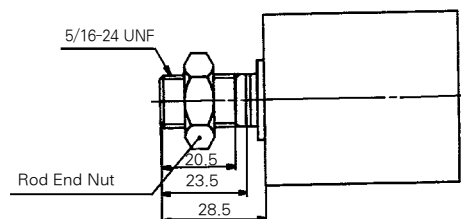
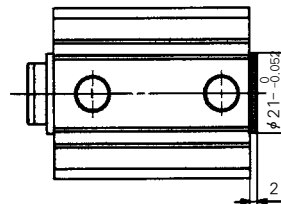
(Unit: mm)

Bore Size : $\phi 32$ (1 1/4 Nom.)

For the dimension of "A" type (Both Ends Tapped)
Please refer to Page A-230



Rear Boss Mount



※ Consult TPC concerning the stroke range except for standard type.

ACP

UACP

APM

AX

AS

AM2

AM

AL
ALX

ARD

AQ

AQ2

AJ

AG

AGX
GX

NDM

ADR

AMR

NST

AST

NLCD

NLCS

NF

NR

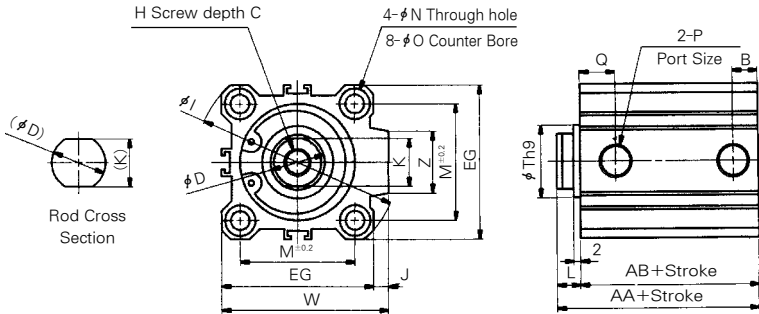
ASL

Series AQK

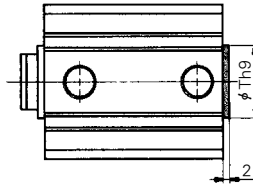
Double Acting/Non-Rotating Piston Rod/Single Rod Type : Dimensions

Bore Size : $\phi 40 \sim \phi 63$ (1 1/2 Nom. ~ 2 1/2 Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230



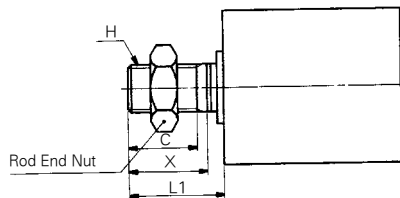
Rear Boss Mount



Rear Boss Mount (mm)

Bore Size mm(inch)	Thg
$\phi 40$ (1 1/2 Nom)	28 $^0_{-0.052}$
$\phi 50$ (2Nom)	35 $^0_{-0.062}$
$\phi 63$ (2 1/2 Nom)	35 $^0_{-0.062}$

Rod End Male Thread



Rod End Male Thread (mm)

Bore Size mm(inch)	C	H		L1	X
		Rc(PT)	NPT		
$\phi 40$ (1 1/2 Nom)	20.5	M14×1.5	3/8-24 UNF	28.5	23.5
$\phi 50$ (2Nom)	26	M18×1.5	1/2-20 UNF	33.5	28.5
$\phi 63$ (2 1/2 Nom)	26	M18×1.5	1/2-20 UNF	33.5	28.5

※ Consult TPC concerning the stroke range except for standard type.

Standard Type

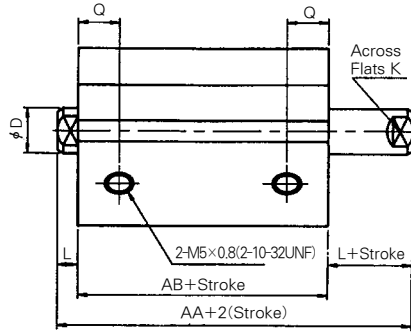
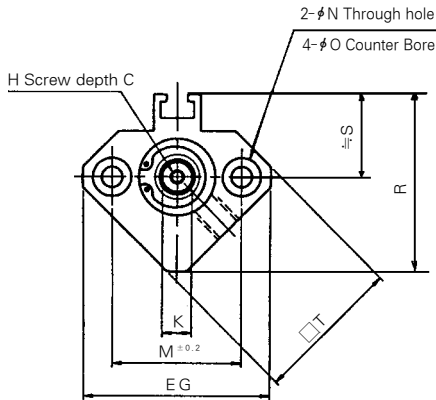
(Unit : mm)

Bore size mm(inch)	Stroke range mm	AA	AB	C	D	EG	B	H				φO	P		Q	Thg	W	Z				
								Rc(PT)	NPT	I	J		K	L					M	N	Rc(PT)	(NPT)
$\phi 40$ (1 1/2 Nom)	5~50	36.5	29.5	13	16	52	8	M8×1.25	3/8-24 UNF	69	5	14	7	40	5.5	9Depth7	1/8	1/8"	11	28 $^0_{-0.052}$	57	18
	75, 100	46.5	39.5																			
$\phi 50$ (2Nom)	10~50	38.5	30.5	15	20	64	10.5	M10×1.5	1/2-20 UNF	86	7	18	8	50	6.6	11Depth8	1/4	1/4"	10.5	35 $^0_{-0.062}$	71	22
	75, 100	48.5	40.5																			
$\phi 63$ (2 1/2 Nom)	10~50	44	36	15	20	77	10.5	M10×1.5	1/2-20 UNF	103	7	18	8	60	9	14Depth10.5	1/4	1/4"	15	35 $^0_{-0.062}$	84	22
	75, 100	54	46																			

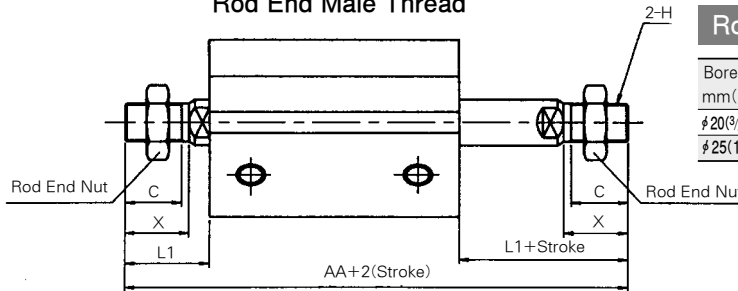
Double Acting/Double Rod Type : Dimensions

Bore Size : $\phi 20 \sim \phi 25$ ($\frac{3}{4}$ Nom. \sim 1 Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



Rod End Male Thread



Rod End Male Thread (mm)

Bore Size mm (inch)	AA	C	H		L1	X
			Rc(PT)	NPT		
$\phi 20$ ($\frac{3}{4}$ Nom.)	63	12	M8x1.25	#10-32 UNF	18.5	14
$\phi 25$ (1 Nom.)	74	15	M10x1.25	1/4-28 UNF	22.5	17.5

※ Consult TPC concerning the stroke range except for standard type.

Standard Type

(Unit : mm)

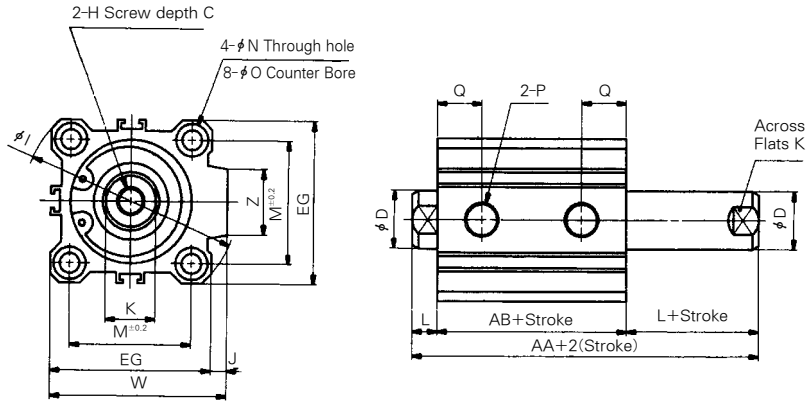
Bore size mm	Stroke range mm	AA	AB	C	D	EG	H		K	L	M	N	ϕO	Q	R	S	□T
							Rc(PT)	NPT									
$\phi 20$ ($\frac{3}{4}$ Nom.)	5~50	35	26	7	10	47	M5x0.8	#10-32 UNF	8	4.5	36	5.5	9Depth7	9.5	48	24.5	36
$\phi 25$ (1 Nom.)	5~50	39	29	12	12	52	M6x1.0	1/4-28 UNF	10	5	40	5.5	9Depth7	11	53.5	27.5	40

Series AQW

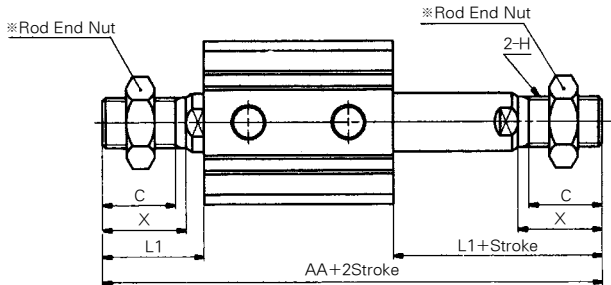
Double Acting/Double Rod Type : Dimensions

Bore Size : $\phi 32 \sim \phi 100$ ($1\frac{1}{4}$ Nom. \sim 4 Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



Rod End Male Thread



Rod End Male Thread (mm)

Bore Size mm(inch)	AA	C	H		L1	X
			Rc(PT)	NPT		
$\phi 32$ (1 $\frac{1}{4}$ Nom)	97.5	20.5	M14 \times 1.5	5/16-24 UNF	28.5	23.5
$\phi 40$ (1 $\frac{1}{2}$ Nom)	107	20.5	M14 \times 1.5	3/8-24 UNF	28.5	23.5
$\phi 50$ (2Nom)	117.5	26	M8 \times 1.5	1/2-20 UNF	33.5	28.5
$\phi 63$ (2 $\frac{1}{2}$ Nom)	119	26	M8 \times 1.5	1/2-20 UNF	33.5	28.5
$\phi 80$ (3 $\frac{1}{4}$ Nom)	148	32.5	M22 \times 1.5	5/8-18 UNF	43.5	35.5
$\phi 100$ (4Nom)	157.5	32.5	M26 \times 1.5	3/4-16 UNF	43.5	35.5

※ Consult TPC concerning the stroke range except for standard type.

Standard Type

(Unit : mm)

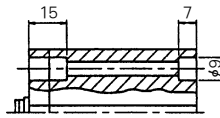
Bore size mm(inch)	Stroke range mm	AA	AB	C	D	EG	H		I	J	K	L	M	N	ϕO	P		Q	W	Z
							Rc(PT)	NPT								Rc(PT)	NPT			
$\phi 32$ (1 $\frac{1}{4}$ Nom)	5~75	44.5	30.5	13	16	45	M8 \times 1.25	5/16-24 UNF	60	4.5	14	7	34	5.5	9Depth7	1/8	10-32 UNF 1/8"	12.5	49.5	18
$\phi 40$ (1 $\frac{1}{2}$ Nom)	5~75	54	40	13	16	52	M8 \times 1.25	3/8-24 UNF	69	5	14	7	40	5.5	9Depth7	1/8	1/8"	14	57	18
$\phi 50$ (2Nom)	10~75	56.5	40.5	15	20	64	M10 \times 1.5	1/2-20 UNF	86	7	17	8	50	6.6	11Depth8	1/4	1/4"	14	71	22
$\phi 63$ (2 $\frac{1}{2}$ Nom)	10~75	58	42	15	20	77	M10 \times 1.5	1/2-20 UNF	103	7	17	8	60	9	14Depth10.5	1/4	1/4"	15.5	84	22
$\phi 80$ (3 $\frac{1}{4}$ Nom)	10~75	71	51	21	25	98	M16 \times 2.0	5/8-18 UNF	132	6	22	10	77	11	17Depth13.5	3/8	3/8"	18	104	26
$\phi 100$ (4Nom)	10~75	84.5	60.5	27	30	117	M20 \times 2.5	3/4-16 UNF	156	6.5	27	12	94	11	17Depth13.5	3/8	3/8"	23	123.5	26

※ The Cylinder with Rubber cushion has the same outer dimensions as standard type.

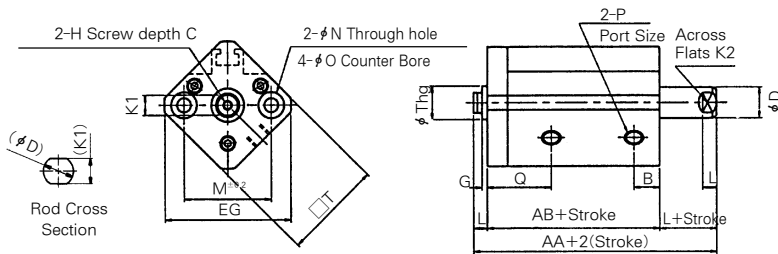
Double Acting/Non-Rotating Piston Rod/Double Rod Type : Dimensions

Bore Size : $\phi 20$ (3/4 Nom.) ~ $\phi 25$ (1 Nom.)

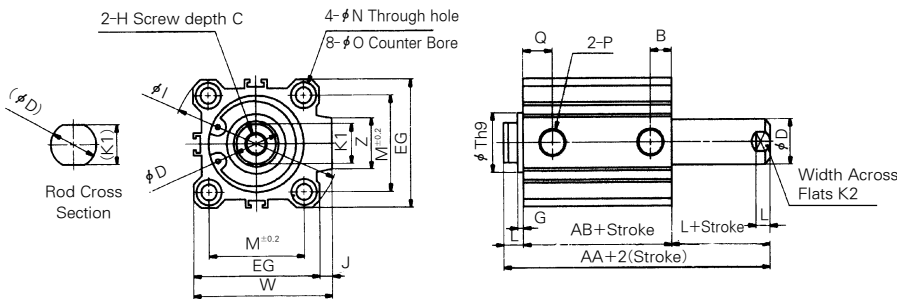
Through Hole



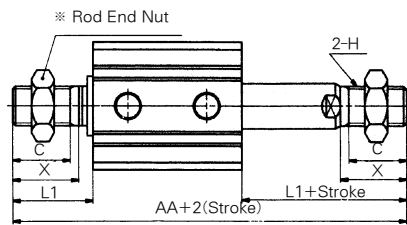
For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



Bore Size : $\phi 32$ (1 1/4 Nom.)



Rod End Male Thread



Rod End Male Thread (mm)

Bore Size mm (inch)	AA	C	H	
			Rc(PT)	NPT
$\phi 20$ (3/4 Nom.)	71	12	M8 x 1.25	#10-32 UNF
$\phi 25$ (1 Nom.)	82	15	M10 x 1.25	1/4-28 UNF
$\phi 32$ (1 1/4 Nom.)	96.5	20.5	M14 x 1.5	5/16-24 UNF

Bore Size mm (inch)	L1	X
$\phi 20$ (3/4 Nom.)	18.5	14
$\phi 25$ (1 Nom.)	22.5	17.5
$\phi 32$ (1 1/4 Nom.)	28.5	23.5

※ Consult TPC concerning the stroke range except for standard type.

Standard Type

(Unit : mm)

Bore size mm (inch)	Stroke range mm	AA	AB	C	D	EG	B	G	H		I	J	K1	K2	L	M	N	P		Q	R	S	Th9	W	Z	□
									Rc(PT)	NPT								Rc(PT)	NPT							
									$\phi 20$ (3/4 Nom.)	5~50								43	34							
$\phi 25$ (1 Nom.)	5~50	47	37	12	12	52	11	2	M6 x 1.0	1/4-28 UNF	-	-	10	5	40	5.5	M5 x 0.8	10-32 UNF	19	53.5	27.5	15 _{0,043}	-	-	40	
$\phi 32$ (1 1/4 Nom.)	5 10~75	53.5	39.5	13	16	45	12.5	2	M8 x 1.25	5/16-24 UNF	60	4.5	14	7	34	5.5	M5 x 0.8 Rc(PT) 1/8	10-32 UNF NPT 1/8"	21.5	-	-	21 _{0,052}	49.5	18	-	

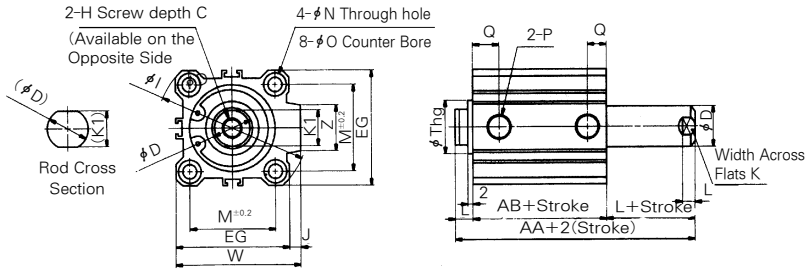
- ACP
- UACP
- APM
- AX
- AS
- AM2
- AM
- AL ALX
- ARD
- AQ
- AQ2
- AJ
- AG
- AGX GX
- NDM
- ADR
- AMR
- NST
- AST
- NLCD
- NLCS
- NF
- NR
- ASL

Series AQKW

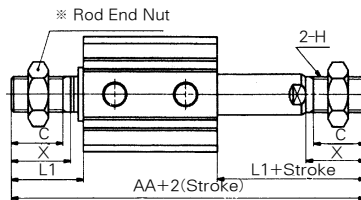
Double Acting/Non-Rotating Rod/Double Rod Type : Dimensions

Bore Size : $\phi 40 \sim \phi 63$ (1½ Nom. ~ 2½ Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



Rod End Male Thread



Rod End Male Thread (mm)

Bore Size mm (inch)	AA	C	H		L1	X
			Rc(PT)	NPT		
$\phi 40$ (1½ Nom)	97	20.5	M14×1.5	3/8-24 UNF	28.5	23.5
$\phi 50$ (2Nom)	107.5	26	M18×1.5	1/2-20 UNF	33.5	28.5
$\phi 63$ (2½ Nom)	109	26	M18×1.5	1/2-20 UNF	33.5	28.5

※ Consult TPC concerning the stroke range except for standard type.

Standard Type

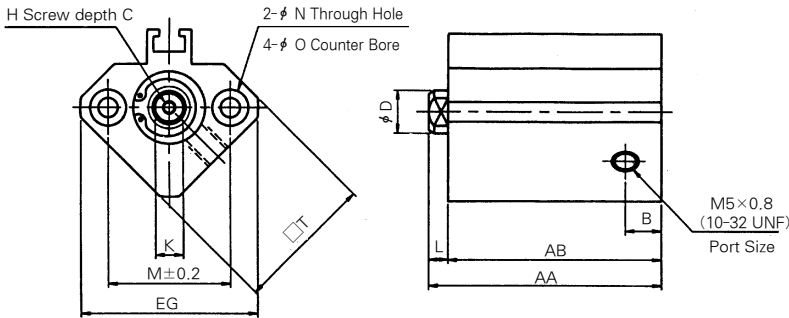
(Unit : mm)

Bore size mm (inch)	Stroke range mm	AA	AB	C	D	EG	H		I	J	K1	K2	L	M	N	ϕ O	P		Q	Thg	W	Z
							Rc(PT)	NPT									Rc(PT)	NPT				
$\phi 40$ (1½ Nom)	5~75	54	40	13	16	52	M8×1.25	3/8-24 UNF	69	5	14	14	7	40	5.5	9Depth7	1/8	1/8"	14	28 ⁰ _{-0.052}	57	18
$\phi 50$ (2Nom)	10~75	56.5	40.5	15	20	64	M10×1.5	1/2-20 UNF	86	7	18	17	8	50	6.6	11Depth8	1/4	1/4"	14	35 ⁰ _{-0.062}	71	22
$\phi 63$ (2½ Nom)	10~75	58	42	15	20	77	M10×1.5	1/2-20 UNF	103	7	18	17	8	50	9	14Depth10.5	1/4	1/4"	15.5	35 ⁰ _{-0.062}	84	22

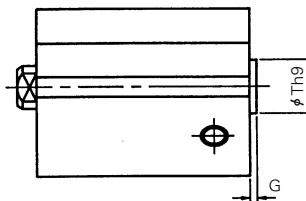
Single Acting/Spring Return Type : Dimensions

Bore Size : $\phi 20$ ($\frac{3}{4}$ Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



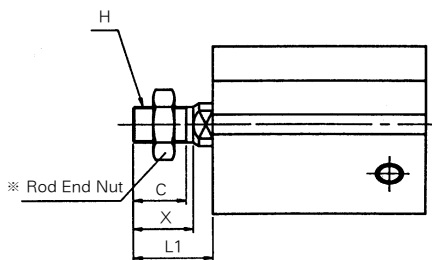
Rear Boss Mount



Rear Boss Mount (mm)

Bore Size mm (inch)	G	Th9
$\phi 20$ ($\frac{3}{4}$ Nom.)	2	13 ⁰ _{-0.043}

Rod End Male Thread



Rod End Male Thread (mm)

Bore size mm (inch)	C	X	H		L1
			Rc(PT)	NPT	
$\phi 20$ ($\frac{3}{4}$ Nom.)	12	14	M8×1.25	#10-32 UNF	18.5

※ Consult TPC concerning the stroke range except for standard type.

Standard Type

(Unit : mm)

Bore size mm (inch)	AA		AB		C	D	EG	B	H		K	L	M	N	φ O	□T
	5st	10st	5st	10st					Rc(PT)	NPT						
$\phi 20$ ($\frac{3}{4}$ Nom.)	29	34	24.5	29.5	7	10	47	5.5	M5×0.8	#10-32 UNF	8	4.5	26	5.5	9Depth7	36

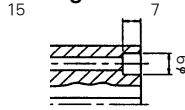
- ACP
- UACP
- APM
- AX
- AS
- AM2
- AM
- AL ALX
- ARD
- AQ
- AQ2
- AJ
- AG
- AGX GX
- NDM
- ADR
- AMR
- NST
- AST
- NLCD
- NLCS
- NF
- NR
- ASL

Series AQ-S

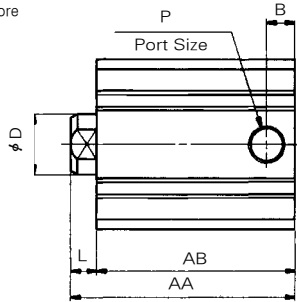
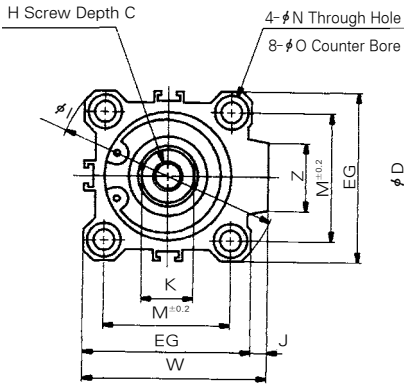
Single Acting/Single Rod/Spring Return Type : Dimensions

Bore Size : $\phi 32$ (1-1/4Nom.) ~ $\phi 50$ (2Nom.)

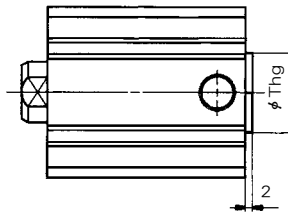
Through Hole



For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



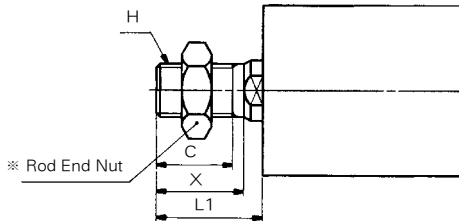
Rear Boss Mount



Rear Boss Mount (mm)

Bore Size mm(inch)	Thg
$\phi 32$ (1 1/4 Nom)	21 ⁰ _{-0.052}
$\phi 40$ (1 1/2 Nom)	28 ⁰ _{-0.052}
$\phi 50$ (2 Nom)	35 ⁰ _{-0.062}

Rod End Male Thread



Rod End Male Thread (mm)

Bore Size mm(inch)	C	X	H		L1
			Rc(PT)	NPT	
$\phi 32$ (1 1/4 Nom)	20.5	23.5	M14×1.5	5/16-24 UNF	28.5
$\phi 40$ (1 1/2 Nom)	20.5	23.5	M14×1.5	3/8-24 UNF	28.5
$\phi 50$ (2 Nom)	26	28.5	M18×1.5	1/2-20 UNF	33.5

* Consult TPC concerning the stroke range except for standard type.

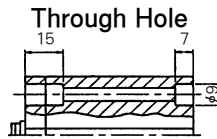
Standard Type

(Unit : mm)

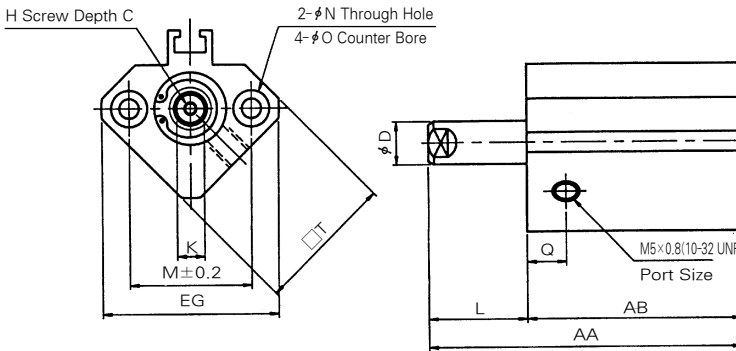
Bore Size mm(inch)	AA		AB		C	D	EG	B		H		I	J	K	L	M	N	phi O	P				W	Z	
	5st	10st	5st	10st				5st	10st	Rc(PT)	NPT								Rc(PT)		NPT				
																			5st	10st	5st	10st			
$\phi 32$ (1 1/4 Nom)	35	40	28	33	13	16	45	5.5	7.5	M8×1.25	5/16-24 UNF	60	4.5	14	7	34	5.5	9Depth7	M5×0.8	Rc(PT) 1/8	10-32 UNF	NPT 1/8"	49.5	18	
$\phi 40$ (1 1/2 Nom)	41.5	46.5	34.5	39.5	13	16	52	8	8	M8×1.25	3/8-24 UNF	69	5	14	7	40	5.5	9Depth7	Rc(PT) 1/8"		NPT 1/8"		57	18	
$\phi 50$ (2 Nom)	-	48.5	-	40.5	15	20	64	-	10.5	M10×1.5	1/2-20 UNF	86	7	17	8	50	6.6	11Depth8	-	Rc(PT) 1/4"	-	NPT 1/4"		71	22

Single Acting/Single Rod/Spring Extended Type : Dimensions

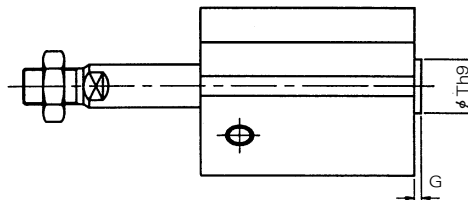
Bore Size : $\phi 20$ ($3/4$ Nom.)



For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



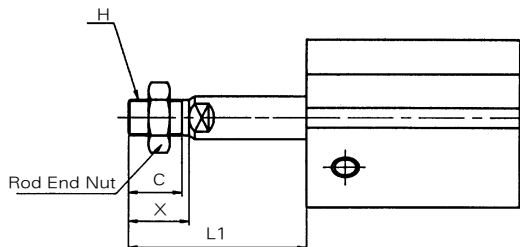
Rear Boss Mount



Rear Boss Mount (mm)

Bore Size mm (inch)	G	Th9
$\phi 20$ ($3/4$ Nom)	2	$13_{-0.043}^0$

Rod End Male Thread



Rod End Male Thread (mm)

Bore Size mm (inch)	C	X	H		L1	
			Rc(PT)	NPT	5st	10st
$\phi 20$ ($3/4$ Nom)	12	14	M8×1.25	#10-32 UNF	23.5	28.5

※ Consult TPC concerning the stroke range except for standard type.

Standard Type

(Unit : mm)

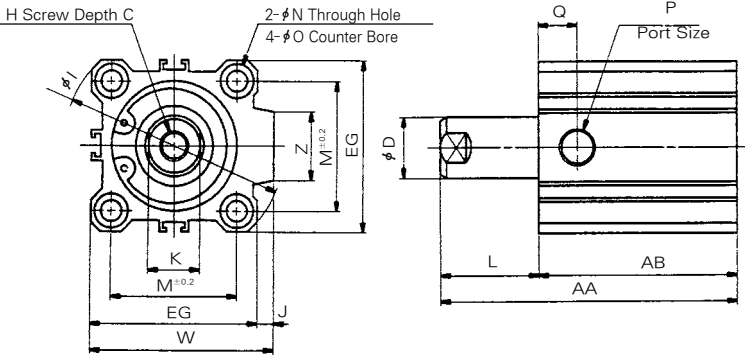
Bore Size mm (inch)	AA		AB		C	D	EG	H		K	L		M	N	φO	Q	□T
	5st	10st	5st	10st				Rc(PT)	NPT		5st	10st					
$\phi 20$ ($3/4$ Nom)	34	44	24.5	29.5	7	10	47	M5×0.8	#10-32 UNF	8	9.5	14.5	36	5.5	9 Depth 7	10.5	36

Series AQ-T

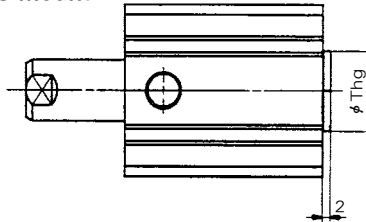
Single Acting/Single Rod/Spring Extended Type : Dimensions

Bore Size : $\phi 32(1\frac{1}{4}\text{Nom}) \sim \phi 50(2\text{Nom})$

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



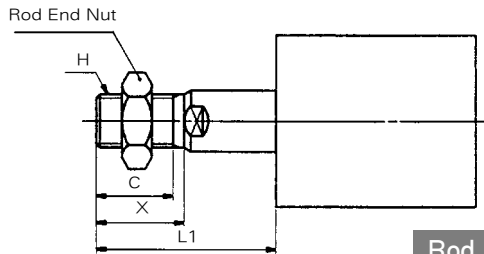
Rear Boss Mount



Rear Boss Mount (mm)

Bore Size mm(inch)	Th9
$\phi 32(1\frac{1}{4}\text{Nom})$	21 ⁰ _{-0.052}
$\phi 40(1\frac{1}{2}\text{Nom})$	28 ⁰ _{-0.052}
$\phi 50(2\text{Nom})$	35 ⁰ _{-0.062}

Rod End Male Thread



Rod End Male Thread (mm)

Bore Size mm(inch)	C	X	H		L1	
			Rc(PT)	NPT	5st	20st
$\phi 32(1\frac{1}{4}\text{Nom})$	20.5	23.5	M14×1.5	5/16-24 UNF	33.5	38.5
$\phi 40(1\frac{1}{2}\text{Nom})$	20.5	23.5	M14×1.5	3/8-24 UNF	33.5	38.5
$\phi 50(2\text{Nom})$	26	28.5	M18×1.5	1/2-20 UNF	-	43.5

※ Consult TPC concerning the stroke range except for standard type.

Standard Type

(Unit : mm)

Bore Size mm(inch)	AA		AB		C	D	EG	H		I	J	K	L		M	N	ϕO	P				Q		W	Z
	5st	10st	5st	10st				Rc(PT)	NPT				5st	10st				Rc(PT)		NPT		5st	10st		
																		5st	10st	5st	10st				
$\phi 32(1\frac{1}{4}\text{Nom})$	40	60	38	33	13	16	45	M8×1.25	5/16-24 UNF	60	4.5	14	12	17	34	5.5	9 Depth 7	M5×0.8	Rc(PT) 1/8	10-32UNF	NPT 1/8	11.5	10.5	49.5	18
$\phi 40(1\frac{1}{2}\text{Nom})$	46.5	56.5	34.5	39.5	13	16	52	M8×1.25	3/8-24 UNF	69	5	14	12	17	40	5.5	9 Depth 7	Rc(PT) 1/8	NPT 1/8			11	11	57	18
$\phi 50(2\text{Nom})$	-	58.5	-	40.5	15	20	64	M10×1.5	1/2-20 UNF	86	7	17	-	18	50	6.6	11 Depth 8	-	Rc(PT) 1/4	-	NPT 1/4	-	10.5	71	22

Series ADQ

With Auto Switch/Double Acting, Single Rod Type

Bore Size mm(inch) : $\phi 12(1/2\text{Nom.})$, $\phi 16(5/8\text{Nom.})$, $\phi 20(3/4\text{Nom.})$, $\phi 25(1\text{Nom.})$, $\phi 32(1 1/4\text{Nom.})$,
 $\phi 40(1 1/2\text{Nom.})$, $\phi 50(2\text{Nom.})$, $\phi 63(2 1/2\text{Nom.})$, $\phi 80(3 1/4\text{Nom.})$, $\phi 100(4\text{Nom.})$



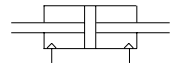
- SPACE SAVING DESIGN
- LIGHT WEIGHT
- 10 BORE SIZES
- AUTO SWITCH CAPABLE
- CYLINDERS FOR SPECIAL APPLICATIONS
- MANUFACTURING CERTIFIED TO ISO 9001 STANDARDS

Symbol

Double Acting /
Single Rod Type



Double Acting /
Double Rod Type



How to Order

For details, please refer to Page.A-194

Model/Standard Stroke

Bore Size mm(inch)	Double acting				Single acting		Applicable Auto Switch
	Single Rod Type	Double Rod Type	Non-Rotating Rod Type	Rear Boss Mount Type	Spring Return Type	Spring Extended Type	
	Standard Stroke(mm)				Standard Stroke(mm)		Reed Switch
$\phi 12(1/2\text{Nom.})$	5, 10, 15	-	-	5, 10, 15	-	-	Grommet Type W4
$\phi 16(5/8\text{Nom.})$	20, 25, 30	-	-	20, 25, 30	-	-	
$\phi 20(3/4\text{Nom.})$	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75	5, 10	5, 10	
$\phi 25(1\text{Nom.})$	-	-	-	-	-	-	
$\phi 32(1 1/4\text{Nom.})$	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100, 125, 150	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100, 125, 150	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100, 125, 150	5, 10	5, 10	
$\phi 50(2\text{Nom.})$	-	-	-	-	10	10	
$\phi 63(2 1/2\text{Nom.})$	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100, 125, 150	10, 15, 20, 25, 25, 30, 35, 40, 45, 50, 75, 100	10, 15, 20, 25, 25, 30, 35, 40, 45, 50, 75, 100	10, 15, 20, 25, 25, 30, 35, 40, 45, 50, 75, 100, 125, 150	-	-	
$\phi 80(3 1/4\text{Nom.})$	-	-	-	-	-	-	
$\phi 100(4\text{Nom.})$	-	-	-	-	-	-	

Intermediate Stroke

A Spacer of 5, 10, 15 and 20mm is used for intermediate stroke between 55 and 100mm stroke(55, 60, 65...).
 (Example) AQB50-55D is produced by installing 20mm spacer in AQB50-75.

Standard/Specifications

Fluid	Air
Max. Operating Pressure	0.99MPa(140psi)
Ambient and Fluid Temperature	15~140 ° F (-10~60°C)
Lubrication	Not Required
Cushion	None
Rod End Thread	Female (Standard Type)
Stroke Tolerance	$+1.0_{-0}^{\circ}$ mm (0.039 inch)
Mounting	Through Hole (Standard)
Piston Speed	50~500mm/sec (2~20inch/sec)

Body Optional

Name	Applicable Type
Cushion	Rubber Cushion
Rod End Male Thread	Option
Boss Mount	Rear Boss Mount Type (Optional)
Non-Rotating Rod Type	Double Acting/Single Rod Type Only

Non - Rotating Rod Accuracy (Non - Rotating Piston Rod Type)

Bore Size mm(inch)	φ20(3/4Nom.)	φ32(1 1/4Nom.)	φ40(1 1/2Nom.)	φ50(2Nom.)	φ63(2 1/2Nom.)
Non-Rotating Rod Accuracy	±1°		±0.8°		

Min. Auto Switch Mountable Stroke

No. of Auto Switch	Min. Auto Switch Mountable Stroke(inch)
With 1pc	5mm (0.20)
With 2pcs	10mm (0.39)

Auto Switch Specification

Reed Switch Type

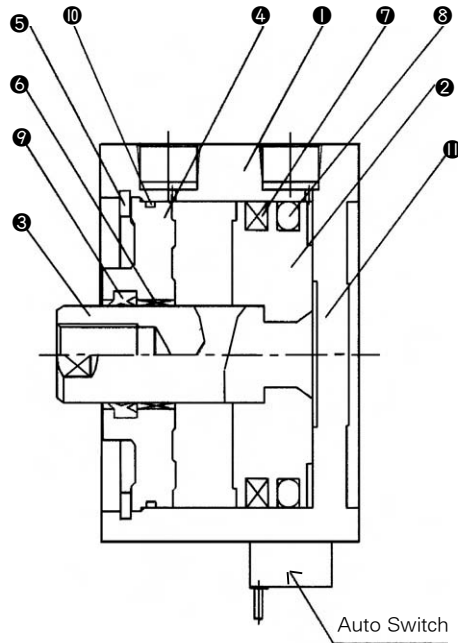
Auto Switch Model	W4	
Application	Relay, Sequence Control	
Load Voltage	120VAC, 24VDC	
Range of Load Current	5~40 mA	5~20 mA
Protection Circuit for Contact Braker Point	Non	
Internal Voltage Drop	2.4V or Less	
Indicator Lamp	ON : Red Light Emitting Diode	

- Leak Current - Non
- Response Time - 1.2ms
- Lead Wire - Oil Proof vinyl, φ3.4, 0.2mm 2wire(red, black), 18in ※
- Impact Resistance - 30G
- Insulation Resistance - 50MΩ or more under the test voltage 500VDC(between case and cable)
- Dielectric Resistance - 1500VAC 1min(between case and cable)
- Ambient Temperature -5~60°C(22~140 °F)
- Protection Structure - IEC spec IP67, Water-proof, Oil-proof.

※ If 3m lead wire is required, L is put at the end of model numbers.

(Example) W4L

Construction/Parts List



Parts List

No.	Description	Material	Note
①	Cylinder Tube	Aluminum Alloy	Hard Alumite
②	Piston	Aluminum Alloy	Chromate
③	Piston Rod	Stainless Steel	φ 12~ φ 25
		Carbon Steel	φ 32~ φ 100
④	Collar	Aluminum Bearing Alloy	φ 12~ φ 40
		Aluminum Alloy Casting	φ 50~ φ 100
⑤	Retaining Ring	Carbon Steel	Black Zinc Chromate
⑥	Bushing	Lead Bronze Casting	Only Above Bore:50(2Nom.)
⑦	Rubber Magnet	-	-

Seals List

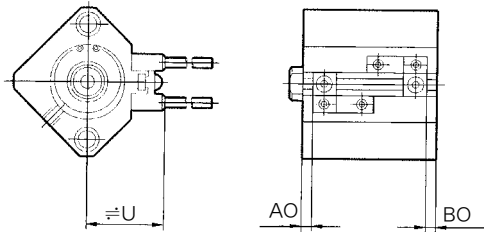
No.	Description	Material	Parts No.									
			12(1/2Nom.)	16(5/8Nom.)	20(3/4Nom.)	25(1Nom.)	32(1 1/4Nom.)	40(1 1/2Nom.)	50(2Nom.)	63(2 1/2Nom.)	80(3 1/4Nom.)	100(4Nom.)
⑧	Piston Packing	NBR	PSD-12	PSD-16A	PSD-20A	PSD-25A	PSD-32A	PPD-40A	PPD-50A	PPD-63A	PPD-80A	PPD-100A
⑨	Rod Packing	NBR	DYR-6K	DYR-8K	DYR-10SK	DYR-12	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z
⑩	Gasket	NBR	C-10	C-14	C-18	C-22	C-29	C-36	C-46	C-60	C-75	C-95

Series ADQ

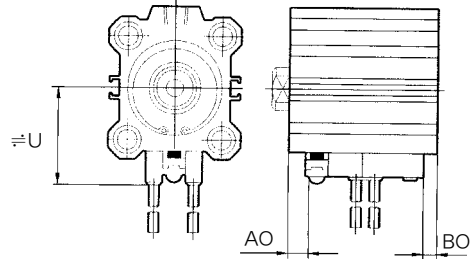
Auto Switch Mounting Data

W4

Bore size: $\phi 12 \sim \phi 25(1/2 \sim 1\text{Nom.})$



Bore Size: $\phi 32 \sim \phi 100(1/4 \sim 4\text{Nom.})$



Auto Switch Mounting Position

Bore size mm(inch)	AO (mm)	BO (mm)	U (mm)
$\phi 12(1/2\text{Nom.})$	5	6	19.5
$\phi 16(5/8\text{Nom.})$	8	5.5	22.5
$\phi 20(3/4\text{Nom.})$	8	7	24.5
$\phi 25(1\text{Nom.})$	8	7.5	27.5
$\phi 32(1/4\text{Nom.})$	9.5	6.5	31.5
$\phi 40(1/2\text{Nom.})$	13.5	9	35
$\phi 50(2\text{Nom.})$	11.5	12	41
$\phi 63(2/2\text{Nom.})$	14	15	47.5
$\phi 80(3/4\text{Nom.})$	18	18.5	57.5
$\phi 100(4\text{Nom.})$	21.5	24.5	67.5

Weight/Double Acting, Single Rod

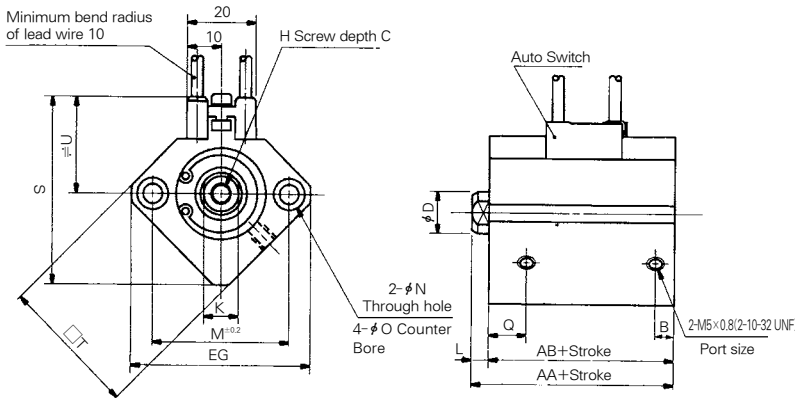
(g)

Bore Size	Stroke (mm)												Additional Weight for Male Thread
	5	10	15	20	25	30	35	40	45	50	75	100	
$\phi 12(1/2\text{Nom.})$	50	57	64	71	75	85	-	-	-	-	-	-	2
$\phi 16(5/8\text{Nom.})$	70	82	94	105	116	127	-	-	-	-	-	-	3
$\phi 20(3/4\text{Nom.})$	104	123	143	163	184	204	224	245	265	286	-	-	7
$\phi 25(1\text{Nom.})$	129	150	179	192	214	235	256	278	298	320	-	-	17
$\phi 32(1/4\text{Nom.})$	259	271	283	295	318	340	363	386	409	436	552	666	40
$\phi 40(1/2\text{Nom.})$	341	365	389	412	432	452	474	496	518	544	653	763	40
$\phi 50(2\text{Nom.})$	-	497	532	566	607	647	682	716	751	806	988	1132	80
$\phi 63(2/2\text{Nom.})$	-	727	767	806	850	894	934	973	1013	1081	1287	1494	80
$\phi 80(3/4\text{Nom.})$	-	1603	1697	1791	1885	1979	2074	2168	2263	2395	2860	3326	160
$\phi 100(4\text{Nom.})$	-	2518	2577	2635	2744	2852	2956	3059	3163	3313	3831	4348	270

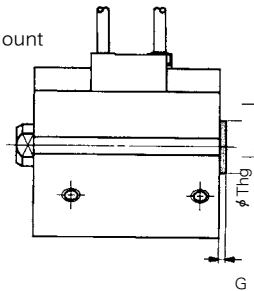
With Auto Switch : Double Acting/Single Rod Type : Dimensions

Bore Size: $\phi 12 \sim \phi 25$ (1/2 Nom. ~ 1 Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



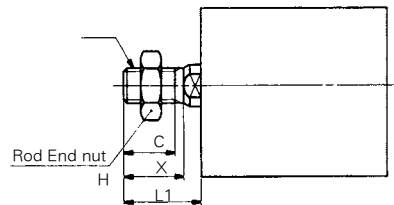
Rear Boss Mount



Rear Boss Mount (unit:mm)

Bore size mm(inch)	G	Thg
$\phi 12$ (1/2 Nom.)	1.5	15 ⁰ _{-0.043}
$\phi 16$ (5/8 Nom.)	1.5	20 ⁰ _{-0.052}
$\phi 20$ (3/4 Nom.)	2	13 ⁰ _{-0.043}
$\phi 25$ (1 Nom.)	2	15 ⁰ _{-0.043}

Rod End Male Thread



Rod End Male Thread (unit:mm)

Bore size mm(inch)	C	X	H		L1
			Rc(PT)	NPT	
$\phi 12$ (1/2 Nom.)	9	10.5	M5×0.8	#8-32UNC	14
$\phi 16$ (5/8 Nom.)	10	12	M6×1.0	#8-32UNC	15.5
$\phi 20$ (3/4 Nom.)	12	14	M8×1.25	#10-32UNF	18.5
$\phi 25$ (1 Nom.)	15	17.5	M10×1.25	1/4-28UNF	22.5

※ $\phi 20$ (75, 100 stroke) : L1=28.2mm
 ※ $\phi 25$ (75, 100 stroke) : L1=32mm

※ Consult TPC concerning the stroke range except for standard type.

Standard Type

(unit:mm)

Bore size mm(inch)	Stroke range (mm)	AA	AB	C	D	EG	B	H		K	L	M	N	ϕO	Q	S	U	$\square T$
								Rc(PT)	NPT									
$\phi 12$ (1/2 Nom.)	5~30	31.5	28	6	6	32	6.5	M3×0.5	#8-32UNC	5	3.5	22	3.5	6.5 Depth 3.5	11	35.5	19.5	25
$\phi 16$ (5/8 Nom.)	5~30	34	30.5	8	8	38	5.5	M4×0.7	#8-32UNC	6	3.5	28	3.5	6.5 Depth 3.5	10	41.5	22.5	29
$\phi 20$ (3/4 Nom.)	5~50	36	31.5	7			5.5	M5×0.8	#10-32UNF	8	4.5	36	6.5	9 Depth 7	10.5	48	24.5	36
	75, 100	55.5	41	12	10	47	10.5											
$\phi 25$ (1 Nom.)	5~50	37.5	32.5	12			5.5	M6×1.0	1/4-28UNF	10	5	40	5.5	9 Depth 7	11	53.5	27.5	40
	75, 100	58.5	44	16	12	52	11											

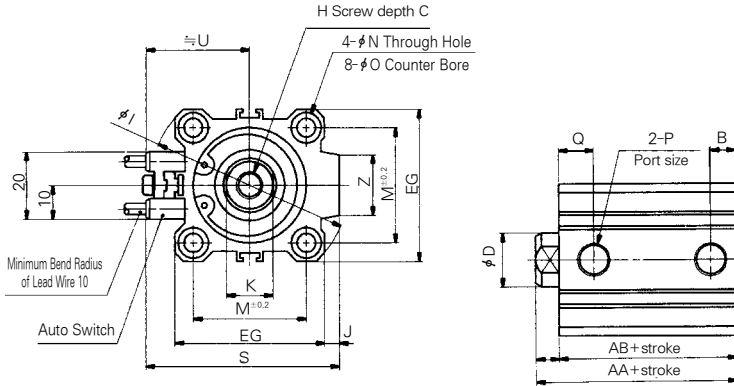
※ The cylinder with Rubber Cushion has the same outer dimensions as standard type.

Series ADQ

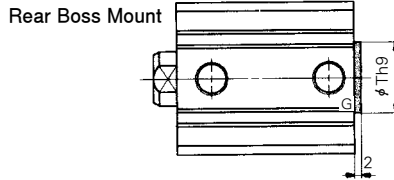
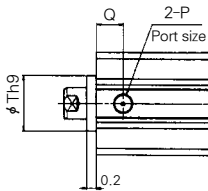
With Auto Switch : Double Acting/Single Rod Type : Dimensions

Bore Size : $\phi 32 \sim \phi 100$ (1 1/4 Nom. ~ 4 Nom.)

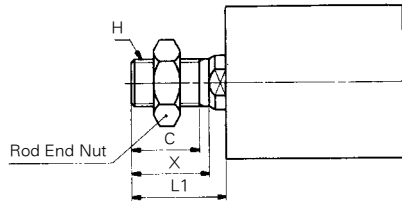
For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



Long Stroke (125st or more) (mm)



Rod End Male Thread



Rear Boss Mount (Unit : mm)

Bore size mm (inch)	Th9
$\phi 32$ (1 1/4 Nom.)	21 $^{0}_{-0.052}$
$\phi 40$ (1 1/2 Nom.)	28 $^{0}_{-0.052}$
$\phi 50$ (2 Nom.)	35 $^{0}_{-0.062}$
$\phi 63$ (2 1/2 Nom.)	35 $^{0}_{-0.062}$
$\phi 80$ (3 1/4 Nom.)	43 $^{0}_{-0.062}$
$\phi 100$ (4 Nom.)	59 $^{0}_{-0.074}$

Bore size (inch)	T
32 (1 1/4 Nom.)	22 $^{0}_{-0.052}$
40 (1 1/2 Nom.)	28 $^{0}_{-0.052}$
50 (2 Nom.) + 63 (2 1/2 Nom.)	35 $^{0}_{-0.062}$
80 (3 1/4 Nom.)	43 $^{0}_{-0.062}$
100 (4 Nom.)	59 $^{0}_{-0.074}$

Rod End Male Thread (Unit : mm)

Bore size mm (inch)	C	X	H		L1
			Rc (PT)	NPT	
$\phi 32$ (1 1/4 Nom.)	20.5	23.5	M14×1.5	5/16-24UNF	28.5
$\phi 40$ (1 1/2 Nom.)	20.5	23.5	M14×1.5	3/8-24UNF	28.5
$\phi 50$ (2 Nom.)	26	28.5	M18×1.5	1/2-20UNF	33.5
$\phi 63$ (2 1/2 Nom.)	26	28.5	M18×1.5	1/2-20UNF	33.5
$\phi 80$ (3 1/4 Nom.)	32.5	35.5	M22×1.5	5/8-18UNF	43.5
$\phi 100$ (4 Nom.)	32.5	35.5	M26×1.5	3/4-16UNF	43.5

※ Consult TPC concerning the stroke range except for standard type.

Standard

(Unit : mm)

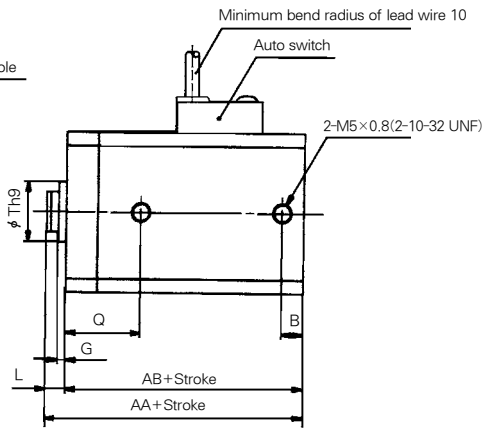
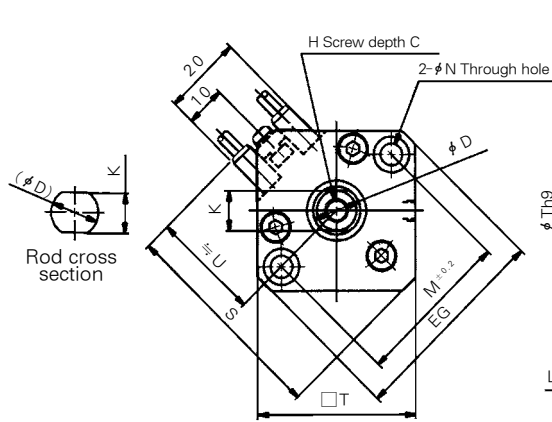
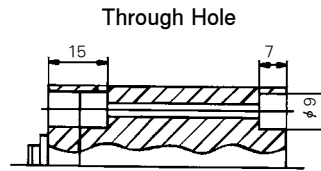
Bore size mm (inch)	Stroke range (mm)	AA	AB	C	D	EG	B	H		I	J	K	L	M	N	φO	P		Q	S	U	Z
								Rc (PT)	NPT								Rc (PT)	NPT				
$\phi 32$ (1 1/4 Nom.)	5~50	40	33	13	16	45	7.5	M8×1.25	5/16-24UNF	60	4.5	14	7	34	5.5	9 Depth 7	1/8	1/8"	10.5	58.5	31.5	18
	75, 100	12.5	17				12.5															
	125, 150	62.5	45.5				14															
$\phi 40$ (1 1/2 Nom.)	5~50	46.5	39.5	13	16	52	8	M8×1.25	3/8-24UNF	69	5	14	7	40	5.5	9 Depth 7	1/8	1/8"	11	66	35	18
	75, 100	14	17				14															
	125, 150	72	55				18															
$\phi 50$ (2 Nom.)	10~50	48.5	40.5	15	20	64	10.5	M10×1.25	1/2-20UNF	86	7	17	8	50	6.6	11 Depth 8	1/4	1/4"	10.5	80	41	22
	75, 100	14	18				14															
	125, 150	73.5	55.5				18															
$\phi 63$ (2 1/2 Nom.)	10~50	54	46	15	20	77	10.5	M10×1.25	1/2-20UNF	103	7	17	8	60	9	14 Depth 10.5	1/4	1/4"	15	93	47.5	22
	75, 100	16.5	18				16.5															
	125, 150	75	57				18															
$\phi 80$ (3 1/4 Nom.)	10~50	63.5	53.5	21	25	98	12.5	M16×2.0	5/8-18UNF	132	6	22	10	77	11	17.5 Depth 13.5	3/8	3/8"	16	112.5	57.5	26
	75, 100	19	20				19															
	125, 150	86	66				20															
$\phi 100$ (4 Nom.)	10~50	75	63	27	30	117	12	M20×2.5	3/4-16UNF	156	6.5	27	12	94	11	17.5 Depth 13.5	3/8	3/8"	23	132.5	67.5	26
	75, 100	23	22				23															
	125, 150	97.5	75.5				22															

※ The cylinder with Rubber Cushion has the same outer dimensions as standard type.

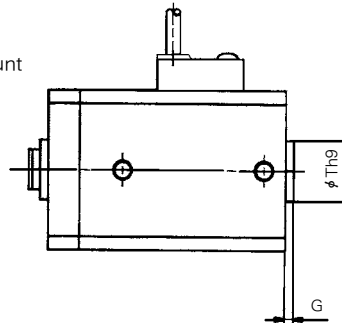
With Auto Switch: Double Acting/Non-Rotating Rod/Single Rod Type: Dimensions

Bore Size : $\phi 20$, $\phi 25$ (3/4 Nom., 1 Nom.)

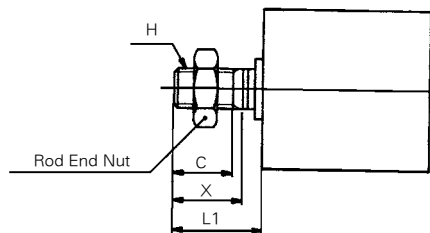
For the detail of "A" type (Both End Tapped) Please refer to Page A-230.



Rear Boss Mount



Rod End Male Thread



Rod End Male Thread

(Unit : mm)

Bore size mm (inch)	C	H		L1	X
		Rc(PT)	NPT		
$\phi 20$ (3/4Nom.)	12	M8x1.25	#10-32 UNF	18.5	14
$\phi 25$ (1Nom.)	15	M10x1.25	1/4-28 UNF	22.5	17.5

※ Consult TPC concerning the stroke range except for standard type.

Standard

(Unit : mm)

Bore size mm (inch)	Stroke range (mm)	AA	AB	C	D	EG	B	G	H		K	L	M	N	Q	S	Thg	U	□T
									Rc(PT)	NPT									
$\phi 20$ (3/4Nom.)	5~50	44	39.5	7	10	47	5.5	2	M5x0.8	#10-32 UNF	8	4.5	36	5.5	18.5	48	13 ⁰ _{-0.043}	24.5	36
$\phi 25$ (1Nom.)	5~50	45.5	40.5	12	12	52	5.5	2	M6x1.0	1/4-28 UNF	10	5	40	5.5	19	53.5	15 ⁰ _{-0.043}	27.5	40

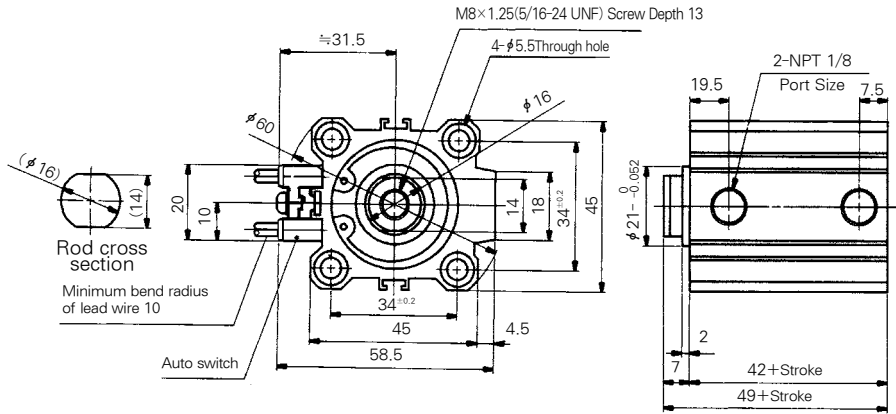
- ACP
- UACP
- APM
- AX
- AS
- AM2
- AM
- AL ALX
- ARD
- AQ**
- AQ2
- AJ
- AG
- AGX GX
- NDM
- ADR
- AMR
- NST
- AST
- NLCD
- NLCS
- NF
- NR
- ASL

Series ADQK

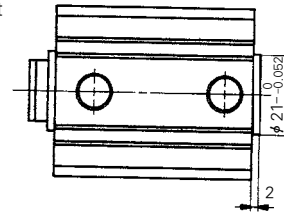
With Auto Switch: Double Acting/Non-Rotating Rod/Single Rod Type: Dimensions

Bore Size : $\phi 32$ (1 1/4 Nom.)

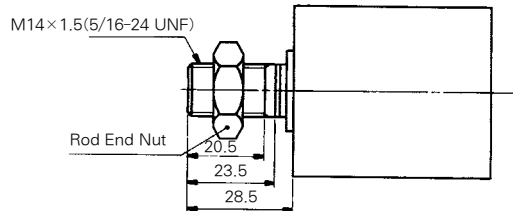
For the detail of "A" type (Both End Tapped) Please refer to Page A-230.



Rear Boss Mount



Rod End Male Thread

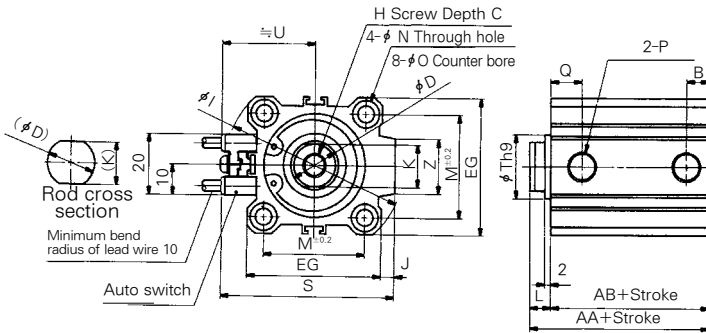


※ Consult TPC concerning the stroke range except for standard type. (Standard stroke : 5~75st)

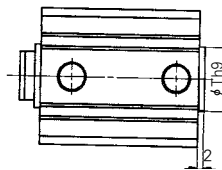
With Auto Switch: Double Acting/Non-Rotating Rod/Single Rod Type: Dimensions

Bore Size : $\phi 40 \sim \phi 63$ (1 1/2 Nom. ~ 2 1/2 Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



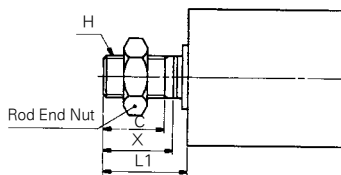
Rear Boss Mount



Rear Boss Mount (mm)

Bore size mm(inch)	Th9
$\phi 40$ (1 1/2 Nom.)	28 ⁰ / _{-0.052}
$\phi 50$ (2 Nom.)	35 ⁰ / _{-0.062}
$\phi 63$ (2 1/2 Nom.)	35 ⁰ / _{-0.062}

Rod End Male Thread



Rod End Male Thread (mm)

Bore size mm(inch)	C	H		L1	X
		Rc(PT)	NPT		
$\phi 40$ (1 1/2 Nom.)	20.5	M14×1.5	3/8-24UNF	28.5	23.5
$\phi 50$ (2 Nom.)	26	M18×1.5	1/2-20UNF	33.5	28.5
$\phi 63$ (2 1/2 Nom.)	26	M18×1.5	1/2-20UNF	33.5	28.5

※ Consult TPC concerning the stroke range except for standard type.

Standard

unit : mm

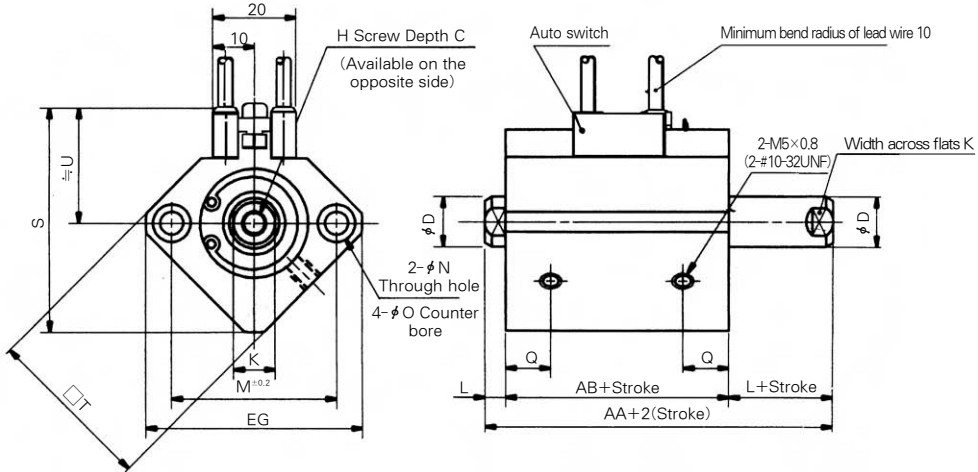
Bore size mm(inch)	Stroke range (mm)	AA	AB	C	D	EG	B	H		I	J	K	L	M	N	ϕO	P		Q	S	Thg	U	Z
								Rc(PT)	NPT								Rc(PT)	NPT					
$\phi 40$ (1 1/2 Nom.)	5~50	46.5	39.5	13	16	52	8	M8×1.25	3/8-24UNF	69	5	14	7	40	5.5	9 Depth 7	1/8	1/8"	11	66	28 ⁰ / _{-0.052}	35	18
	75, 100																						
$\phi 50$ (2 Nom.)	10~50	48.5	40.5	15	20	64	10.5	M10×1.5	1/2-20UNF	86	7	18	8	50	6.6	11 Depth 8	1/4	1/4"	10.5	80	35 ⁰ / _{-0.062}	41	22
	75, 100																						
$\phi 63$ (2 1/2 Nom.)	10~50	54	46	15	20	77	10.5	M10×1.5	1/2-20UNF	103	7	18	8	60	9	14 Depth 10.5	1/4	1/4"	15	93	35 ⁰ / _{-0.062}	47.5	22
	75, 100																						

Series ADQW

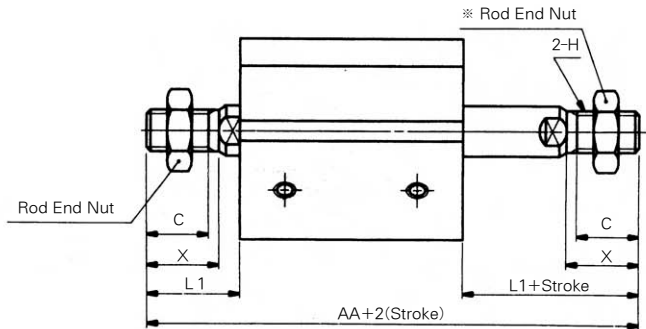
With Auto Switch: Double Acting/Double Rod Type: Dimensions

Bore Size : $\phi 20$ (3/4 Nom.), $\phi 25$ (1 Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



Rod End Male Thread



Rod End Male Thread (mm)						
Bore size mm (inch)	A	C	H		L1	X
			Rc(PT)	NPT		
$\phi 20$ (3/4Nom.)	75	12	M8×1.25	#10-32UNF	18.5	14
$\phi 25$ (1Nom.)	84	15	M10×1.25	1/4-28UNF	22.5	17.5

※ Consult TPC concerning the stroke range except for standard type.

Standard

(Unit : mm)

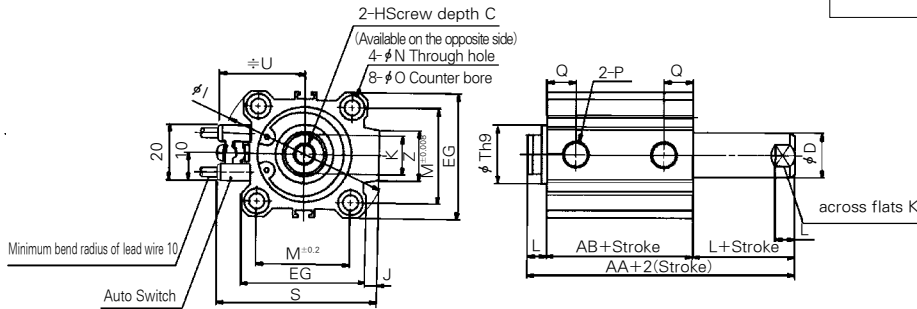
Bore size mm (inch)	Stroke range (inch)	AA	AB	C	D	EG	H		K	L	M	N	ϕO	Q	S	U	IT
							Rc(PT)	NPT									
$\phi 20$ (3/4Nom.)	5~75	47	38	7	10	47	M5×0.8	#10-32UNF	8	4.5	36	5.5	9 Depth7	10.5	48	24.5	36
$\phi 25$ (1Nom.)	5~50	49	39	12	12	52	M6×1.0	1/4-28UNF	10	5	40	5.5	9 Depth7	11	53.5	27.5	40

※ The Cylinder with Rubber Cushion has the same outer dimensions as standard type.

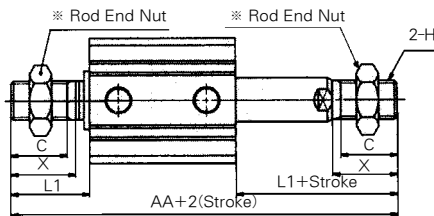
With Auto Switch: Double Acting/Double Rod Type: Dimensions (mm)

Bore Size : $\phi 32 \sim \phi 100$ (1 1/4 Nom. ~ 4 Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



Rod End Male Thread



Rod End Male Thread (Unit: mm)

Bore size mm (inch)	A	C	H		L1	X
			Rc(PT)	NPT		
$\phi 32$ (1 1/4 Nom.)	97.5	20.5	M14×1.5	5/16-24UNF	28.5	23.5
$\phi 40$ (1 1/2 Nom.)	107	20.5	M14×1.5	3/8-24UNF	28.5	23.5
$\phi 50$ (2 Nom.)	117.5	26	M18×1.5	1/2-20UNF	33.5	28.5
$\phi 63$ (2 1/2 Nom.)	119	26	M18×1.5	1/2-20UNF	33.5	28.5
$\phi 80$ (3 1/4 Nom.)	148	32.5	M22×1.5	5/8-18UNF	43.5	35.5
$\phi 100$ (4 Nom.)	157.5	32.5	M26×1.5	3/4-16UNF	43.5	35.5

※ Consult TPC concerning the stroke range except for standard type.

Standard

(Unit: mm)

Bore size mm (inch)	Stroke range (mm)	AA	AB	C	D	EG	H		I	J	K	L	M	N	φ O	P		Q	S	U	Z
							Rc(PT)	NPT								Rc(PT)	NPT				
$\phi 32$ (1 1/4 Nom.)	5~75	54.5	40.5	13	16	45	M8×1.25	5/16-24UNF	60	4.5	14	7	34	5.5	9 Depth 7	1/8	1/8"	12.5	58.5	31.5	18
$\phi 40$ (1 1/2 Nom.)	5~75	64	50	13	16	52	M8×1.25	3/8-24UNF	69	5	14	7	40	5.5	9 Depth 7	1/8	1/8"	14	66	35	18
$\phi 50$ (2 Nom.)	10~75	66.5	50.5	15	20	64	M10×1.5	1/2-20UNF	86	7	17	8	50	6.6	11 Depth 8	1/4	1/4"	14	80	41	22
$\phi 63$ (2 1/2 Nom.)	10~75	68	52	15	20	77	M10×1.5	1/2-20UNF	103	7	17	8	60	9	14 Depth 10.5	1/4	1/4"	15.5	93	47.5	22
$\phi 80$ (3 1/4 Nom.)	10~75	81	61	21	25	98	M16×2.0	5/8-18UNF	132	6	22	10	77	11	17.5 Depth 13.5	3/8	3/8"	18	112.5	57.5	26
$\phi 100$ (4 Nom.)	10~75	94.5	70.5	27	30	117	M16×2.5	3/4-16UNF	156	6.5	27	12	94	11	17.5 Depth 13.5	3/8	3/8"	22	132.5	67.5	26

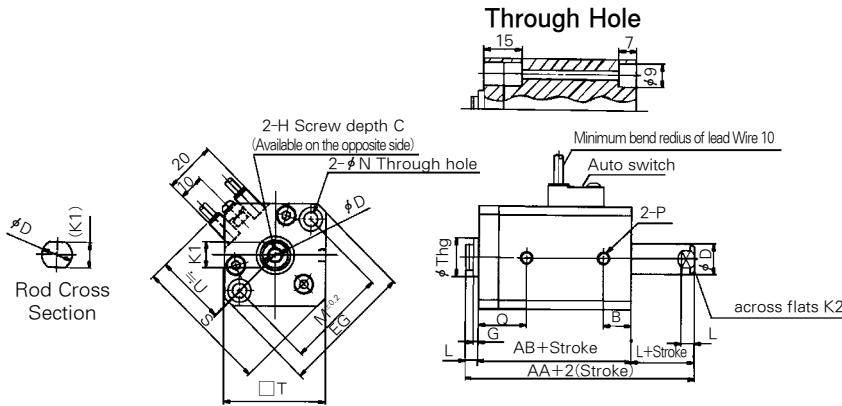
※ The Cylinder with Rubber Cushion has the same outer dimensions as standard type.

Series ADQKW

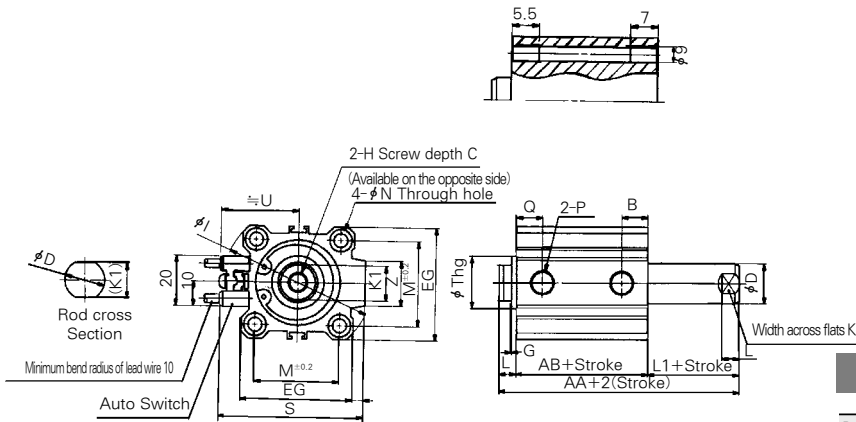
With Auto Switch: Double Acting / Double Rod / Non-rotating Rod / Dimensions

Bore Size : $\phi 20 \sim \phi 25$ (3/4 Nom. ~ 1Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



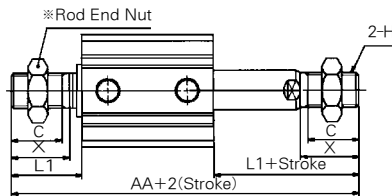
Bore Size : $\phi 32$ (1.26)



Rod End Male Thread

Rod End Male Thread (Unit:mm)

Bore size mm(inch)	A	C	H	
			Rc(PT)	NPT
$\phi 20$ (3/4Nom.)	83	12	M8×1.25	#10-32UNF
$\phi 25$ (1Nom.)	92	15	M10×1.25	1/4-28UNF
$\phi 32$ (1 1/4Nom.)	106.5	20.5	M14×1.5	5/16-24UNF



Bore size mm(inch)	L1	X
$\phi 20$ (3/4Nom.)	18.5	14
$\phi 25$ (1Nom.)	22.5	17.5
$\phi 32$ (1 1/4Nom.)	28.5	23.5

※ Consult TPC concerning the stroke range except for standard type.

Standard

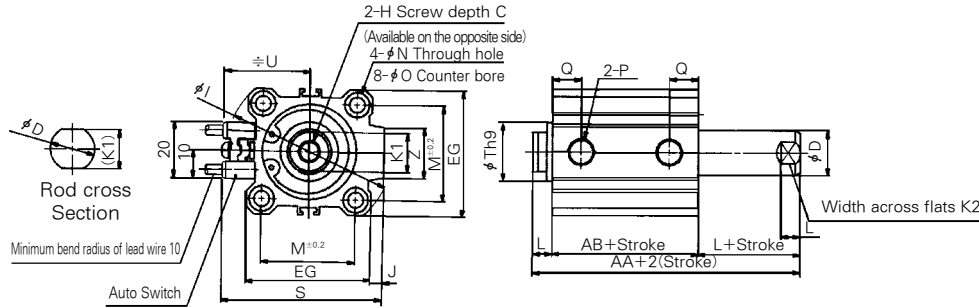
(Unit : mm)

Bore size mm(inch)	Stroke range (mm)	AA	AB	C	D	EG	B	G	H		I	J	K1	K2	L	M	N	P		Q	S	Thg	U	T	Z
									Rc(PT)	NPT								Rc(PT)	NPT						
$\phi 20$ (3/4Nom.)	5~50	55	46	7	10	47	10.5	2	M5×0.8	#10-32UNF	-	-	8	8	4.5	36	5.5	M5×0.8	10-32UNF	18.5	48	13 ⁰ _{-0.043}	24.5	36	-
$\phi 25$ (1Nom.)	5~50	57	47	12	12	52	11	2	M6×1.0	1/4-28UNF	-	-	10	10	5	40	5.5	M5×0.8	10-32UNF	19	53.5	15 ⁰ _{-0.043}	27.5	40	-
$\phi 32$ (1 1/4Nom.)	5~75	63.5	49.5	13	16	45	12.5	2	M8×1.25	5/16-24UNF	60	4.5	14	14	7	34	5.5	Rc(PR) 1/8	NPT 1/8"	21.5	68.5	21 ⁰ _{-0.052}	31.5	-	18

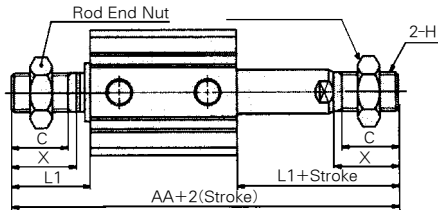
With Auto Switch: Double Acting / Double Rod / Non-rotating Piston Rod : Dimensions

Bore Size : $\phi 40 \sim \phi 63$ (1 1/2 Nom. ~ 2 1/2 Nom.)

For the dimension of "A" type (Both Ends Tapped)
Please refer to Page A-230.



Rod End Male Thread



Rod End Male Thread (Unit:mm)

Bore size mm (inch)	A	C	H		L1	X
			Rc(PT)	NPT		
$\phi 40$ (1 1/2 Nom.)	107	20.5	M14×1.5	3/8-24UNF	28.5	23.5
$\phi 50$ (2 Nom.)	117.5	26	M18×1.5	1/2-20UNF	33.5	28.5
$\phi 63$ (2 1/2 Nom.)	119	26	M18×1.5	1/2-20UNF	33.5	28.5

* Consult TPC concerning the stroke range except for standard type.

Standard

(Unit:mm)

Bore size mm (inch)	Stroke range (mm)	AA	AB	C	D	EG	H		I	J	K1	K2	L	M	N	ϕO	P		Q	S	Thg	U	Z
							Rc(PT)	NPT									Pc(PT)	NPT					
$\phi 40$ (1 1/2 Nom.)	5~75	64	50	13	16	52	M8×1.25	3/8-24UNF	69	5	14	14	7	40	5.5	9Depth7	1/8	1/8"	14	66	28 ⁰ _{-0.052}	35	18
$\phi 50$ (2 Nom.)	10~75	66.5	50.5	15	20	64	M10×1.5	1/2-20UNF	86	7	18	17	8	50	6.5	11Depth8	1/4	1/4"	14	80	35 ⁰ _{-0.062}	41	22
$\phi 63$ (2 1/2 Nom.)	10~75	68	52	15	20	77	M10×1.5	1/2-20UNF	103	7	18	17	8	60	9	14Depth10.5	1/4	1/4"	15.5	93	35 ⁰ _{-0.062}	47.5	22

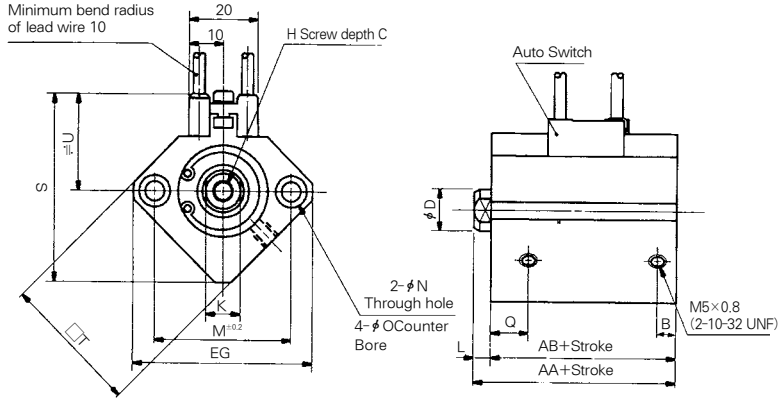
- ACP
- UACP
- APM
- AX
- AS
- AM2
- AM
- AL ALX
- ARD
- AQ
- AQ2
- AJ
- AG
- AGX GX
- NDM
- ADR
- AMR
- NST
- AST
- NLCD
- NLCS
- NF
- NR
- ASL

Series ADQ-S

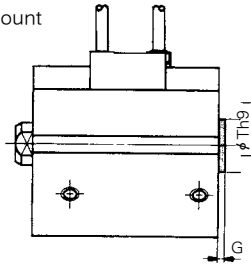
With Auto Switch : Single Acting/Single Rod/Spring Return Type

Bore Size : $\phi 20$ (3/4" Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



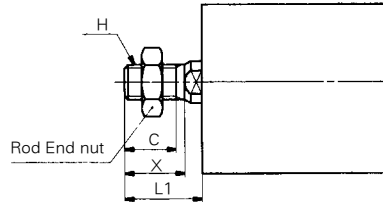
Rear Boss Mount



Rear Boss Mount (Unit:mm)

Bore size mm (inch)	G	Thg
$\phi 20$ (3/4 Nom.)	2	13 $\frac{8}{1043}$

Rod End Male Thread



Rod End Male Thread (Unit:mm)

Bore size mm (inch)	C	X	H		L1
			Rc(PT)	NPT	5st
$\phi 20$ (3/4 Nom.)	12	14	M8x1.25	5/16-18UNC	18.5

※ Consult TPC concerning the stroke range except for standard type.

Standard

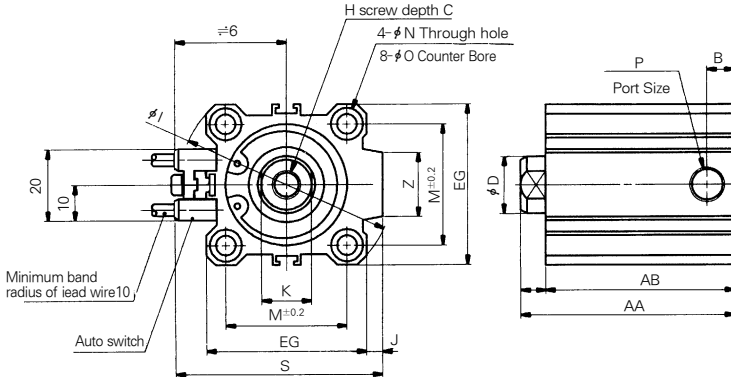
(Unit:mm)

Bore size mm (inch)	AA		AB		C	D	EG	B	H		K	L	M	N	ϕO	S	U	$\square T$
	5st	10st	5st	10st					Rc(PT)	NPT								
$\phi 20$ (3/4 Nom.)	41	46	36.5	41.5	7	10	47	5.5	M5x0.8	#10-32UNF	8	4.5	36	5.5	9 Depth 7	48	24.5	36

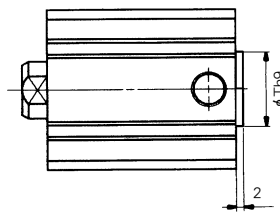
With Auto Switch : Single Acting/Single Rod /Spring Return Type : Dimensions

Bore Size : $\phi 32 \sim \phi 50$ (1/4 Nom. ~ 2 Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.

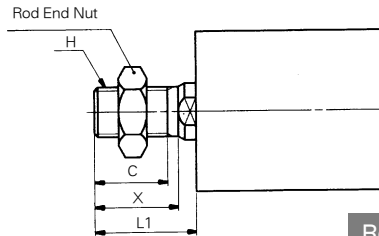


Rear Boss Mount



Rear Boss Mount (mm)	
Bore size mm(inch)	Thg
$\phi 32(1\frac{1}{4}\text{Nom.})$	21 ⁰⁰ _{-0.052}
$\phi 40(1\frac{1}{2}\text{Nom.})$	28 ⁰⁰ _{-0.052}
$\phi 50(2\text{Nom.})$	35 ⁰⁰ _{-0.062}

Rod End Male Thread



Rod End Male Thread (Unit:mm)					
Bore size mm(inch)	C	X	H		L1
			Rc(PT)	NPT	
$\phi 32(1\frac{1}{4}\text{Nom.})$	20.5	23.5	M14×1.5	5/16-24UNF	28.5
$\phi 40(1\frac{1}{2}\text{Nom.})$	20.5	23.5	M14×1.5	3/8-24UNF	28.5
$\phi 50(2\text{Nom.})$	26	28.5	M18×1.5	1/2-20UNF	33.5

※ Consult TPC concerning the stroke range except for standard type.

Standard

(Unit:mm)

Bore size mm(inch)	AA		AB		C	D	EG	B	H		I	J	K	L	M	N	φO	P		S	U	Z
	5st	10st	5st	10st					Rc(PT)	NPT								Pe(PT)	NPT			
	$\phi 32(1\frac{1}{4}\text{Nom.})$	45	50	38																		
$\phi 40(1\frac{1}{2}\text{Nom.})$	51.5	56.6	44.5	49.5	13	16	52	8	M8×1.25	3/8-24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	1/8"	66	35	18
$\phi 50(2\text{Nom.})$	-	58.5	-	50.5	15	20	64	10.5	M10×1.5	1/2-20UNF	86	7	17	8	50	6.6	11 Depth8	1/4	1/4"	80	41	22

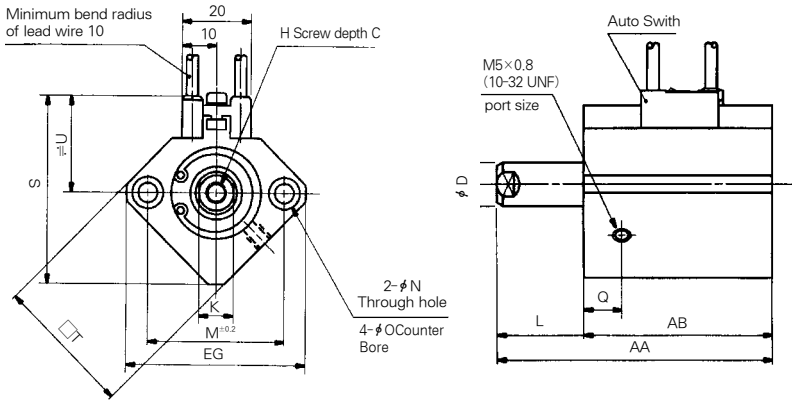
- ACP
- UACP
- APM
- AX
- AS
- AM2
- AM
- AL ALX
- ARD
- AQ
- AQ2
- AJ
- AG
- AGX GX
- NDM
- ADR
- AMR
- NST
- AST
- NLCD
- NLCS
- NF
- NR
- ASL

Series ADQ-T

With Auto Switch : Single Acting/Single Rod /Spring Extended Type : Dimensions

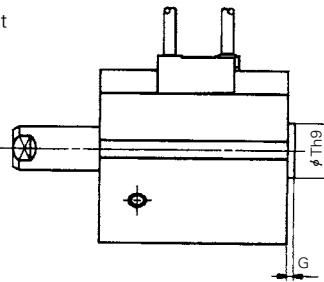
Bore Size : $\phi 20$ (3/4 Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



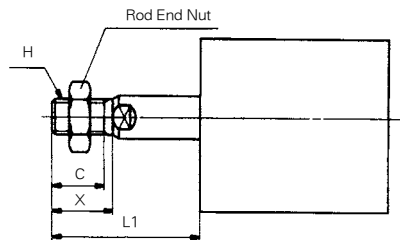
Rear Boss Mount (Unit: mm)		
Bore size mm (inch)	G	Th9
$\phi 20(3/4\text{Nom.})$	2	13 ⁰ _{-0.043}

Rear Boss Mount



Rod End Male Thread (Unit: mm)

Rod End Male Thread



Bore size mm (inch)	C	X	H		L1	
			Rc(PT)	NPT	5st	10st
$\phi 20(3/4\text{Nom.})$	12	14	M8x1.25	#10-32UNF	23.5	28.5

* Consult TPC concerning the stroke range except for standard type.

Standard

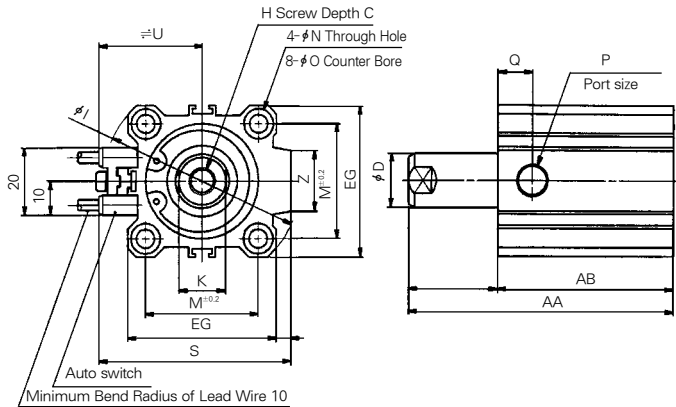
(Unit: mm)

Bore size mm (inch)	AA		AB		C	D	EG	H		K	L		M	N	φO	Q	S	U	□T
	5st	10st	5st	10st				Rc(PT)	NPT		5st	10st							
$\phi 20(3/4\text{Nom.})$	46	56	36.5	41.5	7	10	47	M5x0.8	#10-32UNF	8	9.5	14.5	36	5.5	9 Depth 7	10.5	48	24.5	36

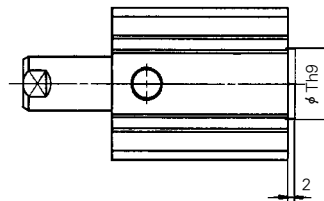
With Auto Switch : Single Acting/Single Rod/Spring Extend Type : Dimensions

Bore Size : $\phi 32 \sim \phi 50$ (1 1/4 Nom. ~ 2 Nom.)

For the dimension of "A" type (Both Ends Tapped) Please refer to Page A-230.



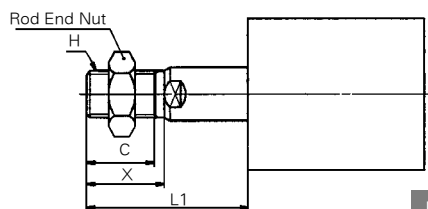
Rear Boss Mount



Rear Boss Moun (Unit:mm)

Bore size mm(inch)	Thg
$\phi 32$ (1 1/4 Nom.)	21 ⁰ / _{0.052}
$\phi 40$ (1 1/2 Nom.)	28 ⁰ / _{0.052}
$\phi 50$ (2 Nom)	35 ⁰ / _{0.052}

Rod End Male Thread



Rod End Male Thread (Unit:mm)

Bore size mm(inch)	C	X	H		L1		
			Rc(PT)	NPT	5st	10st	20st
$\phi 32$ (1 1/4 Nom.)	20.5	23.5	M14×1.5	5/16-24UNF	33.5	38.5	-
$\phi 40$ (1 1/2 Nom.)	20.5	23.5	M14×1.5	3/8-24UNF	33.5	38.5	-
$\phi 50$ (2 Nom)	26	28.5	M18×1.5	1/2-20UNF	-	43.5	53.5

※ Consult TPC concerning the stroke range except for standard type.

Standard Type

(Unit:mm)

Bore size mm(inch)	AA		AB		C	D	EG	H				I	J	K	L		M	N	O	P		Q	S	U	Z
	5st	10st	5st	10st				Rc(PT)	NPT	5st	10st				Rc(PT)	NPT									
$\phi 32$ (1 1/4 Nom.)	50	60	38	43	13	16	45	M8×1.25	5/16-24UNF	60	4.5	14	12	17	34	5.5	9	Depth 7	1/8	1/8	10.5	58.5	31.5	18	
$\phi 40$ (1 1/2 Nom.)	56.5	66.5	44.5	49.5	13	16	52	M8×1.25	3/8-24UNF	69	5	14	12	17	40	5.5	9	Depth 7	1/8	1/8	11	66	35	18	
$\phi 50$ (2 Nom)	-	68.5	-	50.5	15	20	64	M10×1.5	1/2-20UNF	86	7	17	-	18	50	6.6	11	Depth 8	1/4	1/4	10.5	80	41	22	

- ACP
- UACP
- APM
- AX
- AS
- AM2
- AM
- AL ALX
- ARD
- AQ
- AQ2
- AJ
- AG
- AGX GX
- NDM
- ADR
- AMR
- NST
- AST
- NLCD
- NLCS
- NF
- NR
- ASL

Series ADQ

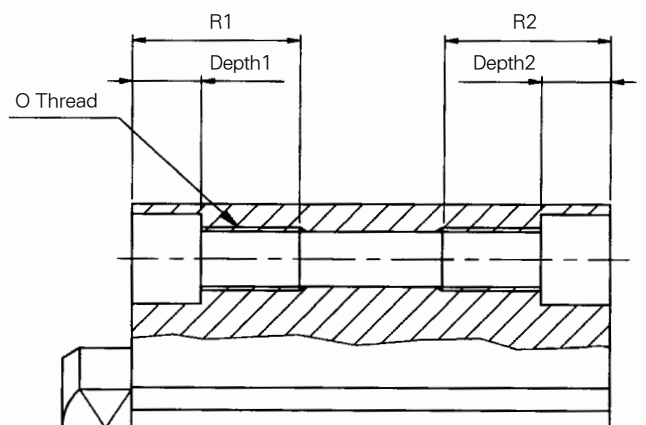
Both Ends Tapped

⟨“A” Type⟩

(mm)

Bore Size mm(inch)	O		Depth1	Depth2	R1	R2
	Rc(PT)	NPT				
φ 12(1/2Nom.)	M4×0.7	8-32 UNC	3.5(-)	3.5	10.5(-)	10.5
φ 16(5/8Nom.)	M4×0.7	8-32 UNC	3.5(-)	3.5	10.5(-)	10.5
φ 20(3/4Nom.)	M6×1.0	1/4-20 UNC	7(15)	7	17(25)	17
φ 25(1Nom.)	M6×1.0	1/4-20 UNC	7(15)	7	17(25)	17
φ 32(1 1/4Nom.)	M6×1.0	1/4-20 UNC	7(7)	7	17(17)	17
φ 40(1 1/2Nom.)	M6×1.0	1/4-20 UNC	7(7)	7	17(17)	17
φ 50(2Nom.)	M8×1.25	5/16-18 UNC	8(8)	8	22(22)	22
φ 63(2 1/2Nom.)	M10×1.5	7/16-14 UNC	10.5(10.5)	10.5	28.5(28.5)	28.5
φ 80(3 1/4Nom.)	M12×1.75	1/2-13 UNC	10.5(13.5)	13.5	35.5(35.5)	35.5
φ 100(4Nom.)	M12×1.75	1/2-13 UNC	13.5(13.5)	13.5	35.5(35.5)	35.5

※ () Non-Rotating Type



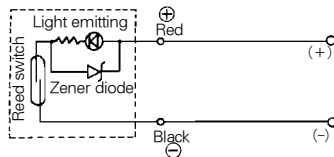
Auto Switch Specifications

Auto Switch Model	W4	
Application	Relay, Sequence Control	
Voltage	DC24V	AC120V
Range of Load Current	5~40mA	5~20mA
Protection Circuit for Contact Breaker Point	None	
Internal Voltage Drop	2.4V or less	
Indicator Lamp	ON:Red light emitting diode	



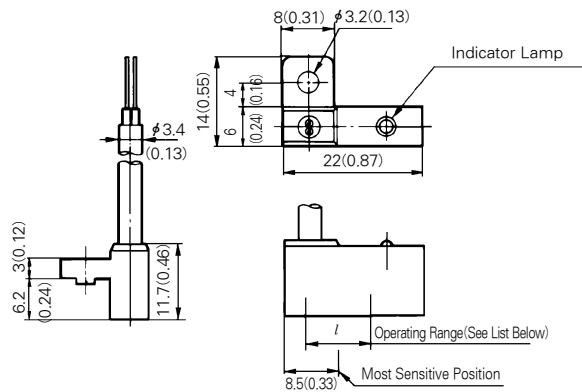
- Leakage current - None
 - Response time - 1.2 ms
 - Lead Wire - Oil proof vinyl. ϕ 3.4, 0.2mm², 2 wire(red, black), 0.5 m
 - Impact Resistance - 30G
 - Insulation Resistance - 50M Ω or more under the test voltage 500VDC (Between case and cable)
 - Withstand Voltage - 1500VAC 1min(between case and cable)
 - Ambient Temperature - 40~140°F(5~60°C)
 - Protection Structure - IEC spec IP67, Water-proof(JISCO920), oil-proof.
- ※ If 3m(118 in) lead wire is required, L is put at end of model numbers.
(Example) W4L

Auto Switch/Internal Circuit



Auto Switch Dimensions

mm(inch)



Operating Range (/ Dimensions)

mm(inch)

Series	Bore Size mm(inch)									
	ϕ 12(1/2Nom.)	ϕ 16(5/8Nom.)	ϕ 20(3/4Nom.)	ϕ 25(1Nom.)	ϕ 32(41/4Nom.)	ϕ 40(11/2Nom.)	ϕ 50(2Nom.)	ϕ 63(21/2Nom.)	ϕ 80(31/4Nom.)	ϕ 100(4Nom.)
AQ	10 (0.39)	8 (0.31)	9 (0.35)	9 (0.35)	11 (0.43)	11 (0.43)	10 (0.39)	12 (0.47)	12 (0.47)	13 (0.51)

Series **ADQCP**

Compact Cylinder for Intense-Magnetism Resistant

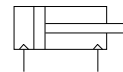
Bore Size mm(inch) : ϕ 50(2 Nom), ϕ 63(2 1/2Nom)



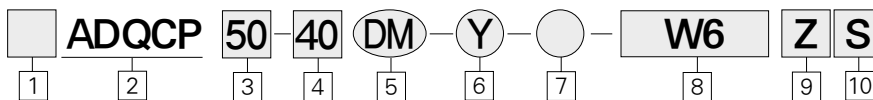
- FOR WELDING MACHINE/INTENSE MAGNETIC FIELD
- SPACE SAVING COMPACT DESIGN

Symbol

Double Acting/
Single Rod Type



How to Order



1 Series

Blank : Rc(PT)
U : NPT

2 Series : Compact Cylinder for Intense-Magnetism Resistant

3 Bore Size mm(inch)

50 : ϕ 50 (2Nom.)
63 : ϕ 63 (2 1/2Nom.)

4 Standard Stroke(mm)

50 : 25, 30, 35, 40, 45, 50
63 : 25, 30, 35, 40, 45, 50

5 Double Acting : DM

6 Rod End Options

Blank : Without attachment
Y : With double knuckle joint pin, flat washer, split pin(CP Type)

7 Special Option

Blank : Standard Type
XC16 : Copper free

8 Auto Switch

Blank : Without auto switch
W6 : 120VAC, OFF lighting
W7 : 24VDC, 120VDC, ON lighting

9 Switch Lead Wire Length

L : 3m
Z : 5m

10 Number of Switches

Blank : 2 pcs.
S : 1 pc.

PART No. of Auto Switch Fittings

Switch	Part No.	
	ϕ 50 (2Nom)	ϕ 63 (2 1/2Nom.)
W6, W7	BQP1T-050	

Cylinder Specifications

Type	ADQCP
Fluid	Air
Bore Size mm(inch)	ϕ 50 (2Nom.), ϕ 63 (2 1/2Nom.)
Max. Operating Pressure	1.0MPa {140psi}
Proof Pressure	1.5MPa {231psi}
Ambient Fluid Temperature	5~60°C(40~140°F)
Thread end Tolerance	KS Grade 2
Stroke Tolerance	+1.0 mm(0.039inch)

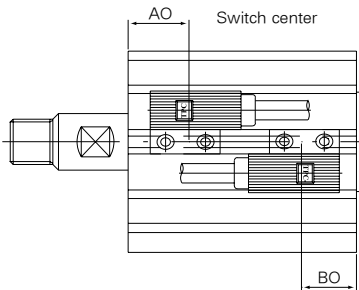
Minimum stroke for mounting intense-magnetism resistant switch.

(mm)

Switch Mounting Position	With 1 Switch	With 2 Switches		
		Same surface	Different Surfaces	Different Surfaces
Cylinder Type Bore				
ADQCP50,63	25	30	25	

Auto Switch Mounting Position (Stroke End)

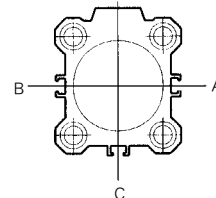
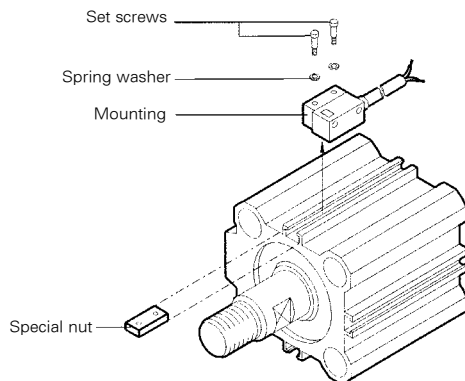
(mm)



Type	Bore $\phi 50$ (2Nom.)		Bore $\phi 63$ (2 1/2 Nom.)	
	AO	BO	AO	BO
ADQCP	33.5	22.5	37.5	24

Auto Switch Mounting

Using the special nut shown below, fix the auto switch in the specified position with two screws. (The proper tightening torque of set screws is 6 kgf · cm.)

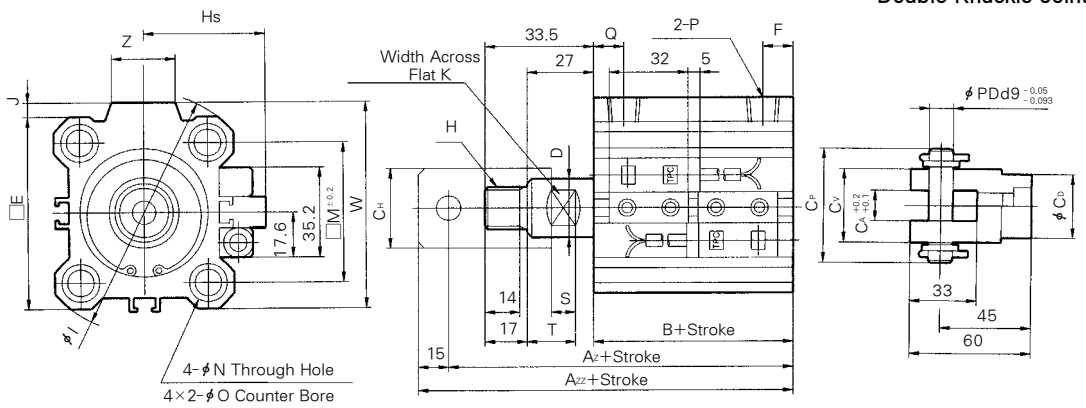


The auto switch can be mounted in three positions-A, B and C-shown above.

Series ADQCP

Dimensions

Bore Size : $\phi 50(2\text{Nom.})$, $\phi 63(2\frac{1}{2}\text{Nom.})$



Double Knuckle Joint

(Unit : mm)

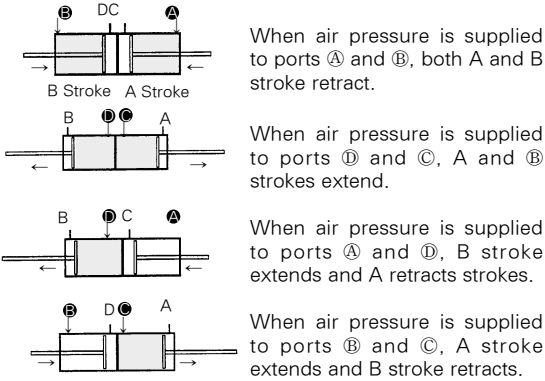
Bore size mm (inch)	A	A _z	A _{zz}	B	φD	E	F	H		φI	J	K	M	φN	φO	P		QW	Z	T	S	Hs	C _p	C _v	C _a	PD	C _h	C _d	
								Re(PT)	NPT							Re(PT)	NPT												
φ50 (2Nom.)	99.5	117.5	132.5	55.5	20	64	10.5	M16×1.5	5/8-18UNF	86	7	17	50	6.6	11Depth 8	1/4	1/4"	10.5	71	22	20	10	49	55	36	16	12	30	30
φ63 (2 1/2 Nom.)	105	123	138	61	20	77	10.5	M16×1.5	5/8-18UNF	103	7	17	60	9	14Depth 10.5	1/4	1/4"	15	84	22	20	10	55.5	55	36	16	12	30	30

Dual Stroke Cylinder/Double Rod Type

ADQB (Bore) - (Stroke A) + (Stroke B) D(C)(M)-XC10

Two cylinders are constructed as one cylinder in a back-to-back configuration allowing the cylinder stroke to be controlled in the three steps.

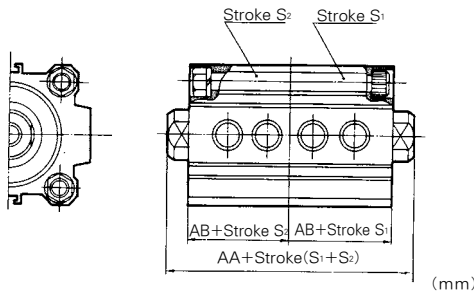
Symbol
function



Specifications

Type	Non-Lub
Bore(mm)	φ 12~φ 100
Action	Double acting
Fluid	Air
Mounting style	Through hole

Dimensions



Bore (inch)	Stroke adjustable range	AA		AB		L
		50 stroke or less	75, 100	50 stroke or less	75, 100	
φ 12(1/2Nom.)	5~30	41(63)	-	17(28)	-	3.5
φ 16(5/8Nom.)		44(68)	-	18.5(30.5)	-	3.5
φ 20(3/4Nom.)		48(72)	-	19.5(31.5)	-	4.5
φ 25(1Nom.)	5~50	55(75)	-	22.5(32.5)	-	5
φ 32(1 1/4Nom.)		60(80)	80(80)	23(33)	33(33)	7
φ 40(1 1/2Nom.)	5~100	73(93)	93(93)	29.5(39.5)	39.5(39.5)	7
φ 50(2Nom.)		77(97)	97(97)	30.5(40.5)	40.5(40.5)	8
φ 63(2 1/2Nom.)		88(108)	108(108)	36(46)	46(46)	8
φ 80(3 1/4Nom.)	10~100	107(127)	127(127)	43.5(53.5)	53.5(53.5)	10
φ 100(4Nom.)		130(150)	150(150)	53(63)	63(63)	12

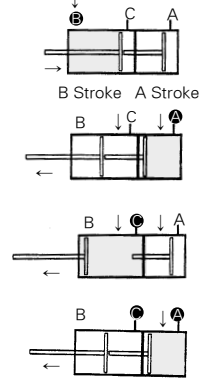
※ () : With auto switch

Dual Stroke Cylinder/Single Rod Type

ADQB (Bore) - (Stroke A) D(C)(M)-XC11

Two cylinders are constructed in serial as one cylinder. It is possible to control the cylinder stroke in two steps to obtain double the cylinder output force.

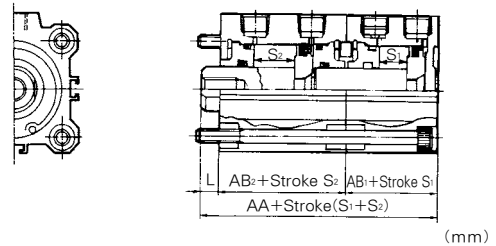
Symbol
function



Specifications

Type	Non-Lub
Bore(mm)	φ 20~φ 100
Action	Double acting
Fluid	Air
Mounting style	Through hole

Construction · Major Dimensions



Bore (inch)	AA	AB ₁	AB ₂	L
φ 20(3/4Nom.)	50(74)	19.5(31.5)	26(38)	4.5
φ 25(1Nom.)	56.5(76.5)	22.5(32.5)	29(39)	5
φ 32(1 1/4Nom.)	60.5(80.5)	23(33)	30.5(40.5)	7
φ 40(1 1/2Nom.)	76.5(96.5)	29.5(39.5)	40(50)	7
φ 50(2Nom.)	79(99)	30.5(40.5)	40.5(50.5)	8
φ 63(2 1/2Nom.)	88(106)	36(46)	42(52)	8
φ 80(3 1/4Nom.)	104.5(124.5)	43.5(53.5)	51(61)	10
φ 100(4Nom.)	125.5(145.5)	53(63)	60.5(70.5)	12

※ () : With auto switch

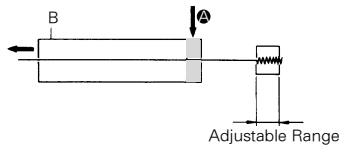
Series ADQ

Adjustable Stroke Cylinder/Extension Adjustable Type

ADQB **Bore** — **Stroke** D — XC8

The stroke at extension of the cylinder can be adjusted by the stopper in the head side from full stroke 0~10mm(0.39 inch).

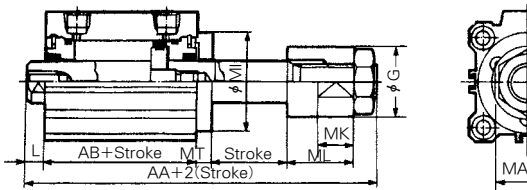
Symbol



Specifications

Type	Non-Lub
Bore	φ 20 ~ φ 100
Action	Double Acting
Fluid	Air
Stroke Adjustment System	Adjusting Bolt
Stroke Adjustment Range	10mm(0.39inch)
Mounting Style	Through Hole

Construction · Major Dimensions



(mm)

Bore(mm)	AA	AB	L	MT	MI	MA	MK	φG	ML	Standard Stroke Range
φ16(5/8Nom.)	58.5	26	3.5	5	□28	11	7	14	19	30
φ20(3/4Nom.)	67.5	26	4.5	8	□36	17	10	20	22.5	50
φ25(1Nom.)	71	29	5	8	□40	17	10	20	22.5	
φ32(1 1/4Nom.)	78.5	30.5	7	6	φ38	24	14	27	26	
φ40(1 1/2Nom.)	88	40	7	6	φ46	24	14	27	26	50
φ50(2Nom.)	100.5	40.5	8	8	φ57	30	16	35	30	
φ63(2 1/2Nom.)	102	42	8	10	φ68	30	16	35	30	
φ80(3 1/4Nom.)	125	51	10	12	φ90	41	20	48	38	50
φ100(4Nom.)	138.5	60.5	12	14	φ110	41	20	48	38	

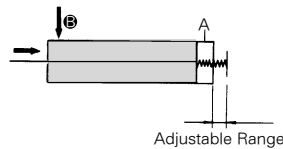
※ Order dimensions are the same as for standard type.

Adjustable Stroke Cylinder/Retraction Adjustable Type

ADQ **Mounting** **Bore** — **Stroke** D(M) — XC9

The stroke at retraction of the cylinder can be adjusted from 0~10mm(0.39 inch) by the adjusting bolt.

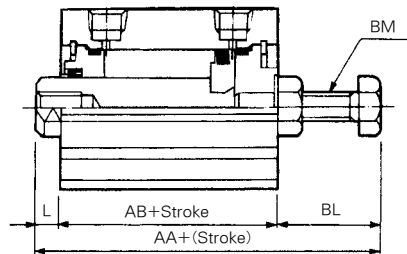
Symbol



Specifications

Type	Non-Lub
Bore size(inch)	φ 20 ~ φ 100
Action	Double Acting
Fluid	Air
Stroke Adjustment System	Adjusting Bolt
Stroke Adjustment Range	10mm(0.39 inch)
Mounting Style	Through Hole(standard), Both ends Tapped

Dimensions



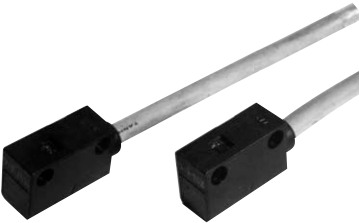
(mm)

Bore(mm)	AA	AB	L	BL	BM	Standard Stroke Range
φ20(3/4Nom.)	61(73)	26(38)	4.5	30.5	M8×1.25	5~50
φ25(1Nom.)	63.5(73.5)	29(39)	5	29.5	M8×1.25	
φ32(1 1/4Nom.)	65.5(75.5)	30.5(40.5)	7	28	M8×1.25	
φ40(1 1/2Nom.)	84(94)	40(50)	7	37	M12×1.5	10~50
φ50(2Nom.)	84.5(94.5)	40.5(50.5)	8	36	M12×1.5	
φ63(2 1/2Nom.)	88.5(98.5)	42(52)	8	38.5	M16×1.5	
φ80(3 1/4Nom.)	109.5(119.5)	51(61)	10	48.5	M20×1.5	10~50
φ100(4Nom.)	125(135)	60.5(70.5)	12	52.5	M24×1.5	

※ Order dimensions are the same as for standard type.

※ () : With auto switch

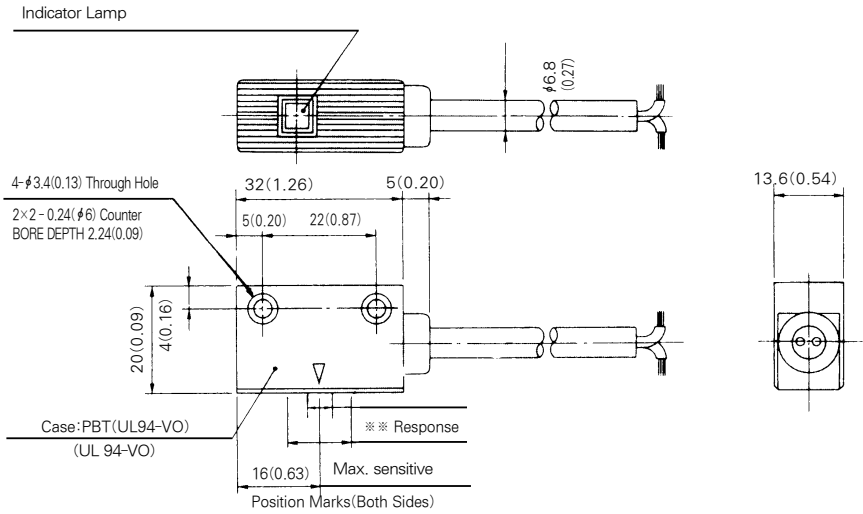
Automatic Reed Switch / Intense-Magnetism-Resistant Type Series W6/W7



Auto Switch Specifications

Auto Switch model	W6(L)(Z)	W7(L)(Z)	
Operating Voltage	AC120V	DC24V	
Operating Current Range	20mA	5~40mA	5~20mA
Internal Drop Voltage	0V	Max 2.4V	
Operating Time	1.2m/sec		
Impact Resistance	30G		
Protection Structure	IEC Standard IP67		
Pilot Lamp	OFF Lighting (Red LED)	ON Lighting (Red LED)	
Leakage Current	MAX. 1.8mA	0	
Ambient Temperature Range	14~140° F (-10~60°C)		
Insulation Resistance	50M Ω /500V DC		
Application	Relay, Sequence Controller		

Auto Switch Dimensions mm(inch)



Operation Range(/ Dimension)

Series	Bore Size mm(inch)	
	ϕ 50(1.97)	ϕ 63(2.48)
ADQCP	8(0.35)	8(0.35)
AMD□P	9(0.32)	9(0.32)
AJCP	8(0.35)	8(0.35)

- ACP
- UACP
- APM
- AX
- AS
- AM2
- AM
- AL
ALX
- ARD
- AQ
- AQ2
- AJ
- AG
- AGX
GX
- NDM
- ADR
- AMR
- NST
- AST
- NLCD
- NLCS
- NF
- NR
- ASL

Series AQ2, ADQ2

Compact cylinder(a square tube) : Standard type / Double acting-single rod

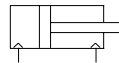
Bore size : ϕ 12, ϕ 16, ϕ 20, ϕ 25, ϕ 32, ϕ 40, ϕ 50, ϕ 63, ϕ 80, ϕ 100



- SINCE THE TOTAL LENGTH IS COMPACT TYPE, IT SAVES THE INSTALLING SPACE. BEING USED FOR CLAMP OR CHUCK OF SMALL PARTS, IT FACILITATES COMPACT DESIGN OF VARIOUS TOOLS OR EXCLUSIVE EQUIPMENT.
- IDEAL FOR MACHINE DESIGNS WITH SMALL SPACE REQUIREMENTS.
- THE AUTO SWITCHES WILL NOT PROTRUDE FROM SWITCH MOUNTING GROOVE.

Symbol

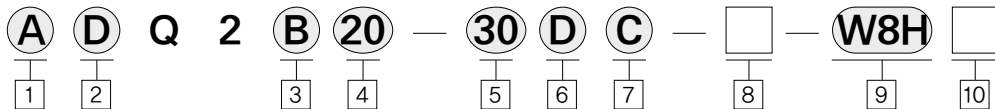
Double acting : Single rod type



Rear boss mount



How to order



1 Actuator

2 Auto switch

Blank : basic type
D : with auto switch
(built-in magnet)

3 Attaching type

B : through hole (standard)
A : both ends tapped

4 Bore size

12 : 12mm
16 : 16mm
20 : 20mm
25 : 25mm
32 : 32mm
40 : 40mm
50 : 50mm
63 : 63mm
70 : 70mm
100 : 100mm

5 Cylinder stroke(mm)

Please refer to the table of cylinder stroke

Standard stroke/Air pressure(non-lubrication type) Unit:mm

Bore size(Ø)	Standard stroke
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63, 80, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
Bore size(Ø)	Long stroke
12, 16	35, 40, 45, 50
30~100	125, 150

※ In case of long stroke, rubber cushion is basically installed.

6 Action

D : double acting

7 Body option

Blank : standard(rod end female thread)
C : rubber cushion mount
M : rod end male thread
F : rear boss mount
※ Combination of body option is possible
: CM, FC, FM, FCM
※ Without F : ϕ 12, ϕ 16

8 Series

Blank : standard (copper free)

9 Type of auto switch

Blank : non auto switch
(cylinder with built-in magnet)
W*** : small auto switch (ϕ 4)
※ W*** type is basic for square tube of ϕ 12~ ϕ 25.

10 Number of auto switch

Blank : 2 pcs
S : 1 pc
n : n pcs

⚠ Cautions

※ Note

Intermediate strokes at 3mm increments are available by using a spacer with standard stroke cylinders.

ex) Mode no : AQ2B20-37D

A 13mm with spacer is installed in the standard AQ2B20-50D

⚠ Precautions

Read before handling. Refer to A-2, for safety instructions and common precautions.

⚠ Caution

Snap ring installation/Removal

- When installing and removing, an appropriate pair of pliers(tool for installing a C snap ring) is needed.
- Exercise caution even when an appropriate pliers(tool for installing a C snap ring) is used, because the snap ring may be possibly detached from the tip of the pliers(tool for installing a C snap ring) and fly away, for thereby causing damages to humans or the peripheral equipment. After the snap ring is installed, be sure that it is placed securely in the ring groove before air is supplied .

Mounting

- When a load is removed, it is preferably needed to secure the wrench flats of the piston rod on the load side.
- If this is performed without securing the piston rod on the load side, note that the coupled(screwed-in) portion of the piston rod may be loosened.

Weight table

(Unit : g(oz))

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	40	47	54	61	68	75	-	-	-	-	-	-
16	61	72	83	94	105	116	-	-	-	-	-	-
20	91	112	132	152	173	193	213	234	254	274	-	-
25	118	139	160	181	203	224	245	266	287	309	-	-
32	157	180	202	225	248	270	292	316	339	362	522	636
40	272	294	316	338	360	382	404	426	448	470	623	733
50	-	401	439	476	514	551	589	626	663	701	958	1,102
63	-	647	687	727	767	807	847	887	927	967	1,257	1,464
80	-	1,443	1,534	1,624	1,714	1,804	1,894	1,985	2,076	2,166	2,830	3,296
100	-	2,208	2,314	2,420	2,526	2,632	2,738	2,844	2,950	3,056	3,801	4,318

Options

		Bore size									
		12	16	20	25	32	40	50	63	80	100
Air pressure type	Mounting	Through-hole (standard)	○	○	○	○	○	○	○	○	○
		Boss ends tab	○	○	○	○	○	○	○	○	○
	Built-in magnet		○	○	○	○	○	○	○	○	○
	Piping method	Thread type	M5X0.8				M6X0.8 RøPTM8	RøPTM8	RøPTM14	RøPTM18	
	Rod end male thread	○									
	Rubber cushion mount	○									
Rear boss mount	- - ○ ○ ○ ○ ○ ○ ○ ○ ○ ○										

Specifications

Description	Air pressure(non-lubrication) type
Fluid	Air
Proof pressure	1.5MPa (217psi)
Max. operating pressure	1.0MPa (140psi)
Ambient and fluid temperature°C(°F)	-5°C~70°C(14~158°F (Anti-freezing))
Rubber cushion	None
Rod end thread	Female thread
Rod end thread tolerance	KS Class 2
Stroke tolerance	+1.0 0
Mounting	Through hole
Piston speed	50 ~ 500 mm/s

Min. operating pressure (Unit : MPa(psi))

Bore size	12	16	20	25	32	40	50	63	80	100
Air pressure(non-lubrication)type	0.07	0.07	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05

Option weights

(Unit : g(oz))

Bore size (mm)		12	16	20	25	32	40	50	63	80	100
Both ends tapped type	Male screw	1.5	3	6	12	26	27	53	53	120	175
	Nut	1	2	4	8	17	17	32	32	49	116
	Rear boss mount	0.7	1.3	2	3	5	7	13	25	45	96
Rubber cushion mount	1 2 5 4 -3 -7 -9 -18 -31 -56										

Calculation example

ex) AQ2A20-20DCM

- Basic weight :AQ2B20-20D 152g(5.36oz)
- Additional weight :Both end tapped type 6g(0.21oz)
- Rod end male thread 10g(0.35oz)
- Rubber cushion mount 5g(0.17oz)
- 173g(6.09oz)

ACP

UACP

APM

AX

AS

AM2

AM

AL ALX

ARD

AQ

AQ2

AJ

AG

AGX GX

NDM

ADR

AMR

NST

AST

NLCD

NLCS

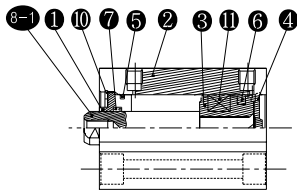
NF

NR

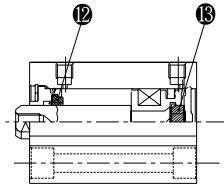
ASL

Series AQ2/ADQ2

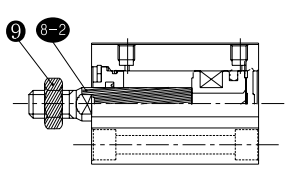
Construction / Parts lists



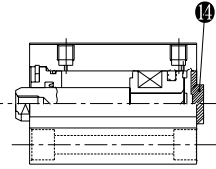
Standard type



Rubber cushion



Rod end male thread



Rear boss mount

Packing list/Exchanging parts/Air pressure(non-lubrication)type

No	Description	Ea	Material	Note
1	Rod cover	1	Aluminum alloy	Hard alumite
2	Cylinder tube	1	Aluminum alloy	
3	Piston	1	Aluminum alloy	Chromate
4	End plate	1	Aluminum alloy	Hard alumite
5	Gasket	1	Rubber	
6	Piston packing	1	Rubber	
7	Rod packing	1	Rubber	
8-1	Piston rod	1	Stainless steel	Female screw type
8-2	Piston rod	1	Stainless steel	Male screw type
9	Rod end nut	1	Carbon steel	Nickel plating
10	Snap ring	1	Carbon tool steel	Phosphate coating
11	Magnet	1	Magnet	
12	Bumper "A"	1	Polyurethane	Rod cover side mounting
13	Bumper "B"	1	Polyurethane	Piston side mounting
14	Inloading	1	Aluminum alloy	Hard alumite

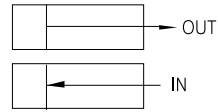
※ Ø12, Ø16 : Divide piston, piston-B

※ Ø12, Ø16 : Non-rear boss mount, end plate

※ Copper free.

Theoretical force

(Unit : N)

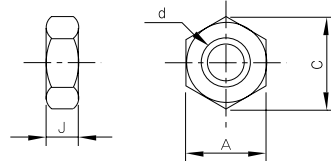


Bore size (mm)	Operating direction	Operating pressure · MPa(ksi)		
		0,3(43,5)	0,5(72,5)	0,7(101,5)
12	IN	25	42	59
	OUT	34	57	79
16	IN	45	75	106
	OUT	60	101	141
20	IN	71	118	165
	OUT	94	157	220
25	IN	113	189	264
	OUT	147	245	344
32	IN	181	302	422
	OUT	241	402	563
40	IN	317	528	739
	OUT	377	628	880
50	IN	495	825	1150
	OUT	589	982	1370
63	IN	841	1400	1960
	OUT	935	1560	2180
80	IN	1360	2270	3170
	OUT	1510	2510	3520
100	IN	2140	3570	5000
	OUT	2360	2930	5500

1N = 0.102kgf
1MPa = 10.2kgf/cm²

Rod end nut

(Material : Rolled steel)



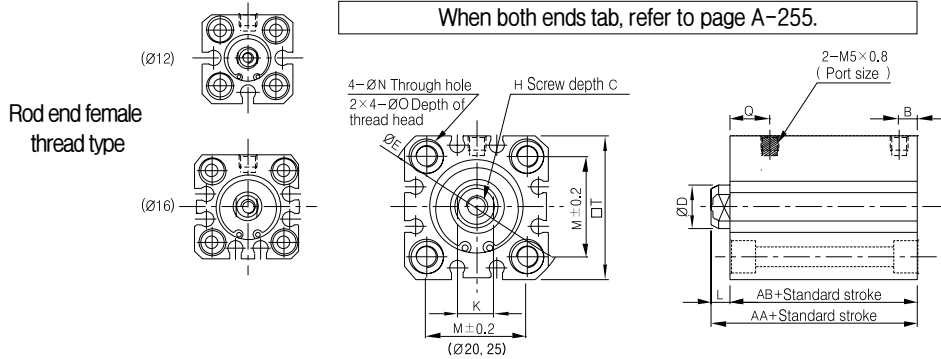
(mm)

Model number	Applicable bore size (mm)	d	J	A	C
NTJ-015A	12	M5 × 0.8	4	8	9.2
NT-015A	16	M6 × 1.0	5	10	11.5
NT-02	20	M8 × 1.25	5	13	15.0
NT-03	25	M10 × 1.25	6	17	19.6
NT-04	32, 40	M14 × 1.5	8	22	25.4
NT-05	50, 63	M18 × 1.5	11	27	31.2
NT-08	80	M22 × 1.5	13	32	37.0
NT-10	100	M26 × 1.5	16	41	47.3

Packing list/Exchanging parts/Air pressure(non-lubrication)type

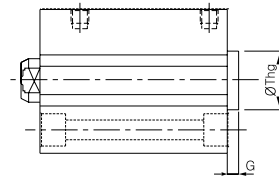
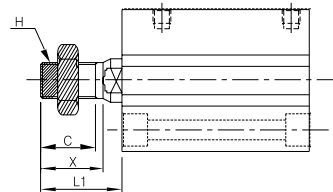
No	Description	Material	Ø12	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
5	Gasket	Rubber	C10	C14	C18	C22	C29	C36	C40	C60	C75	C95
6	Piston packing	Rubber	PPD-12	PPD-16	PPD-20	PPD-25	PPD-32	PPD-40	PPD-50	PPD-63	PPD-80	PPD-100
7	Rod packing	Rubber	DYR-6K	DYR-8K	DYR-10SK	DYR-12	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z

Standard type(through hole)/AQ2B, ADQ2B



When both ends tab, refer to page A-255.

Rod end male thread type



Rod end male thread type (Unit : mm)

Bore size	L1	C	H	X
12	14	9	M5×0.8	10.5
16	15.5	10	M6×1.0	12
20	18.5	12	M8×1.25	14
25	22.5	15	M10×1.25	17.5

Rear boss mount type (Unit : mm)

Bore size	G	ØThg
20	2	13 ⁰ _{-0.043}
25	2	15 ⁰ _{-0.043}

Standard type

(Unit : mm)

Bore size	Standard stroke range	Standard stroke										Long stroke	Long stroke					D	N	K	E	M	□T
		Non-auto switch					Mounting auto switch						Non-auto switch/mounting										
		AA	AB	L	Q	B	AA	AB	L	Q	B		AA	AB	L	Q	B						
12	5 ~ 30	20.5	17	3.5	7.5	5	31.5	28	3.5	11	6.5	35 ~ 50	45.5	32	13.5	7.5	7.5	6	3.5	5	32	15.5	25
16	5 ~ 30	22	18.5	3.5	8	5.5	34	30.5	3.5	11	5.5	35 ~ 50	45.5	32	13.5	7.5	7.5	8	3.5	6	38	20	29
20	5 ~ 50	24	19.5	4.5	10.5	5.5	36	31.5	4.5	10.5	5.5	~	-	-	-	-	-	10	5.5	8	47	25.5	36
25	5 ~ 50	27.5	22.5	5	11	5.5	37.5	32.5	5	11	5.5	~	-	-	-	-	-	12	5.5	10	52	28	40

Bore size	H	C	O
12	M3×0.5	6	6.5 Depth 4
16	M4×0.7	8	6.5 Depth 4
20	M5×0.8	7	9 Depth 7
25	M6×1.0	12	9 Depth 7

※ In case of Ø12-5 stroke, Ø20/25-5/10 stroke without auto switch

※ In case of both ends, refer to a separate data

※ The application of a stroke is 5mm apart

ACP
UACP
APM
AX
AS
AM2
AM
AL ALX
ARD
AQ
AQ2
AJ
AG
AGX GX
NDM
ADR
AMR
NST
AST
NLCD
NLCS
NF
NR
ASL

Series AQ2W, ADQ2W

Compact cylinder(a square tube) : Standard type / Double acting-Double rod

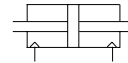
Bore size : ϕ 12, ϕ 16, ϕ 32, ϕ 40, ϕ 50, ϕ 63, ϕ 80, ϕ 100



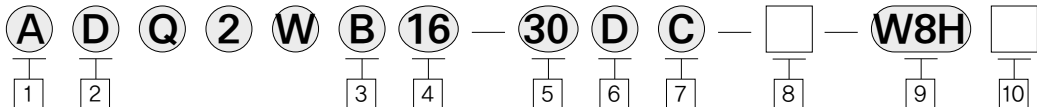
- DOUBLE ROD COMPACT CYLINDER
 - SINCE THE TOTAL LENGTH IS COMPACT TYPE, IT SAVES THE INSTALLING SPACE. BEING USED FOR CLAMP OR CHUCK OF SMALL PARTS, IT FACILITATES COMPACT DESIGN OF VARIOUS TOOLS OR EXCLUSIVE EQUIPMENT.
 - IDEAL FOR MACHINE DESIGNS WITH SMALL SPACE REQUIREMENTS.
- : THE AUTO SWITCHES WILL NOT PROTRUDE FROM SWITCH MOUNTING GROOVE.

Symbol

Double acting:Double rod



How to order



1 Actuator

2 Auto switch

Blank : basic type
D : with auto switch (built-in magnet)

3 Attaching type

B : through hole (standard)
A : both ends tapped

4 Bore size

12 : 12mm
16 : 16mm
32 : 32mm
40 : 40mm
50 : 50mm
63 : 63mm
80 : 80mm
100 : 100mm

5 Cylinder stroke(mm)

ϕ 12, 16 : 5, 10, 15, 20, 25, 30
 ϕ 32, 40 : 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
 ϕ 50, 63, 80, 100 : 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

6 Action

D : double acting

7 Body Option

Blank : standard(rod end female thread)
C : rubber cushion mount
M : rod end male thread
* Combination of body option is possible : CM

8 Series

Blank : standard (copper free)

9 Type of auto switch

Blank : non auto switch (cylinder with built-in magnet)
W*** : small auto switch (ϕ 4)
* W*** Type is basic for square tube of ϕ 12~ ϕ 25.

10 Number of auto switch

Blank : 2 pcs
S : 1 pc
n : n pcs

⚠ Cautions

※ Note

Intermediate strokes at 3mm increments are available by using a spacer with standard stroke cylinders.

ex) Mode no : AQ2WB16-27D

A 3mm with spacer is installed in the standard AQ2WB16-30D

⚠ Precautions

Read before handling. Refer to A-2, for safety instructions and common precautions.

⚠ Caution

Snap ring installation/Removal

- When installing and removing, an appropriate pair of pliers(tool for installing a C snap ring) is needed.
- Exercise caution even when an appropriate pliers(tool for installing a C snap ring) is used, because the snap ring may be possibly detached from the tip of the pliers(tool for installing a C snap ring) and fly away, for thereby causing damages to humans or the peripheral equipment. After the snap ring is installed, be sure that it is placed securely in the ring groove before air is supplied .

Mounting

- When a load is removed, it is preferably needed to secure the wrench flats of the piston rod on the load side.
- If this is performed without securing the piston rod on the load side, note that the coupled(screwed-in) portion of the piston rod may be loosened.

Weight table

(Unit : g(oz))

Bore size (mm)	Cylinder stroke (mm)					
	5	10	15	20	25	30
12	42	49	56	63	71	77
16	63	74	85	96	107	118
32	192	220	244	268	292	316
40	292	323	354	385	416	447
50	-	528	573	618	663	708
63	-	676	714	753	792	831
80	-	1241	1325	1409	1493	1577
100	-	2106	2225	2344	2463	2582

Options

Bore size		12	16	32	40	50	63	80	100
Air pressure type	Mounting	Through-hole (standard)	○	○	○	○	○	○	○
		Boss ends tab	○	○	○	○	○	○	○
Air pressure type	Built-in magnet		○	○	○	○	○	○	○
	Piping method	Thread type	M5×0.8	M5×0.8 RC(PT)1/8	M5×0.8 RC(PT)1/8	RC(PT)1/4	RC(PT)3/8		
	Rod end male thread		○	○	○	○	○	○	○
Rubber cushion mount		○	○	○	○	○	○	○	○

Specifications

Description	Air pressure(non-lubrication) type
Fluid	Air
Proof pressure	1.5MPa (217psi)
Max. operating pressure	1.0MPa (140psi)
Ambient and fluid temperature°C(°F)	-10°C~70°C(14~158°F (Anti-freezing))
Rubber cushion	None
Rod end thread	Female thread
Rod end thread tolerance	KS Class 2
Stroke tolerance	+1.0 0
Mounting	Through hole
Piston speed	50 ~ 500 mm/s

Min. operating pressure (Unit : MPa(psi))

Bore size	12	16	32	40	50	63	80	100
Air pressure(non-lubrication)type	0.07	0.07	0.05	0.05	0.05	0.05	0.05	0.05

Option weights

(Unit : g(oz))

Bore size (mm)		12	16	32	40	50	63	80	100
Both ends tapped type		1	2	7	6	7	17	31	43
Rod end male thread	Male screw	1.5	3	50	50	104	104	288	348
	Nut	1	2	34	34	64	64	98	232
Rubber cushion mount		1	2	4	6	10	16	25	42

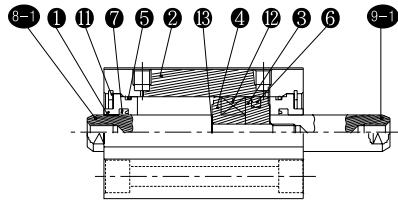
Calculation example

ex) AQ2WA16-20DCM

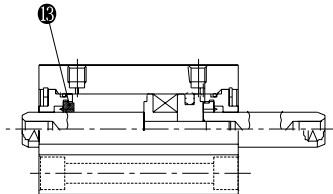
- Basic weight :AQ2WB16-20D 96g(3.38oz)
- Additional weight :Both end tapped type 2g(0.07oz)
- Rod end male thread 5g(0.17oz)
- Rubber cushion mount 2g(0.07oz)
- 105g(3.69oz)

Series AQ2W/ADQ2W

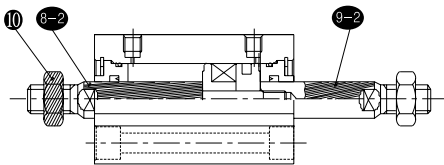
Construction / Parts lists



Standard type



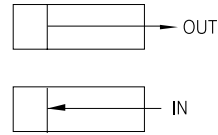
Rubber cushion



Rod end male thread

Theoretical force

(Unit : N)



Bore size (mm)	Operating pressure · MPa(psi)		
	0.3(43.5)	0.5(72.5)	0.7(101.5)
12	25	42	59
16	45	75	106
32	181	302	422
40	317	528	739
50	495	825	1150
63	841	1400	1960
80	1360	2270	3170
100	2140	3570	5000

1N = 0.102kgf

1MPa = 10.2kgf/cm²

Packing list/Exchanging parts/Air pressure(non-lubrication)type

No	Description	Ea	Material	Note
1	Rod cover	2	Aluminum alloy	Hard alumite
2	Cylinder tube	1	Aluminum alloy	
3	Piston	1	Aluminum alloy	Chromate
4	Piston-B	1	Aluminum alloy	Chromate
5	Gasket	2	Rubber	
6	Piston packing	1	Rubber	
7	Rod packing	2	Rubber	
8-1	Piston rod-A	1	Stainless steel	Female screw type
8-2	Piston rod-A	1	Stainless steel	Male screw type
9-1	Piston rod-B	1	Stainless steel	Female screw type
9-2	Piston rod-B	1	Stainless steel	Male screw type
10	Rod end nut	2	Steel	Nickel plating
11	Snap ring	2	Carbon tool steel	Phosphate coating
12	Magnet	1	Magnet	
13	Bumper "A"	2	Polyurethane	Rod cover side mounting

※ Ø12, Ø16 : Divide piston, piston-B

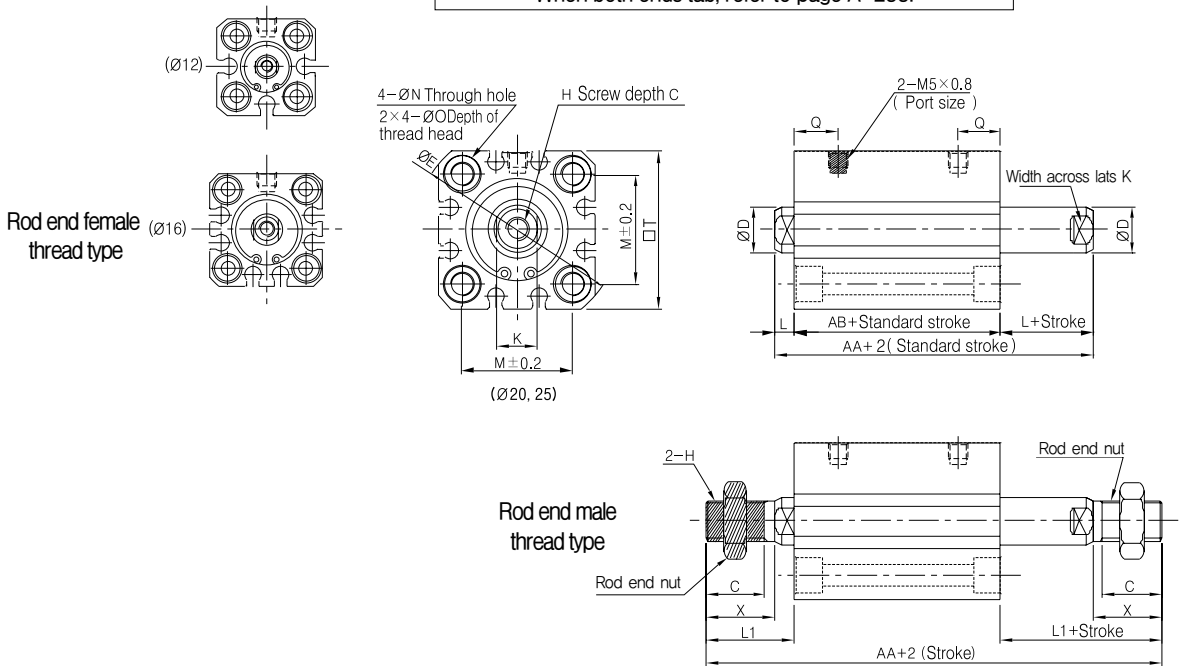
※ Copper free.

Packing list/Exchanging parts/Air pressure(non-lubrication)type

No	Description	Material	Ø12	Ø16	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
5	Gasket	Rubber	SO-013-6	C14	C29	C36	C46	C60	C75	C95
6	Piston packing	Rubber	PSD-12	PSD-16	PPD-32	PPD-40	PPD-50	PPD-63	PPD-80	PPD-100
7	Rod packing	Rubber	DYR-6K	DYR-8K	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z

Standard type(through hole)/AQ2WB, ADQ2WB

When both ends tab, refer to page A-255.



Rod end male thread type (Unit : mm)

Bore size	AA		L1	C	H	X
	Non-auto switch	Mounting auto switch				
12	53.6	60	14	9	M5×0.8	10.5
16	57	67	15.5	10	M6×1.0	12

Standard type (Unit : mm)

Bore size	Standard stroke range	Non-auto switch				Mounting auto switch				D	N	K	E	M	□	H	C	O
		AA	AB	L	Q	AA	AB	L	Q									
12	5 ~ 30	32.6	25.6	3.5	9	39	32	3.5	10.5	6	3.5	5	32	15.5	25	M3×0.5	6	6.5 Depth 4
16	5 ~ 30	33	26	3.5	10	43	36	3.5	10	8	3.5	6	38	20	29	M4×0.7	8	6.5 Depth 4

※ In case of both ends, refer to a separate data
 ※ The application of a stroke is 5mm apart

- ACP
- UACP
- APM
- AX
- AS
- AM2
- AM
- AL ALX
- ARD
- AQ
- AQ2**
- AJ
- AG
- AGX GX
- NDM
- ADR
- AMR
- NST
- AST
- NLCD
- NLCS
- NF
- NR
- ASL

Series AQ2, ADQ2

Compact cylinder(a square tube) : Standard type / Single acting-single rod

Bore size : ϕ 12, ϕ 16, ϕ 25, ϕ 32, ϕ 40, ϕ 50

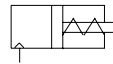


- SINGLE ACTING / SINGLE ROD COMPACT CYLINDER
 - SINCE THE TOTAL LENGTH IS COMPACT TYPE, IT SAVES THE INSTALLING SPACE. BEING USED FOR CLAMP OR CHUCK OF SMALL PARTS, IT FACILITATES COMPACT DESIGN OF VARIOUS TOOLS OR EXCLUSIVE EQUIPMENT.
 - IDEAL FOR MACHINE DESIGNS WITH SMALL SPACE REQUIREMENTS.
- : THE AUTO SWITCHES WILL NOT PROTRUDE FROM SWITCH MOUNTING GROOVE.

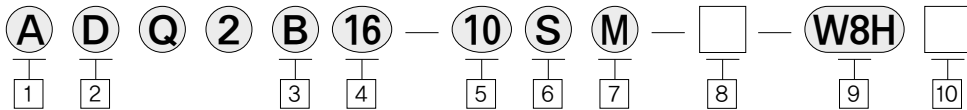
Symbol

Single type : Extension type

Retraction type



How to order



1 Actuator

2 Auto switch

Blank : basic type
D : with auto switch
(built-in magnet)

3 Attaching type

B : through hole (standard)
A : both ends tapped

4 Bore size

12 : 12mm
16 : 16mm
32 : 32mm
40 : 40mm
50 : 50mm

5 Cylinder stroke(mm)

ϕ 12, 16, 25 : 5, 10
 ϕ 32, 40 : 5, 10
 ϕ 50 : 5, 10, 15, 20

6 Action

S : single acting extension type
T : single acting retraction type

7 Body option

Blank : standard(rod end female thread)
M : rod end male thread
F : rear boss mount
* Combination of body option is possible : FM
* Without F : ϕ 12, ϕ 16

8 Series

Blank : standard (copper free)

9 Type of auto switch

Blank : non auto switch
(cylinder with built-in magnet)

W*** : small auto switch (ϕ 4)

* W*** Type is basic for square tube of ϕ 12~ ϕ 25.

10 Number of auto switch

Blank : 2 pcs
S : 1 pc
n : n pcs

⚠ Precautions

Read before handling. Refer to A-2, for safety instructions and common precautions.

⚠ Caution

Snap ring installation/Removal

- When installing and removing, an appropriate pair of pliers(tool for installing a C snap ring) is needed.
- Exercise caution even when an appropriate pliers(tool for installing a C snap ring) is used, because the snap ring may be possibly detached from the tip of the pliers(tool for installing a C snap ring) and fly away, for thereby causing damages to humans or the peripheral equipment. After the snap ring is installed, be sure that it is placed securely in the ring groove before air is supplied .

Mounting

- When a load is removed, it is preferably needed to secure the wrench flats of the piston rod on the load side.
- If this is performed without securing the piston rod on the load side, note that the coupled(screwed-in) portion of the piston rod may be loosened.

Weight table

(Unit : g(oz))

Model	Bore size (mm)	Cylinder stroke(mm)	
		5	10
Extension type	12	40	47
	16	61	72
	25	118	139
	32	157	181
	40	276	298
	50	-	413
Retraction type	12	46	53
	16	66	78
	25	124	143

Options

Bore size		12	16	25	32	40	50
Air pressure type	Mounting	Through-hole (standard)	○	○	○	○	○
		Boss ends tab	○	○	○	○	○
Air pressure type	Piping method	Built-in magnet	○	○	○	○	○
		Thread type	M5×0.8			M5×0.8 RdPT1/8	RdPT1/4
	Rod end male thread	○	○	○	○	○	○
	Rear boss mount	○	○	○	○	○	○

Specifications

Description	Air pressure(non-lubrication) type
Fluid	Air
Proof pressure	1.5MPa (217psi)
Max. operating pressure	1.0MPa (140psi)
Ambient and fluid temperature(°C/°F)	-10°C~70°C(14~158°F (Anti-freezing))
Rubber cushion	None
Rod end thread	Female thread
Rod end thread tolerance	KS Class 2
Stroke tolerance	+1.0 0
Mounting	Through hole
Piston speed	50 ~ 500 mm/s

Min. operating pressure (Unit : MPa(psi))

Bore size	12	16	25	32	40	50
Air pressure(non-lubrication)type	0.07	0.07	0.15	0.17	0.15	0.13

Option weights

(Unit : g(oz))

Bore size (mm)		12	16	25	32	40	50
Both ends tapped type		1	2	7	7	6	7
Rod end male thread	Male screw	1.5	3	12	26	27	53
	Nut	1	2	8	17	17	32
Rear boss mount		0.7	1.3	3	5	7	13
Rubber cushion mount		1	2	4	4	6	10

Calculation example

ex) AQ2A25-10SM

- Basic weight :AQ2B25-10S 139g(4.90oz)
- Additional weight :Both end tapped type
7g(0.24oz)
- Rod end male thread 20g(0.70oz)
- Rubber cushion mount 4g(0.14oz)
- 170g(5.98oz)

ACP

UACP

APM

AX

AS

AM2

AM

AL ALX

ARD

AQ

AQ2

AJ

AG

AGX GX

NDM

ADR

AMR

NST

AST

NLCD

NLCS

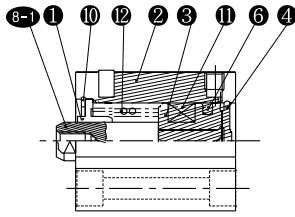
NF

NR

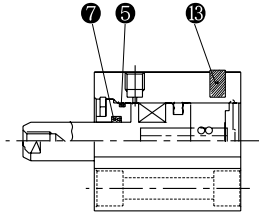
ASL

Series AQ2/ADQ2

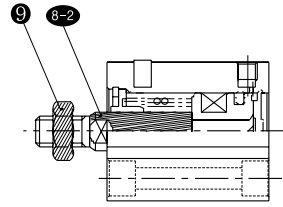
Construction / Parts lists



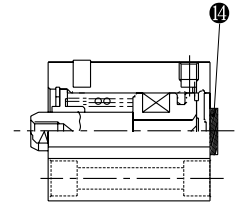
Extension type



Retraction type



Rod end male thread



Rear boss mount

Packing list/Exchanging parts/Air pressure(non-lubrication)type

No	Description	Ea	Material	Note
1	Rod cover	1	Aluminum alloy	Hard alumite
2	Cylinder tube	1	Aluminum alloy	
3	Piston	1	Aluminum alloy	Chromate
4	End plate	1	Aluminum alloy	Hard alumite
5	Gasket	1	Rubber	
6	Piston packing	1	Rubber	
7	Rod packing	1	Rubber	
8-1	Piston rod	1	Stainless steel	Female screw type
8-2	Piston rod	1	Stainless steel	Male screw type
9	Rod end nut	1	Steel	Nickel Plated
10	Snap ring	1	Carbon tool steel	Phosphate coated
11	Magnet	1	Magnet	
12	Return spring	1	Spring steel	
13	Air exhaust bolt	1	Steel	Chromate
14	Inloading	1	Aluminum alloy	Hard alumite

Packing list/Exchanging parts/Air pressure(non-lubrication)type

No	Description	Material	Ø12	Ø16	Ø25
5	Gasket	Rubber	SO-013-6	C14	C22
6	Piston packing	Rubber	PSD-12	PSD-16	PSD-25
7	Rod packing	Rubber	DYR-6K	DYR-8K	DYR-12

- ※ Ø12, Ø16 : Divide piston, piston-B
- ※ Ø12, Ø16 : Non-rear boss mount, end plate
- ※ Retraction type : Piston and piston rod are one body type
- ※ Copper free.

Theoretical force

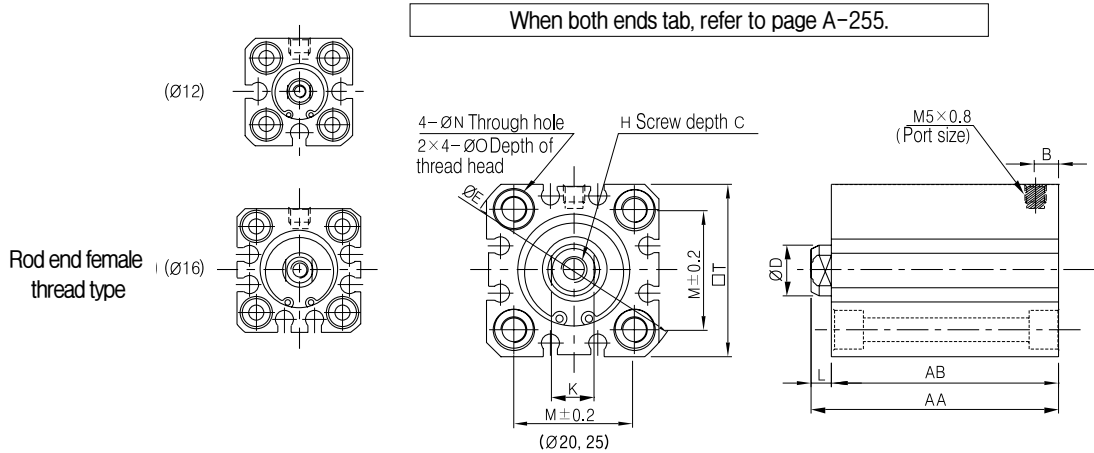
(Unit : N)

Operating type	Bore size (mm)	Pressure · MPa(psi)			Spring return		Allowable rod end Lateral load Max.(at horizontal)
		0.3	0.5	0.7	Start	Finish	
Extension type	12	7	19	28	4	2	3.1
	16	26	57	79	10	4	3.3
	25	188	265	387	19	12	6.6
	32	217	378	593	24	15	17.4
	40	347	598	850	30	13	17.4
Retraction type	50	535	928	1,316	54	25	30.4
	12	5	11	15	10	2	3.1
	16	18	35	55	16	7	3.3
	25	121	187	289	27	9	6.6

1N = 0.102kgf

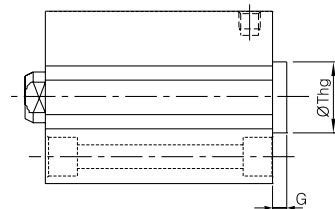
1MPa = 10.2kgf/cm²

Standard type(through hole)/AQ2B, ADQ2B-Single acting extension type



Rod end male thread type (Unit : mm)

Bore size	L1	C	H	X
12	14	9	M5×0.8	10.5
16	15.5	10	M6×1.0	12
25	22.5	15	M10×1.25	17.5



Rear boss mount type (Unit : mm)

Bore size	G	øThg
25	2	15 _{-0.043}

Standard type (Unit : mm)

Bore size	Standard stroke range	Non-auto switch					Mounting auto switch					L	D	N	K	E	M
		AA		AB		B	AA		AB		B						
		5 st	10 st	5 st	10 st		5 st	10 st	5 st	10 st							
12	5, 10	25.5	30.5	22	27	5	36.5	41.5	33	38	6.5	3.5	6	3.5	5	32	15.5
16		27	32	23.5	28.5	5.5	39	44	35.5	40.5	5.5	3.5	8	3.5	6	38	20
25		32.5	37.5	27.5	32.5	5.5	42.5	47.5	37.5	42.5	5.5	5	12	5.5	10	52	28

Bore size	□T	H	C	O
12	25	M3×0.5	6	6.5 Depth 4
16	29	M4×0.7	8	6.5 Depth 4
25	40	M6×1.0	12	9 Depth 7

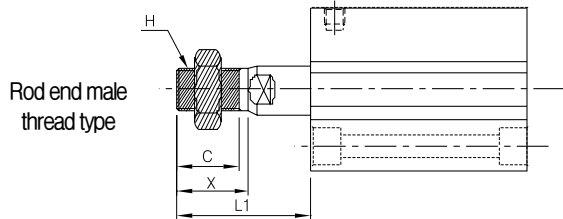
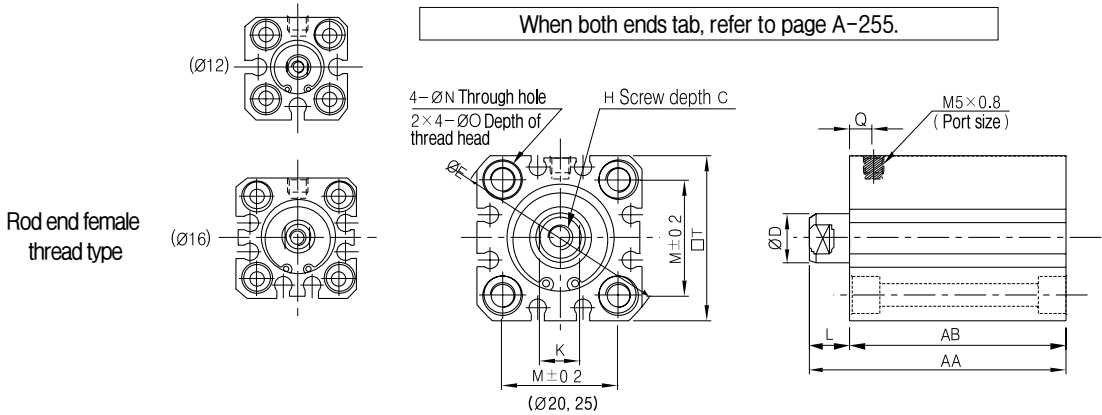
※ In case of ø12-5 stroke, ø20/25-5/10 stroke without auto switch

※ The application of a stroke is 5mm apart

- ACP
- UACP
- APM
- AX
- AS
- AM2
- AM
- AL ALX
- ARD
- AQ
- AQ2**
- AJ
- AG
- AGX GX
- NDM
- ADR
- AMR
- NST
- AST
- NLCD
- NLCS
- NF
- NR
- ASL

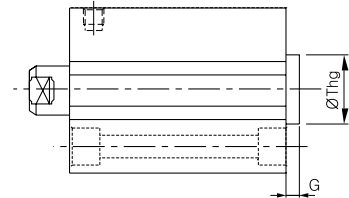
Series AQ2/ADQ2

Standard type(through hole)/AQ2B, ADQ2B - Single acting retraction type



Rod end male thread type (Unit : mm)

Bore size	L1		C	H	X
	5 st	10 st			
12	19	24	9	M5×0.8	10.5
16	20.5	25.5	10	M6×1.0	12
25	27.5	32.5	15	M10×1.25	17.5



Rear boss mount type (Unit : mm)

Bore size	G	$\varnothing Thg$
25	2	$15 \begin{smallmatrix} 0 \\ -0.043 \end{smallmatrix}$

Standard type

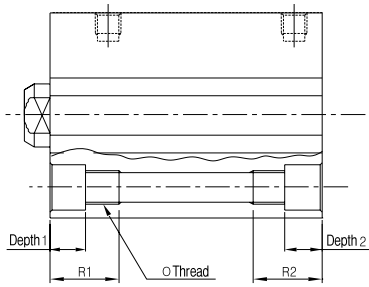
(Unit : mm)

Bore size	Standard stroke range	Non-auto switch					Mounting auto switch					L		D	N	K	E	M	□T	C	H	O
		AA		AB		Q	AA		AB		Q											
		5 st	10 st	5 st	10 st		5 st	10 st	5 st	10 st												
12	5, 10	30.5	40.5	22	27	7.5	41.5	51.5	33	38	11	8.5	13.5	6	3.5	5	32	15.5	25	6	M3×0.5	6.5 Depth 4
16		32	42	23.5	28.5	8	44	54	35.5	40.5	11	8.5	13.5	8	3.5	6	38	20	29	8	M4×0.7	6.5 Depth 4
25		37.5	47.5	27.5	32.5	11	47.5	57.5	37.5	42.5	11	10	15	12	5.5	10	52	28	40	12	M6×1.0	9 Depth 7

※ In case of $\varnothing 12-5$ stroke, $\varnothing 20/25-5/10$ stroke without auto switch

※ The application of a stroke is 5mm apart

Both ends tab



Standard type

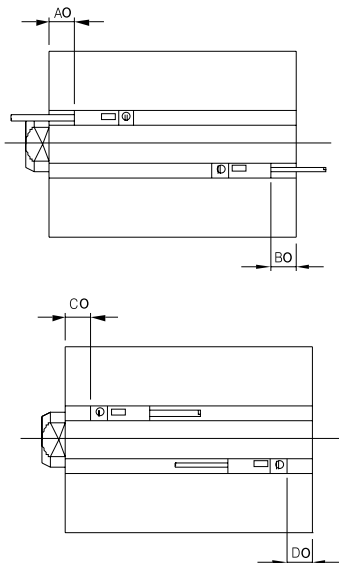
(Unit : mm)

Bore Size mm(inch)	O		Depth 1	Depth 1	R1	R2
	Rd(PF)	WPT				
φ12(1/2Nom.)	M4×0.7	8-32 UNC	3.5(-)	3.5	10.5(-)	10.5
φ16(5/8Nom.)	M4×0.7	8-32 UNC	3.5(-)	3.5	10.5(-)	10.5
φ20(3/4Nom.)	M6×1.0	1/4-20 UNC	7(15)	7	17(25)	17
φ25(1Nom.)	M6×1.0	1/4-20 UNC	7(15)	7	17(25)	17
φ32(1 1/4Nom.)	M6×1.0	1/4-20 UNC	7(7)	7	17(17)	17
φ40(1 1/2Nom.)	M6×1.0	1/4-20 UNC	7(7)	7	17(17)	17
φ50(2Nom.)	M8×1.25	5/16-18 UNC	8(8)	8	22(22)	22
φ63(2 1/2Nom.)	M10×1.5	7/16-14 UNC	10.5(10.5)	10.5	28.5(28.5)	28.5
φ80(3 1/4Nom.)	M12×1.75	1/2-13 UNC	10.5(13.5)	13.5	35.5(35.5)	35.5
φ100(4Nom.)	M12×1.75	1/2-13 UNC	13.5(13.5)	13.5	35.5(35.5)	35.5

Auto switch specification

Description	Non plug point (W8**)	Non plug point (W9**)
Size	Existing plug point Ø4	Existing plug point Ø4
Load voltage	DC 24V, AC100V	DC 24V
Applicable current	5 ~ 40 mA (DC 24V), 5 ~ 20 mA (AC 110V)	5 ~ 30 mA
Lead wire direction	Vertical, Horizontal type	Vertical, Horizontal type
Lamp	On :Red LED	On :Green LED
Wiring method	2 Wires	2 Wires
Mounting method	Mounting screw on rail	Mounting screw on rail
Operating time	1.2 ms or less	1.2 ms or less
Internal voltage drop	2.4V or less	4.5V or less
Min. operating	62G or more	26G or more
Max. operating	320G or less	
Switch life time	at 5 V, 5mA : 1 × 10 ⁷	
	at 12 V, 5mA : 1 × 10 ⁷	
	at 24 V, 40mA : 4 × 10 ⁶	
Current leakage	-	1.5mA or less at DC 24V

Auto switch set position



Standard type

(Unit : mm)

Bore size	Operating position				Operating range	Notes
	Rod side		Head side			
	AO	BO	CO	DO		
φ12	7	7	3.5	3.5	8	
φ16	12	7.5	8.5	4	10	
	2.5	3	4	4.5	5.5	Single rod, long stroke type
φ20	11	9.5	7.5	6.5	9	
φ25	2.5	2.5	8	8	9.5	

- ACP
- UACP
- APM
- AX
- AS
- AM2
- AM
- AL ALX
- ARD
- AQ
- AQ2
- AJ
- AG
- AGX GX
- NDM
- ADR
- AMR
- NST
- AST
- NLCD
- NLCS
- NF
- NR
- ASL

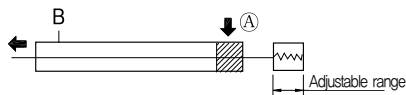
Series AQ2/ADQ2

Dual stroke cylinder/Extension adjustment type

AQ2B Bore size — Stroke D — XC8

The extended stroke of the cylinder can be adjusted by the stopper on the head side from full stroke(0~10mm).

Symbol

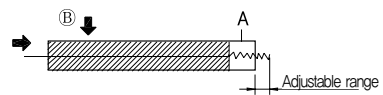


Dual stroke cylinder/Retraction adjustment type

AQ2 Mounting Bore size — Stroke — D(M) — XC9

The retracted stroke of the cylinder can be adjusted from the adjusting bolt.

Symbol



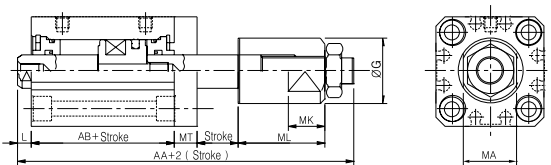
Specification

Type	Air pressure(non-lubrication)type
Bore size	Ø12, 25
Operating type	Double acting
Fluid	Air
Stroke adjustable method	Stopper adjusting
Stroke adjustable range	10 mm
Mounting	Through hole
Cushion	Non
Min. operating pressure	Ø12 : 0.07 MPa(10.1psi), Ø25 : 0.05 MPa(7.3psi)

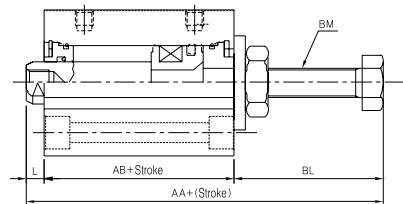
Specification

Type	Air pressure(non-lubrication)type
Bore size	Ø12, 16, 25
Operating type	Double acting
Fluid	Air
Stroke adjustable method	Volt adjusting
Stroke adjustable range	10 mm
Mounting	Through hole(standard), Both end tab
Cushion	Non
Min. operating pressure	0.05 MPa

Construction / Dimensions



Construction / Dimensions



Standard type

(Unit : mm)

Bore size	Manufacturable stroke range	Non-auto switch		Mounting auto switch		L	MT	ML	MK	G	MA
		AA	AB	AA	AB						
12	5 ~ 30	57.7	25.6	64.9	32	3.5	5	19	8	14	11
25	5 ~ 50	71.1	29	81.3	39	5	8	22.5	10	20	17

- ※ In case of Ø25-5 stroke without auto switch.
- ※ In case of both ends tab, refer to a separate data.
- ※ The application of a stroke is 5mm apart.

Standard type

(Unit : mm)

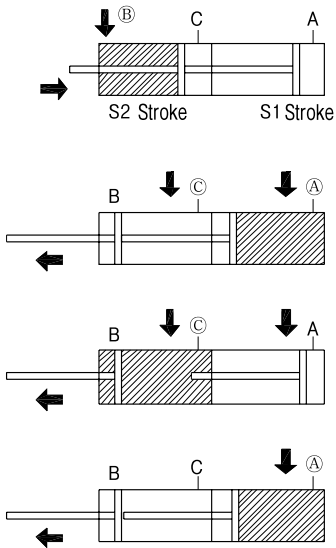
Bore size	Manufacturable stroke range	Non-auto switch		Mounting auto switch		L	BL	BM
		AA	AB	AA	AB			
12	5 ~ 30	52.6	25.6	59	32	3.5	23.5	M×0.8
16	5 ~ 30	53	26	63	36	3.5	23.5	M6×1.0
25	5 ~ 50	63.5	29	73.5	39	5	29.5	M8×1.25

- ※ In case of Ø25-5 stroke without auto switch.
- ※ In case of both ends tab, refer to a separate data.
- ※ The application of a stroke is 5mm apart.

Dual stroke cylinder / Single rod type

AQ2B Bore size — Stroke S1 + Stroke S2-S1 D(C)(M) — XC11

This cylinder is produced with two air cylinders in line allowing double the output force



When air pressure is supplied to the ② port, both S1 and S2 strokes retract.

When air pressure is supplied to port ① and ③, the output force is doubled in the extend stroke.

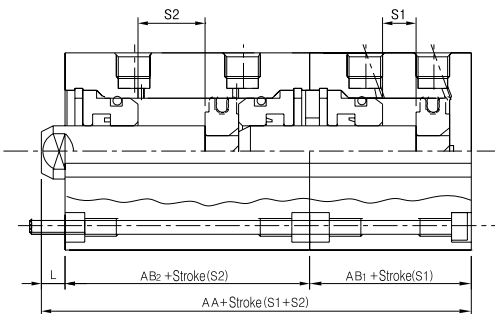
When air pressure is supplied to the ③ port, the S2-S1 stroke extends.

When air pressure is supplied to ports ①, double output force is obtainable in the range of the S1 stroke length.

Specification

Type	Air pressure(non-lubrication)type
Bore size	Ø12, 16
Operating type	Double acting
Fluid	Air
Mounting	Through hole
Piston speed	50 ~ 500 mm/s

Construction / Dimensions



Standard type (Unit : mm)

Bore size	Manufacturable stroke range (S1, S2)	Non-auto switch			Mounting auto switch			L
		AA	AB ₁	AB ₂	AA	AB ₁	AB ₂	
12	5 ~ 30	46.1	17	25.6	63.5	28	32	3.5
16	5 ~ 30	48	18.5	26	70	30.5	36	3.5

※ The application of a stroke is 5mm apart.

- ACP
- UACP
- APM
- AX
- AS
- AM2
- AM
- AL ALX
- ARD
- AQ
- AQ2
- AJ
- AG
- AGX GX
- NDM
- ADR
- AMR
- NST
- AST
- NLCD
- NLCS
- NF
- NR
- ASL

Series ADQ2



Specification

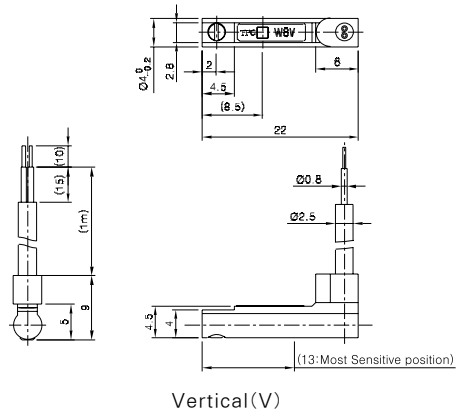
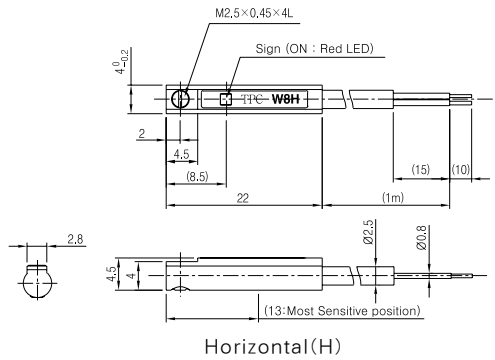
Items	Existing plug point(W8**)	Non plug point(W9**)	Note
SIZE	∅4	∅4	
Power Source	DC24V, AC100V	DC24V	
Current Consumption	5~40mA (DC24V) 5~20mA(AC110V)	5~30mA	
Lead wire entry	Vertical, Horizontal	Vertical, Horizontal	
LAMP	ON : Red LED	ON : Green LED	
Wiring Method	2 wires	2 wires(3 wires)	()is OPTION
Power Method	-	NPN, PNP	
Mounting	Mounting screw on rail	Mounting screw on rail	
Acting Time	under 1.2ms	under 1.2ms	
Internal pressure	under 2.4V	under 4.5V	
Min.operating gauss	over 65G	over 35G	
Max.operating gauss	under 450G		
Life Time	5V, 5mA : 1×10^7	-	
	12V, 5mA : 1×10^7		
	24V, 40mA : 4×10^6		

Sensing Distance of Switch

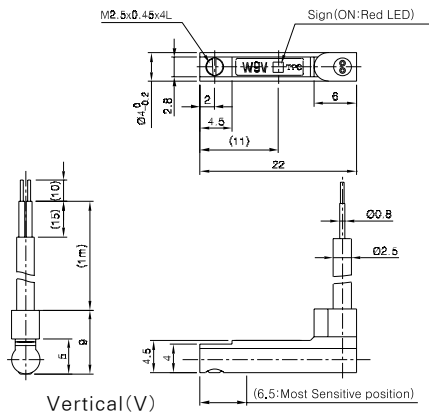
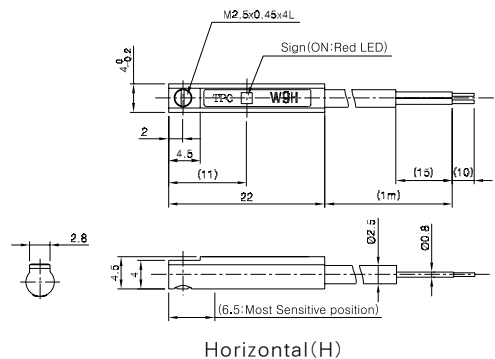
Model	W8**	W9**
L(Most sensitive position)	13	6.5
Sensing Distance	8 ~ 10	4 ~ 4.5

Dimensions

W8*



W9*



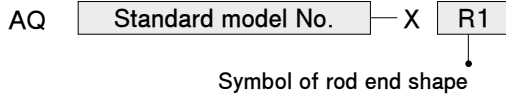
Made to order specifications

AQ2/AQ Made to order common specifications

Spec.	No	Symbol	Specification / Descriptions
AQ2	①	-XR0~XR30	Change of rod end shape
	②	-XC8	Adjustable stroke cylinder/Adjustable extend stroke
	③	-XC9	Adjustable stroke cylinder/Adjustable retract stroke
	④	-XC10	Dual stroke cylinder/Double rod
	⑤	-XC11	Dual stroke cylinder/Single rod
	⑥	-X202	Overall length is the same as for series AQ
	⑦	-X203	L-dimensions from rod cover are the same as for series AQ
	⑧	-X163	Built-in coil scraper(Increase tube overall length)

Change of rod end shape

-XR0 ~ XR30



Actuator and applicable rod end shape(Manufacturable range)

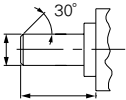
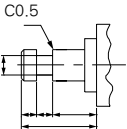
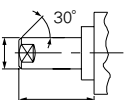
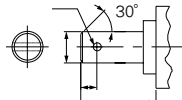
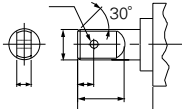
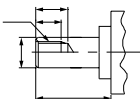
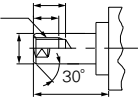
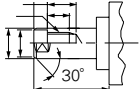
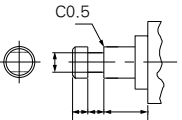
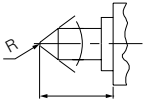
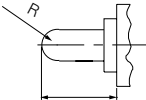
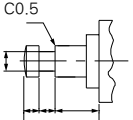
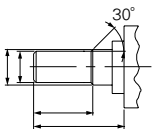
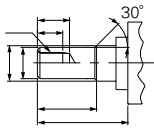
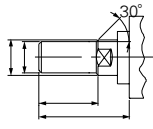
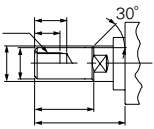
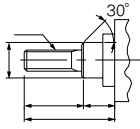
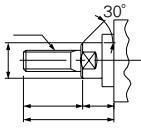
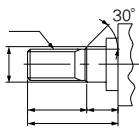
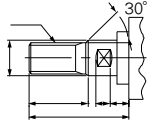
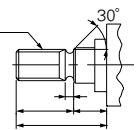
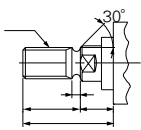
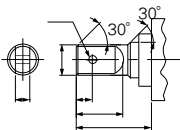
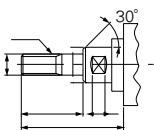
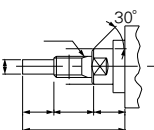
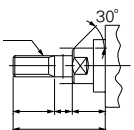
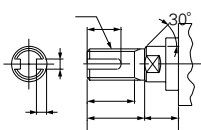
Series		Cylinder (Operating type)	Symbol of rod end shape
Compact cylinder AQ	AQ	Standard type	-XR0~XR30
	AQ□-S	Standard type Single acting/extend stroke only	

- TPC will make appropriate arrangements if no dimensional, tolerance, or finish instructions are given in the diagram.
- Subtract 1mm from the rod diameter(D) for the dimension marked "*".
Enter any special dimension you desire.

Series AQ2/ADQ2

Change of rod end shape

Symbol : R0 The shape of rod end is same to that of standard type. Be sure to indicate H size if it is different from standard size.

<p>Symbol : R1</p> 	<p>Symbol : R2</p> 	<p>Symbol : R3</p> 	<p>Symbol : R4</p> 
<p>Symbol : R5</p> 	<p>Symbol : R6</p> 	<p>Symbol : R7</p> 	<p>Symbol : R8</p> 
<p>Symbol : R9</p> 	<p>Symbol : R10</p> 	<p>Symbol : R11</p> 	<p>Symbol : R12</p> 
<p>Symbol : R13</p> 	<p>Symbol : R14</p> 	<p>Symbol : R15</p> 	<p>Symbol : R16</p> 
<p>Symbol : R17</p> 	<p>Symbol : R18</p> 	<p>Symbol : R19</p> 	<p>Symbol : R20</p> 
<p>Symbol : R21</p> 	<p>Symbol : R22</p> 	<p>Symbol : R23</p> 	<p>Symbol : R26</p> 
<p>Symbol : R27</p> 	<p>Symbol : R28</p> 	<p>Symbol : R29</p> 	<p>Symbol : R30</p> 