



General Pneumatic Cylinders

10Z-3/3L Series	AB2
10Z-2 Series	AB88
10A-6 Series	AB158
10A-6L Series	AB210
10B-6 Series	AB240
DC7 Series	AB270
10A-2 Series	AB298
10A-3 Series	AB348
7AL-3 Series	AB374

Compact Round Type Pneumatic Cylinder with use of band type small sensor

- The use of stainless steel tubes simplifies the appearance.
- Compatible cylinder body dimension regardless proximity sensors are equipped.
- Band type sensors easy to fit are available. The sensor position can be freely selected by moving the band.
- The optimum mounting style can be selected from six types.
- Stainless steel (plated with hard chrome) piston rods are used.



Cylinder Specifications

Series variations	Double acting/single rod	Single acting type (spring return)
Type	Standard type/Switch Set	Standard type/Switch Set
Model number	10Z-3	10Z-3SR
Cylinder bore (mm)	ϕ 12· ϕ 16	
Working fluid	Air	
Lubrication	Unnecessary	
Working pressure range	0.07 to 1 MPa	0.15 to 1 MPa
Proof test pressure	1.5 MPa	
Working speed range	50 to 500 mm/s (Note)	
Working temperature range	-10 to +70°C (No freezing)	
Structure of cushioning	With cushion pads	
Tolerance for thread	JIS 6g/6H	
Tolerance of stroke	0 to 200 mm ^{+1.0} ₀	
Mounting style	Basic style	SD, SD with bracket, LB, LS, FA, FB
	Clevis cut style	SK·LK·FK
	Rear port style	SP·LP·FP
Accessories	Rod end attachments	Rod eye with spherical bearing (S-end), rod clevis (Y-end) with pin

(Note)

When a sensor is mounted in an intermediate position, set the cylinder maximum speed to 300 mm/s or less for reasons of the load relay response speed, etc.

- Consult us when special port position is required.

Spring Force of Single Acting Cylinders

Unit: N

Stroke (mm)		15	25	50
Bore	Spring force			
	Initial load	8.34	7.37	4.94
ϕ 12	End load	9.81		
	Initial load	10.28	9.32	6.88
ϕ 16	End load	11.76		

Sensor Mountable Minimum Stroke

Unit: mm

Bore (mm)	With 1 sensor						With 2 sensors					
	ZC201	ZC205	ZC230	ZC253	JR type	JS type	ZC201	ZC205	ZC230	ZC253	JR type	JS type
ϕ 12	10	15	10	10	10	10	15	15	10	10	15	20
ϕ 16												

Product Lineup

Unit: mm

Series Variations		Type	ϕ 12	ϕ 16
Standard	Double acting single rod	Standard type 10Z-3	●	●
		Switch Set 10Z-3	●	●
	Single acting spring return single rod	Standard type 10Z-3SR	●	●
		Switch Set 10Z-3SR	●	●

Outline of types

Double acting 10Z-3		Standard type	Basic style	Clevis cut style	Rear port style	Switch Set	Basic style	Clevis cut style	Rear port style	Switch Set	Basic style	Clevis cut style	Rear port style
			●	●	●	●	●	●	●	●	●	●	●
			●	—	—	●	—	—	●	—	●	—	—
			●	—	—	●	—	—	●	—	●	—	—
			●	●	●	●	●	●	●	●	●	●	●
			●	—	—	●	—	—	●	—	●	—	—
			●	—	—	●	—	—	●	—	●	—	—

Weight Table

Unit: g

Bore (mm)	Basic weight			Additional weight per mm of stroke	Mounting accessory weight								Rod end attachment weight		
	Basic style	Clevis cut style	Rear port style		Basic style				Clevis cut style		Rear port style		Rod eye (T-end)	Rod clevis (Y-end) w/ pin	
					SD w/ bracket	LB	LS	FA	FB	LK	FK	LP			FP
φ12	65(67)	55(57)	55(57)	0.38	58	81	35.5	23	23	35.5	23	35.5	23	24	20
φ16	87(86)	77(76)	77(76)	0.42											

(Note) ● The parenthesized values indicate the weight of single acting cylinders.

Sensor Additional Weight

Unit: g

Bore (mm)	ZC type		JR/JS type	
	Cord length 1 m	Cord length 3 m	Cord length 1.5 m	Cord length 5 m
ϕ 12	25	55	35	98
ϕ 16				

(Note) ● The sensor additional weight includes the weight of the sensor band.

Calculation formula Cylinder weight (g)=basic weight+(cylinder stroke (mm)×additional weight per mm of stroke)+(sensor additional weight×sensor quantity)+mounting accessory weight+rod end attachment weight

Calculation example 10Z-3, double acting clevis cut style LK, bore ϕ 12, cylinder stroke 50 mm, 2 pcs of ZC201A (cord length 1 m), rod clevis (Y-end)
55+(50×0.38)+(25×2)+35.5+20=179.5g

● How to order

● Standard type/Switch Set

10Z-3 SD 12 N 100 A 2 Y B

10Z-3 Double acting single rod
10Z-3SR Single acting spring return

Mounting style
Cylinder bore (mm)
 ϕ 12- ϕ 16
With cushion pads
Cylinder stroke (mm)

With bracket
Applicable mounting style: Only SD style

Sensor symbol
Note) Select applicable sensors out of the Sensor List.
S Rod eye with spherical bearing (S-end)
Y Rod clevis (Y-end) with pin

Sensor quantity (1,2)

● Note on ordering Switch Set
● Sensors are not mounted on cylinders at delivery.

■ Delivery state

- The product will be delivered without the mounting accessory and rod end attachment mounted.

Standard Stroke Range

- Double acting type Unit: mm

Bore	Stroke						Stroke limit
	15	25	30	50	75	100	
ϕ 12	○	○	○	○	○	○	200
ϕ 16	○	○	○	○	○	○	200

- If a stroke other than the above standard strokes (○-marked) is required, consult us.

- Single acting type (spring return) Unit: mm

Bore	Stroke				Stroke limit
	15	25	30	50	
ϕ 12	○	○	○	○	50
ϕ 16	○	○	○	○	50

- If a stroke other than the above standard strokes (○-marked) is required, consult us.

Sensor List

Type	Sensor symbol	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Indicating lamp	Wiring method	Cord length	Applicable loads
Reed sensor	 ZC201A	AC: 115 V or less	AC: 25 mA or less	—	None	None	0.2 mm ² , 2-core, outer dia. φ3 mm, rear wiring	1 m	Small relay, programmable controller
	 ZC201B	DC: 28 V or less	DC: 40 mA or less	—	None	None		3 m	
	 ZC205A	DC:10 to 28 V	DC:5 to 40 mA	—	None	LED (Lights when sensing)		1 m	
	 ZC205B							3 m	
	 JR101	DC:5 to 50 V	DC:3 to 40 mA	DC:1.5 W	None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ3.4 mm, rear wiring	1.5 m	
	 JR105	AC:5 to 120 V	AC:3 to 20 mA	AC:2 VA				5 m	
Solid state sensor	 ZC230A	DC:10 to 28 V	4 to 50 mA	—	Provided	LED (Lights when sensing)	0.2 mm ² , 2-core, outer dia. φ3 mm, rear wiring	1 m	Small relay, programmable controller
	 ZC230B							3 m	
	 ZC253A	DC: 28 V or less	100 mA or less	—	Provided	LED (Lights when sensing)	0.2 mm ² , 3-core, outer dia. φ3 mm, rear wiring	1 m	
	 ZC253B							3 m	
	 JS211M	DC:10 to 30 V	6 to 70 mA	—	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ3.4 mm, rear wiring	1.5 m	
	 JS215M							5 m	

- Notes)
- For the sensors without a protective circuit, be sure to provide a protective circuit (SK-100) with the load when using any induction load (relay, etc.).
 - For handling of sensors, be sure to see the sensor specifications at the end of this catalog.
 - We recommend AND Unit (AU series) for multiple sensors connected in series.
- For details, refer to AND Unit at the end of this catalog.

- ZC type sensor



- JR/JS type sensor

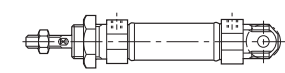


Mounting Style

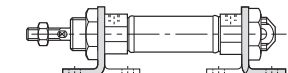
Standard type/Switch Set

Basic style

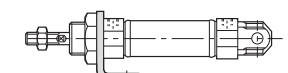
- SD Basic style



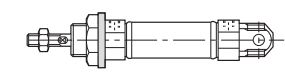
- LB End angles



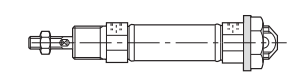
- LS End angles



- FA Rod flange

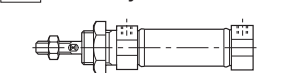


- FB Cap flange

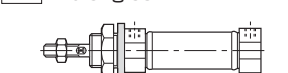


Clevis cut style

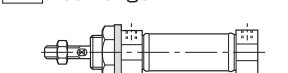
- SK Basic style



- LK End angles

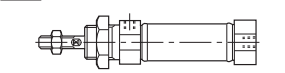


- FK Rod flange

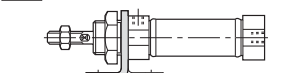


Rear port style

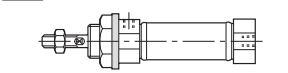
- SP Basic style



- LP End angles



- FP Rod flange

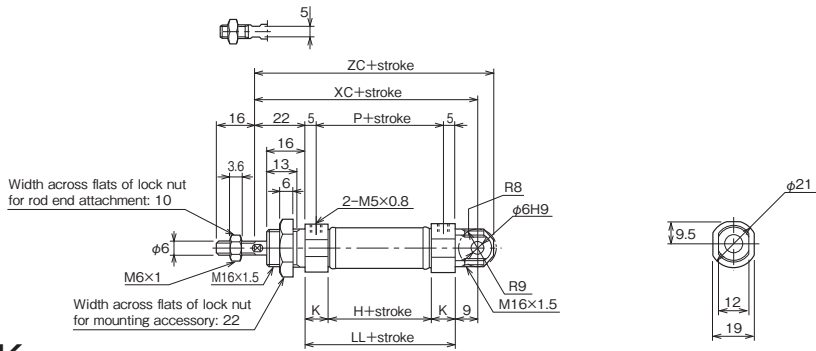


CAD/DATA
10Z-3/TAZ3 [Bore] A,B is available.



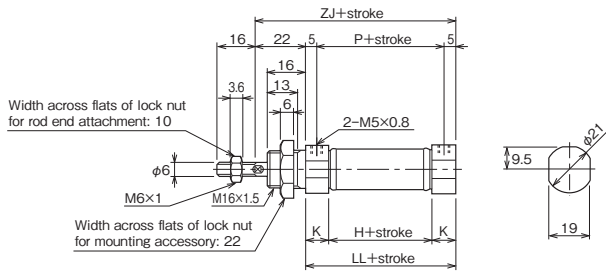
SD

Standard type 10Z-3 SD [Bore] N [Stroke]



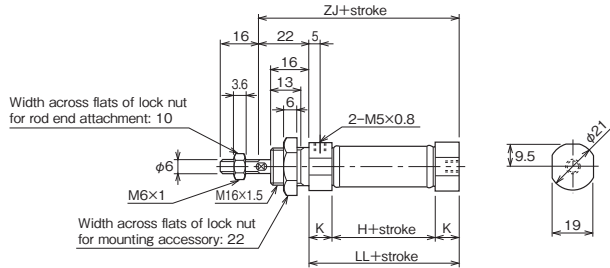
SK

Clevis cut style 10Z-3 SK [Bore] N [Stroke]



SP

Rear port style 10Z-3 SP [Bore] N [Stroke]



- The double acting and single acting cylinders have the same dimensions.
- The single acting cylinders have a filter in the port on the rod side.

Dimensional Table

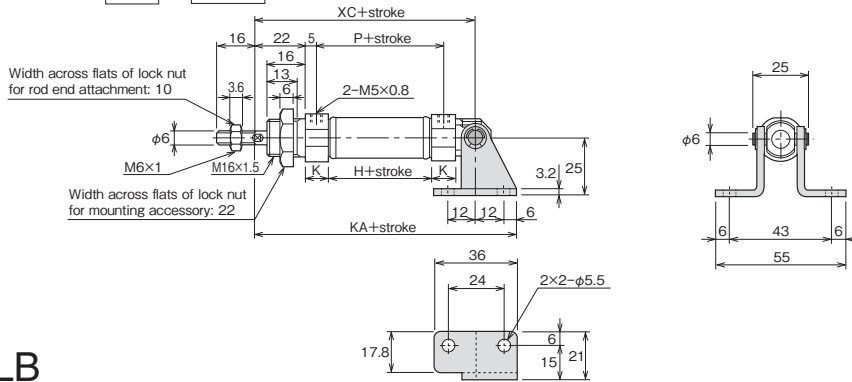
Symbol Bore	H	K	LL	P	XC	ZC	ZJ
ϕ 12	25	9.5	44	34	75	82	66
ϕ 16	31	10	51	41	82	89	73

CAD/DATA
10Z-3/TAZ3 [Bore] A,B is available.



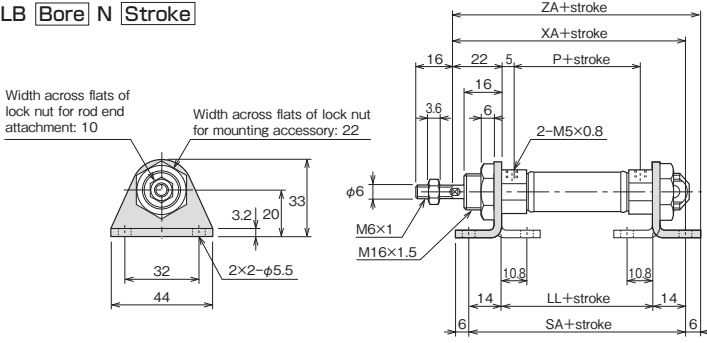
SD with Bracket

10Z-3 SD [Bore] N [Stroke]-B



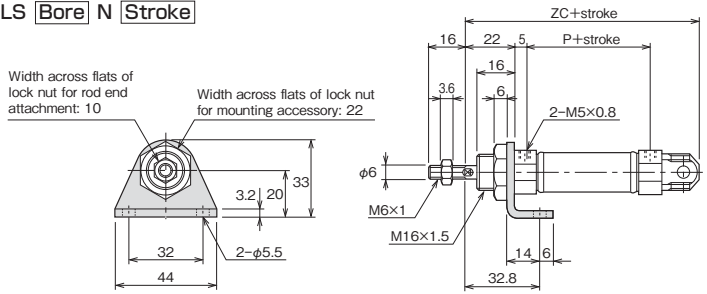
LB

10Z-3 LB [Bore] N [Stroke]



LS

10Z-3 LS [Bore] N [Stroke]



- For dimensions not shown here, refer to the SD style (basic style).
- The double acting and single acting cylinders have the same dimensions.
- The single acting cylinders have a filter in the port on the rod side.

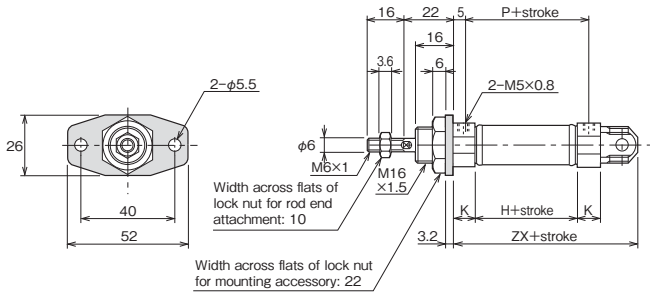
Dimensional Table

Symbol Bore	H	K	KA	LL	P	SA	XA	XC	ZA	ZC
ϕ 12	25	9.5	93	44	34	72	80	75	86	82
ϕ 16	31	10	100	51	41	79	87	82	93	89

FA

10Z-3 FA [Bore] N [Stroke]

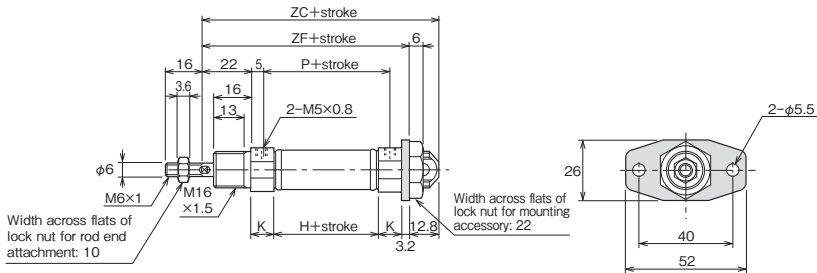
CAD/DATA
10Z-3/TAZ3 [Bore] A,B is available.



Related types: Clevis cut style (FK) and rear port style (FP)

FB

10Z-3 FB [Bore] N [Stroke]



- For dimensions not shown here, refer to the SD style (basic style).
- The double acting and single acting cylinders have the same dimensions.
- The single acting cylinders have a filter in the port on the rod side.

Dimensional Table

Symbol	H	K	P	ZC	ZF	ZX
Bore						
ϕ 12	25	9.5	34	82	69.2	60
ϕ 16	31	10	41	89	76.2	67

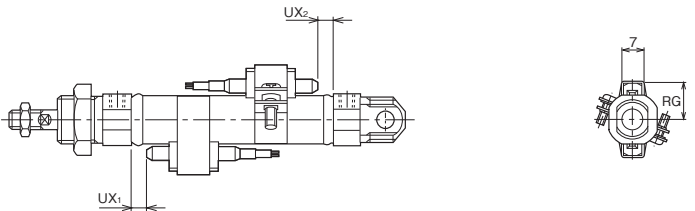
CAD/DATA
10Z-3/TAZ3 [Bore] A,B is available.



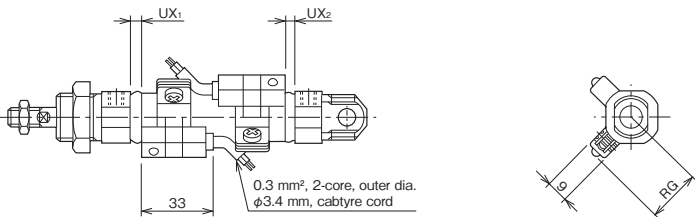
Switch Set

10Z-3 [Mounting style] [Bore] N [Stroke] - [Sensor symbol] [Sensor quantity]

● ZC type sensor



● JR/JS type sensor



- For dimensions not shown here, refer to the SD style (basic style).
 - The double acting and single acting cylinders have the same dimensions.
- Related types: Clevis cut style (SK) and rear port style (SP)

Dimensional Table

Bore mm	RG		UX ₁					UX ₂				
	ZC type	JR/JS type	Reed sensor			Solid state sensor		Reed sensor			Solid state sensor	
			ZC201	ZC205	JR type	ZC230-ZC253	JS type	ZC201	ZC205	JR type	ZC230-ZC253	JS type
ϕ 12	15	17	4.5	1	0	3	3	5.5	2	1	4	3
ϕ 16	17	19	9	5.5	4	7.5	5	8	4.5	3	6.5	5

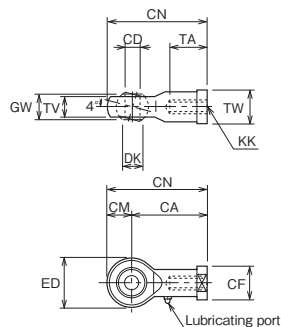
Note) ● Dimension UX indicates the optimum sensor mounting position for detection of stroke end.

Operating Range and Hysteresis

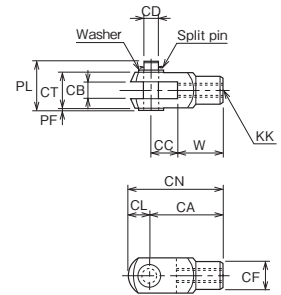
Bore mm	Reed sensor						Solid state sensor					
	ZC201		ZC205		JR type		ZC230		ZC253		JS type	
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis
ϕ 12	3 to 6	1.5 or less	4 to 6	1.5 or less	4 to 6	2 or less	1 to 3	0.5 or less	1 to 3	0.5 or less	8 to 10	1 or less
ϕ 16	4 to 9		4 to 7		4 to 6		1 to 4		2 to 3		9 to 12	

Rod End Attachment

- Rod eye with spherical bearing (S-end)
Rod eye with spherical bearing



- Rod clevis (Y-end)
with pin



Dimensional Table/S-end

Symbol	Part number	CA	CD	CF	CM	CN	DK	ED	GW	KK	TA	TV	TW
Bore													
ϕ 12	RSA-06-A	30	ϕ 6H9	ϕ 13	9	39	ϕ 9	18	$9_{-0.1}^0$	M6×1	14	6.75 ± 0.1	11
ϕ 16													

Dimensional Table/Y-end

Symbol	Part number	CA	CB	CC	CD	CF	CL	CN	CT	KK	PF	PL	W
Bore													
ϕ 12	RYA-06-A	24	$6_{+0.15}^{+0.4}$	12	$\phi 6_{T7}^{H8}$	ϕ 10	7	31	$\square$ 12	M6×1	1.5	18.5	12
ϕ 16													

Lock Nut Part Number

Bore	Part number
ϕ 12	LNA-06Z-A
ϕ 16	LNA-06Z-A

Handling procedures

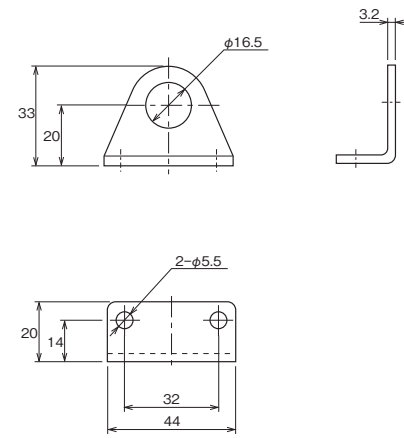
Accessory tightening torque

Tighten each nut and bolt to the tightening torque shown in the following table.

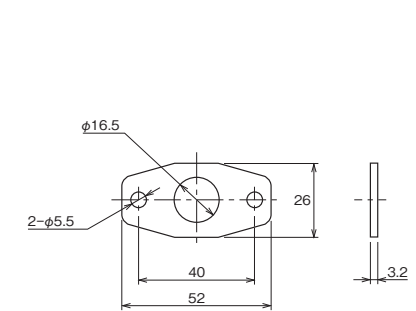
	M16 (ϕ 12, 16)
Tightening torque of accessory mounting nut	53.9 N · m
	M6 (ϕ 12, 16)
Tightening torque of rod end attachment fixing nut	4.81 N · m

Mounting Accessory

- End angles

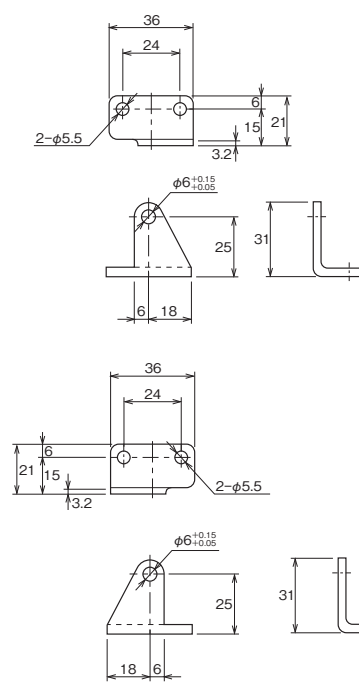


- Flange type



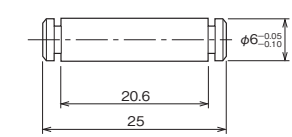
Bracket

- For SD style (Set of 2 pcs.)



Pin

- For SD with bracket (With 2 E-rings)



Mounting Accessory Part Number

Bore	LB	LS·LK·LP	FA·FB	SD style bracket (with pin)
ϕ 12	MAZ3-LB012	MAZ3-LS012	MAZ3-FA012	MAZ3-BK012PA
ϕ 16	MAZ3-LB012	MAZ3-LS012	MAZ3-FA012	MAZ3-BK012PA

Compact Round Type
Pneumatic Cylinder with use
of band type small sensor

- The use of stainless steel tubes simplifies the appearance.
- Compatible cylinder body dimension regardless proximity sensors are equipped.
- Band type sensors easy to fit are available.
- The optimum mounting style can be selected from 17 types (11 types for ϕ50 and ϕ63).
- Stainless steel (plated with hard chrome) piston rods are used for standard cylinders with bores from 20 to 32 mm.



Cylinder Specifications/Standard

Series variations		Double acting/single rod		Double acting/double rod	Single acting type (spring return)	Single acting type (spring-extended)
Type	Standard type/Switch Set		VAL Set/SV Set	Standard type/Switch Set	Standard type/Switch Set	Standard type/Switch Set
Series	10Z-3		10Z-3V2	10Z-3D	10Z-3SR	10Z-3SH
Cylinder bore (mm)	φ20, φ25, φ32, φ40, φ50, φ63		φ20, φ25, φ32, φ40	φ20, φ25, φ32, φ40, φ50, φ63	φ20, φ25, φ32, φ40	
Working fluid	Air					
Lubrication	Unnecessary					
Working pressure range	0.05 to 1 MPa (φ20 to φ40) 0.02 to 1 MPa (φ50-φ63)		0.15 to 1 MPa	0.05 to 1 MPa (φ20 to φ40) 0.02 to 1 MPa (φ50-φ63)		0.15 to 1 MPa
Proof test pressure	1.5 MPa					
Note 1) Working speed range	20 to 700 mm/s		20 to 500 mm/s	50 to 700 mm/s (φ20 to φ40) 20 to 700 mm/s (φ50 to φ63)		50 to 700 mm/s
Note 2) Working temperature range	-10 to +70℃		-10 to +50℃	-10 to +70℃		-10 to +70℃
Structure of cushioning	Standard: With cushion pad (φ20 to φ40), with cushions on both ends (φ50 and φ63) Semi-standard: With cushion (part of types)					
Tolerance for thread	JIS 6g/6H					
Tolerance of stroke	0 to 250 mm ^{+1.0} ₀ 251 to 900 mm ^{+1.5} ₀					
Mounting accessory	Basic style	SD, SD w/ bracket (only φ20 to φ40), LS (only φ20 and φ25), LB, FA, FB, TA, TA w/ bracket, TB, TB w/ bracket, CA (only φ50 and φ63), CU (only φ20 to φ40), CU w/ bracket (only φ20 to φ40)	SD, LC, FA, TA, TA w/ bracket, TC, TC w/ bracket, AD, BD	SD, LB, FA, TA, TA w/ bracket, AD, BD	SD, SD w/ bracket, LS (only φ20 and φ25), LB, FA, FB, TA, TA w/ bracket, TB, TB w/ bracket, CU, CU w/ bracket	
	Clevis cut style	SK, LK (only φ20 and φ25), FK, TK, TK w/ bracket, AD, BD	—	—	SK, LK (only φ20 and φ25), FK, TK, TK w/ bracket, AD, BD	
	Rear port style	SP, LP (only φ20 and φ25), FP, TP, TP w/ bracket, AP, BP	—	—	SP, LP (only φ20 and φ25), FP, TP, TP w/ bracket, AP, BP	—
Accessories	Boots	Nylon tarpaulin				
	Rod end attachments	Rod eye (T-end; only φ50 and φ63), rod eye with spherical bearing (S-end), rod clevis (Y-end) with pin, floating joint (F-end)				

- Notes) 1. When a sensor is mounted in an intermediate position, set the cylinder maximum speed to 300 mm/s or less for reasons of the load relay response speed, etc.
2. Use the cylinder in a working temperature range in which the fluid does not freeze.
- Consult us when special port position or the cushion valve position is required.

Cylinder Specifications/Non-rotating type

Series variations	Double acting/single rod		Double acting/double rod	Single acting/single rod	
Type	Standard type/Switch Set	VAL Set/SV Set	Standard type/Switch Set		
Series	10Z-3G	10Z-3V2G	10Z-3GD	10Z-3GSR,10Z-3GSH	
Cylinder bore (mm)	φ25, φ40, φ50, φ63	φ25, φ40	φ25, φ40, φ50, φ63	φ25, φ40	
Working fluid	Air				
Lubrication	Unnecessary				
Working pressure range	0.1 to 1 MPa (φ25·φ40) 0.05 to 1 MPa (φ50·φ63)	0.15 to 1 MPa	0.1 to 1 MPa (φ25·φ40) 0.05 to 1 MPa (φ50·φ63)	0.15 to 1 MPa	
Proof test pressure	1.5 MPa				
Note 1) Working speed range	50 to 700 mm/s	50 to 500 mm/s	50 to 700 mm/s		
Note 2) Working temperature range	−10 to +70℃	−10 to +50℃	−10 to +70℃		
Note 3) Structure of cushioning	Standard: With cushion pad (φ25 and φ40), with cushions on both ends (φ50 and φ63) Semi-standard: With cushion (only φ40)			With cushion pads	
Note 4) Allowable rotating angle	φ25: ±1.5° φ40: ±1° φ50·φ63: ±0.8°				
Allowable torque	φ25: 0.49 N·m or less φ40: 0.98 N·m or less φ50 and φ63: 3.4 N·m or less				
Tolerance for thread	JIS 6g/6H				
Tolerance of stroke	0 to 250 mm ^{+1.0} ₀ 251 to 900 mm ^{+1.5} ₀				
Mounting accessory	Basic style	LB	SD, LC, FA, TA, TA w/ bracket, TC, TC w/ bracket, AD, BD	SD, LB, FA, TA, TA w/ bracket, AD, BD	LB
	Clevis cut style	SK, LK (only φ25), FK, TK, TK w/ bracket, AD, BD	—	—	SK, LK (only φ25), FK, TK, TK w/ bracket, AD, BD
	Rear port style	SP, LP (only φ25), FP, TP, TP w/ bracket, AP, BP	—	—	SP, LP (only φ25), FP, TP, TP w/ bracket, AP, BP
Accessories	Boots	Nylon tarpaulin			
	Rod end attachments	Rod eye (T-end: onlyφ50 and φ63), rod eye with spherical bearing (S-end), rod clevis (Y-end) with pin			

- Notes) 1. When a sensor is mounted in an intermediate position, set the cylinder maximum speed to 300 mm/s or less for reasons of the load relay response speed, etc.
2. Use the cylinder in a working temperature range in which the fluid does not freeze.
3. Non-rotating (ϕ25) double rod single acting VAL Set Cylinder with a cushion cannot be fabricated.
4. The allowable rotation angle refers to the clearance in the piston rod rotating direction at the stroke end.
- When using it together with another guide, use a round rod.
 - For the working speed range, see the selection materials to check the relationship between the speed and the cushion mechanism.
 - Consult us when special port position or the cushion valve position is required.

Valve Specifications

Model number	RB512V1SA1D	RB512V1SA1DW	RB512V1SA2D	RB512V1SA2DW	RB512V1SA8D	RB512V1SA8DW
Rated voltage	100 V AC (50/60Hz)		200 V AC (50/60Hz)		24 V DC	
Regulation of voltage	±10% of rated voltage					
Power consumption	50Hz: 6.0VA/60Hz: 4.9VA				2.5W	
Part number of coil ass'y (with DIN socket)	NAS8-22-1D	NAS8-22-1DW (with lamp and protective circuit)	NAS8-22-2D	NAS8-22-2DW (with lamp and protective circuit)	NAS8-22-8D	NAS8-22-8DW (with lamp and protective circuit)

- For voltage not shown above, contact us.

Product Lineup

Unit: mm

Series Variations			Type	φ20	φ25	φ32	φ40	φ50	φ63
Standard	Double acting single rod	Standard type/Switch Set 10Z-3	●	●	●	●	●	●	●
		VAL Set/SV Set 10Z-3V2	●	●	●	●			
	Double acting double rod	Standard type/Switch Set 10Z-3D	●	●	●	●	●	●	●
	Single acting single rod spring return	Standard type/Switch Set 10Z-3SR	●	●	●	●			
	Single acting single rod spring-extended	Standard type/Switch Set 10Z-3SH	●	●	●	●			
	With adjustable retracted stroke	Standard type/Switch Set 10Z-3A2	●	●	●	●	●	●	●
	With adjustable extended stroke	Standard type/Switch Set 10Z-3A1	●	●	●	●	●	●	●
	Dual stroke (custom made)	Single rod 10Z-3Q1	●	●	●	●	●	●	●
Double rod 10Z-3Q2		●	●	●	●	●	●	●	●
Non-rotating	Double acting single rod	Standard type/Switch Set 10Z-3G		●		●	●	●	●
		VAL Set/SV Set 10Z-3V2G		●		●			
	Double acting double rod	Standard type/Switch Set 10Z-3GD		●		●	●	●	●
	Single acting single rod spring return	Standard type/Switch Set 10Z-3GSR		●		●			
	Single acting single rod spring-extended	Standard type/Switch Set 10Z-3GSH		●		●			
	Adjustable retracted stroke	Standard type/Switch Set 10Z-3GA2		●		●	●	●	●
	Adjustable extended stroke	Standard type/Switch Set 10Z-3GA1		●		●	●	●	●

Spring Force of Single Acting Cylinders (SR type/SH type) Unit: N

Bore (mm)	Load	Stroke (mm)									
		15	25	30	50	75	100	125	150	175	200
φ20	Initial load	20.6	12.9	20.6	12.9						
	End load	32.2									
φ25	Initial load	32.5	20.4	32.5	20.4						
	End load	50.7									
φ32	Initial load	51.3	32.3	51.3	32.3						
	End load	79.9									
φ40	Initial load	80.4	50.6	80.4	50.6						
	End load	125.2									

Sensor Mountable Minimum Stroke Unit: mm

Bore mm	With 1 sensor								With 2 sensors								
	Reed sensor				Solid state sensor				Reed sensor					Solid state sensor			
	AX type	ZC201	ZC205	JR type	SR type	AX type	ZC230	ZC253	JS type	AX type	ZC201	ZC205	JR type	SR type	AX type	ZC230	ZC253
φ20	10	10	15	10	10	10	10	15	10	15	15	15	35	20	10	10	20
φ25								10									
φ32																	
φ40								15									
φ50								10									
φ63								10									

Note) The non-rotating, Switch Set and SV Set Cylinders have the same dimensions.

Cushion Stroke

Bore	Cushion stroke
ϕ 50- ϕ 63	14 mm

Mounting Style

Standard type/Switch Set

Basic style

SD Basic style

LB End angles

LS End angles (Note)

FA Rod flange

FB Cap flange

TA Rod trunnion

TB Cap trunnion

CA (Cap eye: only ϕ 50 and ϕ 63)

CU Cap eye with spherical bearing

Clevis cut style

SK Basic style

LK End angles (Note)

FK Rod flange

TK Rod trunnion

AD Block type end angles

BD Block type flange

Rear port style

SP Basic style

LP End angles (Note)

FP Rod flange

TP Rod trunnion

AP Block type end angles

BP Block type flange

Mounting Style

VAL Set/SV Set

SD Basic style

LC End angles

FA Rod flange

TA Rod trunnion

TC Cap trunnion

AD Block type end angles

BD Block type flange

(Note) LS, LK and LP can be used only for 20 and 25 mm bore cylinders.
Non-rotating cylinders of LK and LP style come in a bore size of 25 mm only.

How to order

Standard type/Switch Set

The item enclosed by broken line needs not to be entered, if unnecessary. Semi-standard specification

10Z-3

SD

25

N

100

AH

2

Y

B

J

Standard

10Z-3 Double acting single rod

10Z-3D Double acting double rod

10Z-3SR Single acting spring return

10Z-3SH Single acting spring-extended

Non-rotating

10Z-3G Double acting single rod

10Z-3GD Double acting double rod

10Z-3GSR Single acting spring return

10Z-3GSH Single acting spring-extended

Mounting style

Note) The basic style for non-rotating cylinders is SK.

Cylinder bore (mm)

Standard ϕ 20- ϕ 25- ϕ 32- ϕ 40- ϕ 50- ϕ 63

Non-rotating ϕ 25- ϕ 40- ϕ 50- ϕ 63

With cushion pad

With cushion

Note) B is a standard code for 50mm to 63mm bore.

Cylinder stroke (mm)

100

Sensor symbol

Note) Select applicable sensors out of the Sensor List.

!Note on ordering Switch Set

Sensors are not mounted on cylinders at delivery.

Boots

Nylon tarpaulin

Note) The boots cannot be fitted to AD, BD or BP style.

With bracket

Applicable mounting styles:

SD, TA, TB, TK, CU (ϕ 20 to ϕ 40),

TA, TB (ϕ 50 and ϕ 40)

S

T

Y

F

Sensor quantity (1, 2 to n)

VAL Set/SV Set

10Z-3V2

SD

25

N

100

A

2

AH

2

Y

B

J

Standard

10Z-3V2 Double acting single rod

Non-rotating

10Z-3V2G Double acting single rod

Mounting style

Cylinder bore (mm)

ϕ 20- ϕ 25- ϕ 32- ϕ 40

Note) Non-rotating cylinders come in bore sizes of 25 and 40 mm only.

With cushion pad

Cylinder stroke (mm)

100

1

2

8

AC100V 50/60Hz

AC200V 50/60Hz

DC24V

Note) For voltage not shown above, contact us.

A

B

G

H

Energized extending type (with lamp and protective circuit)

Energized retracting type (with lamp and protective circuit)

Energized extending type (without lamp)

Energized retracting type (without lamp)

Note) For explanation of other types, refer to the standard and Switch Set types.

Sensor List

Semi-standard specification

Type	Sensor symbol	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Indicating lamp	Wiring method	Cord length	Applicable load						
Reed sensor	[AF] AX101CE	DC: 5 to 30 V AC: 5 to 120 V	DC: 5 to 40 mA AC: 5 to 20 mA	DC: 1.5 W AC: 2 VA	None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5 m	Small relay, programmable controller						
	[AG] AX105CE				5 m										
	[AH] AX111CE				1.5 m										
	[AJ] AX115CE				5 m										
	[AE] AX125CE	DC: 30 V or less AC: 120 V or less	DC: 40 mA or less AC: 20 mA or less	None	None	5 m									
	[AK] AX11ACE	AC: 5 to 120 V	5 to 20 mA	2 VA	Provided	LED (Lights in red when sensing)	4-pin connector type, rear wiring	0.5 m							
	[AL] AX11BCE	DC: 5 to 30 V	5 to 40 mA	1.5 W				0.5 m							
	[AM] AX135CE	AC: 90 to 240 V DC: 90 to 240 V	5 to 300 mA	B contact output	Provided	LED (Lights in red when not sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	5 m							
	[JA] ZC201A	AC: 115 V or less	AC: 25 mA or less	—	None	None	0.2 mm ² , 2-core, outer dia. φ3 mm, rear wiring	1 m							
	[JB] ZC201B	DC: 28 V or less	DC: 40 mA or less					3 m							
	[JC] ZC205A	DC: 10 to 28 V	DC: 5 to 40 mA					None		LED (Lights in red when sensing)	1 m				
	[JD] ZC205B										3 m				
	[A] JR101	DC: 5 to 50 V	DC: 3 to 40 mA	DC: 1.5 W	None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ3.4 mm, rear wiring	1.5 m							
	[B] JR105	AC: 5 to 120 V	AC: 3 to 20 mA	AC: 2 VA				5 m							
	[S] SR405	AC: 80 to 220 V	2 to 300 mA	30 VA	Provided	Neon lamp (Lights in red when not sensing)	0.5 mm ² , 2-core, outer dia. φ6 mm, rear wiring	5 m							
	Solid state sensor	[BE] AX201CE-1	DC: 5 to 30 V	5 to 40 mA	—	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring		1.5 m	Small relay, programmable controller				
[BF] AX205CE-1		5 m													
[CE] AX211CE-1		1.5 m													
[CF] AX215CE-1		5 m													
[JJ] ZC230A		DC: 10 to 28 V	4 to 50 mA	—	Provided	LED (Lights when sensing)	0.2 mm ² , 2-core, outer dia. φ3 mm, rear wiring	1 m							
[JK] ZC230B								3 m							
[JL] ZC253A								DC: 28 V or less	100 mA or less	—		Provided	LED (Lights when sensing)	0.2 mm ² , 3-core, outer dia. φ3 mm, rear wiring	1 m
[JM] ZC253B															3 m
[I] JS211M		DC: 10 to 30 V	6 to 70 mA	—	Provided	LED (Lights when sensing)	0.3 mm ² , 2-core, outer dia. φ3.4 mm, rear wiring	1.5 m							
[O] JS215M								5 m							
[CT] AX211CE-1		DC: 5 to 30 V	5 to 40 mA	—	Provided	LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5 m							
[CU] AX215CE-1								5 m							
[CV] AX218CE-1								4-pin connector type, rear wiring	0.5 m						
[CW] AZ211CE-1								0.3 mm ² , 2-core, outer dia. φ4 mm, upper wiring	1.5 m						
[CX] AZ215CE-1								4-pin connector type, upper wiring	5 m						
[CY] AZ218CE-1								4-pin connector type, upper wiring	0.5 m						

- Notes) ●For the sensors without a protective circuit, be sure to provide a protective circuit (SK-100) with the load when using any induction load (relay, etc.).
●The output logic of AX135CE is a B contact. When the piston is detected, the sensor contact turns off (the lamp turns on).
●For the detailed specifications and handling of sensors, see the sensor specifications at the end of this catalog.
●The AX type sensors can be mounted on any type in addition to the above types. See the sensor specifications at the end of this catalog.
●We recommend AND Unit (AU series) for multiple sensors connected in series.
For details, refer to AND Unit at the end of this catalog.

●AX type sensor ●ZC type sensor ●JR/JS type sensor ●SR type sensor

Cord type

Connector type



Standard Stroke Range

Unit: mm

Series variations	Type	Bore	Cylinder stroke (mm)																Stroke limit
			15	25	30	50	75	100	125	150	175	200	250	300	350	400	450	500	
Standard	Double acting single rod	Standard type Switch Set 10Z-3	φ20	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	900
			φ25	○	○	○	○	○	○	○	○	○	○	○	—	—	—	—	900
			φ32	○	○	○	○	○	○	○	○	○	○	○	○	○	○	—	900
			φ40	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	900
			φ50	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	900
			φ63	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	900
	Double acting double rod	Standard type Switch Set 10Z-3D	φ20	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	450
			φ25	○	○	○	○	○	○	○	○	○	○	○	—	—	—	—	450
			φ32	○	○	○	○	○	○	○	○	○	○	○	○	○	○	—	450
			φ40	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	450
			φ50	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	450
			φ63	—	○	—	○	○	○	—	○	—	○	○	○	○	○	○	450
	Single acting single rod	Standard type Switch Set 10Z-3SR 10Z-3SH	φ20	○	○	○	○	○	○	○	○	—	—	—	—	—	—	—	150
			φ25	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	200
			φ32	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	200
			φ40	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	200
Non-rotating	Double acting single rod	Standard type Switch Set 10Z-3G	φ25	○	○	○	○	○	○	○	○	○	○	○	—	—	—	—	500
			φ40	○	○	○	○	○	○	○	○	○	○	○	—	—	—	—	500
			φ50	—	○	—	○	○	○	—	○	—	○	○	○	—	—	—	500
			φ63	—	○	—	○	○	○	—	○	—	○	○	○	—	—	—	500
	Double acting double rod	Standard type Switch Set 10Z-3GD	φ25	○	○	○	○	○	○	○	○	○	○	○	—	—	—	—	450
			φ40	○	○	○	○	○	○	○	○	○	○	○	—	—	—	—	450
			φ50	—	○	—	○	○	○	—	○	—	○	○	○	—	—	—	450
			φ63	—	○	—	○	○	○	—	○	—	○	○	○	—	—	—	450
	Single acting single rod	Standard type Switch Set 10Z-3GSR 10Z-3GSH	φ25	—	○	—	○	○	○	○	○	○	—	—	—	—	—	—	200
			φ40	—	○	—	○	○	○	○	○	○	—	—	—	—	—	—	200

For the Switch Set Cylinders, see the table of sensor mountable minimum cylinder stroke.

Mounting Accessory Part Number

	φ20	φ25	φ32	φ40	φ50	φ63	
LB style	MAZ3-LB020		MAZ3-LB032	MAZ3-LB040	MAZ3-LB050	MAZ3-LB063	
LC style	MAZ3-LC020		MAZ3-LC032	MAZ3-LC040	—	—	
LS style	MAZ3-LS020		—	—	—	—	
LK style							
LP style							
FA style	MAZ3-FA020		MAZ3-FA032	MAZ3-FA040	MAZ3-FA050	MAZ3-FA063	
FB style							
FK style							
FP style							
TA style	MAZ3-TA020		MAZ3-TA032	MAZ3-TA040	MAZ3-TA050		
TB style							
TK style							
TP style							
TC style	MAZ3-TC020		MAZ3-TC032	MAZ3-TC040	—	—	
CU style	MAZ3-CU020	MAZ3-CU025	MAZ3-CU032	MAZ3-CU040	—	—	

Bracket Part Number

	ϕ 20	ϕ 25	ϕ 32	ϕ 40	ϕ 50	ϕ 63
For SD (w/ pin)	MAZ3-BK020PA		MAZ3-BK032PA	MAZ3-BK040PA	—	—
For S-end and CU (w/ pin)	MAZ3-BK020PB	MAZ3-BK032PB		MAZ3-BK040PB	—	—
For TA, TB and TC	MAZ3-BK020		MAZ3-BK032	MAZ3-BK040	MAZ3-BK050	MAZ3-BK063

Lock Nut Part Number

Bore	Standard	Non-rotating
ϕ 20	LNA-08Z-A	—
ϕ 25	LNA-10Z-A	LNA-08Z-A
ϕ 32		—
ϕ 40	LNA-12Z-A	LNA-12Z-A
ϕ 50	LNA-16Z-A	LNA-16Z-A
ϕ 63		

Custom Made Specifications

Dual stroke (double rod)
● 10Z-3Q2



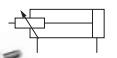
Dual stroke (single rod)
● 10Z-3Q1



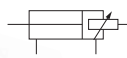
● Cylinder bore (mm): ϕ 20, ϕ 25, ϕ 32, ϕ 40, ϕ 50, ϕ 63

● Cylinder bore (mm): ϕ 20, ϕ 25, ϕ 32, ϕ 40, ϕ 50, ϕ 63

With adjustable stroke (extended stroke)
● 10Z-3A1



With adjustable stroke (retracted stroke)
● 10Z-3A2



● Cylinder bore (mm): ϕ 20, ϕ 25, ϕ 32, ϕ 40, ϕ 50, ϕ 63

● Cylinder bore (mm): ϕ 20, ϕ 25, ϕ 32, ϕ 40, ϕ 50, ϕ 63

Stroke adjusting range: 0 to 50 mm

Stroke adjusting range: 0 to 50 mm

Standard/double acting

Unit: g

Bore (mm)	Basic weight					Additional weight per mm of stroke	
	Double acting/single rod				Double acting/double rod		
	Basic style		Clevis cut style	Rear port style	Basic style		
	Standard type	VAL Set	Standard type	Standard type	Standard type	Single rod	Double rod
ϕ 20	155	530	137	137	186	0.85	1.25
ϕ 25	220	600	203	203	274	1.15	1.8
ϕ 32	320	705	297	297	398	1.65	2.55
ϕ 40	520	910	482	487	630	2.15	3.4
ϕ 50	985	—	920	935	1165	3.27	5.73
ϕ 63	1350	—	1280	1300	1530	4.36	6.82

Standard/single acting

Unit: g

Bore (mm)	Basic weight			Additional weight for stroke						
	Single acting/single rod									
	Basic style	Clevis cut style	Rear port style							
	Standard type	Standard type	Standard type	15	25	30	50	75	100	
φ20	221	203	203	12	20	90	106	192	278	
φ25	312	295	295	16.5	27.5	125	147	266.5	386	
φ32	457	434	434	24	40	185	217	394	571	
φ40	701	663	663	31.5	52.5	244	286	519.5	753	

Non-rotating/double acting

Unit: g

Bore (mm)	Basic weight					Additional weight per mm of stroke	
	Double acting/single rod				Double acting/double rod		
	Basic style		Clevis cut style	Rear port style	Basic style		
	Standard type	VAL Set	Standard type	Standard type	Standard type	Single rod	Double rod
ϕ 25	220	600	203	203	274	1.1	1.8
ϕ 40	510	900	472	472	620	2.1	3.4
ϕ 50	985	—	920	935	1165	3.27	5.73
ϕ 63	1350	—	1280	1300	1530	4.36	6.82

Mounting Accessory/Rod End Attachment Weight

Unit: g

Bore (mm)	Mounting accessory weight																							Rod end attachment weight					
	Basic style										Clevis cut style							Rear port style											
	SD w/ bracket	LS	LB	LC	FA FB	CA TA	TA w/ bracket TB w/ bracket	TC	TC w/ bracket	CU w/ bracket	LK	FK	TK w/ bracket	AD	BD	LP	FP	TP w/ bracket	AP	BP	Rod eye (S-end)	Rod eye (F-end)	Rod clevis (F-end)	F-end					
φ20	115	60	140	150	55	—	55	140	30	100	130	240	60	58	55	140	11(29)	8(76)	60	55	55	140	11(29)	8(76)	50	—	55	60	
φ25	115	60	140	150	55	—	55	140	30	100	130	280	60	55	55	140	38(55)	26(43)	60	55	55	140	38(55)	26(43)	75	—	100	100	
φ32	150	—	220	210	90	—	90	210	30	125	125	275	—	90	90	210	62(85)	45(68)	—	90	90	210	62(85)	45(68)	75	—	100	100	
φ40	185	—	280	280	110	—	130	275	70	175	150	335	—	110	130	275	78(116)	49(87)	—	110	130	275	78(116)	49(87)	110	—	175	100	
φ50	—	—	560	—	315	—	335	795	—	—	—	—	—	—	315	335	795	180(245)	105(170)	—	315	335	795	180(245)	105(170)	210	200	340	380
φ63	—	—	705	—	420	—	335	795	—	—	—	—	—	—	420	335	795	270(335)	135(200)	—	420	335	795	270(335)	135(200)	210	200	340	380

● The parenthesized values indicate the weight of mounting accessories for double rod cylinders.

Sensor Additional Weight

Unit: g

Bore (mm)	AX type			ZC type		JR/JS type		SR type
	Cord length 1.5 m	Cord length 5 m	Connector type	Cord length 1 m	Cord length 3 m	Cord length 1.5 m	Cord length 5 m	Cord length 5 m
ϕ 20	50	130	40	25	55	35	98	271
ϕ 25								
ϕ 32								
ϕ 40								
ϕ 50								
ϕ 63								

Note) ● The sensor additional weight includes the weight of the sensor band.

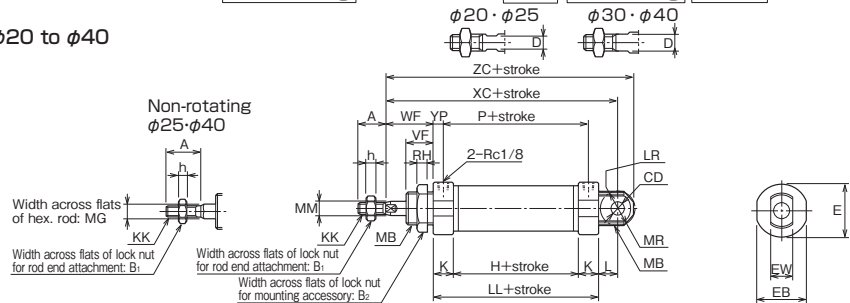
Calculation formula Cylinder weight (g)=basic weight+(cylinder stroke (mm)×additional weight per mm of stroke)+(sensor additional weight×sensor quantity)+mounting accessory weight+rod end attachment weight

Calculation example 10Z-3, clevis cut style, bore ϕ 20, cylinder stroke 50 mm, 2 pcs of AX215A (cord length 5 m), FK style
137+(0.85×50)+(130×2)+60=499.5g

Double acting single rod

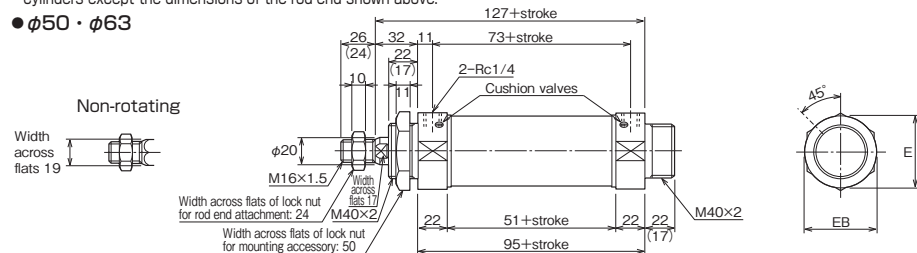
Standard	10Z-3	SD	Bore	Cushioning	Stroke
Non-rotating	10Z-3G	SK	Bore	Cushioning	Stroke

- $\phi 20$ to $\phi 40$



- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above. The non-rotating cylinders are basically mounted in the clevis cut style.
- $\phi 50 \cdot \phi 63$
-

● $\phi 50 \cdot \phi 63$



- The parenthesized values indicate the screw length.
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions shown above.

Related types: Clevis cut style (SK), rear port style (SP) and type with boots. The non-rotating cylinders are basically mounted in the clevis cut style.

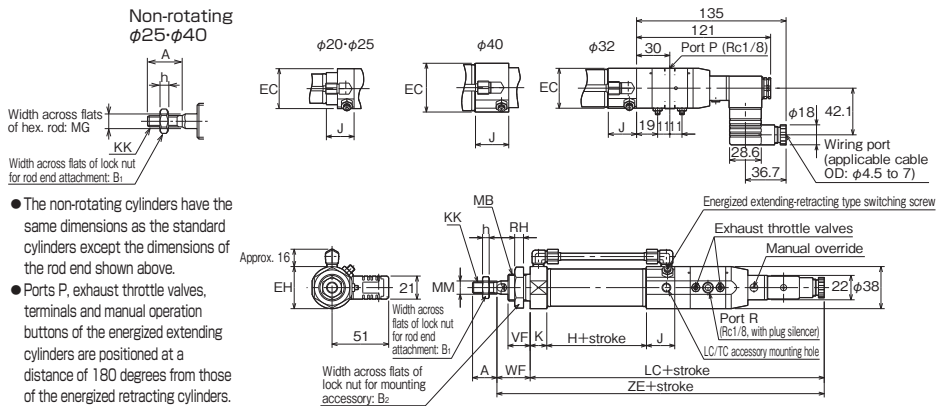
Dimensional Table

Bore \ Symbol	E	EB
$\phi 50$	$\phi 56$	54
$\phi 63$	$\phi 70$	68

Double acting single rod

Standard	10Z-3V2	SD	Bore	N	Stroke	-	Valve operating function	Valve voltage
Non-rotating	10Z-3V2G	SD	Bore	N	Stroke	-	Valve operating function	Valve voltage

- $\phi 20$ to $\phi 40$



Related types: Type with boots This figure shows the dimensional drawing of an energized extending type cylinder.

Dimensional Table

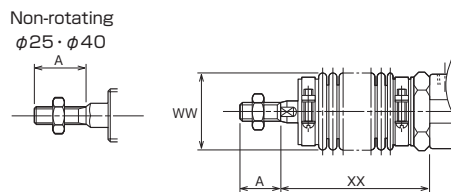
Bore	Symbol	A		B ₁		B ₂	CD	D	E	EB	EC	EH	EW	H	h		J	K	KK	
	Standard	Non-rotating	Standard	Non-rotating	Standard										Non-rotating	Standard			Non-rotating	
φ20	20/20	—	13	—	30	φ8H9	6	φ28	26	36	φ38	16 ^{+0.1} _{-0.3}	31	5	—	25	14	M8×1.25	—	
φ25	22/22	20/17	17	13	30	φ8H9	8	φ31	29	36	φ38	16 ^{+0.1} _{-0.3}	35	6	5	25	14.5	M10×1.25	M8×1.25	
φ32	22/19	—	17	—	32	φ10H9	10	φ38	36	36	φ38	16 ^{+0.1} _{-0.3}	40	6	—	25.5	15	M10×1.25	—	
φ40	24/21	24/21	19	19	41	φ12H9	12	φ46	44	44	φ46	20 ^{+0.1} _{-0.3}	42	7	7	30	15	M12×1.25	M12×1.25	

Symbol Bore	L	LC	LL	LR	MB	MG	MM	MR	P	RH	VF	WF	XC	YP	ZC	ZE
φ20	12	205	59	R11	M22×1.5	—	φ8	R12	45	7	16(13)	24	95	7	105	229
φ25	12	209.5	64	R11	M22×1.5	9	φ10	R12	49	7	18(15)	28	104	7.5	114	237.5
φ32	14	215.5	70	R13	M24×2	—	φ12	R14	55	8	20(16)	30	114	7.5	126	245.5
φ40	16	222	72	R15	M30×2	14	φ14	R16	57	9	22(18)	32	120	7.5	132	254

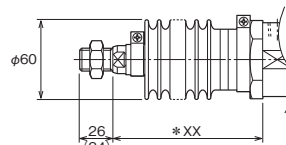
*The parenthesized values of dimensions A and VF indicate the screw length.

With Boots

$\phi 20$ to $\phi 40$



$\phi 50 \cdot \phi 63$



- The parenthesized values indicate the screw length.
*XX=1/4×(stroke)+65
If the calculated value has a fractional part, round it up.

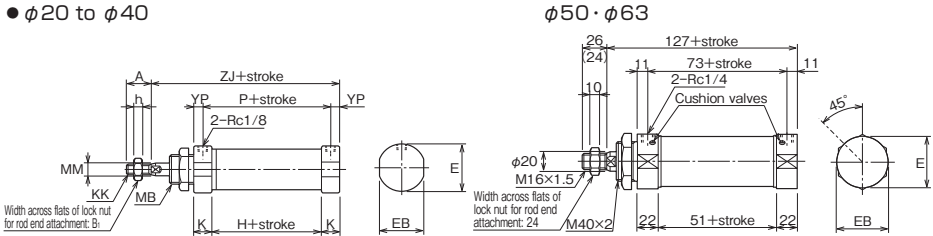
Dimensional Table

Symbol Stroke	A		WW	Dimension XX for each stroke																											
				to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
Bore	Stand- ard	Non- rotating		Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating		
φ20	20/20	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—
φ25	22/22	20/17	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231
φ32	22/19	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—
φ40	24/21	24/21	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175

*The parenthesized values of dimension A indicate the screw length.

Clevis cut style/SK (basic style)

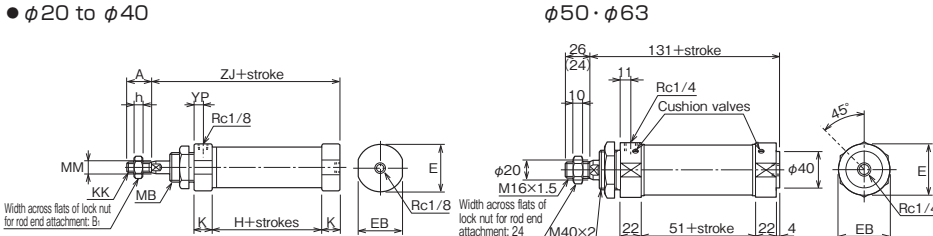
• ϕ 20 to ϕ 40



• For the dimensions not shown above, refer to the SD style (basic style).
• The parenthesized values indicate the screw length.

Rear port style/SP (basic style)

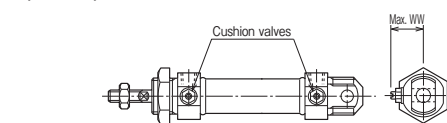
• ϕ 20 to ϕ 40



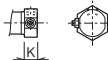
• For the dimensions not shown above, refer to the SD style (basic style).
• The parenthesized values indicate the screw length.

Type with cushion/SD (basic style)

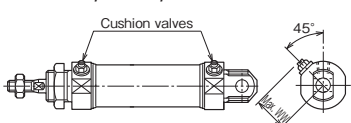
• ϕ 20 · ϕ 25



• Clevis cut style



• ϕ 32 · ϕ 40



• Rear port style



• The above figures are the dimensional drawings of 20 and 25 mm bore cylinders.

Dimensional Table

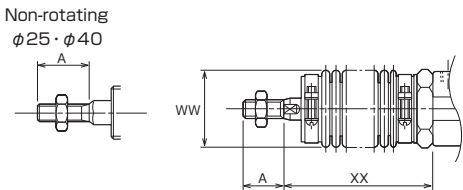
Symbol Bore	A		B ₁		E	EB	H	h		K
	Standard	Non-rotating	Standard	Non-rotating				Standard	Non-rotating	
ϕ 20	20 (20)	—	13	—	ϕ 28	26	31	5	—	14
ϕ 25	22 (22)	20 (17)	17	13	ϕ 31	29	35	6	5	14.5
ϕ 32	22 (19)	—	17	—	ϕ 38	36	40	6	—	15
ϕ 40	24 (21)	24 (21)	19	19	ϕ 46	44	42	7	7	15

Symbol Bore	KK		MB	MM	P	WW	YP	ZJ
	Standard	Non-rotating						
ϕ 20	M8×1.25	—	M22×1.5	ϕ 8	45	21	7	83
ϕ 25	M10×1.25	M8×1.25	M22×1.5	ϕ 10	49	22.5	7.5	92
ϕ 32	M10×1.25	—	M24×2	ϕ 12	55	29	7.5	100
ϕ 40	M12×1.25	M12×1.25	M30×2	ϕ 14	57	33	7.5	104

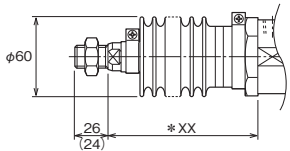
* The parenthesized values of dimensions A and VF indicate the screw length.

With Boots

ϕ 20 to ϕ 40



ϕ 50 · ϕ 63



• The parenthesized values indicate the screw length.
* XX=1/4×(stroke)+65
If the calculated value has a fractional part, round it up.

Dimensional Table

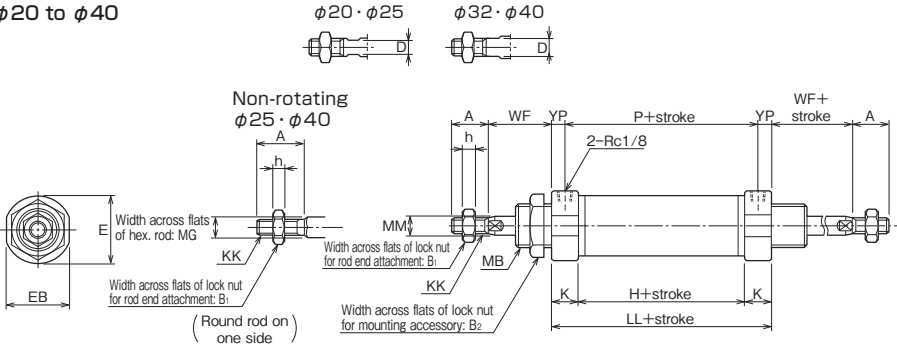
Symbol Stroke Bore	A		WW	Dimension XX for each stroke																											
	Stand- ar	Non- rotat- ing		to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
				Stand- ar	Non- rotat- ing	Stand- ar	Non- rotat- ing	Stand- ar	Non- rotat- ing	Stand- ar	Non- rotat- ing	Stand- ar	Non- rotat- ing	Stand- ar	Non- rotat- ing	Stand- ar	Non- rotat- ing	Stand- ar	Non- rotat- ing	Stand- ar	Non- rotat- ing	Stand- ar	Non- rotat- ing	Stand- ar	Non- rotat- ing	Stand- ar	Non- rotat- ing	Stand- ar	Non- rotat- ing	Stand- ar	Non- rotat- ing
ϕ 20	20 (20)	—	ϕ 36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—
ϕ 25	22 (22)	20 (17)	ϕ 36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231
ϕ 32	22 (19)	—	ϕ 40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—
ϕ 40	24 (21)	24 (21)	ϕ 45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175

* The parenthesized values of dimension A indicate the screw length.

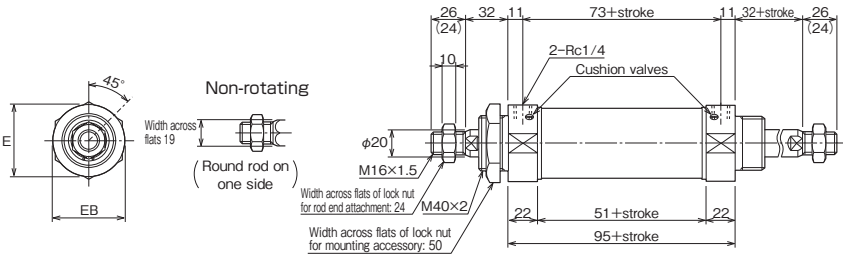
SD

Double acting double rod **Standard** 10Z-3D SD Bore Cushioning Stroke
 Non-rotating 10Z-3GD SD Bore Cushioning Stroke

● ϕ 20 to ϕ 40



● ϕ 50 · ϕ 63



● The parenthesized values indicate the screw length.

Related types: Type with boots

Dimensional Table

Bore	Symbol	E	EB
	Standard	Standard	Standard
ϕ 50	ϕ 56	54	
ϕ 63	ϕ 70	68	

Dimensional Table

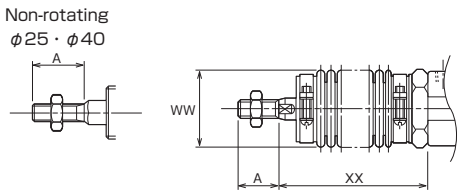
Symbol Bore	A		B ₁		B ₂	D	E	EB	H	h		K
	Standard	Non-rotating	Standard	Non-rotating						Standard	Non-rotating	
ϕ 20	20 (20)	—	13	—	30	6	ϕ 28	26	31	5	—	14
ϕ 25	22 (22)	20 (17)	17	13	30	8	ϕ 31	29	35	6	5	14.5
ϕ 32	22 (19)	—	17	—	32	10	ϕ 38	36	40	6	—	15
ϕ 40	24 (21)	24 (21)	19	19	41	12	ϕ 46	44	42	7	7	15

Symbol Bore	KK		LL	MB	MG	MM	P	WF	YP
	Standard	Non-rotating							
ϕ 20	M8 $\times$ 1.25	—	59	M22 $\times$ 1.5	—	ϕ 8	45	24	7
ϕ 25	M10 $\times$ 1.25	M8 $\times$ 1.25	64	M22 $\times$ 1.5	9	ϕ 10	49	28	7.5
ϕ 32	M10 $\times$ 1.25	—	70	M24 $\times$ 2	—	ϕ 12	55	30	7.5
ϕ 40	M12 $\times$ 1.25	M12 $\times$ 1.25	72	M30 $\times$ 2	14	ϕ 14	57	32	7.5

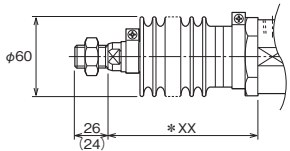
* The parenthesized values of dimension A indicate the screw length.

With Boots

ϕ 20 to ϕ 40



ϕ 50 · ϕ 63



● The parenthesized values indicate the screw length.

* XX=1/4 $\times$ (stroke)+65

If the calculated value has a fractional part, round it up.

Dimensional Table

Symbol Stroke	A		WW	Dimension XX for each stroke																											
				to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
	Stand- ard	Non- rotating		Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating		
Bore																															
φ20	20 (20)	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—
φ25	22 (22)	20 (17)	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231
φ32	22 (19)	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—
φ40	24 (21)	24 (21)	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175

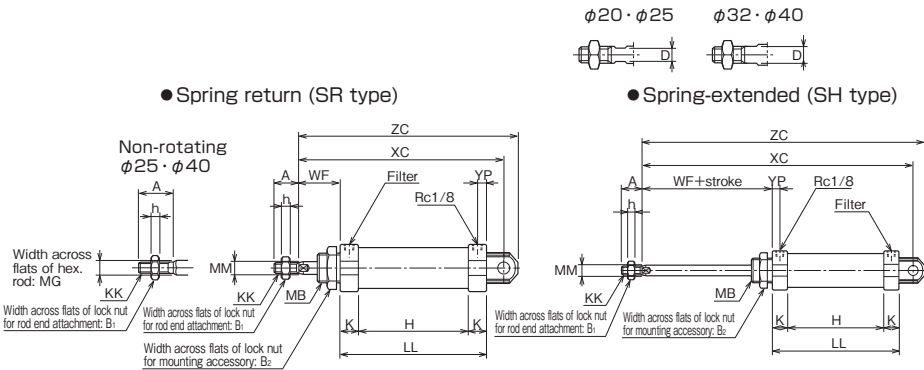
* The parenthesized values of dimension A indicate the screw length.

SD
Single acting type
Spring return

Standard	10Z-3SR	SD	Bore	Cushioning	Stroke
Non-rotating	10Z-3GSR	SK	Bore	Cushioning	Stroke

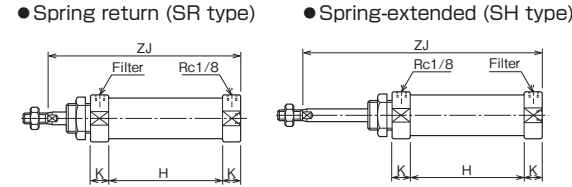
Spring-extended

Standard	10Z-3SH	SD	Bore	Cushioning	Stroke
Non-rotating	10Z-3GSH	SK	Bore	Cushioning	Stroke



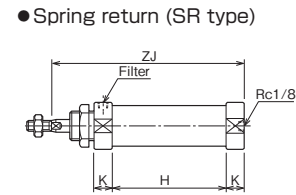
● The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
Related types: Clevis cut style (SK), rear port style (SP) and type with boots. The non-rotating cylinders are basically mounted in the clevis cut style.

Related types Clevis cut style/SK (basic style)



● For the dimensions of clevis cut and rear port style cylinders not shown above, refer to the SD style (basic style).

Related types Rear port style/SP (basic style)



Dimensional Table

Symbol Stroke Bore	A		B ₁		B ₂	D	h		K	KK		MB	MG	MM	WF	YP
	Standard	Non-rotating	Standard	Non-rotating			Standard	Non-rotating		Standard	Non-rotating					
	mm	mm	mm	mm			mm	mm		mm	mm					
ϕ 20	20(20)	—	13	—	30	6	5	—	14	M8×1.25	—	M22×1.5	—	ϕ 8	24	7
ϕ 25	22(22)	20(17)	17	13	30	8	6	5	14.5	M10×1.25	M8×1.25	M22×1.5	9	ϕ 10	28	7.5
ϕ 32	22(19)	—	17	—	32	10	6	—	15	M10×1.25	—	M24×2	—	ϕ 12	30	7.5
ϕ 40	24(21)	24(21)	19	19	41	12	7	7	15	M12×1.25	M12×1.25	M30×2	14	ϕ 14	32	7.5

Symbol Stroke Bore	H										LL									
	15	25	30	50	75	100	125	150	175	200	15	25	30	50	75	100	125	150	175	200
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
ϕ 20	71	81	111	131	181	231	281	331	381	431	99	109	139	159	209	259	309	359	409	459
ϕ 25	75	85	115	135	185	235	285	335	385	465	104	114	144	164	214	264	314	364	414	464
ϕ 32	80	90	120	140	190	240	290	340	390	440	110	120	150	170	220	270	320	370	420	470
ϕ 40	82	92	122	142	192	242	292	342	392	442	112	122	152	172	222	272	322	372	422	472

Symbol Stroke Bore	XC																			
	15		25		30		50		75		100		125		150		175		200	
	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
ϕ 20	135	150	145	170	175	205	195	245	245	320	295	395	345	470	395	545	445	620	495	695
ϕ 25	144	159	154	179	184	214	204	254	254	329	304	404	354	479	404	554	454	629	504	704
ϕ 32	154	169	164	189	194	224	214	264	264	339	314	414	364	489	414	564	464	639	514	714
ϕ 40	160	175	170	195	200	230	220	270	270	345	320	420	370	495	420	570	470	645	520	720

Symbol Stroke Bore	ZC																			
	15		25		30		50		75		100		125		150		175		200	
	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
ϕ 20	145	160	155	180	185	215	205	255	255	330	305	405	355	480	405	555	455	630	505	705
ϕ 25	154	169	164	189	194	224	214	264	264	339	314	414	364	489	414	564	464	639	514	714
ϕ 32	166	181	176	201	206	236	226	276	276	351	326	426	376	501	426	576	476	651	526	726
ϕ 40	172	187	182	207	212	242	232	282	282	357	332	432	382	507	432	582	482	657	532	732

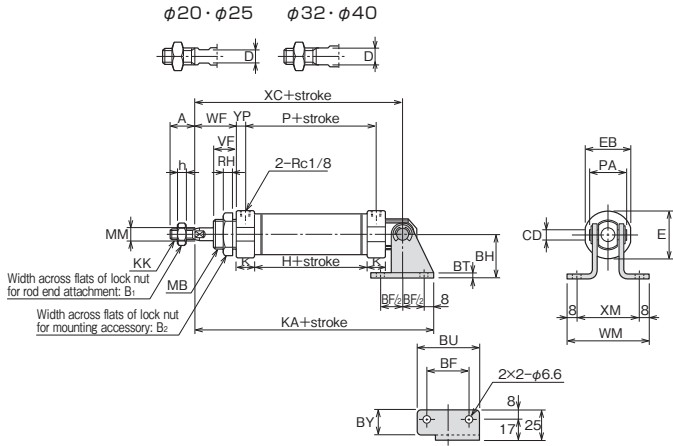
Symbol Stroke Bore	ZJ																			
	15		25		30		50		75		100		125		150		175		200	
	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
ϕ 20	123	138	133	158	163	193	183	233	233	308	283	383	333	458	383	533	433	608	483	683
ϕ 25	132	147	142	167	172	202	192	242	242	317	292	392	342	467	392	542	442	617	492	692
ϕ 32	140	155	150	175	180	210	200	250	250	325	300	400	350	475	400	550	450	625	500	700
ϕ 40	144	159	154	179	184	214	204	254	254	329	304	404	354	479	404	554	454	629	504	704

* The parenthesized values of dimension A indicate the screw length.

SD with Bracket

Double acting single rod Standard 10Z-3 SD Bore Cushioning Stroke - B

- ϕ 20 to ϕ 40



- Non-rotating cylinders of this type are not available.
- For dimensions not shown here, refer to the SD style (basic style).

Related types: Type with cushion, type with boots

Dimensional Table

Symbol Bore	A	B ₁	B ₂	BF	BH	BT	BU	BY	CD	D	E	EB	H	h	K
ϕ 20	20 (20)	13	30	32	32	3.2	48	21.8	ϕ 8	6	ϕ 28	26	31	5	14
ϕ 25	22 (22)	17	30	32	32	3.2	48	21.8	ϕ 8	8	ϕ 31	29	35	6	14.5
ϕ 32	22 (19)	17	32	36	36	4	52	21	ϕ 10	10	ϕ 38	36	40	6	15
ϕ 40	24 (21)	19	41	40	40	4	56	21	ϕ 12	12	ϕ 46	44	42	7	15

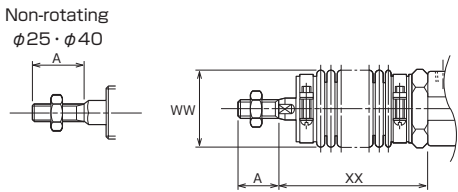
Symbol Bore	KA	KK	MB	MM	P	PA	RH	VF	WF	WM	XC	XM	YP
ϕ 20	119	M8×1.25	M22×1.5	ϕ 8	45	31	7	16 (13)	24	67	95	51	7
ϕ 25	128	M10×1.25	M22×1.5	ϕ 10	49	31	7	18 (15)	28	67	104	51	7.5
ϕ 32	140	M10×1.25	M24×2	ϕ 12	55	32	8	20 (16)	30	67	114	51	7.5
ϕ 40	148	M12×1.25	M30×2	ϕ 14	57	36	9	22 (18)	32	71	120	55	7.5

* The parenthesized values of dimensions A and VF indicate the screw length.

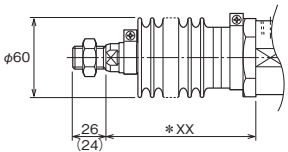
10Z-3/TAZ3 Bore K

With Boots

ϕ 20 to ϕ 40



ϕ 50 · ϕ 63



- The parenthesized values indicate the screw length.
- * XX=1/4×(stroke)+65
- If the calculated value has a fractional part, round it up.

Dimensional Table

Symbol Stroke	A		WW	Dimension XX for each stroke																											
				to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
	Stand- Bore	Non-rotating		Stand- Bore	Non-rotating	Stand- Bore	Non-rotating	Stand- Bore	Non-rotating	Stand- Bore	Non-rotating	Stand- Bore	Non-rotating	Stand- Bore	Non-rotating	Stand- Bore	Non-rotating	Stand- Bore	Non-rotating	Stand- Bore	Non-rotating	Stand- Bore	Non-rotating	Stand- Bore	Non-rotating	Stand- Bore	Non-rotating	Stand- Bore	Non-rotating	Stand- Bore	Non-rotating
ϕ 20	20/20	—	ϕ 36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—
ϕ 25	22/22	20/17	ϕ 36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231
ϕ 32	22/19	—	ϕ 40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—
ϕ 40	24/21	24/21	ϕ 45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175

* The parenthesized values of dimension A indicate the screw length.

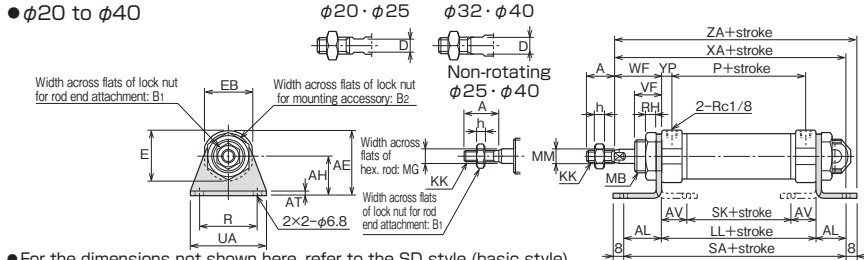
CAD/DATA
10Z-3/TAZ3 **Bore**A is available.

LB

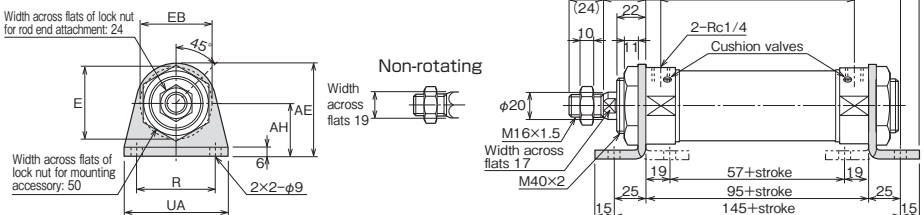
Double acting single rod

Standard	10Z-3	LB	Bore	Cushioning	Stroke
Non-rotating	10Z-3G	LB	Bore	Cushioning	Stroke

• ϕ 20 to ϕ 40



- For the dimensions not shown here, refer to the SD style (basic style).
 - The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
- Related types: Type with cushion, type with boots
- ϕ 50 · ϕ 63



- The parenthesized values indicate the screw length.
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions shown above.

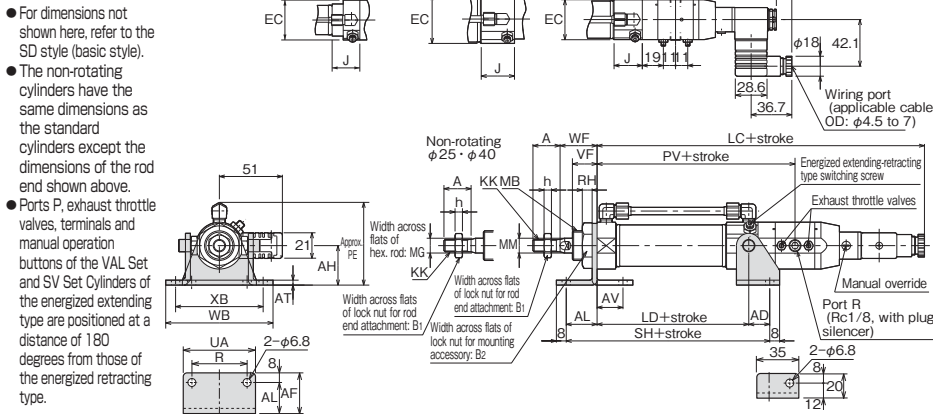
Related types: Type with boots

LC VAL Set

Double acting single rod

Standard	10Z-3V2	LC	Bore	N	Stroke	Valve operating function	Valve voltage
Non-rotating	10Z-3V2G	LC	Bore	N	Stroke	Valve operating function	Valve voltage

• ϕ 20 to ϕ 40



Related types: Type with boots This figure shows the dimensional drawing of an energized extending type cylinder.

Dimensional Table

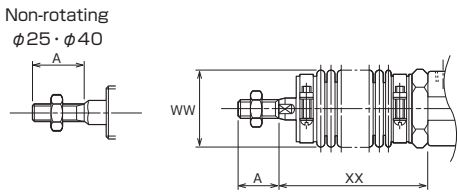
Symbol	A		AD	AE	AF	AH	AL	AT	AV	B ₁		B ₂	D	E	EB	EC	h		J	KK	
	Standard	Non-rotating								Standard	Non-rotating						Standard	Non-rotating		Standard	Non-rotating
ϕ 20	20(20)	—	19	42	24	25	16	3.2	12.8	13	—	30	6	ϕ 28	26	36	5	—	25	M8×1.25	—
ϕ 25	22(22)	20(17)	19	42	24	25	16	3.2	12.8	17	13	30	8	ϕ 31	29	36	6	5	25	M10×1.25	M8×1.25
ϕ 32	22(19)	—	17	51	33	32	25	4	21	17	—	32	10	ϕ 38	36	36	6	—	25.5	M10×1.25	—
ϕ 40	24(21)	24(21)	15	59	33	36	25	4	21	19	19	41	12	ϕ 46	44	44	7	7	30	M12×1.25	M12×1.25

Symbol	LC	LD	LL	MB	MG	MM	P	PE	PV	R	RH	SA	SH	SK	UA	VF	WB	WF	XA	XB	YP	ZΛ
Bore																						
φ20	205	62.5	59	M22×1.5	—	φ8	45	59	100	40	7	91	97.5	33.4	55	16(13)	87	24	99	71	7	107
φ25	209.5	67	64	M22×1.5	9	φ10	49	59	104.5	40	7	96	102	38.4	55	18(15)	87	28	108	71	7.5	116
φ32	215.5	73	70	M24×2	—	φ12	55	66	110.5	45	8	120	115	28	60	20(16)	87	30	125	71	7.5	133
φ40	222	77	72	M30×2	14	φ14	57	74	117	50	9	122	117	30	65	22(18)	95	32	129	79	7.5	137

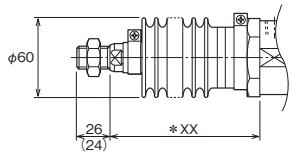
* The parenthesized values of dimensions A and VF indicate the screw length.

With Boots

ϕ 20 to ϕ 40



ϕ 50 · ϕ 63



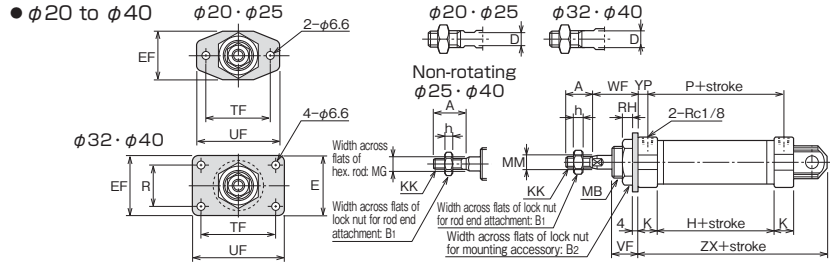
- The parenthesized values indicate the screw length.
- * XX=1/4×(stroke)+65
- If the calculated value has a fractional part, round it up.

Dimensional Table

Symbol Stroke	A		WW	Dimension XX for each stroke																											
	Standard	Non-rotating		to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
Bore					Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard
φ20	20(20)	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—
φ25	22(22)	20(17)	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231
φ32	22(19)	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—
φ40	24(21)	24(21)	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175

FA

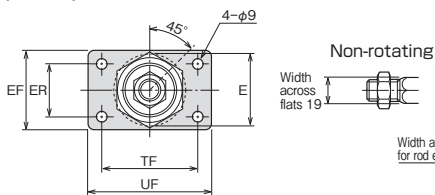
Double acting single rod **Standard** 10Z-3 FA **Bore** **Cushioning** **Stroke**
 Non-rotating 10Z-3G FK **Bore** **Cushioning** **Stroke**



- For dimensions not shown here, refer to the SD style (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.

Related types: Clevis cut style (FK), rear port style (FP), type with cushion, type with boots

• ϕ 50 · ϕ 63



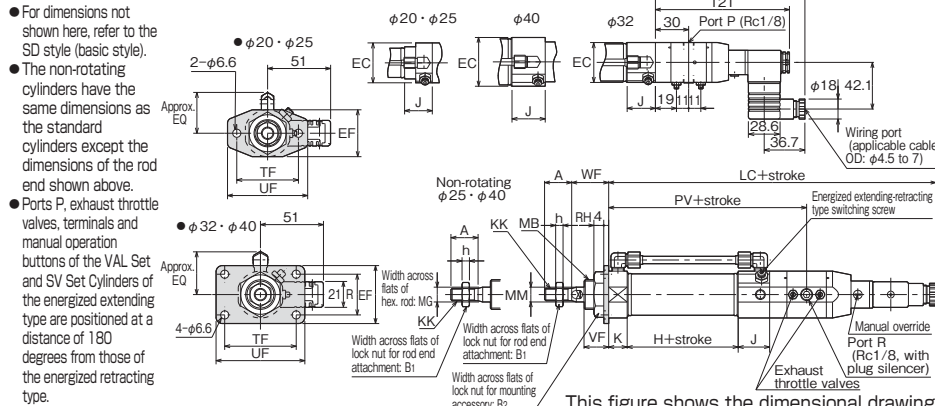
- The parenthesized values indicate the screw length.
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions shown above.

Related types: Clevis cut style (FK), rear port style (FP), type with boots

VAL Set

Double acting single rod **Standard** 10Z-3V2 FA **Bore** N **Stroke** - **Valve operating function** **Valve voltage**
 Non-rotating 10Z-3V2G FA **Bore** N **Stroke** - **Valve operating function** **Valve voltage**

• ϕ 20 to ϕ 40



Related types: Type with boots

CAD/DATA
10Z-3/TAZ3 [Bore] A is available.

Dimensional Table

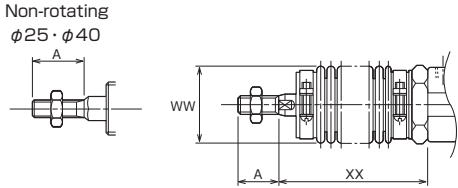
Symbol Bore	A		B ₁		B ₂	D	E	EC	EF	EQ	H	h		J	K
	Standard	Non-rotating	Standard	Non-rotating								Standard	Non-rotating		
φ20	20 (20)	—	13	—	30	6	φ28	36	38	34	31	5	—	25	14
φ25	22 (22)	20 (17)	17	13	30	8	φ31	36	38	34	35	6	5	25	14.5
φ32	22 (19)	—	17	—	32	10	φ38	36	47	34	40	6	—	25.5	15
φ40	24 (21)	24 (21)	19	19	41	12	φ46	44	51	38	42	7	7	30	15

Symbol Bore	KK		LC	MB	MG	MM	P	PV	R	RH	TF	UF	VF	WF	YP	ZX
	Standard	Non-rotating														
φ20	M8×1.25	—	205	M22×1.5	—	φ8	45	100	—	7	50	65	16	24	7	81
φ25	M10×1.25	M8×1.25	209.5	M22×1.5	9	φ10	49	104.5	—	7	50	65	18	28	7.5	86
φ32	M10×1.25	—	215.5	M24×2	—	φ12	55	110.5	33	8	58	72	20	30	7.5	96
φ40	M12×1.25	M12×1.25	222	M30×2	14	φ14	57	117	36	9	70	84	22	32	7.5	100

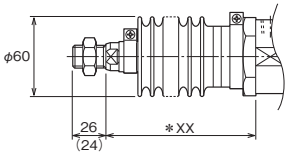
* The parenthesized values of dimension A indicate the screw length.

With Boots

φ20 to φ40



φ50 · φ63



- The parenthesized values indicate the screw length.
- * XX=1/4×(stroke)+65
- If the calculated value has a fractional part, round it up.

Dimensional Table

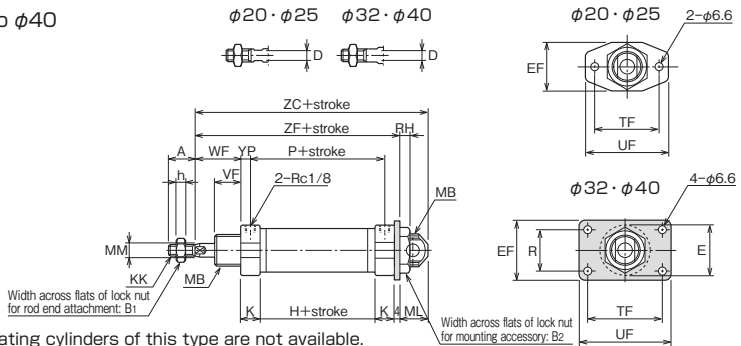
Symbol Stroke	A	WW	Dimension XX for each stroke													
			to 25	to 50	to 75	to 100	to 125	to 150	to 175	to 200	to 250	to 300	to 350	to 400	to 450	to 500
φ20	20 (20)	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104
φ25	22 (22)	20 (17)	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108
φ32	22 (19)	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95
φ40	24 (21)	24 (21)	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87

* The parenthesized values of dimension A indicate the screw length.

FB

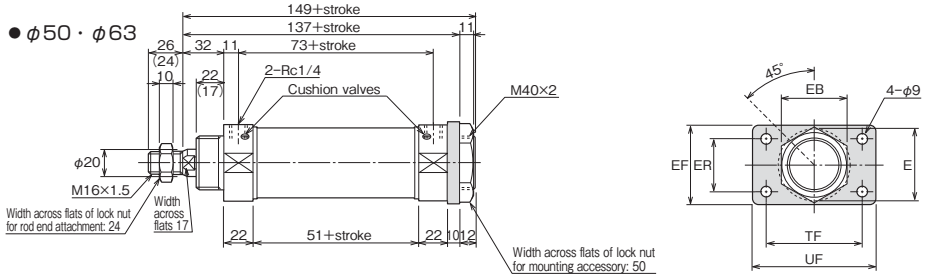
Double acting single rod **Standard** 10Z-3 FB **Bore** **Cushioning** **Stroke**

● ϕ 20 to ϕ 40



- Non-rotating cylinders of this type are not available.
 - For dimensions not shown here, refer to the SD style (basic style).
- Related types: Type with cushion, type with boots

● ϕ 50 · ϕ 63



- Non-rotating cylinders of this type are not available.
 - The parenthesized values indicate the screw length.
- Related types: Type with boots

Dimensional Table

Bore	Symbol	E	EB
ϕ 50		ϕ 56	54
ϕ 63		ϕ 70	68

CAD/DATA
10Z-3/TAZ3 **Bore** **A** is available.



Unit: mm

Dimensional Table

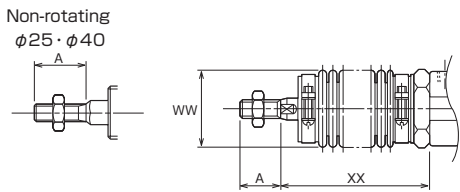
Symbol Bore	A	B ₁	B ₂	D	E	EF	H	h	K	KK	MB
ϕ 20	20(20)	13	30	6	ϕ 28	38	31	5	14	M8×1.25	M22×1.5
ϕ 25	22(22)	17	30	8	ϕ 31	38	35	6	14.5	M10×1.25	M22×1.5
ϕ 32	22(19)	17	32	10	ϕ 38	47	40	6	15	M10×1.25	M24×2
ϕ 40	24(21)	19	41	12	ϕ 46	51	42	7	15	M12×1.25	M30×2

Symbol Bore	ML	MM	P	R	RH	TF	UF	VF	WF	YP	ZC	ZF
ϕ 20	18	ϕ 8	45	—	7	50	65	16(13)	24	7	105	87
ϕ 25	18	ϕ 10	49	—	7	50	65	18(15)	28	7.5	114	96
ϕ 32	22	ϕ 12	55	33	8	58	72	20(16)	30	7.5	126	104
ϕ 40	24	ϕ 14	57	36	9	70	84	22(18)	32	7.5	132	108

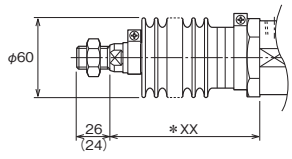
* The parenthesized values of dimensions A and VF indicate the screw length.

With Boots

ϕ 20 to ϕ 40



ϕ 50 · ϕ 63



- The parenthesized values indicate the screw length.
 - * XX=1/4x(stroke)+65
- If the calculated value has a fractional part, round it up.

Dimensional Table

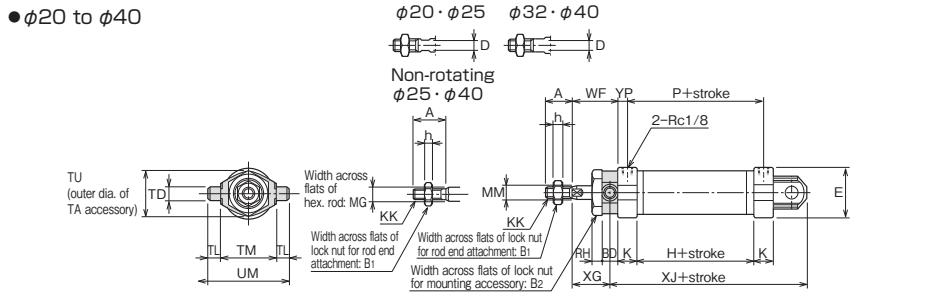
Symbol Stroke Bore	A		WW	Dimension XX for each stroke																															
	Stand- ard	Non- rotating		to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500					
				Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating				
ϕ 20	20(20)	—	ϕ 36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—				
ϕ 25	22(22)	20(17)	ϕ 36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231				
ϕ 32	22(19)	—	ϕ 40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—				
ϕ 40	24(21)	24(21)	ϕ 45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175				

* The parenthesized values of dimension A indicate the screw length.

TA

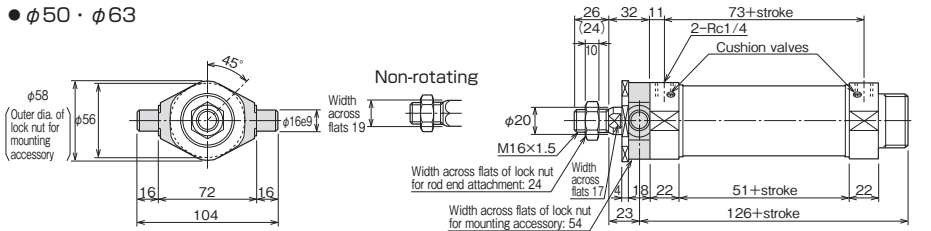
Double acting single rod **Standard** 10Z-3 TA **Bore** **Cushioning** **Stroke**
 Non-rotating 10Z-3G TK **Bore** **Cushioning** **Stroke**

● ϕ 20 to ϕ 40



- For dimensions not shown here, refer to the SD style (basic style). The non-rotating cylinders are basically mounted in the clevis cut style.
 - The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
- Related types: Clevis cut styles (TK), rear port style (TP), type with cushion, type with boots

● ϕ 50 · ϕ 63



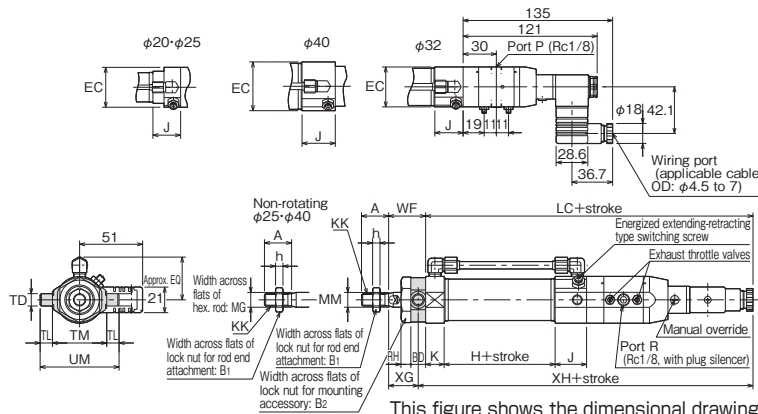
- The parenthesized values indicate the screw length.
 - The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
- Related types: Clevis cut style (TK), rear port style (TP). The non-rotating cylinders are basically mounted in the clevis cut style.

VAL Set

Double acting single rod **Standard** 10Z-3V2 TA **Bore** N **Stroke** - **Valve operating function** **Valve voltage**
 Non-rotating 10Z-3V2G TA **Bore** N **Stroke** - **Valve operating function** **Valve voltage**

● ϕ 20 to ϕ 40

- For dimensions not shown here, refer to the SD style (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
- Ports P, exhaust throttle valves, terminals and manual operation buttons of the VAL Set and SV Set Cylinders of the energized extending type are positioned at a distance of 180 degrees from those of the energized retracting type.



This figure shows the dimensional drawing of an energized extending type cylinder.

Related types: Type with boots

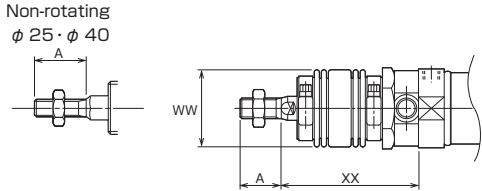
Dimensional Table

Symbol Bore	A		B ₁		B ₂	BD	D	E	EC	EQ	H	h		J	K
	Standard	Non-rotating	Standard	Non-rotating								Standard	Non-rotating		
φ20	20 (20)	—	13	—	30	10	6	φ28	36	34	31	5	—	25	14
φ25	22 (22)	20 (17)	17	13	30	10	8	φ31	36	34	35	6	5	25	14.5
φ32	22 (19)	—	17	—	32	12	10	φ38	36	34	40	6	—	25.5	15
φ40	24 (21)	24 (21)	19	19	41	14	12	φ46	44	38	42	7	7	30	15

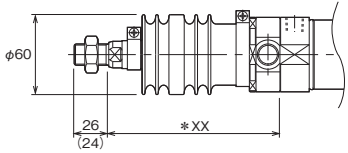
Symbol Bore	KK		LC	MG	MM	P	RH	TD	TL	TM	TU	UM	WF	XG	XH	XJ	YP
	Standard	Non-rotating															
φ20	M8×1.25	—	205	—	φ8	45	7	φ8e9	8	36	32	52	24	19	210	86	7
φ25	M10×1.25	M8×1.25	209.5	9	φ10	49	7	φ8e9	8	36	32	52	28	23	214.5	91	7.5
φ32	M10×1.25	—	215.5	—	φ12	55	8	φ10e9	10	44	36	64	30	24	221.5	102	7.5
φ40	M12×1.25	M12×1.25	222	14	φ14	57	9	φ12e9	12	50	44	74	32	25	229	107	7.5

* The parenthesized values of dimension A indicate the screw length.

With Boots
 ϕ 20 to ϕ 40



ϕ 50 · ϕ 63



- The parenthesized values indicate the screw length.
- * XX=1/4x(stroke)+65
- However, when the stroke is less than 50, XX=1/4x(stroke)+80.
- If the calculated value has a fractional part, round it up.

Dimensional Table

Symbol Stroke Bore	A		WW	Dimension XX for each stroke																											
	Stand- ard	Non- rotating		to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
				Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating	Stand- ard	Non- rotating
ϕ 20	20 (20)	—	ϕ 36	59	—	69	—	79	—	84	—	94	—	104	—	114	—	124	—	144	—	164	—	184	—	204	—	224	—	244	—
ϕ 25	22 (22)	20 (17)	ϕ 36	63	56	73	66	83	76	88	81	98	91	108	101	118	111	128	121	148	141	168	161	188	181	208	201	228	221	248	241
ϕ 32	22 (19)	—	ϕ 40	55	—	65	—	75	—	80	—	90	—	95	—	105	—	110	—	130	—	140	—	160	—	180	—	200	—	220	—
ϕ 40	24 (21)	24 (21)	ϕ 45	52	45	62	55	67	60	72	65	82	75	92	85	97	90	102	95	112	105	127	120	137	130	152	145	172	165	192	185

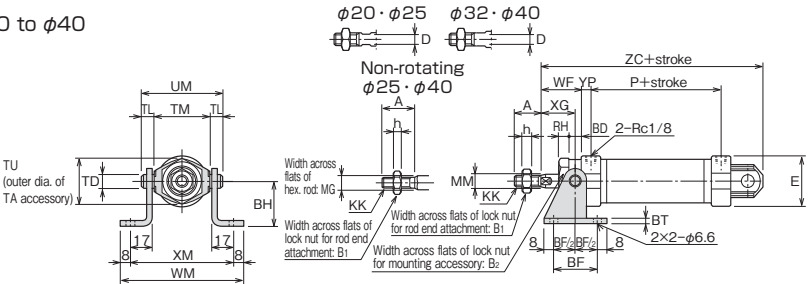
* The parenthesized values of dimension A indicate the screw length.

TA with Bracket

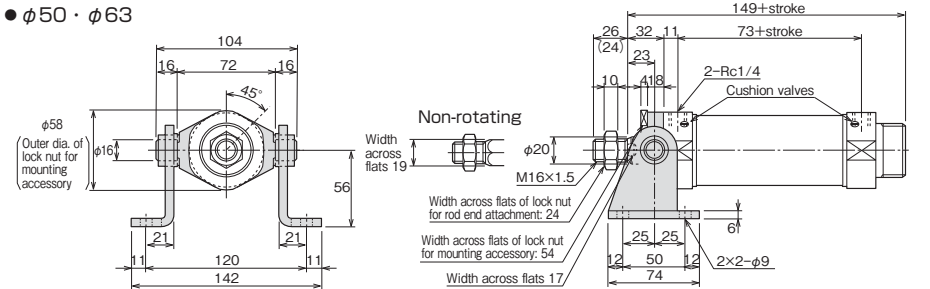
Double acting single rod

Standard	10Z-3	TA	Bore	Cushioning	Stroke	- B
Non-rotating	10Z-3G	TK	Bore	Cushioning	Stroke	- B

● ϕ 20 to ϕ 40



- For dimensions not shown here, refer to the SD style (basic style). The non-rotating cylinders are basically mounted in the clevis cut style.
 - The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
- Related types: Clevis cut styles (TK with bracket), rear port style (TP with bracket), type with cushion, type with boots
- ϕ 50 · ϕ 63



- The parenthesized values indicate the screw length.
 - The non-rotating cylinders have the same dimensions as the standard types except the dimensions shown above.
- Related types: Clevis cut style (TK), rear port style (TP) The non-rotating cylinders are basically mounted in the clevis cut style.

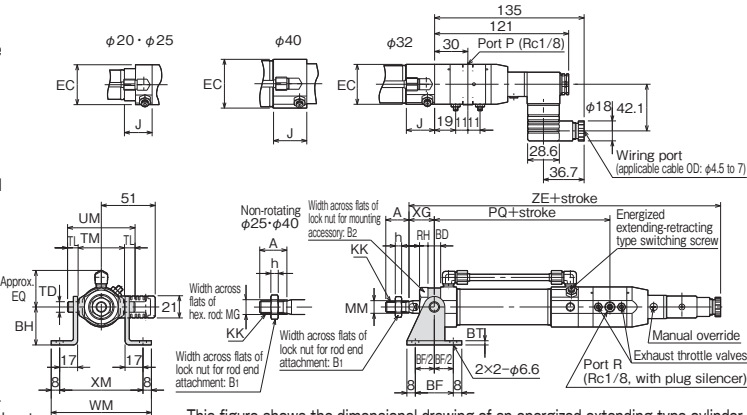
VAL Set

Double acting single rod

Standard	10Z-3V2	TA	Bore	N	Stroke	-	Valve operating function	Valve voltage	- B
Non-rotating	10Z-3V2G	TA	Bore	N	Stroke	-	Valve operating function	Valve voltage	- B

● ϕ 20 to ϕ 40

- For dimensions not shown here, refer to the SD style (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
- Ports P, exhaust throttle valves, terminals and manual operation buttons of the VAL Set and SV Set Cylinders of the energized extending type are positioned at a distance of 180 degrees from those of the energized retracting type.



Related types: Type with boots

This figure shows the dimensional drawing of an energized extending type cylinder.

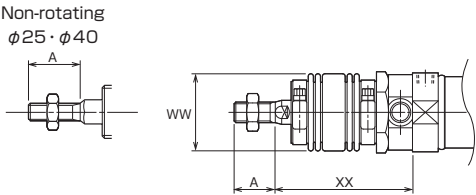
Dimensional Table

Symbol	A		B ₁		B ₂	BD	BF	BH	BT	D	E	EC	EQ	h		J
	Standard	Non-rotating	Standard	Non-rotating										Standard	Non-rotating	
ϕ 20	20(20)	—	13	—	30	10	32	32	3.2	6	ϕ 28	36	34	5	—	25
ϕ 25	22(22)	20(17)	17	13	30	10	32	32	3.2	8	ϕ 31	36	34	6	5	25
ϕ 32	22(19)	—	17	—	32	12	36	36	4	10	ϕ 38	36	35	6	—	25.5
ϕ 40	24(21)	24(21)	19	19	41	14	40	40	4	12	ϕ 46	44	39	7	7	30

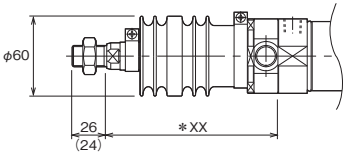
Symbol	KK		MG	MM	P	PQ	RH	TD	TL	TM	TU	UM	WF	WM	XG	XM	YP	ZC	ZE
	Standard	Non-rotating																	
ϕ 20	M8x1.25	—	—	ϕ 8	45	105	7	ϕ 8e9	8	36	32	52	24	87	19	71	7	105	229
ϕ 25	M10x1.25	M8x1.25	9	ϕ 10	49	109.5	7	ϕ 8e9	8	36	32	52	28	87	23	71	7.5	114	237.5
ϕ 32	M10x1.25	—	—	ϕ 12	55	116.5	8	ϕ 10e9	10	44	36	64	30	95	24	79	7.5	126	245.5
ϕ 40	M12x1.25	M12x1.25	14	ϕ 14	57	124	9	ϕ 12e9	12	50	44	74	32	101	25	85	7.5	132	254

* The parenthesized values of dimension A indicate the screw length.

With Boots
 ϕ 20 to ϕ 40



ϕ 50 · ϕ 63



- The parenthesized values indicate the screw length.
- * XX=1/4x(stroke)+65
- However, when the stroke is less than 50, XX=1/4x(stroke)+80.
- If the calculated value has a fractional part, round it up.

Dimensional Table

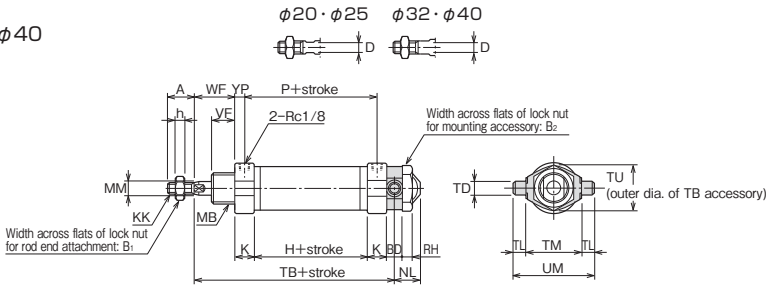
Symbol Stroke	A		WW	Dimension XX for each stroke																											
	Stand- rotating	Non- rotating		to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
Bore			Stand- rotating	Non- rotating	Stand- rotating	Non- rotating	Stand- rotating	Non- rotating	Stand- rotating	Non- rotating	Stand- rotating	Non- rotating	Stand- rotating	Non- rotating	Stand- rotating	Non- rotating	Stand- rotating	Non- rotating	Stand- rotating	Non- rotating	Stand- rotating	Non- rotating	Stand- rotating	Non- rotating	Stand- rotating	Non- rotating	Stand- rotating	Non- rotating	Stand- rotating	Non- rotating	
φ20	20(20)	—	φ36	59	—	69	—	79	—	84	—	94	—	104	—	114	—	124	—	144	—	164	—	184	—	204	—	224	—	244	—
φ25	22(22)	20(17)	φ36	63	56	73	66	83	76	88	81	98	91	108	101	118	111	128	121	148	141	168	161	188	181	208	201	228	221	248	241
φ32	22(19)	—	φ40	55	—	65	—	75	—	80	—	90	—	95	—	105	—	110	—	130	—	140	—	160	—	180	—	200	—	220	—
φ40	24(21)	24(21)	φ45	52	45	62	55	67	60	72	65	82	75	92	85	97	90	102	95	112	105	127	120	137	130	152	145	172	165	192	185

* The parenthesized values of dimension A indicate the screw length.

TB

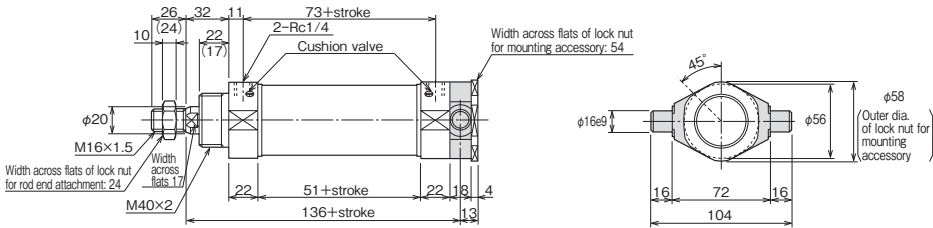
Double acting single rod Standard 10Z-3 TB Bore Cushioning Stroke

- ϕ 20 to ϕ 40



- Non-rotating cylinders of this type are not available.
 - For dimensions not shown here, refer to the SD style (basic style).
- Related types: Type with cushion, type with boots

- ϕ 50 $\cdot$ ϕ 63



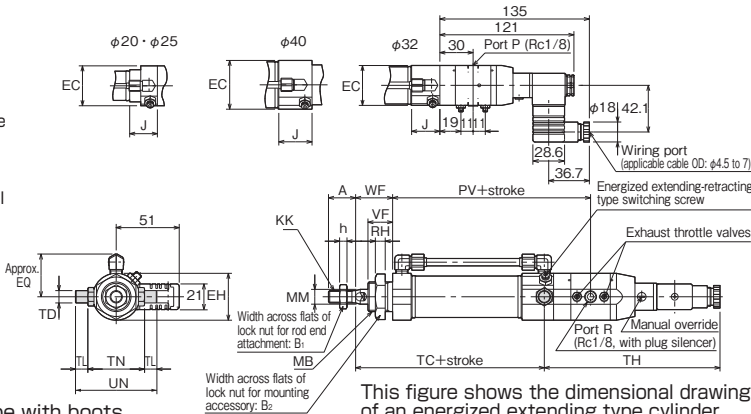
- Non-rotating cylinders of this type are not available.
 - The parenthesized values indicate the screw length.
- Related types: Type with boots

TC VAL Set

Double acting single rod Standard 10Z-3V2 TC Bore N Stroke - Valve operating function Valve voltage

- ϕ 20 to ϕ 40

- For dimensions not shown here, refer to the SD style (basic style).
- Ports P, exhaust throttle valves, terminals and manual operation buttons of the VAL Set and SV Set Cylinders of the energized extending type are positioned at a distance of 180 degrees from those of the energized retracting type.



This figure shows the dimensional drawing of an energized extending type cylinder.

Related types: Type with boots

Dimensional Table

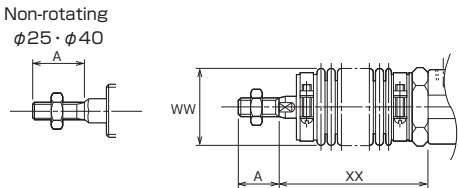
Symbol Bore	A	B ₁	B ₂	BD	D	EC	EH	EQ	H	h	J	K	KK	MB	MM
ϕ 20	20(20)	13	30	10	6	36	ϕ 38	34	31	5	25	14	M8×1.25	M22×1.5	ϕ 8
ϕ 25	22(22)	17	30	10	8	36	ϕ 38	34	35	6	25	14.5	M10×1.25	M22×1.5	ϕ 10
ϕ 32	22(19)	17	32	12	10	36	ϕ 38	35	40	6	25.5	15	M10×1.25	M24×2	ϕ 12
ϕ 40	24(21)	19	41	14	12	44	ϕ 46	39	42	7	30	15	M12×1.25	M30×2	ϕ 14

Symbol Bore	NL	P	PV	RH	TB	TC	TD	TH	TL	TM	TN	TU	UM	UN	VF	WF	YP
ϕ 20	17	45	100	7	88	86.5	ϕ 8e9	142.5	8	36	46	32	52	62	16(13)	24	7
ϕ 25	17	49	104.5	7	97	95	ϕ 8e9	142.5	8	36	46	32	52	62	18(15)	28	7.5
ϕ 32	20	55	110.5	8	106	103	ϕ 10e9	142.5	10	44	46	36	64	66	20(16)	30	7.5
ϕ 40	21	57	117	9	111	109	ϕ 12e9	145	12	50	54	44	74	78	22(18)	32	7.5

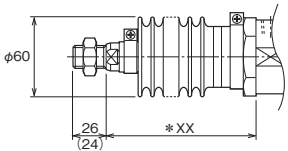
* The parenthesized values of dimensions A and VF indicate the screw length.

With Boots

ϕ 20 to ϕ 40



ϕ 50 $\cdot$ ϕ 63



- The parenthesized values indicate the screw length.
- $XX = 1/4 \times (\text{stroke}) + 65$
- If the calculated value has a fractional part, round it up.

Dimensional Table

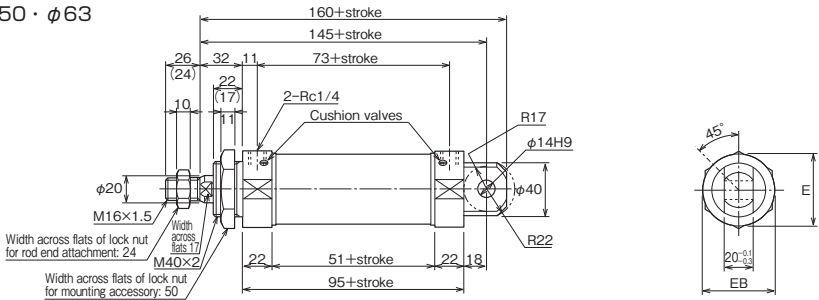
Symbol Stroke Bore	A	WW	Dimension XX for each stroke															
			to 25	to 50	to 75	to 100	to 125	to 150	to 175	to 200	to 250	to 300	to 350	to 400	to 450	to 500		
ϕ 20	20(20)	ϕ 36	49	59	69	74	84	94	104	114	134	154	174	194	214	234		
ϕ 25	22(22)	ϕ 36	53	63	73	78	88	98	108	118	138	158	178	198	218	238		
ϕ 32	22(19)	ϕ 40	45	55	65	70	80	85	95	100	120	130	150	170	190	210		
ϕ 40	24(21)	ϕ 45	42	52	62	67	77	82	92	102	122	132	152	172	192	212		

* The parenthesized values of dimension A indicate the screw length.

CA

Double acting single rod Standard 10Z-3 CA Bore Cushioning Stroke

- $\phi 50 \cdot \phi 63$



- Non-rotating cylinders of this type are not available.
- The parenthesized values indicate the screw length.
- For dimensions not shown here, refer to the SD style (basic style).

Related types: Type with boots

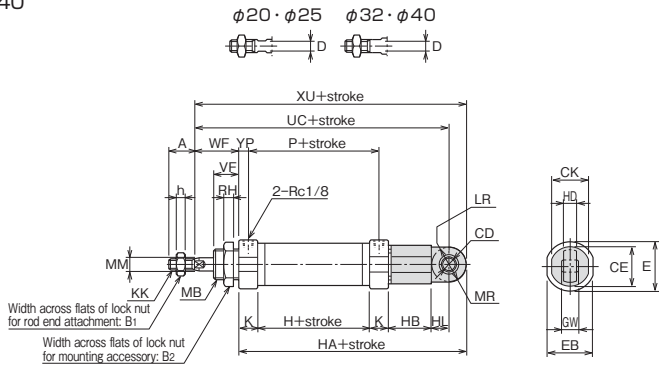
Dimensional Table

Bore	Symbol	E	EB
$\phi 50$		$\phi 56$	54
$\phi 63$		$\phi 70$	68

CU

Double acting single rod Standard 10Z-3 CU Bore Cushioning Stroke

- $\phi 20$ to $\phi 40$



- Non-rotating cylinders of this type are not available.
- For dimensions not shown here, refer to the SD style (basic style).

Related types: Type with cushion, type with boots

Dimensional Table

Symbol Bore	A	B ₁	B ₂	BF	BH	BT	BU	BY	CD	CE	CK	D	E	EB	GW	H	HA	HB	HD	HL
$\phi 20$	20(20)	13	30	32	32	3.2	48	21.8	$\phi 8$	$\phi 32$	30	6	$\phi 28$	26	12 $\frac{0}{-0.3}$	31	121	33	10.5	15
$\phi 25$	22(22)	17	30	36	36	4	52	21	$\phi 10$	$\phi 32$	30	8	$\phi 31$	29	14 $\frac{0}{-0.3}$	35	126	33	10.5	15
$\phi 32$	22(19)	17	32	36	36	4	52	21	$\phi 10$	$\phi 32$	30	10	$\phi 38$	36	14 $\frac{0}{-0.3}$	40	132	33	10.5	15
$\phi 40$	24(21)	19	41	40	40	4	56	21	$\phi 12$	$\phi 38$	36	12	$\phi 46$	44	16 $\frac{0}{-0.3}$	42	142	37	12	17

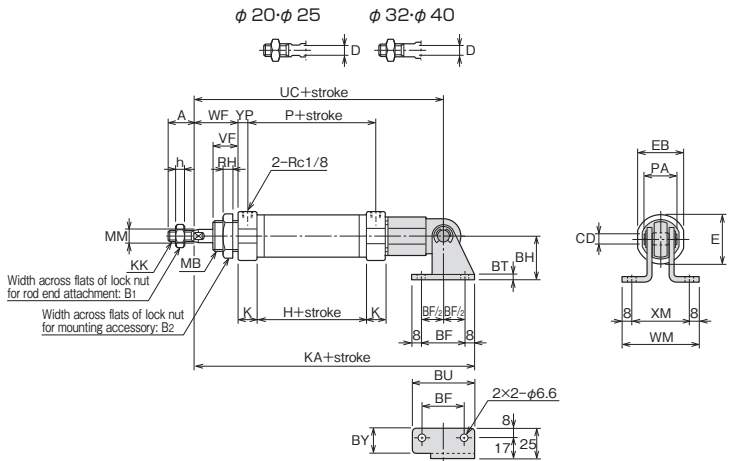
Symbol Bore	h	K	KA	KK	LR	MB	MM	MR	P	PA	RH	UC	VF	WF	WM	XM	XU	YP
$\phi 20$	5	14	155	M8 $\times$ 1.25	R14	M22 $\times$ 1.5	$\phi 8$	R14	45	27	7	131	16(13)	24	63	47	145	7
$\phi 25$	6	14.5	166	M10 $\times$ 1.25	R14	M22 $\times$ 1.5	$\phi 10$	R14	49	29	7	140	18(15)	28	65	49	154	7.5
$\phi 32$	6	15	174	M10 $\times$ 1.25	R14	M24 $\times$ 2	$\phi 12$	R14	55	29	8	148	20(16)	30	65	49	162	7.5
$\phi 40$	7	15	186	M12 $\times$ 1.25	R16	M30 $\times$ 2	$\phi 14$	R16	57	32	9	158	22(18)	32	67	51	174	7.5

* The parenthesized values of dimensions A and VF indicate the screw length.

CU with Bracket

Double acting single rod Standard 10Z-3 CU Bore Cushioning Stroke - B

- $\phi 20$ to $\phi 40$



- Non-rotating cylinders of this type are not available.
- For dimensions not shown here, refer to the SD style (basic style).

Related types: Type with cushion, type with boots

AD

Double acting single rod **Standard** 10Z-3 AD **Bore** **Cushioning** **Stroke**
 Non-rotating 10Z-3G AD **Bore** **Cushioning** **Stroke**

● ϕ 20 to ϕ 40 ϕ 20 · ϕ 25 ϕ 32 · ϕ 40

Related type With cushion

● Bore ϕ 20 · ϕ 25

● Bore ϕ 32 · ϕ 40

Basic style: Clevis cut

Related types: Rear port style (AP), type with cushion

● ϕ 50 · ϕ 63

Dimensional Table

Symbol	AL	E	LE	LH	LM	SB	SP	SQ	TQ	UJ
ϕ 50	7	ϕ 56	30	56	28	49.5	ϕ 6.6	6.5	ϕ 11	64
ϕ 63	9	ϕ 70	27	70	35	61.4	ϕ 9	8.6	ϕ 14	74

● The parenthesized values indicate the screw length.
● The non-rotating cylinders have the same dimensions as the standard types except the dimensions shown above.

Related types: Rear port style (AP)

The standard and non-rotating cylinders are basically mounted in the clevis cut style.

VAL Set

Double acting single rod **Standard** 10Z-3V2 AD **Bore** N **Stroke** - **Valve operating function** **Valve voltage**
 Non-rotating 10Z-3V2G AD **Bore** N **Stroke** - **Valve operating function** **Valve voltage**

● ϕ 20 to ϕ 40

● For the dimensions not shown here, see the above drawings.
● The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
● Ports P, exhaust throttle valves, terminals and manual operation buttons of the VAL Set and SV Set Cylinders of the energized extending type are positioned at a distance of 180 degrees from those of the energized retracting type.

This figure shows the dimensional drawing of an energized extending type cylinder.

Dimensional Table

Symbol Bore	A		B ₁		D	E	EC	FP	H	h		J	JE	K
	Standard	Non-rotating	Standard	Non-rotating						Standard	Non-rotating			
ϕ 20	20 (20)	—	13	—	6	ϕ 28	36	23	31	5	—	25	30	14
ϕ 25	22 (22)	20 (17)	17	13	8	ϕ 31	36	25.5	35	6	5	25	32.5	14.5
ϕ 32	22 (19)	—	17	—	10	ϕ 38	36	28	40	6	—	25.5	35	15
ϕ 40	24 (21)	24 (21)	19	19	12	ϕ 46	44	30	42	7	7	30	37	15

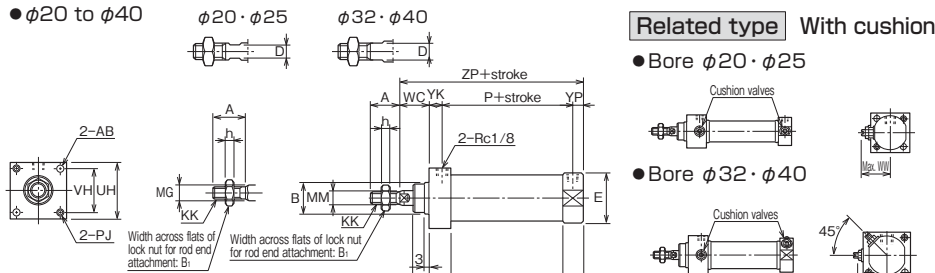
Symbol Bore	KK		LE	LH	LM	MG	MM	P	SB	SP	SQ	TQ	UJ	W	WW	XS	YP	ZP	ZM
	Standard	Non-rotating																	
ϕ 20	M8×1.25	—	28	14	21.5	—	ϕ 8	45	ϕ 6.6	6.5	ϕ 11	20	34	8	25.5	18	7	83	229
ϕ 25	M10×1.25	M8×1.25	34	17	27.5	9	ϕ 10	49	ϕ 6.6	6.5	ϕ 11	24	38	10	27	20	7.5	92	237.5
ϕ 32	M10×1.25	—	40	20	31.4	—	ϕ 12	54.5	ϕ 9	8.6	ϕ 14	30	46	10	35	22	7.5	100	245.5
ϕ 40	M12×1.25	M12×1.25	48	24	37.2	14	ϕ 14	56.5	ϕ 11	10.8	ϕ 17.5	36	56	10	39	22	7.5	104	254

* The parenthesized values of dimension A indicate the screw length.

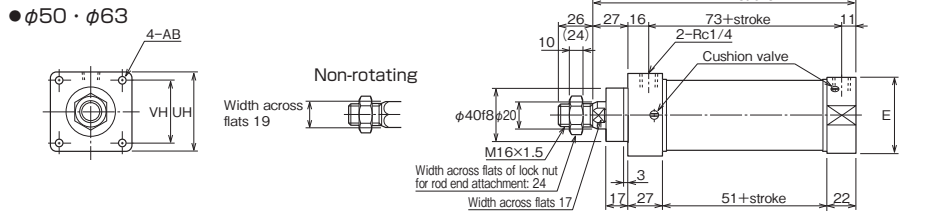
Basic style: Clevis cut

BD

Double acting single rod **Standard** 10Z-3 BD **Bore** **Cushioning** **Stroke**
 Non-rotating 10Z-3G BD **Bore** **Cushioning** **Stroke**



● The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
Related types: Rear port style (BP), type with cushion



● The parenthesized values indicate the screw length.
● The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions shown above.
Related types: Rear port style (BP)

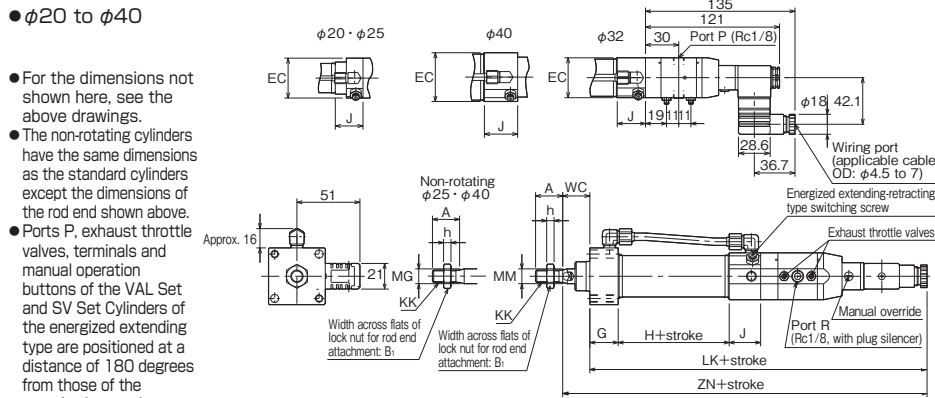
Dimensional Table

Bore	Symbol	AB	E	VH	UH
φ50		φ6.6	φ56	□48	□62
φ63		φ9	φ70	□58	□74

The standard and non-rotating cylinders are basically mounted in the clevis cut style.

VAL Set

Double acting single rod **Standard** 10Z-3V2 BD **Bore** **N** **Stroke** - **Valve operating function** **Valve voltage**
 Non-rotating 10Z-3V2G BD **Bore** **N** **Stroke** - **Valve operating function** **Valve voltage**



● For the dimensions not shown here, see the above drawings.
● The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
● Ports P, exhaust throttle valves, terminals and manual operation buttons of the VAL Set and SV Set Cylinders of the energized extending type are positioned at a distance of 180 degrees from those of the energized retracting type.

This figure shows the dimensional drawing of an energized extending type cylinder.

Dimensional Table

Symbol Bore	A		AB	B	B ₁		D	E	EC	G	H	h		J	K
	Standard	Non-rotating			Standard	Non-rotating						Standard	Non-rotating		
φ20	20 (20)	—	φ5.5	φ20f8	13	—	6	φ28	36	20	31	5	—	25	14
φ25	22 (22)	20 (17)	φ5.5	φ22f8	17	13	8	φ31	36	22.5	35	6	5	25	14.5
φ32	22 (19)	—	φ6.6	φ24f8	17	—	10	φ38	36	23	40	6	—	25.5	15
φ40	24 (21)	24 (21)	φ9	φ28f8	19	19	12	φ46	44	25	42	7	7	30	15

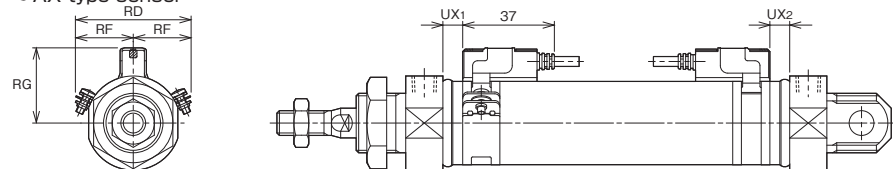
Symbol Bore	KK		LK	MG	MM	P	PJ	UH	VI	VH	WC	WW	YK	YP	ZP	ZN
	Standard	Non-rotating														
φ20	M8×1.25	—	211	—	φ8	45	M5×0.8	□34	10	□24	18	25.5	13	7	83	229
φ25	M10×1.25	M8×1.25	217.5	9	φ10	49	M5×0.8	□38	10	□28	20	27	15.5	7.5	92	237.5
φ32	M10×1.25	—	223.5	—	φ12	54.5	M6×1	□46	12	□36	22	35	16	7.5	100	245.5
φ40	M12×1.25	M12×1.25	232	14	φ14	56.5	M8×1.25	□56	12	□42	22	39	18	7.5	104	254

* The parenthesized values of dimension A indicate the screw length.

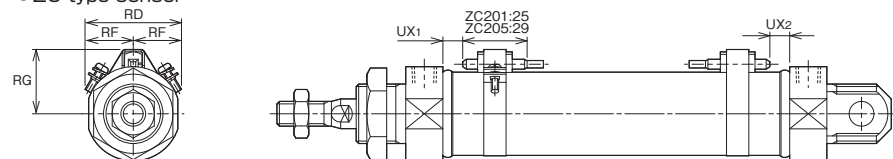
Switch Set/SV Set
Double acting type

10Z-3 Mounting style Bore Cushioning Stroke - Sensor symbol Sensor quantity
10Z-3V2 Mounting style Bore N Stroke - Valve operating function Valve voltage Sensor symbol Sensor quantity

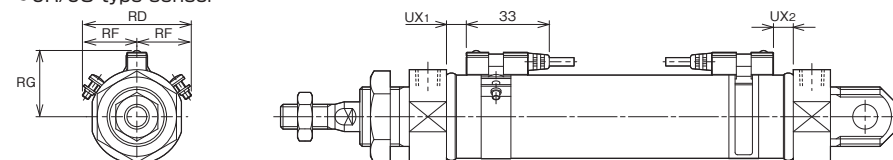
● AX type sensor



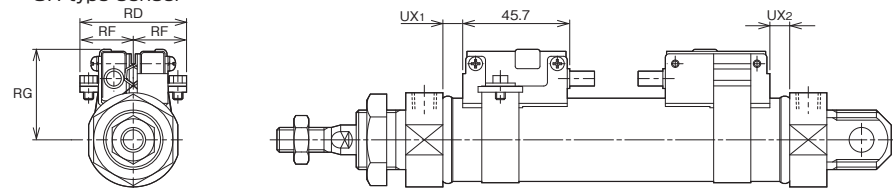
● ZC type sensor



● JR/JS type sensor



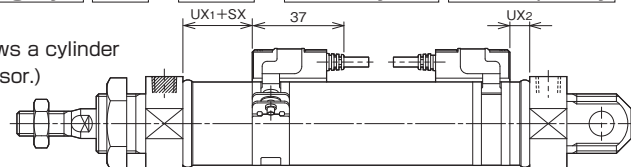
● SR type sensor



10Z-3SR Mounting style Bore N Stroke - Sensor symbol Sensor quantity

● Spring return

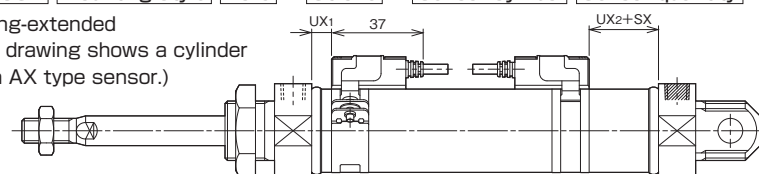
(The drawing shows a cylinder with AX type sensor.)



10Z-3SH Mounting style Bore N Stroke - Sensor symbol Sensor quantity

● Spring-extended

(The drawing shows a cylinder with AX type sensor.)



Dimensional Table

Symbol	RD				RF				RG			
	AX type	ZC type	JR/JS type	SR type	AX type	ZC type	JR/JS type	SR type	AX type	ZC type	JR/JS type	SR type
ϕ 20	38	33	40	50	19	16.5	20	25	25	20	21	33
ϕ 25	44	36	42	52	22	18	21	26	27	22	23	35
ϕ 32	48	39	46	54	24	19.5	23	27	31	26	27	38
ϕ 40	54	43	50	58	27	21.5	25	29	35	30	31	43
ϕ 50	60	49	50	48	30	24.5	25	24	39	35	37	46
ϕ 63	68	49	60	52	34	24.5	30	26	47	42	43	53

Symbol	AX1 * type		AX2 * type		ZC201 type		ZC205 type		ZC230/253 type	
	UX ₁	UX ₂	UX ₁	UX ₂	UX ₁	UX ₂	UX ₁	UX ₂	UX ₁	UX ₂
ϕ 20	7	7	7	7	9.5	7.5	6	4	8	6
ϕ 25	9	8	9	8	11	10	7.5	6.5	9.5	8.5
ϕ 32	10	10	10	10	13.5	12.5	10	9	12	11
ϕ 40	12	12	12	12	13.5	15.5	10	11	12	13
ϕ 50	16	16	16	16	18.5	18.5	15	15	17	17
ϕ 63	16	17	16	17	18.5	18.5	15	15	17	17

Symbol	JR type		JS type		SR type		SX		
	UX ₁	UX ₂	UX ₁	UX ₂	UX ₁	UX ₂	Stroke 15	Stroke 30	Standard strokes other than those shown left
ϕ 20	4	3	5	5	2	0	25	50	Stroke
ϕ 25	6	5	8	8	1	1			
ϕ 32	8	8	10	10	5	5			
ϕ 40	8	9	12	12	6	6			
ϕ 50	12	12	16	16	7	7	—	—	—
ϕ 63	12	12	16	16	7	7	—	—	—

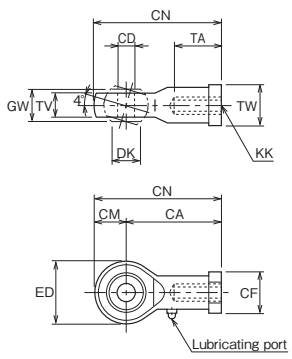
Operating Range and Hysteresis

Bore mm	Reed sensor											
	AX1 ** type		ZC201 type		ZC205 type		JR type		SR type			
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis		
φ20	4 to 9	1 or less	5 to 9	2 or less	6 to 8	0.5 to 1.5	4 to 5	2 or less	6 to 9	2 or less		
φ25	5 to 9		6 to 11		6 to 9	2 or less	7 to 8		7 to 10			
φ32			6 to 10		7 to 10		8 to 9		8 to 11			
φ40			7 to 11		8 to 12							
φ50			6 to 10		8 to 13							
φ63	8 to 11											

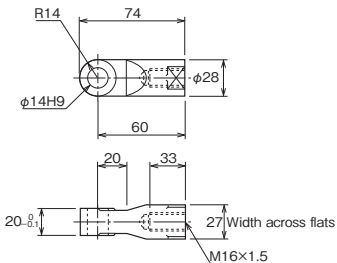
Bore mm	Solid state sensor							
	AX2 ** type		ZC230 type		ZC253 type		JS type	
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis
ϕ 20	2 to 5	1 or less	1 to 4	0.5 or less	2 to 4	0.5 or less	10 to 13	1 or less
ϕ 25			2 to 4				11 to 14	
ϕ 32			2 to 5				12 to 15	
ϕ 40			2 to 4				13 to 16	
ϕ 50	2 to 6	1 or less	3 to 5	0.5 or less	3 to 5	0.5 or less	14 to 17	1 or less
ϕ 63								

Rod End Attachment

Rod eye with spherical bearing (S-end)
 ϕ 20 to ϕ 63

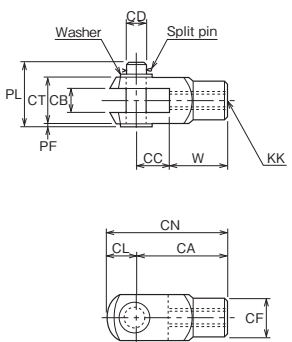


Rod eye (T-end)
 ϕ 50 · ϕ 63

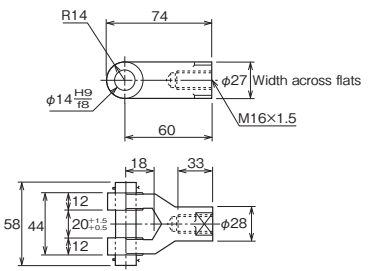


Part number: RTA-16-A

Rod clevis (Y-end) with pin
 ϕ 20 to ϕ 40

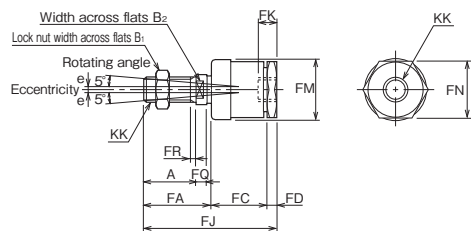


ϕ 50 · ϕ 63

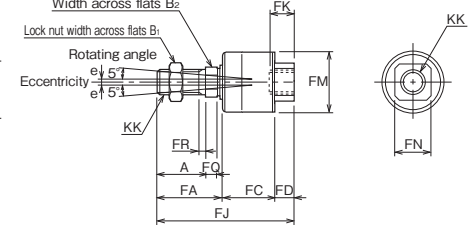


Part number: RYA-16-A

Floating joint (F-end)
 ϕ 20 to ϕ 32



ϕ 40 to ϕ 63



- Notes) ●The insertion of the floating joint into the socket shall not equal or exceed the dimension of screw diameter. (Return the joint one or two turns after it gets into contact with the socket bottom, and fix it with a lock nut.) Excessive insertion can cause operation failure.
●DO NOT use together with TA, TB, TC, and CU accessories.

Dimensional Table/Rod eye with spherical bearing (S-end)

Symbol Bore	Part number	CA	CD	CF	CM	CN	DK	ED	GW	KK	TA	TV	TW
ϕ 20	RSA-08-A	36	ϕ 8H9	ϕ 16	11	47	ϕ 10.4	22	12 $^{+0.0}_{-0.1}$	M8×1.25	17	9±0.1	14
ϕ 25	RSA-10-A	43	ϕ 10H9	ϕ 19	13	56	ϕ 12.9	26	14 $^{+0.0}_{-0.1}$	M10×1.25	21	10.5±0.1	17
ϕ 32													
ϕ 40	RSA-12-A	50	ϕ 12H9	ϕ 22	15	65	ϕ 15.4	30	16 $^{+0.0}_{-0.1}$	M12×1.25	24	12±0.1	19
ϕ 50	RSA-16-A	64	ϕ 16H9	ϕ 27	19	83	ϕ 19.4	38	21 $^{+0.0}_{-0.1}$	M16×1.5	33	15±0.1	22
ϕ 63													

* For the 25 mm bore non-rotating cylinder, use the accessory for the 20 mm bore cylinder shown above.

Dimensional Table/Rod clevis (Y-end) with pin

Symbol Bore	Part number	CA	CB	CC	CD	CF	CL	CN	CT	KK	PF	PL	W
ϕ 20	RYA-08-A	32	8 $^{+0.4}_{+0.15}$	16	ϕ 8 $^{H8}_{f7}$	ϕ 14	10	42	□16	M8×1.25	2	24.5	16
ϕ 25	RYA-10-A	40	10 $^{+0.4}_{+0.15}$	20	ϕ 10 $^{H8}_{f7}$	ϕ 18	12	52	□20	M10×1.25	2.5	30	20
ϕ 32													
ϕ 40	RYA-12-A	48	12 $^{+0.4}_{+0.15}$	24	ϕ 12 $^{H8}_{f7}$	ϕ 20	14	62	□24	M12×1.25	3	36.5	24

* For the 25 mm bore non-rotating cylinder, use the accessory for the 20 mm bore cylinder shown above.

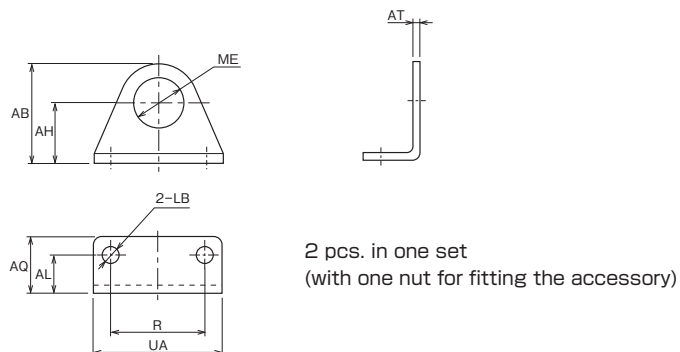
Dimensional Table/Floating joint (F-end)

Symbol Bore	Part number	A	B ₁	B ₂	e	FA	FC	FD	FJ	FK	FM	FN	FQ	FR	KK
ϕ 20	RFS-08T	22.5	13	8	0.5	28	22.5	3.5	54	9	ϕ 20	19	4.5	2.5	M8×1.25
ϕ 25	RFS-10T	24.5	17	10	1	31	28	4	63	11	ϕ 25	24	4.5	2.5	M10×1.25
ϕ 32															
ϕ 40	RFS-12T	24	19	13	1	33	25.5	11	69.5	13.5	ϕ 32	□19	7	3.5	M12×1.25
ϕ 50	RFS-16T	32	22	17	1.5	43	33	13	89	16	ϕ 40	□24	8	4	M16×1.5
ϕ 63															

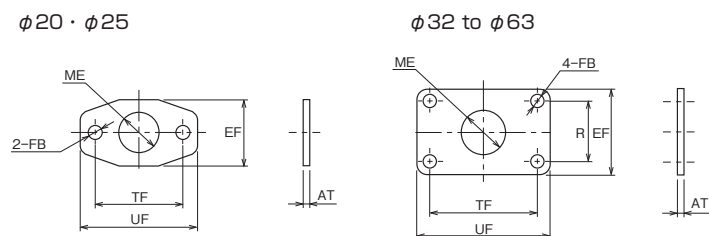
* For the 25 mm bore non-rotating cylinder, use the accessory for the 20 mm bore cylinder shown above.

Mounting Accessory

- LB (end angles)

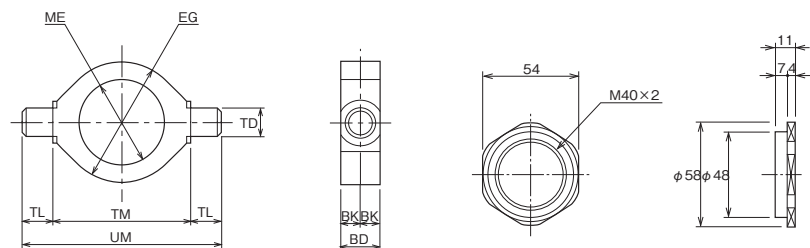


- FA (rod flange) and FB (cap flange)

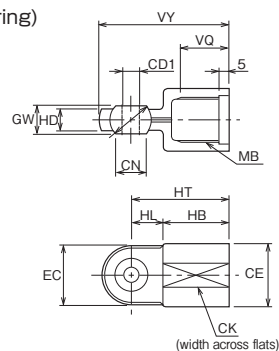


- TA (rod trunnion) and TB (cap trunnion)

- Lock nut for trunnion accessory Only ϕ 50 and ϕ 63



- CU (cap eye with spherical bearing)



Dimensional Table/LB (end angles)

Symbol Bore	Part number	AB	AH	AL	AQ	AT	LB	ME	R	UA
ϕ 20	MAZ3-LB020	42	25	16	24	3.2	ϕ 6.8	ϕ 22.5	40	55
ϕ 25										
ϕ 32	MAZ3-LB032	50	32	25	33	4	ϕ 6.8	ϕ 24.5	45	60
ϕ 40	MAZ3-LB040	58	36	25	33	4	ϕ 6.8	ϕ 30.5	50	65
ϕ 50	MAZ3-LB050	70	40	25	40	6	ϕ 9	ϕ 40.5	60	80
ϕ 63	MAZ3-LB063	77	45	25	40	6	ϕ 9	ϕ 40.5	74	95

Dimensional Table/FA (rod flange) and FB (cap flange)

Symbol Bore	Part number	AT	EF	FB	ME	TF	UF	R
ϕ 20	MAZ3-FA020	4	38	ϕ 6.6	ϕ 22	50	65	—
ϕ 25								
ϕ 32	MAZ3-FA032	4	47	ϕ 6.6	ϕ 24	58	72	33
ϕ 40	MAZ3-FA040	4	51	ϕ 6.6	ϕ 30	70	84	36
ϕ 50	MAZ3-FA050	10	60	ϕ 9	ϕ 40	74	94	40
ϕ 63	MAZ3-FA063	10	70	ϕ 9	ϕ 40	80	100	50

Dimensional Table/TA (rod trunnion) and TB (cap trunnion)

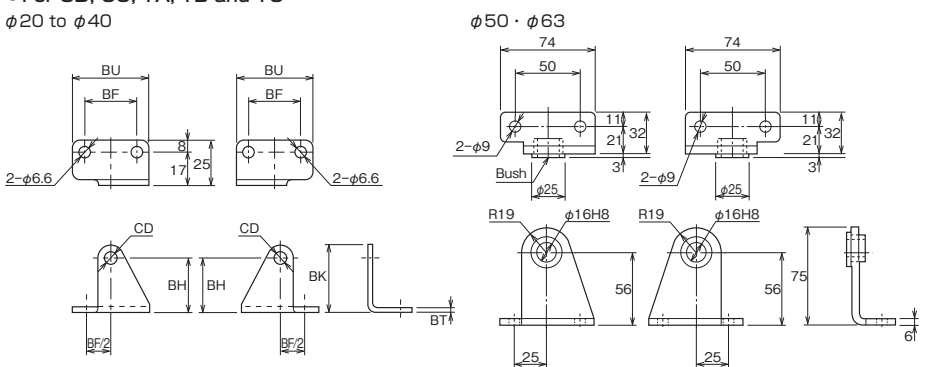
Symbol Bore	Part number	BD	BK	EG	ME	TD	TM	TL	UM
ϕ 20	MAZ3-TA020	10	5	ϕ 32	ϕ 22.5	ϕ 8e9	36	8	52
ϕ 25									
ϕ 32	MAZ3-TA032	12	6	ϕ 36	ϕ 24.5	ϕ 10e9	44	10	64
ϕ 40	MAZ3-TA040	14	7	ϕ 44	ϕ 30.5	ϕ 12e9	50	12	74
ϕ 50	MAZ3-TA050	18	9	ϕ 56	ϕ 40.5	ϕ 16e9	72	16	104
ϕ 63									

Dimensional Table/CU (cap eye with spherical bearing)

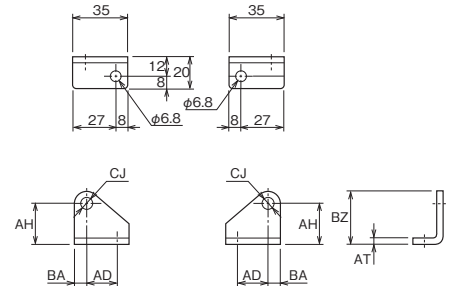
Symbol Bore	Part number	CD1	CE	CK	CN	EC	GW	HB	HD	HL	HT	MB	VQ	VY
ϕ 20	MAZ3-CU020	ϕ 8H9	ϕ 32	30	ϕ 14.8	28	$12_{-0.3}^0$	31	10.5	15	46	M22x1.5	23	60
ϕ 25	MAZ3-CU025	ϕ 10H9	ϕ 32	30	ϕ 14.8	28	$14_{-0.3}^0$	31	10.5	15	46	M22x1.5	23	60
ϕ 32	MAZ3-CU032	ϕ 10H9	ϕ 32	30	ϕ 14.8	28	$14_{-0.3}^0$	31	10.5	15	46	M24x2	23	60
ϕ 40	MAZ3-CU040	ϕ 12H9	ϕ 38	36	ϕ 15.4	32	$16_{-0.3}^0$	35	12	17	52	M30x2	26	68

Bracket
●For SD, CU, TA, TB and TC
 ϕ 20 to ϕ 40

CAD/DATA
10Z-3/TAZ3  is available. 

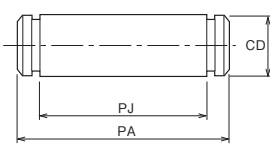


●Bracket for LC



●Pin

- For SD with bracket
- For CU with bracket



Dimensional Table/Brackets for SD, CU, TA, TB and TC

Symbol Bore	Part number			BF	BH	BK	BT	BU	CD
	For SD	For CU	For TA, TB and TC						
ϕ 20	MAZ3-BK020PA	MAZ3-BK020PB	MAZ3-BK020	32	32	40	3.2	48	ϕ 8
ϕ 25		MAZ3-BK032PB							
ϕ 32	MAZ3-BK032PA		MAZ3-BK032	36	36	46	4	52	ϕ 10
ϕ 40	MAZ3-BK040PA	MAZ3-BK040PB	MAZ3-BK040	40	40	52	4	56	ϕ 12

Dimensional Table/Brackets for LC (VAL Set)

Symbol Bore	Part number	AD	AH	AT	BA	BZ	CJ
ϕ 20	MAZ3-LC020	19	25	3.2	8	33	ϕ 8
ϕ 25							
ϕ 32	MAZ3-LC032	17	32	4	10	42	ϕ 10
ϕ 40	MAZ3-LC040	15	36	4	12	48	ϕ 12

Dimensional Table/Pins

Symbol Bore	CD		PA		PJ	
	For SD	For CU	For SD	For CU	For SD	For CU
ϕ 20	ϕ 8	ϕ 8	31	27	26	22
ϕ 25	ϕ 8	ϕ 10	31	29	26	24
ϕ 32	ϕ 10	ϕ 10	32	29	27	24
ϕ 40	ϕ 12	ϕ 12	36	32	31	27

Specifications for Adjustable Stroke Cylinders

Type	With adjustable extended stroke	With adjustable retracted stroke
	Standard type/Switch Set	Standard type/Switch Set
Series	10Z-3A1	10Z-3A2
Cylinder bore (mm)	$\phi 20 \cdot \phi 25 \cdot \phi 32 \cdot \phi 40 \cdot \phi 50 \cdot \phi 63$	
Working fluid	Air	
Lubrication	Unnecessary	
Working pressure range	$\phi 20$ to $\phi 40$: 0.05 to 0.7 MPa, $\phi 50 \cdot \phi 63$: 0.02 to 0.7 MPa	
Working speed range	20 to 700mm/s	
Proof test pressure	1.5 MPa	
Working temperature range	-10 to +70°C (No freezing)	
Structure of cushioning	$\phi 20$ to $\phi 40$: With cushion pads on both ends $\phi 50$ and $\phi 63$: With cushions on both ends (cushion pad at rod extending end for adjustment)	$\phi 20$ to $\phi 40$: With cushion pads on both ends (none at rod retracting end for adjustment) $\phi 50$ and $\phi 63$: With cushions on both ends (none at rod retracting end for adjustment)
Stroke adjusting type	Stopper adjustment	Adjuster screw adjustment
Stroke adjusting range	0 to 25 mm	
Tolerance for thread	JIS 6H/6g	
Mounting style	SD (basic style), FA, TA, TA with bracket	SD (basic style), LB, FA, FB, TA, TA with bracket, TB, TB with bracket

Note) For the working speed range, see the selection materials to check the relationship between the speed and the cushion mechanism.

Custom Made Specifications

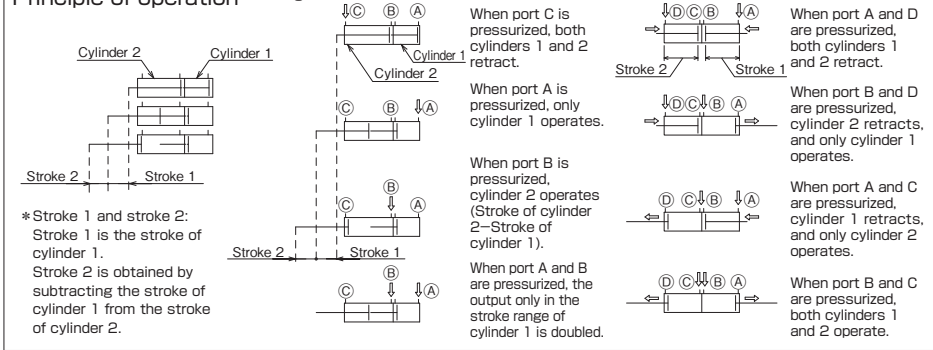
Specifications for Dual Stroke Cylinders

Type	Single rod	Double rod
	Standard type/Switch Set	Standard type/Switch Set
Series	10Z-3Q1	10Z-3Q2
Cylinder bore (mm)	$\phi 20 \cdot \phi 25 \cdot \phi 32 \cdot \phi 40 \cdot \phi 50 \cdot \phi 63$	
Working fluid	Air	
Lubrication	Unnecessary	
Working pressure range	0.1 to 0.7 MPa	$\phi 20$ to $\phi 40$: 0.05 to 0.7 MPa $\phi 50 \cdot \phi 63$: 0.02 to 0.7 MPa
Working speed range	50 to 700mm/s	
Proof test pressure	1.5 MPa	
Working temperature range	-10 to +70°C (No freezing)	
Structure of cushioning	$\phi 20$ to $\phi 40$: With cushion pads on both ends $\phi 50$ and $\phi 63$: With cushions on both ends	
Tolerance for thread	JIS 6H/6g	
Mounting style	SD (basic style), SD with bracket, LB, FA, FB, TA, TA with bracket, TB, TB with bracket	SD (basic style), LB, FA, TA, TA with bracket

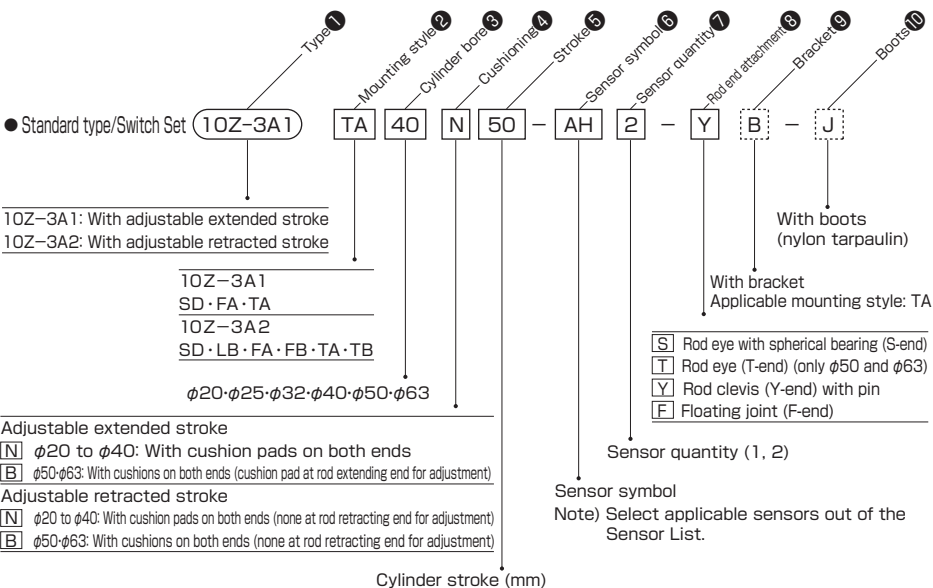
Note) For the working speed range, see the selection materials to check the relationship between the speed and the cushion mechanism.

Principle of operation

- Single rod

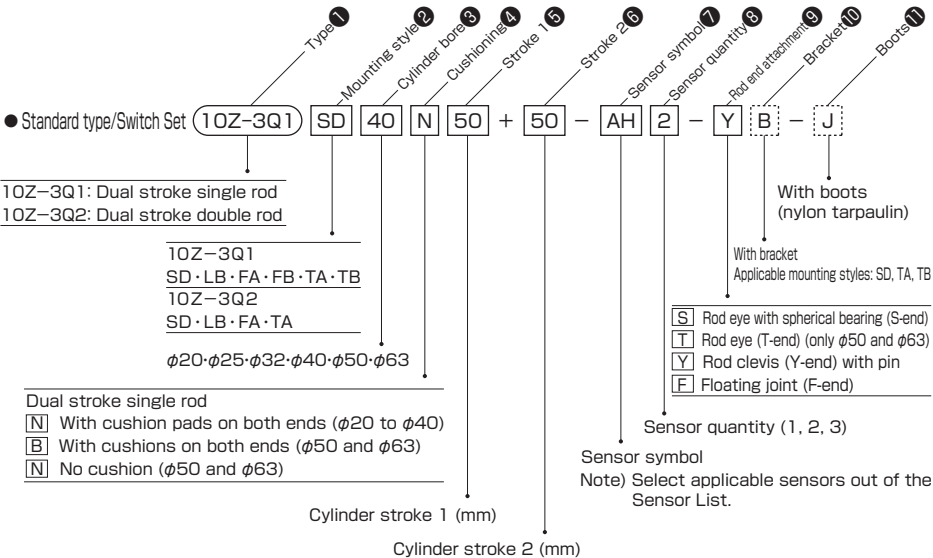


● How to order



*For details, please contact us.

● How to order

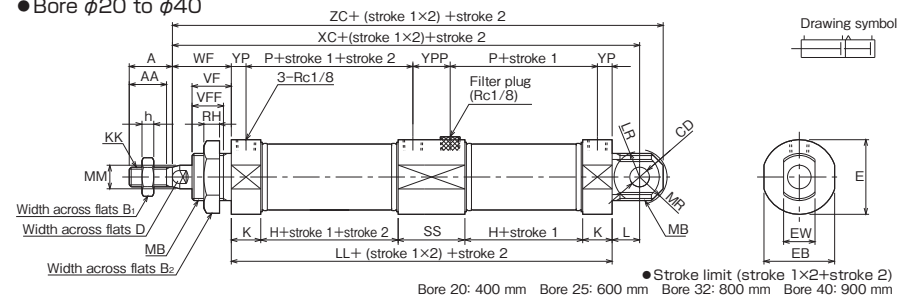


*For details, please contact us.

Dual stroke/single rod

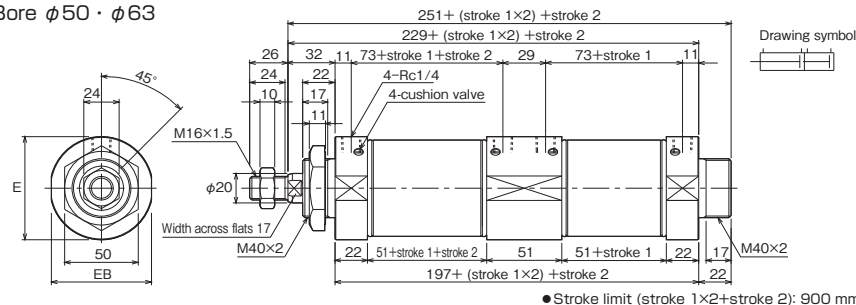
10Z-3Q1 SD **Bore** N **Stroke 1** + **Stroke 2**

• Bore ϕ 20 to ϕ 40



10Z-3Q1 SD **Bore** B **Stroke 1** + **Stroke 2**

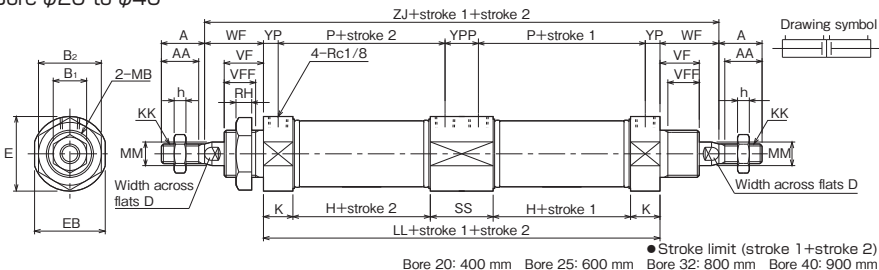
• Bore ϕ 50 · ϕ 63



Dual stroke/double rod

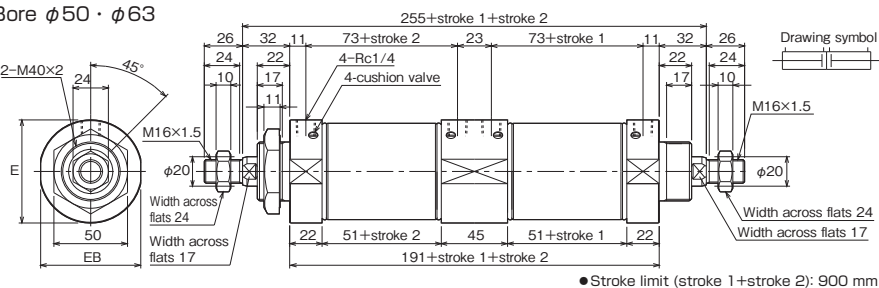
10Z-3Q2 SD **Bore** N **Stroke 1** + **Stroke 2**

• Bore ϕ 20 to ϕ 40



10Z-3Q2 SD **Bore** B **Stroke 1** + **Stroke 2**

• Bore ϕ 50 · ϕ 63



Dimensional Table/Dual stroke/Single rod

Symbol	A	AA	B ₁	B ₂	CD	D	E	EB	EW	H	h	K	KK	L	LL	LR	MB
Bore																	
ϕ 20	20	20	13	30	ϕ 8H9	6	ϕ 28	26	$16^{+0.1}_{-0.3}$	31	5	14	M8×1.25	12	121	R11	M22×1.5
ϕ 25	22	22	17	30	ϕ 8H9	8	ϕ 31	29	$16^{+0.1}_{-0.3}$	35	6	14.5	M10×1.25	12	130	R11	M22×1.5
ϕ 32	22	19	17	32	ϕ 10H9	10	ϕ 38	36	$16^{+0.1}_{-0.3}$	40	6	15	M10×1.25	14	144	R13	M24×2
ϕ 40	24	21	19	41	ϕ 12H9	12	ϕ 46	44	$20^{+0.1}_{-0.3}$	42	7	15	M12×1.25	16	149	R15	M30×2
ϕ 50	—	—	—	—	—	—	ϕ 56	54	—	—	—	—	—	—	—	—	—
ϕ 63	—	—	—	—	—	—	ϕ 70	68	—	—	—	—	—	—	—	—	—

Symbol	MM	MR	P	RH	SS	VF	VFF	WF	XC	YP	YPP	ZC
Bore												
ϕ 20	ϕ 8	R12	45	7	31	16	13	24	157	7	17	167
ϕ 25	ϕ 10	R12	49	7	31	18	15	28	170	7.5	17	180
ϕ 32	ϕ 12	R14	55	8	34	20	16	30	188	7.5	19	200
ϕ 40	ϕ 14	R16	57	9	35	22	18	32	197	7.5	20	209
ϕ 50	—	—	—	—	—	—	—	—	—	—	—	—
ϕ 63	—	—	—	—	—	—	—	—	—	—	—	—

Dimensional Table/Dual stroke/Double rod

Symbol	A	AA	B ₁	B ₂	D	E	EB	H	h	K	KK	LL	MB	MM	P	RH	SS	VF
Bore																		
ϕ 20	20	20	13	30	6	ϕ 28	26	31	5	14	M8×1.25	121	M22×1.5	ϕ 8	45	7	31	16
ϕ 25	22	22	17	30	8	ϕ 31	29	35	6	14.5	M10×1.25	130	M22×1.5	ϕ 10	49	7	31	18
ϕ 32	22	19	17	32	10	ϕ 38	36	40	6	15	M10×1.25	142	M24×2	ϕ 12	55	8	32	20
ϕ 40	24	21	19	41	12	ϕ 46	44	42	7	15	M12×1.25	146	M30×2	ϕ 14	57	9	32	22
ϕ 50	—	—	—	—	—	ϕ 56	54	—	—	—	—	—	—	—	—	—	—	—
ϕ 63	—	—	—	—	—	ϕ 70	68	—	—	—	—	—	—	—	—	—	—	—

Symbol	VFF	WF	YP	YPP	ZJ
Bore					
ϕ 20	13	24	7	17	167
ϕ 25	15	28	7.5	17	182
ϕ 32	16	30	7.5	17	196
ϕ 40	18	32	7.5	17	203
ϕ 50	—	—	—	—	—
ϕ 63	—	—	—	—	—

Setting method of sensor detecting position

AX type sensor

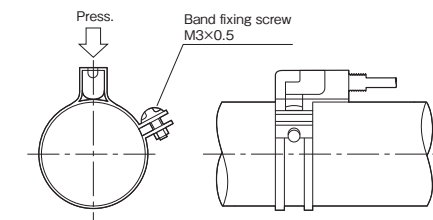
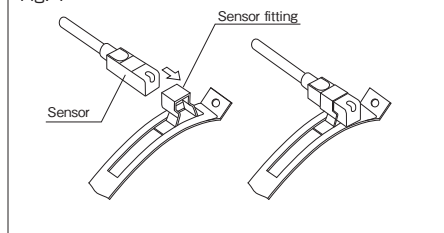


Fig. 1



1. Twist the band body, and draw out one end of the sensor fitting from the slit in the band.
2. Insert the sensor to the sensor fitting along the groove, and attach the sensor fitting to the band body. (Fig. 1)
3. After removing the band fixing screw (M3), wind the band on the cylinder tube, and set the band around the detecting position.
4. Align the band mounting hole and the threaded portion, and lightly tighten the band fixing screw to temporarily secure the band.
5. Move the band and the sensor on the tube to determine the detecting position.
When the sensor turns on, the lamp lights up. The detecting position delicately changes depending on the piston rotating speed and ambient temperature. Therefore, for reliable detection, shift the sensor 2 to 3 mm from the sensor ON position toward the piston start position. To mount a sensor to detect the stroke end, refer to dimension UX shown in the catalog. When a 2-LED sensor is used, ensure that the green lamp lights up at the desired position.
6. After determining the sensor position, gently hold the top of the sensor, and tighten the band fixing screw to secure the band.
[Recommended tightening torque: 0.3 N·m]
Note) Inappropriate tightening torque may cause the off-center of the sensor position.

ZC type sensor

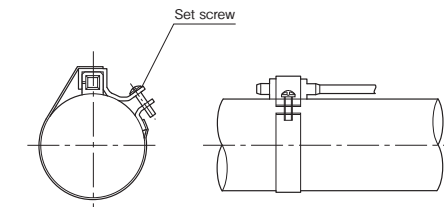
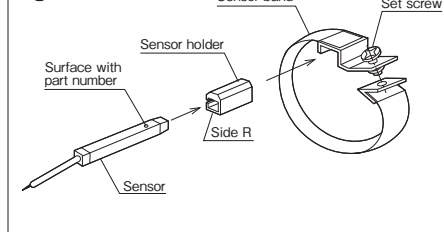


Fig. 1



1. Fit the sensor to the sensor holder. (Fig. 1)
Set the side R of the sensor holder downward, and set the sensor surface with part number upward.
2. Temporarily secure the sensor holder with its side R downward using the sensor band.
3. Keep pressing the top of the sensor at the detecting position, and tighten the set screw to secure the band.
[Recommended tightening torque: 0.5 N·m]
Note) Tighten the set screw to the proper tightening torque. Inappropriate tightening torque may cause the off-center of the sensor position.
4. To make a fine adjustment to the sensor position in the axial direction, slightly loosen the set screw, and only the sensor can be moved.

JR/JS type sensor

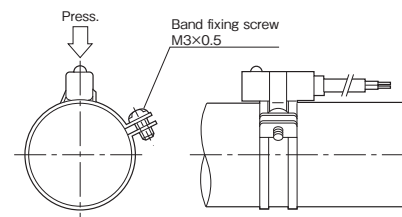
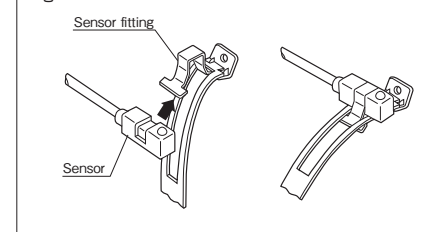
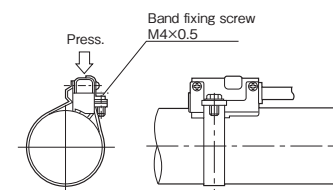


Fig. 1



1. Twist the band body, and draw out one end of the sensor fitting from the slit in the band.
2. Insert the sensor to the sensor fitting along the groove, and attach the sensor fitting to the band body. (Fig. 1)
3. After removing the band fixing screw (M3), wind the band on the cylinder tube, and set the band around the detecting position.
4. Align the band mounting hole and the threaded portion, and lightly tighten the band fixing screw to temporarily secure the band.
5. Move the band and the sensor on the tube to determine the detecting position.
When the sensor turns on, the lamp lights up. The detecting position delicately changes depending on the piston rotating speed and ambient temperature. Therefore, for reliable detection, shift the sensor 2 to 3 mm from the sensor ON position toward the piston start position. To mount a sensor to detect the stroke end, refer to dimension UX shown in the catalog.
6. After determining the sensor position, gently hold the top of the sensor, and tighten the band fixing screw to secure the band.
[Recommended tightening torque: 0.3 N·m]
Note) Inappropriate tightening torque may cause the off-center of the sensor position.

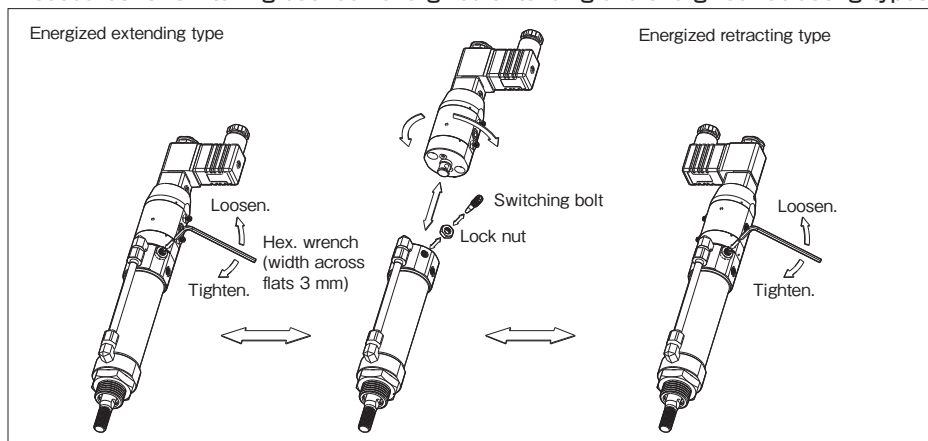
SR type sensor



1. Attach the sensor to the band with two sensor mounting screws (M3).
[Recommended tightening torque: 0.3 N·m]
2. After removing the band fixing screw (M4), wind the band on the cylinder tube, and set the band around the detecting position.
3. Align the band mounting hole and the threaded portion, and lightly tighten the band fixing screw to temporarily secure the band.
4. Move the band and the sensor on the tube to determine the detecting position.
The operation lamp goes out when the sensor turns on. The detecting position delicately changes depending on the piston rotating speed and ambient temperature. Therefore, for reliable detection, shift the sensor 2 to 3 mm from the sensor ON position toward the piston start position. To mount a sensor to detect the stroke end, refer to dimension UX shown in the catalog.
5. After determining the sensor position, gently hold the top of the sensor, and tighten the band fixing screw to secure the band.
[Recommended tightening torque: 0.3 N·m]
Note) Inappropriate tightening torque may cause the off-center of the sensor position.

VAL Set handling procedures

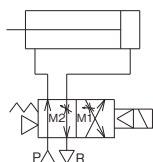
Procedures for switching between energized extending and energized retracting types



As shown in the figure, tighten the energized extending-retracting type switching mechanism with a hex wrench having a width across flats of 3 mm. To change the type, turn the mechanism 180°, and tighten the switching bolt. Recommended tightening torque: 2.40 N·m

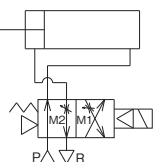
How to use exhaust throttle valves

● Energized extending type



Extending speed control:
Adjust the exhaust throttle valve M1.
Retracting speed control:
Adjust the exhaust throttle valve M2.

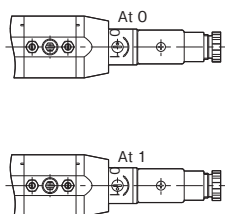
● Energized retracting type



Retracting speed control:
Adjust the exhaust throttle valve M1.
Extending speed control:
Adjust the exhaust throttle valve M2.

- Adjust the exhaust throttle valve with a slotted screwdriver, and secure it with the lock nut. Recommended tightening torque: 0.69 N·m
- Do not loosen the exhaust throttle valve 4 turns or more from the fully closed state. (The valve is fully opened by giving approx. 3.6 turns from the fully closed state.)

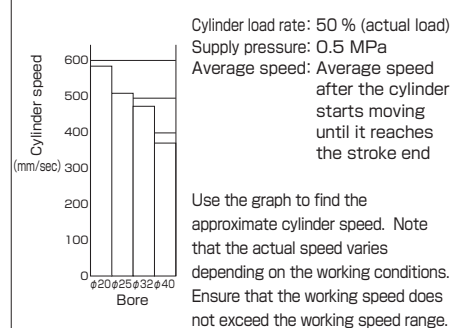
How to use manual override



- Energized extending type
When the manual override is positioned at 1, the cylinder will move forward without current applied to the solenoid.
- Energized retracting type
When the manual override is positioned at 1, the cylinder will move backward without current applied to the solenoid.

After performing the manual operation, return the manual override to the initial state (to 0).

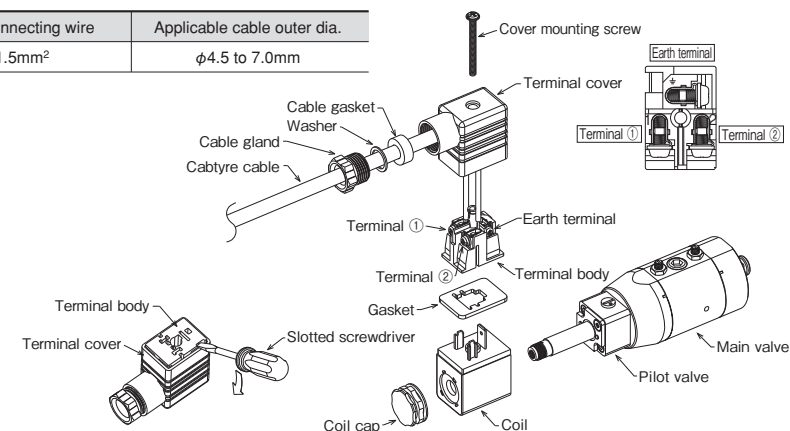
Average speed (max. value) of VAL Set Cylinder



Valve wiring procedures

- (1) Loosen the cover set screw, remove the DIN socket from the coil, and separate the terminal cover and the terminal body using a slotted screwdriver.
- (2) Fit the cable gland, washer and cable gasket to the cable (cabtyre cord) in turn, and insert the cable to the terminal cover.
- (3) Loosen the screws of the terminals ① and ② and earth terminal, and connect the wires. The power supply cable does not have polarity. (When crimp-style terminals are used, use terminals for screw diameter M3.)
- (4) Put the terminal body in the terminal cover, tighten the cover mounting screw, and attach the cover to the coil. (Recommended tightening torque: 0.4 N·m)
- (5) Tighten the cable gland on the terminal cover. (Recommended tightening torque: 0.6 N·m)

Applicable connecting wire	Applicable cable outer dia.
0.5 to 1.5mm ²	ϕ 4.5 to 7.0mm



* Loosen the coil cap, and the coil can be separated from the pilot valve. (Recommended tightening torque: 0.6 N·m)

Cushion adjusting procedures (for type with cushion)

- Cushion adjustment depends on air pressure, load weight and cylinder speed. Therefore, when adjusting the cushion, set the actual load under the same conditions as the actual working conditions.
- To adjust the cushion, gradually loosen the cushion valve after opening it 45 to 90° from the fully closed state. Adjust the cushion decreasing the cushioning power from high to low. In the high cushioning power range, the kinetic energy and absorbed energy are not transferred smoothly, and bounding occurs. In the low cushioning power range, the absorbed energy is lower than the kinetic energy, and the piston gets into direct contact with the cover, thereby causing impact noise and damaging the cover. Adjust the cushion carefully observing the behavior of the cylinder.

Cylinder bore	Applicable tools	Recommended lock nut tightening torque
ϕ 20, ϕ 25	7-mm spanner and slotted screwdriver	0.69N·m
ϕ 32, ϕ 40	8-mm spanner and slotted screwdriver	1.42N·m

Recommended accessory/attachment tightening torque

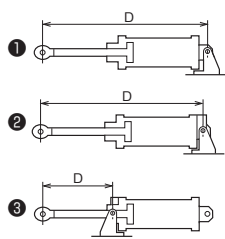
Tighten each nut and bolt to the recommended tightening torque shown in the following table.

	M22 (ϕ 20, ϕ 25)	M24 (ϕ 32)	M30 (ϕ 40)
Recommended tightening torque of accessory mounting nut	147N·m	181N·m	363N·m
	M8 (ϕ 20, ϕ 25)	M10 (ϕ 32)	M12 (ϕ 40)
Recommended tightening torque of rod end attachment fixing nut	12.0N·m	24.0N·m	42.2N·m

Note) For standard and non-rotating cylinders with a bore of 25 mm, use rod end screws M10 and M8, respectively.

Selection of Stroke

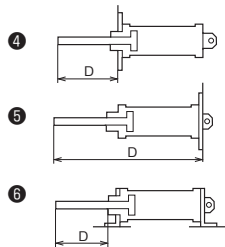
● Pin joints at both ends (D=L)



Max. Stroke Unit: mm

Mounting style (working pressure: 0.5 MPa) Bore (mm)	CA style				TA style				TB style			
	0.3	0.5	0.7	1	0.3	0.5	0.7	1	0.3	0.5	0.7	1
φ12	237	173	139	109	—	—	—	—	—	—	—	—
φ16	163	115	89	67	—	—	—	—	—	—	—	—
φ20	243	176	139	107	563	427	355	291	247	179	143	111
φ25	313	228	183	143	707	538	447	367	317	232	187	146
φ32	355	260	209	164	800	609	508	417	359	264	213	168
φ40	389	285	230	180	872	665	554	456	393	289	234	185
φ50	667	497	407	326	1455	1116	936	775	671	502	411	331
φ63	511	377	305	241	1145	876	733	605	516	381	310	246

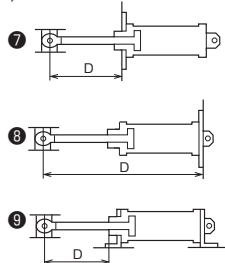
● Fixed cylinder and free rod end (D=L/2)



Max. Stroke Unit: mm

Mounting style (working pressure: 0.5 MPa) Bore (mm)	SD style (rod cover screwed) and LB style				FA style				FB style				SD style (cap cover screwed)			
	0.3	0.5	0.7	1	0.3	0.5	0.7	1	0.3	0.5	0.7	1	0.3	0.5	0.7	1
φ12	244	180	147	116	247	183	150	119	99	67	50	35	100	68	51	36
φ16	174	126	100	78	177	129	103	81	60	36	23	12	61	37	25	13
φ20	257	189	153	121	261	193	157	125	99	65	47	31	99	65	47	31
φ25	326	241	196	156	330	245	200	160	131	89	66	46	131	89	66	46
φ32	371	276	225	180	375	280	229	184	151	103	77	55	151	103	77	55
φ40	405	301	246	196	409	305	250	200	166	114	87	62	166	114	87	62
φ50	694	525	434	354	714	545	454	374	295	210	165	124	300	215	170	129
φ63	539	404	333	269	559	424	353	289	217	150	114	82	222	155	119	87

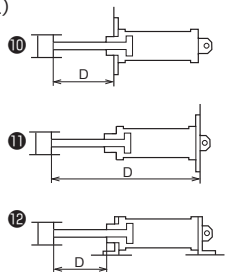
● Fixed cylinder and rod end guide (pin joint) (D=1.4 L)



Max. Stroke Unit: mm

Mounting style (working pressure: 0.5 MPa) Bore (mm)	SD style (rod cover screwed) and LB style				FA style				FB style				SD style (cap cover screwed)			
	0.3	0.5	0.7	1	0.3	0.5	0.7	1	0.3	0.5	0.7	1	0.3	0.5	0.7	1
φ12	752	574	479	395	755	577	482	398	352	263	216	174	354	265	218	175
φ16	554	421	350	286	557	424	353	289	250	183	148	116	252	185	149	118
φ20	798	609	507	417	802	613	511	421	370	275	224	179	370	275	224	179
φ25	1003	766	639	527	1007	770	643	531	469	351	288	231	469	351	288	231
φ32	1133	866	724	597	1137	870	728	601	531	398	327	263	531	398	327	263
φ40	1234	943	788	651	1238	947	792	655	581	436	358	289	581	436	358	289
φ50	2048	1573	1321	1095	2068	1593	1341	1115	972	734	608	495	977	739	613	500
φ63	1613	1237	1036	857	1633	1257	1056	877	754	566	466	376	759	571	471	381

● Fixed cylinder and rod end guide (D=2L)



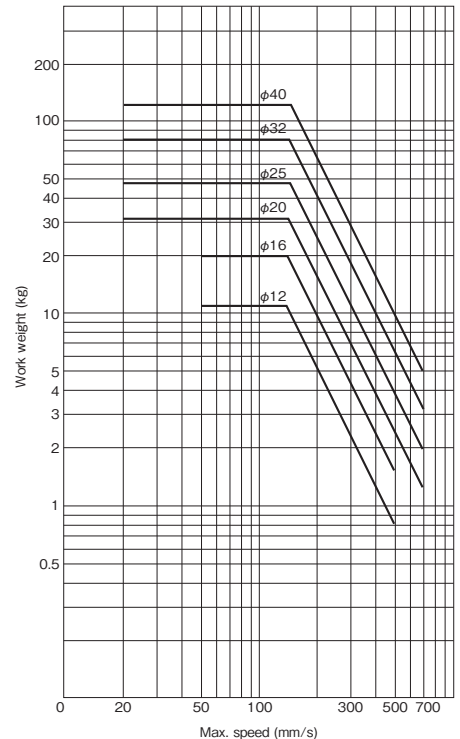
Max. Stroke Unit: mm

Mounting style (working pressure: 0.5 MPa) Bore (mm)	SD style (rod cover screwed) and LB style				FA style				FB style				SD style (cap cover screwed)			
	0.3	0.5	0.7	1	0.3	0.5	0.7	1	0.3	0.5	0.7	1	0.3	0.5	0.7	1
φ12	1090	836	701	580	1093	839	704	583	522	394	327	266	523	396	328	268
φ16	808	617	516	425	811	620	519	428	377	282	231	186	379	283	232	187
φ20	1159	888	744	615	1163	892	748	619	550	415	342	278	550	415	342	278
φ25	1454	1115	935	774	1458	1119	939	778	695	526	435	355	695	526	435	355
φ32	1640	1259	1056	875	1644	1263	1060	879	785	594	493	402	785	594	493	402
φ40	1787	1371	1150	953	1791	1375	1154	957	857	650	539	441	857	650	539	441
φ50	2951	2272	1912	1590	2971	2292	1932	1610	1423	1084	903	742	1428	1089	908	747
φ63	2330	1792	1505	1250	2350	1812	1525	1270	1112	843	700	572	1117	848	705	577

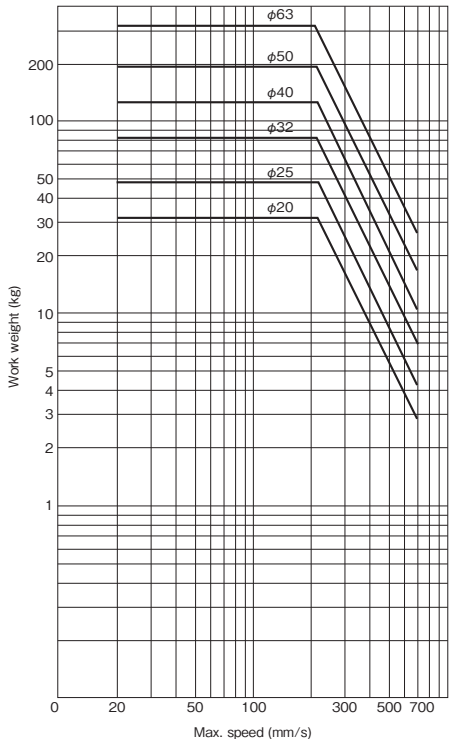
Selection Materials

Allowable Kinetic Energy

● Cylinders with cushion pads (on both ends)



● Cylinders with air cushions (on both ends)



Allowable Kinetic Energy

Cylinder bore (mm)	With cushion pads	With air cushions
φ12	0.11J	—
φ16	0.21J	—
φ20	0.31J	0.69J
φ25	0.50J	1.1J
φ32	0.81J	1.8J
φ40	1.3J	2.7J
φ50	—	4.4J
φ63	—	7.0J

For the cylinders, two kinds of built-in cushioning mechanisms, cushion pads and air cushions, are used. (Some types cannot be provided with built-in cushioning mechanisms. See the outline of the types.) To select a cushioning mechanism, determine the kinetic energy of the load with the formula shown right, or ensure that the energy does not exceed the allowable kinetic energy according to the allowable kinetic energy chart. If the energy exceeds the allowable value, increase the cylinder bore, or provide an external stopper, such as a shock absorber.

Kinetic energy of load $E_k = \frac{W}{2g} V^2$

W: Work weight (kg)

g : Mass acceleration, 980 (cm/s²)

V : Piston speed (cm/s)

<How to read the chart>

To determine the work weight (rod end load) applicable to a 32 mm bore cylinder with cushion pads at the maximum speed of 500 mm/s: Find the intersection of the vertical line of 500 mm/s with the line of 32 mm bore cylinder, and draw a line from the intersection to the left. Then, the obtained load is 6 kg.

The safety lock mechanism reliably locks the piston rod in an emergency.

- Dropping and trouble at the restart are prevented to ensure the safety of workers and equipment.
- The safety mechanisms for rod and cap sides are available. One of the two types can be selected according to the purpose of use.
- The lock can be released easily by manual operation.
- The optimum mounting style can be selected from 14 types.



Cylinder Specifications

Series variation		Double acting/single rod	
Type		Standard type/Switch Set	
		With safety lock on rod side	With safety lock on cap side
Series		10Z-3L1	10Z-3L2
Cylinder bore (mm)		φ20·φ25·φ32·φ40	
Working fluid		Air	
Lubrication		Unnecessary	
Working pressure range		0.2 to 1 MPa	
Proof test pressure		1.5 MPa	
Note 1) Working speed range		20 to 700mm/s	
Working temperature range		-10 to +70°C (No freezing)	
Structure of cushioning		With cushion pads	
Tolerance for thread		JIS 6g/6H	
Tolerance of stroke		0 to 250 mm ^{+1.0} ₀	251 to 900mm ^{+1.5} ₀
Mounting style	Basic style	SD·SD w/ bracket·LS·LB·FA·FB·TB·TB w/ bracket·CU·CU w/ bracket	SD·SD w/ bracket·LS·LB·FA·FB·TA·TA w/ bracket·CU·CU w/ bracket
	Clevis cut style	SK·LK·FK	SK·LK·FK·TK·TK w/ bracket·AD·BD
	Rear port style	SP·LP·FP	SP·LP·FP·TP·TP w/ bracket·AP·BP
Accessories	Boots	Nylon tarpaulin	
	Rod end attachments	Rod eye with spherical bearing (S-end), rod clevis (Y-end), floating joint (F-end)	
Lock specifications	Backlash	φ20 and φ25: 1 mm or less φ32 and φ40: 1.5 mm or less	
	Note 2) Holding force	φ20: 220N φ32: 550N	φ25: 330N φ40: 860N

(Notes)

1. When a sensor is mounted in an intermediate position, set the cylinder maximum speed to 300 mm/s or less for reasons of the load relay response speed, etc.
2. Use the cylinders at a load rate of less than 65%.

Standard Stroke Range

		Stroke																Unit: mm	
Bore		15	25	30	50	75	100	125	150	175	200	250	300	350	400	450	500	Stroke limit	
φ20		○	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	900	
φ25		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	900	
φ32		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	900	
φ40		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	900	

● If a stroke other than the above standard strokes (○-marked) is required, consult us.

Product Lineup

Series Variation		Type	φ20	φ25	φ32	φ40
Standard	Double acting single rod	With safety lock on rod side 10Z-3L1	●	●	●	●
		With safety lock on cap side 10Z-3L2	●	●	●	●

		SD	SD/B	SD/B	LB	LS	FA	FB	TA	TA/B	TB	TB/B	CU	CU/B	AD	BD
With safety lock on rod side 10Z-3L1	Basic style	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Clevis cut style	●	●		●	●										
With safety lock on cap side 10Z-3L2	Basic style	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Clevis cut style	●	●		●	●		●	●						●	●
	Rear port style	●	●		●	●		●	●						●	●

Weight Table

Bore (mm)	Basic weight			Additional weight per mm of stroke	Mounting accessory weight					
	Basic style	Clevis cut style	Rear port style		Basic style					
					SD with bracket	LB	LS	FA FB	TA TB	TA with bracket TB with bracket
φ20	163(167)	145(149)	145(157)	0.85	115	140	60	55	55	140
φ25	226(233)	209(216)	209(224)	1.15	115	140	60	55	55	140
φ32	364(377)	341(354)	341(364)	1.65	150	220	—	90	90	210
φ40	573(587)	535(549)	535(564)	2.15	185	280	—	110	130	275

Bore (mm)	Mounting accessory weight											Rod end attachment weight			
	Clevis cut style					Rear port style						Rod eye (S-end)	Rod clevis (Y-end) with pin	Floating joint (F-end)	
	LK	FK	TK	TK with bracket	AD	BD	LP	FP	TP	TP with bracket	AP				BP
φ20	60	55	55	140	11	8	60	55	55	140	11	8	50	55	60
φ25	60	55	55	140	38	26	60	55	55	140	38	26	75	100	100
φ32	—	90	90	210	62	45	—	90	90	210	62	45	75	100	100
φ40	—	110	130	275	78	59	—	110	130	275	78	59	110	175	100

Note) ● The parenthesized values indicate the weight of the cylinders with safety lock on the cap side.

Sensor Additional Weight

		AX type				ZC type		JR/JS type		SR type
Bore (mm)		Cord length 1.5 m	Cord length 5 m	Connector type		Cord length 1 m	Cord length 3 m	Cord length 1.5 m	Cord length 5 m	Cord length 5 m
φ20										
φ25										
φ32		50	130	40	25	55	35	98	247	
φ40										

Note) ● The sensor additional weight includes the weight of the sensor band.

[Calculation formula] Cylinder weight (g)=basic weight+(cylinder stroke (mm)×additional weight per mm of stroke)+(sensor additional weight×sensor quantity)+mounting accessory weight+rod end attachment weight

[Calculation example] 10Z-31L, clevis cut style, bore φ20, cylinder stroke 50 mm, 2 pcs of AX215A (cord length 5 m), LK 145+(0.85×50)+(130×2)+60=507.5g

How to order

● With safety lock 10Z-3L1

10Z-3L1: With safety lock on rod side
10Z-3L2: With safety lock on cap side

Mounting style
Bore (mm)
φ20, φ25, φ32, φ40
Note) LS, LK and LP are applicable only to 20 and 25 mm bore cylinders.
With cushion pads

Cylinder stroke (mm)

Sensor quantity (1,2)

Sensor symbol
Note) Select applicable sensors out of the Sensor List.

1 Note on ordering Switch Set
● Sensors are not mounted on cylinders at delivery.

Boots
Nylon tarpaulin
Note) The boots cannot be fitted to AD, BD or BP style.

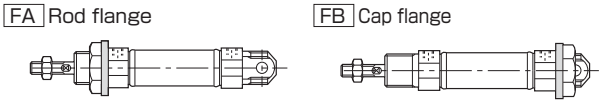
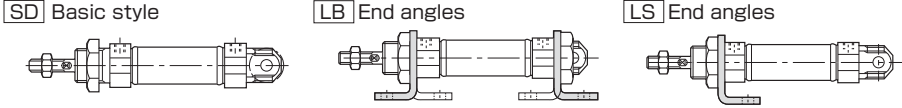
With bracket
Applicable mounting styles:
SD, TA, TB, TK, TP

S
Rod eye with spherical bearing (S-end)
Y
Rod clevis (Y-end) with pin
F
Floating joint (F-end)

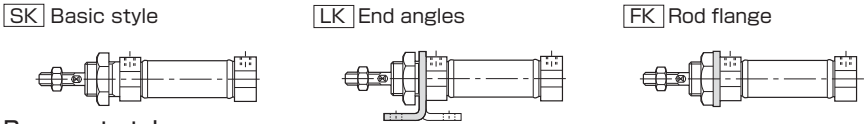
Mounting style

Standard type/Switch Set

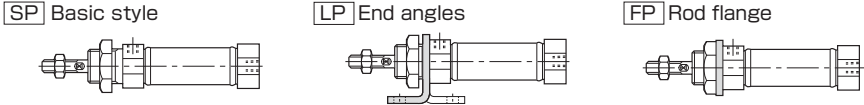
Basic style



Clevis cut style



Rear port style

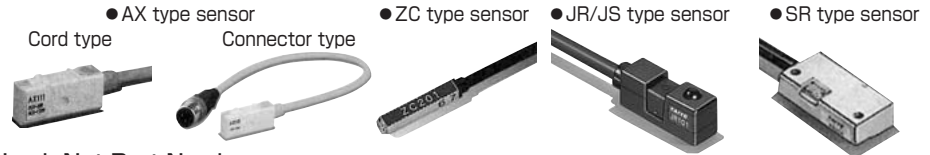


Sensor List

Semi-standard specification

Type	Sensor symbol	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Indicating lamp	Wiring method	Cord length	Applicable load
Reed sensor	[AF] AX101CE	DC: 5 to 30V AC: 5 to 120V	DC: 5 to 40mA AC: 5 to 20mA	DC: 1.5W AC: 2VA	None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m	Small relay, programmable controller
	[AG] AX105CE				5m				
	[AH] AX111CE				1.5m				
	[AJ] AX115CE				5m				
	[AE] AX125CE	DC: 30V or less AC: 120V or less	DC: 40mA or less AC: 20mA or less	None	None	5m			
	[AK] AX11ACE	AC: 5 to 120V	5 to 20mA	2VA	Provided	LED (Lights in red when sensing)	4-pin connector type, rear wiring	0.5m	
	[AL] AX11BCE	DC: 5 to 30V	5 to 40mA	1.5W				0.5m	
	[AM] AX135CE	AC: 90 to 240V DC: 90 to 240V	5 to 300mA	B contact output	Provided	LED (Lights in red when not sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	5m	
	[JA] ZC201A	AC: 115V or less	AC: 25mA or less	—	None	None	0.2 mm ² , 2-core, outer dia. φ3 mm, rear wiring	1m	
	[JB] ZC201B	DC: 28V or less	DC: 40mA or less					3m	
	[JC] ZC205A	DC: 10 to 28V	DC: 5 to 40mA	—	None	LED (Lights when sensing)		1m	
	[JD] ZC205B							3m	
	[A] JR101	DC: 5 to 50V	DC: 3 to 40mA	DC: 1.5W AC: 2VA	None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ3.4 mm, rear wiring	1.5m	
	[B] JR105	AC: 5 to 120V	AC: 3 to 20mA	5m					
	[S] SR405	AC: 80 to 220V	2 to 300mA	30VA	Provided	Neon lamp (Lights when not sensing)	0.5 mm ² , 2-core, outer dia. φ6 mm, rear wiring	5m	
Solid state sensor	[BE] AX201CE-1	DC: 5 to 30V	5 to 40mA	—	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m	Small relay, programmable controller
	[BF] AX205CE-1					5m			
	[CE] AX211CE-1					1.5m			
	[CF] AX215CE-1					5m			
	[JJ] ZC230A	DC: 10 to 28V	4 to 50mA	—	Provided	LED (Lights when sensing)	0.2 mm ² , 2-core, outer dia. φ3 mm, rear wiring	1m	
	[JK] ZC230B					3m			
	[JL] ZC253A	DC: 4.5 to 28V	100mA or less	—	Provided	LED (Lights when sensing)	0.2 mm ² , 3-core, outer dia. φ3 mm, rear wiring	1m	
	[JM] ZC253B					3m			
	[I] JS211M	DC: 10 to 30V	6 to 70mA	—	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ3.4 mm, rear wiring	1.5m	
	[O] JS215M					5m			

Notes) ● For the sensors without a protective circuit, be sure to provide a protective circuit (SK-100) with the load when using any induction load (relay, etc.).
● The output logic of AX135CE is a B contact. When the piston is detected, the sensor contact turns off (the lamp turns on).
● For handling of sensors, be sure to see the sensor specifications at the end of this catalog.
● We recommend AND Unit (AU series) for multiple sensors connected in series.
For details, refer to AND Unit at the end of this catalog.
● Sensors conforming CE Marking are available.



Lock Nut Part Number

Bore	Part number
φ20	LNA-08Z-A
φ25	LNA-10Z-A
φ32	
φ40	LNA-12Z-A

Delivery state

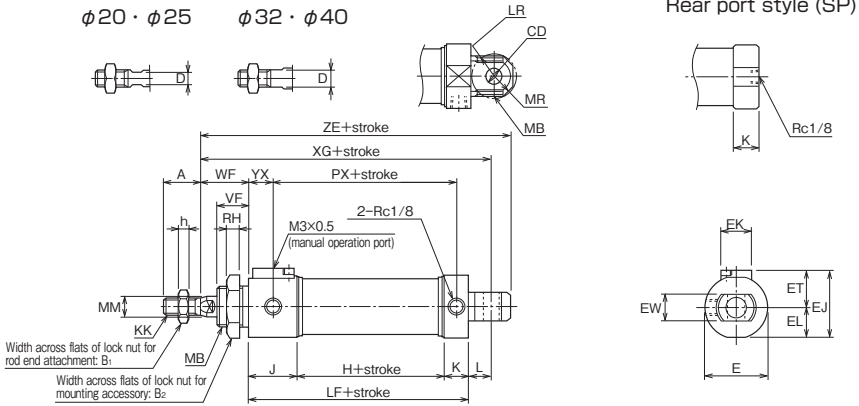
● The cylinders will be delivered without mounting accessory and rod end attachment mounted.

CAD/DATA
10Z-3/TAZ3 Bore B is available.



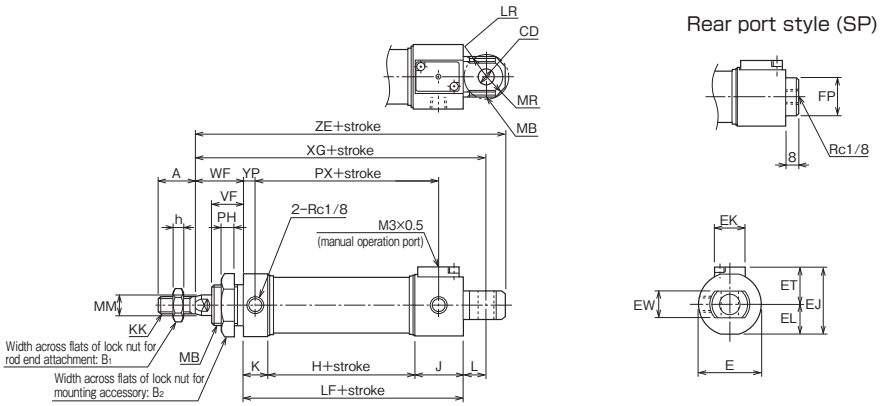
SD

●With safety lock on rod side 10Z-3L1 SD Bore N Stroke



Related types: Clevis cut style (SK), type with boots
For details, see the section of 10Z-3 Series Small Pneumatic Cylinders.

●With safety lock on cap side 10Z-3L2 SD Bore N Stroke



Related types: Clevis cut style (SK), type with boots
For details, see the section of 10Z-3 Series Small Pneumatic Cylinders.

Dimensional Table

Symbol Bore	A	B ₁	B ₂	CD	D	E	EJ	EK	EL	ET	EW	FP	H	h	J	K
φ20	20(20)	13	30	φ8H9	6	φ28	31.5	12.5	13	18.5	16 ^{-0.1} _{-0.3}	φ22	31	5	24	14
φ25	22(22)	17	30	φ8H9	8	φ31	34	12.5	14.5	19.5	16 ^{-0.1} _{-0.3}	φ22	35	6	24.5	14.5
φ32	22(19)	17	32	φ10H9	10	φ38	40.5	18	18	22.5	16 ^{-0.1} _{-0.3}	φ24	40	6	30	15
φ40	24(21)	19	41	φ12H9	12	φ46	48	18	22	26	20 ^{-0.1} _{-0.3}	φ30	42	7	30	15

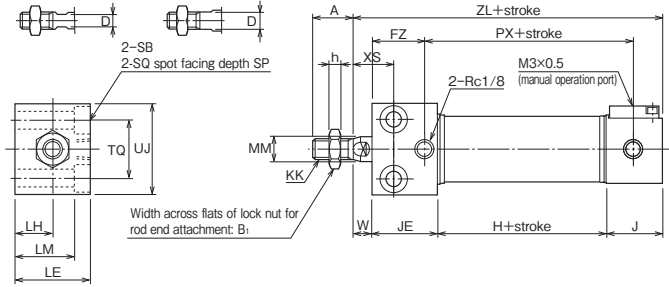
Symbol Bore	KK	L	LF	LR	MB	MM	MR	PX	RH	VF	WF	XG	YX	YP	ZE
φ20	M8×1.25	12	69	R11	M22×1.5	φ8	R12	50	7	16(13)	24	105	12	7	115
φ25	M10×1.25	12	74	R11	M22×1.5	φ10	R12	54.5	7	18(15)	28	114	12	7.5	124
φ32	M10×1.25	14	85	R13	M24×2	φ12	R14	62.5	8	20(16)	30	129	15	7.5	141
φ40	M12×1.25	16	87	R15	M30×2	φ14	R16	64.5	9	22(18)	32	135	15	7.5	147

* ●The parenthesized values of dimensions A and VF indicate the screw length.
●For other mounting accessories, see the section of 10Z-3 Series.

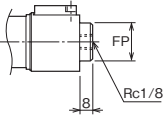
AD

●With safety lock on cap side 10Z-3L2 AD Bore N Stroke

φ20 · φ25 φ32 · φ40



Rear port style (AP)

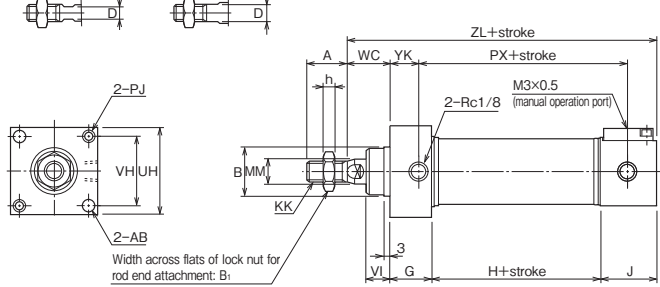


Basic style: Clevis cut

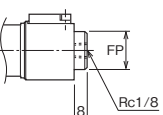
BD

●With safety lock on cap side 10Z-3L2 BD Bore N Stroke

φ20 · φ25 φ32 · φ40



Rear port style (BP)



Basic style: Clevis cut

Dimensional Table

Symbol	A	AB	B	B ₁	D	FP	FZ	G	H	h	J	JE	KK	LE	LH	LM
Bore																
φ20	20(20)	φ5.5	φ20f8	13	6	φ22	23	20	31	5	24	30	M8×1.25	28	14	21.5
φ25	22(22)	φ5.5	φ22f8	17	8	φ22	25.5	22.5	35	6	24.5	32.5	M10×1.25	34	17	27.5
φ32	22(19)	φ6.6	φ24f8	17	10	φ24	28	23	40	6	30	35	M10×1.25	40	20	31.4
φ40	24(21)	φ9	φ28f8	19	12	φ30	30	25	42	7	30	37	M12×1.25	48	24	37.2

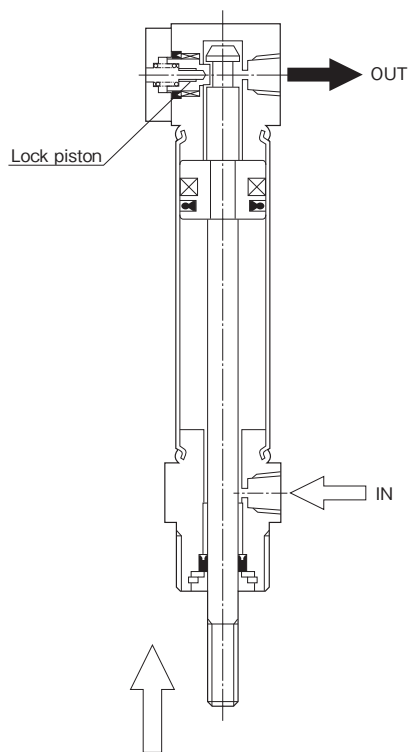
Symbol	MM	PJ	PX	SB	SP	SQ	TQ	UH	UJ	VH	VI	W	WC	XS	YK	ZL
Bore																
φ20	φ8	M5×0.8	50	φ6.6	6.5	φ11	20	□34	34	□24	10	8	18	18	13	93
φ25	φ10	M5×0.8	54.5	φ6.6	6.5	φ11	24	□38	38	□28	10	10	20	20	15.5	102
φ32	φ12	M6×1	62.5	φ9	8.6	φ14	30	□46	46	□36	12	10	22	22	16	115
φ40	φ14	M8×1.25	64.5	φ11	10.8	φ17.5	36	□56	56	□42	12	10	22	22	18	119

* ● The parenthesized values of dimension A indicate the screw length.

Principle of operation

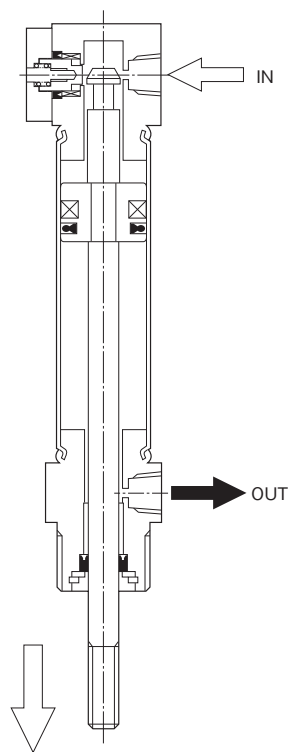
● Locking

When the piston moves to the stroke end and air is discharged, the lock piston is actuated by the spring force to mechanically lock the piston rod.



● Unlocking

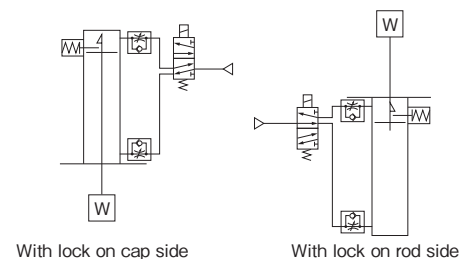
When the lock mechanism side is pressurized, the lock piston functions to unlock the piston rod, and the piston rod moves.



Handling procedures

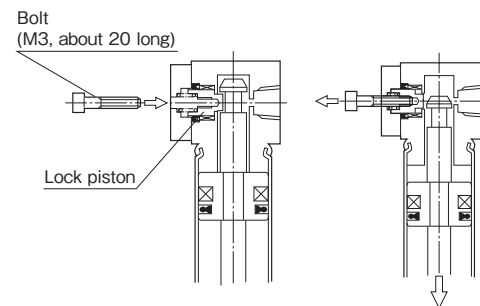
Pneumatic circuit

- Before starting (unlocking), once apply pressure to the port without the lock mechanism. If the lock is released with load on the lock mechanism (lock piston), the mechanism may malfunction or be damaged, or the piston rod may suddenly move, thereby causing a hazardous situation.
- Select a valve through which the pressure on the lock side can be completely discharged. If a 3-position closed center or 3-position pressure center valve through which pressure cannot be discharged is used, the piston rod cannot be locked.
- If exhaust pressure is applied to the port on the lock side while the lock is on, the lock may be released. Design the pneumatic circuit so that exhaust pressure is not applied to the port. Care should be taken when a manifold type valve is used and the exhaust side is connected to centralized piping.



Manual unlocking procedures

To manually unlock, insert an M3 (about 20 mm long) bolt from the manual operation port, screw the bolt into the internal lock piston, and pull the bolt. Then, the lock will be released. Remove the bolt before starting regular operation.



Small pneumatic cylinders ensuring 970 kinds of system designs

- Since the cylinders can be disassembled, they can be easily inspected and maintained, and they can be used for a long time and are interchangeable.
- An optimum type can be selected from a wide range of types including the block type standard and non-rotating types.
- The use of hex. rods eliminates the necessity of locking guides.
- System upgrading only by mounting a sensor on the cylinder body
- The cushioning mechanism ensures smooth adjustment and excellent durability.



Cylinder Specifications: Standard

Series variations		Double acting single rod				Single acting single rod		Double acting double rod	
Type		Standard type	Switch Set	VAL Set	SV Set	Standard type	Switch Set	Standard type	Switch Set
Cylinder bore (mm)	φ 20 · φ 25 · φ 32 · φ 40								
Working fluid	Air								
Lubrication	Unnecessary								
Working pressure range	0.05 to 1 MPa		0.15 to 1 MPa			0.15 to 1 MPa		0.05 to 1 MPa	
Proof test pressure	1.5 MPa								
Working speed range	50 to 700 mm/s ^{Note 1)}			50 to 500 mm/s ^{Note 1)}		50 to 700 mm/s ^{Note 1)}			
Working temperature range	-10 to +70℃ (No freezing)			-10 to +50℃ (No freezing)		-10 to +70℃(No freezing)			
Structure of cushioning	Standard: With cushion pad Semi-standard: With cushion(φ32 and φ40)					With shock absorbing pad			
Tolerance for thread	JIS 6g/6H								
Mounting style	Basic style	SD, SD w/ bracket, LB, LS (only φ20 and φ25), FA, FB, TA, TA w/ bracket, TB, TB w/ bracket, CU, CU w/ bracket		SD, LC, FA, TA, TA w/ bracket, TC, TC w/ bracket, AD, BD		SD, SD w/ bracket, LB, LS (only φ20 and φ25), FA, FB, TA, TA w/ bracket, TB, TB w/ bracket, CU, CU w/ bracket		SD, LB, FA, TA, TA w/ bracket	
	Clevis cut style Rear port style ^{Note 3)}	SK·SP·LK ^{Note 2)} ·LP ^{Note 2)} ·FK·FP·TK·TP·AD·AP·BD·BP		—		SK·SP·LK ^{Note 2)} ·LP ^{Note 2)} ·FK·FP·TK·TP·AD·AP·BD·BP		—	
Accessories	Boots	Nylon tarpaulin							
	Rod end attachments	Rod eye with spherical bearing (S-end), rod clevis (Y-end) with pin, floating joint (F-end)							

Note 1) When the sensor is installed at the intermediate position, the cylinder max. speed must be less than 300 mm/s for reasons of the response speed of the load relay.
2) LK and LP are applicable only to 20 and 25mm bore cylinders.
3) Rear port style with cushions is not available.

Cylinder Specifications: Non-rotating type

Series Variations		Double acting single rod				Single acting single rod	
Type		Standard type	Switch Set	VAL Set	SV Set	Standard type	Switch Set
Cylinder bore (mm)		φ 25 · φ 40					
Working fluid		Air					
Lubrication		Unnecessary (but possible)					
Working pressure range		0.1 to 1 MPa		0.15 to 1 MPa			
Proof test pressure		1.5 MPa					
Working speed range		50 to 700mm/s ^{Note 1)}		50 to 500mm/s ^{Note 1)}		50 to 700mm/s ^{Note 1)}	
Working temperature range		-10 to +70°C (No freezing)		-10 to +50°C (No freezing)		-10 to +70°C (No freezing)	
Structure of cushioning		Standard: With cushion pad Semi-standard: With cushion (φ40) ^{Note 4)}				With shock absorbing pad	
^{Note 2)} Allowable rotating angle		φ25: ±1.5° · φ40: ±1°					
Allowable torque		φ25: 0.49 N·m or less φ40: 0.98 N·m or less					
Tolerance for thread		JIS 6g/6H					
Mounting style	Basic style	LB		SD, LC, FA, TA, AD, TA w/ bracket, TC, TC w/ bracket, BD		LB	
	Clevis cut style Rear port style ^{Note 4)}	SK·SP·LK ^{Note 3)} ·LP ^{Note 3)} ·FK·FP·TK·TP·AD·AP·BD·BP		—		SK·SP·LK ^{Note 3)} ·LP ^{Note 3)} ·FK·FP·TK·TP·AD·AP·BD·BP	
Accessories	Boots	Nylon tarpaulin					
	Rod end attachments	Rod eye with spherical bearing (S-end), rod clevis (Y-end), floating joint (F-end)					

Note 1) When the sensor is installed at the intermediate position, the cylinder max. speed must be less than 300 mm/s for reasons of the response speed of the load relay.
2) The allowable rotating angle refers to the clearance in the piston rod rotating direction at the stroke end. When using it together with another guide, use a round rod.
3) LK and LP are applicable only to 25mm bore cylinders.
4) Rear port style with cushions is not available.

Valve Specifications

Model number	RB512V1SA1D	RB512V1SA1DW	RB512V1SA2D	RB512V1SA2DW	RB512V1SA8D	RB512V1SA8DW
Rated voltage	100 V AC (50/60Hz)		200 V AC (50/60Hz)		24 V DC	
Regulation of voltage	±10% of rated voltage					
Power consumption	50Hz: 6.0 VA/60Hz: 4.9 VA				2.5W	
Part number of coil ass'y (with DIN socket)	NAS8-22-1D	NAS8-22-1DW (with lamp and protective circuit)	NAS8-22-2D	NAS8-22-2DW (with lamp and protective circuit)	NAS8-22-8D	NAS8-22-8DW (with lamp and protective circuit)

● For voltage not shown above, contact us.

Product Lineup

Series Variations		Type	φ20	φ25	φ32	φ40
Standard	Double acting single rod	Standard type 10Z-2	●	●	●	●
		Switch Set 10Z-2R	●	●	●	●
		VAL Set 10Z-2V2	●	●	●	●
		SV Set 10Z-2K2	●	●	●	●
	Double acting double rod	Standard type 10Z-2D	●	●	●	●
		Switch Set 10Z-2RD	●	●	●	●
	Single acting single rod spring return	Standard type 10Z-2SR	●	●	●	●
		Switch Set 10Z-2RSR	●	●	●	●
	Single acting single rod spring-extended	Standard type 10Z-2SH	●	●	●	●
		Switch Set 10Z-2RSH	●	●	●	●
Non-rotating	Double acting single rod	Standard type 10Z-2G		●		●
		Switch Set 10Z-2RG		●		●
		VAL Set 10Z-2V2G		●		●
		SV Set 10Z-2K2G		●		●
	Single acting single rod spring return	Standard type 10Z-2GSR		●		●
		Switch Set 10Z-2RGSR		●		●
	Single acting single rod spring-extended	Standard type 10Z-2GSH		●		●
		Switch Set 10Z-2RGSH		●		●

Spring Force of Single Acting Cylinders (SR type/SH type) Unit: N

Bore	Load	Stroke (mm)			
		25	50	75	100
φ20	Initial load	12.9			
	End load	32.2			
φ25	Initial load	20.4			
	End load	50.7			
φ32	Initial load	32.3			
	End load	79.9			
φ40	Initial load	50.6			
	End load	125.2			

● The non-rotating cylinders come in bore sizes of 25 and 40 mm.

Sensor Mountable Minimum Stroke Unit: mm

Sensor	With 1 sensor							
	AX type	ZC201	ZC205	ZC230	ZC253	JR type	JS type	SR type
φ20 to φ40	10	10	15	10	10	10	15	15

Sensor	With 2 sensor							
	AX type	ZC201	ZC205	ZC230	ZC253	JR type	JS type	SR type
φ20 to φ40	15	15	15	10	10	15	20	25

Note) Switch Set and SV Set Cylinders have the same dimensions.

Cushion Stroke (with cushion) Unit: mm

Bore	Cushion stroke
φ32	14
φ40	15

Standard Stroke Range

Double acting/Standard

Unit: mm

Bore	Stroke																Stroke limit
	15	25	30	50	75	100	125	150	175	200	250	300	350	400	450	500	
φ20	○	○	○	○	○	○	○	○	○	○	—	—	—	—	—	—	900
φ25	○	○	○	○	○	○	○	○	○	○	○	○	—	—	—	—	900
φ32	○	○	○	○	○	○	○	○	○	○	○	○	○	○	—	—	900
φ40	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	900

Note) If a stroke other than the above standard strokes (○-marked) is required, consult us.

Single acting/Standard

Unit: mm

Bore	Stroke	25	50	75	100	Stroke limit
φ20		○	○	○	○	150
φ25		○	○	○	○	200
φ32		○	○	○	○	200
φ40		○	○	○	○	200

Note) If a stroke other than the above standard strokes (○-marked) is required, consult us.

Double acting/Non-rotating

Unit: mm

Stroke Bore	15	25	30	50	75	100	125	150	175	200	250	300	Stroke limit
													
													500

Note) If a stroke other than the above standard strokes (○-marked) is required, consult us.

Single acting/Non-rotating

Unit: mm

Bore \ Stroke	Stroke		25		50		75		100		Stroke limit
φ25			○		○		○		○		150
φ40			○		○		○		○		200

Note) If a stroke other than the above standard strokes (○-marked) is required, consult us.

How to order

The item enclosed by broken line needs not to be entered, if unnecessary. ■ Semi-standard specification

● VAL Set 10Z-2V2 SD 40 N 100 - A 1 100 V AC 50/60Hz
● SV Set 10Z-2K2 SD 40 N 100 - A 1 AH 2 200 V AC 50/60Hz

Standard
10Z-2V2: Double acting single rod/VAL Set
10Z-2K2: Double acting single rod/SV Set

Non-rotating
10Z-2V2G: Double acting single rod/standard type
10Z-2K2G: Double acting single rod/SV Set

Mounting style
Cylinder bore (mm)
φ20 · φ25 · φ32 · φ40

1 No cushion
2 With cushions on both ends

Note) ● In the case of standard cylinders, 32 and 40mm bore cylinders have cushions.
In the case of non-rotating cylinders, only 40mm bore cylinders have cushions.

Note) ● Non-rotating cylinders come in bore sizes of 25 and 40 mm.

For explanation of other types, refer to the standard and Switch Set types.

Mounting style

VAL Set/SV Set

SD Basic style LC End angle FA Rod flange TA Rod trunnion

TC Cap trunnion AD Block type end angle BD Block type flange

★ Semi-standard range

- Double rod type
- With boots
- Change of piston rod end (Dimensional symbol: WF, A, KK)
- Single acting cylinders having strokes other than the standard strokes
- With cushion
Standard: φ32 and φ40;
Non-rotating: φ40 only; Single acting type/double rod type/rear port style: No cushion

★ Delivery state

- The product will be delivered without mounting accessory and rod end attachment mounted.
- Switch Set Cylinders will be delivered without a sensor mounted on the cylinder body.
- All VAL Set and SV Set Cylinders will come in the energized extending type. (They can be switched to the energized retracting type by changing the valve position.)

★ To place an order for a sensor only, see the model number of the sensor.

How to order

The item enclosed by broken line needs not to be entered, if unnecessary. ■ Semi-standard specification

● Standard type 10Z-2 SD 40 N 100 - Y B - J
● Switch Set 10Z-2R SD 40 N 100 - AH 2 - Y B - J

Standard
10Z-2 Double acting single rod/standard type
10Z-2R Double acting single rod/Switch Set
10Z-2D Double acting double rod/standard type
10Z-2RD Double acting double rod/Switch Set
10Z-2SR Single acting spring return/standard type
10Z-2RSR Single acting spring return/Switch Set
10Z-2SH Single acting spring-extended/Standard type
10Z-2RSH Single acting spring-extended/Switch Set

Non-rotating
10Z-2G Double acting single rod/standard type
10Z-2RG Double acting single rod/Switch Set
10Z-2GSR Single acting spring return/standard type
10Z-2RGSR Single acting spring return/Switch Set
10Z-2GSH Single acting spring-extended/Standard type
10Z-2RSH Single acting spring-extended/Switch Set

Mounting style
Cylinder bore (mm)
φ20 · φ25 · φ32 · φ40

Note) The non-rotating cylinders come in bore sizes of 25 and 40 mm.
The basic mounting style for the non-rotating cylinders is SK.

1 No cushion
2 With cushions on both ends

● Note on ordering Switch Set
● Sensors are not mounted on cylinders at delivery.
● For single acting double rod cylinders, only 1 can be specified.

Cylinder stroke (mm)
Note) The 32 and 40mm bore standard cylinders have cushions.
Only the 40mm bore non-rotating cylinders have cushions. Rear port cylinders do not have cushions.

Sensor symbol
Note) Select applicable sensors out of the Sensor List.

● Rod eye with spherical bearing (S-end)
● Rod clevis (Y-end) with pin
● Floating joint (F-end)

Boots
Nylon tarpaulin
Note) The boots cannot be fitted to AD, AP, BD or BP style.

With bracket
Applicable mounting styles:
SD, TA, TB, TC, CU

Mounting Style

Standard type/Switch Set

Basic style

SD Basic style LB End angle LS End angle (Note) FA Rod flange

FB Cap flange TA Rod trunnion TB Cap trunnion CU Cap eye with spherical bearing

Clevis cut style

SK Basic style LK End angle (Note) FK Rod flange TK Rod trunnion

AD Block type end angle BD Block type flange

Rear port style

SP Basic style LP End angle (Note) FP Rod flange TP Rod trunnion

AP Block type end angle BP Block type flange

Notes) ● LS, LK and LP style cylinders come in bore sizes of 20 and 25 mm.
● Non-rotating LK and LP style cylinders come in a bore size of 25 mm only.

Sensor List

Semi-standard specification

Type	Sensor symbol	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Indicating lamp	Wiring method	Cord length	Applicable load			
Reed sensor	[AF] AX101CE	DC: 5 to 30V AC: 5 to 120V	DC: 5 to 40mA AC: 5 to 20mA	DC:1.5W AC:2VA	None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m	Small relay, programmable controller			
	[AG] AX105CE				5m							
	[AH] AX111CE				1.5m							
	[AJ] AX115CE				5m							
	[AE] AX125CE	DC: 30 V or less AC: 120 V or less	DC: 40 mA or less AC: 20 mA or less	None	None	5m						
	[AK] AX11ACE	AC: 5 to 120V	5 to 20mA	2VA	Provided	LED (Lights in red when sensing)	4-pin connector type, rear wiring	0.5m				
	[AL] AX11BCE	DC: 5 to 30V	5 to 40mA	1.5W				0.5m				
	[AM] AX135CE	AC: 90 to 240V DC: 90 to 240V	5 to 300mA	B contact output	Provided	LED (Lights in red when not sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	5m				
	[JA] ZC201A	AC: 115 V or less	AC: 25 mA or less	—	None	None	0.2 mm ² , 2-core, outer dia. φ3 mm, rear wiring	1m				
	[JB] ZC201B	DC: 28 V or less	DC: 40 mA or less					3m				
	[JC] ZC205A	DC: 10 to 28V	DC: 5 to 40mA					30VA		None	LED (Lights in red when sensing)	1m
	[JD] ZC205B											3m
	[A] JR101	DC: 5 to 50V	DC: 3 to 40mA	DC:1.5W AC:2VA	None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ3.4 mm, rear wiring	1.5m				
	[B] JR105	AC: 5 to 120V	AC: 3 to 20mA	5m								
	[S] SR405	AC: 80 to 220V	2 to 300mA	30VA	Provided	Neon lamp (Lights in red when not sensing)	0.5 mm ² , 2-core, outer dia. φ6 mm, rear wiring	5m				
	Solid state sensor	[BE] AX201CE-1	DC: 5 to 30V	5 to 40mA	—	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring		1.5m	Small relay, programmable controller	
[BF] AX205CE-1		5m										
[CE] AX211CE-1		1.5m										
[CF] AX215CE-1		5m										
[JJ] ZC230A		DC: 10 to 28V	4 to 50mA	—	Provided	LED (Lights when sensing)	0.2 mm ² , 2-core, outer dia. φ3 mm, rear wiring	1m				
[JK] ZC230B		DC: 28 V or less	100 mA or less	—	Provided	LED (Lights when sensing)	0.2 mm ² , 3-core, outer dia. φ3 mm, rear wiring	3m				
[JL] ZC253A								1m				
[JM] ZC253B								3m				
[I] JS211M								DC: 10 to 30V	6 to 70mA	—		Provided
[O] JS215M		5m										
[CT] AX211CE-1		DC: 5 to 30V	5 to 40mA	—	Provided	LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m				
[CU] AX215CE-1								5m				
[CV] AX218CE-1								4-pin connector type, rear wiring	0.5m			
[CW] AZ211CE-1								0.3 mm ² , 2-core, outer dia. φ4 mm, upper wiring	1.5m			
[CX] AZ215CE-1									5m			
[CY] AZ218CE-1									4-pin connector type, upper wiring	0.5m		

Notes) ● For the sensors without a protective circuit, be sure to provide a protective circuit (SK-100) with the load when using any induction load (relay, etc.).
● The output logic of AX135CE is B contact. When the piston is detected, the sensor contact turns off (the lamp turns on).
● For the detailed specifications and handling of sensors, see the sensor specifications at the end of this catalog.
● The AX type sensors can be mounted on any model in addition to the above models. See the sensor specifications at the end of this catalog.
● We recommend AND Unit (AU series) for multiple sensors connected in series.
For details, refer to AND Unit at the end of this catalog.

- AX type sensor
- ZC type sensor
- JR/JS type sensor
- SR type sensor
- Cord type
- Connector type



Standard type/Switch Set

Mounting style	Classification Series variations Cap cover style Name	Standard			Non-rotating		
		Double acting/single acting			Double rod type		
		Basic style	Clevis cut style	Rear port style	Basic style	Basic style	Clevis cut style
SD	Basic style	○	○	(○)	○	—	○
SD with bracket	Basic style with bracket	○	—	—	—	—	—
LB	End angle	○	—	—	○	○	—
LS	End angle	○	○	(○)	—	—	○
FA	Rod flange	○	○	(○)	○	—	○
FB	Cap flange	○	—	—	—	—	—
TA	Rod trunnion	○	○	(○)	○	—	○
TA with bracket	Rod trunnion with bracket	○	○	(○)	○	—	○
TB	Cap trunnion	○	—	—	—	—	—
TB with bracket	Cap trunnion with bracket	○	—	—	—	—	—
CU	Cap eye with spherical bearing	○	—	—	—	—	—
CU with bracket	Cap eye with spherical bearing and bracket	○	—	—	—	—	—
AD	Block type/ end angle	—	○	—	—	—	○
AP	Block type/ flange	—	—	(○)	—	—	(○)
BD		—	○	—	—	—	○
BP	Block type/ flange	—	—	(○)	—	—	(○)
		—	—	(○)	—	—	(○)

Note) Single acting (spring-extended) cylinders with the mounting styles marked with (○) cannot be fabricated.

Mounting Accessory Part Number

Bore	φ20	φ25	φ32	φ40
Mounting style				
LB	MAZ3-LB020	MAZ3-LB032	MAZ3-LB040	
LC	MAZ3-LC020	MAZ3-LC032	MAZ3-LC040	
LS	MAZ3-LS020	—	—	
FA	MAZ3-FA020	MAZ3-FA032	MAZ3-FA040	
FB				
TA	MAZ3-TA020	MAZ3-TA032	MAZ3-TA040	
TB				
TC	MAZ3-TC020	MAZ3-TC032	MAZ3-TC040	
CU	MAZ3-CU020	MAZ3-CU025	MAZ3-CU032	MAZ3-CU040

Lock Nut Part Number

Bore	Standard	Non-rotating
φ20	LNA-08Z-A	—
φ25	LNA-10Z-A	LNA-08Z-A
φ32		—
φ40	LNA-12Z-A	LNA-12Z-A

Bracket Part Number

Bore	φ20	φ25	φ32	φ40
Bracket				
For SD (with pin)	MAZ3-BK020PA	MAZ3-BK032PA	MAZ3-BK040PA	
For S-end/CU (with pin)	MAZ3-BK020PB	MAZ3-BK032PB	MAZ3-BK040PB	
For TA/TB/TC	MAZ3-BK020	MAZ3-BK032	MAZ3-BK040	

Weight Table Round type

Standard Double acting type							Unit: g
Bore mm	Basic weight				Additional weight		
	Standard type	VAL Set	Clevis cut style	Rear port style	With cushion	Additional weight per mm of stroke	
φ20	222	588	204	192	–	1.6	
φ25	300	659	283	267	–	2.4	
φ32	469	831	446	433	11	3.2	
φ40	708	1,092	670	653	47	4.0	

Note) Rear port style with cushions is not available.

Standard Single acting type				Unit: g			
Bore mm	Basic weight			Additional weight			
	Standard type	Clevis cut style	Rear port style	Additional weight for stroke			
				25	50	75	100
φ20	288	270	258	40	147	253	360
φ25	392	375	359	60	211	362	513
φ32	606	583	570	80	301	523	744
φ40	889	851	834	100	381	662	942

Standard Double rod type			Unit: g
Bore mm	Basic weight	Additional weight	
	Standard type	Additional weight per mm of stroke	
φ20	249	1.6	
φ25	299	2.4	
φ32	578	3.2	
φ40	870	4.0	

Note) To obtain the weight of a single acting cylinder, add the additional weight for stroke to the basic weight.

●The weight of double rod cylinder includes the weight of two rod end lock nuts and one lock nut for mounting accessory.

Non-rotating Double acting type						Unit: g
Bore mm	Basic weight			Additional weight		
	Clevis cut style (basic style)	VAL Set	Rear port style	With cushion	Additional weight per mm of stroke	
φ25	281	657	265	–	2.4	
φ40	644	1,066	628	45	4.0	

Notes) ●The sensor additional weight includes the weight of sensor bracket.
●Rear port style with cushions is not available.

Non-rotating Single acting type						Unit: g
Bore mm	Basic weight		Additional weight			
	Clevis cut style (basic style)	Rear port style	Additional weight for stroke			
			25	50	75	100
φ25	372	356	60	210	359	509
φ40	828	812	100	384	668	952

Note) ●To obtain the weight of a single acting cylinder, add the additional weight for stroke to the basic weight.

Mounting Accessory/Rod End Attachment Weight													Unit: g
Bore mm	Mounting accessory weight											Rod end attachment weight	
	SD with bracket	LB	LC	LS	FA FB	TA TB	TA with bracket TB with bracket	TC	TC with bracket	CU	CU with bracket	Rod eye (T-end)	Rod clevis (Y-end) with pin
φ20	115	140	150	60	55	55	140	30	100	130	240	50	55
φ25	115	140	150	60	55	55	140	30	100	130	280	75	100
φ32	150	220	210	–	90	90	210	30	125	125	275	75	100
φ40	185	280	280	–	110	130	275	70	175	150	335	110	175

[Double acting type] Calculation formula Cylinder weight (g)=basic weight+(sensor additional weight)+(cushion additional weight)+mounting accessory weight+additional weight per mm of stroke×cylinder stroke (mm)
Calculation example Bore 32 mm, cylinder stroke 200 mm, standard double acting, Switch Set, LB, 3 pcs of sensors with cords, with cushion 693+112+11+220+3.2×200=1676g

[Single acting type] Calculation formula Cylinder weight (g)=basic weight+(sensor additional weight)+mounting accessory weight+additional weight for stroke (mm)
Calculation example Bore 32 mm, cylinder stroke 100 mm, standard single acting (spring return), Switch Set Cylinder, LB, 3 pcs of sensors with cords 830+112+220+744=1906g

Weight Table Block type

Standard Double acting type								Unit: g
Bore (mm)	Basic weight						Additional weight	
	Block type flange			Block type end angle				
	Standard type	VAL Set	Rear port style	Standard type	VAL Set	Rear port style	With cushion	Additional weight per mm of stroke
φ20	197	581	185	204	587	191	–	1.6
φ25	284	661	269	299	673	283	–	2.4
φ32	414	799	402	452	837	440	18	3.2
φ40	647	1,069	631	677	1,099	661	47	4.0

Note) Rear port style with cushions is not available.

Standard Single acting type								Unit: g
Bore (mm)	Basic weight				Additional weight			
	Block type flange		Block type end angle					
	Standard type	Rear port style	Standard type	Rear port style	Additional weight for stroke			
					25	50	75	100
φ20	263	251	270	257	40	147	253	360
φ25	376	361	391	375	60	211	362	513
φ32	551	539	589	577	80	301	523	744
φ40	828	812	858	842	100	381	662	942

Non-rotating Double acting type								Unit: g
Bore (mm)	Basic weight						Additional weight	
	Block type flange			Block type end angle				
	Standard type	VAL Set	Rear port style	Standard type	VAL Set	Rear port style	With cushion	Additional weight per mm of stroke
φ25	270	647	255	296	672	280	–	2.4
φ40	635	1057	619	685	1,107	668	41	4.0

Note) Rear port style with cushions is not available.

Non-rotating Single acting type								Unit: g
Bore (mm)	Basic weight				Additional weight			
	Block type flange		Block type end angle					
	Standard type	Rear port style	Standard type	Rear port style	Additional weight for stroke			
					25	50	75	100
φ25	361	346	387	371	60	210	359	509
φ40	819	803	869	852	100	384	668	952

Sensor Additional Weight									Unit: g
Symbol	AX type			ZC type		JR/JS type		SR type	
Bore	Cord length 1.5 m	Cord length 5 m	With connector	Cord length 1 m	Cord length 3 m	Cord length 1.5 m	Cord length 5 m	Cord length 5 m	
φ20	50	130	40	25	55	35	35	112	
φ25									
φ32									
φ40									

Note) ●The sensor additional weight includes the weight of sensor bracket.

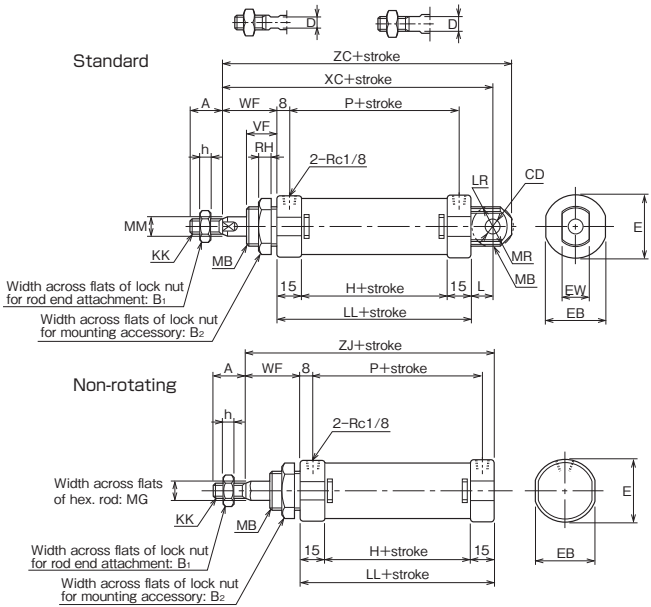
SD

Double acting single rod

Standard	10Z-2	SD	Bore	Cushioning	Stroke
Non-rotating	10Z-2G	SK	Bore	Cushioning	Stroke

●Standard type●Switch Set

φ20 · φ25 φ32 · φ40



Related models: Clevis cut style, rear port style, models with cushion, models with boots

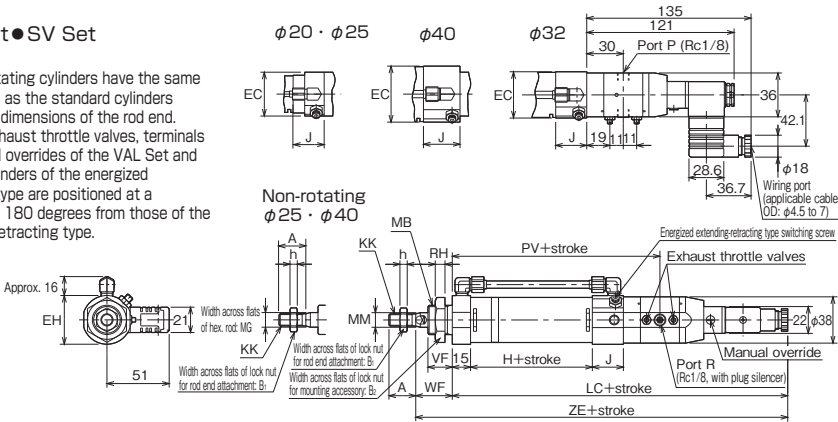
The non-rotating cylinders are basically mounted in the clevis cut style.

Double acting single rod

Standard	10Z-2V2	SD	Bore	Cushioning	Stroke	Valve operating method	Valve voltage
Non-rotating	10Z-2V2G	SD	Bore	Cushioning	Stroke	Valve operating method	Valve voltage

●VAL Set●SV Set

- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end.
- Ports P, exhaust throttle valves, terminals and manual overrides of the VAL Set and SV Set Cylinders of the energized extending type are positioned at a distance of 180 degrees from those of the energized retracting type.



Related models: Models with cushion, models with boots

This figure shows the dimensional drawing of an energized extending type cylinder.

Dimensional Table

Symbol	A		B ₁		B ₂	CD	D	E	EB	EC	EH
	Standard	Non-rotating	Standard	Non-rotating							
φ20	20 (20)	—	13	—	30	φ8H9	6	φ28	26	36	φ38
φ25	22 (22)	20 (17)	17	13	30	φ8H9	8	φ33	31	36	φ38
φ32	22 (19)	—	17	—	32	φ10H9	10	φ40	38	38	φ40
φ40	24 (21)	24 (21)	19	19	41	φ12H9	12	φ48	46	46	φ48

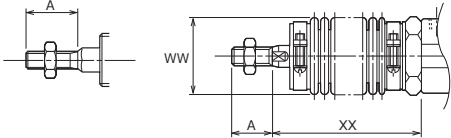
Symbol	EW	H	h		J	KK		L	LC	LL
			Standard	Non-rotating		Standard	Non-rotating			
φ20	16 ^{-0.1} _{-0.3}	44	5	—	26	M8×1.25	—	12	220	74
φ25	16 ^{-0.1} _{-0.3}	44	6	5	25.5	M10×1.25	M8×1.25	12	219.5	74
φ32	16 ^{-0.1} _{-0.3}	50	6	—	25.5	M10×1.25	—	14	225.5	80
φ40	20 ^{-0.1} _{-0.3}	52	7	7	30	M12×1.25	M12×1.25	16	232	82

Symbol	LR	MB	MG	MM	MR	P	PV	RH	VF	WF	XC	ZC	ZE	ZJ
φ20	R11	M22×1.5	—	φ8	R12	58	115	7	16 (13)	24	110	120	244	98
φ25	R11	M22×1.5	9	φ10	R12	58	114.5	7	18 (15)	28	114	124	247.5	102
φ32	R13	M24×2	—	φ12	R14	64	120.5	8	20 (16)	30	124	136	255.5	110
φ40	R15	M30×2	14	φ14	R16	66	127	9	22 (18)	32	130	142	264	114

Note) The parenthesized values of dimensions A and VF indicate the screw length.

With Boots

Non-rotating
φ25 · φ40



Dimensional Table

Symbol Stroke	A			WW	Dimension XX for each stroke																												
	Standard	Non-rotating			to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500		
					Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	
Bore																																	
φ20	20	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—		
φ25	22	20	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231		
φ32	22	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—		
φ40	24	24	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175		

SD

Single acting type

Spring return

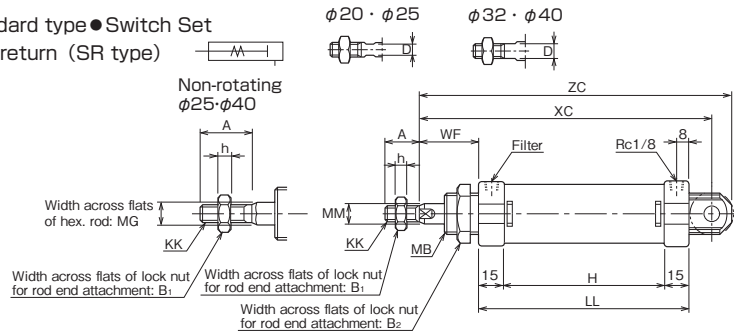
Standard	10Z-2SR	SD	Bore	Cushioning	Stroke
Non-rotating	10Z-2GSR	SK	Bore	Cushioning	Stroke

Spring-extended

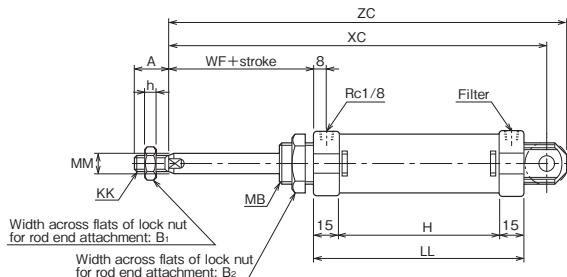
Standard	10Z-2SH	SD	Bore	Cushioning	Stroke
Non-rotating	10Z-2GSH	SK	Bore	Cushioning	Stroke

● Standard type ● Switch Set

Spring return (SR type)



Spring-extended (SH type)



· The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end and cap cover shown above.

Related models: Clevis cut style, rear port style, models with boots The non-rotating cylinders are basically mounted in the clevis cut style.

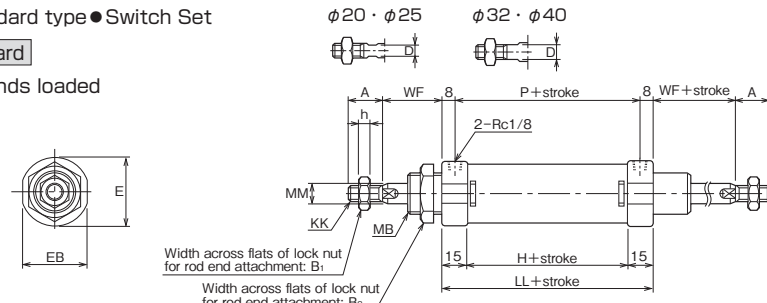
Double acting double rod

Standard	10Z-2D	SD	Bore	Cushioning	Stroke
----------	--------	----	------	------------	--------

● Standard type ● Switch Set

Standard

Both ends loaded



● Non-rotating double rod cylinders with cushions are not available.

Related models: Models with boots

Dimensional Table

Symbol	A		B ₁		B ₂	D	E	EB	h		KK		MB	MG	MM	P	WF
	Standard	Non-rotating	Standard	Non-rotating					Standard	Non-rotating	Standard	Non-rotating					
φ20	20 (20)	—	13	—	30	6	φ28	26	5	—	M8×1.25	—	M22×1.5	—	φ8	58	24
φ25	22 (22)	20 (17)	17	13	30	8	φ33	31	6	5	M10×1.25	M8×1.25	M22×1.5	9	φ10	58	28
φ32	22 (19)	—	17	—	32	10	φ40	38	6	—	M10×1.25	—	M24×2	—	φ12	64	30
φ40	24 (21)	24 (21)	19	19	41	12	φ48	46	7	7	M12×1.25	M12×1.25	M30×2	14	φ14	66	32

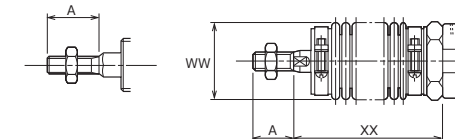
Symbol Stroke Bore	H					LL					XC			
	Double rod type	Single acting type				Double rod type	Single acting type				25		50	
		25	50	75	100		25	50	75	100	SR type	SH type	SR type	SH type
φ20	44	94	144	194	244	74	124	174	224	274	160	185	210	260
φ25	44	94	144	194	244	74	124	174	224	274	164	189	214	264
φ32	50	100	150	200	250	80	130	180	230	280	174	199	224	274
φ40	52	102	152	202	252	82	132	182	232	282	180	205	230	280

Symbol	XC				ZC							
	75		100		25		50		75		100	
Bore	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
φ20	260	335	310	410	170	195	220	270	270	345	320	420
φ25	264	339	314	414	174	199	224	274	274	349	324	424
φ32	274	349	324	424	186	211	236	286	286	361	336	436
φ40	280	355	330	430	192	217	242	292	292	367	342	442

Note) The parenthesized values of dimension A indicate the screw length.

With Boots

Non-rotating
φ25 · φ40

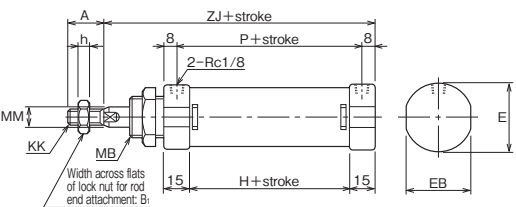


Dimensional Table

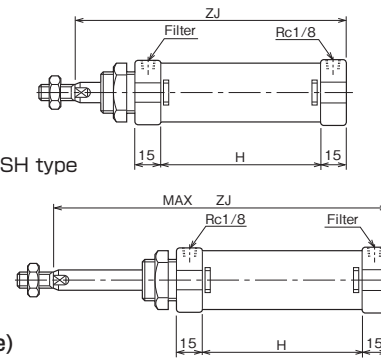
Symbol Stroke	A		WW	Dimension XX for each stroke																											
				to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
Bore	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	
φ20	20	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—
φ25	22	20	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231
φ32	22	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—
φ40	24	24	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	176

Related models Clevis cut style/SK (basic style)

Double acting type

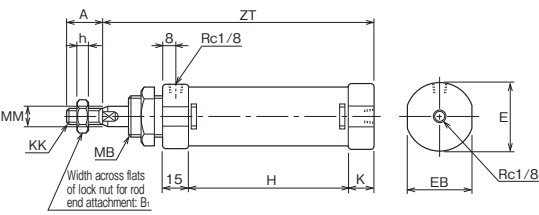


Single acting type
SR type

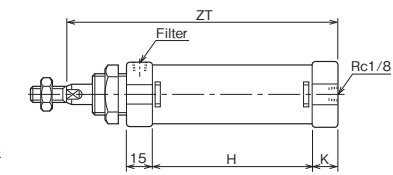


Related models Rear port style/SP (basic style)

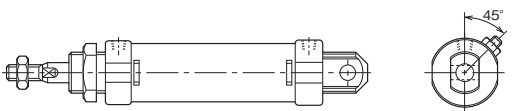
Double acting type



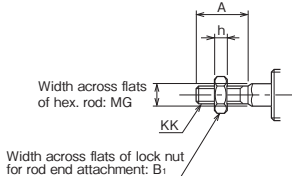
Single acting type
SR type



Related models Models with cushion/SD (basic style)



Non-rotating $\phi 40$



- For these models, only 32 and 40mm bore cylinders can be manufactured, but single acting type/double rod type/double acting type rear port style cylinders cannot be manufactured. Only the 40mm bore non-rotating cylinders have cushions.
- For the dimensions not shown above, refer to the SD style (basic style).
- The standard strokes of single acting cylinders are 25, 50, 75 and 100 mm. Contact us for other strokes.
- The non-rotating cylinders have the same dimensions as those shown above except the dimensions of the rod end and cap cover.

Dimensional Table

Symbol Stroke	A		B ₁		E	EB	h		K	KK	
	Standard	Non-rotating	Standard	Non-rotating			Standard	Non-rotating		Standard	Non-rotating
Bore											
$\phi 20$	20 (20)	—	13	—	$\phi 28$	26	5	—	8	M8×1.25	—
$\phi 25$	22 (22)	20 (17)	17	13	$\phi 33$	31	6	5	8	M10×1.25	M8×1.25
$\phi 32$	22 (19)	—	17	—	$\phi 40$	38	6	—	10	M10×1.25	—
$\phi 40$	24 (21)	24 (21)	19	19	$\phi 48$	46	7	7	10	M12×1.25	M12×1.25

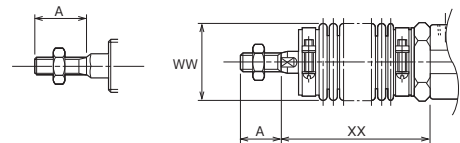
Symbol Stroke	MB	MG	MM	P	H				ZJ							
					Double acting type	Single acting type				Double acting type	25		50		75	
						25	50	75	100		SR type	SH type	SR type	SH type	SR type	SH type
Bore																
φ20	M22×1.5	—	φ8	58	44	94	144	194	244	98	148	173	198	248	248	323
φ25	M22×1.5	9	φ10	58	44	94	144	194	244	102	152	177	202	252	252	327
φ32	M24×2	—	φ12	64	50	100	150	200	250	110	160	185	210	260	260	335
φ40	M30×2	14	φ14	66	52	102	152	202	252	114	164	189	214	264	264	339

Symbol Stroke Bore	ZJ		ZT								
	100		Double acting type	25		50		75		100	
	SR type	SH type		SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
φ20	298	398	91	141	—	191	—	241	—	291	—
φ25	302	402	95	145	—	195	—	245	—	295	—
φ32	310	410	105	155	—	205	—	255	—	305	—
φ40	314	414	109	159	—	209	—	259	—	309	—

Note) The parenthesized values of dimension A indicate the screw length.

With Boots

Non-rotating
 $\phi 25 \cdot \phi 40$



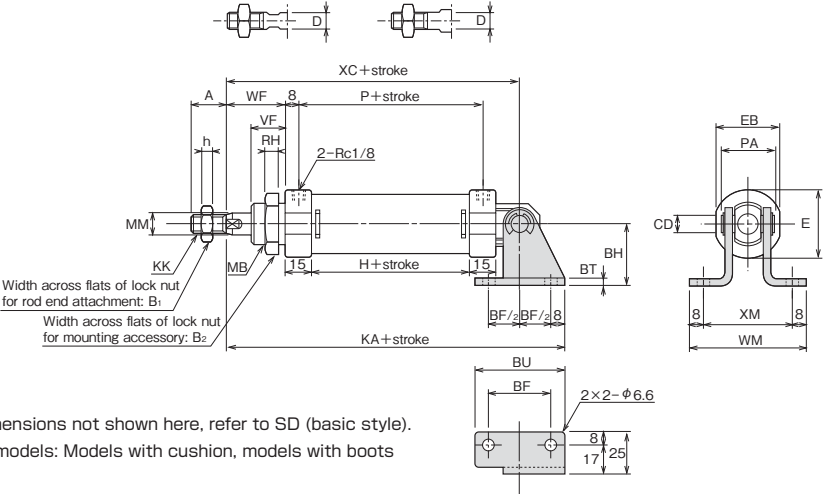
Dimensional Table

Symbol Stroke	A		WW	Dimension XX for each stroke													
	Standard	Non-rotating		to 25	to 50	to 75	to 100	to 125	to 150	to 175	to 200	to 250	to 300	to 350	to 400	to 450	to 500
Bore				Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating
$\phi 20$	20	—	$\phi 36$	49	—	59	—	69	—	74	—	84	—	94	—	104	—
$\phi 25$	22	20	$\phi 36$	53	46	63	56	73	66	78	71	88	81	98	91	108	101
$\phi 32$	22	—	$\phi 40$	45	—	55	—	65	—	70	—	80	—	85	—	95	—
$\phi 40$	24	24	$\phi 45$	42	35	52	45	57	50	62	55	72	65	82	75	87	80

SD with Bracket

Double acting single rod **Standard** 10Z-2 SD **Bore** **Cushioning** **Stroke** - B

●Standard type●Switch Set $\phi 20 \cdot \phi 25$ $\phi 32 \cdot \phi 40$

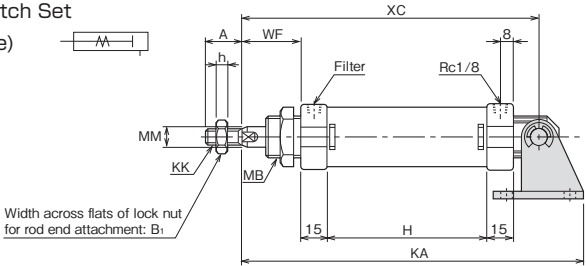


●For dimensions not shown here, refer to SD (basic style).
Related models: Models with cushion, models with boots

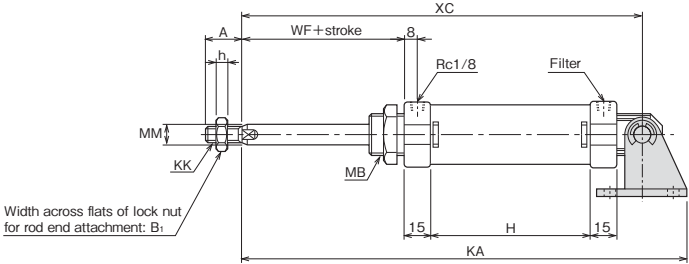
Single acting type

Spring return **Standard** 10Z-2SR SD **Bore** **N** **Stroke** - B
Spring-extended **Standard** 10Z-2SH SD **Bore** **N** **Stroke** - B

●Standard type●Switch Set
Spring return (SR type)



Spring-extended (SH type)



●For dimensions not shown here, refer to SD (basic style).
Related models: Models with boots

Dimensional Table

Symbol Stroke	A	B ₁	B ₂	BF	BH	BT	BU	CD	D	E	EB	Double acting type	H			
													Single acting type			
													25	50	75	100
Bore																
$\phi 20$	20(20)	13	30	32	32	3.2	48	$\phi 8$	6	$\phi 28$	26	44	94	144	194	244
$\phi 25$	22(22)	17	30	32	32	3.2	48	$\phi 8$	8	$\phi 33$	31	44	94	144	194	244
$\phi 32$	22(19)	17	32	36	36	4	52	$\phi 10$	10	$\phi 40$	38	50	100	150	200	250
$\phi 40$	24(21)	19	41	40	40	4	56	$\phi 12$	12	$\phi 48$	46	52	102	152	202	252

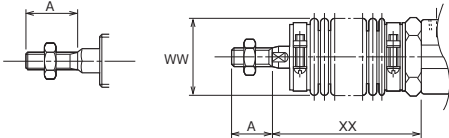
Symbol Stroke Bore	h	KA									KK	MB	MM	P	PA	RH
		Double acting type	25		50		75		100							
			SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type						
φ 20	5	134	184	209	234	284	284	359	334	434	M8×1.25	M22×1.5	φ 8	58	31	7
φ 25	6	138	188	213	238	288	288	363	338	438	M10×1.25	M22×1.5	φ 10	58	31	7
φ 32	6	150	200	225	250	300	300	375	350	450	M10×1.25	M24×2	φ 12	64	32	8
φ 40	7	158	208	233	258	308	308	383	358	458	M12×1.25	M30×2	φ 14	66	36	9

Symbol Stroke Bore	VF	WF	WM	XC									XM
				Double acting type	25		50		75		100		
					SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	
φ 20	16(13)	24	67	110	160	185	210	260	260	335	310	410	51
φ 25	18(15)	28	67	114	164	189	214	264	264	339	314	414	51
φ 32	20(16)	30	67	124	174	199	224	274	274	349	324	424	51
φ 40	22(18)	32	71	130	180	205	230	280	280	355	330	430	55

Note) The parenthesized values of dimensions A and VF indicate the screw length.

With Boots

Non-rotating
 $\phi 25 \cdot \phi 40$



Dimensional Table

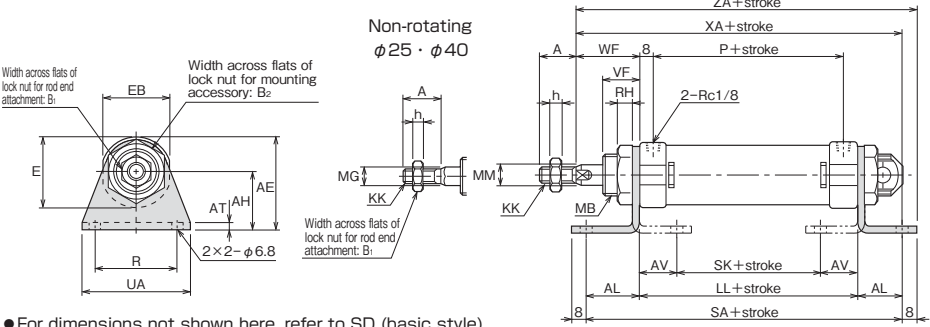
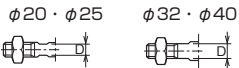
Symbol Stroke	A			WW	Dimension XX for each stroke																											
					to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
	Stand	Non-rotating	Stand		Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	
Bore																																
$\phi 20$	20	—	$\phi 36$	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—	
$\phi 25$	22	20	$\phi 36$	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231	
$\phi 32$	22	—	$\phi 40$	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—	
$\phi 40$	24	24	$\phi 45$	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175	

LB

Double acting single rod

Standard	10Z-2 LB	Bore	Cushioning	Stroke
Non-rotating	10Z-2G LB	Bore	Cushioning	Stroke

●Standard type●Switch Set



- For dimensions not shown here, refer to SD (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end.

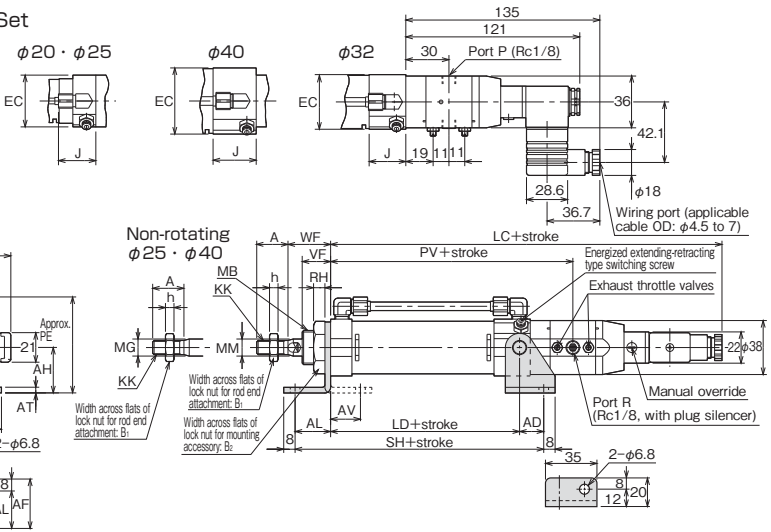
Related models: Models with cushion, models with boots

LC

Double acting single rod

Standard	10Z-2V2 LC	Bore	Cushioning	Stroke	Valve operating method	Valve voltage
Non-rotating	10Z-2V2G LC	Bore	Cushioning	Stroke	Valve operating method	Valve voltage

●VAL Set●SV Set



- For dimensions not shown here, refer to SD (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
- Ports P, exhaust throttle valves, terminals and manual overrides of the VAL Set and SV Set Cylinders of the energized extending type are positioned at a distance of 180 degrees from those of the energized retracting type.

Related models: Models with cushion, models with boots

This figure shows the dimensional drawing of an energized extending type cylinder.

Dimensional Table

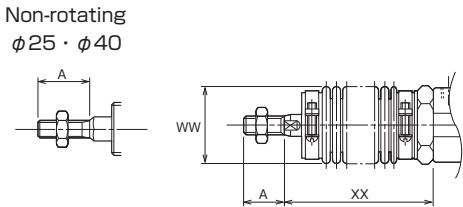
Symbol Bore	A		AD	AE	AF	AH	AL	AT	AV	B ₁		B ₂	D
	Standard	Non-rotating								Standard	Non-rotating		
φ 20	20 (20)	—	19	42	24	25	16	3.2	12.8	13	—	30	6
φ 25	22 (22)	20 (17)	19	42	24	25	16	3.2	12.8	17	13	30	8
φ 32	22 (19)	—	17	52	33	32	25	4	21	17	—	32	10
φ 40	24 (21)	24 (21)	15	60	33	36	25	4	21	19	19	41	12

Symbol Bore	E	EB	EC	h		J	KK		LC	LD	LL	MB
				Standard	Non-rotating		Standard	Non-rotating				
φ 20	φ 28	26	36	5	—	26	M8×1.25	—	220	77.5	74	M22×1.5
φ 25	φ 33	31	36	6	5	25.5	M10×1.25	M8×1.25	219.5	77	74	M22×1.5
φ 32	φ 40	38	38	6	—	25.5	M10×1.25	—	225.5	83	80	M24×2
φ 40	φ 48	46	46	7	7	30	M12×1.25	M12×1.25	232	87	82	M30×2

Symbol	MG	MM	P	PE	PV	R	RH	SA	SH	SK	UA	VF	WB	WF	XA	XB	ZA
Bore																	
φ20	—	φ 8	58	59	115	40	7	106	112.5	48.4	55	16	87	24	114	71	122
φ25	9	φ 10	58	59	114.5	40	7	106	112	48.4	55	18	87	28	118	71	126
φ32	—	φ 12	64	68	120.5	45	8	130	125	38	60	20	89	30	135	73	143
φ40	14	φ 14	66	76	127	50	9	132	127	40	65	22	97	32	139	81	147

Note) The parenthesized values of dimension A indicate the screw length.

With Boots



Dimensional Table

Symbol Stroke	A			WW	Dimension XX for each stroke																															
			to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500							
	Stand-	Non-rotating	Stand-		Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating					
Bore	Stand-	Non-rotating			Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating				
φ 20	20	—	φ 36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—					
φ 25	22	20	φ 36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231					
φ 32	22	—	φ 40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—					
φ 40	24	24	φ 45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175					

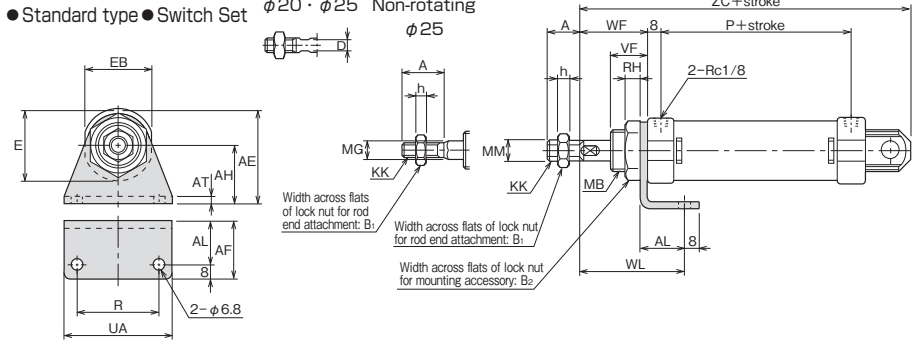
Symbol Stroke		A		WW		Dimension XX for each stroke																												
						to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500		
Bore	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating		
	$\phi 20$	20	—	$\phi 36$	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—	254	—
	$\phi 25$	22	20	$\phi 36$	53	46	$\phi 63$	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231	258	251
	$\phi 32$	22	—	$\phi 40$	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—	230	—
	$\phi 40$	24	24	$\phi 45$	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175	202	195

LS

Double acting single rod

Standard	10Z-2 LS	Bore	Cushioning	Stroke
Non-rotating	10Z-2G LK	Bore	Cushioning	Stroke

● Standard type ● Switch Set $\phi 20 \cdot \phi 25$ Non-rotating



- For dimensions not shown here, refer to SD (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end and cap cover shown above.

Related models: Clevis cut style, rear port style, models with boots

The non-rotating cylinders are basically mounted in the clevis cut style.

Single acting type

Spring return

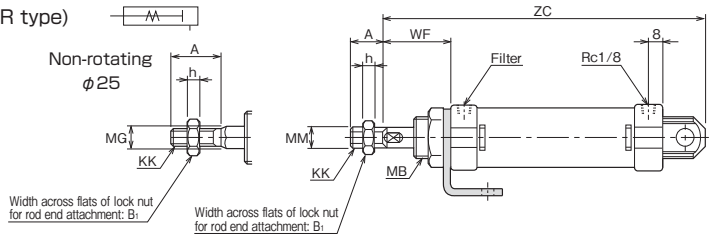
Standard	10Z-2SR	LS	Bore	N	Stroke
Non-rotating	10Z-2GSR	LK	Bore	N	Stroke

Spring-extended

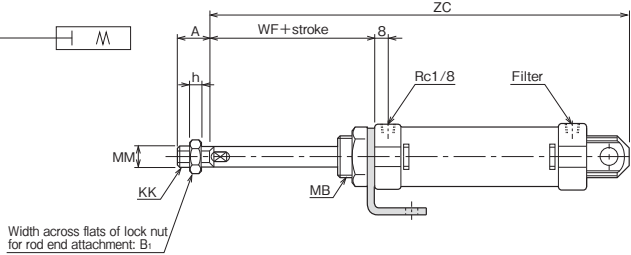
Standard	10Z-2SH	LS	Bore	N	Stroke
Non-rotating	10Z-2GSH	LK	Bore	N	Stroke

● Standard type ● Switch Set

Spring return (SR type)



Spring-extended (SH type)



- For dimensions not shown here, refer to SD (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end and cap cover shown above.

Related models: Clevis cut style, rear port style, models with boots

The non-rotating cylinders are basically mounted in the clevis cut style.

Dimensional Table

Symbol Stroke	A		AE	AF	AH	AL	AT	B ₁		B ₂	D	E	EB
	Standard	Non-rotating						Standard	Non-rotating				
$\phi 20$	20 (20)	—	42	24	25	16	3.2	13	—	30	6	$\phi 28$	26
$\phi 25$	22 (22)	20 (17)	42	24	25	16	3.2	17	13	30	8	$\phi 33$	31

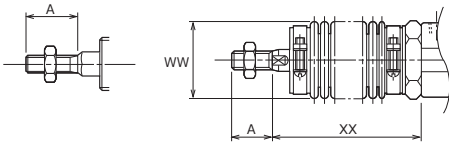
Symbol Stroke	h		KK		MB	MG	MM	P	R	RH	UA	VF	WF
	Standard	Non-rotating	Standard	Non-rotating									
$\phi 20$	5	—	M8×1.25	—	M22×1.5	—	$\phi 8$	58	40	7	55	16	24
$\phi 25$	6	5	M10×1.25	M8×1.25	M22×1.5	9	$\phi 10$	58	40	7	55	18	28

Symbol Stroke	WL	Double acting type	ZC							
			25		50		75		100	
			SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
$\phi 20$	36.8	120	170	195	220	270	270	345	320	420
$\phi 25$	40.8	124	174	199	224	274	274	349	324	424

Note) The parenthesized values of dimension A indicate the screw length.

With Boots

Non-rotating
 $\phi 25 \cdot \phi 40$



Dimensional Table

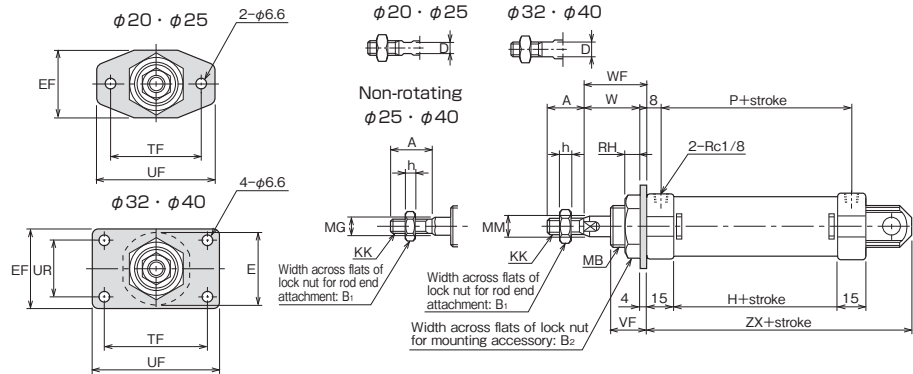
Symbol Stroke	A		WW	Dimension XX for each stroke																											
				to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	
Bore	Stand- rotating	Non-rotating		Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating
φ 20	20	—	φ 36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—
φ 25	22	20	φ 36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231
φ 32	22	—	φ 40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—
φ 40	24	24	φ 45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175

FA

Double acting single rod

Standard	10Z-2	FA	Bore	Cushioning	Stroke
Non-rotating	10Z-2G	FK	Bore	Cushioning	Stroke

●Standard type●Switch Set



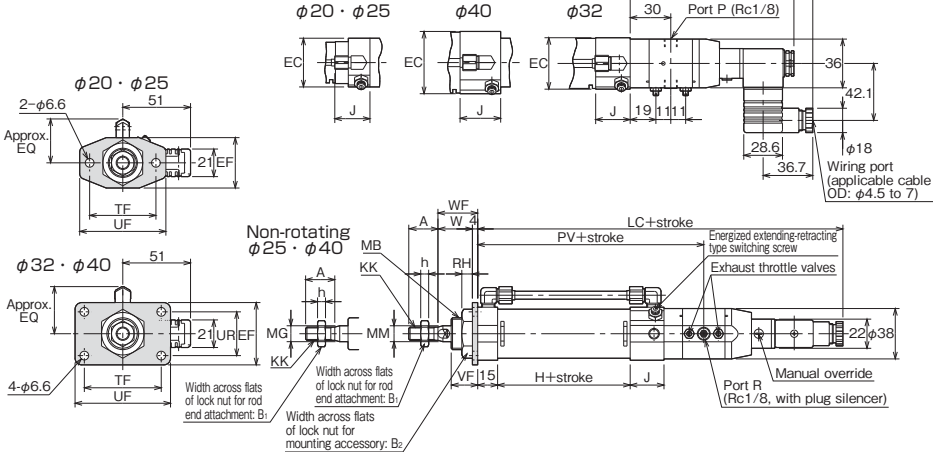
- For dimensions not shown here, refer to SD (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end and cap cover shown above.

Related models: Clevis cut style, rear port style, models with cushion, models with boots

Double acting single rod

Standard	10Z-2V2	FA	Bore	Cushioning	Stroke	Valve operating method	Valve voltage
Non-rotating	10Z-2V2G	FA	Bore	Cushioning	Stroke	Valve operating method	Valve voltage

●VAL Set●SV Set



- For dimensions not shown here, refer to SD (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
- Ports P, exhaust throttle valves, terminals and manual overrides of the VAL Set and SV Set Cylinders of the energized extending type are positioned at a distance of 180 degrees from those of the energized retracting type.

Related models: Models with cushion, models with boots

This figure shows the dimensional drawing of an energized extending type cylinder.

Dimensional Table

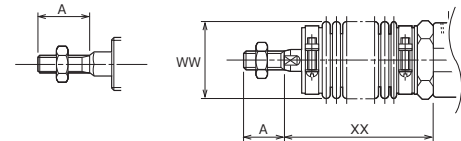
Symbol	A		B ₁		B ₂	D	E	EC	EF	EQ	H	h	
	Standard	Non-rotating	Standard	Non-rotating								Standard	Non-rotating
φ 20	20 (20)	—	13	—	30	6	φ 28	36	38	34	44	5	—
φ 25	22 (22)	20 (17)	17	13	30	8	φ 33	36	38	34	44	6	5
φ 32	22 (19)	—	17	—	32	10	φ 40	38	47	36	50	6	—
φ 40	24 (21)	24 (21)	19	19	41	12	φ 48	46	51	40	52	7	7

Symbol	J	KK		LC	MB	MG	MM	P	PV	RH	TF	UF	UR	VF	W	WF	ZX
		Standard	Non-rotating														
φ 20	26	M8×1.25	—	220	M22×1.5	—	φ 8	58	115	7	50	65	—	16	20	24	96
φ 25	25.5	M10×1.25	M8×1.25	219.5	M22×1.5	9	φ 10	58	114.5	7	50	65	—	18	24	28	96
φ 32	25.5	M10×1.25	—	222.5	M24×2	—	φ 12	64	120.5	8	58	72	33	20	26	30	106
φ 40	30	M12×1.25	M12×1.25	232	M30×2	14	φ 14	66	127	9	70	84	36	22	28	32	110

Note) The parenthesized values of dimension A indicate the screw length.

With Boots

Non-rotating
φ 25 · φ 40



Dimensional Table

Symbol Stroke	A		WW	Dimension XX for each stroke																											
	Stand- rotating	Non-rotating		to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
				Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating
Bore	Stand- rotating	Non-rotating		Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating	Stand- rotating	Non-rotating
φ 20	20	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—
φ 25	22	20	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231
φ 32	22	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—
φ 40	24	24	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175

FA

Single acting type

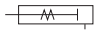
Spring return

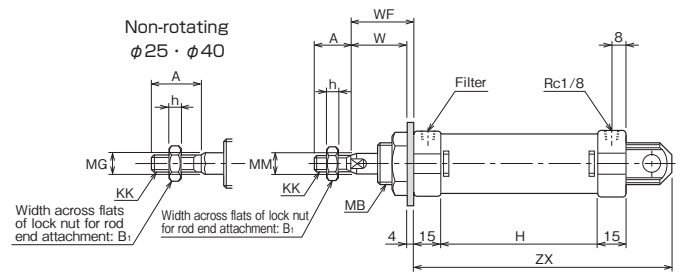
Standard	10Z-2SR	FA	Bore	N	Stroke
Non-rotating	10Z-2GSR	FK	Bore	N	Stroke

Spring-extended

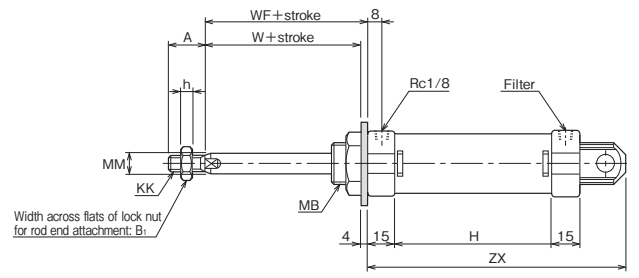
Standard	10Z-2SH	FA	Bore	N	Stroke
Non-rotating	10Z-2GSH	FK	Bore	N	Stroke

● Standard type ● Switch Set

Spring return (SR type) 



Spring-extended (SH type) 



- For dimensions not shown here, refer to SD (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end and cap cover shown above.

Related models: Clevis cut style, rear port style, models with boots

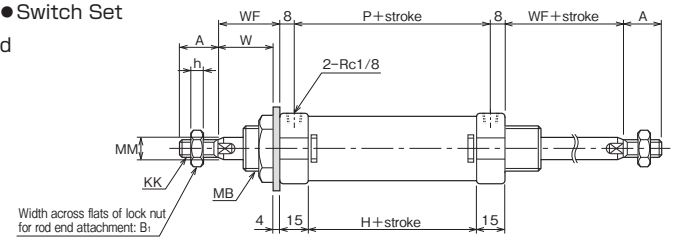
The non-rotating cylinders are basically mounted in the clevis cut style.

Double acting double rod

Standard	10Z-2DG	FA	Bore	N	Stroke
----------	---------	----	------	---	--------

● Standard type ● Switch Set

Both ends loaded



- For dimensions not shown here, refer to SD (basic style).
- Non-rotating double rod cylinders with cushions are not available.

Related models: Models with boots

Dimensional Table

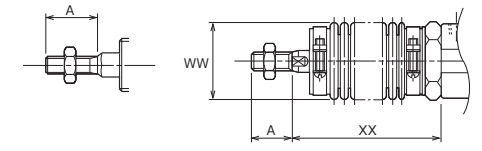
Symbol Bore	A		B ₁		h		KK		MB	MG	MM	P	W	WF
	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating						
φ20	20 (20)	—	13	—	5	—	M8×1.25	—	M22×1.5	—	φ8	58	20	24
φ25	22 (22)	20 (17)	17	13	6	5	M10×1.25	M8×1.25	M22×1.5	9	φ10	58	24	28
φ32	22 (19)	—	17	—	6	—	M10×1.25	—	M24×2	—	φ12	64	26	30
φ40	24 (21)	24 (21)	19	19	7	7	M12×1.25	M12×1.25	M30×2	14	φ14	66	28	32

Symbol Stroke	H					ZX			
	Double rod type	Single acting type				Single acting type			
		25	50	75	100	25	50	75	100
φ20	44	94	144	194	244	146	196	246	296
φ25	44	94	144	194	244	146	196	246	296
φ32	50	100	150	200	250	156	206	256	306
φ40	52	102	152	202	252	160	210	260	310

Note) The parenthesized values of dimension A indicate the screw length.

With Boots

Non-rotating
φ25 · φ40



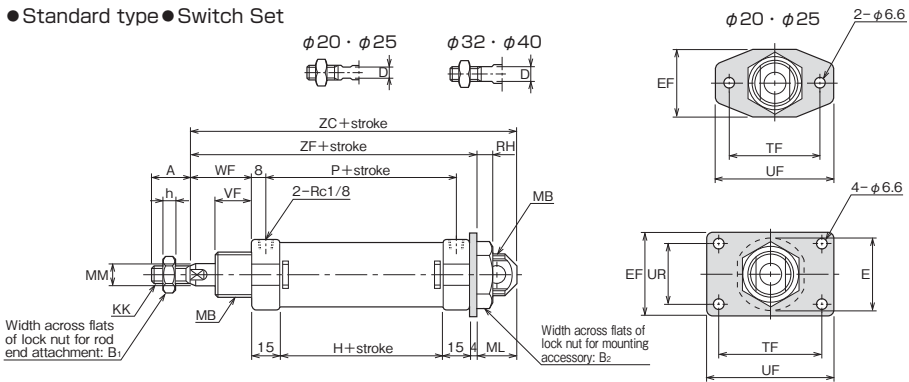
Dimensional Table

Symbol Stroke	A		WW	Dimension XX for each stroke																													
				to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500			
	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing	Stand- ard	Non-rotat- ing			
Bore																																	
φ20	20	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—		
φ25	22	20	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231		
φ32	22	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—		
φ40	24	24	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175		

FB

Double acting single rod **Standard** 10Z-2 FB **Bore** **Cushioning** **Stroke**

- Standard type●Switch Set



- Non-rotating cylinders of this type are not available.
- For dimensions not shown here, refer to SD (basic style).

Related models: Models with cushion, models with boots

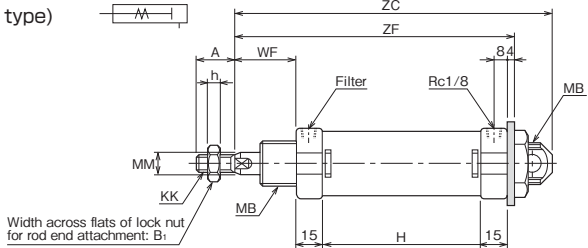
Single acting type

Spring return **Standard** 10Z-2SR FB **Bore** **N** **Stroke** - B

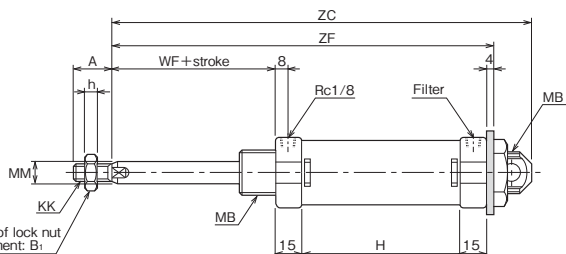
Spring-extended **Standard** 10Z-2SH FB **Bore** **N** **Stroke** - B

- Standard type●Switch Set

Spring return (SR type)



Spring-extended (SH type)



- Non-rotating cylinders of this type are not available.
- For dimensions not shown here, refer to SD (basic style).

Related models: Models with boots

Dimensional Table

Symbol Stroke Bore	A	B ₁	B ₂	D	E	EF	H				h	KK	MB	ML	MM	
							Double acting type	Single acting type								
								25	50	75	100					
φ20	20(20)	13	30	6	φ28	38	44	94	144	194	244	5	M8×1.25	M22×1.5	18	φ8
φ25	22(22)	17	30	8	φ33	38	44	94	144	194	244	6	M10×1.25	M22×1.5	18	φ10
φ32	22(19)	17	32	10	φ40	47	50	100	150	200	250	6	M10×1.25	M24×2	22	φ12
φ40	24(21)	19	41	12	φ48	51	52	102	152	202	252	7	M12×1.25	M30×2	24	φ14

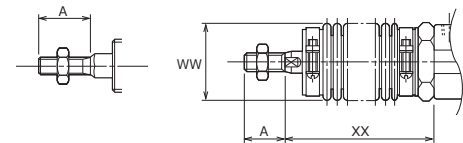
Symbol Stroke	P	RH	TF	UF	UR	VF	WF	ZC								
								Double acting type	25		50		75		100	
									SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
Bore																
φ20	58	7	50	65	—	16(13)	24	120	170	195	220	270	270	345	320	420
φ25	58	7	50	65	—	18(15)	28	124	174	199	224	274	274	349	324	424
φ32	64	8	58	72	33	20(16)	30	136	186	211	236	286	286	361	336	436
φ40	66	9	70	84	36	22(18)	32	142	192	217	242	292	292	367	342	442

Symbol Stroke Bore	ZF								
	Double acting type	25		50		75		100	
		SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
φ20	102	152	177	202	252	252	327	302	402
φ25	106	156	181	206	256	256	331	306	406
φ32	114	164	189	214	264	264	339	314	414
φ40	118	168	193	218	268	268	343	318	418

Note) The parenthesized values of dimensions A and VF indicate the screw length.

With Boots

Non-rotating
φ25 · φ40



Dimensional Table

Symbol Stroke	A			WW	Dimension XX for each stroke																															
					to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500					
	Stand-	Non-rotating	Stand-		Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating					
Bore																																				
φ20	20	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—					
φ25	22	20	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231					
φ32	22	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—					
φ40	24	24	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175					

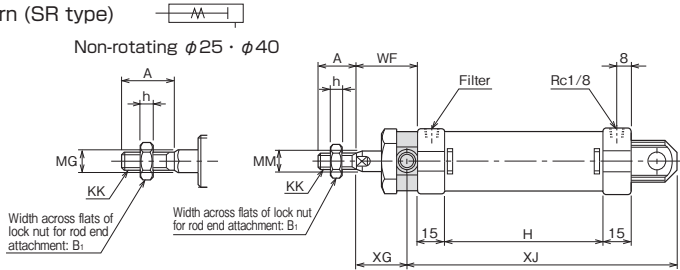
TA

Single acting type

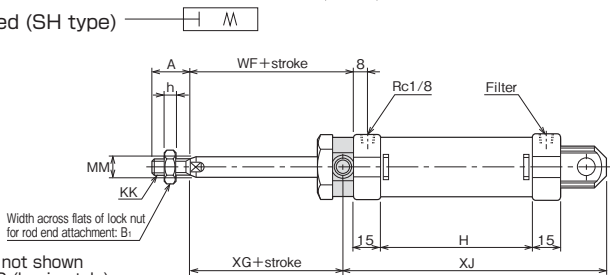
Spring return	Standard	10Z-2SR	TA	Bore	N	Stroke
	Non-rotating	10Z-2GSR	TK	Bore	N	Stroke
Spring-extended	Standard	10Z-2SH	TA	Bore	N	Stroke
	Non-rotating	10Z-2GSH	TK	Bore	N	Stroke

●Standard type●Switch Set

Spring return (SR type)



Spring-extended (SH type)



- For dimensions not shown here, refer to SD (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end and cap cover shown above.

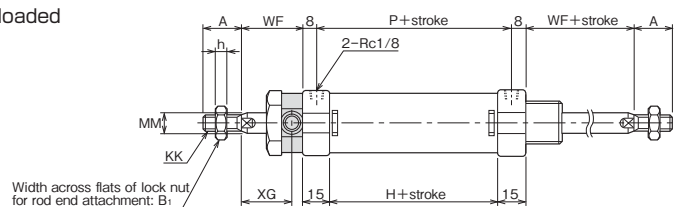
Related models: Clevis cut style, rear port style, models with boots

The non-rotating cylinders are basically mounted in the clevis cut style.

Double acting double rod Standard 10Z-2D TA Bore N Stroke

●Standard type●Switch Set

Both ends loaded



- For dimensions not shown here, refer to SD (basic style).
- Non-rotating double rod cylinders with cushions are not available.

Related models: Models with boots

Dimensional Table

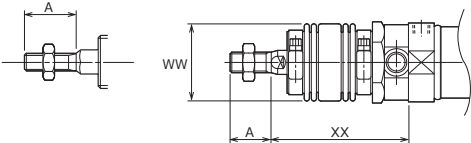
Symbol Bore	A		B ₁		h		KK		MG	MM	P	WF	XG
	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating					
φ20	20 (20)	—	13	—	5	—	M8×1.25	—	—	φ8	58	24	19
φ25	22 (22)	20 (17)	17	13	6	5	M10×1.25	M8×1.25	9	φ10	58	28	23
φ32	22 (19)	—	17	—	6	—	M10×1.25	—	—	φ12	64	30	24
φ40	24 (21)	24 (21)	19	19	7	7	M12×1.25	M12×1.25	14	φ14	66	32	25

Symbol Stroke	H					XJ			
	Double rod type		Single acting type			Single acting type			
Bore	25	50	75	100		25	50	75	100
φ20	44	94	144	194	244	151	201	251	301
φ25	44	94	144	194	244	151	201	251	301
φ32	50	100	150	200	250	162	212	262	312
φ40	52	102	152	202	252	167	217	267	317

Note) The parenthesized values of dimension A indicate the screw length.

With Boots

Non-rotating
φ25 · φ40



Dimensional Table

Symbol Stroke	A			WW	Dimension XX for each stroke																										
	Standard	Non-rotating			to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500
Bore	Standard	Non-rotating		Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating
φ20	20	—	φ36	59	—	69	—	79	—	84	—	94	—	104	—	114	—	124	—	144	—	164	—	184	—	204	—	224	—	244	—
φ25	22	20	φ36	63	56	73	66	83	76	88	81	98	91	108	101	118	111	128	121	148	141	168	161	188	181	208	201	228	221	248	241
φ32	22	—	φ40	55	—	65	—	75	—	80	—	90	—	95	—	105	—	110	—	130	—	140	—	160	—	180	—	200	—	220	—
φ40	24	24	φ45	52	45	62	55	67	60	72	65	82	75	92	85	97	90	102	95	112	105	127	120	137	130	152	145	172	165	192	185

Symbol Stroke		A		WW		Dimension XX for each stroke																											
						to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
						Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating
Bore	Standard	Non-rotating																															
φ20	20	—	φ36	59	—	69	—	79	—	84	—	94	—	104	—	114	—	124	—	144	—	164	—	184	—	204	—	224	—	244	—	—	
φ25	22	20	φ36	63	56	73	66	83	76	88	81	98	91	108	101	118	111	128	121	148	141	168	161	188	181	208	201	228	221	248	241	—	
φ32	22	—	φ40	55	—	65	—	75	—	80	—	90	—	95	—	105	—	110	—	130	—	140	—	160	—	180	—	200	—	220	—	—	
φ40	24	24	φ45	52	45	62	55	67	60	72	65	82	75	92	85	97	90	102	95	112	105	127	120	137	130	152	145	172	165	192	185	—	

TA with Bracket

Single acting type

Spring return Standard 10Z-2SR TA Bore N Stroke -B

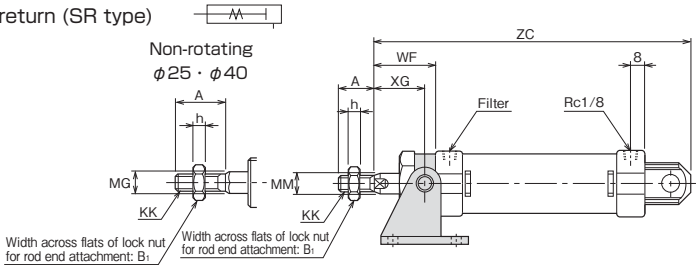
Non-rotating 10Z-2GSR TK Bore N Stroke -B

Spring-extended Standard 10Z-2SH TA Bore N Stroke -B

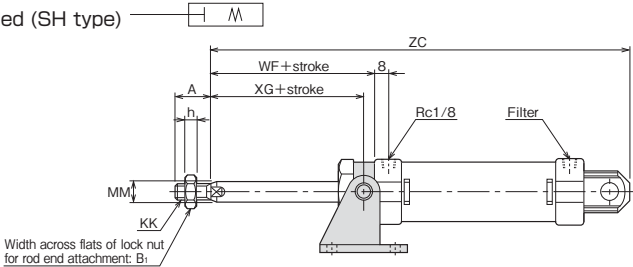
Non-rotating 10Z-2GSH TK Bore N Stroke -B

● Standard type ● Switch Set

Spring return (SR type)



Spring-extended (SH type)



● For dimensions not shown here, refer to SD (basic style).

● The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end and cap cover shown above.

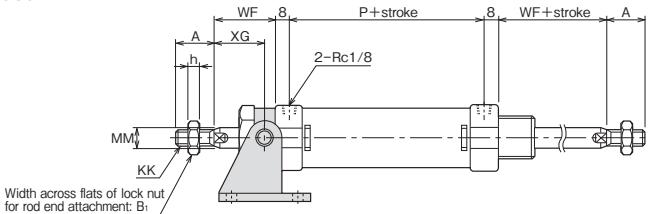
Related models: Clevis cut style, rear port style, models with cushion, models with boots

The non-rotating cylinders are basically mounted in the clevis cut style.

Double acting double rod Standard 10Z-2D TA Bore N Stroke -B

● Standard type ● Switch Set

Both ends loaded



● For dimensions not shown here, refer to SD (basic style).

● Non-rotating double rod cylinders with cushions are not available.

Related models: Models with boots

Dimensional Table

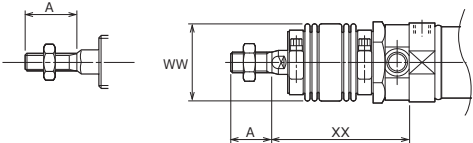
Symbol Bore	A		B ₁		h		KK		MG	MM	P	WF	XG
	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating					
φ20	20 (20)	—	13	—	5	—	M8×1.25	—	—	φ8	58	24	19
φ25	22 (22)	20 (17)	17	13	6	5	M10×1.25	M8×1.25	9	φ10	58	28	23
φ32	22 (19)	—	17	—	6	—	M10×1.25	—	—	φ12	64	30	24
φ40	24 (21)	24 (21)	19	19	7	7	M12×1.25	M12×1.25	14	φ14	66	32	25

Symbol Stroke	ZC							
	25		50		75		100	
Bore	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
φ20	170	195	220	270	270	345	320	420
φ25	174	199	224	274	274	349	324	424
φ32	186	211	236	286	286	361	336	436
φ40	192	217	242	292	292	367	342	442

Note) The parenthesized values of dimension A indicate the screw length.

With Boots

Non-rotating
φ25 · φ40



Dimensional Table

Symbol Stroke	A		WW		Dimension XX for each stroke													
	Standard	Non-rotating	Standard	Non-rotating	to 25	to 50	to 75	to 100	to 125	to 150	to 175	to 200	to 250	to 300	to 350	to 400	to 450	to 500
Bore	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating
φ20	20	—	φ36	59	—	69	—	79	—	84	—	94	—	104	—	114	—	124
φ25	22	20	φ36	63	56	73	66	83	76	88	81	98	91	108	101	118	111	128
φ32	22	—	φ40	55	—	65	—	75	—	80	—	90	—	95	—	105	—	110
φ40	24	24	φ45	52	45	62	55	67	60	72	65	82	75	92	85	97	90	102

Symbol Stroke		A		WW	Dimension XX for each stroke																															
					to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500					
Bore	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating				
ø20	20	—	ø36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—	—				
ø25	22	20	ø36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231	—				
ø32	22	—	ø40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—	—				
ø40	24	24	ø45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175	—				

TB

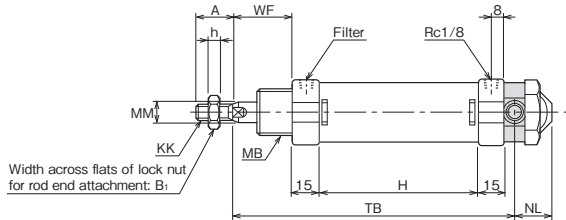
Single acting type

Spring return Standard 10Z-2SR TB Bore N Stroke

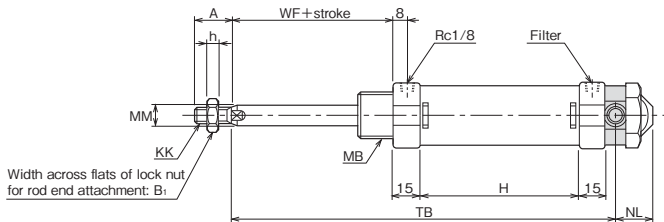
Spring-extended Standard 10Z-2SH TB Bore N Stroke

●Standard type●Switch Set

Spring return (SR type)



Spring-extended (SH type)



- Non-rotating cylinders of this type are not available.
- For dimensions not shown here, refer to SD (basic style).

Related models: Models with boots

Dimensional Table

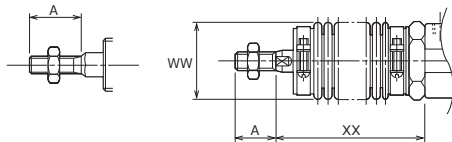
Symbol Stroke	A	B ₁	h	KK	MB	MM	NL	WF	H			
									Single acting type			
									25	50	75	100
Bore												
φ20	20 (20)	13	5	M8×1.25	M22×1.5	φ8	17	24	94	144	194	244
φ25	22 (22)	17	6	M10×1.25	M22×1.5	φ10	17	28	94	144	194	244
φ32	22 (19)	17	6	M10×1.25	M24×2	φ12	20	30	100	150	200	250
φ40	24 (21)	19	7	M12×1.25	M30×2	φ14	21	32	102	152	202	252

Symbol Stroke	TB							
	25		50		75		100	
	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
Bore								
φ20	153	178	203	253	253	328	303	403
φ25	157	182	207	257	257	332	307	407
φ32	166	191	216	266	266	341	316	416
φ40	171	196	221	271	271	346	321	421

Note) The parenthesized values of dimension A indicate the screw length.

With Boots

Non-rotating
φ25 · φ40



Dimensional Table

Symbol Stroke	A		WW	Dimension XX for each stroke																											
				to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
	Standard	Non-rotating		Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating
Bore																															
φ20	20	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—
φ25	22	20	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231
φ32	22	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—
φ40	24	24	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175

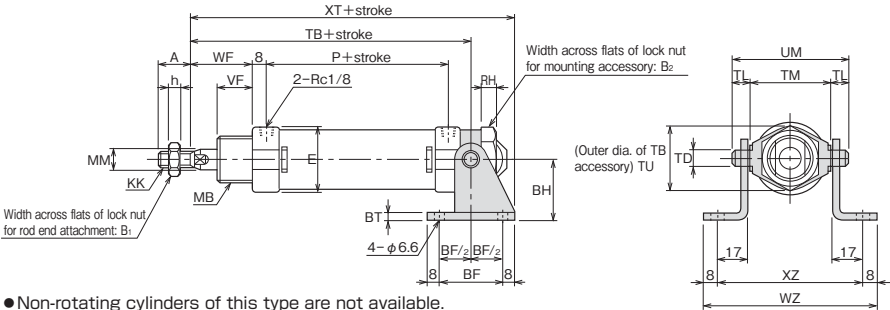
TB with Bracket

Double acting single rod **Standard** 10Z-2 TB **Bore** **Cushioning** **Stroke** - B

●Standard type●Switch Set

φ20 · φ25

φ32 · φ40



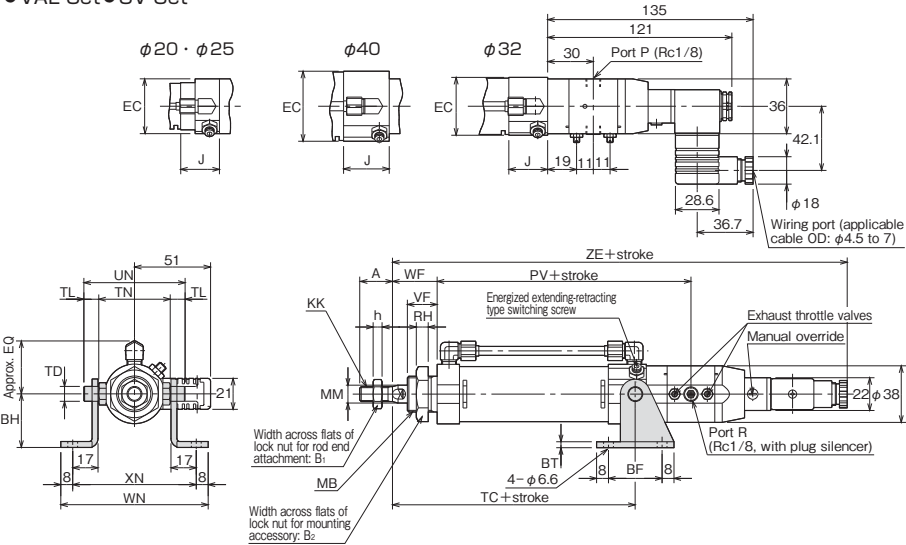
- Non-rotating cylinders of this type are not available.
- For dimensions not shown here, refer to SD (basic style).

Related models: Models with cushion, models with boots

TC with Bracket

Double acting single rod **Standard** 10Z-2V2 TC **Bore** **Cushioning** **Stroke** - **Valve operating method** **Valve voltage** - B

●VAL Set●SV Set



- Non-rotating cylinders of this type are not available.
- For dimensions not shown here, refer to SD (basic style).
- Ports P, exhaust throttle valves, terminals and manual overrides of the VAL Set and SV Set Cylinders of the energized extending type are positioned at a distance of 180 degrees from those of the energized retracting type.

Related models: Models with cushion, models with boots

This figure shows the dimensional drawing of an energized extending type cylinder.

Dimensional Table

Symbol	A	B ₁	B ₂	BF	BH	BT	D	E	EC	EQ
Bore										
φ20	20 (20)	13	30	32	32	3.2	6	φ28	36	34
φ25	22 (22)	17	30	32	32	3.2	8	φ33	36	34
φ32	22 (19)	17	32	36	36	4	10	φ40	38	36
φ40	24 (21)	19	41	40	40	4	12	φ48	46	40

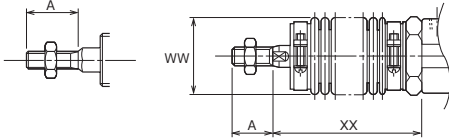
Symbol	TL	TM	TN	TU	UM	UN	VF	WF	WN	WZ	XN	XT	XZ	ZE
Bore														
φ20	8	36	46	32	52	62	16 (13)	24	97	87	81	127	71	244
φ25	8	36	46	32	52	62	18 (15)	28	97	87	81	131	71	247.5
φ32	10	44	48	36	64	68	20 (16)	30	99	95	83	142	79	255.5
φ40	12	50	56	44	74	80	22 (18)	32	107	101	91	149	85	264

Symbol	h	J	KK	MB	MM	P	PV	RH	TB	TC	TD
Bore											
φ20	5	26	M8×1.25	M22×1.5	φ8	58	115	7	103	101.5	φ8e9
φ25	6	25.5	M10×1.25	M22×1.5	φ10	58	114.5	7	107	105	φ8e9
φ32	6	25.5	M10×1.25	M24×2	φ12	64	120.5	8	116	113	φ10e9
φ40	7	30	M12×1.25	M30×2	φ14	66	127	9	121	119	φ12e9

Note) The parenthesized values of dimensions A and VF indicate the screw length.

With Boots

Non-rotating
φ25 · φ40



Dimensional Table

Symbol Stroke	A		WW	Dimension XX for each stroke																															
				to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500					
	Stand-	Non-rotating		Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating				
Bore	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating			
φ20	20	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—				
φ25	22	20	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231				
φ32	22	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—				
φ40	24	24	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175				

TB with Bracket

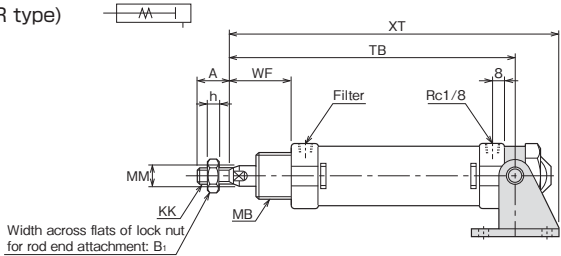
Single acting type

Spring return Standard 10Z-2SR TB Bore N Stroke - B

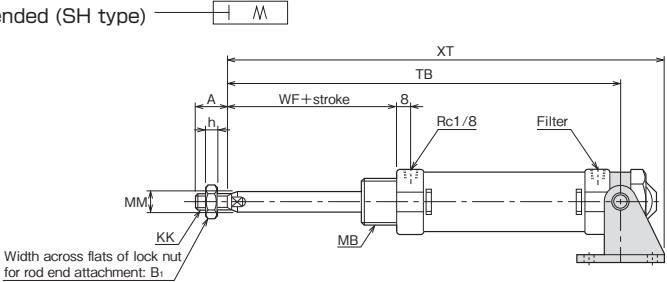
Spring-extended Standard 10Z-2SH TB Bore N Stroke - B

● Standard type ● Switch Set

Spring return (SR type)



Spring-extended (SH type)



- Non-rotating cylinders of this type are not available.
- For dimensions not shown here, refer to SD (basic style).

Related models: Models with boots

Dimensional Table

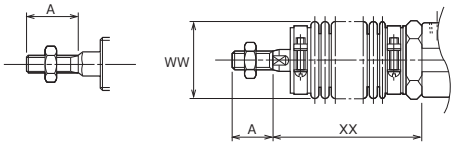
Symbol	A	B ₁	h	KK	MB	MM	WF
Bore							
φ20	20 (20)	13	5	M8×1.25	M22×1.5	φ8	24
φ25	22 (22)	17	6	M10×1.25	M22×1.5	φ10	28
φ32	22 (19)	17	6	M10×1.25	M24×2	φ12	30
φ40	24 (21)	19	7	M12×1.25	M30×2	φ14	32

Symbol	TB								XT							
	25		50		75		100		25		50		75		100	
Stroke	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
Bore																
φ20	153	178	203	253	253	328	303	403	177	202	227	277	277	352	327	427
φ25	157	182	207	257	257	332	307	407	181	206	231	281	281	356	331	431
φ32	166	191	216	266	266	341	316	416	192	217	242	292	292	367	342	442
φ40	171	196	221	271	271	346	321	421	199	224	249	299	299	374	349	449

Note) The parenthesized values of dimension A indicate the screw length.

With Boots

Non-rotating
φ25 · φ40



Dimensional Table

Symbol	A		WW		Dimension XX for each stroke													
					to 25	to 50	to 75	to 100	to 125	to 150	to 175	to 200	to 250	to 300	to 350	to 400	to 450	to 500
Bore	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating	Standard	Non-rotating
φ20	20	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114
φ25	22	20	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118
φ32	22	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100
φ40	24	24	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92

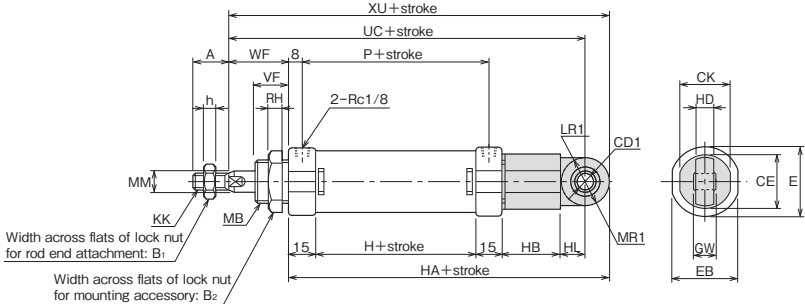
CU

Double acting single rod **Standard** 10Z-2 CU **Bore** **Cushioning** **Stroke**

- Standard type●Switch Set

φ20 · φ25

φ32 · φ40



- Non-rotating cylinders of this type are not available.
- For dimensions not shown here, refer to SD (basic style).

Related models: Models with cushion, models with boots

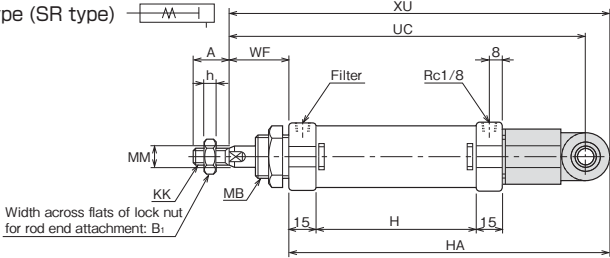
Single acting type

Spring return **Standard** 10Z-2SR CU **Bore** **N** **Stroke**

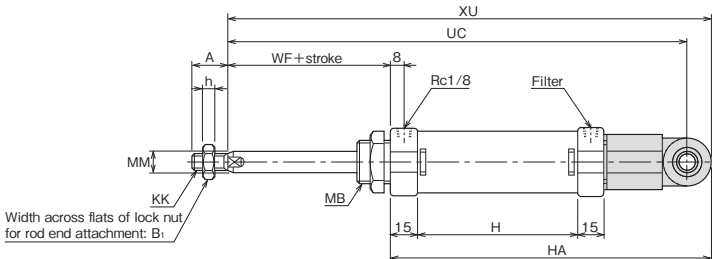
Spring-extended **Standard** 10Z-2SH CU **Bore** **N** **Stroke**

- Standard type●Switch Set

Spring return type (SR type)



Spring-extended type (SH type)



- Non-rotating cylinders of this type are not available.
- For dimensions not shown here, refer to SD (basic style).

Related models: Models with boots

Dimensional Table

Symbol Stroke Bore	A	B ₁	B ₂	CD1	CE	CK	D	E	EB	GW	H					h
											Double acting type	Single acting type				
												25	50	75	100	
φ20	20(20)	13	30	φ8H9	φ32	30	6	φ28	26	12 _{-0.3} ⁰	44	94	144	194	244	5
φ25	22(22)	17	30	φ10H9	φ32	30	8	φ33	31	14 _{-0.3} ⁰	44	94	144	194	244	6
φ32	22(19)	17	32	φ10H9	φ32	30	10	φ40	38	14 _{-0.3} ⁰	50	100	150	200	250	6
φ40	24(21)	19	41	φ12H9	φ38	36	12	φ48	46	16 _{-0.3} ⁰	52	102	152	202	252	7

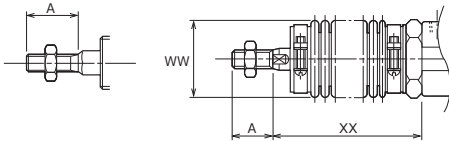
Symbol Stroke Bore	HA					HB	HD	HL	KK	LR1	MB	MM	MR1	P	RH
	Double acting type	Single acting type													
		25	50	75	100										
φ20	136	186	236	286	336	33	10.5	15	M8x1.25	R14	M22x1.5	φ 8	R14	58	7
φ25	136	186	236	286	336	33	10.5	15	M10x1.25	R14	M22x1.5	φ10	R14	58	7
φ32	142	192	242	292	342	33	10.5	15	M10x1.25	R14	M24x2	φ12	R14	64	8
φ40	152	202	252	302	352	37	12	17	M12x1.25	R16	M30x2	φ14	R16	66	9

Symbol Stroke Bore	Double acting type	UC								VF	WF	Double acting type	XU							
		25		50		75		100					25		50		75		100	
		SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type				SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
φ20	146	196	221	246	296	296	371	346	446	16(13)	24	160	210	235	260	310	310	385	360	460
φ25	150	200	225	250	300	300	375	350	450	18(15)	28	164	214	239	264	314	314	389	364	464
φ32	158	208	233	258	308	308	383	358	458	20(16)	30	172	222	247	272	322	322	397	372	472
φ40	168	218	243	268	318	318	393	368	468	22(18)	32	184	234	259	284	334	334	409	384	484

Note) The parenthesized values of dimensions A and VF indicate the screw length.

With Boots

Non-rotating
φ25 · φ40



Dimensional Table

Symbol Stroke Bore	A	WW	Dimension XX for each stroke																															
			to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500					
			Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating	Stand-	Non-rotating				
φ20	20	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—			
φ25	22	20	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231			
φ32	22	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—			
φ40	24	24	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175			

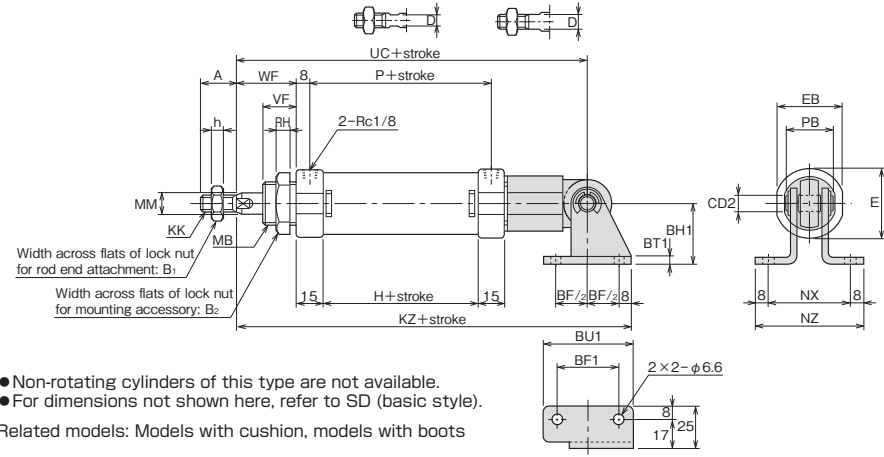
CU with Bracket

Double acting single rod **Standard** 10Z-2 CU **Bore** **Cushioning** **Stroke** - B

● Standard type ● Switch Set

φ20 · φ25

φ32 · φ40



- Non-rotating cylinders of this type are not available.
- For dimensions not shown here, refer to SD (basic style).

Related models: Models with cushion, models with boots

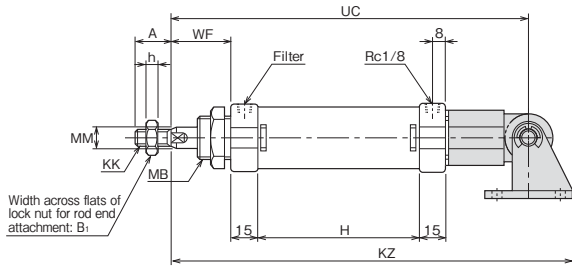
Single acting type

Spring return **Standard** 10Z-2SR CU **Bore** **N** **Stroke** - B

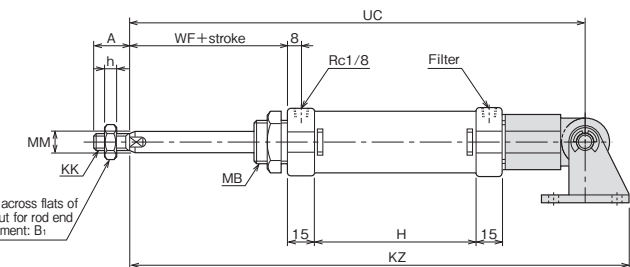
Spring-extended **Standard** 10Z-2SH CU **Bore** **N** **Stroke** - B

● Standard type ● Switch Set

Spring return (SR type)



Spring-extended (SH type)



- Non-rotating cylinders of this type are not available.
- For dimensions not shown here, refer to SD (basic style).

Related models: Models with boots

Dimensional Table

Symbol Stroke	A	B ₁	B ₂	BF1	BH1	BT1	BU1	CD2	D	E	EB	Double acting type	H			
													Single acting type			
													25	50	75	100
Bore																
φ20	20(20)	13	30	32	32	3.2	48	φ8	6	φ28	26	44	94	144	194	244
φ25	22(22)	17	30	36	36	4	52	φ10	8	φ33	31	44	94	144	194	244
φ32	22(19)	17	32	36	36	4	52	φ10	10	φ40	38	50	100	150	200	250
φ40	24(21)	19	41	40	40	4	56	φ12	12	φ48	46	52	102	152	202	252

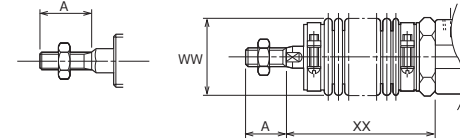
Symbol Stroke Bore	h	KK	KZ									MB	MM	NX
			Double acting type	25		50		75		100				
				SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type			
φ20	5	M8×1.25	170	220	245	270	320	320	395	370	470	M22×1.5	φ8	47
φ25	6	M10×1.25	176	226	251	276	326	326	401	376	476	M22×1.5	φ10	49
φ32	6	M10×1.25	184	234	259	284	334	334	409	384	484	M24×2	φ12	49
φ40	7	M12×1.25	196	246	271	296	346	346	421	396	496	M30×2	φ14	51

Symbol Stroke Bore	NZ	P	PB	RH	UC										VF	WF
					Double acting type	25		50		75		100				
						SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type			
φ20	63	58	27	7	146	196	221	246	296	296	371	346	446	16(13)	24	
φ25	65	58	29	7	150	200	225	250	300	300	375	350	450	18(15)	28	
φ32	65	64	29	8	158	208	233	258	308	308	383	358	458	20(16)	30	
φ40	67	66	32	9	168	218	243	268	318	318	393	368	468	22(18)	32	

Note) The parenthesized values of dimensions A and VF indicate the screw length.

With Boots

Non-rotating
φ25 · φ40



Dimensional Table

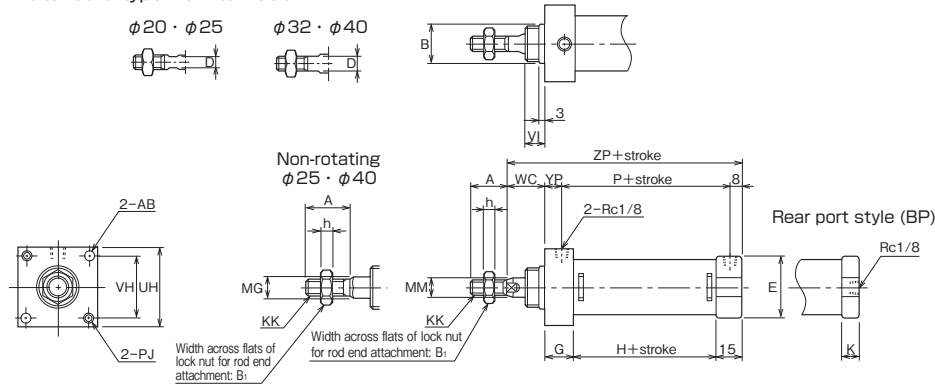
Symbol Stroke	A			WW	Dimension XX for each stroke																											
			to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500			
	Stand	Non-rotating	Stand		Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	Stand	Non-rotating	
Bore																																
φ20	20	—	φ36	49	—	59	—	69	—	74	—	84	—	94	—	104	—	114	—	134	—	154	—	174	—	194	—	214	—	234	—	
φ25	22	20	φ36	53	46	63	56	73	66	78	71	88	81	98	91	108	101	118	111	138	131	158	151	178	171	198	191	218	211	238	231	
φ32	22	—	φ40	45	—	55	—	65	—	70	—	80	—	85	—	95	—	100	—	120	—	130	—	150	—	170	—	190	—	210	—	
φ40	24	24	φ45	42	35	52	45	57	50	62	55	72	65	82	75	87	80	92	85	102	95	117	110	127	120	142	135	162	155	182	175	

BD

Double acting single rod

Standard	10Z-2	BD	Bore	Cushioning	Stroke
Non-rotating	10Z-2G	BD	Bore	Cushioning	Stroke

●Standard type●Switch Set



●The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.

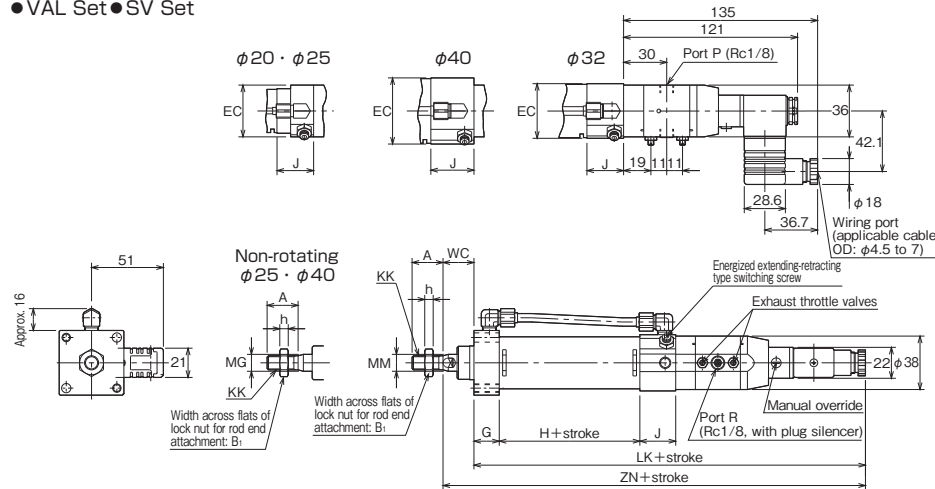
Related models: Models with cushion
(Only in clevis cut style. Rear port style with cushions is not available.)

Basic style: Clevis cut

Double acting single rod

Standard	10Z-2V2	BD	Bore	Cushioning	Stroke	Valve operating method	Valve voltage
Non-rotating	10Z-2V2G	BD	Bore	Cushioning	Stroke	Valve operating method	Valve voltage

●VAL Set●SV Set



●For dimensions not shown here, see the above drawing.
●The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
●Ports P, exhaust throttle valves, terminals and manual overrides of the VAL Set and SV Set Cylinders of the energized extending type are positioned at a distance of 180 degrees from those of the energized retracting type.

Related models: Models with cushion

This figure shows the dimensional drawing of an energized extending type cylinder.

Dimensional Table

Symbol Bore	A		AB	B	B ₁		D	E	EC	G	H
	Standard	Non-rotating			Standard	Non-rotating					
φ20	20 (20)	—	φ5.5	φ20f8	13	—	6	φ28	36	16	44
φ25	22 (22)	20 (17)	φ5.5	φ22f8	17	13	8	φ33	36	18	44
φ32	22 (19)	—	φ6.6	φ24f8	17	—	10	φ40	38	18	50
φ40	24 (21)	24 (21)	φ9	φ28f8	19	19	12	φ48	46	20	52

Symbol Bore	h		J	K	KK		LK	MG	MM	P
	Standard	Non-rotating			Standard	Non-rotating				
φ20	5	—	26	8	M8×1.25	—	221	—	φ8	58
φ25	6	5	25.5	8	M10×1.25	M8×1.25	222.5	9	φ10	58
φ32	6	—	25.5	10	M10×1.25	—	228.5	—	φ12	64
φ40	7	7	30	10	M12×1.25	M12×1.25	237	14	φ14	66

Symbol	PJ	UH	VI	VH	WC	YP	ZP	ZN
φ20	M5×0.8	□34	10	□24	18	9	93 (86)	239
φ25	M5×0.8	□38	10	□28	20	11	97 (90)	242.5
φ32	M6×1	□46	12	□36	22	11	105 (100)	250.5
φ40	M8×1.25	□56	12	□42	22	13	109 (104)	259

Note) The parenthesized values of dimension A indicate the screw length.

Note) The parenthesized values of ZP indicate the size of rear port style cylinders.

BD

Single acting type

Spring return

Standard	10Z-2SR
----------	---------

 BD

Bore	N
------	---

Stroke	
--------	--

Spring-extended

Standard	10Z-2SH
----------	---------

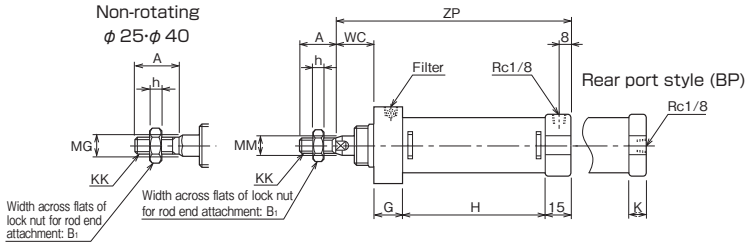
 BD

Bore	N
------	---

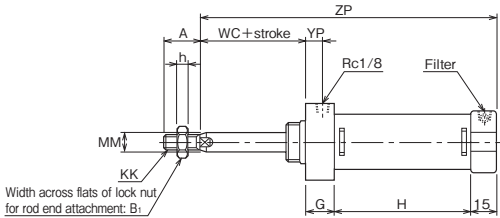
Stroke	
--------	--

●Standard type●Switch Set

Spring return (SR type)



Spring-extended (SH type)



- For dimensions not shown here, refer to BD (double acting type).
 - The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
- Basic style: Clevis cut

Dimensional Table

Symbol Bore	A		B ₁		G	h		K	KK		MG	MM	WC	YP
	Standard	Non-rotating	Standard	Non-rotating		Standard	Non-rotating		Standard	Non-rotating				
φ20	20 (20)	—	13	—	16	5	—	8	M8×1.25	—	—	φ8	18	9
φ25	22 (22)	20 (17)	17	13	18	6	5	8	M10×1.25	M8×1.25	9	φ10	20	11
φ32	22 (19)	—	17	—	18	6	—	10	M10×1.25	—	—	φ12	22	11
φ40	24 (21)	24 (21)	19	19	20	7	7	10	M12×1.25	M12×1.25	14	φ14	22	13

Symbol Stroke	H				ZP							
	Single acting type				25		50		75		100	
	25	50	75	100	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
φ20	94	144	194	244	143 (136)	168 (161)	193 (186)	243 (236)	243 (236)	318 (311)	293 (286)	393 (386)
φ25	94	144	194	244	147 (140)	172 (165)	197 (190)	247 (240)	247 (240)	322 (315)	297 (290)	397 (390)
φ32	100	150	200	250	155 (150)	180 (175)	205 (200)	255 (250)	255 (250)	330 (325)	305 (300)	405 (400)
φ40	102	152	202	252	159 (154)	184 (179)	209 (204)	259 (254)	259 (254)	334 (329)	309 (304)	409 (404)

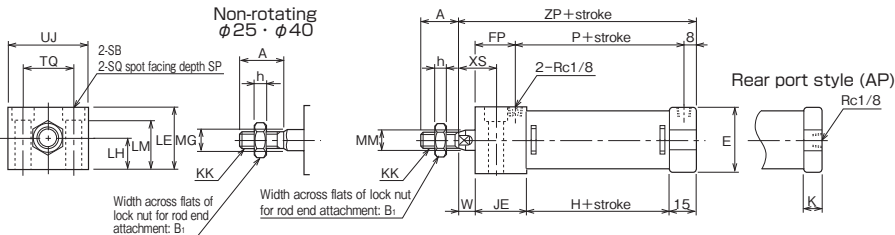
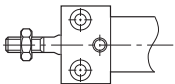
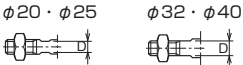
Note) The parenthesized values of dimension A indicate the screw length.
Note) The parenthesized values of ZP indicate the size of rear port style cylinders.

AD

Double acting single rod

Standard	10Z-2	AD	Bore	Cushioning	Stroke
Non-rotating	10Z-2G	AD	Bore	Cushioning	Stroke

●Standard type●Switch Set



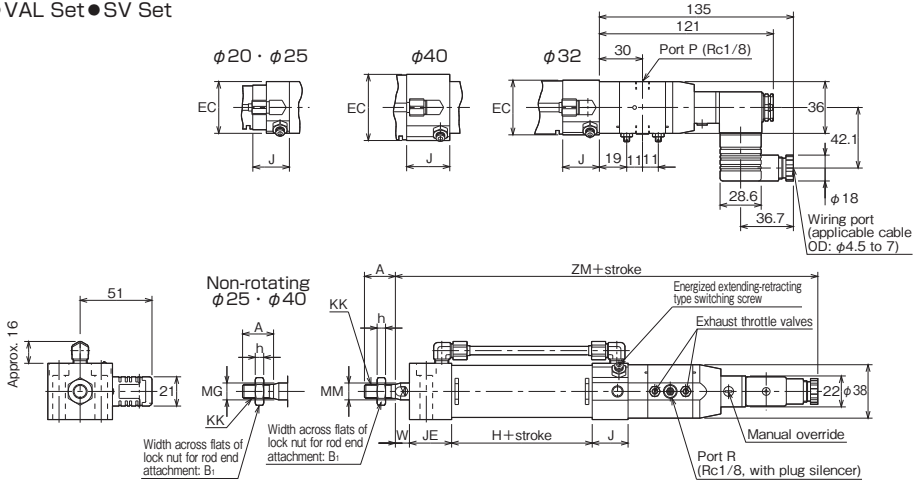
●The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.

Related models: Models with cushion
(Only in clevis cut style. Rear port style with cushions is not available.) Basic style: Clevis cut

Double acting single rod

Standard	10Z-2V2	AD	Bore	Cushioning	Stroke	Valve operating method	Valve voltage
Non-rotating	10Z-2V2G	AD	Bore	Cushioning	Stroke	Valve operating method	Valve voltage

●VAL Set●SV Set



- For dimensions not shown here, see the above drawing.
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.
- Ports P, exhaust throttle valves, terminals and manual overrides of the VAL Set and SV Set Cylinders of the energized extending type are positioned at a distance of 180 degrees from those of the energized retracting type.

Related models: Models with cushion

This figure shows the dimensional drawing of an energized extending type cylinder.

Dimensional Table

Symbol	A		B ₁		D	E	EC	FP	H	h		J	JE	K	W
	Standard	Non-rotating	Standard	Non-rotating						Standard	Non-rotating				
φ20	20 (20)	—	13	—	6	φ28	36	19	44	5	—	26	26	8	8
φ25	22 (22)	20 (17)	17	13	8	φ33	36	21	44	6	5	25.5	28	8	10
φ32	22 (19)	—	17	—	10	φ40	38	23	50	6	—	25.5	30	10	10
φ40	24 (21)	24 (21)	19	19	12	φ48	46	25	52	7	7	30	32	10	10

Symbol	KK		LE	LH	LM	MG	MM	P	SB	SP	SQ	TQ	UJ	XS	ZP	ZM
	Standard	Non-rotating														
φ20	M8×1.25	—	28	14	21.5	—	φ8	58	φ6.6	6.5	φ11	20	34	18	93 (86)	239
φ25	M10×1.25	M8×1.25	34	17	27.5	9	φ10	58	φ6.6	6.5	φ11	24	38	20	97 (90)	242.5
φ32	M10×1.25	—	40	20	31.4	—	φ12	64	φ9	8.6	φ14	30	46	22	105 (100)	250.5
φ40	M12×1.25	M12×1.25	48	24	37.2	14	φ14	66	φ11	10.8	φ17.5	36	56	22	109 (104)	259

Note) The parenthesized values of dimension A indicate the screw length.
Note) The parenthesized values of ZP indicate the size of rear port style cylinders.

AD

Single acting type

Spring return

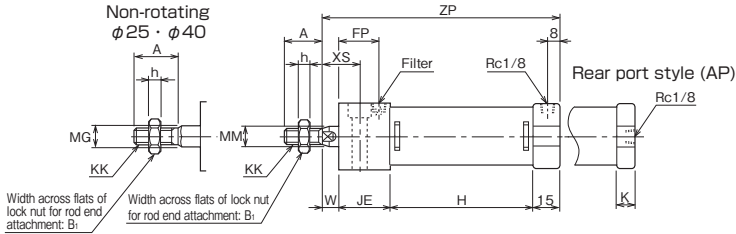
Standard	10Z-2SR	AD	Bore	N	Stroke
----------	---------	----	------	---	--------

Spring-extended

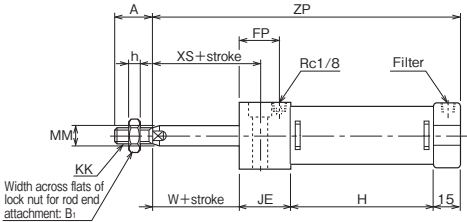
Standard	10Z-2SH	AD	Bore	N	Stroke
----------	---------	----	------	---	--------

●Standard type●Switch Set

Spring return (SR type)



Spring-extended (SH type)



- For dimensions not shown here, refer to AD (double acting type).
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.

Basic style: Clevis cut

Dimensional Table

Symbol Bore	A		B ₁		FP	h		JE	K	KK		MG	MM	XS	W
	Standard	Non-rotating	Standard	Non-rotating		Standard	Non-rotating			Standard	Non-rotating				
φ20	20 (20)	—	13	—	19	5	—	26	8	M8×1.25	—	—	φ8	18	8
φ25	22 (22)	20 (17)	17	13	21	6	5	28	8	M10×1.25	M8×1.25	9	φ10	20	10
φ32	22 (19)	—	17	—	23	6	—	30	10	M10×1.25	—	—	φ12	22	10
φ40	24 (21)	24 (21)	19	19	25	7	7	32	10	M12×1.25	M12×1.25	14	φ14	22	10

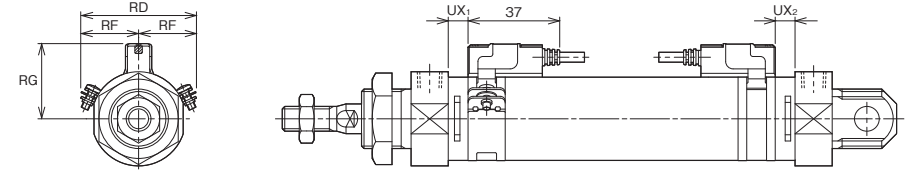
Symbol Stroke	H				ZP							
	Single acting type				25		50		75		100	
	25	50	75	100	SR type	SH type	SR type	SH type	SR type	SH type	SR type	SH type
φ20	94	144	194	244	143 (136)	168 (161)	193 (186)	243 (236)	243 (236)	318 (311)	293 (286)	393 (386)
φ25	94	144	194	244	147 (140)	172 (165)	197 (190)	247 (240)	247 (240)	322 (315)	297 (290)	397 (390)
φ32	100	150	200	250	155 (150)	180 (175)	205 (200)	255 (250)	255 (250)	330 (325)	305 (300)	405 (400)
φ40	102	152	202	252	159 (154)	184 (179)	209 (204)	259 (254)	259 (254)	334 (329)	309 (304)	409 (404)

Note) The parenthesized values of dimension A indicate the screw length.
Note) The parenthesized values of ZP indicate the size of rear port style cylinders.

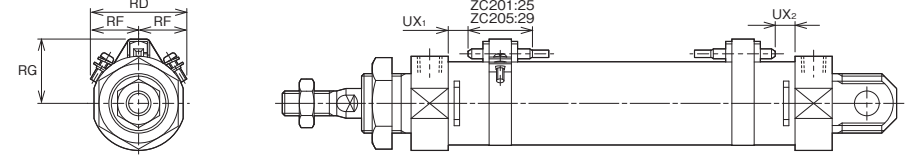
Switch Set/SV Set
Double acting type

10Z-2R	Mounting style	Bore	Cushioning	Stroke	-	Sensor symbol	Sensor quantity		
10Z-2K2	Mounting style	Bore	Cushioning	Stroke	-	Valve operating method	Valve voltage	Sensor symbol	Sensor quantity

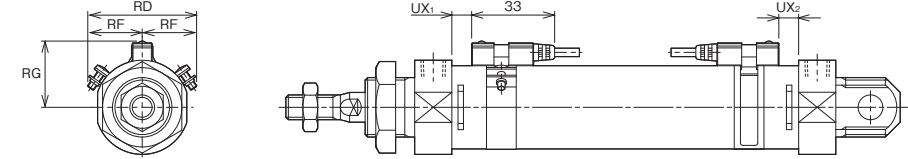
● AX type sensor



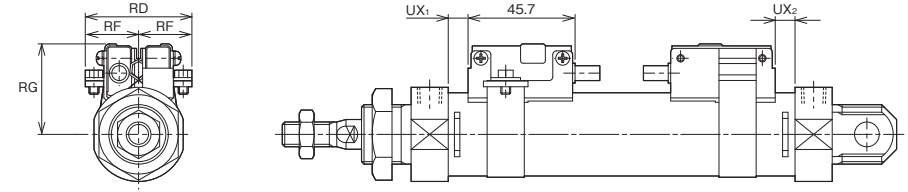
● ZC type sensor



● JR/JS type sensor



● SR type sensor

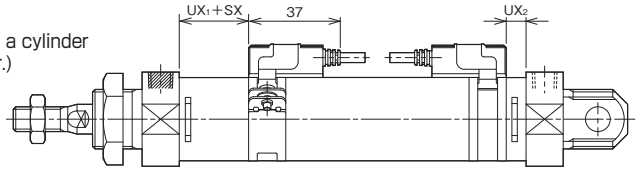


Single acting type

10Z-2RSR	Mounting style	Bore	N	Stroke	Sensor symbol	Sensor quantity
----------	----------------	------	---	--------	---------------	-----------------

● Spring return

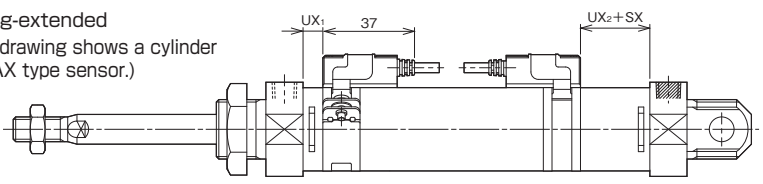
(The drawing shows a cylinder with AX type sensor.)



10Z-2RSH	Mounting style	Bore	N	Stroke	Sensor symbol	Sensor quantity
----------	----------------	------	---	--------	---------------	-----------------

● Spring-extended

(The drawing shows a cylinder with AX type sensor.)



Dimensional Table

Symbol Bore	RD				RF				RG			
	AX type	ZC type	JR/JS type	SR type	AX type	ZC type	JR/JS type	SR type	AX type	ZC type	JR/JS type	SR type
φ20	42	35	42	50	21	17.5	21	25	27	22	23	33
φ25	46	37	44	52	23	18.5	22	26	29	24	26	35
φ32	52	41	48	54	26	20.5	24	27	33	28	27	38
φ40	58	45	52	58	29	22.5	26	29	37	32	29	43

Symbol Bore	AX type		ZC201 type		ZC205 type		ZC230/253 type		JS type	
	UX ₁	UX ₂	UX ₁	UX ₂	UX ₁	UX ₂	UX ₁	UX ₂	UX ₁	UX ₂
φ20	12	14	14.5	15.5	11	12	13	14	9	9
φ25	12	10	15	15	12	12	13.5	13.5	10	10
φ32	15	16	17.5	18.5	14	15	16	17	12	12
φ40	16	17	18.5	19.5	15	16	17	18	14	14

Symbol Bore	JS type		SR type		SX		
	UX ₁	UX ₂	UX ₁	UX ₂	Stroke 15	Stroke 30	Standard strokes other than those shown left
φ20	13	13	7	7	25	50	Stroke
φ25	13	13	7	7			
φ32	16	16	10	10			
φ40	17	17	11	11			

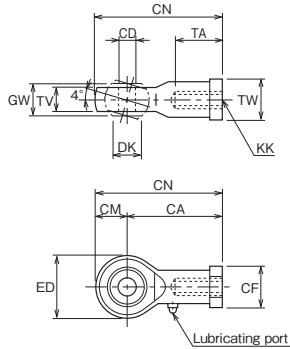
Operating Range and Hysteresis

Bore mm	Reed sensor									
	AX1** type		ZC201 type		ZC205 type		JR type		SR type	
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis
φ20	8 to 11	1 or less	8 to 13	2 or less	8 to 12	2 or less	8 to 11	2 or less	7 to 10	2 or less
φ25	8 to 12				9 to 13					
φ32	7 to 11		7 to 12		9 to 12				6 to 10	3 or less
φ40	6 to 11		6 to 11		7 to 10				9 to 13	

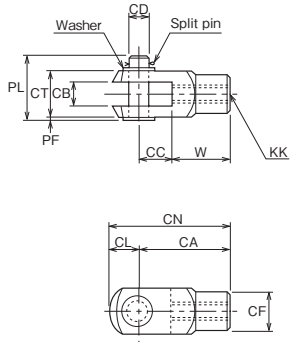
Bore mm	Solid state sensor							
	AX2** type		ZC230 type		ZC253 type		JS type	
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis
φ20	3 to 7	1 or less	3 to 5	0.5 or less	3 to 5	0.5 or less	14 to 17	1 or less
φ25	3 to 7		2 to 6				14 to 18	
φ32	2 to 6		2 to 5				13 to 17	
φ40	2 to 6						12 to 16	

Rod End Attachment

Rod eye with spherical bearing (S-end)

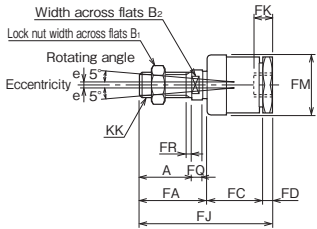


Rod clevis (Y-end) with pin

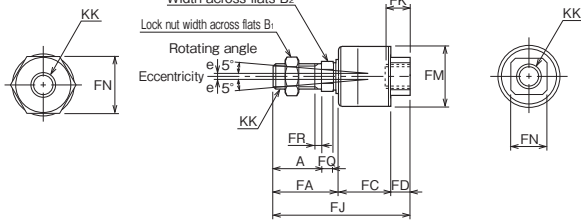


Floating joint (F-end)

φ 20 to φ 32



φ 40



- Notes) ● The insertion of the floating joint into the socket shall not equal or exceed the dimension of screw diameter. (Return the joint one or two turns after it gets into contact with the socket bottom, and fix it with a lock nut.) Excessive insertion can cause operation failure.
- DO NOT use together with TA, TB, TC, and CU accessories.

Dimensional Table: Rod eye with spherical bearing (S-end)

Symbol	Part number	CA	CD	CF	CM	CN	DK	ED	GW	KK	TA	TV	TW
Bore													
φ 20	RSA-08-A	36	φ 8H9	φ 16	11	47	φ 10.4	22	12 _{-0.1} ⁰	M8×1.25	17	9±0.1	14
φ 25	RSA-10-A	43	φ 10H9	φ 19	13	56	φ 12.9	26	14 _{-0.1} ⁰	M10×1.25	21	10.5±0.1	17
φ 32													
φ 40	RSA-12-A	50	φ 12H9	φ 22	15	65	φ 15.4	30	16 _{-0.1} ⁰	M12×1.25	24	12±0.1	19

* For the 25mm bore non-rotating cylinder, use the accessory for the 20mm bore cylinder shown above.

Dimensional Table: Rod clevis (Y-end) with pin

Symbol	Part number	CA	CB	CC	CD	CF	CL	CN	CT	KK	PF	PL	W
Bore													
φ 20	RYA-08-A	32	8 _{+0.15} ^{+0.4}	16	φ 8 ₁₇ ^{H8}	φ 14	10	42	□16	M8×1.25	2	24.5	16
φ 25	RYA-10-A	40	10 _{+0.15} ^{+0.4}	20	φ 10 ₁₇ ^{H8}	φ 18	12	52	□20	M10×1.25	2.5	30	20
φ 32													
φ 40	RYA-12-A	48	12 _{+0.15} ^{+0.4}	24	φ 12 ₁₇ ^{H8}	φ 20	14	62	□24	M12×1.25	3	36.5	24

* For the 25mm bore non-rotating cylinder, use the accessory for the 20mm bore cylinder shown above.

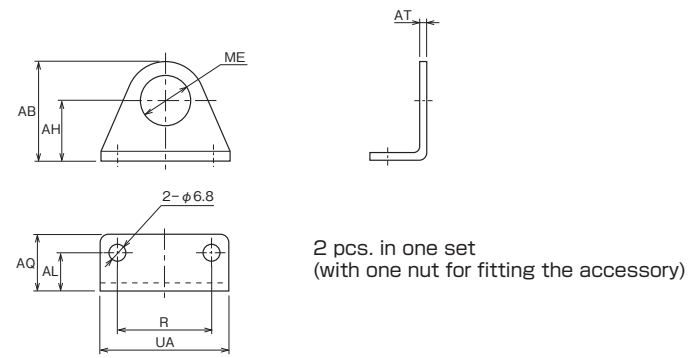
Dimensional Table: Floating joint (F-end)

Symbol	Part number	A	B ₁	B ₂	e	FA	FC	FD	FJ	FK	FM	FN	FQ	FR	KK
Bore															
φ 20	RFS-08T	22.5	13	8	0.5	28	22.5	3.5	54	9	φ 20	19	4.5	2.5	M8×1.25
φ 25	RFS-10T	24.5	17	10	1	31	28	4	63	11	φ 25	24	4.5	2.5	M10×1.25
φ 32															
φ 40	RFS-12T	24	19	13	1	33	25.5	11	69.5	13.5	φ 32	□19	7	3.5	M12×1.25

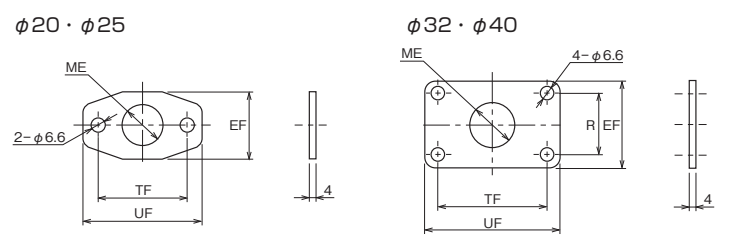
* For the 25mm bore non-rotating cylinder, use the accessory for the 20mm bore cylinder shown above.

Mounting Accessory

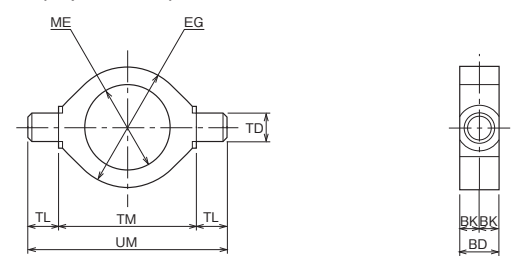
- LB (end angle)



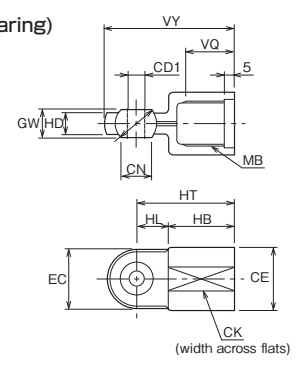
- FA (rod flange)/FB (cap flange)



- TA (rod trunnion)/TB (cap trunnion)



- CU (cap eye with spherical bearing)



Dimensional Table: LB (end angle)

Symbol	Part number	AB	AH	AL	AQ	AT	ME	R	UA
Bore									
φ 20	MAZ3-LB020	42	25	16	24	3.2	φ 22.5	40	55
φ 25									
φ 32	MAZ3-LB032	50	32	25	33	4	φ 24.5	45	60
φ 40	MAZ3-LB040	58	36	25	33	4	φ 30.5	50	65

Dimensional Table: FA (rod flange)/FB (cap flange)

Symbol	Part number	EF	ME	TF	UF	R
Bore						
φ 20	MAZ3-FA020	38	φ 22	50	65	—
φ 25						
φ 32	MAZ3-FA032	47	φ 24	58	72	33
φ 40	MAZ3-FA040	51	φ 30	70	84	36

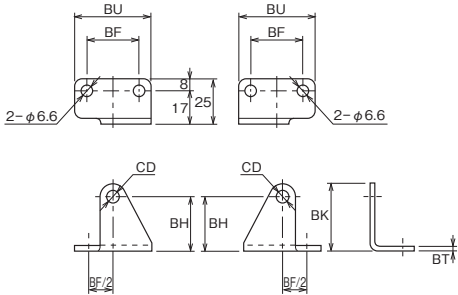
Dimensional Table: TA (rod trunnion)/TB (cap trunnion)

Symbol	Part number	BD	BK	EG	ME	TD	TM	TL	UM
Bore									
φ 20	MAZ3-TA020	10	5	φ 32	φ 22.5	φ 8e9	36	8	52
φ 25									
φ 32	MAZ3-TA032	12	6	φ 36	φ 24.5	φ 10e9	44	10	64
φ 40	MAZ3-TA040	14	7	φ 44	φ 30.5	φ 12e9	50	12	74

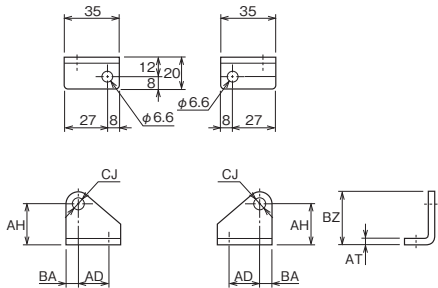
Dimensional Table: CU (cap eye with spherical bearing)

Symbol	Part number	CD1	CE	CK	CN	EC	GW	HB	HD	HL	HT	MB	VQ	VY
Bore														
φ 20	MAZ3-CU020	φ 8H9	φ 32	30	φ 14.8	28	12 ⁰ _{-0.3}	31	10.5	15	46	M22×1.5	23	60
φ 25	MAZ3-CU025	φ 10H9	φ 32	30	φ 14.8	28	14 ⁰ _{-0.3}	31	10.5	15	46	M22×1.5	23	60
φ 32	MAZ3-CU032	φ 10H9	φ 32	30	φ 14.8	28	14 ⁰ _{-0.3}	31	10.5	15	46	M24×2	23	60
φ 40	MAZ3-CU040	φ 12H9	φ 38	36	φ 15.4	32	16 ⁰ _{-0.3}	35	12	17	52	M30×2	26	68

Bracket
For SD/CU/TA/TB/TC

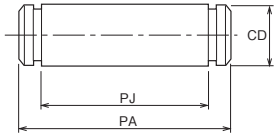


Bracket for LC (VAL Set)



Pin

- For SD with bracket
- For CU with bracket



Dimensional Table: Brackets for SD/CU/TA/TB/TC

Symbol Bore	Part number			BF	BH	BK	BT	BU	CD
	Part number	For CU style	For TA/TB/TC style						
φ 20	MAZ3-BK020PA	MAZ3-BK020PB	MAZ3-BK020	32	32	40	3.2	48	φ 8
φ 25	MAZ3-BK032PA	MAZ3-BK032PB	MAZ3-BK032	36	36	46	4	52	φ 10
φ 32	MAZ3-BK040PA	MAZ3-BK040PB	MAZ3-BK040	40	40	52	4	56	φ 12

Dimensional Table: Brackets for LC (VAL Set)

Symbol Bore	Part number	AD	AH	AT	BA	BZ	CJ
φ 20	MAZ3-LC020	19	25	3.2	8	33	φ 8
φ 25	MAZ3-LC032	17	32	4	10	42	φ 10
φ 32	MAZ3-LC040	15	36	4	12	48	φ 12

Dimensional Table: Pins

Symbol Bore	CD		PA		PJ	
	For SD style	For CU style	For SD style	For CU style	For SD style	For CU style
φ 20	φ 8	φ 8	31	27	26	22
φ 25	φ 8	φ 10	31	29	26	24
φ 32	φ 10	φ 10	32	29	27	24
φ 40	φ 12	φ 12	36	32	31	27

Setting method of sensor detecting position

AX type sensor

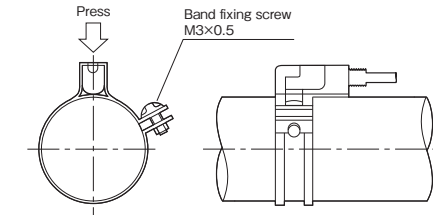
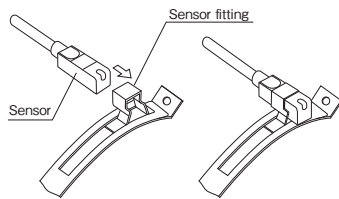


Fig. 1



1. Twist the band body, and draw out one end of the sensor fitting from the slit in the band.
2. Insert the sensor to the sensor fitting along the groove, and attach the sensor fitting to the band body. (Fig. 1)
3. After removing the band fixing screw (M3), wind the band on the cylinder tube, and set the band around the detecting position.
4. Align the band mounting hole and the threaded portion, and lightly tighten the band fixing screw to temporarily secure the band.
5. Move the band and the sensor on the tube to determine the detecting position. When the sensor turns on, the lamp lights up. The detecting position delicately changes depending on the piston rotating speed and ambient temperature. Therefore, for reliable detection, shift the sensor 2 to 3 mm from the sensor ON position toward the piston start position. To mount a sensor to detect the stroke end, refer to dimension UX shown in the catalog. When a 2-LED sensor is used, ensure that the green lamp lights up at the desired position.
6. After determining the sensor position, gently hold the top of the sensor, and tighten the band fixing screw to secure the band. [Recommended tightening torque: 0.3 N·m]
Note) Inappropriate tightening torque may cause the off-center of the sensor position.

ZC type sensor

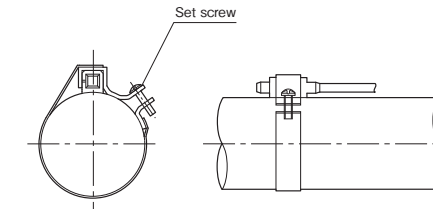
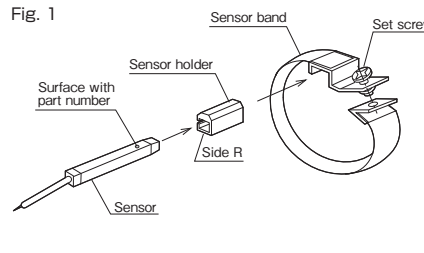


Fig. 1



1. Fit the sensor to the sensor holder. (Fig. 1)
Set the side R of the sensor holder downward, and set the sensor surface with part number upward.
2. Temporarily secure the sensor holder with its side R downward using the sensor band.
3. Keep pressing the top of the sensor at the detecting position, and tighten the set screw to secure the band. [Recommended tightening torque: 0.5 N·m]
Note) Tighten the set screw to the proper tightening torque. Inappropriate tightening torque may cause the off-center of the sensor position.
4. To make a fine adjustment to the sensor position in the axial direction, slightly loosen the set screw, and only the sensor can be moved.

JR/JS type sensors

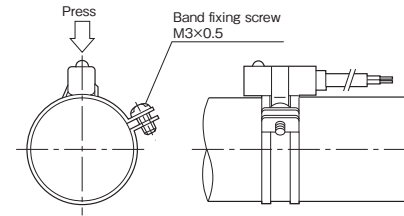
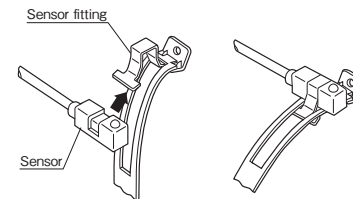
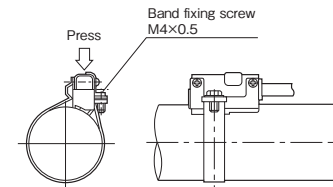


Fig. 1



1. Twist the band body, and draw out one end of the sensor fitting from the slit in the band.
2. Insert the sensor to the sensor fitting along the groove, and attach the sensor fitting to the band body. (Fig. 1)
3. After removing the band fixing screw (M3), wind the band on the cylinder tube, and set the band around the detecting position.
4. Align the band mounting hole and the threaded portion, and lightly tighten the band fixing screw to temporarily secure the band.
5. Move the band and the sensor on the tube to determine the detecting position. When the sensor turns on, the lamp lights up. The detecting position delicately changes depending on the piston rotating speed and ambient temperature. Therefore, for reliable detection, shift the sensor 2 to 3 mm from the sensor ON position toward the piston start position. To mount a sensor to detect the stroke end, refer to dimension UX shown in the catalog.
6. After determining the sensor position, gently hold the top of the sensor, and tighten the band fixing screw to secure the band. [Recommended tightening torque: 0.3 N·m]
Note) Inappropriate tightening torque may cause the off-center of the sensor position.

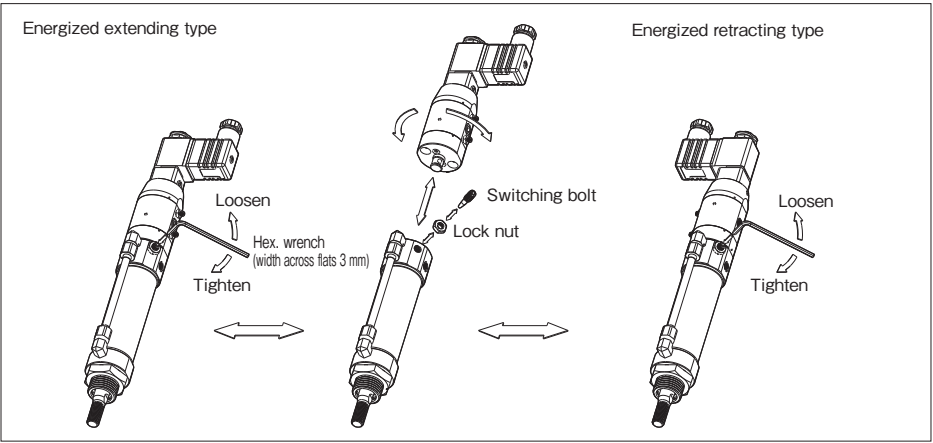
SR type sensor



1. Attach the sensor to the band with two sensor mounting screws (M3). [Recommended tightening torque: 0.3 N·m]
2. After removing the band fixing screw (M4), wind the band on the cylinder tube, and set the band around the detecting position.
3. Align the band mounting hole and the threaded portion, and lightly tighten the band fixing screw to temporarily secure the band.
4. Move the band and the sensor on the tube to determine the detecting position. The operation lamp goes out when the sensor turns on. The detecting position delicately changes depending on the piston rotating speed and ambient temperature. Therefore, for reliable detection, shift the sensor 2 to 3 mm from the sensor ON position toward the piston start position. To mount a sensor to detect the stroke end, refer to dimension UX shown in the catalog.
5. After determining the sensor position, gently hold the top of the sensor, and tighten the band fixing screw to secure the band. [Recommended tightening torque: 0.3 N·m]
Note) Inappropriate tightening torque may cause the off-center of the sensor position.

VAL Set handling procedures

Procedures for switching between energized extending and energized retracting types



As shown in the figure, tighten the energized extending-retracting type switching mechanism with a hex wrench having a width across flats of 3 mm.
To change the type, turn the mechanism 180°, and tighten the switching bolt.
● Recommended tightening torque: 2.40 N·m

How to use exhaust throttle valves

● Energized extending type

Extending speed control:
Adjust the exhaust throttle valve M1.
Retracting speed control:
Adjust the exhaust throttle valve M2.

● Energized retracting type

Retracting speed control:
Adjust the exhaust throttle valve M1.
Extending speed control:
Adjust the exhaust throttle valve M2.

- Adjust the exhaust throttle valve with a slotted screwdriver, and secure it with the lock nut.
- Recommended tightening torque: 0.69 N·m
- Do not loosen the exhaust throttle valve 4 turns or more from the fully closed state. (The valve is fully opened by giving approx. 3.6 turns from the fully closed state.)

How to use manual override

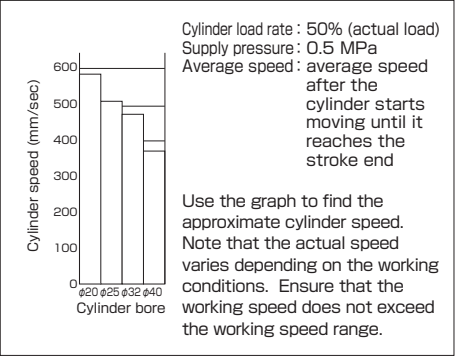
At 0

At 1

- Energized extending type
When the manual override is positioned at 1, the cylinder will move forward without current applied to the solenoid.
- Energized retracting type
When the manual override is positioned at 1, the cylinder will move backward without current applied to the solenoid.

After using manual override, return the button to the initial state (to 0).

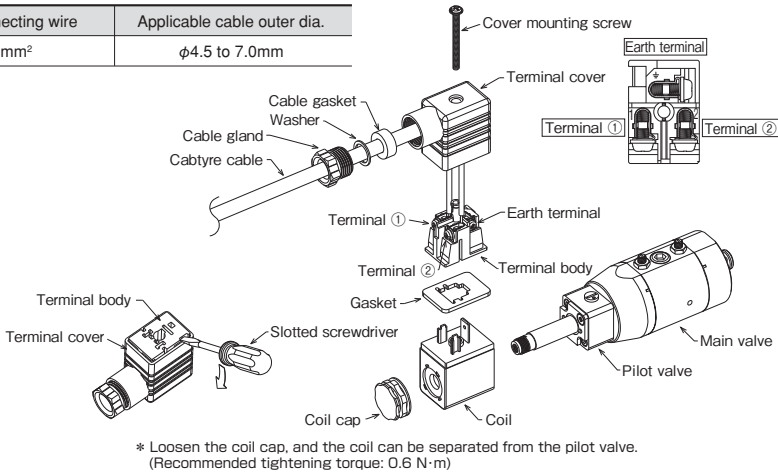
Average speed (max. value) of VAL Set Cylinder



Valve wiring procedures

- (1) Loosen the cover set screw, remove the DIN socket from the coil, and separate the terminal cover and the terminal body using a slotted screwdriver.
- (2) Fit the cable gland, washer and cable gasket to the cable (cabtyre cord), and insert the cable to the terminal cover.
- (3) Loosen the screws of the terminals ① and ② and earth terminal, and connect the wires. The power supply cable does not have polarity. (When crimp-style terminals are used, use terminals for screw diameter M3.)
- (4) Put the terminal body in the terminal cover, tighten the cover mounting screw, and attach the cover to the coil. (Recommended tightening torque: 0.4 N·m)
- (5) Tighten the cable gland on the terminal cover. (Recommended tightening torque: 0.6 N·m)

Applicable connecting wire	Applicable cable outer dia.
0.5 to 1.5mm ²	φ4.5 to 7.0mm



Cushion adjusting procedures (for models with cushion)

- Cushion adjustment depends on air pressure, load weight and cylinder speed. Therefore, when adjusting the cushion, set the actual load under the same conditions as the actual operating conditions.
- To adjust the cushion, gradually loosen the cushion valve after opening it 45° to 90° from the fully closed state. Adjust the cushion decreasing the cushioning power from high to low. In the high cushioning power range, the kinetic energy and absorbed energy are not transferred smoothly, and bounding occurs. In the low cushioning power range, the absorbed energy is lower than the kinetic energy, and the piston gets into direct contact with the cover, thereby causing impact noise and damaging the cover. Adjust the cushion carefully observing the behavior of the cylinder.

Cylinder bore	Necessary tools	Recommended lock nut tightening torque
φ20, φ25	7-mm spanner and slotted screwdriver	0.69N·m
φ32, φ40	8-mm spanner and slotted screwdriver	1.42N·m

Recommended accessory/attachment tightening torque

Tighten each nut and bolt to the tightening torque shown in the following table.

	M22 (φ20, φ25)	M24 (φ32)	M30 (φ40)
Recommended tightening torque of accessory mounting nut	147N·m	181N·m	363N·m

	M8 (φ20, φ25)	M10 (φ32)	M12 (φ40)
Recommended tightening torque of rod end attachment fixing nut	12.0N·m	24.0N·m	42.2N·m

Note) For standard and non-rotating cylinders with a bore of 25 mm, use rod end screws M10 and M8, respectively.

Full-type change for expansion of use

- Use of new type cushion valves
- Use of floating seal in cushion block
- Use of large-size oil-impregnated sintered copper alloy bearings
- Use of rods having diameters generally used in Japan
- Use of rod seals and piston seals conforming to JPAS



Cylinder Specifications/Standard

Series variations		Double acting single rod		Double acting double rod	
Type		Standard type	VAL Set	Standard type	VAL Set
Series		10A-6	10A-6V	10A-6D	10A-6VD
Cylinder bore (mm)		φ 32 · φ 40 · φ 50 · φ 63 φ 80 · φ 100 · φ 125	φ 40 · φ 50 · φ 63 · φ 80 φ 100	φ 32 · φ 40 · φ 50 · φ 63 φ 80 · φ 100 · φ 125	φ 40 · φ 50 · φ 63 · φ 80 φ 100
Working fluid		Air			
Lubrication		Unnecessary			
Working pressure range		0.05 to 1 MPa	0.17 to 0.7 MPa	0.1 to 1 MPa	0.17 to 0.7 MPa
Proof test pressure		1.5 MPa	1.05 MPa	1.5 MPa	1.05 MPa
Note 1) Working speed range		φ32 : 30 to 800mm/s φ40 to φ125: 30 to 700mm/s		φ32 : 50 to 800mm/s φ40 to φ125: 50 to 700mm/s	
Working temperature range		−10 to +70℃ (No freezing)	+5 to +50℃	−10 to +70℃ (No freezing)	+5 to +50℃
Structure of cushioning		With cushions on both ends (with stoppers)			
Cushion stroke (cushion ring parallel part length)		φ 32 · φ 40: 16mm φ 50 · φ 63: 20mm φ 80 · φ 100 · φ 125: 25mm			
Tolerance for thread		JIS 6g/6H			
Tolerance of stroke		0 to 250 mm: $\begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$ 251 to 1000 mm: $\begin{smallmatrix} +1.5 \\ 0 \end{smallmatrix}$ 1001 mm or more: $\begin{smallmatrix} +2.0 \\ 0 \end{smallmatrix}$			
Mounting style		SD · LA · LB · FA · FB CA · CC · CB · TC		SD · LA · LB · FA · TC	
Accessories	Note 2) Boots	Standard: Nylon tarpaulin Semi-standard: Chloroprene, Conex			
	Rod end attachments	Rod eye with spherical bearing (S-end), rod eye (T-end), rod clevis (Y-end) with pin, floating joint (F-end)			
	Others	CB bracket, TC bracket		TC bracket	

Notes) 1. When a sensor is mounted in an intermediate position, set the cylinder maximum speed to 300 mm/s or less for reasons of the load relay response speed, etc.
2. Conex, material of the boots, is the registered trademark of Teijin Limited.

⚠CAUTION Note that the accessories for previous 10A-5 Series cannot be attached to 10A-6 Series.

Cylinder Specifications/Non-rotating type

Series variations		Double acting single rod		Double acting double rod	
Type		Standard type	VAL Set	Standard type	VAL Set
Series		10A-6G	10A-6VG	10A-6GD	10A-6VGD
Cylinder bore (mm)		φ 40 · φ 50 · φ 63 · φ 80 · φ 100			
Working fluid		Air			
Lubrication		Unnecessary			
Working pressure range		0.1 to 1 MPa	0.17 to 0.7 MPa	0.15 to 1 MPa	0.17 to 0.7 MPa
Proof test pressure		1.5 MPa	1.05 MPa	1.5 MPa	1.05 MPa
Note 1) Working speed range		50 to 500mm/s			
Working temperature range		−10 to +70℃ (No freezing)	+5 to +50℃	−10 to +70℃ (No freezing)	+5 to +50℃
Structure of cushioning		With cushions on both ends (with stoppers)			
Cushion stroke (cushion ring parallel part length)		φ40: 16mm φ50·φ63: 20mm φ80·φ100: 25mm			
Note 3) Allowable rotating angle		φ 40: ±1° φ 50 · φ 63: ±0.8° φ 80 · φ 100: ±0.5°			
Allowable torque		φ 40: 1N·m φ 50 · φ 63: 3.4N·m φ 80 · φ 100: 10N·m			
Tolerance for thread		JIS 6g/6H			
Tolerance of stroke		0 to 250 mm: $\begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$ 251 to 1000 mm: $\begin{smallmatrix} +1.5 \\ 0 \end{smallmatrix}$ 1001 mm or more: $\begin{smallmatrix} +2.0 \\ 0 \end{smallmatrix}$			
Mounting style		SD · LA · LB · FA · FB CA · CC · CB · TC		SD · LA · LB · FA · TC	
Accessories	Note 2) Boots	Standard: Nylon tarpaulin Semi-standard: Chloroprene, Conex			
	Rod end attachments	Rod eye (T-end), rod clevis (Y-end) with pin			
	Others	CB bracket, TC bracket		TC bracket	

Notes) 1. When a sensor is mounted in an intermediate position, set the cylinder maximum speed to 300 mm/s or less for reasons of the load relay response speed, etc.
2. Conex, material of the boots, is the registered trademark of Teijin Limited.
3. The allowable rotation angle refers to the clearance in the piston rod rotating direction at the stroke end.
4. When using it together with another guide, use a round rod.

Specifications for Valves for VAL Set

Rated voltage		100 V AC		200 V AC	24 V DC
Working voltage range (V)		90 to 132		180 to 264	21.6 to 26.4
Current value (when rated voltage is applied)	Frequency (Hz)	50	60	50	60
	Starting mA (r.m.s)	34	32	17	16
	Exciting mA (r.m.s)	22	20	11	10
Allowable circuit leakage current (mA)		4		2	4
Type of insulation		Class B			
Insulation resistance (MΩ)		100 or more			
Protective circuit		—		Flywheel diode	
DIN terminal type	Indicator lamp	Yellow	Green	Red	
	Terminal No.	No.1, No.2		No.1(−), No.2(+)	
Lead wire type		Color of lead wire	Yellow	White	Black(−), Red(+)

Product Lineup

Unit: mm

Series Variations		Type	φ32	φ40	φ50	φ63	φ80	φ100	φ125
Standard	Double acting single rod	Standard type Switch Set 10A-6	●	●	●	●	●	●	●
		VAL Set SV Set 10A-6V		●	●	●	●	●	
	Double acting double rod	Standard type Switch Set 10A-6D	●	●	●	●	●	●	●
		VAL Set SV Set 10A-6VD		●	●	●	●	●	
	With adjustable retracted stroke	Standard type Switch Set 10A-6A2	●	●	●	●	●	●	●
		VAL Set SV Set 10A-6VA2		●	●	●	●	●	
	With adjustable extended stroke	Standard type Switch Set 10A-6A1	●	●	●	●	●	●	●
		VAL Set SV Set 10A-6VA1		●	●	●	●	●	
	Dual stroke (order made)	Single rod 10A-6Q1		●	●	●	●	●	
		Double rod 10A-6Q2	●	●	●	●	●	●	●
Non-rotating	Double acting single rod	Standard type Switch Set 10A-6G		●	●	●	●	●	
		VAL Set SV Set 10A-6VG		●	●	●	●	●	
	Double acting double rod	Standard type Switch Set 10A-6GD		●	●	●	●	●	
		VAL Set SV Set 10A-6VGD		●	●	●	●	●	
	With adjustable retracted stroke	Standard type Switch Set 10A-6GA2		●	●	●	●	●	
		VAL Set SV Set 10A-6VGA2		●	●	●	●	●	
	With adjustable extended stroke	Standard type Switch Set 10A-6GA1		●	●	●	●	●	
		VAL Set SV Set 10A-6VGA1		●	●	●	●	●	

- Order made
- Non-standard rod end screw
 - Heat proof type (120℃ or less)
 - Non-standard cushion valve position
 - Non-copper ion type
 - Dual stroke type
 - Low hydraulic pressure type
 - Iron tube type
 - Stainless steel rod type

Weight Table

Unit: kg

Bore mm	Double acting single rod						Double acting double rod					
	Standard			Non-rotating			Standard			Non-rotating		
	Basic weight		Additional weight per mm of stroke	Basic weight		Additional weight per mm of stroke	Basic weight		Additional weight per mm of stroke	Basic weight		Additional weight per mm of stroke
	Standard type	VAL Set		Standard type	VAL Set		Standard type	VAL Set		Standard type	VAL Set	
φ32	0.57	—	0.00218	—	—	—	0.68	—	0.00306	—	—	—
φ40	0.65	0.89	0.00300	0.65	0.89	0.00276	0.84	1.08	0.00457	0.84	1.08	0.00433
φ50	1.02	1.26	0.00428	1.02	1.26	0.00425	1.35	1.59	0.00673	1.35	1.59	0.00670
φ63	1.36	1.61	0.00515	1.36	1.61	0.00512	1.86	2.11	0.00760	1.86	2.11	0.00757
φ80	2.32	2.15	0.00834	2.32	2.15	0.00810	3.16	3.41	0.01217	3.16	3.41	0.01193
φ100	2.94	3.22	0.01061	2.94	3.22	0.00869	4.22	4.50	0.01612	4.22	4.50	0.01420
φ125	4.43	—	0.01490	—	—	—	9.48	—	0.02240	—	—	—

Additional Weight Table

Unit: kg

Bore mm	Mounting accessory weight							Bracket weight		Rod end attachment weight			Valve additional weight		
	LA	LB	FA FB	CA	CC	CB	TC	For CB	For TC	Rod eye (S-end)	Rod eye (T-end)	Rod clevis (Y-end)	Energized extending type Energized retracting type	Self-retaining type	3-position closed center type 3-position exhaust center type
φ32	0.14	0.11	0.20	0.12	—	0.19	0.30	0.46	0.44	0.08	0.16	0.22	—	—	—
φ40	0.20	0.13	0.37	0.18	0.38	0.27	0.48	0.70	1.00	0.11	0.16	0.27	0.51	0.59	0.63
φ50	0.32	0.17	0.39	0.26	0.50	0.39	0.55	0.70	1.00	0.20	0.21	0.34			
φ63	0.52	0.23	0.53	0.42	0.67	0.48	0.70	0.70	1.00	0.20	0.21	0.34	0.52	0.60	0.64
φ80	0.85	0.38	1.60	1.08	1.76	0.92	1.16	0.72	1.44	0.36	0.62	0.87			
φ100	1.28	0.47	2.22	1.39	2.04	1.24	1.53	0.72	1.44	0.36	0.62	0.87	0.55	0.63	0.67
φ125	1.38	0.47	2.87	2.45	—	1.97	3.41	2.81	3.10	—	1.24	1.47	—	—	—

Note) For VAL Set, add the valve additional weight according to the operating method.

Sensor Additional Weight Table

Unit: kg

Bore	Sensor	AX type			SR type
		Cord length 1.5 m	Cord length 5 m	Connector type	Cord length 5 m
φ32		0.05	0.13	0.04	0.22
φ40					
φ50					
φ63					
φ80					
φ100					
φ125		0.07	0.14	0.06	

- [Calculation formula] Cylinder weight (kg)=basic weight+(additional weight per mm of stroke×cylinder stroke (mm))
+(sensor additional weight×sensor quantity)+mounting accessory weight+valve additional weight
- [Calculation example] Standard double acting type
VAL Set, bore φ80, cylinder stroke 200 mm, 2 pcs of AX215 (cord length 5 m), LB, energized retracting type
2.15+(0.00834×200)+(0.13×2)+0.38+0.52=4.978kg

How to order

Standard

The item enclosed by broken line needs not to be entered, if unnecessary.

● VAL Set 10A-6V LB 63 B 200 A 1 AH 2 T B J

● SV Set 10A-6V LB 63 B 200 A 1 AH 2 T B J

VAL Set/SV Set

10A-6V : Double acting single rod
10A-6VD: Double acting double rod

VAL Set/SV Set with adjustable stroke

10A-6VA1: Adjustable extended stroke
10A-6VA2: Adjustable retracted stroke

Cylinder bore (mm)
φ40·φ50·φ63·φ80·φ100

1 100 V AC 50/60Hz +32% -10%
2 200 V AC 50/60Hz +32% -10%
8 24 V DC

DIN terminal type

A Energized extending type (return type)
B Energized retracting type (return type)
D Detent type
C 3-position closed center type
E 3-position exhaust center type

Lead wire type

M Energized extending type (return type)
N Energized retracting type (return type)
P Self-retaining type (detent type)
Q 3-position closed center type
R 3-position exhaust center type

Non-rotating

● VAL Set 10A-6VG LB 50 B 100 A 1 AH 2 T B J

VAL Set/SV Set

10A-6VG : Double acting single rod
10A-6VGD: Double acting double rod

VAL Set/SV Set with adjustable stroke

10A-6VGA1: Adjustable extended stroke
10A-6VGA2: Adjustable retracted stroke

Cylinder bore (mm)
φ40 · φ50 · φ63 · φ80 · φ100

T Rod eye (T-end)
Y Rod clevis (Y-end) with pin

How to order valve for VAL Set

How to order valve assembly

VS552- R MM Voltage Wiring method Bore

R Energized extending type (return type)
D Detent type
C Closed center type
E Exhaust center type

1 100 V AC
2 200 V AC
8 24 V DC

R Lead wire type (for AC)
RK Lead wire type/with protective circuit (for DC)
DL DIN terminal type/with lamp (for AC)
DW DIN terminal type/with lamp and protective circuit (for DC)

Note) The valve assembly includes valve, speed controller muffler, piping block, joint and tube (1 m). The assembly is supplied without the valve and piping block mounted. Note that the energized extending/retracting type is changed according to the valve mounting direction.

How to order only valve

VS552- R MM Voltage Wiring method

R Energized extending type (return type)
D Detent type
C Closed center type
E Exhaust center type

1 100 V AC
2 200 V AC
8 24 V DC

R Lead wire type (for AC)
RK Lead wire type/with protective circuit (for DC)
DL DIN terminal type/with lamp (for AC)
DW DIN terminal type/with lamp and protective circuit (for DC)

Note) When only a valve is ordered, the valve will come with a mounting bolt and a gasket.

How to order

Standard

The item enclosed by broken line needs not to be entered, if unnecessary. Semi-standard specification

● Standard type 10A-6 LB 50 B 100 AH 2 T B J

● Switch Set 10A-6 LB 50 B 100 AH 2 T B J

Standard type/Switch Set

10A-6 : Double acting single rod
10A-6D: Double acting double rod

With adjustable stroke/Switch Set

10A-6A1: Adjustable extended stroke
10A-6A2: Adjustable retracted stroke

Mounting style

Cylinder bore (mm)
φ32·φ40·φ50·φ63·φ80·φ100·φ125

B With cushions on both ends
N No cushion

Cylinder stroke (mm)

Sensor quantity (1, 2 to n)

Sensor symbol

Note) Select applicable sensors out of the Sensor List.

J Nylon tarpaulin
UN Chloroprene
UK Conex

With bracket
Applicable mounting styles: CB and TC

S Rod eye with spherical bearing (S-end)
T Rod eye (T-end)
Y Rod clevis (Y-end) with pin
F Floating joint (F-end)

Non-rotating

● Standard type 10A-6G LB 50 B 100 AH 2 T B J

Standard type/Switch Set

10A-6G : Double acting single rod
10A-6GD: Double acting double rod

With adjustable stroke/Switch Set

10A-6GA1: Adjustable extended stroke
10A-6GA2: Adjustable retracted stroke

Cylinder bore (mm)
φ40 · φ50 · φ63 · φ80 · φ100

T Rod eye (T-end)
Y Rod clevis (Y-end) with pin

Mounting style

SD Basic style

FA Rod flange

CC Cap eye
Bore φ 40 to φ 100

LA Side lugs

FB Cap flange

CB Cap clevis with pin

LB End angles

CA Cap eye

TC Intermediate trunnion

Sensor List

■ Semi-standard specification

Type	Sensor symbol	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Indicating lamp	Wiring method	Cord length	Applicable load	
Reed sensor	 AX101CE	DC: 5 to 30V AC: 5 to 120V	DC: 5 to 40mA AC: 5 to 20mA	DC: 1.5W AC: 2VA	None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m	Small relay, programmable controller	
	 AX105CE				5m					
	 AX111CE				1.5m					
	 AX115CE				5m					
	 AX125CE	DC: 30V or less AC: 120V or less	DC: 40mA or less AC: 20mA or less	None	None	5m				
	 AX11ACE	AC: 5 to 120V	5 to 20mA		Provided	LED (Lights in red when sensing)	4-pin connector type, rear wiring	0.5m		
	 AX11BCE	DC: 5 to 30V	5 to 40mA	1.5W			0.5m			
	 AX135CE	AC: 90 to 240V DC: 90 to 240V	5 to 300mA	B contact output	Provided	LED (Lights in red when not sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	5m		
	 SR405	AC: 80 to 220V	2 to 300mA	30VA	Provided	Neon lamp (Lights in red when not sensing)	0.5 mm ² , 2-core, outer dia. φ6 mm, rear wiring	5m		Small relay, programmable controller, small solenoid, pilot lamp
	Solid state sensor	 AX201CE-1	DC: 5 to 30V	5 to 40mA	—	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring		1.5m
 AX205CE-1		5m								
 AX211CE-1		1.5m								
 AX215CE-1		5m								
 AX211CE-1		LED (2-LED type in red/green)					0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m		
 AX215CE-1								5m		
 AX21BCE-1								0.5m		
 AZ211CE-1								1.5m		
 AZ215CE-1								5m		
 AZ21BCE-1								0.5m		

(Notes) ● For the sensors without a protective circuit, be sure to provide a protective circuit (SK-100) with the load when using any induction load (relay, etc.).
● The output logic of AX135CE is a B contact. When the piston is detected, the sensor contact turns off (the lamp turns on).
● For the detailed specifications and handling of sensors, see the sensor specifications at the end of this catalog.
● The AX type sensors can be mounted on any type in addition to the above types. See the sensor specifications at the end of this catalog.
● We recommend AND Unit (AU series) for multiple sensors connected in series.
For details, refer to AND Unit at the end of this catalog.

● AX type sensor

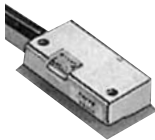
Cord type



Connector type

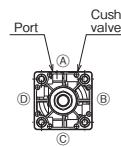


● SR type sensor



Ordering procedures

★ Standard specifications



- With cushions on both ends
- Port position (A) and cushion valve position (A)
- (Notes) ● When specifying port and cushion valve positions other than (A), consult us.
- In the case of VAL Set, the cushion valve on the cap side is positioned on (B).

★ Semi-standard range

- Double rod cylinders, cylinders with boots, and cylinders without cushions
- Change of piston rod end (dimensional symbol: WF, A, KK)
- Change of TC accessory position (dimensional symbol: PH)
- (Note) ● Contact us for specifications not stated above.

Stroke Limit

Unit: mm

Bore	Double acting single rod		Double acting double rod	
	Round rod (standard)	Non-rotating	Round rod (standard)	Non-rotating
φ32	700	—	500	—
φ40	1000	500	800	500
φ50	1500		1000	
φ63				
φ80				
φ100				
φ125		—	—	

Sensor Mountable Minimum Stroke

Unit: mm

Type	AX type		SR type	
	Switch Set	SV Set	Switch Set	SV Set
With 1 sensor	25	50	15 (25)	50
2 pcs. on one surface	25	50	Note 3 15 (25)	50
2 pcs. on opposite surfaces	25	50	15 (25)	50
Trunnion (TC style)	120	120	90 (130)	125

(Notes) 1. The minimum stroke for the trunnion (TC) is the value obtained when the trunnion is located in the center.
2. The parenthesized values are the minimum strokes of cylinders with bores from 80 to 125 mm.
3. The minimum stroke of the 32 mm bore SR type cylinder is 50.

Readily Available Cylinder Size

Unit: mm

Bore	Stroke of readily available cylinder											
	50	75	100	125	150	200	250	300	350	400	450	500
φ32	○	○	○	○	○	○	○	○	○	○	○	○
φ40	○	○	○	○	○	○	○	○	○	○	○	○
φ50	○	○	○	○	○	○	○	○	○	○	○	○
φ63	○	○	○	○	○	○	○	○	○	○	○	○
φ80	○	○	○	○	○	○	○	○	○	○	○	○
φ100	○	○	○	○	○	○	○	○	○	○	○	○

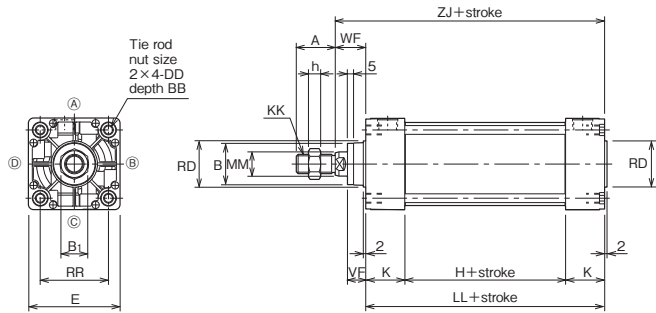
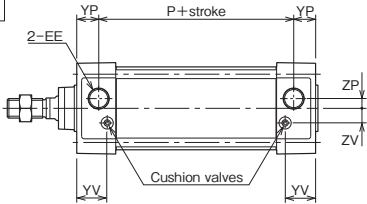
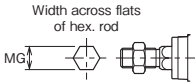
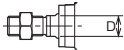
(Note) The cylinders shown in the above table are double acting single rod cylinders except the TC style.

CAD/DATA
10A-6/TA6 □Bore □A is available. □?

SD

Double acting single rod □Standard 10A-6 SD □Bore □B □Stroke
□Non-rotating 10A-6G SD □Bore □B □Stroke

- Standard ϕ 32 to ϕ 125
- Non-rotating ϕ 40 to ϕ 100



- For dimensions not shown here, refer to the SD style (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except dimensions of the rod end.
- For dimensional drawings of rod end attachments, refer to the accessories.
- For the mounting of sensors, see the dimensional drawings of Switch Set.
- For the mounting of valves, see the dimensional drawings of VAL Set.

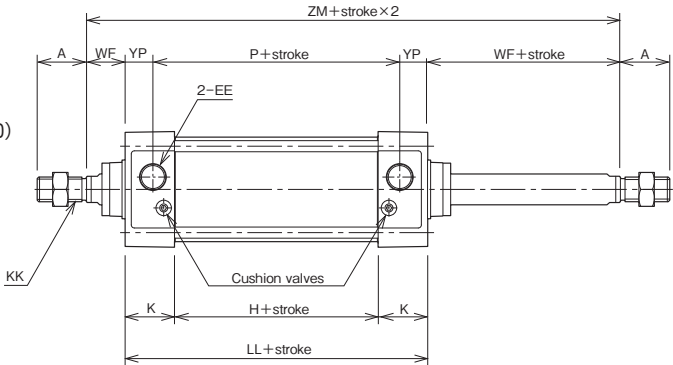
Double acting double rod □Standard 10A-6D SD □Bore □B □Stroke
□Non-rotating 10A-6GD SD □Bore □B □Stroke

10A-6/TA6 □Bore □B □?

- Non-rotating(ϕ 40 to ϕ 100)



Note) Hex. rod on one side, and round rod on one side



- For dimensions not shown here, refer to the double acting single rod cylinder.

Dimensional Table

Symbol	A	B	B ₁	BB	D	DD	E	EE	H	K	KK	LL	MG
Bore													
ϕ 32	22(19)	ϕ 24	17	14	10	M6×1	□ 44	Rc1/8	31	31	M10×1.25	93	—
ϕ 40	24(21)	ϕ 30	19	14	14	M6×1	□ 50	Rc1/4	31	31	M12×1.25	93	14
ϕ 50	32(29)	ϕ 34	22	14	17	M6×1	□ 62	Rc1/4	31	31	M16×1.5	93	19
ϕ 63	32(29)	ϕ 34	22	14	17	M8×1.25	□ 75	Rc3/8	32	32	M16×1.5	96	19
ϕ 80	40(37)	ϕ 39	27	15	21	M10×1.5	□ 94	Rc3/8	36	36	M20×1.5	108	23
ϕ 100	40(37)	ϕ 46	27	15	26	M10×1.5	□ 112	Rc1/2	36	36	M20×1.5	108	23
ϕ 125	54(50)	ϕ 55	36	15	32	M12×1.75	□ 136	Rc1/2	42	36	M27×2	114	—

Symbol	MM	P	RD	RR	VF	WF	YP	YV	ZJ	ZM	ZP	ZV	h
Bore													
ϕ 32	ϕ 12	61	ϕ 26	□ 33	15	25	16	25.5	118	143	3	7	6
ϕ 40	ϕ 16	57	ϕ 32	□ 37	15	25	18	25.5	118	143	4	10	7
ϕ 50	ϕ 20	57	ϕ 38	□ 47	15	25	18	24	118	143	7	12	10
ϕ 63	ϕ 20	60	ϕ 38	□ 56	15	25	18	25	121	146	8	12	10
ϕ 80	ϕ 25	68	ϕ 44	□ 70	21	35	20	29	143	178	11	16	12
ϕ 100	ϕ 30	68	ϕ 50	□ 84	21	35	20	29	143	178	12	18	12
ϕ 125	ϕ 35	74	ϕ 60	□ 104	21	35	20	29	149	184	14	20	16

* The parenthesized values of dimension A indicate the screw length.

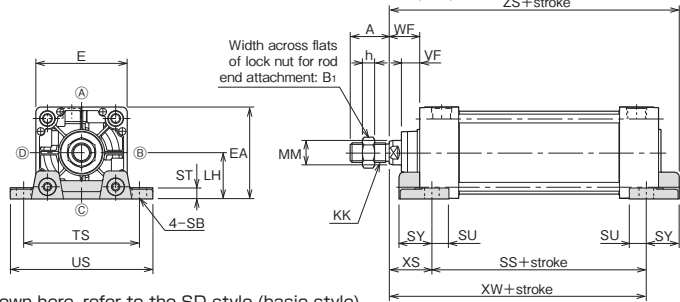
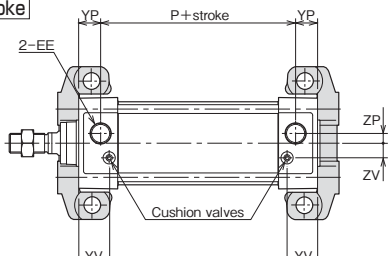
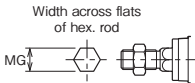
LA

Double acting single rod

Standard 10A-6 LA Bore B Stroke
Non-rotating 10A-6G LA Bore B Stroke

● Standard ϕ 32 to ϕ 125

● Non-rotating ϕ 40 to ϕ 100



- For dimensions not shown here, refer to the SD style (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except dimensions of the rod end.
- For dimensional drawings of rod end attachments, refer to the accessories.
- For the mounting of sensors, see the dimensional drawings of Switch Set.
- For the mounting of valves, see the dimensional drawings of VAL Set.

Double acting double rod

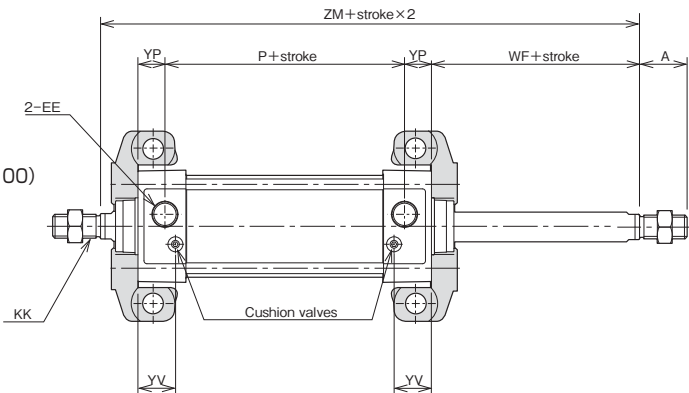
Standard 10A-6D LA Bore B Stroke
Non-rotating 10A-6GD LA Bore B Stroke

10A-6/TA6 Bore B

● Non-rotating (ϕ 40 to ϕ 100)



Note) Hex. rod on one side, and round rod on one side



- For dimensions not shown here, refer to the double acting single rod cylinder.

Dimensional Table

Symbol Bore	A	B ₁	D	E	EA	EE	KK	LH	MG	MM	P	SB	SS	ST
ϕ 32	22 (19)	17	10	□44	44	Rc1/8	M10×1.25	22	—	ϕ 12	61	ϕ 9	73	8
ϕ 40	24 (21)	19	14	□50	50	Rc1/4	M12×1.25	25	14	ϕ 16	57	ϕ 12	73	8
ϕ 50	32 (29)	22	17	□62	62	Rc1/4	M16×1.5	31	19	ϕ 20	57	ϕ 12	73	9
ϕ 63	32 (29)	22	17	□75	75.5	Rc3/8	M16×1.5	38	19	ϕ 20	60	ϕ 12	76	9
ϕ 80	40 (37)	27	21	□94	94	Rc3/8	M20×1.5	47	23	ϕ 25	68	ϕ 14	82	13
ϕ 100	40 (37)	27	26	□112	113	Rc1/2	M20×1.5	57	23	ϕ 30	68	ϕ 14	82	14
ϕ 125	54 (50)	36	32	□136	137	Rc1/2	M27×2	69	—	ϕ 35	74	ϕ 18	80	18

Symbol Bore	SU	SY	TS	US	VF	WF	XS	XW	YP	YV	ZM	ZP	ZS	ZV	h
ϕ 32	14	23	63	81	15	25	35	108	16	25.5	143	3	131	7	6
ϕ 40	14	23	70	92	15	25	35	108	18	25.5	143	4	131	10	7
ϕ 50	14	25	83	105	15	25	35	108	18	24	143	7	133	12	10
ϕ 63	14	27	95	117	15	25	35	111	18	25	146	8	138	12	10
ϕ 80	18	34	121	147	21	35	48	130	20	29	178	11	164	16	12
ϕ 100	18	38	140	168	21	35	48	130	20	29	178	12	168	18	12
ϕ 125	21	46	175	213	21	35	52	132	20	29	184	14	178	20	16

* The parenthesized values of dimension A indicate the screw length.

Dimensional Table

Symbol	A	AB	AC	AE	AH	AL	AO	AT	B ₁	D	E	EE	H	K	KK
Bore															
φ32	22(19)	9	11	50	28	20.5	9.5	3.2	17	10	□44	Rc1/8	31	31	M10×1.25
φ40	24(21)	11	13	55	30	23.5	12.5	3.2	19	14	□50	Rc1/4	31	31	M12×1.25
φ50	32(29)	11	13	67.5	36.5	28	12	3.2	22	17	□62	Rc1/4	31	31	M16×1.5
φ63	32(29)	11	13	78.5	41	31	13	3.2	22	17	□75	Rc3/8	32	32	M16×1.5
φ80	40(37)	14	16	96	49	30	16	4	27	21	□94	Rc3/8	36	36	M20×1.5
φ100	40(37)	14	16	113	57	30	16	4	27	26	□112	Rc1/2	36	36	M20×1.5
φ125	54(50)	18	20	138	70	35	18	6	36	32	□136	Rc1/2	42	36	M27×2

Symbol	LL	MG	MM	P	R	SA	UA	VF	WF	XA	YP	YV	ZA	ZM	ZP	ZV	h
Bore																	
φ32	93	—	φ12	61	33	134	50	15	25	138.5	16	25.5	148	143	3	7	6
φ40	93	14	φ16	57	36	140	57	15	25	141.5	18	25.5	154	143	4	10	7
φ50	93	19	φ20	57	47	149	68	15	25	146	18	24	158	143	7	12	10
φ63	96	19	φ20	60	56	158	80	15	25	152	18	25	165	146	8	12	10
φ80	108	23	φ25	68	70	168	97	21	35	173	20	29	189	178	11	16	12
φ100	108	23	φ30	68	84	168	112	21	35	173	20	29	189	178	12	18	12
φ125	114	—	φ35	74	104	184	136	21	35	184	20	29	202	184	14	20	16

* The parenthesized values of dimension A indicate the screw length.

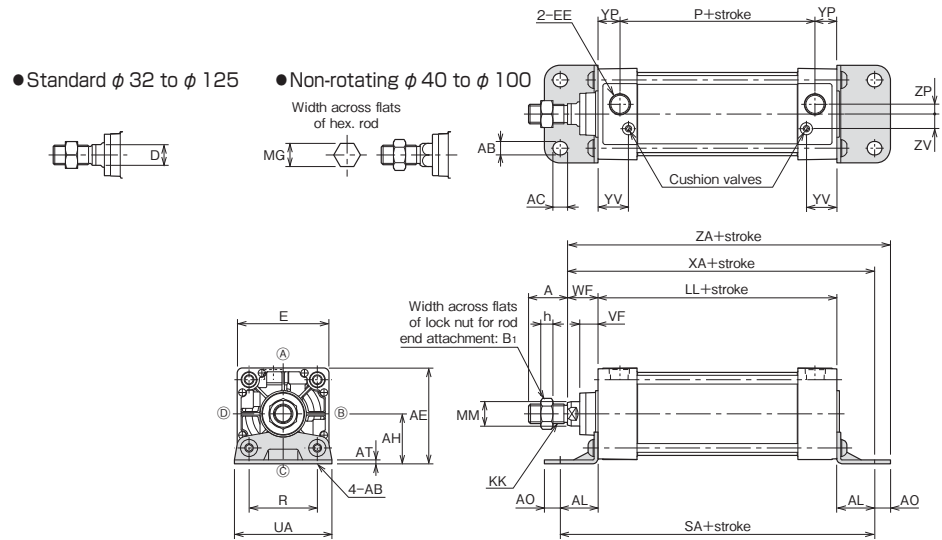
LB

Double acting single rod

Standard 10A-6 LB Bore B Stroke
Non-rotating 10A-6G LB Bore B Stroke

●Standard φ 32 to φ 125

●Non-rotating φ 40 to φ 100



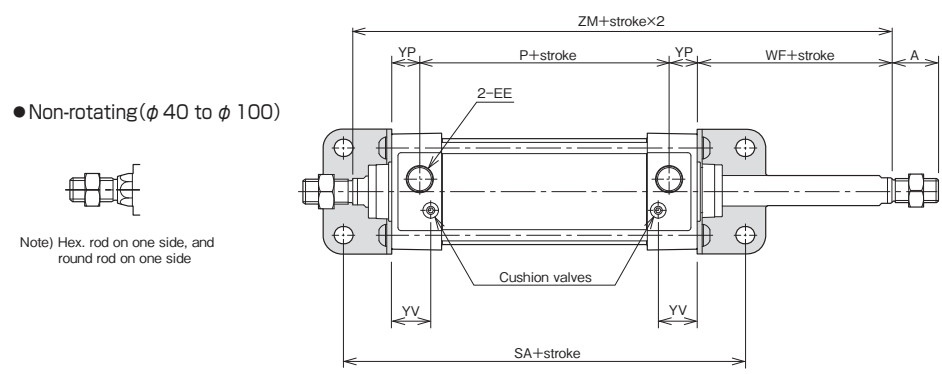
- For dimensions not shown here, refer to the SD style (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except dimensions of the rod end.
- For dimensional drawings of rod end attachments, refer to the accessories.
- For the mounting of sensors, see the dimensional drawings of Switch Set.
- For the mounting of valves, see the dimensional drawings of VAL Set.

Double acting double rod

Standard 10A-6D LB Bore B Stroke
Non-rotating 10A-6GD LB Bore B Stroke

10A-6/TA6 Bore B

●Non-rotating(φ 40 to φ 100)



Note) Hex. rod on one side, and round rod on one side

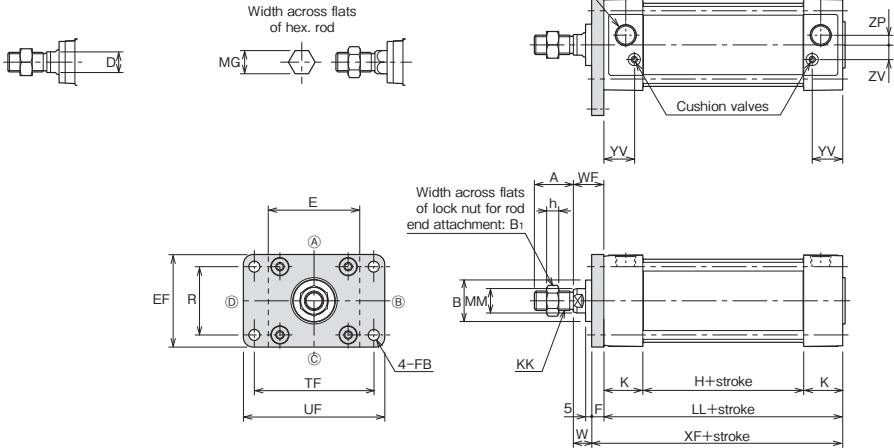
- For dimensions not shown here, refer to the double acting single rod cylinder.

CAD/DATA
10A-6/TA6 Bore A is available.

FA

Double acting single rod Standard 10A-6 FA Bore B Stroke
Non-rotating 10A-6G FA Bore B Stroke

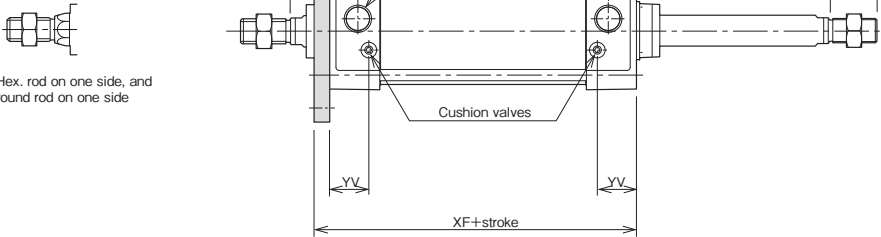
- Standard ϕ 32 to ϕ 125
- Non-rotating ϕ 40 to ϕ 100



- For dimensions not shown here, refer to the SD style (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except dimensions of the rod end.
- For dimensional drawings of rod end attachments, refer to the accessories.
- For the mounting of sensors, see the dimensional drawings of Switch Set.
- For the mounting of valves, see the dimensional drawings of VAL Set.

Double acting double rod Standard 10A-6D FA Bore B Stroke
Non-rotating 10A-6GD FA Bore B Stroke 10A-6/TA6 Bore B

- Non-rotating (ϕ 40 to ϕ 100)



- For dimensions not shown here, refer to the double acting single rod cylinder.

Dimensional Table

Symbol Bore	A	B	B ₁	D	E	EE	EF	F	FB	H	K	KK	LL
ϕ 32	22 (19)	ϕ 24	17	10	$\square$ 44	Rc1/8	47	10	ϕ 7	31	31	M10 $\times$ 1.25	93
ϕ 40	24 (21)	ϕ 30	19	14	$\square$ 50	Rc1/4	52	10	ϕ 7	31	31	M12 $\times$ 1.25	93
ϕ 50	32 (29)	ϕ 34	22	17	$\square$ 62	Rc1/4	65	10	ϕ 9	31	31	M16 $\times$ 1.5	93
ϕ 63	32 (29)	ϕ 34	22	17	$\square$ 75	Rc3/8	76	10	ϕ 9	32	32	M16 $\times$ 1.5	96
ϕ 80	40 (37)	ϕ 39	27	21	$\square$ 94	Rc3/8	95	16	ϕ 12	36	36	M20 $\times$ 1.5	108
ϕ 100	40 (37)	ϕ 46	27	26	$\square$ 112	Rc1/2	115	16	ϕ 12	36	36	M20 $\times$ 1.5	108
ϕ 125	54 (50)	ϕ 55	36	32	$\square$ 136	Rc1/2	138	16	ϕ 14	42	36	M27 $\times$ 2	114

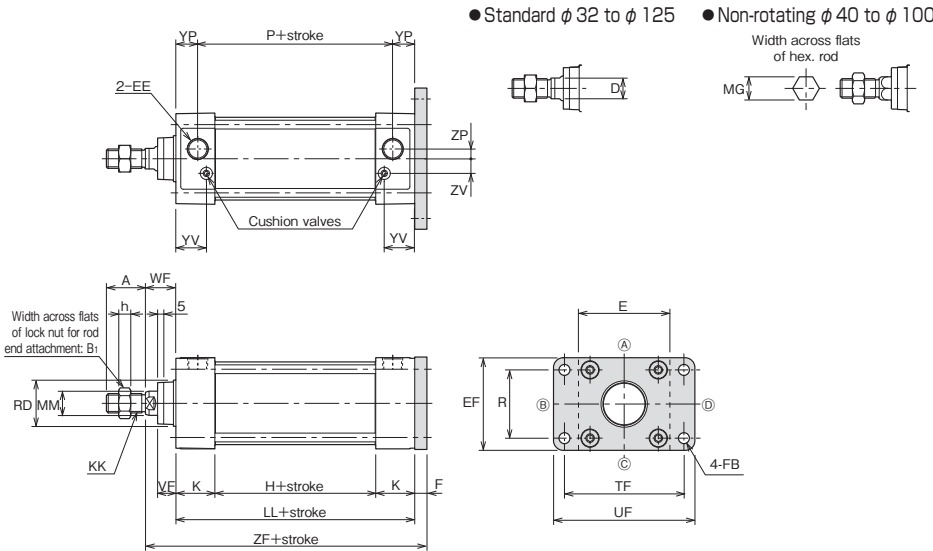
Symbol Bore	MG	MM	P	R	TF	UF	W	WF	XF	YP	YV	ZM	ZP	ZV	h
ϕ 32	—	ϕ 12	61	33	58	72	15	25	103	16	25.5	143	3	7	6
ϕ 40	14	ϕ 16	57	36	70	84	15	25	103	18	25.5	143	4	10	7
ϕ 50	19	ϕ 20	57	47	86	104	15	25	103	18	24	143	7	12	10
ϕ 63	19	ϕ 20	60	56	98	116	15	25	106	18	25	146	8	12	10
ϕ 80	23	ϕ 25	68	70	119	143	19	35	124	20	29	178	11	16	12
ϕ 100	23	ϕ 30	68	84	138	162	19	35	124	20	29	178	12	18	12
ϕ 125	—	ϕ 35	74	104	168	196	19	35	130	20	29	184	14	20	16

* The parenthesized values of dimension A indicate the screw length.

CAD/DATA
10A-6/TA6 BoreA is available. 

FB

Double acting single rod Standard 10A-6 FB Bore B Stroke
Non-rotating 10A-6G FB Bore B Stroke



- For dimensions not shown here, refer to the SD style (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except dimensions of the rod end.
- For dimensional drawings of rod end attachments, refer to the accessories.
- For the mounting of sensors, see the dimensional drawings of Switch Set.
- For the mounting of valves, see the dimensional drawings of VAL Set.

Dimensional Table

Symbol Bore	A	B ₁	D	E	EE	EF	F	FB	H	K	KK	LL	MG
ϕ 32	22 (19)	17	10	$\square$ 44	Rc1/8	47	10	ϕ 7	31	31	M10X1.25	93	—
ϕ 40	24 (21)	19	14	$\square$ 50	Rc1/4	52	10	ϕ 7	31	31	M12X1.25	93	14
ϕ 50	32 (29)	22	17	$\square$ 62	Rc1/4	65	10	ϕ 9	31	31	M16X1.5	93	19
ϕ 63	32 (29)	22	17	$\square$ 75	Rc3/8	76	10	ϕ 9	32	32	M16X1.5	96	19
ϕ 80	40 (37)	27	21	$\square$ 94	Rc3/8	95	16	ϕ 12	36	36	M20X1.5	108	23
ϕ 100	40 (37)	27	26	$\square$ 112	Rc1/2	115	16	ϕ 12	36	36	M20X1.5	108	23
ϕ 125	54 (50)	36	32	$\square$ 136	Rc1/2	138	16	ϕ 14	42	36	M27X2	114	—

Symbol Bore	MM	P	R	RD	TF	UF	VF	WF	YP	YV	ZF	ZP	ZV	h
ϕ 32	ϕ 12	61	33	ϕ 26	58	72	15	25	16	25.5	128	3	7	6
ϕ 40	ϕ 16	57	36	ϕ 32	70	84	15	25	18	25.5	128	4	10	7
ϕ 50	ϕ 20	57	47	ϕ 38	86	104	15	25	18	24	128	7	12	10
ϕ 63	ϕ 20	60	56	ϕ 38	98	116	15	25	18	25	131	8	12	10
ϕ 80	ϕ 25	68	70	ϕ 44	119	143	21	35	20	29	159	11	16	12
ϕ 100	ϕ 30	68	84	ϕ 50	138	162	21	35	20	29	159	12	18	12
ϕ 125	ϕ 35	74	104	ϕ 60	168	196	21	35	20	29	165	14	20	16

* The parenthesized values of dimension A indicate the screw length.

Dimensional Table

Symbol Bore	A	B ₁	CD		D	E	EE	EW		H	K	KK	LR		MG
			CA style	CC style				CA style	CC style				CA style	CC style	
φ32	22(19)	17	φ12H9	—	10	□44	Rc1/8	16 ⁰ _{-0.070}	—	31	31	M10×1.25	R16	—	—
φ40	24(21)	19	φ14H9	φ14H9	14	□50	Rc1/4	20 ⁰ _{-0.084}	20 ⁰ _{-0.3}	31	31	M12×1.25	R17	R21	14
φ50	32(29)	22	φ14H9	φ14H9	17	□62	Rc1/4	20 ⁰ _{-0.084}	20 ⁰ _{-0.3}	31	31	M16×1.5	R17	R21	19
φ63	32(29)	22	φ14H9	φ14H9	17	□75	Rc3/8	20 ⁰ _{-0.084}	20 ⁰ _{-0.3}	32	32	M16×1.5	R17	R21	19
φ80	40(37)	27	φ20H9	φ20H9	21	□94	Rc3/8	32 ⁰ _{-0.100}	32 ⁰ _{-0.3}	36	36	M20×1.5	R25	R25	23
φ100	40(37)	27	φ20H9	φ20H9	26	□112	Rc1/2	32 ⁰ _{-0.100}	32 ⁰ _{-0.3}	36	36	M20×1.5	R26	R25	23
φ125	54(50)	36	φ20H9	—	32	□136	Rc1/2	32 ⁰ _{-0.100}	—	42	36	M27×2	R30	—	—

Symbol Bore	MM	MR		P	T		VF	WF	XC		YP	YV	ZC		ZP	ZV	h
		CA style	CC style		CA style	CC style			CA style	CC style			CA style	CC style			
φ32	φ12	R16	—	61	8	—	15	25	137	—	16	25.5	150	—	3	7	6
φ40	φ16	R17	R14	57	8	11	15	25	137	152	18	25.5	151	166	4	10	7
φ50	φ20	R17	R15	57	10	11	15	25	137	152	18	24	151	167	7	12	10
φ63	φ20	R17	R15	60	13	11	15	25	140	155	18	25	154	170	8	12	10
φ80	φ25	R24	R20	68	18	15	21	35	175	191	20	29	196	211	11	16	12
φ100	φ30	R24	R20	68	18	15	21	35	175	191	20	29	195	211	12	18	12
φ125	φ35	R25	—	74	21	—	21	35	181	—	20	29	201	—	14	20	16

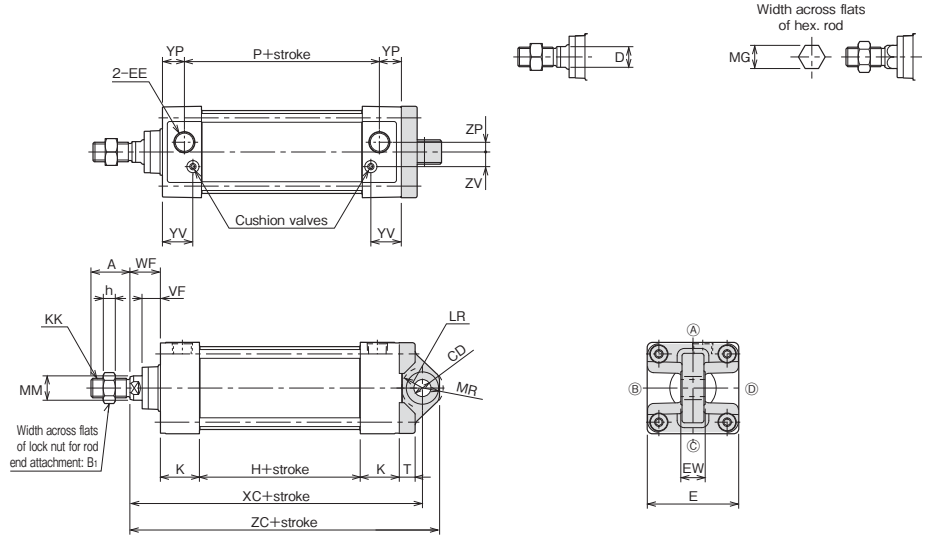
* The parenthesized values of dimension A indicate the screw length.

CAD/DATA
10A-6/TA6 Bore A is available. 

CA

Double acting single rod Standard 10A-6 CA Bore B Stroke
Non-rotating 10A-6G CA Bore B Stroke

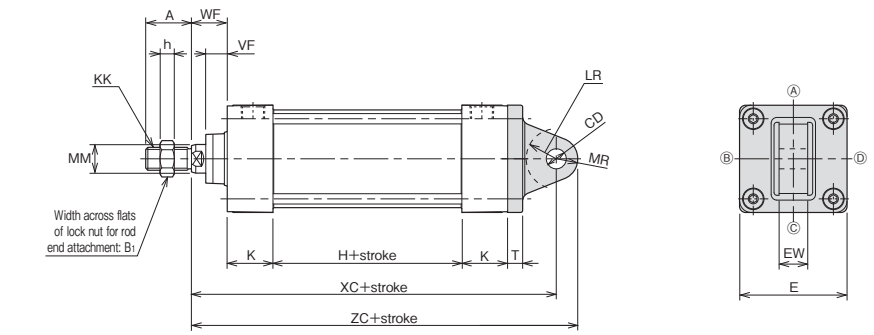
- Bore φ 32 to φ 125
- Standard φ 32 to φ 125
- Non-rotating φ 40 to φ 100



CC

Double acting single rod Standard 10A-6 CC Bore B Stroke
Non-rotating 10A-6G CC Bore B Stroke

- Bore φ 40 to φ 100



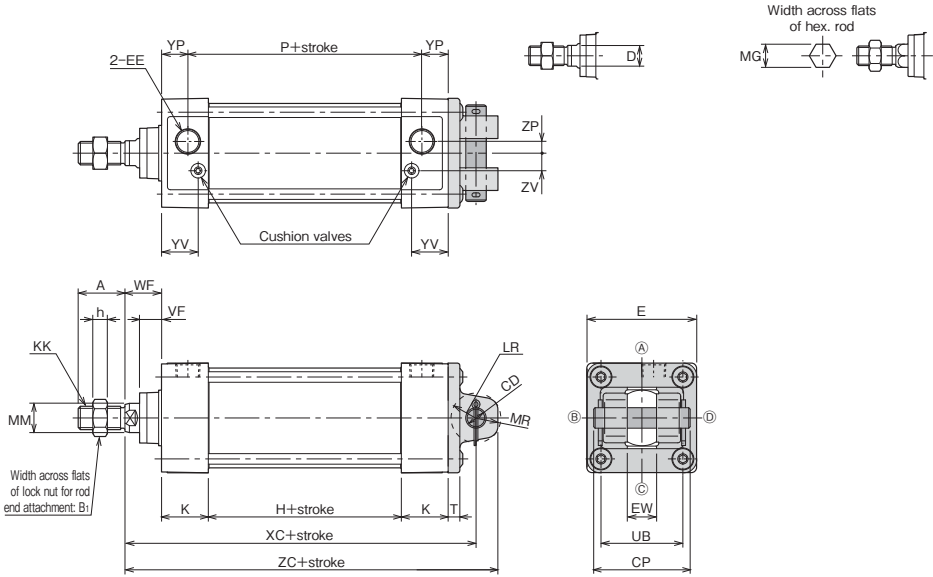
- For dimensions not shown here, refer to the SD style (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except dimensions of the rod end.
- For dimensional drawings of rod end attachments, refer to the accessories.
- For the mounting of sensors, see the dimensional drawings of Switch Set.
- For the mounting of valves, see the dimensional drawings of VAL Set.

CAD/DATA 10A-6/TA6 [Bore]A is available.

CB

Double acting single rod [Standard] 10A-6 CB [Bore] [B] Stroke [Non-rotating] 10A-6G CB [Bore] [B] Stroke

● Standard φ 32 to φ 125 ● Non-rotating φ 40 to φ 100



- For dimensions not shown here, refer to the SD style (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except dimensions of the rod end.
- For dimensional drawings of rod end attachments, refer to the accessories.
- For the mounting of sensors, see the dimensional drawings of Switch Set.
- For the mounting of valves, see the dimensional drawings of VAL Set.

10A-6 General Pneumatic Cylinders

Dimensional Table

Symbol Bore	A	B ₁	CD	CP	D	E	EE	EW	H	K	KK	LR	MG
φ32	22 (19)	17	φ12 ^{H9} / _{r8}	46	10	□44	Rc1/8	16 ^{+0.7} / _{+0.5}	31	31	M10×1.25	R17	—
φ40	24 (21)	19	φ14 ^{H9} / _{r8}	58	14	□50	Rc1/4	20 ^{+0.7} / _{+0.5}	31	31	M12×1.25	R17	14
φ50	32 (29)	22	φ14 ^{H9} / _{r8}	66	17	□62	Rc1/4	20 ^{+0.7} / _{+0.5}	31	31	M16×1.5	R17	19
φ63	32 (29)	22	φ14 ^{H9} / _{r8}	66	17	□75	Rc3/8	20 ^{+0.7} / _{+0.5}	32	32	M16×1.5	R17	19
φ80	40 (37)	27	φ20 ^{H9} / _{r8}	78	21	□94	Rc3/8	32 ^{+0.7} / _{+0.5}	36	36	M20×1.5	R30	23
φ100	40 (37)	27	φ20 ^{H9} / _{r8}	78	26	□112	Rc1/2	32 ^{+0.7} / _{+0.5}	36	36	M20×1.5	R30	23
φ125	54 (50)	36	φ20 ^{H9} / _{r8}	78	32	□136	Rc1/2	32 ^{+0.7} / _{+0.5}	42	36	M27×2	R30	—

Symbol Bore	MM	MR	P	T	UB	VF	WF	XC	YP	YV	ZC	ZP	ZV	h
φ32	φ12	R15	61	8	33	15	25	137	16	25.5	150	3	7	6
φ40	φ16	R15	57	8	45	15	25	137	18	25.5	150	4	10	7
φ50	φ20	R17	57	8	53	15	25	137	18	24	152	7	12	10
φ63	φ20	R17	60	8	53	15	25	140	18	25	155	8	12	10
φ80	φ25	R24	68	11	67	21	35	175	20	29	196	11	16	12
φ100	φ30	R24	68	11	67	21	35	175	20	29	196	12	18	12
φ125	φ35	R22	74	14	65	21	35	181	20	29	197	14	20	16

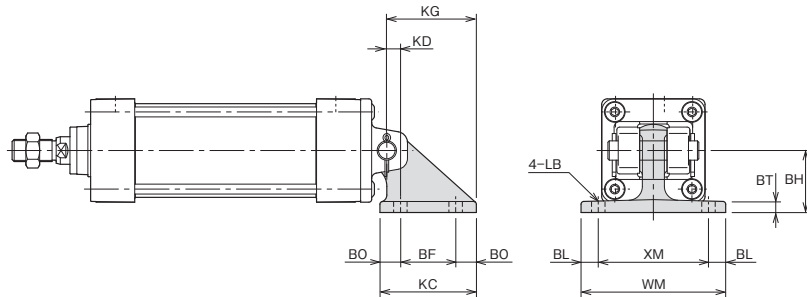
* The parenthesized values of dimension A indicate the screw length.

Bracket for CB

10A-6/TA6 [Bore]K [Bore]

Dimensional Table

Symbol Bore	Part number	BF	BH	BL	BO	BT	KC	KD	KG	LB	WM	XM
φ32	BCA-12-A	40	35	10	11.5	8	63	5	56.5	φ9	85	65
φ40	BCA-14-A	40	45	12.5	16.5	8	73	10	66.5	φ11	105	80
φ50												
φ63												
φ80	BCA-20-A	65	60	15	16.5	12	98	5	86.5	φ14	135	105
φ100												
φ125												
φ125	BCA-20-1-A	77	75	17.5	20	15	117	17.5	114.5	φ18	145	110



10A-6 General Pneumatic Cylinders

10A-6

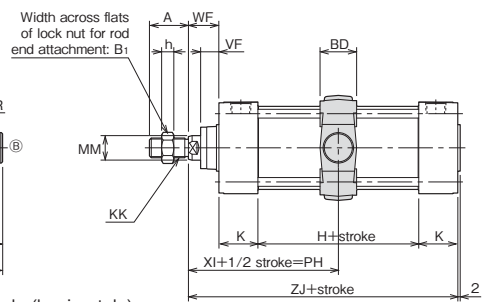
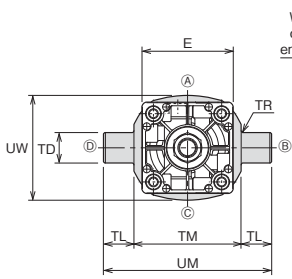
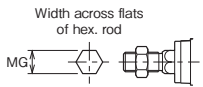
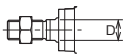
Pneumatic Cylinder

Unit: mm

TC

Double acting single rod **Standard** 10A-6 TC **Bore** **B** **Stroke**
Non-rotating 10A-6G TC **Bore** **B** **Stroke**

- Standard ϕ 32 to ϕ 125
- Non-rotating ϕ 40 to ϕ 100



- For dimensions not shown here, refer to the SD style (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except dimensions of the rod end.
- For dimensional drawings of rod end attachments, refer to the accessories.
- For the mounting of sensors, see the dimensional drawings of Switch Set.
- For the mounting of valves, see the dimensional drawings of VAL Set.

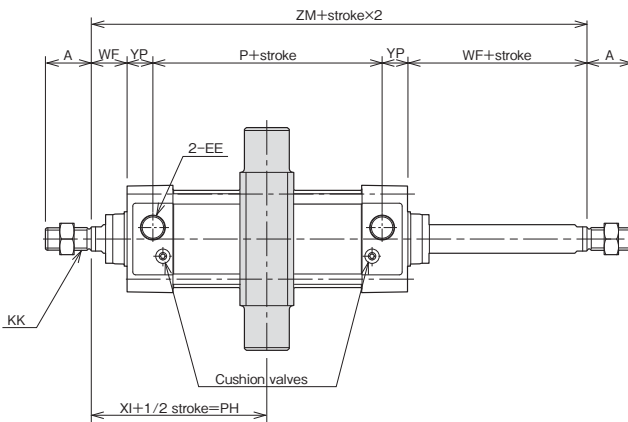
Double acting double rod **Standard** 10A-6D TC **Bore** **B** **Stroke**
Non-rotating 10A-6GD TC **Bore** **B** **Stroke**

10A-6/TA6 **Bore** **B** ?

- Non-rotating (ϕ 40 to ϕ 100)



Note) Hex. rod on one side, and round rod on one side



- For dimensions not shown here, refer to the double acting single rod cylinder.

CAD/DATA
10A-6/TA6 **Bore** **A** is available. ?

Pneumatic Cylinder

Unit: mm

10A-6

Dimensional Table

Symbol Bore	A	B ₁	BD	D	E	EE	H	K	KK	MG	MM	P	Min. PH	TD
ϕ 32	22 (19)	17	30	10	$\square$ 44	Rc1/8	31	31	M10×1.25	—	ϕ 12	61	71	ϕ 16e9
ϕ 40	24 (21)	19	30	14	$\square$ 50	Rc1/4	31	31	M12×1.25	14	ϕ 16	57	71	ϕ 25e9
ϕ 50	32 (29)	22	30	17	$\square$ 62	Rc1/4	31	31	M16×1.5	19	ϕ 20	57	71	ϕ 25e9
ϕ 63	32 (29)	22	30	17	$\square$ 75	Rc3/8	32	32	M16×1.5	19	ϕ 20	60	72	ϕ 25e9
ϕ 80	40 (37)	27	35	21	$\square$ 94	Rc3/8	36	36	M20×1.5	23	ϕ 25	68	88.5	ϕ 25e9
ϕ 100	40 (37)	27	40	26	$\square$ 112	Rc1/2	36	36	M20×1.5	23	ϕ 30	68	91	ϕ 25e9
ϕ 125	54 (50)	36	43	32	$\square$ 136	Rc1/2	42	36	M27×2	—	ϕ 35	74	92.5	ϕ 25e9

Symbol Bore	TL	TM	TR	UM	UW	VF	WF	XI	YP	YV	ZJ	ZM	ZP	ZV	h
ϕ 32	16	55	R1	87	53	15	25	71.5	16	25.5	118	143	3	7	6
ϕ 40	25	63	R1.6	113	60	15	25	71.5	18	25.5	118	143	4	10	7
ϕ 50	25	76	R1.6	126	72	15	25	71.5	18	24	118	143	7	12	10
ϕ 63	25	88	R1.6	138	87	15	25	73	18	25	121	146	8	12	10
ϕ 80	25	114	R1.6	164	105	21	35	89	20	29	143	178	11	16	12
ϕ 100	25	132	R2	182	129	21	35	89	20	29	143	178	12	18	12
ϕ 125	25	158	R2	208	159	21	35	92	20	29	149	184	14	20	16

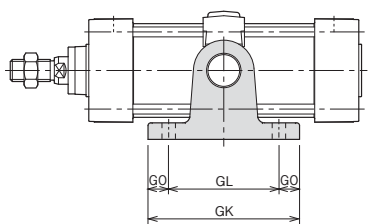
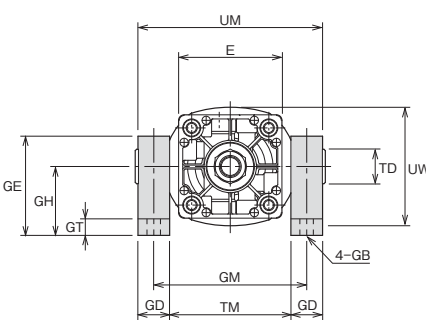
* The parenthesized values of dimension A indicate the screw length.

Bracket for TC

10A-6/TA6 **Bore** **K** ?

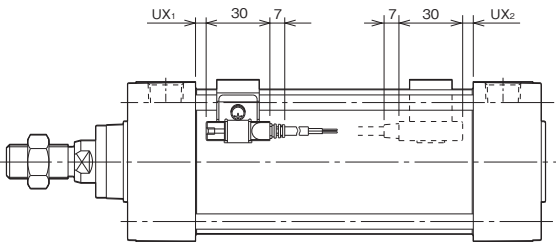
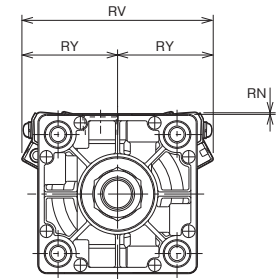
Dimensional Table

Symbol Bore	Part number	E	GB	GD	GE	GH	GK	GL	GM	GO	GT	TD	TM	UM	UW
ϕ 32	BTA-16-A	$\square$ 44	ϕ 9	15	56	40	81	60	70	10.5	12	ϕ 16	55	87	53
ϕ 40	BTA-25-A	$\square$ 50	ϕ 12	23	74	50	111	80	86	15.5	14	ϕ 25	63	113	60
ϕ 50		$\square$ 62	ϕ 12	23	74	50	111	80	99	15.5	14	ϕ 25	76	126	72
ϕ 63		$\square$ 75	ϕ 12	23	74	50	111	80	111	15.5	14	ϕ 25	88	138	87
ϕ 80	BTA-25-1-A	$\square$ 94	ϕ 14	23	92	70	121	85	137	18	14	ϕ 25	114	164	105
ϕ 100		$\square$ 112	ϕ 14	23	92	70	121	85	155	18	14	ϕ 25	132	182	129
ϕ 125	BTA-25-2-A	$\square$ 136	ϕ 18	25	116	85	145	105	183	20	27	ϕ 25	158	208	159

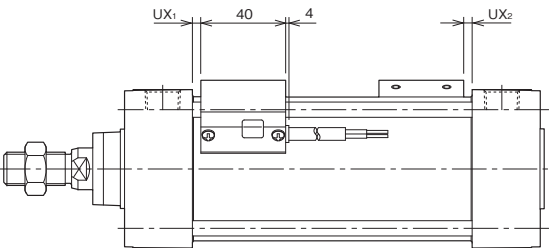
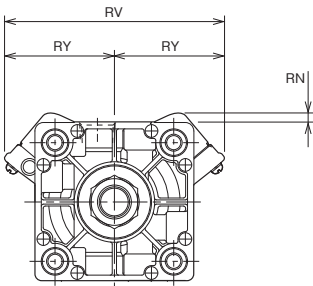


Switch Set

- AX type sensor



- SR type sensor



Dimensional Table

Symbol Bore	RY		RV		RN		UX ₁		UX ₂	
	AX type	SR type	AX type	SR type	AX type	SR type	AX type	SR type	AX type	SR type
φ32	32	38	64	76	4	5	8	2	4	0
φ40	36	40	72	80	3	4	8	2	4	0
φ50	40	45	80	90	2	3	9	2	5	0
φ63	47	52	94	104	2	5	9	2	5	0
φ80	52	60	104	120	0	2	11	4	6	0
φ100	60	67	120	134	0	0	11	4	6	0
φ125	72	76	144	152	0	0	13	4	9	3

Note) Dimension UX indicates the optimum sensor mounting position for detection of stroke end.

Operating Range and Hysteresis

Bore	Reed sensor				Solid state sensor						
	AX1** type		SR type		AX2** type						
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis					
φ32	5 to 10	1 or less	8 to 12	2 or less	3 to 6	1 or less					
φ40			9 to 13		4 to 8						
φ50											
φ63	6 to 12										
φ80											
φ100											
φ125	8 to 14										

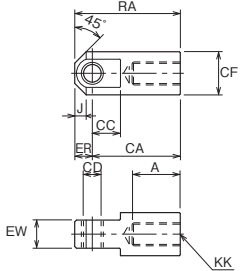
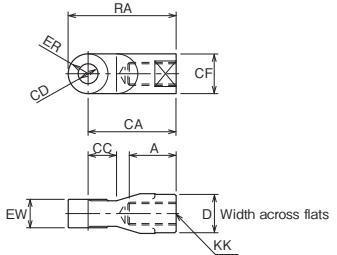
CAD/DATA
10A-6/TA6  is available. 

Rod End Attachment

●Rod eye(T-end)

φ32 to φ100

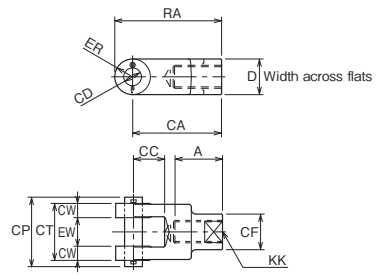
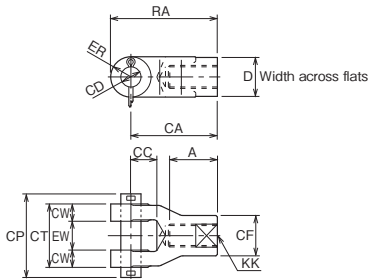
φ 125



●Rod clevis(Y-end)with pin

φ32 to φ100

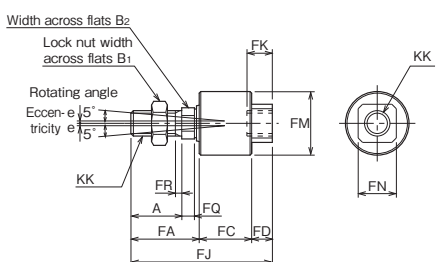
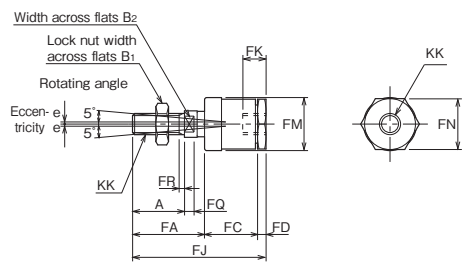
φ 125



●Floating joint(F-end)

φ 32

φ40 to φ125



Note) The insertion of the floating joint into the socket shall not equal or exceed the dimension of screw diameter.
(Return the joint one or two turns after it gets into contact with the socket bottom, and fix it with a lock nut.)
Excessive insertion can cause operation failure.
●DO NOT use together with CA, CB, CC, and TC accessories.

Dimensional Table/Rod eye (T-end)

Symbol	Part number	A	CA	CC	CD	CF	D	ER	EW	J	KK	RA
Bore												
φ32	RTA-10-A	23	55	20	φ12H9	φ24	24	R12	16 ⁰ _{-0.1}	—	M10×1.25	67
φ40	RTA-12-A	25	60	20	φ14H9	φ24	24	R12	20 ⁰ _{-0.1}	—	M12×1.25	72
φ50	RTA-16-A	33	60	20	φ14H9	φ28	27	R14	20 ⁰ _{-0.1}	—	M16×1.5	74
φ63												
φ80	RTA-20-A	41	85	30	φ20H9	φ36	36	R19	32 ⁰ _{-0.1}	—	M20×1.5	104
φ100												
φ125	RTA-27-A	56	100	32	φ20H9	φ49	—	20	32 ⁰ _{-0.1}	13	M27×2	120

Dimensional Table/Rod clevis (Y-end) with pin

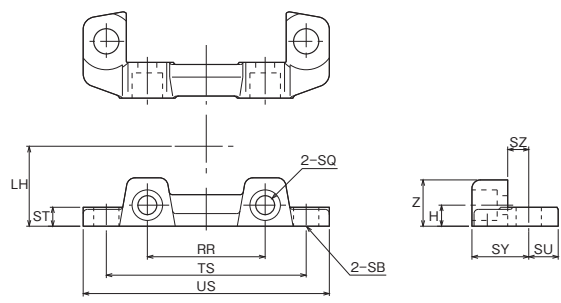
Symbol	Part number	A	CA	CC	CD	CF	CP	CT	CW	D	ER	EW	KK	RA
Bore														
φ32	RYA-10-1-A	23	55	20	φ12 ^{H9} ₁₈	φ24	46	32	8	24	R12	16 ^{+1.5} _{+0.5}	M10×1.25	67
φ40	RYA-12-1-A	25	60	20	φ14 ^{H9} ₁₈	φ24	58	44	12	24	R12	20 ^{+1.5} _{+0.5}	M12×1.25	71
φ50	RYA-16-A	33	60	18	φ14 ^{H9} ₁₈	φ28	58	44	12	27	R14	20 ^{+1.5} _{+0.5}	M16×1.5	74
φ63														
φ80	RYA-20-A	41	85	28	φ20 ^{H9} ₁₈	φ36	78	64	16	36	R19	32 ^{+1.5} _{+0.5}	M20×1.5	104
φ100														
φ125	RYA-27-A	56	100	35	φ20 ^{H9} ₁₈	φ40	78	64	16	40	R20	32 ^{+1.5} _{+0.5}	M27×2	120

Dimensional Table/Floating joint (F-end)

Symbol	Part number	A	B ₁	B ₂	e	FA	FC	FD	FJ	FK	FM	FN	FQ	FR	KK
Bore															
φ32	RFS-10T	24.5	17	10	1	31	28	4	63	11	φ25	24	4.5	2.5	M10×1.25
φ40	RFS-12T	24	19	13	1	33	25.5	11	69.5	13.5	φ32	□19	7	3.5	M12×1.25
φ50·φ63	RFS-16T	32	22	17	1.5	43	33	13	89	16	φ40	□24	8	4	M16×1.5
φ80	RFS-20T080	40	27	22	2	53	42	15	110	22	φ50	□30	9	5	M20×1.5
φ100	RFS-20T100	40	27	24	2.5	56	49	18	123	24	φ64	□36	12	6	M20×1.5
φ125	RFS-27T	54	36	32	2.5	74	62	21	157	30	φ76	□46	14	7	M27×2

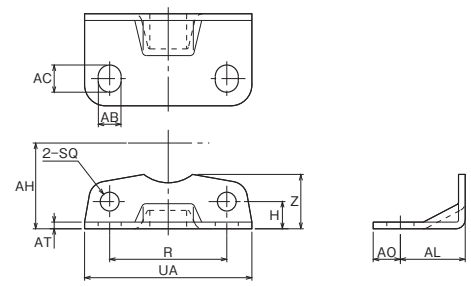
Mounting Accessory

- LA(side lugs)



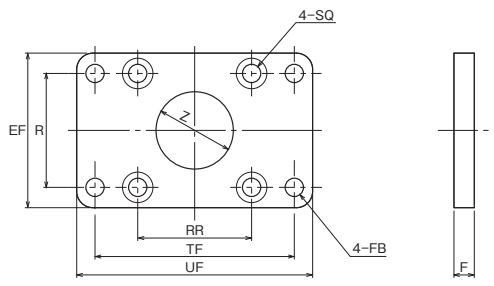
● With mounting bolts for cylinder body
(A set includes 2 accessories.)

- LB(end angles)



● With mounting bolts for cylinder body
(A set includes 2 accessories.)

- FA(rod flange) and FB(cap flange)



● With mounting bolts for cylinder body

Dimensional Table/LA (side lugs)

Symbol Bore	Part number	H	LH	RR	SB	SQ	ST	SU	SY	SZ	TS	US	Z
φ32	MAA6-LA032	5.5	22	□33	φ9	φ7	8	14	23	10	63	81	14
φ40	MAA6-LA040	6.5	25	□37	φ12	φ7	8	14	23	10	70	92	16
φ50	MAA6-LA050	7.5	31	□47	φ12	φ7	9	14	25	10	83	105	17
φ63	MAA6-LA063	10	38	□56	φ12	φ9	9	14	27	10	95	117	22
φ80	MAA6-LA080	12	47	□70	φ14	φ11	13	18	34	13	121	147	28
φ100	MAA6-LA100	15	57	□84	φ14	φ11	14	18	38	13	140	168	30
φ125	MAA6-LA125	17	69	□104	φ18	φ13	18	21	46	17	175	213	35

Dimensional Table/LB (end angles)

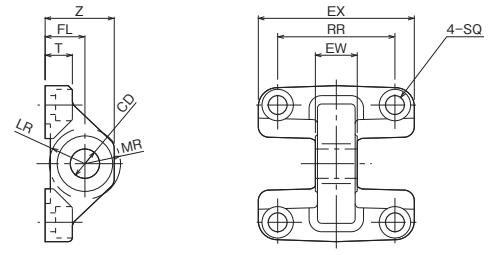
Symbol Bore	Part number	AB	AC	AH	AL	AO	AT	H	R	UA	SQ	Z
φ32	MAA6-LB032	9	11	28	20.5	9.5	3.2	11.5	33	50	φ7	20
φ40	MAA6-LB040	11	13	30	23.5	12.5	3.2	11.5	36	57	φ7	21
φ50	MAA6-LB050	11	13	36.5	28	12	3.2	13	47	68	φ7	23
φ63	MAA6-LB063	11	13	41	31	13	3.2	13	56	80	φ9	26
φ80	MAA6-LB080	14	16	49	30	16	4	14	70	97	φ11	30
φ100	MAA6-LB100	14	16	57	30	16	4	15	84	112	φ11	35
φ125	MAA6-LB125	18	20	70	35	18	6	18	104	136	φ13	45

Dimensional Table/FA (rod flange) and FB (cap flange)

Symbol Bore	Part number	EF	F	FB	R	RR	SQ	TF	UF	Z
φ32	MAA6-FA032	47	10	φ7	33	□33	φ6.6	58	72	φ26
φ40	MAA6-FA040	52	10	φ7	36	□37	φ6.6	70	84	φ32
φ50	MAA6-FA050	65	10	φ9	47	□47	φ6.6	86	104	φ38
φ63	MAA6-FA063	76	10	φ9	56	□56	φ9	98	116	φ38
φ80	MAA6-FA080	95	16	φ12	70	□70	φ11	119	143	φ44
φ100	MAA6-FA100	115	16	φ12	84	□84	φ11	138	162	φ50
φ125	MAA6-FA125	138	16	φ14	104	□104	φ13	168	196	φ60

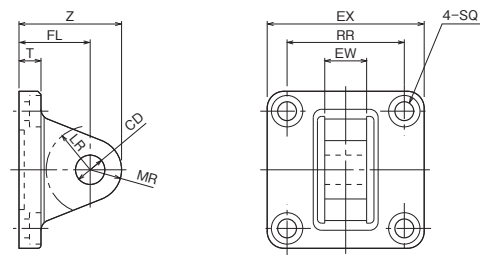
Mounting Accessory

●CA(cap eye)



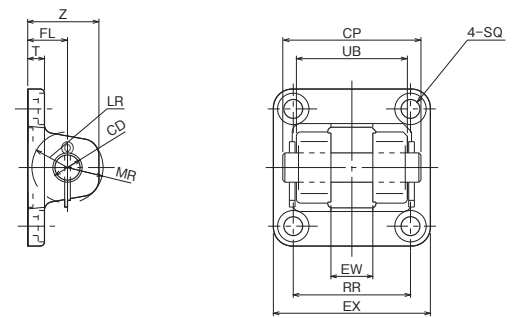
● With mounting bolts for cylinder body

●CC(cap eye)



● With mounting bolts for cylinder body

●CB(cap clevis)



● With mounting bolts for cylinder body

Dimensional Table/CA (cap eye)

Symbol Bore	Part number	CD	EW	EX	FL	LR	MR	RR	SQ	T	Z
φ32	MAA6-CA032	φ12H9	16 ⁰ _{-0.070}	□44	19	R16	R16	□33	φ6.6	8	32
φ40	MAA6-CA040	φ14H9	20 ⁰ _{-0.084}	□50	19	R17	R17	□37	φ6.6	8	33
φ50	MAA6-CA050	φ14H9	20 ⁰ _{-0.084}	□60	19	R17	R17	□47	φ6.6	10	33
φ63	MAA6-CA063	φ14H9	20 ⁰ _{-0.084}	□75	19	R17	R17	□56	φ9	13	33
φ80	MAA6-CA080	φ20H9	32 ⁰ _{-0.100}	□94	32	R25	R24	□70	φ11	18	53
φ100	MAA6-CA100	φ20H9	32 ⁰ _{-0.100}	□111	32	R26	R24	□84	φ11	18	52
φ125	MAA6-CA125	φ20H9	32 ⁰ _{-0.100}	□135	32	R30	R25	□104	φ13	21	52

Dimensional Table/CC (cap eye)

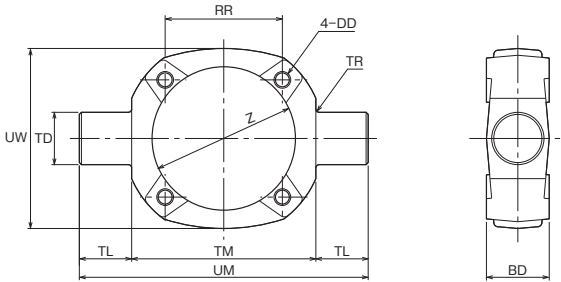
Symbol Bore	Part number	CD	EW	EX	FL	LR	MR	RR	SQ	T	Z
φ40	MAA6-CC040	φ14H9	20 ⁰ _{-0.3}	□50	34	R21	R14	□37	φ6.6	11	48
φ50	MAA6-CC050	φ14H9	20 ⁰ _{-0.3}	□62	34	R21	R15	□47	φ6.6	11	49
φ63	MAA6-CC063	φ14H9	20 ⁰ _{-0.3}	□75	34	R21	R15	□56	φ9	11	49
φ80	MAA6-CC080	φ20H9	32 ⁰ _{-0.3}	□94	48	R25	R20	□70	φ11	15	68
φ100	MAA6-CC100	φ20H9	32 ⁰ _{-0.3}	□112	48	R25	R20	□84	φ11	15	68

Dimensional Table/CB (cap clevis)

Symbol Bore	Part number	CD	CP	EW	EX	FL	LR	MR	T	SQ	RR	UB	Z
φ32	MAA6-CB032	φ12 ^{H9} _{T8}	46	16 ^{+0.7} _{+0.5}	□44	19	R17	R15	8	φ6.6	□33	33	32
φ40	MAA6-CB040	φ14 ^{H9} _{T8}	58	20 ^{+0.7} _{+0.5}	□50	19	R17	R15	8	φ6.6	□37	45	32
φ50	MAA6-CB050	φ14 ^{H9} _{T8}	66	20 ^{+0.7} _{+0.5}	□60	19	R17	R17	8	φ6.6	□47	53	34
φ63	MAA6-CB063	φ14 ^{H9} _{T8}	66	20 ^{+0.7} _{+0.5}	□75	19	R17	R17	8	φ9	□56	53	34
φ80	MAA6-CB080	φ20 ^{H9} _{T8}	78	32 ^{+0.7} _{+0.5}	□94	32	R30	R24	11	φ11	□70	67	53
φ100	MAA6-CB100	φ20 ^{H9} _{T8}	78	32 ^{+0.7} _{+0.5}	□111	32	R30	R24	11	φ11	□84	67	53
φ125	MAA6-CB125	φ20 ^{H9} _{T8}	78	32 ^{+0.7} _{+0.5}	□136	32	R30	R22	14	φ13	□104	65	48

Mounting Accessory

- TC(intermediate trunnion)



Dimensional Table/TC (intermediate trunnion)

Symbol Bore	Part number	BD	DD	RR	TD	TL	TM	TR	UM	UW	Z
φ32	MAA6-TC032	30	M6×1	□33	φ16e9	16	55	R1	87	53	φ36.5
φ40	MAA6-TC040	30	M6×1	□37	φ25e9	25	63	R1.6	113	60	φ44.5
φ50	MAA6-TC050	30	M6×1	□47	φ25e9	25	76	R1.6	126	72	φ55.5
φ63	MAA6-TC063	30	M8×1.25	□56	φ25e9	25	88	R1.6	138	87	φ68.5
φ80	MAA6-TC080	35	M10×1.5	□70	φ25e9	25	114	R1.6	164	105	φ87.5
φ100	MAA6-TC100	40	M10×1.5	□84	φ25e9	25	132	R2	182	129	φ107.5
φ125	MAA6-TC125	43	M12×1.75	□104	φ25e9	25	158	R2	208	159	φ133.5

Specifications for Adjustable Stroke Cylinders

Series variations	With adjustable extended stroke		With adjustable retracted stroke	
	Standard type	VAL Set	Standard type	VAL Set
Series	10A-6A1	10A-6VA1	10A-6A2	10A-6VA2
Cylinder bore (mm)	φ32·φ40·φ50·φ63 φ80·φ100·φ125	φ40·φ50·φ63 φ80·φ100	φ32·φ40·φ50·φ63 φ80·φ100·φ125	φ40·φ50·φ63 φ80·φ100
Working fluid	Air			
Lubrication	Unnecessary			
Working pressure range	0.1 to 1 MPa	0.17 to 0.7 MPa	0.05 to 1 MPa	0.17 to 0.7 MPa
Working speed range	50 to 700mm/s		30 to 700mm/s	
Proof test pressure	1.5 MPa		1.5 MPa	
Working temperature range	−10 to +70°C (No freezing)	+5 to +50°C	−10 to +70°C (No freezing)	+5 to +50°C
Structure of cushioning	With cushions on both ends (cushion pad at rod extending end for adjustment)		With cushions on both ends (none at rod retracting end for adjustment)	
Cushion stroke (cushion ring parallel part length)	φ32·φ40: 16mm φ50·φ63: 20mm φ80·φ100·φ125: 25mm			
Stroke adjusting method	Stopper adjustment		Adjuster screw adjustment	
Stroke adjusting range	0 to 50mm		φ32·φ40: 0 to 57mm φ50·φ63·φ80·φ100·φ125: 0 to 60mm	
Tolerance for thread	JIS 6H/6g			
Mounting style	SD · LA · LB · FA · TC · TC/B		SD · LA · LB · FA · TC · TC/B	

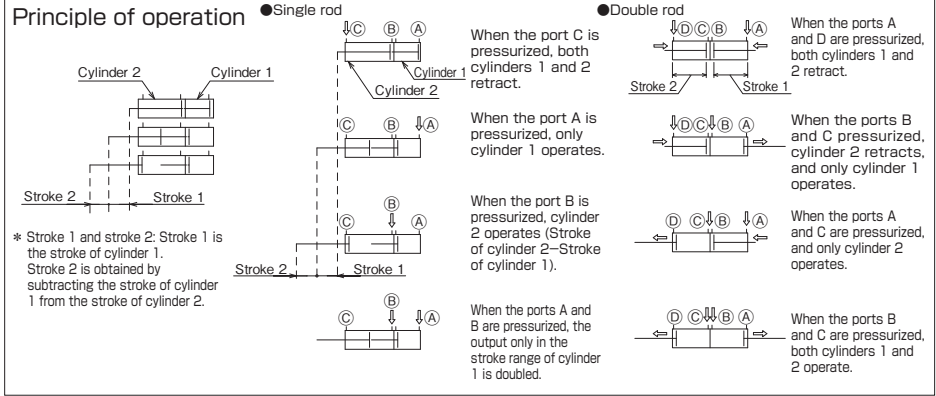
Note) For the working speed range, see the selection materials to check the relationship between the speed and the cushion mechanism.

Order Made Specifications
Specifications for Dual Stroke Cylinders

Series variations	Single rod		Double rod	
	Standard type		Standard type	
Series	10A-6Q1		10A-6Q2	
Cylinder bore (mm)	φ 40 · φ 50 · φ 63 · φ 80 · φ 100		φ 32 · φ 40 · φ 50 · φ 63 · φ 80 · φ 100 · φ 125	
Working fluid	Air			
Lubrication	Unnecessary			
Working pressure range	0.1 to 0.7 MPa		0.05 to 0.7 MPa	
Working speed range	50 to 700mm/s			
Proof test pressure	1.05 MPa			
Working temperature range	−10 to +70°C (No freezing)			
Structure of cushioning	With cushions on both ends			
Cushion stroke (cushion ring parallel part length)	φ 32 · φ 40: 16mm φ 50 · φ 63: 20mm φ 80 · φ 100 · φ 125: 25mm			
Tolerance for thread	JIS 6H/6g			
Mounting style	SD · LA · LB · FA · FB CA · CC · CB · CB w/ bracket · TC · TC w/ bracket		SD · LA · LB · FA · TC · TC w/ bracket	

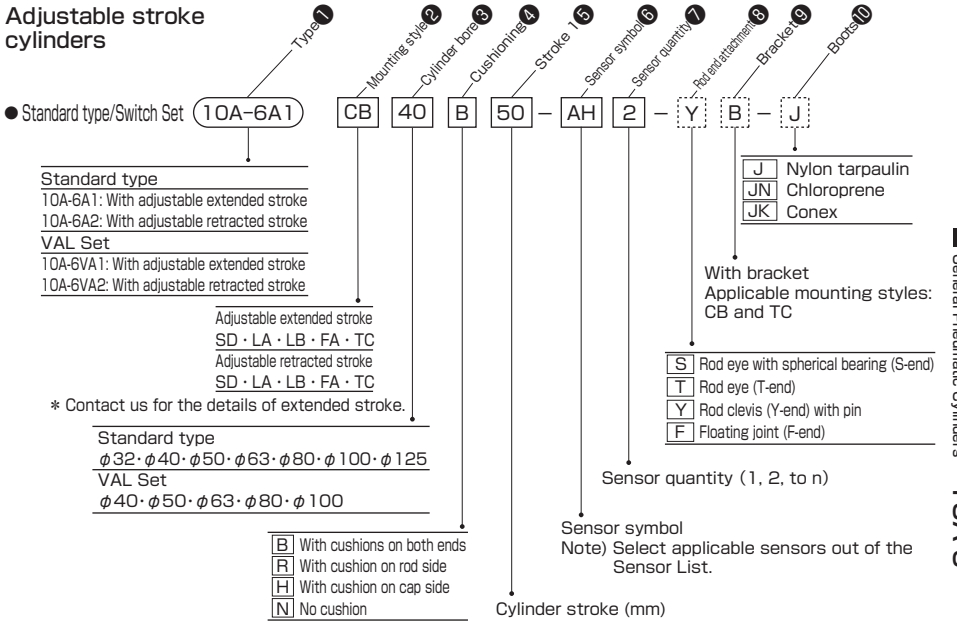
Note) For the working speed range, see the selection materials to check the relationship between the speed and the cushion mechanism.

Principle of operation



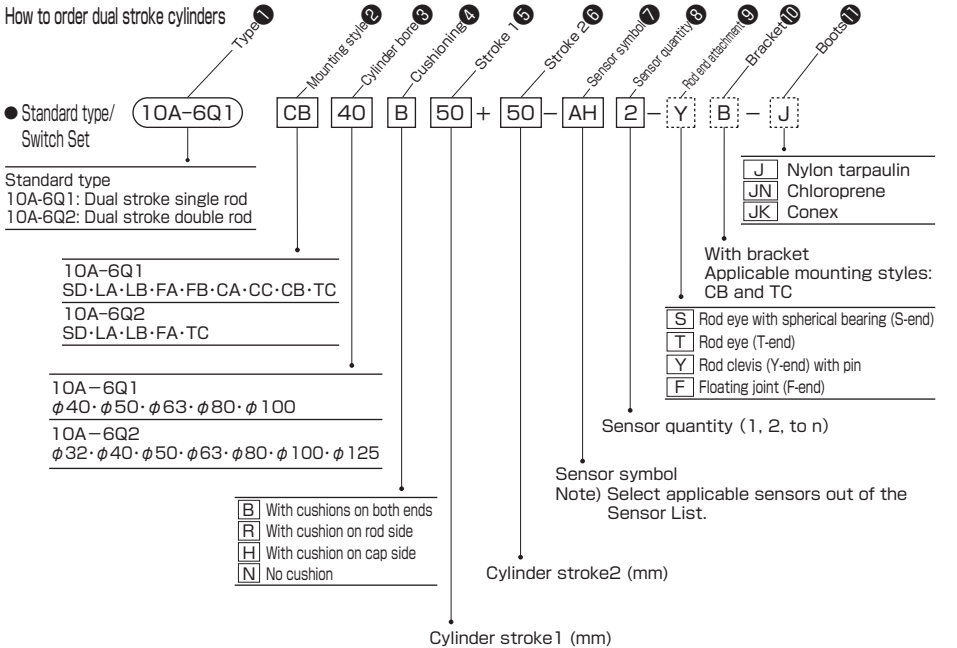
How to order

Adjustable stroke cylinders



* For details, please contact us.

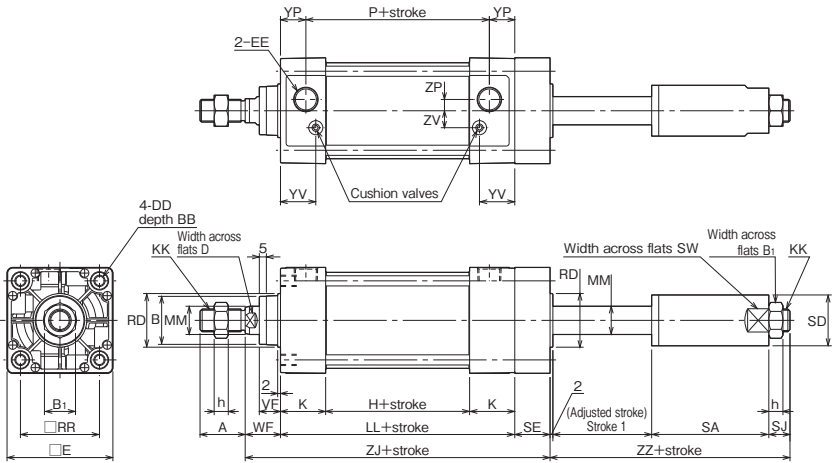
How to order dual stroke cylinders



* For details, please contact us.

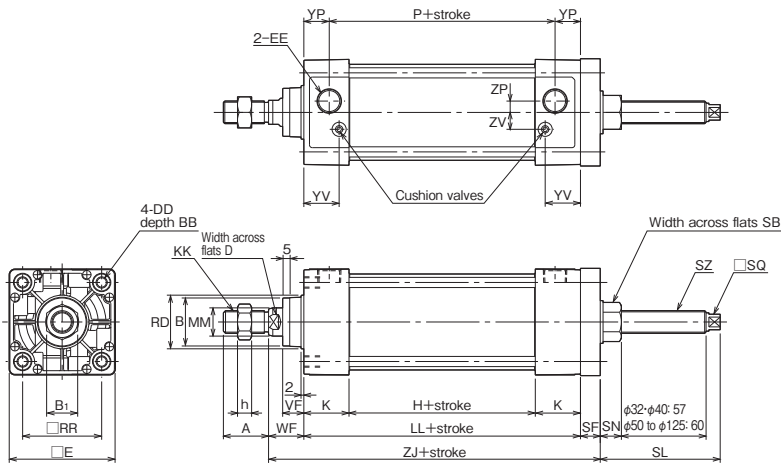
Stroke Adjustment

Adjustable extended stroke 10A-6A1 SD Bore B Stroke



- Stroke adjusting range: 0 to 50 mm
- Mounting style: SD, LA, LB, FA, TC
- For details, please contact us.

Adjustable retracted stroke 10A-6A2 SD Bore B Stroke



- Stroke adjusting range $\phi 32 \cdot \phi 40$: 0 to 57mm
 $\phi 50$ to $\phi 125$: 0 to 60mm
- Mounting style: SD, LA, LB, FA, TC
- For details, please contact us.

Dimensional Table/Adjustable extended stroke

Symbol	A	B	B ₁	BB	D	DD	E	EE	H	K	KK	LL	MM	P
Bore														
$\phi 32$	22(19)	$\phi 24$	17	14	10	M6×1	44	Rc1/8	31	31	M10×1.25	93	$\phi 12$	61
$\phi 40$	24(21)	$\phi 30$	19	14	14	M6×1	50	Rc1/4	31	31	M12×1.25	93	$\phi 16$	57
$\phi 50$	32(29)	$\phi 34$	22	14	17	M6×1	62	Rc1/4	31	31	M16×1.5	93	$\phi 20$	57
$\phi 63$	32(29)	$\phi 34$	22	14	17	M8×1.25	75	Rc3/8	32	32	M16×1.5	96	$\phi 20$	60
$\phi 80$	40(37)	$\phi 39$	27	15	21	M10×1.5	94	Rc3/8	36	36	M20×1.5	108	$\phi 25$	68
$\phi 100$	40(37)	$\phi 46$	27	15	26	M10×1.5	112	Rc1/2	36	36	M20×1.5	108	$\phi 30$	68
$\phi 125$	54(50)	$\phi 55$	36	15	32	M12×1.75	136	Rc1/2	42	36	M27×2	114	$\phi 35$	74

Symbol	RD	RR	SA	SD	SE	SJ	SW	VF	WF	YP	YV	ZJ	ZP	ZV	ZZ	h
Bore																
$\phi 32$	$\phi 26$	33	69	$\phi 25$	25	10	22	15	25	16	25.5	143	3	7	81	6
$\phi 40$	$\phi 32$	37	74	$\phi 30$	25	11	27	15	25	18	25.5	143	4	10	87	7
$\phi 50$	$\phi 38$	47	83	$\phi 36$	25	14	32	15	25	18	24	143	7	12	99	10
$\phi 63$	$\phi 38$	56	83	$\phi 36$	25	14	32	15	25	18	25	146	8	12	99	10
$\phi 80$	$\phi 44$	70	84	$\phi 45$	35	17	41	21	35	20	29	178	11	16	103	12
$\phi 100$	$\phi 50$	84	84	$\phi 50$	35	17	46	21	35	20	29	178	12	18	103	12
$\phi 125$	$\phi 60$	104	89	$\phi 55$	40	21	50	21	35	20	29	189	14	20	112	16

* The parenthesized values of dimension A indicate the screw length.

Dimensional Table/Adjustable retracted stroke

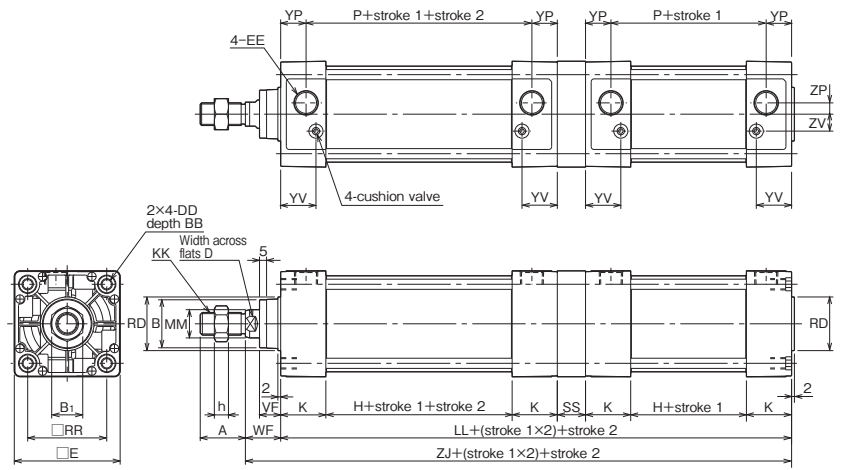
Symbol	A	B	B ₁	BB	D	DD	E	EE	H	K	KK	LL	MM	P
Bore														
$\phi 32$	22(19)	$\phi 24$	17	14	10	M6×1	44	Rc1/8	31	31	M10×1.25	93	$\phi 12$	61
$\phi 40$	24(21)	$\phi 30$	19	14	14	M6×1	50	Rc1/4	31	31	M12×1.25	93	$\phi 16$	57
$\phi 50$	32(29)	$\phi 34$	22	14	17	M6×1	62	Rc1/4	31	31	M16×1.5	93	$\phi 20$	57
$\phi 63$	32(29)	$\phi 34$	22	14	17	M8×1.25	75	Rc3/8	32	32	M16×1.5	96	$\phi 20$	60
$\phi 80$	40(37)	$\phi 39$	27	15	21	M10×1.5	94	Rc3/8	36	36	M20×1.5	108	$\phi 25$	68
$\phi 100$	40(37)	$\phi 46$	27	15	26	M10×1.5	112	Rc1/2	36	36	M20×1.5	108	$\phi 30$	68
$\phi 125$	54(50)	$\phi 55$	36	15	32	M12×1.75	136	Rc1/2	42	36	M27×2	114	$\phi 35$	74

Symbol	RD	RR	SB	SF	SL	SN	SQ	SZ	VF	WF	YP	YV	ZJ	ZP	ZV	h
Bore																
$\phi 32$	$\phi 26$	33	19	14	79	12	8	M12×1.25	15	25	16	25.5	132	3	7	6
$\phi 40$	$\phi 32$	37	19	14	79	12	8	M12×1.25	15	25	18	25.5	132	4	10	7
$\phi 50$	$\phi 38$	47	24	14	85	15	11	M16×1.5	15	25	18	24	132	7	12	10
$\phi 63$	$\phi 38$	56	24	14	85	15	11	M16×1.5	15	25	18	25	135	8	12	10
$\phi 80$	$\phi 44$	70	30	22	91	19	14	M20×1.5	21	35	20	29	165	11	16	12
$\phi 100$	$\phi 50$	84	30	22	91	19	14	M20×1.5	21	35	20	29	165	12	18	12
$\phi 125$	$\phi 60$	104	36	23	96	22	17	M24×1.5	21	35	20	29	172	14	20	16

* The parenthesized values of dimension A indicate the screw length.

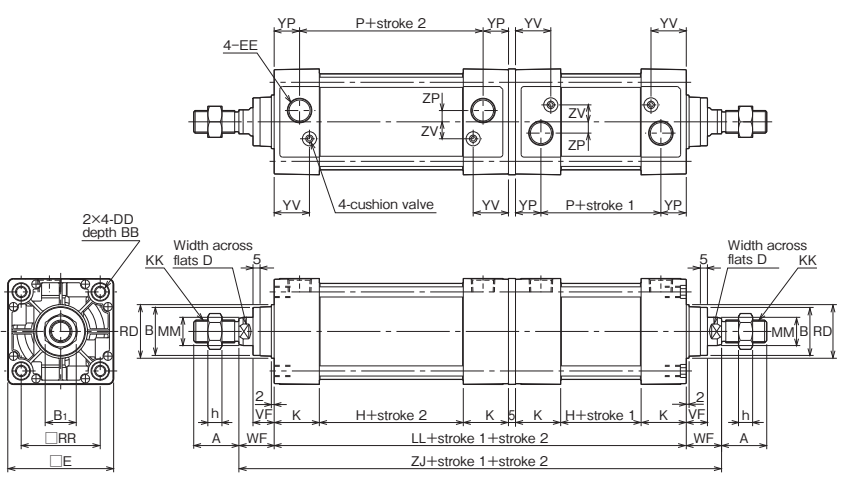
Dual stroke **Order made**

Dual stroke single rod 10A-6Q1 **SD** **Bore** **B** **Stroke1** + **Stroke2**



- Mounting style: SD, LA, LB, FA, FB, CA, CC, CB, TC
- For details, please contact us.

Dual stroke double rod 10A-6Q2 **SD** **Bore** **B** **Stroke1** + **Stroke2**



- Mounting style: SD, LA, LB, FA, TC
- For details, please contact us.

Dimensional Table/Dual stroke single rod

Symbol	A	B	B ₁	BB	D	DD	E	EE	H	K	KK	LL
Bore												
φ40	24(21)	φ30	19	14	14	M6×1	50	Rc1/4	31	31	M12×1.25	206
φ50	32(29)	φ34	22	14	17	M6×1	62	Rc1/4	31	31	M16×1.5	206
φ63	32(29)	φ34	22	14	17	M8×1.25	75	Rc3/8	32	32	M16×1.5	212
φ80	40(37)	φ39	27	15	21	M10×1.5	94	Rc3/8	36	36	M20×1.5	241
φ100	40(37)	φ46	27	15	26	M10×1.5	112	Rc1/2	36	36	M20×1.5	241

Symbol	MM	P	RD	RR	SS	VF	WF	YP	YV	ZJ	ZP	ZV	h
Bore													
φ40	φ16	57	φ32	37	20	15	25	18	25.5	231	4	10	7
φ50	φ20	57	φ38	47	20	15	25	18	24	231	7	12	10
φ63	φ20	60	φ38	56	20	15	25	18	25	237	8	12	10
φ80	φ25	68	φ44	70	25	21	35	20	29	276	11	16	12
φ100	φ30	68	φ50	84	25	21	35	20	29	276	12	18	12

Note) Dual stroke single rod cylinders with bores of 32 and 125 mm are not available.
* The parenthesized values of dimension A indicate the screw length.

Dimensional Table/Dual stroke double rod

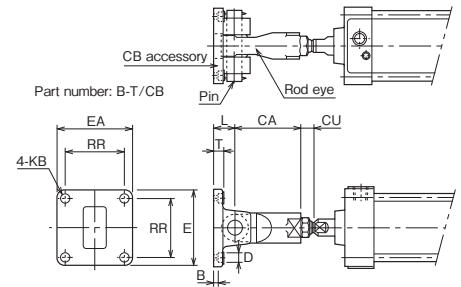
Symbol	A	B	B ₁	BB	D	DD	E	EE	H	K	KK
Bore											
φ32	22(19)	φ24	17	14	10	M6×1	44	Rc1/8	31	31	M10×1.25
φ40	24(21)	φ30	19	14	14	M6×1	50	Rc1/4	31	31	M12×1.25
φ50	32(29)	φ34	22	14	17	M6×1	62	Rc1/4	31	31	M16×1.5
φ63	32(29)	φ34	22	14	17	M8×1.25	75	Rc3/8	32	32	M16×1.5
φ80	40(37)	φ39	27	15	21	M10×1.5	94	Rc3/8	36	36	M20×1.5
φ100	40(37)	φ46	27	15	26	M10×1.5	112	Rc1/2	36	36	M20×1.5
φ125	54(50)	φ55	36	15	32	M12×1.75	136	Rc1/2	42	36	M27×2

Symbol	LL	MM	P	RD	RR	VF	WF	YP	YV	ZJ	ZP	ZV	h
Bore													
φ32	191	φ12	61	φ26	33	15	25	16	25.5	241	3	7	6
φ40	191	φ16	57	φ32	37	15	25	18	25.5	241	4	10	7
φ50	191	φ20	57	φ38	47	15	25	18	24	241	7	12	10
φ63	197	φ20	60	φ38	56	15	25	18	25	247	8	12	10
φ80	221	φ25	68	φ44	70	21	35	20	29	291	11	16	12
φ100	221	φ30	68	φ50	84	21	35	20	29	291	12	18	12
φ125	233	φ35	74	φ60	104	21	35	20	29	303	14	20	16

* The parenthesized values of dimension A indicate the screw length.

Combination of rod end attachments

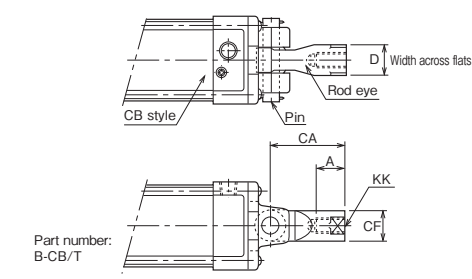
Rod eye—CB accessory



Dimensional Table

Symbol	B	CA	CU		D	E	EA	KB	L	RR	T
			Min.	Max.							
Bore											
φ32	6	55	6	12	φ11	43	43	φ6.6	19	33	8
φ40	6	60	7	13	φ11	49	49	φ6.6	19	37	8
φ50	6	60	10	17	φ11	60	60	φ6.6	19	47	8
φ63	6	60	10	17	φ15	74	74	φ9	19	56	8
φ80	9	85	12	21	φ20	93	93	φ11	32	70	11
φ100	9	85	12	21	φ20	110	110	φ11	32	84	11
φ125	10	100	16	30	φ22	134	134	φ13	32	104	14

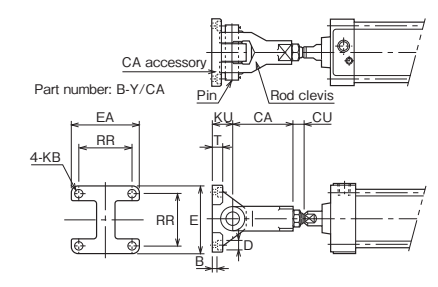
CB style—rod eye



Dimensional Table

Symbol	A	CA	CF	D	KK
Bore					
φ32	23	55	φ24	24	M10×1.25
φ40	25	60	φ24	24	M12×1.25
φ50	33	60	φ28	27	M16×1.5
φ63	33	60	φ28	27	M16×1.5
φ80	41	85	φ36	36	M20×1.5
φ100	41	85	φ36	36	M20×1.5
φ125	56	100	φ49	—	M27×2

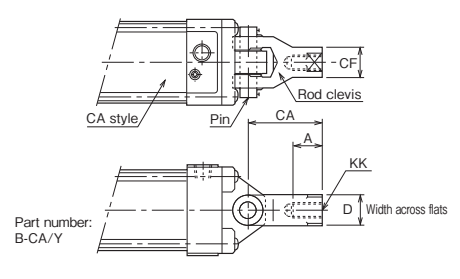
Rod clevis—CA accessory



Dimensional Table

Symbol	B	CA	CU		D	E	EA	KB	KU	RR	T
			Min.	Max.							
Bore											
φ32	6	55	6	12	φ14	43	43	φ6.6	19	33	8
φ40	6	60	7	13	φ14	49	49	φ6.6	19	37	8
φ50	7	60	10	17	φ14	60	60	φ6.6	19	47	10
φ63	10	60	10	17	φ15	74	74	φ9	19	56	13
φ80	14	85	12	21	φ20	93	93	φ11	32	70	18
φ100	14	85	12	21	φ20	110	110	φ11	32	84	18
φ125	14	100	16	30	φ22	134	134	φ13	32	104	18

CA style—rod clevis

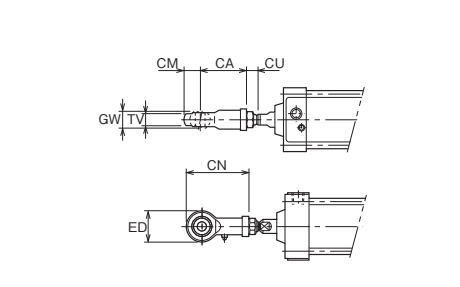


Dimensional Table

Symbol	A	CA	CF	D	KK
Bore					
φ32	23	55	φ24	24	M10×1.25
φ40	25	60	φ24	24	M12×1.25
φ50	33	60	φ28	27	M16×1.5
φ63	33	60	φ28	27	M16×1.5
φ80	41	85	φ36	36	M20×1.5
φ100	41	85	φ36	36	M20×1.5
φ125	56	100	φ40	40	M27×2

Combination of rod end attachments

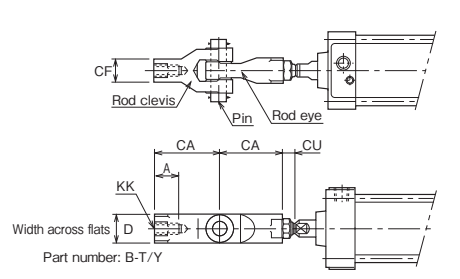
Rod eye with spherical bearing (S-end)



Dimensional Table

Symbol	CA	CM	CN	CU		ED	GW	TV
				Min.	Max.			
Bore								
φ32	43	13	56	6	12	26	14 ⁰ _{-0.1}	10.5±0.1
φ40	50	15	65	7	13	30	16 ⁰ _{-0.1}	12±0.1
φ50	64	19	83	10	17	38	21 ⁰ _{-0.1}	15±0.1
φ63	64	19	83	10	17	38	21 ⁰ _{-0.1}	15±0.1
φ80	77	23	100	12	21	46	25 ⁰ _{-0.1}	18±0.1
φ100	77	23	100	12	21	46	25 ⁰ _{-0.1}	18±0.1

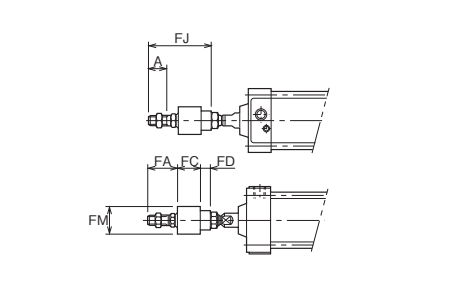
Rod eye—rod clevis



Dimensional Table

Symbol	A	CA	CF	CU		D	KK
				Min.	Max.		
Bore							
φ32	23	55	φ24	6	12	24	M10×1.25
φ40	25	60	φ24	7	13	24	M12×1.25
φ50	33	60	φ28	10	17	27	M16×1.5
φ63	33	60	φ28	10	17	27	M16×1.5
φ80	41	85	φ36	12	21	36	M20×1.5
φ100	41	85	φ36	12	21	36	M20×1.5
φ125	56	100	φ40	16	30	40	M27×2

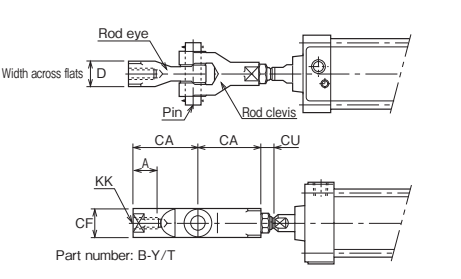
With floating joint



Dimensional Table

Symbol	A	FA	FC	FD	FJ	FM
Bore						
φ32	24.5	31	28	4	63	φ25
φ40	24	33	25.5	11	69.5	φ32
φ50	32	43	33	13	89	φ40
φ63	32	43	33	13	89	φ40
φ80	40	53	42	15	110	φ50
φ100	40	56	49	18	123	φ64
φ125	54	74	62	21	157	φ76

Rod clevis—rod eye

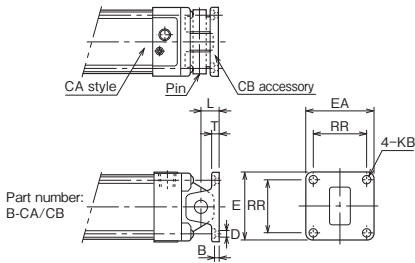


Dimensional Table

Symbol	A	CA	CF	CU		D	KK
				Min.	Max.		
Bore							
φ32	23	55	φ24	6	12	24	M10×1.25
φ40	25	60	φ24	7	13	24	M12×1.25
φ50	33	60	φ28	10	17	27	M16×1.5
φ63	33	60	φ28	10	17	27	M16×1.5
φ80	41	85	φ36	12	21	36	M20×1.5
φ100	41	85	φ36	12	21	36	M20×1.5
φ125	56	100	φ49	16	30	—	M27×2

Combination of rod end attachments

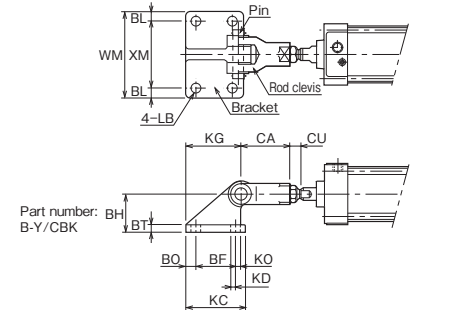
CA style—CB accessory



Dimensional Table

Symbol	B	D	E	EA	KB	L	RR	T
Bore								
φ32	6	φ11	43	43	φ6.6	19	33	8
φ40	6	φ11	49	49	φ6.6	19	37	8
φ50	6	φ11	60	60	φ6.6	19	47	8
φ63	6	φ15	74	74	φ9	19	56	8
φ80	9	φ20	93	93	φ11	32	70	11
φ100	9	φ20	110	110	φ11	32	84	11
φ125	10	φ22	134	134	φ13	32	104	14

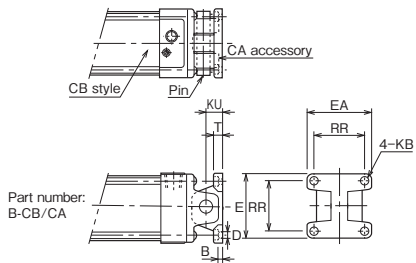
Rod clevis—CB bracket



Dimensional Table

Symbol	BF	BH	BL	BO	BT	CA	CU		KC	KD	KG	KO	LB	WM	XM
Bore							Min.	Max.							
φ32	40	35	10	10	8	55	6	12	60	5	55	5	φ9	85	65
φ40							7	13							
φ50	40	45	12.5	15	8	60	10	13	70	10	65	5	φ11	105	80
φ63							10	17							
φ80	65	60	15	15	12	85	12	21	95	5	85	10	φ14	135	105
φ100							12	21							
φ125	77	75	17.5	17.5	14	100	16	30	112	17.5	—	—	φ18	145	110

CB style—CA accessory



Dimensional Table

Symbol	B	D	E	EA	KB	KU	RR	T
Bore								
φ32	6	φ14	43	43	φ6.6	19	33	8
φ40	6	φ14	49	49	φ6.6	19	37	8
φ50	7	φ14	60	60	φ6.6	19	47	10
φ63	10	φ15	74	74	φ9	19	56	13
φ80	14	φ20	93	93	φ11	32	70	18
φ100	14	φ20	110	110	φ11	32	84	18
φ125	14	φ22	134	134	φ13	32	104	18

Special rod end shape type(standard/round rod)

A10

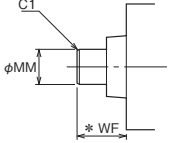


Table of Basic Dimensions

Bore	φ32	φ40	φ50	φ63	φ80	φ100	φ125
Symbol							
MM	φ12	φ16	φ20	φ25	φ30	φ35	
WF		25			35		

A12

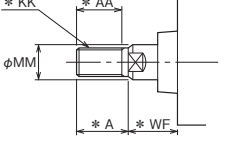


Table of Basic Dimensions

Bore	φ32	φ40	φ50	φ63	φ80	φ100	φ125
Symbol							
A	22	24	32		40		54
AA	19.5	21.5	29		37		50
KK	M10×1.25	M12×1.25	M16×1.5		M20×1.5		M27×2
MM	φ12	φ16	φ20	φ25	φ30	φ35	
WF		25			35		

A14

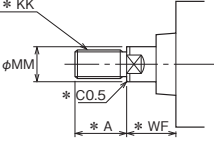


Table of Basic Dimensions

Bore	φ32	φ40	φ50	φ63	φ80	φ100	φ125
Symbol							
A	22	24	32		40		54
KK	M10×1.25	M12×1.25	M16×1.5		M20×1.5		M27×2
MM	φ12	φ16	φ20	φ25	φ30	φ35	
WF		25			35		

A16

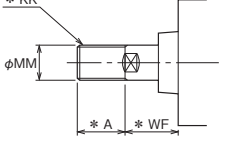


Table of Basic Dimensions

Bore	φ32	φ40	φ50	φ63	φ80	φ100	φ125
Symbol							
A	22	24	32		40		54
KK	M12×1.25	M16×1.5	M20×1.5		M25×1.5	M30×2	M35×1.5
MM	φ12	φ16	φ20	φ25	φ30	φ35	
WF		25			35		

A20

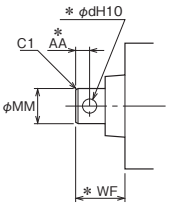


Table of Basic Dimensions

Bore	φ32	φ40	φ50	φ63	φ80	φ100	φ125
Symbol							
AA	7	8	12		14		18
d	φ6	φ8	φ10		φ12		φ14
MM	φ12	φ16	φ20	φ25	φ30	φ35	
WF	33	39	45		57		66

A27

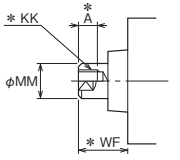


Table of Basic Dimensions

Bore	φ32	φ40	φ50	φ63	φ80	φ100	φ125
Symbol							
A	9	12	18		20		25
KK	M6×1	M8×1.25	M10×1.5		M16×2		M20×2.5
MM	φ12	φ16	φ20	φ25	φ30	φ35	
WF	33		35			45	

Special rod end shape type(standard/round rod)

A29

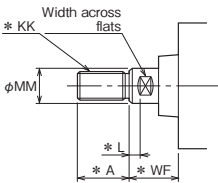


Table of Basic Dimensions

Bore Symbol	φ32	φ40	φ50	φ63	φ80	φ100	φ125
A	22(19)	24(21)	32(29)		40(37)	54(50)	
KK	M10×1.25	M12×1.25	M16×1.5		M20×1.5	M27×2	
L	8		10				
MM	φ12	φ16	φ20	φ25	φ30	φ35	
WF	33	35		45			

* The parenthesized values of dimension A indicate the screw length.

A30

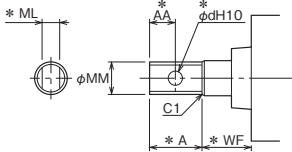


Table of Basic Dimensions

Bore Symbol	φ32	φ40	φ50	φ63	φ80	φ100	φ125
A	18	24	30		36	45	
AA	7	8	12		14	18	
d	φ6	φ8	φ10		φ12	φ14	
ML	7 ⁰ _{-0.1}	10 ⁰ _{-0.1}	12 ⁰ _{-0.1}		14 ⁰ _{-0.1}	20 ⁰ _{-0.1}	
MM	φ12	φ16	φ20	φ25	φ30	φ35	
WF		20		26			

A37

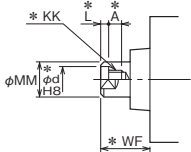


Table of Basic Dimensions

Bore Symbol	φ32	φ40	φ50	φ63	φ80	φ100	φ125
A	9	12	18		20	25	
KK	M6×1	M8×1.25	M10×1.5		M16×2	M20×2.5	
d	φ8	φ10	φ12		φ18	φ22	
L	5	7	10				
MM	φ12	φ16	φ20	φ25	φ30	φ35	
WF	33	35		45			

Special rod end shape type (non-rotating/hex. rod)

G12

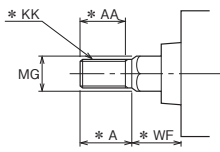


Table of Basic Dimensions

Bore Symbol	φ40	φ50	φ63	φ80	φ100
A	24	32		40	
AA	21.5	29		37	
KK	M12×1.25	M16×1.5		M20×1.5	
MG	14	19		23	
WF		25		35	

G14

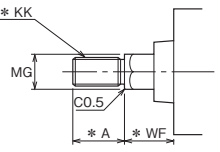


Table of Basic Dimensions

Bore Symbol	φ40	φ50	φ63	φ80	φ100
A	24(21)	32(29)		40(37)	
KK	M12×1.25	M16×1.5		M20×1.5	
MG	14	19		23	
WF		25		35	

* The parenthesized values of dimension A indicate the screw length.

G27

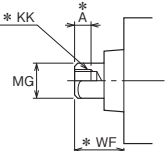


Table of Basic Dimensions

Bore Symbol	φ40	φ50	φ63	φ80	φ100
A	12	18		20	
KK	M8×1.25	M10×1.5		M16×2	
MG	14	19		23	
WF	33	35		45	

G37

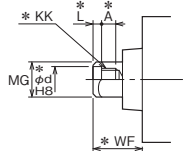


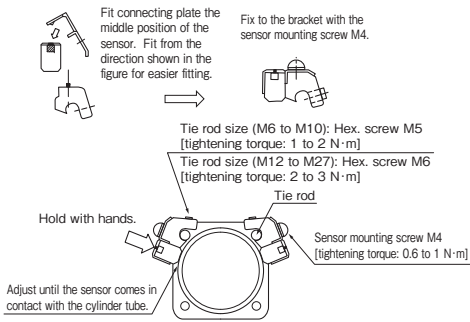
Table of Basic Dimensions

Bore Symbol	φ40	φ50	φ63	φ80	φ100
A	12	18		20	
KK	M8×1.25	M10×1.5		M16×2	
d	φ10	φ12		φ18	
L	7		10		
MG	14	19		23	
WF	33	35		45	

- For the detailed specifications, dimensions and leadtime of cylinders with special rod ends, contact us.
- If any of the *-marked dimensions must be changed to a non-standard value, consult us.

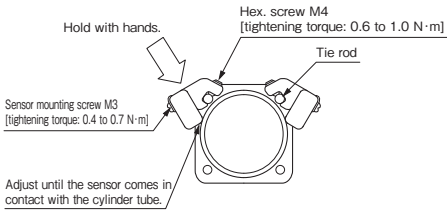
Setting method of sensor detecting position

AX type



1. Loosen the two hex. screws with a hex. wrench, and move them along the tie rod.
2. Adjust the detecting position (for the 2-LED type, the position where the green lamp lights up) 2 to 5 mm (about half of the operating range is appropriate) before the required position where the sensor indicator lamp starts to light up (ON). Then, gently hold the top of the sensor so that the cylinder tube contacts the detecting face of the sensor, and clamp the hex. screw to an appropriate tightening torque.
(Note) Inappropriate tightening torque may cause the off-center of the sensor position.
3. The indicating lamp lights up when the sensor is set to the ON position.
4. Sensors can be mounted to any of four tie rods and on the most suitable position depending on the mounting space of the cylinder and wiring method.
5. Mount a sensor to the most suitable position to detect the stroke end with the "sensor mounting dimension" (dimension UX).

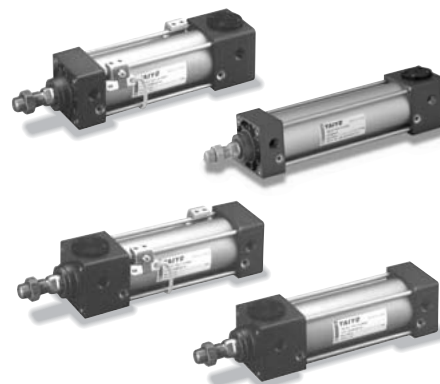
SR type



1. Loosen the two hex. screws with a hex. wrench, and move them along the tie rod.
2. Adjust the detecting position 2 to 5 mm (about half of the operating range is appropriate) before the required position where the sensor indicator lamp starts to light up (ON). Then, gently hold the top of the sensor so that the cylinder tube contacts the detecting face of the sensor, and clamp the hex. screw to an appropriate tightening torque.
(Note) Inappropriate tightening torque may cause the off-center of the sensor position.
3. The indicating lamp goes out when the sensor is set to the ON position.
4. Sensors can be mounted to any of four tie rods and on the most suitable position depending on the mounting space of the cylinder and wiring method.
5. Mount a sensor to the most suitable position to detect the stroke end with the "sensor mounting dimension" (dimension UX).

The safety lock mechanism reliably locks the piston rod even in an emergency.

- Dropping and trouble upon occurrence of power interruption are prevented to ensure the safety of workers and equipment.
- The safety lock mechanisms for rod and cap sides are available. One of the two types can be selected according to the purpose of use.
- The lock can be released easily by manual operation.



Cylinder Specifications

Type	Standard type/Switch Set	
	With lock on rod side	With lock on cap side
Series	10A-6L1	10A-6L2
Cylinder bore (mm)	φ40 · φ50 · φ63 · φ80 · φ100	
Working fluid	Air	
Lubrication	Unnecessary	
Working pressure range	0.15 to 1 MPa	
Proof test pressure	1.5 MPa	
Working speed range	30 to 700 mm/s	
Working temperature range	-10 to +70°C (No freezing)	
Structure of cushioning	With cushions on both ends (with needle removal preventing mechanism)	
Mounting style	SD·LA·LB·FA·FB·CA·CB·CC·TC	
Accessories	Boots	Standard: Nylon tarpaulin Semi-standard: Chloroprene, Conex
	Rod end attachments	Rod eye (T-end), rod eye with spherical bearing (S-end), rod clevis (Y-end) with pin, floating joint (F-end)
	Others	TC bracket, CB bracket
Lock mechanism	Holding force	φ40: 880N · φ50: 1374N φ63: 2182N · φ80: 3519N φ100: 5498N
	Backlash	1 mm or less (when locking)

Notes

- When a sensor is mounted in an intermediate position, set the cylinder maximum speed to 300 mm/s or less for reasons of the load relay response speed, etc.
- Conex, material of the boots, is the registered trademark of Teijin Limited.

Stroke Range

Unit: mm

Bore	Stroke range
φ40	to 1000
φ50 to φ100	to 1500

Product Lineup

Unit: mm

Series Variation		Type	Locking position	φ40	φ50	φ63	φ80	φ100
Standard	Double acting single rod	Standard type Switch Set	Rod side 10A-6L1	●	●	●	●	●
			Cap side 10A-6L2	●	●	●	●	●

Weight Table

Unit: kg

Bore mm	Basic weight			Mounting accessory weight								Bracket weight		Rod end attachment weight			
	With lock on rod side 10A-6L1	With lock on cap side 10A-6L2	Additional weight per mm of stroke	LA	LB	FA FB	CA	CB	CC	TC	For CB	For TC		Rod eye (S-end)	Rod eye (T-end)	Rod clevis (Y-end)	Floating joint (F-end)
φ40	0.94	0.98	0.00300	0.20	0.13	0.37	0.18	0.27	0.38	0.48	0.70	1.00		0.11	0.16	0.27	0.19
φ50	1.49	1.55	0.00428	0.32	0.17	0.39	0.26	0.39	0.50	0.55	0.70	1.00		0.20	0.21	0.34	0.38
φ63	2.00	2.06	0.00515	0.52	0.23	0.53	0.42	0.48	0.67	0.70	0.70	1.00		0.20	0.21	0.34	0.38
φ80	3.58	3.69	0.00834	0.85	0.38	1.60	1.08	0.92	1.76	1.16	0.72	1.44		0.36	0.62	0.87	0.75
φ100	4.67	4.83	0.01061	1.28	0.47	2.22	1.39	1.24	2.04	1.53	0.72	1.44		0.36	0.62	0.87	1.35

Sensor Additional Weight

Unit: kg

Sensor	AX type			SR type
	Cord length 1.5 m	Cord length 5 m	Connector type	Cord length 5 m
φ40	0.05	0.13	0.04	0.22
φ50				
φ63				
φ80				
φ100				

Calculation formula Cylinder weight (kg)=basic weight+(additional weight per mm of stroke×cylinder stroke (mm))+ mounting accessory weight+(sensor additional weight×sensor quantity)

Calculation example Lock provided on rod side, bore φ50 mm, cylinder stroke 200 mm, mounting style FA, rod clevis (Y-end), 2 pcs of AX215 (cord length 5 m)
1.49+(0.00428×200)+0.39+0.34+(0.13×2)=3.336kg

Note

When a stroke out of the stroke range is required, consult us.

How to order

Standard

The item enclosed by broken line needs not to be entered, if unnecessary. Semi-standard specification

● With lock on rod side

● With lock on cap side

10A-6L1

10A-6L2

LA

50

B

200

AH

2

T

B

J

LA

50

B

200

AH

2

T

B

J

Mounting style

Cylinder bore (mm)

Cylinder stroke (mm)

Sensor symbol

Sensor quantity

Rod end attachment

Bracket

Boots

With cushions on both ends

No cushion

With bracket

Applicable mounting styles: CB and TC

T Rod eye (T-end)

Y Rod clevis (Y-end) with pin

S Rod eye with spherical bearing (S-end)

F Floating joint (F-end)

J Nylon tarpaulin

JN Chloroprene

JK Conex

Note on ordering Switch Set

Sensors are not mounted on cylinders at delivery.

Sensor quantity (1, 2 to n)

Mounting style

SD Basic style

FA Rod flange

CC Cap eye

LA Side lugs

FB Cap flange

CB Cap clevis with pin

LB End angles

CA Cap eye

TC Intermediate trunnion

Sensor List

 Semi-standard specification

Type	Sensor symbol	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Indicating lamp	Wiring method	Cord length	Applicable load	
Reed sensor	 AX101CE	DC:5 to 30V AC:5 to 120V	DC:5 to 40mA AC:5 to 20mA	DC:1.5W AC:2VA	None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m	Small relay, programmable controller	
	 AX105CE				5m					
	 AX111CE				1.5m					
	 AX115CE				5m					
	 AX125CE	DC:30V or less AC:120V or less	DC:40mA or less AC:20mA or less		None	None	5m			
	 AX11ACE	AC:5 to 120V	5 to 20mA	2VA	Provided	LED (Lights in red when sensing)	4-pin connector type, rear wiring	0.5m		
	 AX11BCE	DC:5 to 30V	5 to 40mA	1.5W				0.5m		
	 AX135CE	AC:90 to 240V DC:90 to 240V	5 to 300mA	B contact output	Provided	LED Lights in red when not sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	5m		
	 SR405	AC:80 to 220V	2 to 300mA	30VA	Provided	Neon lamp Lights in red when not sensing)	0.5 mm ² , 2-core, outer dia. φ6 mm, rear wiring	5m		Small relay, programmable controller, small solenoid, pilot lamp
Solid state sensor	 AX201CE-1	DC:5 to 30V	5 to 40mA	—	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m	Small relay, programmable controller	
	 AX205CE-1							5m		
	 AX211CE-1							1.5m		
	 AX215CE-1							5m		
	 AX211CE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m		
	 AX215CE-1							5m		
	 AX218CE-1							4-pin connector type, rear wiring		0.5m
	 AZ211CE-1							0.3 mm ² , 2-core, outer dia. φ4 mm, upper wiring		1.5m
	 AZ215CE-1									5m
	 AZ218CE-1									4-pin connector type, upper wiring

(Notes) ● For the sensors without a protective circuit, be sure to provide a protective circuit (SK-100) with the load when using any induction load (relay, etc.).
● The output logic of AX135CE is a B contact. When the piston is detected, the sensor contact turns off (the lamp turns on).
● For the detailed specifications and handling of sensors, see the sensor specifications at the end of this catalog.
● The AX type sensors can be mounted on any type in addition to the above types. See the sensor specifications at the end of this catalog.
● We recommend AND Unit (AU series) for multiple sensors connected in series. For details, refer to AND Unit at the end of this catalog.

AX type sensor SR type sensor

Cord type

Connector type

AX111

AX111

SR405

Ordering procedures

★ Standard specifications

● With cushions on both ends

● Port position (A) and cushion valve position (A)

(Notes) ● When specifying port and cushion valve positions other than (A), consult us.

● In the case of the mounting style LA (only φ40 and φ50), the port, cushion valve, and lock mechanism are positioned on (B), (B), and (A), respectively.

★ Semi-standard range

● With boots, without cushions

● Change of piston rod end (dimensional symbol: WF, A, KK)

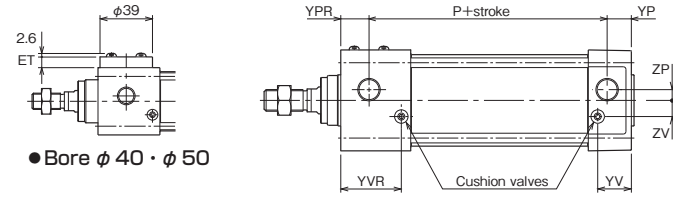
● Change of TC accessory position (dimensional symbol PH)

(Notes) ● Contact us for specifications not stated above.

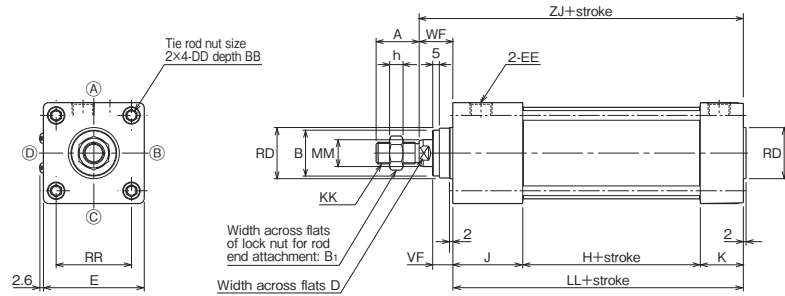
SD

With lock on rod side 10A-6L1 SD Bore B Stroke

Symbol	ET
Bore	
φ40	8
φ50	4



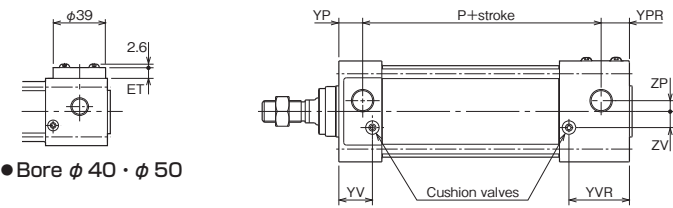
● Bore φ 40 · φ 50



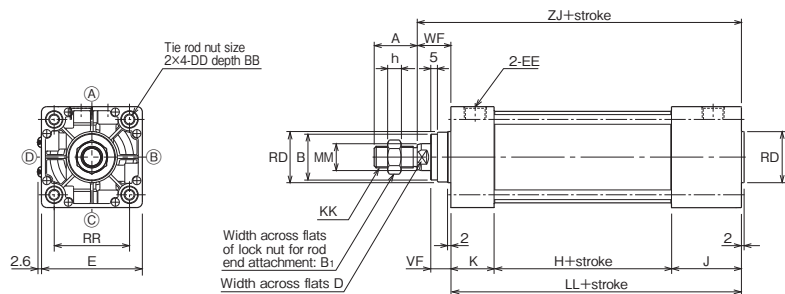
- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

With lock on cap side 10A-6L2 SD Bore B Stroke

Symbol	ET
Bore	
φ40	8
φ50	4



● Bore φ 40 · φ 50



- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

10A-6L/TA6L2 Bore ?

Dimensional Table

Symbol	A	B	B ₁	BB	D	DD	E	EE	H	J	K	KK
Bore												
φ40	24 (21)	φ30	19	14	14	M6×1	□50	Rc1/4	31	46	31	M12×1.25
φ50	32 (29)	φ34	22	14	17	M6×1	□62	Rc1/4	31	51	31	M16×1.5
φ63	32 (29)	φ34	22	14	17	M8×1.25	□75	Rc3/8	32	52	32	M16×1.5
φ80	40 (37)	φ39	27	15	21	M10×1.5	□94	Rc3/8	36	61	36	M20×1.5
φ100	40 (37)	φ46	27	15	26	M10×1.5	□112	Rc1/2	36	61	36	M20×1.5

Symbol	LL	MM	P	RD	RR	VF	WF	YP	YPR	YV	YVR	ZJ	ZP	ZV	h
Bore															
φ40	108	φ16	69	φ32	□37	15	25	18	21	25.5	40.5	133	4	10	7
φ50	113	φ20	74	φ38	□47	15	25	18	21	24	44	138	7	12	10
φ63	116	φ20	77	φ38	□56	15	25	18	21	25	45	141	8	12	10
φ80	133	φ25	89	φ44	□70	21	35	20	24	29	54	168	11	16	12
φ100	133	φ30	89	φ50	□84	21	35	20	24	29	54	168	12	18	12

* The parenthesized values of dimension A indicate the screw length.

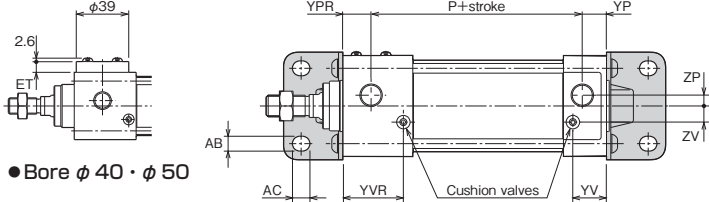
* The parenthesized values of dimension A indicate the screw length.

10A-6L/TA6L1 Bore CAD/DATA is available.

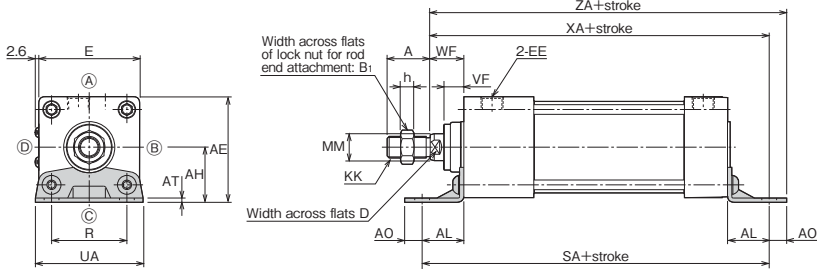
LB

With lock on rod side 10A-6L1 LB Bore B Stroke

Symbol	ET
Bore	
φ40	8
φ50	4



• Bore φ 40 · φ 50

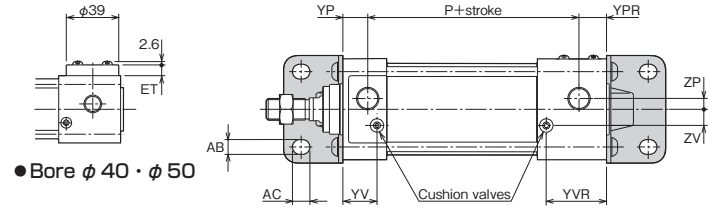


- For dimensions not shown here, refer to the SD style (basic style).
- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

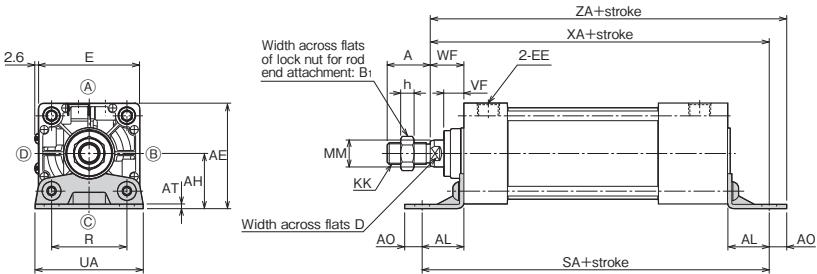
With lock on cap side 10A-6L2 LB Bore B Stroke

10A-6L/TA6L2 Bore

Symbol	ET
Bore	
φ40	8
φ50	4



• Bore φ 40 · φ 50



- For dimensions not shown here, refer to the SD style (basic style).
- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

Dimensional Table

Symbol	A	AB	AC	AE	AH	AL	AO	AT	B ₁	D	E	EE	KK
Bore													
φ40	24 (21)	11	13	55	30	23.5	12.5	3.2	19	14	□50	Rc1/4	M12×1.25
φ50	32 (29)	11	13	67.5	36.5	28	12	3.2	22	17	□62	Rc1/4	M16×1.5
φ63	32 (29)	11	13	78.5	41	31	13	3.2	22	17	□75	Rc3/8	M16×1.5
φ80	40 (37)	14	16	96	49	30	16	4	27	21	□94	Rc3/8	M20×1.5
φ100	40 (37)	14	16	113	57	30	16	4	27	26	□112	Rc1/2	M20×1.5

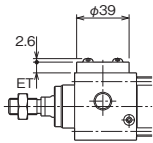
Symbol	MM	P	R	SA	UA	VF	WF	XA	YP	YPR	YV	YVR	ZA	ZP	ZV	h
Bore																
φ40	φ16	69	36	155	57	15	25	156.5	18	21	25.5	40.5	169	4	10	7
φ50	φ20	74	47	169	68	15	25	166	18	21	24	44	178	7	12	10
φ63	φ20	77	56	178	80	15	25	172	18	21	25	45	185	8	12	10
φ80	φ25	89	70	193	97	21	35	198	20	24	29	54	214	11	16	12
φ100	φ30	89	84	193	112	21	35	198	20	24	29	54	214	12	18	12

* The parenthesized values of dimension A indicate the screw length.

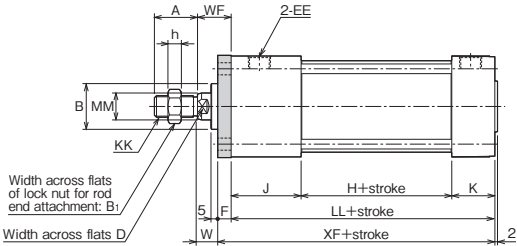
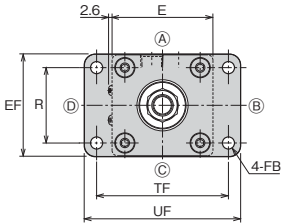
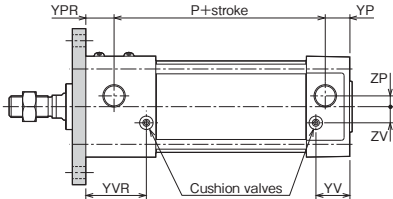
FA

With lock on rod side 10A-6L1 FA Bore B Stroke

Symbol	ET
Bore	
φ40	8
φ50	4



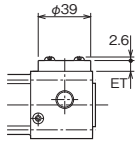
● Bore φ 40 · φ 50



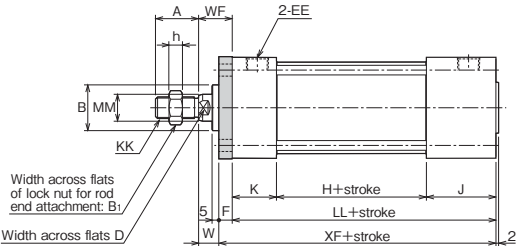
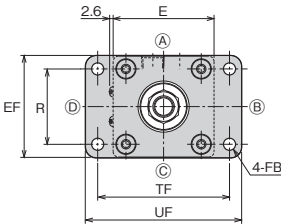
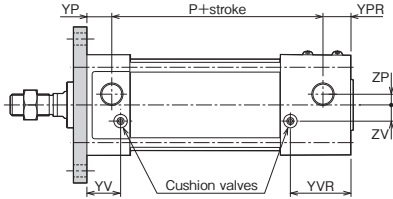
- For dimensions not shown here, refer to the SD style (basic style).
- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

With lock on cap side 10A-6L2 FA Bore B Stroke

Symbol	ET
Bore	
φ40	8
φ50	4



● Bore φ 40 · φ 50



- For dimensions not shown here, refer to the SD style (basic style).
- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

Dimensional Table

Symbol	A	B	B ₁	D	E	EE	EF	F	FB	H	J	K	KK
Bore													
φ40	24 (21)	φ30	19	14	□50	Rc1/4	52	10	φ7	31	46	31	M12×1.25
φ50	32 (29)	φ34	22	17	□62	Rc1/4	65	10	φ9	31	51	31	M16×1.5
φ63	32 (29)	φ34	22	17	□75	Rc3/8	76	10	φ9	32	52	32	M16×1.5
φ80	40 (37)	φ39	27	21	□94	Rc3/8	95	16	φ12	36	61	36	M20×1.5
φ100	40 (37)	φ46	27	26	□112	Rc1/2	115	16	φ12	36	61	36	M20×1.5

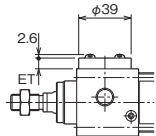
Symbol	LL	MM	P	R	TF	UF	W	WF	XF	YP	YPR	YV	YVR	ZP	ZV	h
Bore																
φ40	108	φ16	69	36	70	84	15	25	118	18	21	25.5	40.5	4	10	7
φ50	113	φ20	74	47	86	104	15	25	123	18	21	24	44	7	12	10
φ63	116	φ20	77	56	98	116	15	25	126	18	21	25	45	8	12	10
φ80	133	φ25	89	70	119	143	19	35	149	20	24	29	54	11	16	12
φ100	133	φ30	89	84	138	162	19	35	149	20	24	29	54	12	18	12

* The parenthesized values of dimension A indicate the screw length.

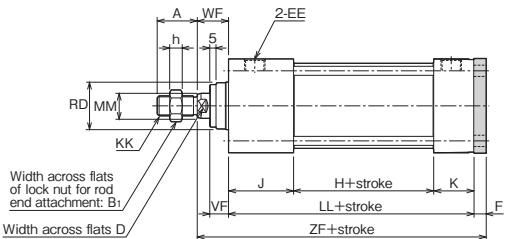
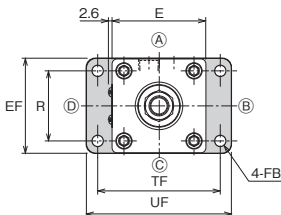
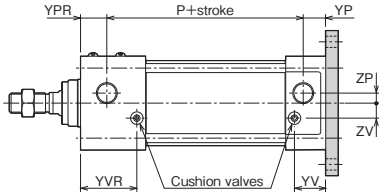
FB

With lock on rod side 10A-6L1 FB Bore B Stroke

Symbol	ET
Bore	
φ40	8
φ50	4



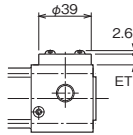
● Bore φ 40 · φ 50



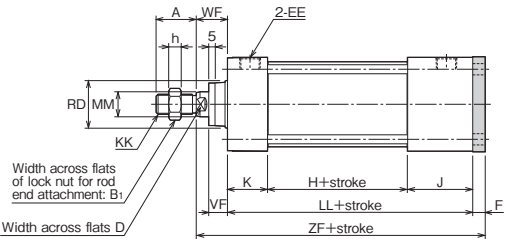
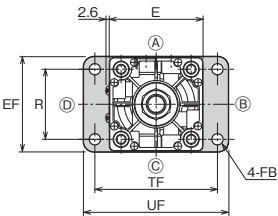
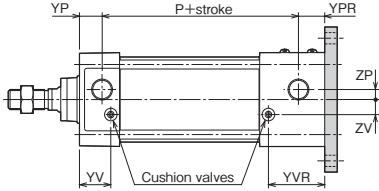
- For dimensions not shown here, refer to the SD style (basic style).
- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

With lock on cap side 10A-6L2 FB Bore B Stroke

Symbol	ET
Bore	
φ40	8
φ50	4



● Bore φ 40 · φ 50



- For dimensions not shown here, refer to the SD style (basic style).
- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

10A-6L/TA6L1 Bore is available. CAD/DATA



Dimensional Table

Symbol	A	B ₁	D	E	EE	EF	F	FB	H	J	K	KK	LL
Bore													
φ40	24 (21)	19	14	□50	Rc1/4	52	10	φ7	31	46	31	M12×1.25	108
φ50	32 (29)	22	17	□62	Rc1/4	65	10	φ9	31	51	31	M16×1.5	113
φ63	32 (29)	22	17	□75	Rc3/8	76	10	φ9	32	52	32	M16×1.5	116
φ80	40 (37)	27	21	□94	Rc3/8	95	16	φ12	36	61	36	M20×1.5	133
φ100	40 (37)	27	26	□112	Rc1/2	115	16	φ12	36	61	36	M20×1.5	133

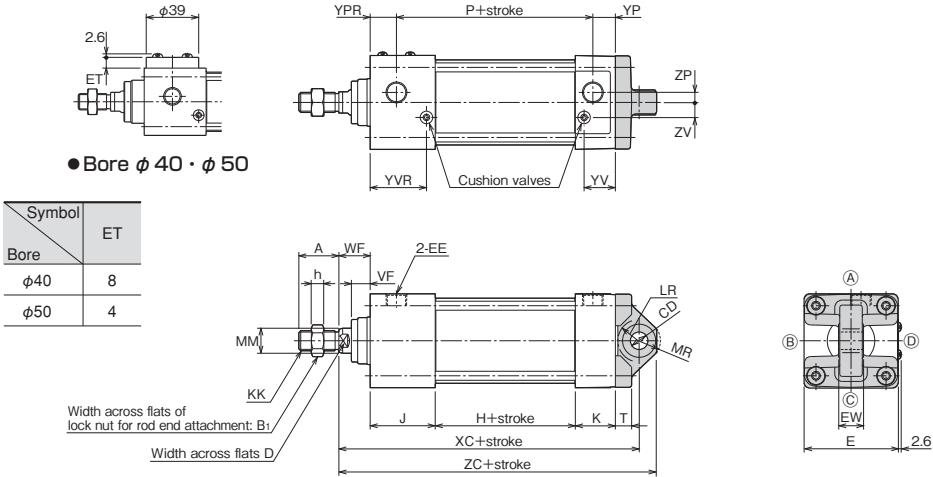
Symbol	MM	P	R	RD	TF	UF	VF	WF	YP	YPR	YV	YVR	ZF	ZP	ZV	h
Bore																
φ40	φ16	69	36	φ32	70	84	15	25	18	21	25.5	40.5	143	4	10	7
φ50	φ20	74	47	φ38	86	104	15	25	18	21	24	44	148	7	12	10
φ63	φ20	77	56	φ38	98	116	15	25	18	21	25	45	151	8	12	10
φ80	φ25	89	70	φ44	119	143	21	35	20	24	29	54	184	11	16	12
φ100	φ30	89	84	φ50	138	162	21	35	20	24	29	54	184	12	18	12

* The parenthesized values of dimension A indicate the screw length.

CA

With lock on rod side 10A-6L1 CA Bore B Stroke

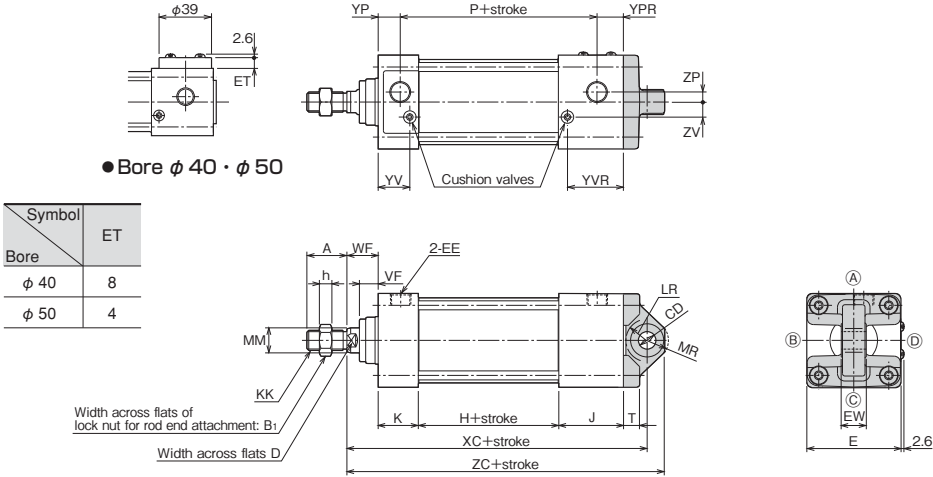
10A-6L/TA6L1 Bore is available. CAD/DATA



- For dimensions not shown here, refer to the SD style (basic style).
- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

With lock on cap side 10A-6L2 CA Bore B Stroke

10A-6L/TA6L2 Bore



- For dimensions not shown here, refer to the SD style (basic style).
- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

Dimensional Table

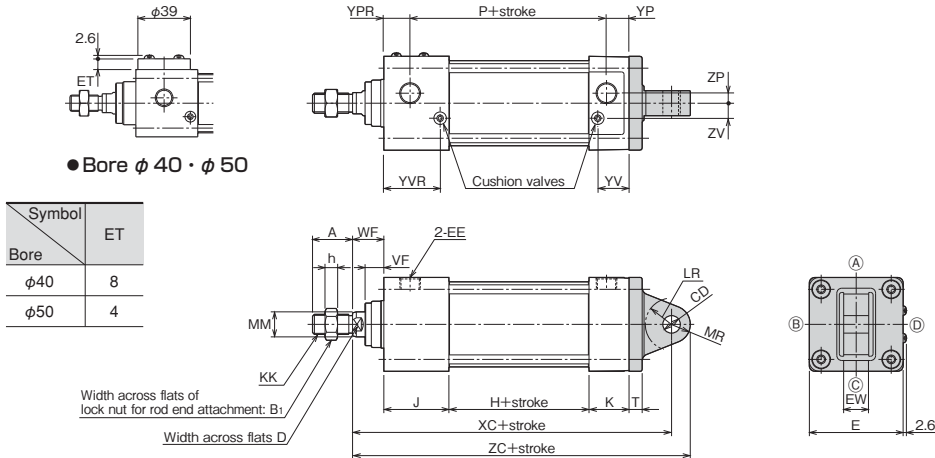
Symbol Bore	A	B ₁	CD	D	E	EE	EW	H	J	K	KK
φ40	24 (21)	19	φ14H9	14	□50	Rc1/4	20 ⁰ _{-0.084}	31	46	31	M12×1.25
φ50	32 (29)	22	φ14H9	17	□62	Rc1/4	20 ⁰ _{-0.084}	31	51	31	M16×1.5
φ63	32 (29)	22	φ14H9	17	□75	Rc3/8	20 ⁰ _{-0.084}	32	52	32	M16×1.5
φ80	40 (37)	27	φ20H9	21	□94	Rc3/8	32 ⁰ _{-0.100}	36	61	36	M20×1.5
φ100	40 (37)	27	φ20H9	26	□112	Rc1/2	32 ⁰ _{-0.100}	36	61	36	M20×1.5

Symbol Bore	LR	MM	MR	P	T	VF	WF	XC	YP	YPR	YV	YVR	ZC	ZP	ZV	h
φ40	R17	φ16	R17	69	8	15	25	152	18	21	25.5	40.5	166	4	10	7
φ50	R17	φ20	R17	74	10	15	25	157	18	21	24	44	171	7	12	10
φ63	R17	φ20	R17	77	13	15	25	160	18	21	25	45	174	8	12	10
φ80	R25	φ25	R24	89	18	21	35	200	20	24	29	54	221	11	16	12
φ100	R26	φ30	R24	89	18	21	35	200	20	24	29	54	220	12	18	12

* The parenthesized values of dimension A indicate the screw length.

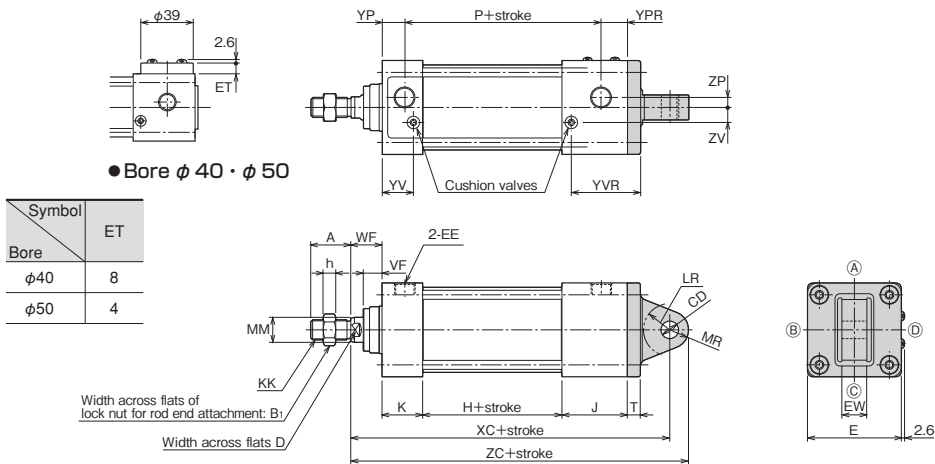
CC

With lock on rod side 10A-6L1 CC Bore B Stroke



- For dimensions not shown here, refer to the SD style (basic style).
- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

With lock on cap side 10A-6L2 CC Bore B Stroke



- For dimensions not shown here, refer to the SD style (basic style).
- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

Dimensional Table

Symbol Bore	A	B ₁	CD	D	E	EE	EW	H	J	K	KK
φ40	24 (21)	19	φ14H9	14	□50	Rc1/4	20 ⁰ _{-0.3}	31	46	31	M12×1.25
φ50	32 (29)	22	φ14H9	17	□62	Rc1/4	20 ⁰ _{-0.3}	31	51	31	M16×1.5
φ63	32 (29)	22	φ14H9	17	□75	Rc3/8	20 ⁰ _{-0.3}	32	52	32	M16×1.5
φ80	40 (37)	27	φ20H9	21	□94	Rc3/8	32 ⁰ _{-0.3}	36	61	36	M20×1.5
φ100	40 (37)	27	φ20H9	26	□112	Rc1/2	32 ⁰ _{-0.3}	36	61	36	M20×1.5

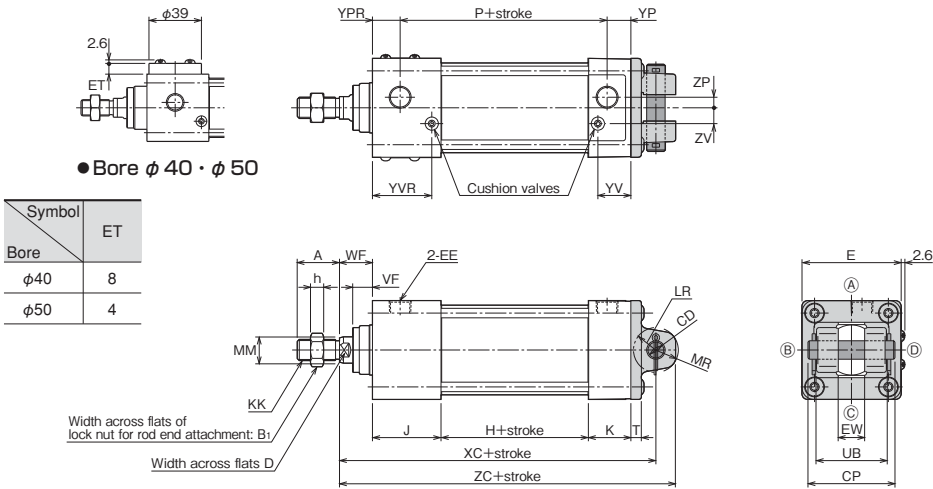
Symbol Bore	LR	MM	MR	P	T	VF	WF	XC	YP	YPR	YV	YVR	ZC	ZP	ZV	h
φ40	R21	φ16	R14	69	11	15	25	167	18	21	25.5	40.5	181	4	10	7
φ50	R21	φ20	R15	74	11	15	25	172	18	21	24	44	187	7	12	10
φ63	R21	φ20	R15	77	11	15	25	175	18	21	25	45	190	8	12	10
φ80	R25	φ25	R20	89	15	21	35	216	20	24	29	54	236	11	16	12
φ100	R25	φ30	R20	89	15	21	35	216	20	24	29	54	236	12	18	12

* The parenthesized values of dimension A indicate the screw length.

10A-6L/TA6L1 **Bore** CAD/DATA is available. 

CB

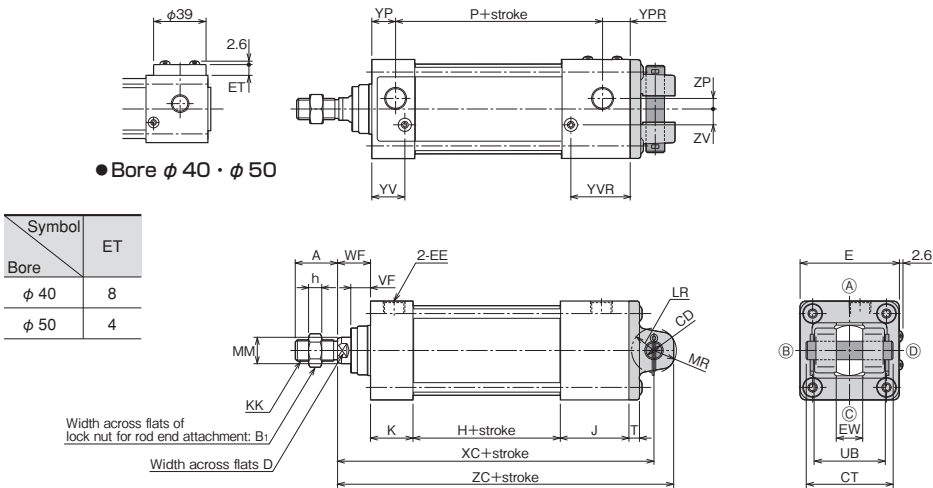
With lock on rod side 10A-6L1 CB **Bore** **B** **Stroke**



- For dimensions not shown here, refer to the SD style (basic style).
- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

With lock on cap side 10A-6L2 CB **Bore** **B** **Stroke**

10A-6L/TA6L2 **Bore** 



- For dimensions not shown here, refer to the SD style (basic style).
- For Switch Set Cylinders, see the dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the accessories.

Dimensional Table

Symbol	A	B ₁	CD	CP	D	E	EE	EW	H	J	K	KK
Bore												
$\phi 40$	24(21)	19	$\phi 14H9/f8$	58	14	$\square 50$	Rc1/4	20 ± 0.7	31	46	31	M12×1.25
$\phi 50$	32(29)	22	$\phi 14H9/f8$	66	17	$\square 62$	Rc1/4	20 ± 0.7	31	51	31	M16×1.5
$\phi 63$	32(29)	22	$\phi 14H9/f8$	66	17	$\square 75$	Rc3/8	20 ± 0.7	32	52	32	M16×1.5
$\phi 80$	40(37)	27	$\phi 20H9/f8$	78	21	$\square 94$	Rc3/8	32 ± 0.7	36	61	36	M20×1.5
$\phi 100$	40(37)	27	$\phi 20H9/f8$	78	26	$\square 112$	Rc1/2	32 ± 0.7	36	61	36	M20×1.5

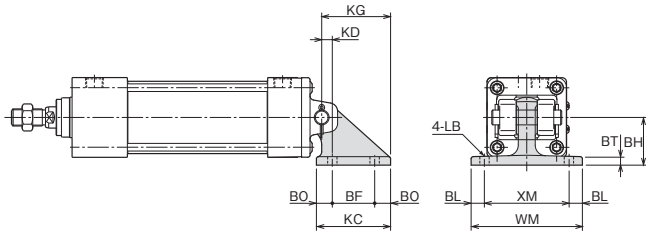
Symbol	LR	MM	MR	P	T	UB	VF	WF	XC	YP	YPR	YV	YVR	ZC	ZP	ZV	h
Bore																	
$\phi 40$	R17	$\phi 16$	R15	69	8	45	15	25	152	18	21	25.5	40.5	165	4	10	7
$\phi 50$	R17	$\phi 20$	R17	74	8	53	15	25	157	18	21	24	44	172	7	12	10
$\phi 63$	R17	$\phi 20$	R17	77	8	53	15	25	160	18	21	25	45	175	8	12	10
$\phi 80$	R30	$\phi 25$	R24	89	11	67	21	35	200	20	24	29	54	221	11	16	12
$\phi 100$	R30	$\phi 30$	R24	89	11	67	21	35	200	20	24	29	54	221	12	18	12

* The parenthesized values of dimension A indicate the screw length.

Bracket for CB

Dimensional Table

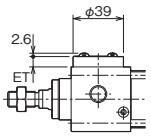
Symbol	Part number	BF	BH	BL	BO	BT	KC	KD	KG	LB	WM	XM
Bore												
$\phi 40$	BCA-14-A	40	45	12.5	16.5	8	73	10	66.5	$\phi 11$	105	80
$\phi 50$												
$\phi 63$												
$\phi 80$	BCA-20-A	65	60	15	16.5	12	98	5	86.5	$\phi 14$	135	105
$\phi 100$												



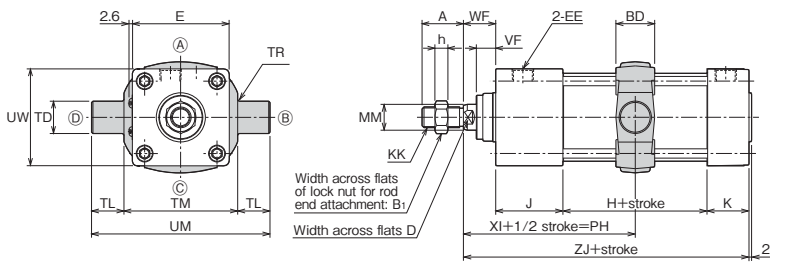
TC

With lock on rod side 10A-6L1 TC Bore B Stroke

Symbol	ET
Bore	
φ40	8
φ50	4



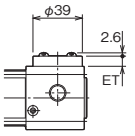
● Bore φ 40 · φ 50



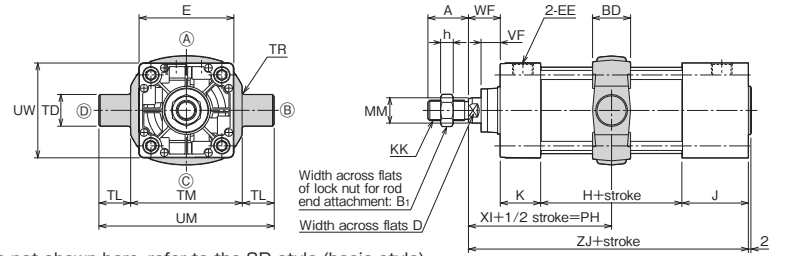
- For dimensions not shown here, refer to the SD style (basic style).
 - For Switch Set Cylinders, see the dimensional drawings of Switch Set.
 - For dimensional drawings of rod end attachments, refer to the accessories.
- Note) In the case of the 40 mm bore small-stroke cylinder, locate the port and cushion on ⑧ to avoid interference with the lock cover.

With lock on cap side 10A-6L2 TC Bore B Stroke

Symbol	ET
Bore	
φ40	8
φ50	4



● Bore φ 40 · φ 50



- For dimensions not shown here, refer to the SD style (basic style).
 - For Switch Set Cylinders, see the dimensional drawings of Switch Set.
 - For dimensional drawings of rod end attachments, refer to the accessories.
- Note) In the case of the 40 mm bore small-stroke cylinder, locate the port and cushion on ⑧ to avoid interference with the lock cover.

CAD/DATA is available.

Dimensional Table

Symbol	Bore	A	B ₁	BD	D	E	EE	H	J	K	KK	MM	P	Min. PH	
														10A-6L1	10A-6L2
φ40		24(21)	19	30	14	□50	Rc1/4	31	46	31	M12×1.25	φ16	69	86	71
φ50		32(29)	22	30	17	□62	Rc1/4	31	51	31	M16×1.5	φ20	74	91	71
φ63		32(29)	22	30	17	□75	Rc3/8	32	52	32	M16×1.5	φ20	77	92	72
φ80		40(37)	27	35	21	□94	Rc3/8	36	61	36	M20×1.5	φ25	89	113.5	88.5
φ100		40(37)	27	40	26	□112	Rc1/2	36	61	36	M20×1.5	φ30	89	116	91

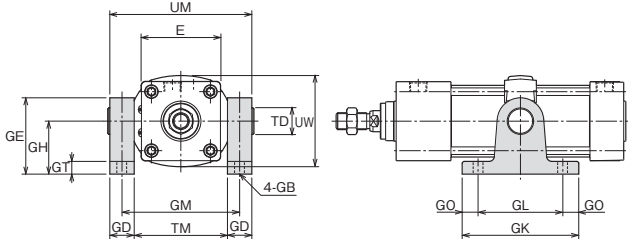
Symbol	Bore	TD	TL	TM	TR	UM	UW	VF	WF	XI		YP	YPR	YV	YVR	ZJ	ZP	ZV	h
										10A-6L1	10A-6L2								
φ40		φ25e9	25	63	R1.6	113	60	15	25	86.5	71.5	18	21	25.5	40.5	133	4	10	7
φ50		φ25e9	25	76	R1.6	126	72	15	25	91.5	71.5	18	21	24	44	138	7	12	10
φ63		φ25e9	25	88	R1.6	138	87	15	25	93	73	18	21	25	45	141	8	12	10
φ80		φ25e9	25	114	R1.6	164	105	21	35	114	89	20	24	29	54	168	11	16	12
φ100		φ25e9	25	132	R2	182	129	21	35	114	89	20	24	29	54	168	12	18	12

* The parenthesized values of dimension A indicate the screw length.

Bracket for TC

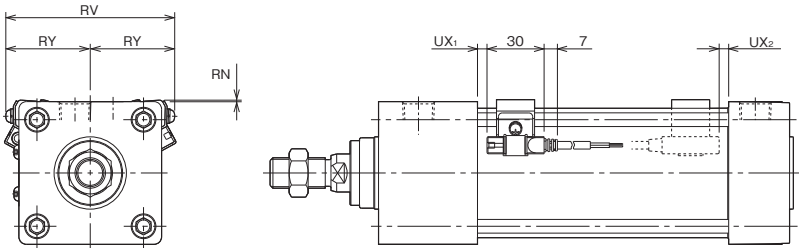
Dimensional Table

Symbol	Part number	E	GB	GD	GE	GH	GK	GL	GM	GO	GT	TD	TM	UM	UW
φ40	BTA-25-A	□50	φ12	23	74	50	111	80	86	15.5	14	φ25	63	113	60
φ50		□62	φ12	23	74	50	111	80	99	15.5	14	φ25	76	126	72
φ63		□75	φ12	23	74	50	111	80	111	15.5	14	φ25	88	138	87
φ80	BTA-25-1-A	□94	φ14	23	92	70	121	85	137	18	14	φ25	114	164	105
φ100		□112	φ14	23	92	70	121	85	155	18	14	φ25	132	182	129

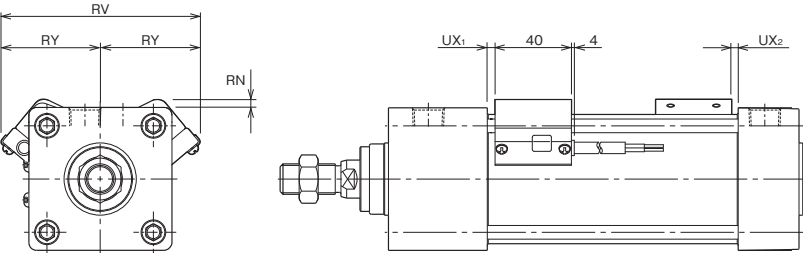


Switch Set

●AX type sensor



●SR type sensor



Dimensional Table

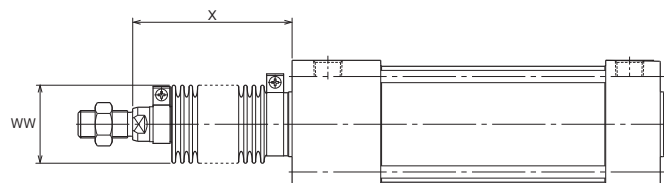
Symbol	RY		RV		RN		UX ₁		UX ₂	
Bore	AX type	SR type	AX type	SR type	AX type	SR type	AX形	SR形	AX形	SR形
φ40	36	40	72	80	3	4	8	2	4	0
φ50	40	45	80	90	2	3	9	2	5	0
φ63	47	52	94	104	2	5	9	2	5	0
φ80	52	60	104	120	0	2	11	4	6	0
φ100	60	67	120	134	0	0	11	4	6	0

Note) Dimension UX indicates the optimum sensor mounting position for detection of stroke end.

Operating Range and Hysteresis

Bore mm	Reed sensor				Solid state sensor	
	AX1 ** type		SR type		AX2 ** type	
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis
φ40	5 to 10	1 or less	8 to 12	2 or less	3 to 6	1 or less
φ50	6 to 12		9 to 13		4 to 8	
φ63						
φ80						
φ100						

With Boots

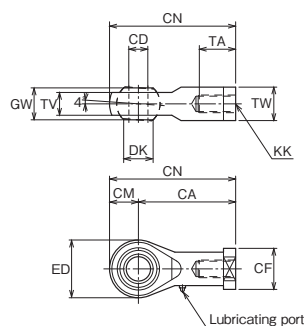


	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	100°C	200°C

(Notes) ●Conex is the registered trademark of Teijin Limited.
●Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
●The boots have been mounted at our factory prior to delivery.

Rod End Attachment

- Rod eye with spherical bearing (S-end)



Dimensional Table/With boots (nylon tarpaulin/chloroprene)

Symbol Bore	WW	X (standard strokes)												X (other than standard strokes) Nylon tarpaulin/chloroprene
		50	75	100	125	150	200	250	300	350	400	450	500	
φ40	φ41	62	70	79	87	95	112	129	145	162	179	195	212	$\frac{1}{3}$ stroke+45
φ50	φ47	67	75	84	92	100	117	134	150	167	184	200	217	$\frac{1}{3}$ stroke+50
φ63	φ47	67	75	84	92	100	117	134	150	167	184	200	217	
φ80	φ56	68	74	80	87	93	105	118	130	143	155	168	180	$\frac{1}{4}$ stroke+55
φ100	φ61	68	74	80	87	93	105	118	130	143	155	168	180	

Note) If the calculated value has a fractional part, round it up.

Dimensional Table/With boots (Conex)

Symbol		X (standard strokes)												X (other than standard strokes)
Bore	WW	X (standard strokes)												Conex
		50	75	100	125	150	200	250	300	350	400	450	500	
φ40	φ61	70	83	95	108	120	145	170	195	220	245	270	295	$\frac{1}{2}$ stroke+45
φ50	φ61	75	88	100	113	125	150	175	200	225	250	275	300	$\frac{1}{2}$ stroke+50
φ63	φ61	75	88	100	113	125	150	175	200	225	250	275	300	
φ80	φ61	75	85	95	105	115	135	155	175	195	215	235	255	$\frac{2}{5}$ stroke+55
φ100	φ61	75	85	95	105	115	135	155	175	195	215	235	255	

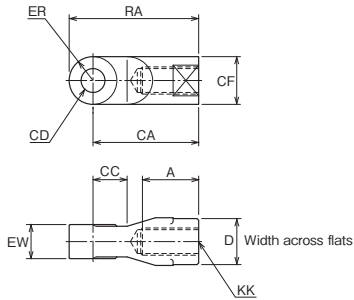
Note) If the calculated value has a fractional part, round it up.

Dimensional Table/Rod eye with spherical bearing (S-end)

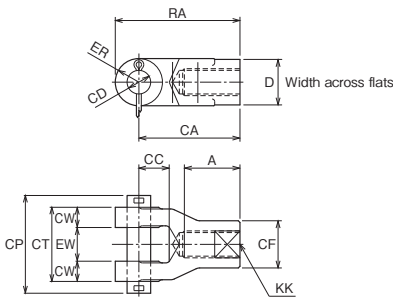
[illegible]

Rod End Attachment

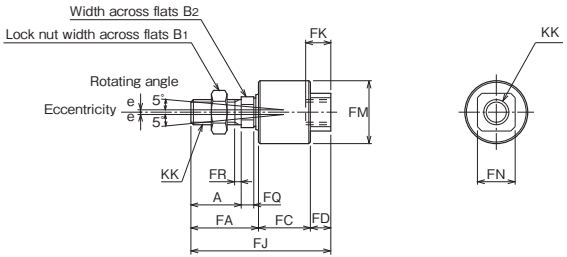
●Rod eye(T-end)



●Rod clevis(Y-end)with pin



●Floating joint(F-end)



- The insertion of the floating joint into the socket shall not equal or exceed the dimension of screw diameter.
(Return the joint one or two turns after it gets into contact with the socket bottom, and fix it with a lock nut.)
Excessive insertion can cause operation failure.
- Do NOT use together with CA, CB, CC, and TC accessories.

Dimensional Table/Rod eye (T-end)

Symbol Bore	Part number	A	CA	CC	CD	CF	D	ER	EW	KK	RA
φ40	RTA-12-A	25	60	20	φ14H9	φ24	24	R12	20 ⁰ _{-0.1}	M12×1.25	72
φ50	RTA-16-A	33	60	20	φ14H9	φ28	27	R14	20 ⁰ _{-0.1}	M16×1.5	74
φ63											
φ80	RTA-20-A	41	85	30	φ20H9	φ36	36	R19	32 ⁰ _{-0.1}	M20×1.5	104
φ100											

Dimensional Table/Rod clevis (Y-end) with pin

Symbol Bore	Part number	A	CA	CC	CD	CF	CP	CT	CW	D	ER	EW	KK	RA
φ40	RYA-12-1-A	25	60	20	φ14 ^{H9} ₁₈	φ24	58	44	12	24	R12	20 ^{+1.5} _{+0.5}	M12×1.25	71
φ50	RYA-16-A	33	60	18	φ14 ^{H9} ₁₈	φ28	58	44	12	27	R14	20 ^{+1.5} _{+0.5}	M16×1.5	74
φ63														
φ80	RYA-20-A	41	85	28	φ20 ^{H9} ₁₈	φ36	78	64	16	36	R19	32 ^{+1.5} _{+0.5}	M20×1.5	104
φ100														

Dimensional Table/Floating joint (F-end)

Symbol Bore	Part number	A	B ₁	B ₂	e	FA	FC	FD	FJ	FK	FM	FN	FQ	FR	KK
φ40	RFS-12T	24	19	13	1	33	25.5	11	69.5	13.5	φ32	□19	7	3.5	M12×1.25
φ50 φ63	RFS-16T	32	22	17	1.5	43	33	13	89	16	φ40	□24	8	4	M16×1.5
φ80	RFS-20T080	40	27	22	2	53	42	15	110	22	φ50	□30	9	5	M20×1.5
φ100	RFS-20T100	40	27	24	2.5	56	49	18	123	24	φ64	□36	12	6	M20×1.5

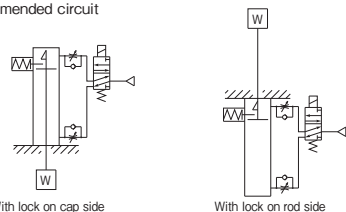
Handling procedures

Pneumatic circuit

⚠ WARNING

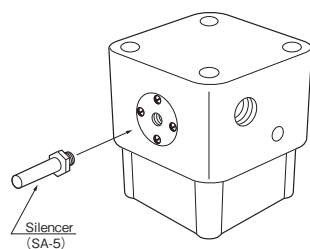
- When starting (unlocking), once apply pressure to the port without the lock mechanism.
If the lock is released with load on the lock mechanism (lock piston), the mechanism may malfunction or be damaged, or the piston may suddenly move, thereby causing a hazardous situation.
Avoid using an exhaust center 3-position valve from which air is discharged through both ports. It is recommended to use a 2-position 4- or 5-port valve in which one side is constantly pressurized.
- Select a valve through which the pressure on the lock side can be completely discharged. If a 3-position closed center or 3-position pressure center valve through which pressure cannot be discharged is used, the piston rod cannot be locked.
- If exhaust pressure is applied to the port on the lock side while the lock is on, the lock may be released. Design the pneumatic circuit so that exhaust pressure is not applied to the port. Care should be taken when a manifold type valve is used and the valve exhaust side is connected to centralized piping.

Recommended circuit



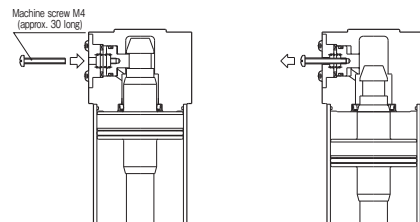
⚠ CAUTION

- Control the speed based on meter-out control. In the case of meter-in control, the lock mechanism may not be released.
- Adjust the cushion appropriately. If the cushion valve is fully closed or almost fully closed, the piston rod may not reach the stroke end, and the rod may not be locked. Even if it is locked, it may not be unlocked correctly.
- If water, oil or particles may enter the manual operation port, attach the silencer (SA-5) supplied with the product. If water, oil or particles enter the manual operation port, malfunctions, such as locking failure, may be caused.

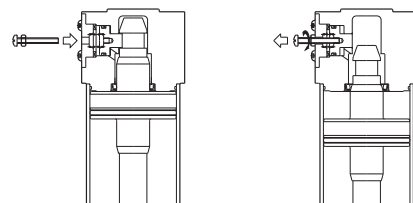


Manual unlocking procedures

- To manually unlock, insert an M4 bolt (about 30 mm long) from the manual release port, screw the bolt into the internal lock piston, and pull the bolt. Then, the lock will be released.

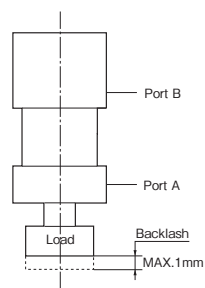


- To keep the lock mechanism in the released state, fit a nut to the manual unlocking bolt in advance. The nut which is tightened on the cover side with the bolt in the pulled state can prevent the bolt returning.



Backlash at stroke end on lock side

The lock is designed so that a backlash of up to 1 mm is kept when the rod is locked at the stroke end.
When air pressure is discharged from port A, the load will drop for the backlash. Fit the screw carefully.



Brake cylinders suitable for intermediate stop and emergency stop

- Two types, single type and double type, which differ in braking force are available. Braking force appropriate to the purpose of use can be selected.
- The brake can be applied in any of the cylinder extending and retracting strokes.
- When the brake chamber is non-pressurized state, the brake will work by the built-in spring. (For the operating procedures, see the recommended pneumatic circuit.)



Cylinder Specifications

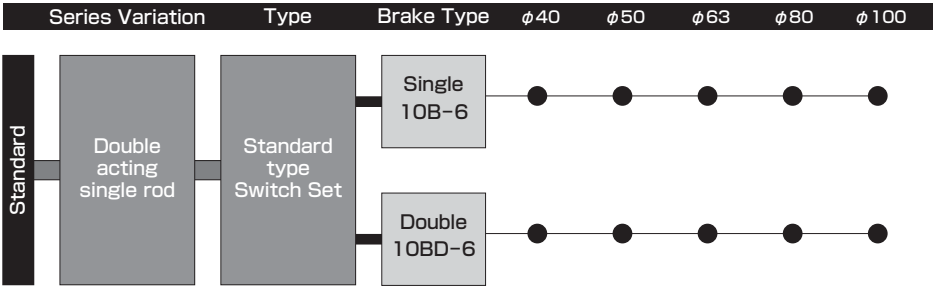
Type	Standard type, Switch Set	
	Single brake type	Double brake type
Series	10B-6	10BD-6
Cylinder bore (mm)	φ 40 · φ 50 · φ 63 · φ 80 · φ 100	
Working fluid	Air	
Lubrication	Necessary (Use JIS K 2213 Class 1 additive-free turbine oil VG32 or its equivalent.)	
Working pressure range	0.35 to 1 MPa	
Proof test pressure	1.5 MPa	
Working speed range	50 to 300 mm/s	
Working temperature range	+5 to +60°C	
Structure of cushioning	With cushions on both ends (with needle removal preventing mechanism)	
Cushion stroke	φ 40: 16mm, φ 50 · φ 63: 20mm, φ 80 · φ 100: 25mm	
Mounting style	SD · LA · LB · FA · FB · CA · CC · CB	
Accessories	Boots	Standard: Nylon tarpaulin Semi-standard: Chloroprene, Conex
	Rod end attachments	Rod eye (T-end), rod eye with spherical bearing (S-end), rod clevis (Y-end) with pin, floating joint (F-end)
	Others	Bracket for CB
Brake block	Brake releasing pressure	0.35 MPa or more (0.4 MPa only for φ 50)
	Brake applying direction	Both directions
	Stop repeatability	±2mm $\left(\begin{array}{l} \text{Load weight: Repeatability at maximum weight of load} \\ \text{Speed: Repeatability at max. transferring speed (300 mm/s)} \end{array} \right)$

Notes

- When the sensor is installed at the intermediate position, the cylinder max. speed must be less than 300 mm/s for reasons of the response speed of the load relay.
- Conex, material of the boots, is the registered trademark of Teijin Limited.

Product Lineup

Unit: mm



Stroke Range

Unit: mm

Cylinder bore	Stroke Range
φ 40	0 to 1000
φ 50 to φ 100	0 to 1500

Note)

When a stroke out of the stroke range is required, consult us.

Max. Weight of Load

Unit: kg

Cylinder bore (mm)	Single brake type	Double brake type
	10B-6	10BD-6
φ 40	34	68
φ 50	53	106
φ 63	85	170
φ 80	138	276
φ 100	215	430

Note)

The max. weight of load refers to the maximum weight of the object to be conveyed which can be controlled by the brake cylinder. The weight is constant regardless of the working pressure and mounting style.

Weight Table

Unit: kg

Bore mm	Basic weight			Mounting accessory weight							Weight of bracket for CB	Rod end attachment weight			
	Single brake type 10B-6	Double brake type 10BD-6	Additional weight per mm of stroke	LA	LB	FA	FB	CA	CB	CC		Rod eye (S-end)	Rod eye (T-end)	Rod clevis (Y-end)	Floating joint (F-end)
φ 40	2.21	3.32	0.00300	0.30	0.17	0.39	0.37	0.18	0.27	0.38	0.70	0.11	0.16	0.27	0.19
φ 50	3.62	4.44	0.00428	0.52	0.23	0.53	0.39	0.26	0.39	0.50	0.70	0.20	0.21	0.34	0.38
φ 63	5.68	6.93	0.00515	0.58	0.38	1.60	0.53	0.42	0.48	0.67	0.70	0.20	0.21	0.34	0.38
φ 80	8.97	11.15	0.00834	1.28	0.47	2.22	1.60	1.08	0.92	1.76	0.72	0.36	0.62	0.87	0.75
φ 100	14.69	19.32	0.01061	1.67	0.56	2.87	2.22	1.39	1.24	2.04	0.72	0.36	0.62	0.87	1.35

Sensor Additional Weight

Unit: kg

Sensor	AX type			SR type
	Cord length 1.5 m	Cord length 5 m	Connector type	Cord length 1.5 m
Bore				
φ 40				
φ 50				
φ 63	0.05	0.13	0.04	0.22
φ 80				
φ 100				

Calculation formula Cylinder weight (kg)=basic weight+(additional weight per mm of stroke×cylinder stroke (mm))
+(sensor additional weight×sensor quantity)+mounting accessory weight+rod end attachment weight
Calculation example Single brake type, bore 50 mm, cylinder stroke 200 mm, 2 pcs of AX215 (cord length 5 m),
mounting style FA, rod clevis (Y-end) 3.62+(0.00428×200)+(0.13×2)+0.53+0.34=6.462kg

How to order

Standard The item enclosed by broken line needs not to be entered, if unnecessary. Semi-standard specification

● Single brake type

● Double brake type

10B-6

10BD-6

LA

LA

50

50

B

B

200

200

AH

AH

2

2

T

T

B

B

J

J

Mounting style

Cylinder bore (mm)

φ 40 · φ 50 · φ 63 · φ 80 · φ 100

With cushions on both ends

No cushion

Cylinder stroke (mm)

Sensor symbol

Note) Select applicable sensors out of the Sensor List.

● Note on ordering Switch Set

● Sensors are not mounted on cylinders at delivery.

With bracket

Applicable mounting style: CB

T Rod eye (T-end)

Y Rod clevis (Y-end) with pin

S Rod eye with spherical bearing (S-end)

F Floating joint (F-end)

Sensor quantity (1, 2 to n)

Mounting style

SD Basic style

FA Rod flange

CC Cap eye

LA Side lugs

FB Cap flange

CB Cap clevis with pin

LB End angle

CA Cap eye

Sensor List

Type	Sensor symbol	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Indicating lamp	Wiring method	Cord length	Applicable load
Reed sensor	AF AX101CE	DC:5 to 30V AC:5 to 120V	DC:5 to 40mA AC:5 to 20mA	DC:1.5W AC:2VA	None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m	Small relay, programmable controller
	AG AX105CE				5m				
	AH AX111CE				1.5m				
	AJ AX115CE				5m				
	AE AX125CE	C:30 V or less AC:120 V or less	DC:40 mA or less AD:20 mA or less	None	None	5m			
	AK AX11ACE	AC:5 to 120V	5 to 20mA	2VA	Provided	LED (Lights in red when sensing)	4-pin connector type, rear wiring	0.5m	
	AL AX118CE	DC:5 to 30V	5 to 40mA	1.5W			0.5m		
	AM AX135CE	AC:90 to 240V DC:90 to 240V	5 to 300mA	B contact output			Provided	LED (Lights in red when not sensing)	
	S SR405	AC:80 to 220V	2 to 300mA	30VA	Provided	Neon lamp (Lights in red when not sensing)	0.5 mm ² , 2-core, outer dia. φ6 mm, rear wiring	5m	
Solid state sensor	BE AX201CE-1	DC:5 to 30V	5 to 40mA	—	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m	Small relay, programmable controller
	BF AX205CE-1							5m	
	CE AX211CE-1							1.5m	
	CF AX215CE-1							5m	
	CT AX211CE-1							1.5m	
	CU AX215CE-1					5m			
	CV AX218CE-1					LED (2-LED type in red/green)	4-pin connector type, rear wiring	0.5m	
	CW AZ211CE-1						0.3 mm ² , 2-core, outer dia. φ4 mm, upper wiring	1.5m	
	CX AZ215CE-1						5m		
	CY AZ218CE-1						4-pin connector type, upper wiring	0.5m	

Notes) ● For the sensors without a protective circuit, be sure to provide a protective circuit (SK-100) with the load when using any induction load (relay, etc.).
● The output logic of AX135CE is a B contact. When the piston is detected, the sensor contact turns off (the lamp turns on).
● For the detailed specifications and handling of sensors, see the sensor specifications at the end of this catalog.
● The AX type sensors can be mounted on any type in addition to the above types. See the sensor specifications at the end of this catalog.
● We recommend AND Unit (AU series) for multiple sensors connected in series.
For details, refer to AND Unit at the end of this catalog.

● AX type sensor

● SR type sensor

Cord type

Connector type

Ordering procedures

★ Standard specifications

● With cushions on both ends

● Brake port A

● Cylinder port position A, cushion valve position A

Note) ● When specifying cylinder port and cushion valve positions other than A, consult us.

★ Semi-standard range

● With boots, without cushions

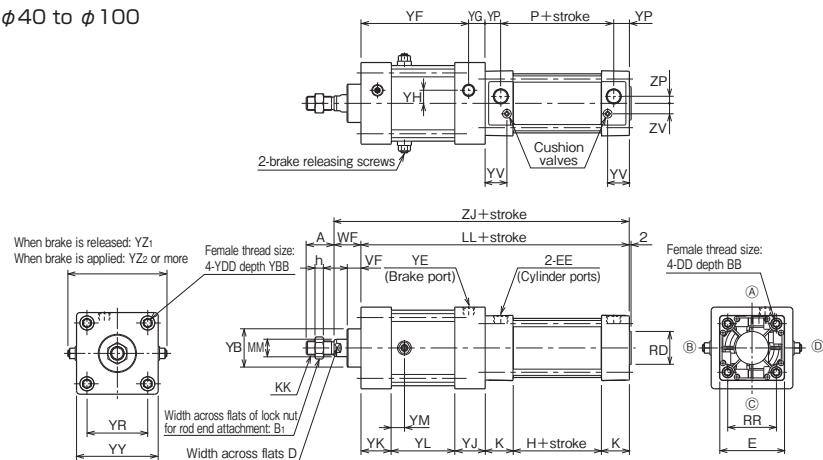
● Change of piston rod end (dimensional symbol: WF, A, KK)

Note) ● Consult us for specifications not stated above.

SD

Single brake type 10B-6 SD

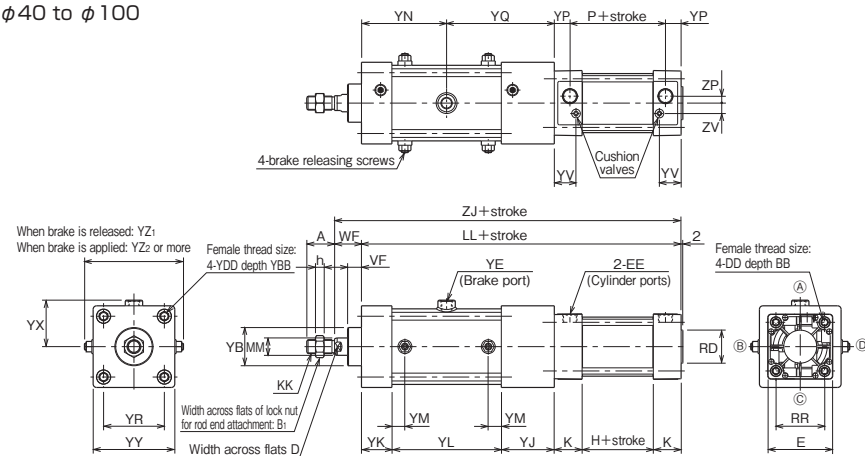
- $\phi 40$ to $\phi 100$



- For Switch Set Cylinders, see dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the Accessories.

Double brake type 10BD-6 SD 10B-6/TBD6 **Bore** 

- $\phi 40$ to $\phi 100$



- For Switch Set Cylinders, see dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the Accessories.

Dimensional Table

Symbol Bore	A	B ₁	BB	D	DD	E	EE	H	K	KK	LL		MM	P
											Single	Double		
φ40	24(21)	19	14	14	M6×1	□50	Rc1/4	31	31	M12×1.25	221	299	φ16	57
φ50	32(29)	22	14	17	M6×1	□62	Rc1/4	31	31	M16×1.5	231	315	φ20	57
φ63	32(29)	22	14	17	M8×1.25	□75	Rc3/8	32	32	M16×1.5	239	318	φ20	60
φ80	40(37)	27	15	21	M10×1.5	□94	Rc3/8	36	36	M20×1.5	270	362	φ25	68
φ100	40(37)	27	15	26	M10×1.5	□112	Rc1/2	36	36	M20×1.5	284	390	φ30	68

Symbol Bore	RD	RR	VF	WF	YB	YBB	YDD	YE	YF	YG	YH	YJ		YK
												Single	Double	
φ40	φ32	 37	10	25	φ38	14	M6×1	Rc1/4	111	17	6	28	53	27
φ50	φ38	 47	10	25	φ38	14	M8×1.25	Rc1/4	121	17	11	30	56	30
φ63	φ38	 56	16	31	φ44	15	M10×1.5	Rc1/4	121	22	15	35	61	35
φ80	φ44	 70	16	35	φ50	15	M10×1.5	Rc3/8	138	24	15	39	67	35
φ100	φ50	 84	16	35	φ60	15	M12×1.75	Rc3/8	152	24	15	39	68	36

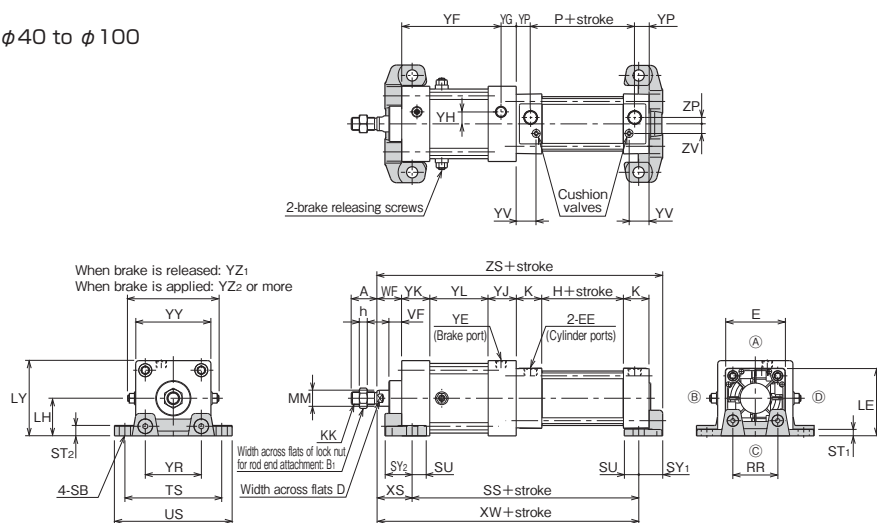
Symbol Bore	YL		YM	YN	YP	YQ	YR	YV	YX	YY	YZ ₁	YZ ₂	ZJ		ZP	ZV	h
	Single	Double											Single	Double			
φ40	73	126	12	90	18	116	□47	25.5	37.5	□62	88	94	246	324	4	10	7
φ50	78	136	14	98	18	124	□56	24	44	□75	97	104	256	340	7	12	10
φ63	73	126	15	98	18	124	□70	25	53.5	□94	114	122	270	349	8	12	10
φ80	88	152	18	111	20	143	□84	29	68.5	□112	134	142	305	397	11	16	12
φ100	101	178	17	125	20	157	□104	29	82	□138	159	166	319	425	12	18	12

*The parenthesized values of dimension A indicate the screw length.

LA

Single brake type 10B-6 LA

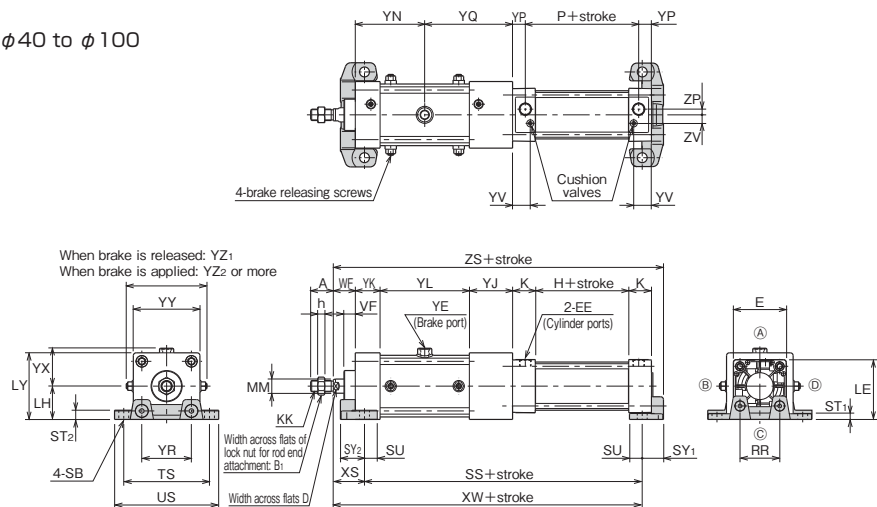
- $\phi 40$ to $\phi 100$



- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Double brake type 10BD-6 LA 10B-6/TBD6 Bore 

- $\phi 40$ to $\phi 100$



- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Dimensional Table

Symbol		A	B ₁	D	E	EE	H	K	KK	LE	LH	LY	MM	P	RR	SB	SS	
Bore																	Single	Double
φ40	24(21)	19	14	□50	Rc1/4	31	31	M12×1.25	56	31	62	φ16	57	□37	φ12	201	279	
φ50	32(29)	22	17	□62	Rc1/4	31	31	M16×1.5	69	38	75.5	φ20	57	□47	φ12	211	295	
φ63	32(29)	22	17	□75	Rc3/8	32	32	M16×1.5	84.5	47	94	φ20	60	□56	φ14	213	292	
φ80	40(37)	27	21	□94	Rc3/8	36	36	M20×1.5	104	57	113	φ25	68	□70	φ14	244	336	
φ100	40(37)	27	26	□112	Rc1/2	36	36	M20×1.5	125	69	138	φ30	68	□84	φ14	257	363	

Symbol Bore	ST ₁	ST ₂	SU	SY ₁	SY ₂	TS	US	VF	WF	XS	XW		YE	YF	YG	YH	YJ	
											Single	Double					Single	Double
φ40	5.5	9	14	22	25	83	105	10	25	35	236	314	Rc1/4	111	17	6	28	53
φ50	6.5	9	14	24	27	95	117	10	25	35	246	330	Rc1/4	121	17	11	30	56
φ63	8.5	13	18	29	34	121	147	16	31	44	257	336	Rc1/4	121	22	15	35	61
φ80	9.5	14	18	33	38	140	168	16	35	48	292	384	Rc3/8	138	24	15	39	67
φ100	11.5	16	18	37	42	167	195	16	35	49	306	412	Rc3/8	152	24	15	39	68

Symbol Bore	YK	YL		YN	YP	YQ	YR	YV	YX	YY	YZ ₁	YZ ₂	ZP	ZS		ZV	h
		Single	Double											Single	Double		
φ40	27	73	126	90	18	116	□47	25.5	37.5	□62	88	94	4	258	336	10	7
φ50	30	78	136	98	18	124	□56	24	44	□75	97	104	7	270	354	12	10
φ63	35	73	126	98	18	124	□70	25	53.5	□94	114	122	8	286	365	12	10
φ80	35	88	152	111	20	143	□84	29	68.5	□112	134	142	11	325	417	16	12
φ100	36	101	178	125	20	157	□104	29	82	□138	159	166	12	343	449	18	12

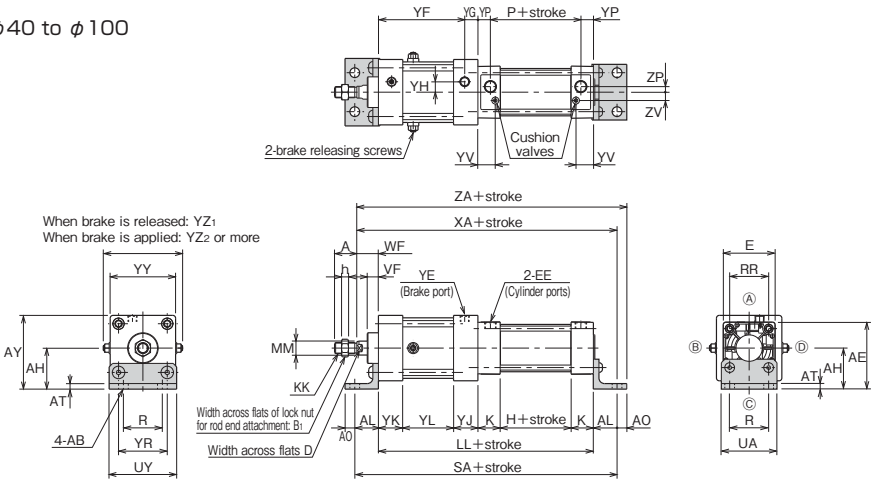
*The parenthesized values of dimension A indicate the screw length.

10B-6/TB6 Bore is available. CAD/DATA is available.

LB

Single brake type 10B-6 LB Bore B Stroke

- $\phi 40$ to $\phi 100$

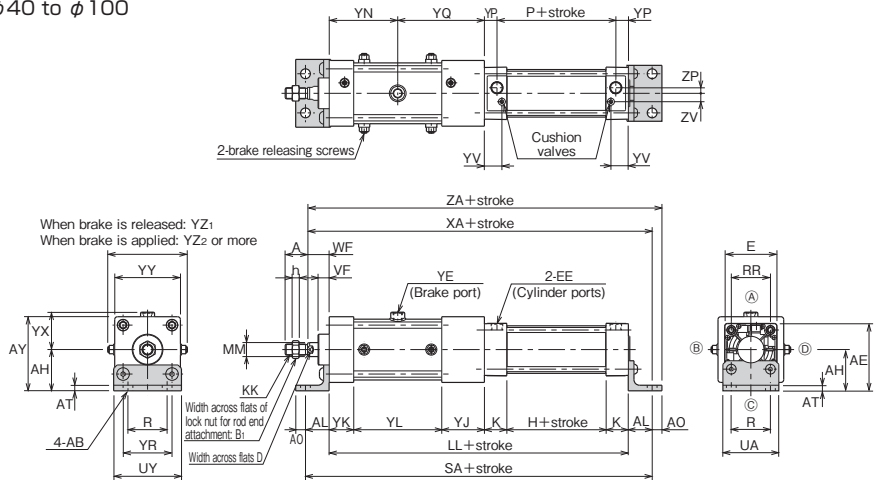


- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Double brake type 10BD-6 LB Bore B Stroke

10B-6/TBD6 Bore

- $\phi 40$ to $\phi 100$



- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Dimensional Table

Symbol Bore	A	AB	AE	AH	AL	AO	AT	AY	B ₁	D	E	EE	H	K	KK
$\phi 40$	24(21)	$\phi 12$	66	41	26	12	6	72	19	14	$\square 50$	Rc1/4	31	31	M12×1.25
$\phi 50$	32(29)	$\phi 12$	79	48	28	12	6	85.5	22	17	$\square 62$	Rc1/4	31	31	M16×1.5
$\phi 63$	32(29)	$\phi 14$	96.5	59	34	14	8	106	22	17	$\square 75$	Rc3/8	32	32	M16×1.5
$\phi 80$	40(37)	$\phi 14$	113	66	34	14	8	122	27	21	$\square 94$	Rc3/8	36	36	M20×1.5
$\phi 100$	40(37)	$\phi 14$	135	79	43	18	10	148	27	26	$\square 112$	Rc1/2	36	36	M20×1.5

Symbol Bore	LL		MM	P	R	RR	SA		UA	UY	VF	WF	XA		YE	YF	YG	YH
	Single	Double					Single	Double					Single	Double				
$\phi 40$	221	299	$\phi 16$	57	37	$\square 37$	273	351	60	70	10	25	272	350	Rc1/4	111	17	6
$\phi 50$	231	315	$\phi 20$	57	47	$\square 47$	287	371	70	80	10	25	284	368	Rc1/4	121	17	11
$\phi 63$	239	318	$\phi 20$	60	56	$\square 56$	307	386	80	97	16	31	304	383	Rc1/4	121	22	15
$\phi 80$	270	362	$\phi 25$	68	70	$\square 70$	338	430	97	114	16	35	339	431	Rc3/8	138	24	15
$\phi 100$	284	390	$\phi 30$	68	84	$\square 84$	370	476	114	138	16	35	362	468	Rc3/8	152	24	15

Symbol Bore	YJ		YK	YL		YN	YQ	YR	YV	YX	YY	YZ ₁	YZ ₂	ZA		ZP	ZV	h
	Single	Double		Single	Double									Single	Double			
$\phi 40$	28	53	27	73	126	90	116	$\square 47$	25.5	37.5	$\square 62$	88	94	284	362	4	10	7
$\phi 50$	30	56	30	78	136	98	124	$\square 56$	24	44	$\square 75$	97	104	296	380	7	12	10
$\phi 63$	35	61	35	73	126	98	124	$\square 70$	25	53.5	$\square 94$	114	122	318	397	8	12	10
$\phi 80$	39	67	35	88	152	111	143	$\square 84$	29	68.5	$\square 112$	134	142	353	445	11	16	12
$\phi 100$	39	68	36	101	178	125	157	$\square 104$	29	82	$\square 138$	159	166	380	486	12	18	12

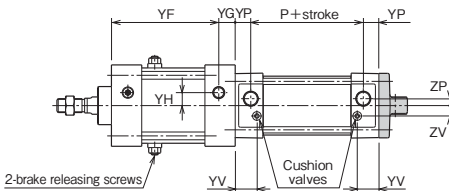
*The parenthesized values of dimension A indicate the screw length.

10B-6/TB6  is available. 

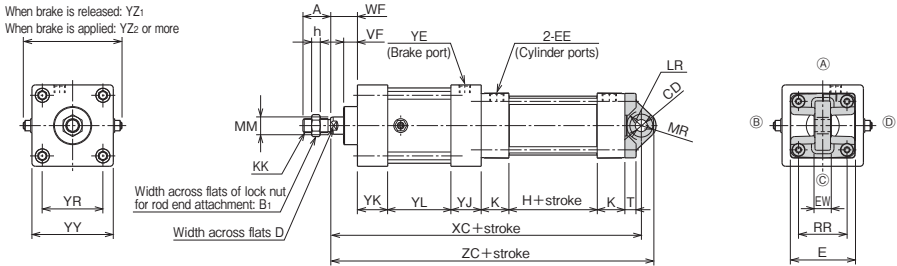
CA

Single brake type 10B-6 CA  

● $\phi 40$ to $\phi 100$



When brake is released: YZ₁
When brake is applied: YZ₂ or more

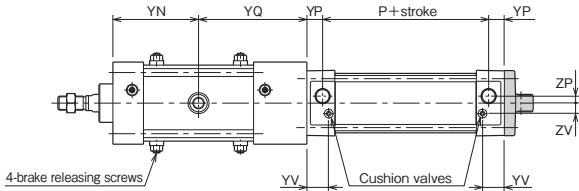


- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

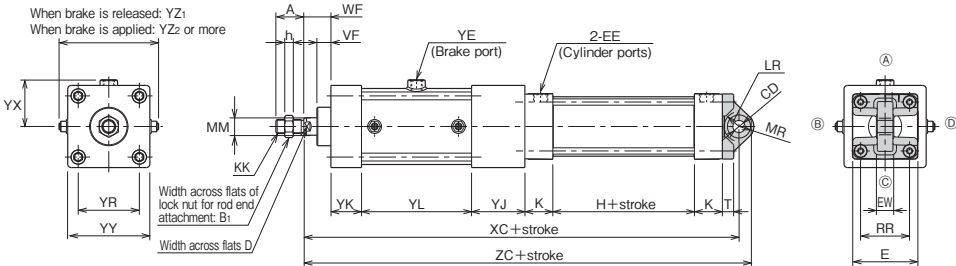
Double brake type 10BD-6 CA  

10B-6/TBD6 

● $\phi 40$ to $\phi 100$



When brake is released: YZ₁
When brake is applied: YZ₂ or more



- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Dimensional Table

Symbol Bore	A	B ₁	CD	D	E	EE	EW	H	K	KK	LR	MM
$\phi 40$	24(21)	19	$\phi 14H9$	14	$\square 50$	Rc1/4	$20_{-0.084}^0$	31	31	M12×1.25	R17	$\phi 16$
$\phi 50$	32(29)	22	$\phi 14H9$	17	$\square 62$	Rc1/4	$20_{-0.084}^0$	31	31	M16×1.5	R17	$\phi 20$
$\phi 63$	32(29)	22	$\phi 14H9$	17	$\square 75$	Rc3/8	$20_{-0.084}^0$	32	32	M16×1.5	R17	$\phi 20$
$\phi 80$	40(37)	27	$\phi 20H9$	21	$\square 94$	Rc3/8	$32_{-0.100}^0$	36	36	M20×1.5	R25	$\phi 25$
$\phi 100$	40(37)	27	$\phi 20H9$	26	$\square 112$	Rc1/2	$32_{-0.100}^0$	36	36	M20×1.5	R26	$\phi 30$

Symbol Bore	MR	P	RR	T	VF	WF	XC		YE	YF	YG	YH	YJ		YK
							Single	Double					Single	Double	
$\phi 40$	R17	57	$\square 37$	8	10	25	265	343	Rc1/4	111	17	6	28	53	27
$\phi 50$	R17	57	$\square 47$	10	10	25	275	359	Rc1/4	121	17	11	30	56	30
$\phi 63$	R17	60	$\square 56$	13	16	31	289	368	Rc1/4	121	22	15	35	61	35
$\phi 80$	R24	68	$\square 70$	18	16	35	337	429	Rc3/8	138	24	15	39	67	35
$\phi 100$	R24	68	$\square 84$	18	16	35	351	457	Rc3/8	152	24	15	39	68	36

Symbol Bore	YL		YN	YP	YQ	YR	YV	YX	YY	YZ ₁	YZ ₂	ZC		ZP	ZV	h
	Single	Double										Single	Double			
$\phi 40$	73	126	90	18	116	$\square 47$	25.5	37.5	$\square 62$	88	94	279	357	4	10	7
$\phi 50$	78	136	98	18	124	$\square 56$	24	44	$\square 75$	97	104	289	373	7	12	10
$\phi 63$	73	126	98	18	124	$\square 70$	25	53.5	$\square 94$	114	122	303	382	8	12	10
$\phi 80$	88	152	111	20	143	$\square 84$	29	68.5	$\square 112$	134	142	358	450	11	16	12
$\phi 100$	101	178	125	20	157	$\square 104$	29	82	$\square 138$	159	166	371	477	12	18	12

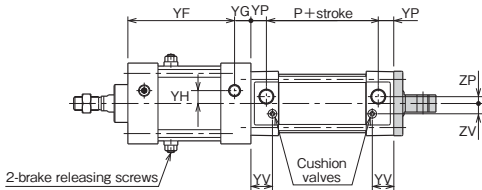
*The parenthesized values of dimension A indicate the screw length.

10B-6/TB6  CAD/DATA is available. 

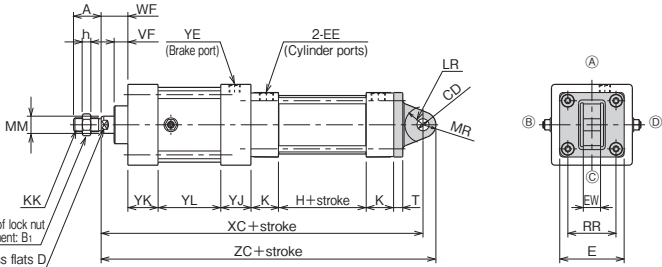
CC

Single brake type 10B-6 CC  

● $\phi 40$ to $\phi 100$



When brake is released: YZ₁
When brake is applied: YZ₂ or more

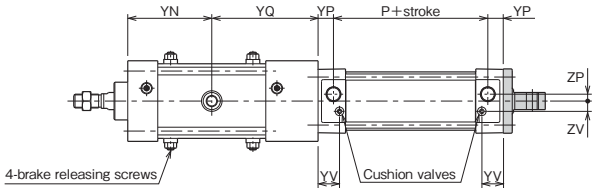


- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

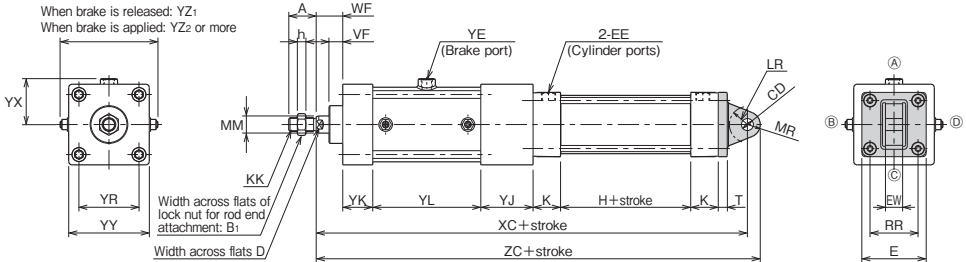
Double brake type 10BD-6 CC  

10B-6/TBD6  

● $\phi 40$ to $\phi 100$



When brake is released: YZ₁
When brake is applied: YZ₂ or more



- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Dimensional Table

Symbol Bore	A	B ₁	CD	D	E	EE	EW	H	K	KK	LR	MM
$\phi 40$	24(21)	19	$\phi 14H9$	14	$\square 50$	Rc1/4	$20_{-0.3}^0$	31	31	M12×1.25	R21	$\phi 16$
$\phi 50$	32(29)	22	$\phi 14H9$	17	$\square 62$	Rc1/4	$20_{-0.3}^0$	31	31	M16×1.5	R21	$\phi 20$
$\phi 63$	32(29)	22	$\phi 14H9$	17	$\square 75$	Rc3/8	$20_{-0.3}^0$	32	32	M16×1.5	R21	$\phi 20$
$\phi 80$	40(37)	27	$\phi 20H9$	21	$\square 94$	Rc3/8	$32_{-0.3}^0$	36	36	M20×1.5	R25	$\phi 25$
$\phi 100$	40(37)	27	$\phi 20H9$	26	$\square 112$	Rc1/2	$32_{-0.3}^0$	36	36	M20×1.5	R25	$\phi 30$

Symbol Bore	MR	P	RR	T	VF	WF	XC		YE	YF	YG	YH	YJ		YK
							Single	Double					Single	Double	
$\phi 40$	R14	57	$\square 37$	11	10	25	280	358	Rc1/4	111	17	6	28	53	27
$\phi 50$	R15	57	$\square 47$	11	10	25	290	374	Rc1/4	121	17	11	30	56	30
$\phi 63$	R15	60	$\square 56$	11	16	31	304	383	Rc1/4	121	22	15	35	61	35
$\phi 80$	R20	68	$\square 70$	15	16	35	353	445	Rc3/8	138	24	15	39	67	35
$\phi 100$	R20	68	$\square 84$	15	16	35	367	473	Rc3/8	152	24	15	39	68	36

Symbol Bore	YL		YN	YP	YQ	YR	YV	YX	YY	YZ ₁	YZ ₂	ZC		ZP	ZV	h
	Single	Double										Single	Double			
$\phi 40$	73	126	90	18	116	$\square 47$	25.5	37.5	$\square 62$	88	94	294	372	4	10	7
$\phi 50$	78	136	98	18	124	$\square 56$	24	44	$\square 75$	97	104	305	389	7	12	10
$\phi 63$	73	126	98	18	124	$\square 70$	25	53.5	$\square 94$	114	122	319	398	8	12	10
$\phi 80$	88	152	111	20	143	$\square 84$	29	68.5	$\square 112$	134	142	373	465	11	16	12
$\phi 100$	101	178	125	20	157	$\square 104$	29	82	$\square 138$	159	166	387	493	12	18	12

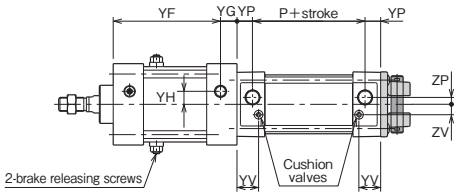
*The parenthesized values of dimension A indicate the screw length.

10B-6/TB6 □ Bore □ Stroke
CAD/DATA is available. □

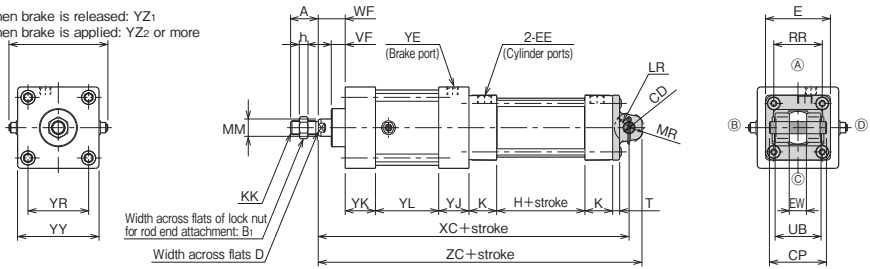
CB

Single brake type 10B-6 CB □ Bore □ Stroke

● $\phi 40$ to $\phi 100$



When brake is released: YZ₁
When brake is applied: YZ₂ or more

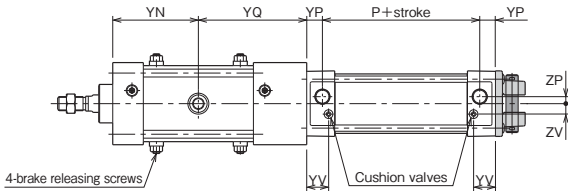


- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

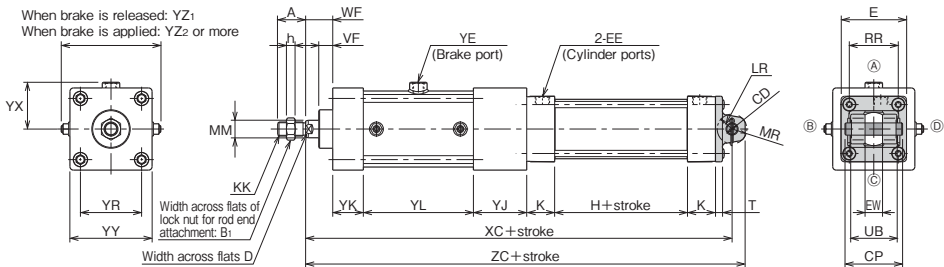
Double brake type 10BD-6 CB □ Bore □ Stroke

10B-6/TBD6 □ Bore □ Stroke

● $\phi 40$ to $\phi 100$



When brake is released: YZ₁
When brake is applied: YZ₂ or more



- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Dimensional Table

Symbol Bore	A	B ₁	CD	CP	D	E	EE	EW	H	K	KK	LR	MM
$\phi 40$	24(21)	19	$\phi 14H9/f8$	58	14	$\square 50$	Rc1/4	$20^{+0.7}_{+0.5}$	31	31	M12 $\times$ 1.25	R17	$\phi 16$
$\phi 50$	32(29)	22	$\phi 14H9/f8$	66	17	$\square 62$	Rc1/4	$20^{+0.7}_{+0.5}$	31	31	M16 $\times$ 1.5	R17	$\phi 20$
$\phi 63$	32(29)	22	$\phi 14H9/f8$	66	17	$\square 75$	Rc3/8	$20^{+0.7}_{+0.5}$	32	32	M16 $\times$ 1.5	R17	$\phi 20$
$\phi 80$	40(37)	27	$\phi 20H9/f8$	78	21	$\square 94$	Rc3/8	$32^{+0.7}_{+0.5}$	36	36	M20 $\times$ 1.5	R30	$\phi 25$
$\phi 100$	40(37)	27	$\phi 20H9/f8$	78	26	$\square 112$	Rc1/2	$32^{+0.7}_{+0.5}$	36	36	M20 $\times$ 1.5	R30	$\phi 30$

Symbol Bore	MR	P	RR	T	UB	VF	WF	XC		YE	YF	YG	YH	YJ		YK
								Single	Double					Single	Double	
$\phi 40$	R15	57	$\square 37$	8	45	10	25	265	343	Rc1/4	111	17	6	28	53	27
$\phi 50$	R17	57	$\square 47$	8	53	10	25	275	359	Rc1/4	121	17	11	30	56	30
$\phi 63$	R17	60	$\square 56$	8	53	16	31	289	368	Rc1/4	121	22	15	35	61	35
$\phi 80$	R24	68	$\square 70$	11	67	16	35	337	429	Rc3/8	138	24	15	39	67	35
$\phi 100$	R24	68	$\square 84$	11	67	16	35	351	457	Rc3/8	152	24	15	39	68	36

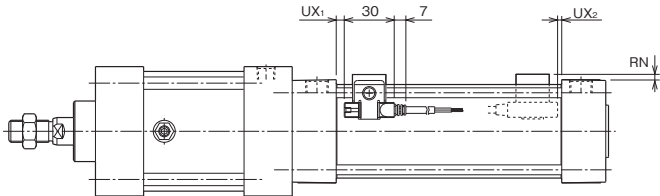
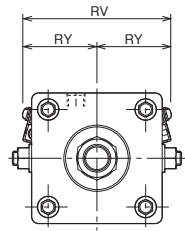
Symbol Bore	YL		YN	YP	YQ	YR	YV	YX	YY	YZ ₁	YZ ₂	ZC		ZP	ZV	h
	Single	Double										Single	Double			
$\phi 40$	73	126	90	18	116	$\square 47$	25.5	37.5	$\square 62$	88	94	278	356	4	10	7
$\phi 50$	78	136	98	18	124	$\square 56$	24	44	$\square 75$	97	104	290	374	7	12	10
$\phi 63$	73	126	98	18	124	$\square 70$	25	53.5	$\square 94$	114	122	304	383	8	12	10
$\phi 80$	88	152	111	20	143	$\square 84$	29	68.5	$\square 112$	134	142	358	450	11	16	12
$\phi 100$	101	178	125	20	157	$\square 104$	29	82	$\square 138$	159	166	372	478	12	18	12

*The parenthesized values of dimension A indicate the screw length.

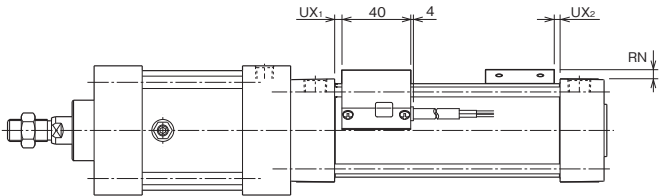
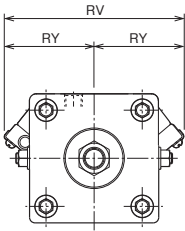
Switch Set

10B-6 SD Bore B Stroke - Sensor symbol Sensor quantity

●AX type sensor



●SR type sensor



Dimensional Table

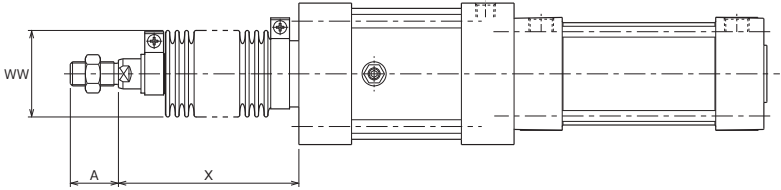
Symbol Bore	RY		RV		RN		UX ₁		UX ₂	
	AX type	SR type	AX type	SR type	AX type	SR type	AX type	SR type	AX type	SR type
φ40	36	40	72	80	3	4	8	2	4	0
φ50	40	45	80	90	2	3	9	2	5	0
φ63	47	52	94	104	2	5	9	2	5	0
φ80	52	60	104	120	0	2	11	4	6	0
φ100	60	67	120	134	0	0	11	4	6	0

Note) Dimension UX indicates the optimum sensor mounting position for detection of stroke end.

Operating Range and Hysteresis

Bore	Reed sensor				Solid state sensor	
	AX1** type		SR形		AX2** type	
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis
φ40	5 to 10	1 or less	8 to 12	2 or less	3 to 6	1 or less
φ50	6 to 12		9 to 13		4 to 8	
φ63						
φ80						
φ100						

With Boots

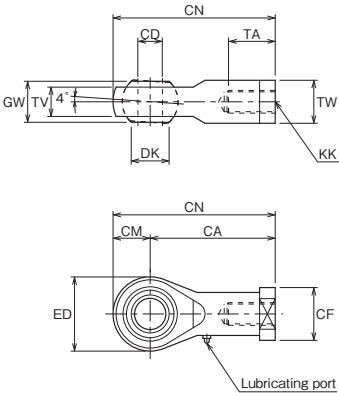


	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	100°C	200°C

Notes) ● Conex boots have different dimensions.
● Conex is the registered trademark of Teijin Limited.
● Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
● The boots have been mounted at our factory prior to delivery.

Rod End Attachment

- Rod eye with spherical bearing (S-end)



Dimensional Table: With boots

Symbol Bore	A	WW			X	
		Nylon tarpaulin	Chloroprene	Conex	Nylon tarpaulin, Chloroprene	Conex
φ40	24	φ41	φ41	φ61	50+1/3 stroke	50+1/2 stroke
φ50	32	φ47	φ47	φ61	52+1/3 stroke	52+1/2 stroke
φ63	32	φ47	φ47	φ61	52+1/3 stroke	52+1/2 stroke
φ80	40	φ61	φ61	φ61	64+1/4 stroke	64+2/5 stroke
φ100	40	φ71	φ71	φ71	64+1/4 stroke	64+2/5 stroke

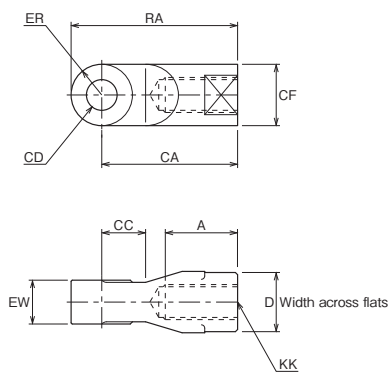
Note) If the calculated value has a fractional part, round it up.

Dimensional Table: Rod eye with spherical bearing (S-end)

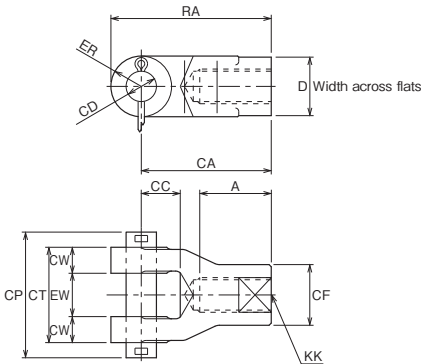
Symbol Bore	Part number	CA	CD	CF	CM	CN	DK	ED	GW	KK	TA	TV	TW
φ40	RSA-12-A	50	φ12H9	φ22	15	65	φ15.4	30	16 ⁰ _{-0.1}	M12X1.25	24	12±0.1	19
φ50	RSA-16-A	64	φ16H9	φ27	19	83	φ19.4	38	21 ⁰ _{-0.1}	M16X1.5	33	15±0.1	22
φ63													
φ80	RSA-20-A	77	φ20H9	φ34	23	100	φ24.4	46	25 ⁰ _{-0.1}	M20X1.5	40	18±0.1	30
φ100													

Rod End Attachment

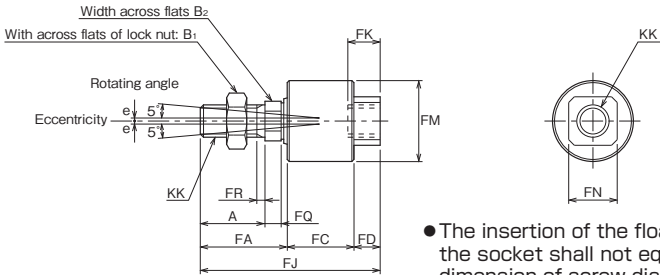
- Rod eye (T-end)



- Rod clevis (Y-end) with pin



- Floating joint (F-end)



- The insertion of the floating joint into the socket shall not equal or exceed the dimension of screw diameter. (Return the joint one or two turns after it gets into contact with the socket bottom, and fix it with a lock nut.) Excessive insertion can cause operation failure.
- Do NOT use together with CA, CB, and CC accessories.

Dimensional Table: Rod eye (T-end)

Symbol	Part number	A	CA	CC	CD	CF	D	ER	EW	KK	RA
Bore											
φ40	RTA-12-A	25	60	20	φ14H9	φ24	24	R12	20 ⁰ _{-0.1}	M12×1.25	72
φ50	RTA-16-A	33	60	20	φ14H9	φ28	27	R14	20 ⁰ _{-0.1}	M16×1.5	74
φ63											
φ80	RTA-20-A	41	85	30	φ20H9	φ36	36	R19	32 ⁰ _{-0.1}	M20×1.5	104
φ100											

Dimensional Table: Rod clevis (Y-end) with pin

Symbol	Part number	A	CA	CC	CD	CF	CP	CT	CW	D	ER	EW	KK	RA
Bore														
φ40	RYA-12-1-A	25	60	20	φ14 ^{H9} _{T8}	φ24	58	44	12	24	R12	20 ^{+1.5} _{+0.5}	M12×1.25	71
φ50	RYA-16-A	33	60	18	φ14 ^{H9} _{T8}	φ28	58	44	12	27	R14	20 ^{+1.5} _{+0.5}	M16×1.5	74
φ63														
φ80	RYA-20-A	41	85	28	φ20 ^{H9} _{T8}	φ36	78	64	16	36	R19	32 ^{+1.5} _{+0.5}	M20×1.5	104
φ100														

Dimensional Table: Floating joint (F-end)

Symbol	Part number	A	B ₁	B ₂	e	FA	FC	FD	FJ	FK	FM	FN	FQ	FR	KK
Bore															
φ40	RFS-12T	24	19	13	1	33	25.5	11	69.5	13.5	φ32	□19	7	3.5	M12×1.25
φ50φ63	RFS-16T	32	22	17	1.5	43	33	13	89	16	φ40	□24	8	4	M16×1.5
φ80	RFS-20T080	40	27	22	2	53	42	15	110	22	φ50	□30	9	5	M20×1.5
φ100	RFS-20T100	40	27	24	2.5	56	49	18	123	24	φ64	□36	12	6	M20×1.5

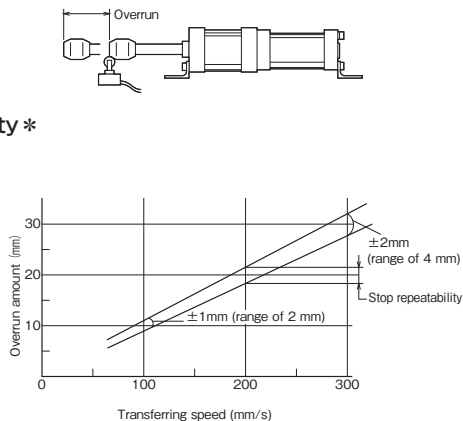
Handling Instructions

Stop repeatability and overrun amount

Since the brake is actuated by the movement of the brake piston, the load cannot be stopped immediately when a stop signal is given. It is stopped with a little delay. This delay is in proportion to the cylinder speed. The difference between the max. and min. overrun amounts is the stop repeatability.

* Notes on overrun and stop repeatability *

1. Set the limit sensor the overrun amount ahead of the desired position.
2. The overrun amount may be larger than the operating range of our sensors. Use the sensor self-holding the signal.
3. The graph shown right shows the experimental values obtained by us with the maximum load weight at a speed of 300 mm/s. The actual overrun amount and stop repeatability may slightly vary depending on the working conditions.
4. The stroke speed is unstable in the cushion stroke and in the deceleration range after the start of operation. Therefore, the stop accuracy shown in the right graph may not be obtained. Set the distance between the stop positions to 50 mm or more. If the distance between the stop positions is short, make control to return the piston rod largely.



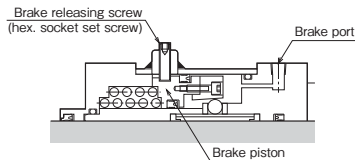
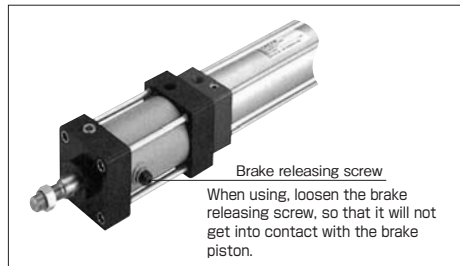
Precautions for use

⚠ WARNING

1. When starting the cylinder (releasing the brake), ensure that pressure is applied to the exhaust side of the cylinder. If the exhaust side is under atmospheric pressure, the piston rod may jump out, thereby causing an accident. Figs. 3, 4 and 5 shows recommended circuits.
2. The brake unit contains a strong spring. Never disassemble the unit. It is dangerous. If it is necessary to overhaul the unit, contact us.

⚠ CAUTION

1. When the cylinder is delivered, the brake piston is secured at the brake releasing position with the brake releasing screw (Single type: 2 places, Double type: 4 places). The brake does not operate.
2. After performing stroke operation of the cylinder for piping and positioning, supply a pressure (compressed air) of 0.35 MPa or more (0.4 MPa or more only for the 50 mm bore cylinder) to the brake port when checking the brake operation (to release the brake), and give four turns or more (2.5 turns only for the 40 mm bore cylinder) to the brake releasing screw to release the piston. Then, discharge the pressure applied to the brake port to enable the brake. Never turn the brake releasing screw when the pressure applied to the brake port has been discharged. Doing so may damage the brake unit parts.
3. If the brake releasing screw is turned excessively, it will come off. Stop loosening the screw after loosening it 5 or 6 turns (3 or 4 turns only for the 40 mm bore cylinder) to prevent entry of dirt into the brake unit, and secure the screw with the supplied lock nut. Tighten the lock nut firmly so that it will not be loosened. If it is loosened, dirt may enter the unit, or the brake releasing screw may get into contact with the brake piston, and the screw may be damaged, thereby causing operation failure.

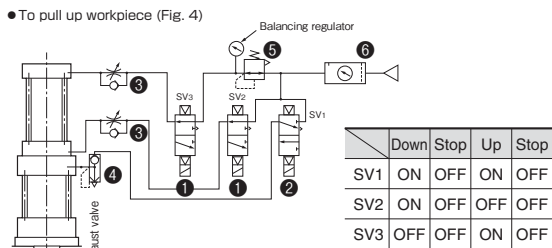
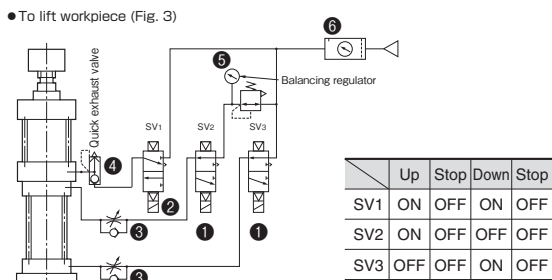


Usage

If the cylinder chamber on the exhaust side is under atmospheric pressure when the brake cylinder is started, the piston rod may jump out, thereby causing an accident. To ensure that the cylinder is started in the state where pressure is on the exhaust side, design the circuit referring to the recommended circuits.

● Recommended circuit

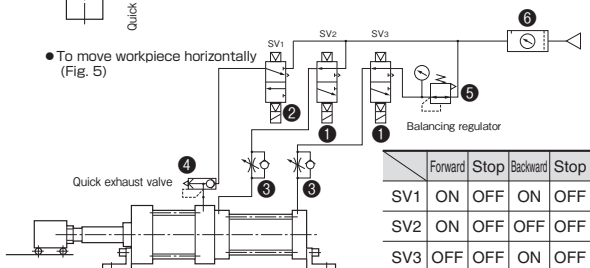
1. As shown right, fit a balancing regulator on the pneumatic cylinder operating circuit of the brake cylinder, so that the load does not move vertically or horizontally and is kept in balance while the brake is in the released state.
To balance the load, adjust the balancing regulator while inching the cylinder with SV2 or SV3 with the brake in the released state (SV1 ON). If the load (piston rod) does not move when inching is stopped, this means that the regulator has been adjusted correctly.
2. When the brake cylinder using a pressure center type solenoid valve is used, it is difficult to control the stopping position. Particularly in the case where the brake is operated in the middle of ascending, the load may ascend after once descending when the brake is released, and the limit sensor may be turned on twice.
Be sure to use a balancing circuit. The balancing operation will be performed at the same time when the brake is applied, and the cylinder will be restarted at the same time when the brake is released. (On a standard circuit, the cylinder stops when all operating valves are turned off.)



● Stop distance

Set the distance between the stopping positions to 50 mm or more if possible. In many cases, the speed of pneumatic cylinder is unstable at the start. If the distance between the stop positions is short, keep a distance of 50 mm or more, for example, by returning the piston rod once to the origin.

(Caution)
The brake unit contains a strong spring. Never disassemble the brake unit. For overhauling, consult us.



Brake cylinders and peripheral devices

Symbol	1		2		3	4	5	6	—
Name	Solenoid valve	Silencer	Solenoid valve	Silencer	Speed controller	Quick exhaust valve	Regulator	Air control unit	Floating joint
φ40	3EP-08E	SA-8	3EC-08E	SA-8	SC502	QV2-8	ERV-08	EFRL08	RFS-12T
φ50	3EP-08E	SA-8	3EC-08E	SA-8	SC502	QV2-8	ERV-08	EFRL08	RFS-16T
φ63	3HP-10E	SA-10	3EC-08E	SA-8	SC503	QV2-8	ERV-10	EFRL10	RFS-16T
φ80	3HP-10E	SA-10	3HC-10E	SA-10	SC503	QV2-10	ERV-10	EFRL10	RFS-20T080
φ100	3HP-15E	SA-15	3HC-10E	SA-10	SC504	QV2-10	MRV-15	MFRL15	RFS-20T100

● Various kinds of joints and tubes are available.

Troubleshooting

Trouble	Cause	Checking procedure and measures to be taken
Significantly long overrun after stopping	The set screws on both ends of the brake unit cannot be loosened.	Loosen after once supplying compressed air to the brake port.
	The load is out of balance.	The cylinder is apt to move unstably. See the usage section, and bring the load into balance.
	Compressed air is not discharged from the brake unit.	The brake is applied when air is discharged. See the usage section.
	The piping distance is long.	A delay in balancing or exhausting is caused. Reduce the piping distance as short as possible, or connect a quick exhaust valve to the brake port.
	The load is too heavy.	Reconfirm the type and specifications.
	The running speed is too fast.	Adjust to reduce the transferring speed to 300 mm/s or less.
Unstable running due to chattering or jumping out	The load is out of balance.	The cylinder is apt to move unstably. See the usage section, and bring the load into balance.
	Compressed air is not supplied to the brake unit, and the brake is kept applied.	Supply compressed air of 0.4 MPa or more to the brake port at the same time when a start signal is given to release the brake.
	The speed controller or the cushion needle has been excessively turned down.	The rise characteristics at both ends of the cylinder may be degraded, or stick-slip may occur. Appropriately turn up the controller or needle.
	Misalignment of piston rod and equipment	Misalignment of the brake cylinder can damage the seal and accelerate wear of the brake shoe and may cause variation in stopping position. Carefully check for misalignment.
	The cylinder is not lubricated.	Friction in the brake cylinder changes, and the speed becomes unstable. When a stopping accuracy is required, be sure to install a lubricator.
	The stopping distance is too short.	The speed of pneumatic cylinder at the start is apt to be unstable. Set the distance to 50 mm or more, or reduce the speed as low as possible.
	Air leakage from pneumatic circuit	Locate the air leakage, and replace or repair.

Performance improved from DC4 and 6 Series

- The use of a newly developed to cushion mechanism.
- Standardized magnetic proximity sensors
- Standardized cylinders with heavy-duty scraper
- The external dimensions are the same as those of DC4 and 6 Series.



Cylinder Specifications

Series Variations		General purpose type			With heavy-duty scraper		
Type		Standard type	Switch Set		Standard type	Switch Set	
			Iron proximity type	Magnetic proximity type		Iron proximity type	Magnetic proximity type
Series	Single rod type	DC7		DC7R	DC7H		DC7HR
	Double rod type	DC7D		DC7RD	DC7HD		DC7HRD
Cylinder bore (mm)		φ40·φ50·φ63·φ80·φ100·φ125·φ150		φ40·φ50·φ63·φ80·φ100·φ125	φ40·φ50·φ63·φ80·φ100·φ125·φ150		φ40·φ50·φ63·φ80·φ100·φ125
Working fluid		Air					
Lubrication		Unnecessary (Note 1)					
Working pressure range	Single rod type	0.05 to 1 MPa					
	Double rod type	0.1 to 1 MPa					
Proof test pressure		1.5 MPa					
Working speed range		50 to 500 mm/s (Note 2)					
Working temperature range		-10 to +60℃ (Note 3)					
Structure of cushioning		With cushions on both ends					
Cushion stroke (cushion ring length)		φ 40 ・ φ 50 ・ φ 63: 20 mm		φ 80 ・ φ 100: 25 mm	φ 125 ・ φ 150: 35 mm		
Tolerance for thread		JIS6g/6H					
Tolerance of stroke		1 to 250: $\begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$ mm		251 to 1000: $\begin{smallmatrix} +1.5 \\ 0 \end{smallmatrix}$ mm	1001 to 1500: $\begin{smallmatrix} +2.0 \\ 0 \end{smallmatrix}$ mm		
Mounting style		SD, LB, FA, FB, CA, CB, TC					
Accessories	Boots	Standard: Nylon tarpaulin Semi-standard: Chloroprene, Conex					
	Rod end attachments	Rod eye (T-end), rod clevis (Y-end)					
	Others	With lock nut for rod end screw					

Note 1) Once lubricating the cylinder, you must lubricate it constantly.
Note 2) When installing a sensor in the middle of stroke, set the cylinder speed to 300 mm/s or less.
Note 3) No freezing
Note 4) Conex, material of the boots, is the registered trademark of Teijin Limited.

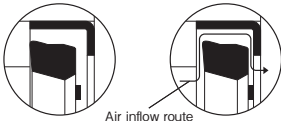
Product Lineup

Unit: mm

Series Variations		Type	φ40	φ50	φ63	φ80	φ100	φ125	φ150
General purpose type	Double acting single rod	Standard type/ Iron proximity type Switch Set DC7	●	●	●	●	●	●	●
		Magnetic proximity type Switch Set DC7R	●	●	●	●	●	●	
	Double acting double rod	Standard type/ Iron proximity type Switch Set DC7D	●	●	●	●	●	●	●
		Magnetic proximity type Switch Set DC7RD	●	●	●	●	●	●	
With heavy-duty scraper	Double acting single rod	Standard type/ Iron proximity type Switch Set DC7H	●	●	●	●	●	●	●
		Magnetic proximity type Switch Set DC7HR	●	●	●	●	●	●	
	Double acting double rod	Standard type/ Iron proximity type Switch Set DC7HD	●	●	●	●	●	●	●
		Magnetic proximity type Switch Set DC7HRD	●	●	●	●	●	●	

Differences from DC4/6 Series

- All external dimensions and mounting dimensions are the same as those of DC4 and 6 Series.
- These types use floating cushion seals.
(Bore φ40, φ50, φ63, φ80, φ100, φ125)
- Magnetic proximity sensors were added.
(Bore φ40, φ50, φ63, φ80, φ100, φ125)
- The cushion needle was modified to enable fine adjustments and improve the operability.
- Cylinders with heavy-duty scraper were standardized as H type.



Floating cushion seal

• The use of the floating cushion seal improves the cushioning characteristics.

How to order

The item enclosed by broken line needs not to be entered, if unnecessary. ■ Semi-standard specification

● Standard type

● Switch Set/
iron proximity type

● Switch Set/
magnetic proximity type

DC7

DC7

DC7R

LB

LB

LB

50

50

50

B

B

B

100

100

100

-

-

-

FA

FA

AH

2

2

2

-

-

-

T

T

T

-

-

-

J

J

J

General purpose type

DC7 : Double acting single rod/standard/iron proximity type

DC7R : Double acting single rod/magnetic proximity type

DC7D : Double acting double rod/standard/iron proximity type

DC7RD : Double acting double rod/magnetic proximity type

With heavy-duty scraper

DC7H : Double acting single rod/standard/iron proximity type

DC7HR : Double acting single rod/magnetic proximity type

DC7HD : Double acting double rod/standard/iron proximity type

DC7HRD : Double acting double rod/magnetic proximity type

Double acting single rod

SD (Basic style) [A style]

LB (End angles) [H style]

FA (Rod rectangular flange) [F style]

FB (Cap rectangular flange) [E style]

CA (Cap eye) [Y style]

CB (Cap clevis) [U style]

TC (Intermediate trunnion) [N style]

Double acting double rod

SD (Basic style)

LB (End angles)

FA (Rectangular flange)

TC (Intermediate trunnion)

Standard type/iron proximity type

φ40·φ50·φ63·φ80·φ100·φ125·φ150

Magnetic proximity type

φ40·φ50·φ63·φ80·φ100·φ125

● Changes to model number

DC4 Series (conventional type)

With iron proximity sensor

DC4 A - 50 - 100 - RU - J - L3 D 201 - A 1

Note) · Left-justify.

DC7 Series (new type)

With iron proximity sensor

DC7 SD 50 B 100 - A B FA 2 - Y - J

Notes) · Enter each item.

· It is unnecessary to enter ⑥ and ⑦ when the port and cushion are located at the standard positions.

Note) The bracketed designations are used for DC4 and 6 Series.

① Type

② Mounting style

③ Cylinder bore

④ Cushion bore

⑤ Stroke

⑥ Sensor symbol

⑦ Sensor quantity

⑧ Rod end attachment

⑨ Boots

J Nylon tarpaulin

JK Chloroprene

UK Conex

T Rod eye (T-end) (RY type)

Y Rod clevis (Y-end) (RU type)

Sensor quantity (1,2, to n)

Sensor symbol

Note) Select applicable sensors out of the Sensor List.

① Notes on ordering Switch Set

● When no sensor is required, specify 0 for the sensor symbol ⑥ and the sensor quantity ⑦.

● Sensors are not mounted on cylinders at delivery.

Cylinder stroke (mm)

B With cushions on both ends

N No cushion

Sensor List

■ Semi-standard specification

Type	Sensor symbol	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Indicating lamp	Wiring method	Cord length	Applicable load
Reed sensor	 AX101CE	DC: 5 to 30 V AC: 5 to 120 V	DC: 5 to 40 mA AC: 5 to 20 mA	DC: 1.5 W AC: 2 VA	None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5 m	Small relay, programmable controller
	 AX105CE				5 m				
	 AX111CE				1.5 m				
	 AX115CE				5 m				
	 AX125CE	DC: 30 V or less AC: 120 V or less	DC: 40 mA or less AC: 20 mA or less	None	None	5 m			
	 AX11ACE	AC: 5 to 120 V	5 to 20 mA	2 VA	Provided	LED (Lights in red when sensing)	4-pin connector type, rear wiring	0.5 m	
	 AX11BCE	DC: 5 to 30 V	5 to 40 mA	1.5 W				0.5 m	
	 AX135CE	AC: 90 to 240 V DC: 90 to 240 V	5 to 300 mA	B contact output	Provided	LED (Lights in red when not sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	5 m	
	 SR405	AC: 80 to 220 V	2 to 300 mA	30 VA	Provided	Neon lamp (Lights in red when not sensing)	0.5 mm ² , 2-core, outer dia. φ6 mm, rear wiring	5 m	Small relay, programmable controller, small solenoid, pilot lamp
Solid state sensor	 AX201CE-1	DC: 5 to 30 V	5 to 40 mA	—	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5 m	Small relay, programmable controller
	 AX205CE-1					5 m			
	 AX211CE-1					LED (2-LED type in red/green)		1.5 m	
	 AX215CE-1					5 m			
	 AX211CE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5 m	
	 AX215CE-1						4-pin connector type, rear wiring	5 m	
	 AX21BCE-1						4-pin connector type, upper wiring	0.5 m	
	 AZ211CE-1							1.5 m	
	 AZ215CE-1							5 m	
	 AZ21BCE-1							0.5 m	
Iron proximity reed sensor	 L3-101	AC: 80 to 220 V	2 to 20 mA	2 VA	Provided	Neon lamp (Lights when not sensing)	0.3 mm ² , 2-core, outer dia. φ5.3 mm, rear wiring	1 m	Small relay, programmable controller
	 L3-105	DC: 20 to 28 V	3 to 50 mA	1.5 W	Provided	LED (Lights when sensing)		5 m	
	 L3-241					1 m			
	 L3-245					5 m			
	 L4-101	AC: 80 to 220 V	2 to 20 mA	2 VA	Provided	Neon lamp (Lights when not sensing)	Terminal type	—	
	 L4-241	DC: 20 to 28 V	3 to 50 mA	1.5 W	Provided	LED (Lights when sensing)			

Notes) ● For the sensors without a protective circuit, be sure to provide a protective circuit (SK-100) with the load when using any induction load (relay, etc.).
● The output logic of AX135CE is a B contact. When the piston is detected, the sensor contact turns off (the lamp turns on).
● For the detailed specifications and handling of sensors, see the sensor specifications at the end of this catalog.
● The AX type sensors can be mounted on any type in addition to the above types. See the sensor specifications at the end of this catalog.
● We recommend AND Unit (AU series) for multiple sensors connected in series.
For details, refer to AND Unit at the end of this catalog.

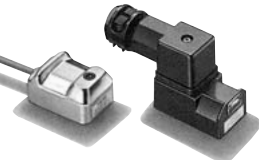
● AX type sensor

● SR type sensor

● L3/L4 type sensor

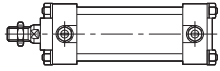
Cord type

Connector type

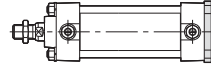


Mounting Style

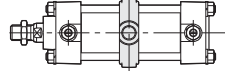
[SD] Basic style



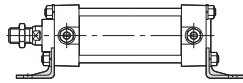
[FB] Cap flange



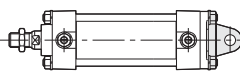
[TC] Intermediate trunnion



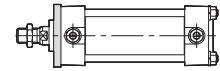
[LB] End angles



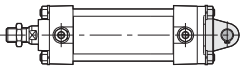
[CA] Cap eye



[FA] Rod flange



[CB] Cap clevis with pin



Standard Stroke Range and Stroke Limit

Unit: mm

Bore	Type	Standard max stroke		Max stroke limit	
		Single rod	Double rod	Single rod	Double rod
φ40		600	600	1000	800
φ50		600	600	1200	800
φ63		800	800	1200	800
φ80		1000	1000	1500	1000
φ100		1200	1000	1500	1000
φ125		1300	1000	1500	1000
φ150		1300	1000	1500	1000

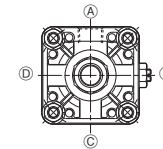
Sensor Mountable Minimum Stroke

Unit: mm

Bore	Type	Magnetic proximity type						Iron proximity type		
		AX type			SR type			L3/L4 type		
		With 1 sensor	With 2 sensors	TC type	With 1 sensor	With 2 sensors	TC type	With 1 sensor	With 2 sensors	TC type
φ40		15	15	95	20	20	115	20	50	125
φ50		15	15	95	20	20	115	20	50	125
φ63		10	10	100	20	20	120	20	60	135
φ80		10	10	100	20	20	125	20	60	145
φ100		10	10	100	20	20	125	20	70	155
φ125		5	5	120	15	15	140	20	70	175
φ150		—	—	—	—	—	—	20	70	175

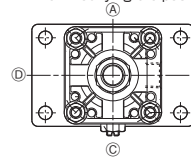
Ordering procedures

✱ Standard specifications



- With cushions on both ends
- Port position (A, cushion valve position B)

✱ The standard port position is (A), and the standard cushion valve position is (B). When modifying the positions, enter the symbol shown in the following figure.



(Example of indication)
DC7 FB 50 B 100 - [B] [C]

Port position (A,B,C,D)

Cushion valve position (A,B,C,D,O)

The symbols of the port and cushion valve positions are written in the clockwise direction as viewed from the rod side.

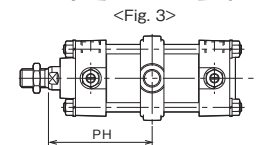
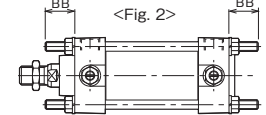
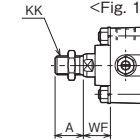
✱ Semi-standard range

- Change of piston rod end (A, KK, WF) <Fig. 1>
- Change of tie rod protrusion size (BB) <Fig. 2>
- When DC4 or 6 Series T style (rod trunnion) cylinder is used, specify the minimum value of PH shown in the table of dimension PH.
- Change of dimension PH of TC accessory <Fig. 3>
- With boots (chloroprene or Conex)
- With cushion on one side

Min. Dimension PH

Unit: mm

Series	Bore	φ40	φ50	φ63	φ80	φ100	φ125	φ150
DC7		55	59	68.5	77	77	88	88
DC7H		63	69	78.5	87	87	103	103



Weight Table/Double acting type

Unit: kg

Bore mm	Single rod					Double rod					Mounting accessory weight						Rod end attachment weight	
	General purpose type		With heavy-duty scraper		Additional weight per mm of stroke	General purpose type		With heavy-duty scraper		Additional weight per mm of stroke	LB	FA	FB	CA	CB	TC	Rod eye (T-end)	Rod clevis (Y-end)
	Standard type	Magnetic proximity type	Standard type	Magnetic proximity type		Standard type	Magnetic proximity type	Standard type	Magnetic proximity type									
φ40	0.88	0.78	0.91	0.80	0.00351	0.98	0.88	1.03	0.92	0.00508	0.16	0.28	0.28	0.27	0.34	0.35	0.09	0.10
φ50	1.30	1.14	1.33	1.17	0.00480	1.48	1.32	1.55	1.39	0.00725	0.18	0.39	0.39	0.38	0.44	0.38	0.19	0.24
φ63	1.92	1.63	1.95	1.65	0.00578	2.13	1.83	2.19	1.89	0.00823	0.28	0.71	0.71	0.61	0.69	0.69	0.19	0.24
φ80	3.56	3.03	3.61	3.08	0.00916	3.92	3.39	4.03	3.50	0.01299	0.55	1.35	1.35	1.10	1.38	1.35	0.35	0.45
φ100	4.89	3.91	4.96	3.98	0.01144	5.43	4.45	5.56	4.58	0.01695	0.72	1.75	1.75	1.65	1.88	1.60	0.65	0.79
φ125	8.87	7.10	9.03	7.26	0.01710	9.63	7.86	9.95	8.19	0.02460	1.50	2.95	3.25	3.25	3.81	4.50	1.20	1.50
φ150	11.69	—	11.89	—	0.02024	12.82	—	13.22	—	0.03004	1.85	4.55	5.05	4.65	5.23	6.85	2.15	2.50

Sensor Additional Weight

Unit: kg

Sensor	Magnetic proximity type				Iron proximity type						
	AX type			SR type	L3 type		L4 type				
Bore	Cord length 1.5 m	Cord length 5 m	Connector type	Cord length 5 m	Cord length 1.5 m	Cord length 5 m	Terminal type				
φ40	0.05	0.13	0.04	0.22	0.13	0.24	0.15				
φ50											
φ63											
φ80	0.07	0.14	0.06								
φ100											
φ125	—	0.15	—								
φ150											

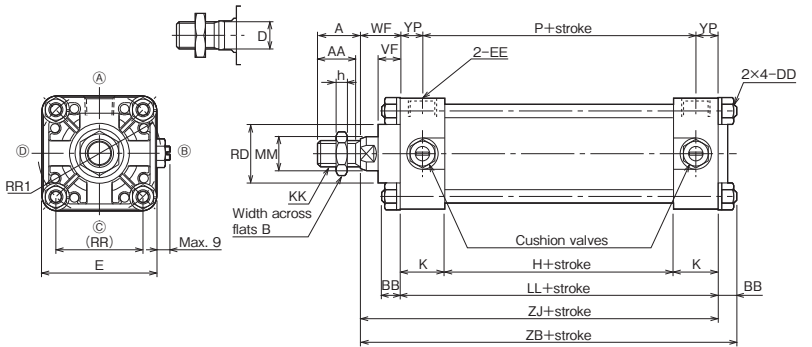
Calculation formula Cylinder weight (kg)=basic weight+(cylinder stroke (mm)×additional weight per mm of stroke)+ (sensor additional weight×sensor quantity)+mounting accessory weight+rod end attachment weight

Calculation example DC7R, bore φ50, cylinder stroke 200 mm, 2 pcs of AX215 (cord length 5 m), LB style
1.14+(0.0048×200)+(0.13×2)+0.18=2.54kg

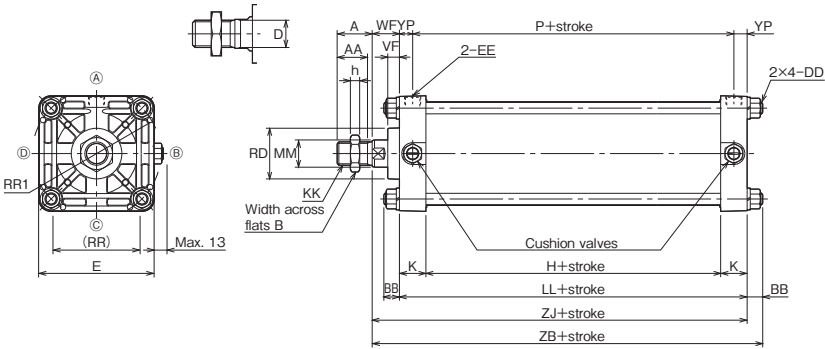
SD

Double acting single rod **General purpose type** DC7 SD Bore B Stroke
With heavy-duty scraper DC7H SD Bore B Stroke

● φ40 to φ100

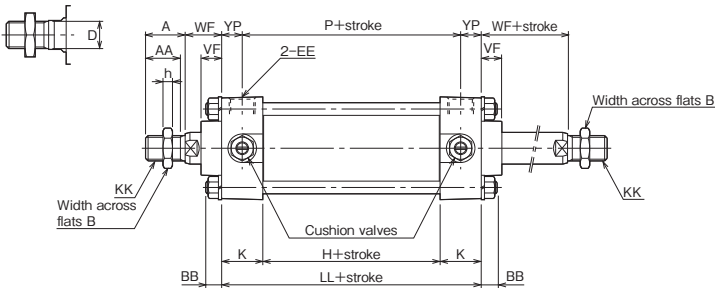


● φ125 · φ150



Double acting double rod **General purpose type** DC7D SD Bore B Stroke
With heavy-duty scraper DC7HD SD Bore B Stroke

● φ40 to φ150



CAD/DATA
DC7/TDC7 Bore A,B is available.



Dimensional Table

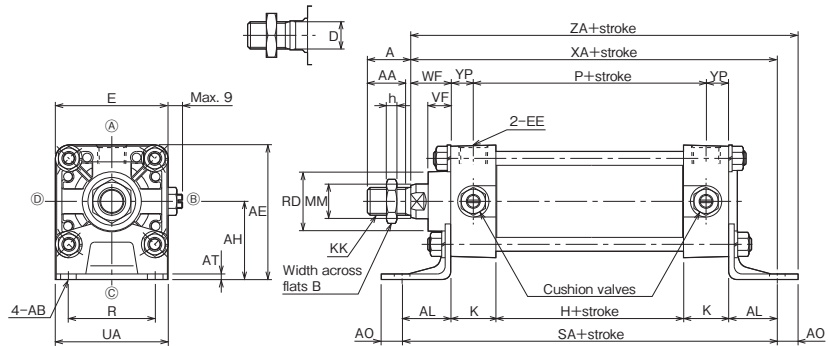
Symbol Bore	A	AA	B	BB	D	DD	E	EE	H	K	KK	LL	MM
	φ40	φ50	φ63	φ80	φ100	φ125	φ150	φ125	φ150	φ125	φ150	φ125	φ150
φ40	20	17	17	10	14	M8×1.25	58	Rc1/4	38	22	M12×1.75	82	16
φ50	25	22	22	10	17	M8×1.25	65	Rc3/8	36	26	M16×2	88	20
φ63	25	22	22	12	17	M10×1.5	79.5	Rc3/8	44	26	M16×2	96	20
φ80	35	31	27	15	21	M12×1.75	100.5	Rc1/2	50	32	M20×2.5	114	25
φ100	35	30	32	15	26	M12×1.75	116	Rc1/2	58	32	M24×3	122	30
φ125	45	39	41	20	32	M16×2	148.5	Rc1/2	62	34	M30×3.5	130	35
φ150	55	49	50	20	36	M16×2	172.5	Rc1/2	62	34	M36×4	130	40

Symbol Bore	P	RD	RR	RR1	VF		WF		YP	ZB		ZJ		h
	General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper
φ40	60	31.5	42.4	60	13	18	23	31	11	115	123	105	113	5
φ50	62	35	49.5	70	13	18	23	33	13	121	131	111	121	6
φ63	70	35	59.4	84	15	21	30	40	13	138	148	126	136	6
φ80	82	42.5	76.4	108	15	21	30	40	16	159	169	144	154	10
φ100	90	46.5	91.9	130	15	21	30	40	16	167	177	152	162	10
φ125	96	66	116.7	165	15	25	35	50	17	185	200	165	180	12
φ150	96	71	134.4	190	15	25	35	50	17	185	200	165	180	15

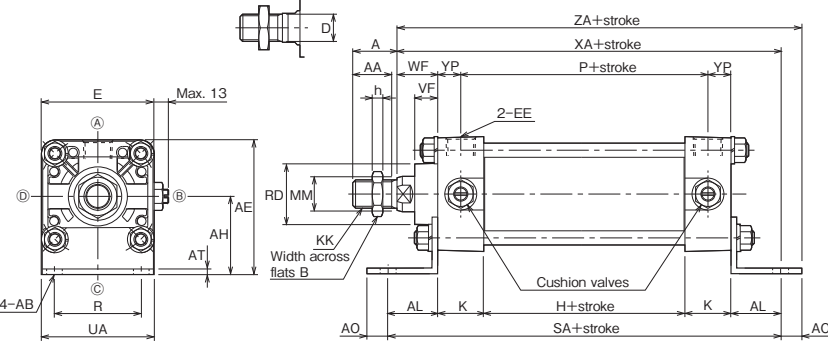
LB

Double acting single rod **General purpose type** DC7 LB Bore B Stroke
With heavy-duty scraper DC7H LB Bore B Stroke

●φ40 to φ100

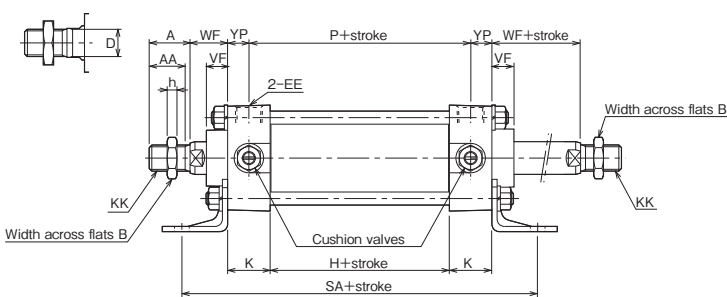


●φ125 · φ150



Double acting double rod **General purpose type** DC7D LB Bore B Stroke
With heavy-duty scraper DC7HD LB Bore B Stroke

●φ40 to φ150



CAD/DATA
DC7/TDC7 Bore A,B is available.



Dimensional Table

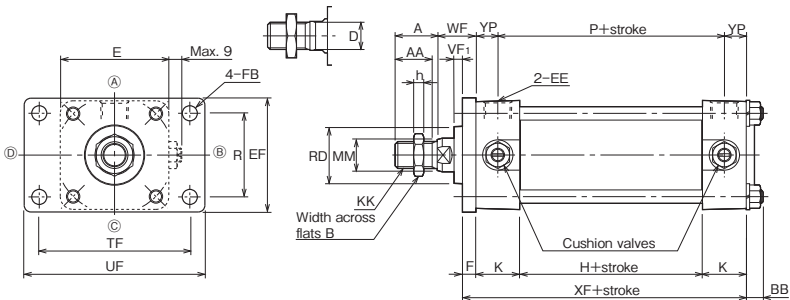
Symbol Bore	A	AA	AB	AE	AH	AL	AO	AT	B	D	E	EE	H	K	KK
φ40	20	17	φ9	69	40	28	12	3.2	17	14	58	Rc1/4	38	22	M12×1.75
φ50	25	22	φ9	77.5	45	28	12	3.2	22	17	65	Rc3/8	36	26	M16×2
φ63	25	22	φ11	90	50	35	15	3.2	22	17	79.5	Rc3/8	44	26	M16×2
φ80	35	31	φ14	115.5	65	45	20	4	27	21	100.5	Rc1/2	50	32	M20×2.5
φ100	35	30	φ14	133	75	45	20	4	32	26	116	Rc1/2	58	32	M24×3
φ125	45	39	φ18	164.5	90	50	25	6	41	32	148.5	Rc1/2	62	34	M30×3.5
φ150	55	49	φ18	191.5	105	50	25	6	50	36	172.5	Rc1/2	62	34	M36×4

Symbol Bore	MM	P	R	RD	SA	UA	VF		WF		XA		YP	ZA		h
							General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper		General purpose type	With heavy-duty scraper	
φ40	16	60	42	31.5	138	57	13	18	23	31	133	141	11	145	153	5
φ50	20	62	50	35	144	64	13	18	23	33	139	149	13	151	161	6
φ63	20	70	59	35	166	80	15	21	30	40	161	171	13	176	186	6
φ80	25	82	76	42.5	204	101	15	21	30	40	189	199	16	209	219	10
φ100	30	90	92	46.5	212	116	15	21	30	40	197	207	16	217	227	10
φ125	35	96	117	66	230	150	15	25	35	50	215	230	17	240	255	12
φ150	40	96	134	71	230	174	15	25	35	50	215	230	17	240	255	15

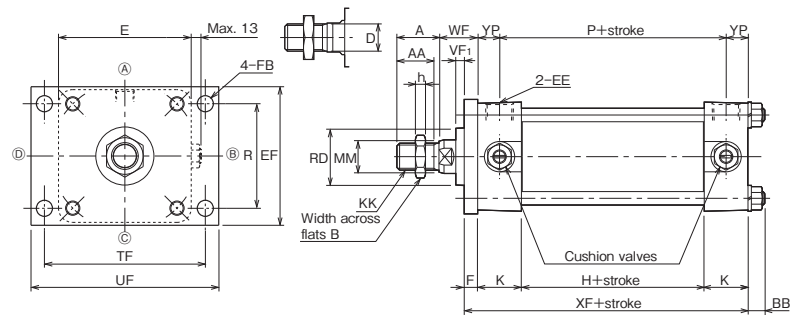
FA

Double acting single rod **General purpose type** DC7 FA Bore B Stroke
With heavy-duty scraper DC7H FA Bore B Stroke

●φ40 to φ100

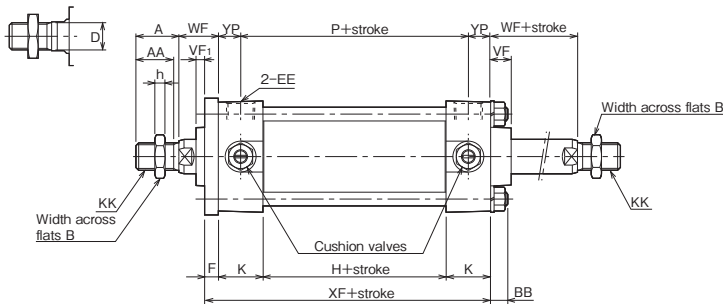


●φ125 · φ150



Double acting double rod **General purpose type** DC7D FA Bore B Stroke
With heavy-duty scraper DC7HD FA Bore B Stroke

●φ40 to φ150



CAD/DATA
DC7/TDC7 Bore A,B is available.



Dimensional Table

Symbol Bore	A	AA	B	BB	D	E	EE	EF	F	FB	H	K	KK
φ40	20	17	17	10	14	58	Rc1/4	60	8	φ9	38	22	M12×1.75
φ50	25	22	22	10	17	65	Rc3/8	68	8	φ9	36	26	M16×2
φ63	25	22	22	12	17	79.5	Rc3/8	83	10	φ11	44	26	M16×2
φ80	35	31	27	15	21	100.5	Rc1/2	104	12	φ14	50	32	M20×2.5
φ100	35	30	32	15	26	116	Rc1/2	120	12	φ14	58	32	M24×3
φ125	45	39	41	20	32	148.5	Rc1/2	155	14	φ18	62	34	M30×3.5
φ150	55	49	50	20	36	172.5	Rc1/2	175	14	φ18	62	34	M36×4

Symbol Bore	MM	P	R	RD	TF	UF	VF		VF1		WF		XF	YP	h
							General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper			
φ40	16	60	42	31.5	80	98	13	18	5	10	23	31	90	11	5
φ50	20	62	50	35	90	108	13	18	5	10	23	33	96	13	6
φ63	20	70	59	35	105	129	15	21	5	11	30	40	106	13	6
φ80	25	82	76	42.5	130	158	15	21	3	9	30	40	126	16	10
φ100	30	90	92	46.5	150	178	15	21	3	9	30	40	134	16	10
φ125	35	96	117	66	180	210	15	25	1	11	35	50	144	17	12
φ150	40	96	134	71	220	270	15	25	1	11	35	50	144	17	15

FB

Double acting single rod

General purpose type

 DC7 FB

Bore

B

Stroke

With heavy-duty scraper

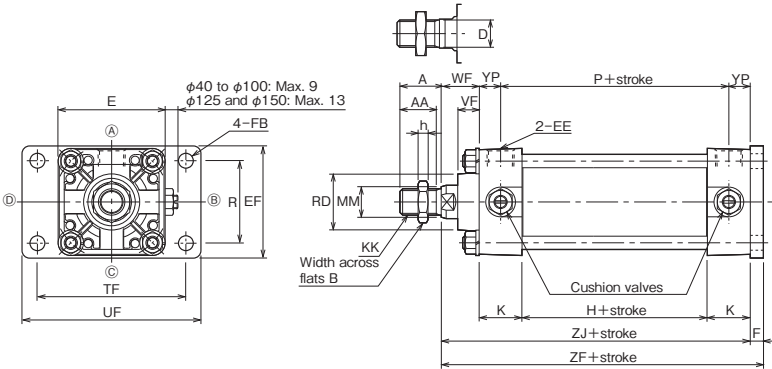
 DC7H FB

Bore

B

Stroke

●φ40 to φ150



CAD/DATA
DC7/TDC7

Bore

A,B is available.

Dimensional Table

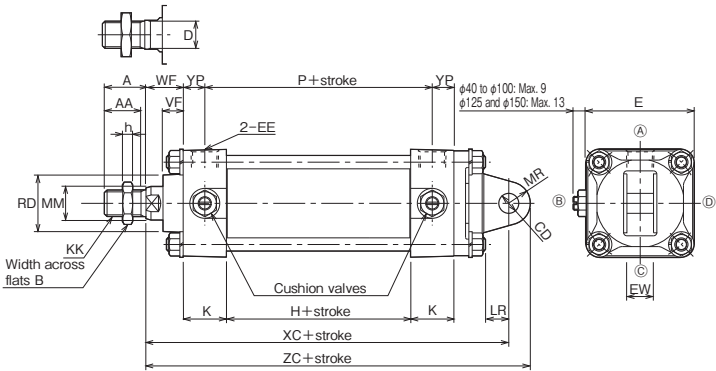
Symbol Bore	A	AA	B	D	E	EE	EF	F	FB	H	K	KK	MM	P	R
φ40	20	17	17	14	58	Rc1/4	60	8	φ9	38	22	M12×1.75	16	60	42
φ50	25	22	22	17	65	Rc3/8	68	8	φ9	36	26	M16×2	20	62	50
φ63	25	22	22	17	79.5	Rc3/8	83	10	φ11	44	26	M16×2	20	70	59
φ80	35	31	27	21	100.5	Rc1/2	104	12	φ14	50	32	M20×2.5	25	82	76
φ100	35	30	32	26	116	Rc1/2	120	12	φ14	58	32	M24×3	30	90	92
φ125	45	39	41	32	148.5	Rc1/2	155	14	φ18	62	34	M30×3.5	35	96	117
φ150	55	49	50	36	172.5	Rc1/2	175	14	φ18	62	34	M36×4	40	96	134

Symbol Bore	RD	TF	UF	VF		WF		YP	ZF		ZJ		h
				General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper		General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper	
φ40	31.5	80	98	13	18	23	31	11	113	121	105	113	5
φ50	35	90	108	13	18	23	33	13	119	129	111	121	6
φ63	35	105	129	15	21	30	40	13	136	146	126	136	6
φ80	42.5	130	158	15	21	30	40	16	156	166	144	154	10
φ100	46.5	150	178	15	21	30	40	16	164	174	152	162	10
φ125	66	180	210	15	25	35	50	17	179	194	165	180	12
φ150	71	220	270	15	25	35	50	17	179	194	165	180	15

CA

Double acting single rod General purpose type DC7 CA Bore B Stroke
 With heavy-duty scraper DC7H CA Bore B Stroke

● φ40 to φ150



CAD/DATA
DC7/TDC7 [Bore]A,B is available.



Dimensional Table/CA

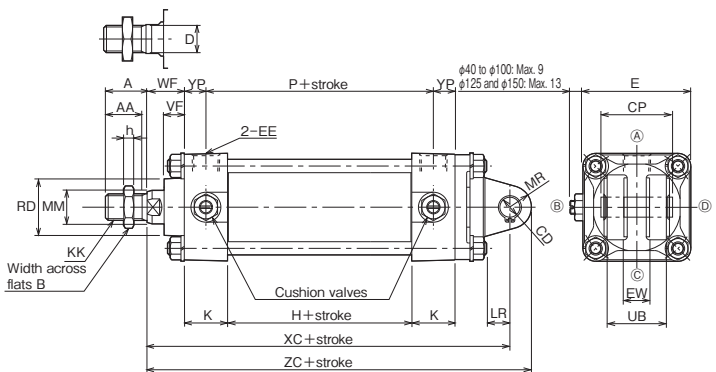
Symbol Bore	A	AA	B	CD	D	E	EE	EW	H	K	KK	LR	MM
φ40	20	17	17	φ12H9	14	58	Rc1/4	16 ^{-0.1 -0.3}	38	22	M12×1.75	14	16
φ50	25	22	22	φ12H9	17	65	Rc3/8	16 ^{-0.1 -0.3}	36	26	M16×2	15	20
φ63	25	22	22	φ12H9	17	79.5	Rc3/8	16 ^{-0.1 -0.3}	44	26	M16×2	18	20
φ80	35	31	27	φ18H9	21	100.5	Rc1/2	25 ^{-0.1 -0.3}	50	32	M20×2.5	23	25
φ100	35	30	32	φ18H9	26	116	Rc1/2	28 ^{-0.1 -0.3}	58	32	M24×3	23	30
φ125	45	39	41	φ20H9	32	148.5	Rc1/2	35 ^{-0.1 -0.3}	62	34	M30×3.5	25	35
φ150	55	49	50	φ25H9	36	172.5	Rc1/2	40 ^{-0.1 -0.3}	62	34	M36×4	30	40

Symbol Bore	MR	P	RD	VF		WF		XC		YP	ZC		h
				General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper		General purpose type	With heavy-duty scraper	
φ40	R13	60	31.5	13	18	23	31	135	143	11	148	156	5
φ50	R13	62	35	13	18	23	33	144	154	13	157	167	6
φ63	R15	70	35	15	21	30	40	166	176	13	181	191	6
φ80	R20	82	42.5	15	21	30	40	191	201	16	211	221	10
φ100	R20	90	46.5	15	21	30	40	208	218	16	228	238	10
φ125	R22	96	66	15	25	35	50	228	243	17	250	265	12
φ150	R27	96	71	15	25	35	50	240	255	17	267	282	15

CB

Double acting single rod General purpose type DC7 CB Bore B Stroke
 With heavy-duty scraper DC7H CB Bore B Stroke

● φ40 to φ150



Dimensional Table/CB

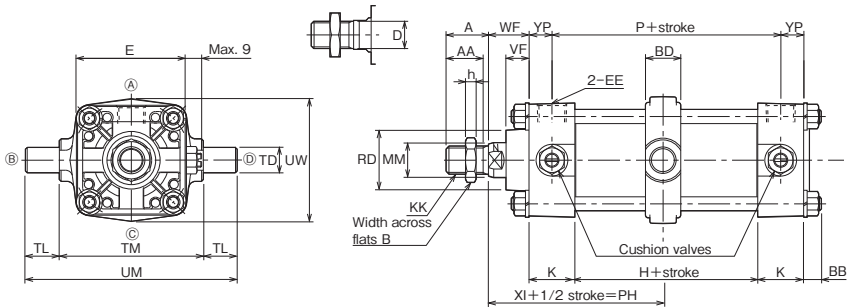
Symbol Bore	A	AA	B	CD	CP	D	E	EE	EW	H	K	KK	LR	MM
φ40	20	17	17	φ12h9	44	14	58	Rc1/4	16 ^{+0.3 +0.1}	38	22	M12×1.75	14	16
φ50	25	22	22	φ12h9	44	17	65	Rc3/8	16 ^{+0.3 +0.1}	36	26	M16×2	15	20
φ63	25	22	22	φ12h9	44	17	79.5	Rc3/8	16 ^{+0.3 +0.1}	44	26	M16×2	18	20
φ80	35	31	27	φ18h9	64	21	100.5	Rc1/2	25 ^{+0.3 +0.1}	50	32	M20×2.5	23	25
φ100	35	30	32	φ18h9	71	26	116	Rc1/2	28 ^{+0.3 +0.1}	58	32	M24×3	23	30
φ125	45	39	41	φ20h9	86	32	148.5	Rc1/2	35 ^{+0.3 +0.1}	62	34	M30×3.5	25	35
φ150	55	49	50	φ25h9	97	36	172.5	Rc1/2	40 ^{+0.3 +0.1}	62	34	M36×4	30	40

Symbol Bore	MR	P	RD	UB	VF		WF		XC		YP	ZC		h
					General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper		General purpose type	With heavy-duty scraper	
φ40	R13	60	31.5	36	13	18	23	31	135	143	11	148	156	5
φ50	R13	62	35	36	13	18	23	33	144	154	13	157	167	6
φ63	R15	70	35	36	15	21	30	40	166	176	13	181	191	6
φ80	R20	82	42.5	55	15	21	30	40	191	201	16	211	221	10
φ100	R20	90	46.5	62	15	21	30	40	208	218	16	228	238	10
φ125	R22	96	66	77	15	25	35	50	228	243	17	250	265	12
φ150	R27	96	71	88	15	25	35	50	240	255	17	267	282	15

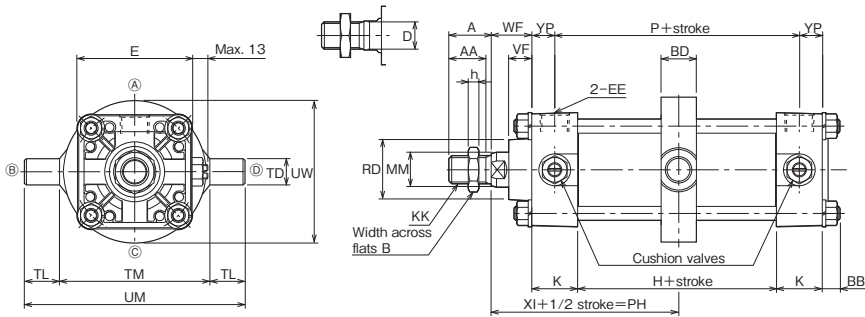
TC

Double acting single rod **General purpose type** DC7 TC Bore B Stroke
With heavy-duty scraper DC7H TC Bore B Stroke

● φ40 to φ100

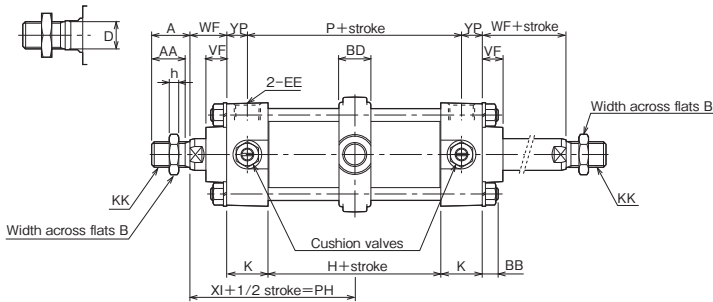


● φ125 · φ150



Double acting double rod **General purpose type** DC7D TC Bore B Stroke
With heavy-duty scraper DC7HD TC Bore B Stroke

● φ40 to φ150



CAD/DATA
DC7/TDC7 Bore A,B is available.



Dimensional Table

Symbol Bore	A	AA	B	BB	BD	D	E	EE	H	K	KK	MM	P	RD	TD
φ40	20	17	17	10	20	14	58	Rc1/4	38	22	M12×1.75	16	60	31.5	φ15f7
φ50	25	22	22	10	20	17	65	Rc3/8	36	26	M16×2	20	62	35	φ15f7
φ63	25	22	22	12	25	17	79.5	Rc3/8	44	26	M16×2	20	70	35	φ18f7
φ80	35	31	27	15	30	21	100.5	Rc1/2	50	32	M20×2.5	25	82	42.5	φ25f7
φ100	35	30	32	15	30	26	116	Rc1/2	58	32	M24×3	30	90	46.5	φ25f7
φ125	45	39	41	20	38	32	148.5	Rc1/2	62	34	M30×3.5	35	96	66	φ30f7
φ150	55	49	50	20	38	36	172.5	Rc1/2	62	34	M36×4	40	96	71	φ30f7

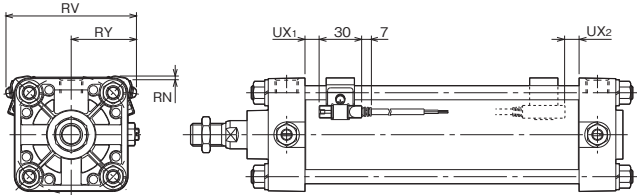
Symbol Bore	TL	TM	UM	UW	VF		WF		X1		YP	h	Min. PH	
					General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper	General purpose type	With heavy-duty scraper			General purpose type	With heavy-duty scraper
φ40	20	85	125	62	13	18	23	31	64	72	11	5	55	63
φ50	20	85	125	72	13	18	23	33	67	77	13	6	59	69
φ63	25	110	160	90	15	21	30	40	78	88	13	6	68.5	78.5
φ80	30	140	200	112	15	21	30	40	87	97	16	10	77	87
φ100	30	162	222	135	15	21	30	40	91	101	16	10	77	87
φ125	35	205	275	190	15	25	35	50	100	115	17	12	88	103
φ150	35	235	305	220	15	25	35	50	100	115	17	15	88	103

Switch Set

Magnetic proximity type

General purpose type	DC7R	SD	Bore	B	Stroke	—	Sensor symbol	Sensor quantity
With heavy-duty scraper	DC7HR	SD	Bore	B	Stroke	—	Sensor symbol	Sensor quantity

- $\phi 40$ to $\phi 125$



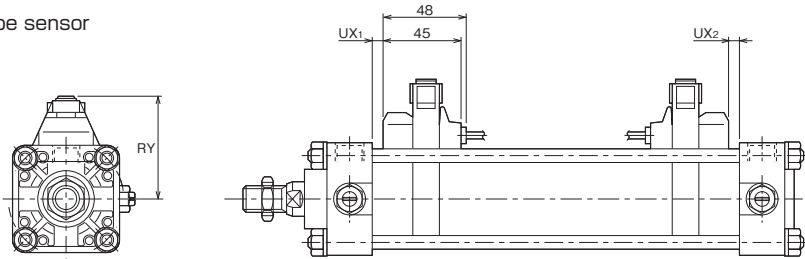
- This drawing shows the AX type sensor.

Iron proximity type

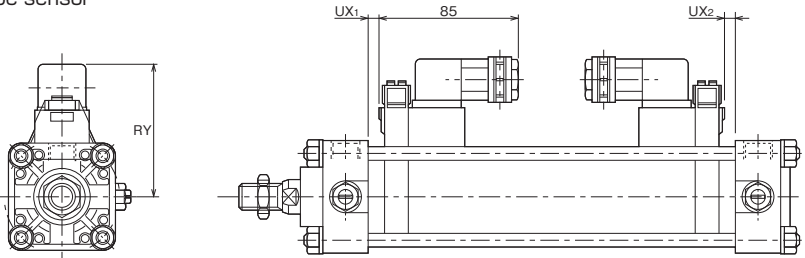
General purpose type	DC7	SD	Bore	B	Stroke	—	Sensor symbol	Sensor quantity
With heavy-duty scraper	DC7H	SD	Bore	B	Stroke	—	Sensor symbol	Sensor quantity

- $\phi 40$ to $\phi 150$

- L3 type sensor



- L4 type sensor



Dimensional Table

Symbol Bore	RY				RV		RN		UX ₁			UX ₂		
	AX type	SR type	L3	L4	AX type	SR type	AX type	SR type	AX type	SR type	L3·L4	AX type	SR type	L3·L4
$\phi 40$	41	41	56	76	82	82	2	3	10	5	6	9	2	6
$\phi 50$	43	45	61	81	86	90	2	3	10	4	5	7	1	5
$\phi 63$	48	52	67	87	96	104	3	4	13	7	12	11	6	12
$\phi 80$	58	59	77	98	116	118	3	0	17	11	17	14	8	17
$\phi 100$	65	67	87	108	130	134	4	0	21	14	23	19	12	23
$\phi 125$	77	78	100	120	154	156	2	0	22	14	28	22	14	28
$\phi 150$	—	—	112	132	—	—	—	—	—	—	29	—	—	29

Note) Dimension UX indicates the optimum sensor mounting position for detection of stroke end.

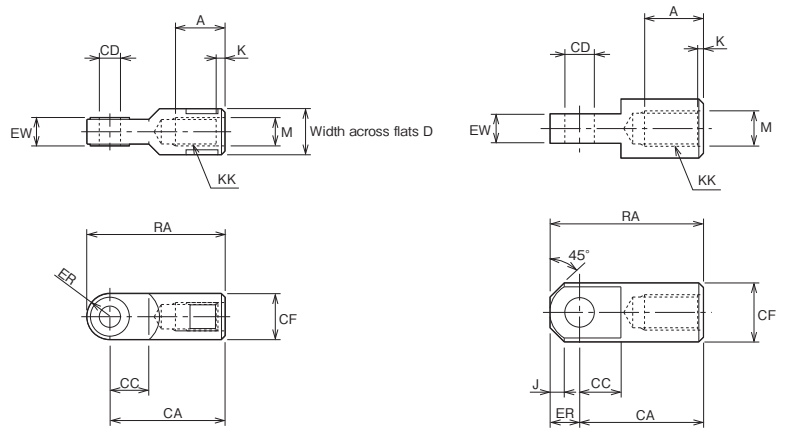
Operating Range and Hysteresis

Bore mm	Reed sensor						Solid state sensor		
	AX1** type		SR type		L3/L4 type		AX2** type		
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	
φ40	5 to 10	2 or less	6 to 10	2 or less	10 or more	3 or less	3 to 7	1 or less	
φ50			7 to 11						
φ63	6 to 12		9 to 13				4 to 7		
φ80			11 to 15				5 to 9		
φ100	12 to 16		—	—			—		
φ125	—	—	—	—	—	—	—		
φ150	—	—	—	—	—	—	—		

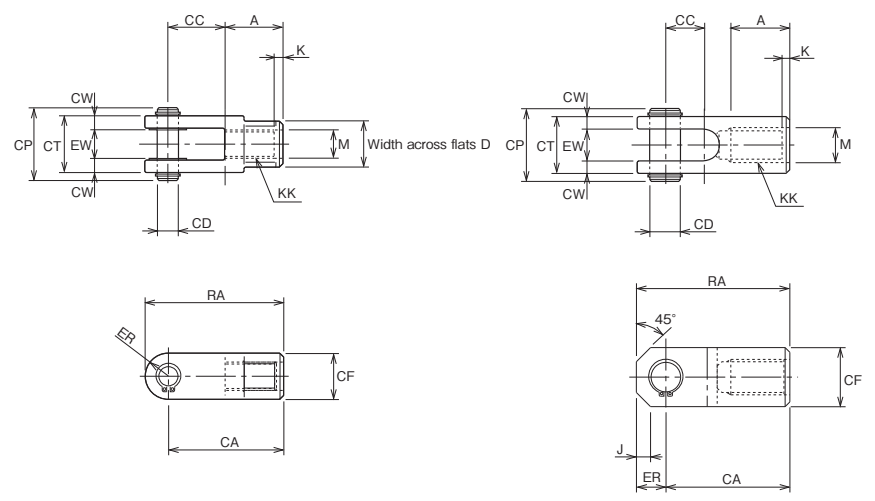
CAD/DATA
DC7/TDC7 Bore K is available. 

Rod End Attachment
Rod eye (T-end)

- Bore $\phi 40$ to $\phi 100$
- Bore $\phi 125 \cdot \phi 150$



- Rod clevis (Y-end) with pin
- Bore $\phi 40$ to $\phi 100$
- Bore $\phi 125 \cdot \phi 150$



Dimensional Table/Rod eye (T-end)

Symbol Bore	Part number	A	CA	CC	CD	CF	D	ER	EW	J	K	KK	M	RA
$\phi 40$	RY-40	22	55	18	$\phi 10H8$	$\phi 20$	20	10	$10^{+0.1}_{-0.3}$	—	3	M12×1.75	$12^{+0.3}_{+0.1}$	65
$\phi 50$	RY-50	28	65	22	$\phi 12H8$	$\phi 26$	26	13	$16^{+0.1}_{-0.3}$	—	5	M16×2	$16^{+0.3}_{+0.1}$	78
$\phi 63$	RY-50	28	65	22	$\phi 12H8$	$\phi 26$	26	13	$16^{+0.1}_{-0.3}$	—	5	M16×2	$16^{+0.3}_{+0.1}$	78
$\phi 80$	RY-80	35	80	24	$\phi 16H8$	$\phi 32$	32	16	$20^{+0.1}_{-0.3}$	—	5	M20×2.5	$20^{+0.3}_{+0.1}$	96
$\phi 100$	RY-100	40	90	30	$\phi 18H8$	$\phi 40$	40	20	$25^{+0.1}_{-0.3}$	—	5	M24×3	$24^{+0.3}_{+0.1}$	110
$\phi 125$	RY-125	50	105	35	$\phi 25H8$	$\phi 50$	—	25	$25^{+0.1}_{-0.3}$	12	5	M30×3.5	$30^{+0.3}_{+0.1}$	130
$\phi 150$	RY-150	60	125	40	$\phi 30H8$	$\phi 60$	—	30	$30^{+0.1}_{-0.3}$	15	5	M36×4	$36^{+0.3}_{+0.1}$	155

Dimensional Table/Rod clevis (Y-end) with pin

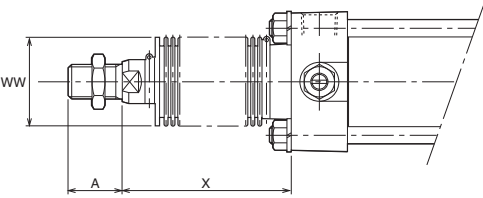
Symbol Bore	Part number	A	CA	CC	CD	CF	CP	CT	CW	D	ER	EW	K	KK	M	RA
$\phi 40$	RU-40	31	55	24	$\phi 10h9$	$\phi 18$	28.5	20	5	18	10	$10^{+0.3}_{+0.1}$	3	M12×1.75	$12^{+0.3}_{+0.1}$	65
$\phi 50$	RU-50	33	65	32	$\phi 12h9$	$\phi 26$	40.5	32	8	26	13	$16^{+0.3}_{+0.1}$	5	M16×2	$16^{+0.3}_{+0.1}$	78
$\phi 63$	RU-50	33	65	32	$\phi 12h9$	$\phi 26$	40.5	32	8	26	13	$16^{+0.3}_{+0.1}$	5	M16×2	$16^{+0.3}_{+0.1}$	78
$\phi 80$	RU-80	44	80	36	$\phi 16h9$	$\phi 32$	48.5	40	10	32	16	$20^{+0.3}_{+0.1}$	5	M20×2.5	$20^{+0.3}_{+0.1}$	96
$\phi 100$	RU-100	46	90	44	$\phi 18h9$	$\phi 38$	59	50	12.5	38	20	$25^{+0.3}_{+0.1}$	5	M24×3	$24^{+0.3}_{+0.1}$	110
$\phi 125$	RU-125	50	105	33	$\phi 25h9$	$\square 50$	60	50	12.5	—	25	$25^{+0.3}_{+0.1}$	5	M30×3.5	$30^{+0.3}_{+0.1}$	130
$\phi 150$	RU-150	60	125	40	$\phi 30h9$	$\square 60$	70	60	15	—	30	$30^{+0.3}_{+0.1}$	5	M36×4	$36^{+0.3}_{+0.1}$	155

CAD/DATA
DC7/TDC7 [Bore]K is available.



With Boots

●Boots



Symbol Bore	WW		A
	Nylon tarpaulin/chloroprene	Conex	
φ40	φ40	φ61	20
φ50	φ46	φ61	25
φ63	φ46	φ61	25
φ80	φ56	φ61	35
φ100	φ61	φ61	35
φ125	φ81	φ81	45
φ150	φ86	φ86	55

●For dimensions not shown here, refer to the general purpose SD style (basic style) cylinder.

Dimensional Table

Stroke		0	51	76	101	126	151	176	201	226	251	276	301	326	351	376	401	426	451	476
		to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to
Bore	Symbol	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500
φ40	Other than FA	55	65	75	82	90	97	105	112	120	127	135	142	150	157	165	172	180	187	195
	FA	50	60	70	77	85	92	100	107	115	122	130	137	145	152	160	167	175	182	190
φ50	Other than FA	56	66	76	83	91	98	106	113	121	128	136	143	151	158	166	173	181	188	196
	FA	51	61	71	78	86	93	101	108	116	123	131	138	146	153	161	168	176	183	191
φ63	Other than FA	60	70	80	87	95	102	110	117	125	132	140	147	155	162	170	177	185	192	200
	FA	56	66	76	83	91	98	106	113	121	128	136	143	151	158	166	173	181	188	196
φ80	Other than FA	62	67	77	82	87	92	97	102	109	117	122	127	134	142	147	152	157	162	167
	FA	60	65	75	80	85	90	95	100	107	115	120	125	132	140	145	150	155	160	165
φ100	Other than FA	63	68	78	83	88	93	98	103	110	118	123	128	135	143	148	153	158	163	168
	FA	60	65	75	80	85	90	95	100	107	115	120	125	132	140	145	150	155	160	165
φ125	Other than FA	68	73	78	83	88	93	98	103	108	113	118	123	128	133	138	143	148	153	158
	FA	69	74	79	84	89	94	99	104	109	114	119	124	129	134	139	144	149	154	159
φ150	Other than FA	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160
	FA	71	76	81	86	91	96	101	106	111	116	121	126	131	136	141	146	151	156	161

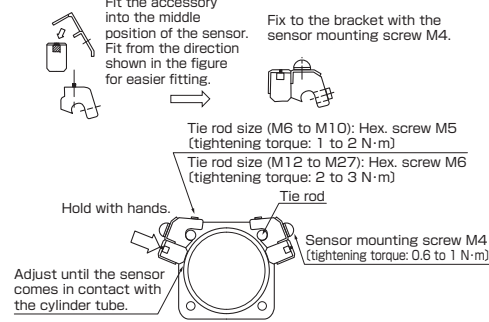
Notes) ●This table shows the dimensions of general purpose cylinders mounted with boots made of nylon tarpaulin and chloroprene.
Contact us when you use Conex boots, because the mounting dimensions are changed.
●When fitting boots to a cylinder with powerful scraper (DC7H), contact us.

Name	Material	Heat proof
Nylon tarpaulin	Nylon cloth coated with vinyl	80°C
Chloroprene	Nylon cloth coated with chloroprene	100°C
Conex	Conex cloth coated with silicone	200°C

Note) ●Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
●Conex is the registered trademark of Teijin Limited.
●The boots have been mounted at our factory prior to delivery.

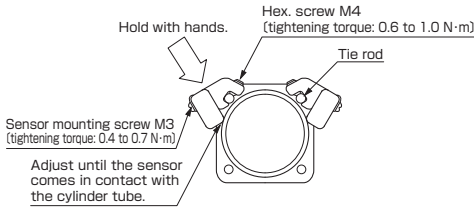
Setting method of sensor detecting position

AX type



1. Loosen the two hex. screws with a hex. wrench, and move them along the tie rod.
2. Adjust the detecting position (for the 2-LED type, the position where the green lamp lights up) 2 to 5 mm (about half of the operating range is appropriate) before the required position where the sensor indicator lamp starts to light up (ON). Then, gently hold the top of the sensor so that the cylinder tube contacts the detecting face of the sensor, and clamp the hex. screw to an appropriate tightening torque.
Note) Inappropriate tightening torque may cause the off-center of the sensor position.
3. The indicating lamp lights up when the sensor is set to the ON position.
4. Sensors can be mounted to any of four tie rods and on the most suitable position depending on the mounting space of the cylinder and wiring method.
5. Mount a sensor to the most suitable position to detect the stroke end with the "sensor mounting dimension" (dimension UX).

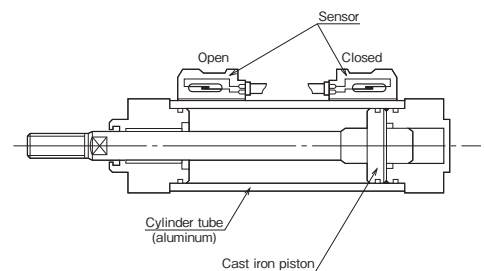
SR type



1. Loosen the two hex. screws with a hex. wrench, and move them along the tie rod.
2. Adjust the detecting position 2 to 5 mm (about half of the operating range is appropriate) before the required position where the sensor indicator lamp starts to light up (ON). Then, gently hold the top of the sensor so that the cylinder tube contacts the detecting face of the sensor, and clamp the hex. screw to an appropriate tightening torque.
Note) Inappropriate tightening torque may cause the off-center of the sensor position.
3. The indicating lamp goes out when the sensor is set to the ON position.
4. Sensors can be mounted to any of four tie rods and on the most suitable position depending on the mounting space of the cylinder and wiring method.
5. Mount a sensor to the most suitable position to detect the stroke end with the "sensor mounting dimension" (dimension UX).

Iron proximity sensor handling procedures

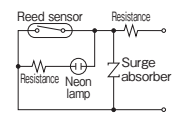
Structure and operation



● Explanation of operation
This sensor cylinder uses a combination of a reed sensor and a permanent magnet. A magnetic balance type reed sensor having a normally open contact is provided on the circumference of the cylinder tube which is a nonmagnetic body (aluminum alloy). When the piston which is a magnetic body (cast iron) moves close to the reed sensor, the magnetic balance is disturbed, and the sensor contact is closed to detect the piston position.

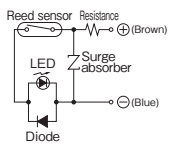
Reed sensor internal circuit diagram

For 100 V AC and 200 V AC

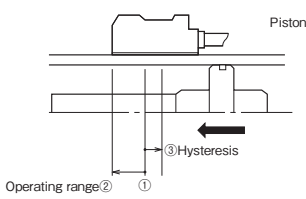


The lamp lights up when the sensor turns off.

For 24 V DC



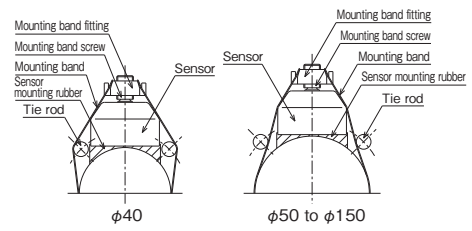
The lamp lights up when the sensor turns on.



Hysteresis	3 mm or less
Operating range	10 mm or more

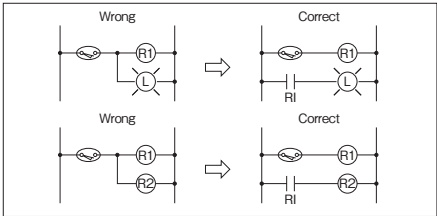
When the piston moves in the arrow direction as shown in the figure, the sensor contact is closed at position ①. If the piston continues to move forward, the contact is kept closed until the piston reaches position ②. The distance between ① and ② is the operating range.
Once the piston reaches position ① and the sensor contact is closed, the contact is kept closed until the piston reaches position ③ even if it is moved backward. This distance is the hysteresis. The operating range and hysteresis are shown in the above table.

Setting method of sensor detecting position and operation check

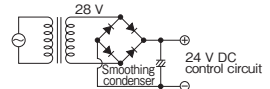


Precautions for use

1. The sensor is applicable to three kinds of rated voltage, 24 V DC, 100 V AC and 200 V AC. (Before connecting the sensor to the power supply, be sure to connect a load to the sensor.)
2. The contact capacity of the reed sensor is small as shown in the specification table. Carefully examine the rated capacity of the load to be used.
3. As a relay which will be driven directly by the reed sensor, use a relay having a capacity less than the reed sensor contact capacity, for example, Type MY of OMRON, Type HH-5 of Fuji Electric, Type MPM of Tokyo Denki and Type HC of Panasonic Electric Works.
4. One reed sensor can drive directly one relay. If more than one relays is used, use the sensor after converting the reed sensor signal to the signal for the relay contact.



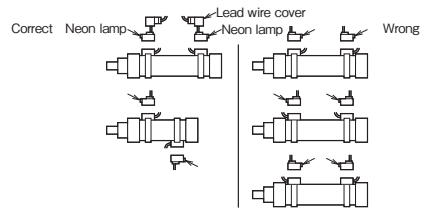
5. For DC operating power obtained through a rectifying circuit, it is recommended to use a smoothing condenser and to set the transformer secondary voltage to about 28 V (higher by 15% than 24 V) in consideration of a voltage regulation of ±10% of the supply voltage and the voltage drop caused by sensor internal resistance.



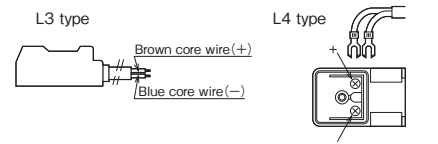
6. Reliability of reed sensor
On conventional systems, the contact of a limit sensor was mechanically opened and closed by hitting with a dog which was moving at a high speed. Therefore, there was a problem with mechanical life. This reed sensor is designed based on a proximity sensor and has a long life because nothing gets into contact with it. Although conventional limit sensors were easily affected by dust, water, oil, contaminants and accumulation of lint, etc., this reed sensor is

Set the cylinder stroke (piston position) to the desired point, and slide the reed sensor along the tube. Then, the reed sensor lamp goes out when the voltage is 100 V AC or 200 V AC, or the lamp lights up when the voltage is 24 V DC. Firmly secure the reed sensor at the point with the mounting band. The appropriate tightening torque for the mounting band is 0.8 N·m.

- molded with resin in an iron case, and it is dust-, drip- and oil-proof. To prevent occurrence of sparks at the reed sensor contact, the sensor has a built-in surge voltage absorbing circuit. Also, the sensor has a built-in inductive surge preventing circuit for a lead wire extension distance of up to 50 m.
7. When a indicating lamp is turned on directly by the reed sensor, carefully check the rated current of the lamp.
8. If the piston speed is too high when the reed sensor positioned in an intermediate position of the stroke actuates the relay while the piston is passing the sensor, the relay may not operate completely because the reed sensor operates only for a short time. Use the cylinder at an operating speed of 500 mm/s or less.
9. If the sensor is used in a place where a large amount of magnetism is produced, consult us.
10. Mounting direction of sensor
Mount the sensor as shown below for the reasons of the snap action characteristics of the reed sensor built in the limit sensor.



11. Connect the white core wire (L3) or the wire marked with+(L4) of the sensor for 24 V DC to the plus side and the black core wire (L3) or the wire marked with -(L4) to the minus side. If the wires are connected to wrong poles, the LED will not light up.

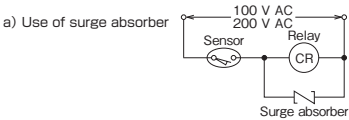


As stated above, this series of sensor cylinders use highly reliable reed sensors which are protected from mechanical and electrical troubles.

L3/L4 Type Sensor

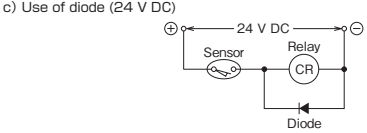
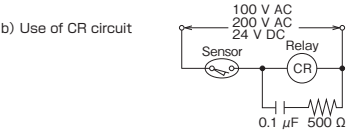
Iron Proximity Type (Reed Sensor)

12.Surge voltage absorbing circuit for further safety
When the current and supply voltage are low and the load is not inductive, the sensor hardly causes discharge. However, when a circuit with an induction load (miniature relay) is opened and closed by the sensor, the energy accumulated in the induction load is instantaneously consumed between the contacts, and sparks fly and melt the contact material, thereby causing welding. As measures against such a contact fault, the sensors of our sensor cylinders are provided with built-in surge voltage absorbing circuits. To enhance the safety and reliability of the whole equipment, it is recommended to use the following spark quenching circuit as a contact protector on the load side as far as permissible.

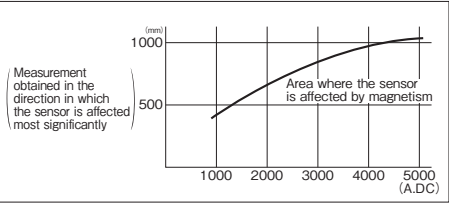


Use one of the following surge absorbers.

Manufacturer	Type	Product name
Panasonic	ERZ-C10DK221 (for 100 V AC)	Surge absorber
Electronic Devices	ERZ-C10DK431 (for 200 V AC)	Surge absorber
Fuji Electric	ENB221D-10A (for 100 V AC)	Z-TRAP
	ENB401D-10A (for 200 V AC)	Z-TRAP



13.Magnetic characteristics of reed sensor
Since the reed sensor is combined with a permanent magnet, it is affected by external magnetic fields. The test conducted in a DC magnetic field showed that the sensor is not affected by a 5000 A DC linear magnetic field when it is at a distance of 1 m or more from the field. Although the influence on the sensor varies depending on the sensor direction, the distance at which the sensor is affected by current is shown in the following chart.



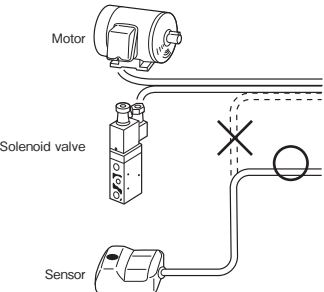
14.Extension of lead wire
If the lead wire of a general reed sensor is extended to 10 m or more, the electric charge accumulated in the stray capacitance of the wire becomes rush current and causes welding of the reed sensor contact when the reed sensor operates.
Our reed sensors have built-in inductive surge preventive circuits which prevent influence of the stray capacitance on condition that the extended length of the lead wire is up to 50 m. For more reliable extension of lead wire, it is recommended to wire the sensor as shown below.

a)It is recommended to use a twisted pair shield wire for wiring.



A twisted pair shielded wire consisting of two signal wires is effective in eliminating inductive current.

b)To prevent inductive current, wire the sensor separately from other electric devices as long as possible. It is recommended to use a shielded wire and a special conduit.



How to order

The item enclosed by broken line needs not to be entered, if unnecessary. Semi-standard specification

● VAL Set

10A-2V2

● SV Set

10A-2K2

Double acting single rod

10A-2V2 : VAL Set

Double acting double rod

10A-2V2D : VAL Set

Adjustable stroke (retraction side)

10A-2V2A2 : VAL Set

DIN terminal type

with lamp; Only 24-V DC types are provided with protective circuit.

Lead wire type

Lamp and protective circuit are not provided.

1 100 V AC 50/60Hz, ±3%

2 200 V AC 50/60Hz, ±3%

8 24 V DC

1 Energized extending type (return type)

2 Energized retracting type (return type)

3 Detent type

4 3-position closed center type

5 3-position exhaust center type

6 Energized extending type (return type)

7 Energized retracting type (return type)

8 Detent type

9 3-position closed center type

10 3-position exhaust center type

For explanation of other types, refer to the standard and Switch Set types.

How to order valve for VAL Set

● How to order valve assembly

VS552- R MM Voltage Wiring method Bore

R Energized extending type (return type)

D Detent type

C Closed center type

E Exhaust center type

1 100 V AC

2 200 V AC

8 24 V DC

R Lead wire type (for AC)

RK Lead wire type/with protective circuit (for DC)

DL DIN terminal type/with lamp (for AC)

DW DIN terminal type/with lamp and protective circuit (for DC)

1 100 V AC

2 200 V AC

8 24 V DC

R Lead wire type (for AC)

RK Lead wire type/with protective circuit (for DC)

DL DIN terminal type/with lamp (for AC)

DW DIN terminal type/with lamp and protective circuit (for DC)

Note) The valve assembly includes valve, speed controller muffler, piping block, joint and tube (1 m). The assembly is supplied without the valve and piping block mounted. Note that the energized extending/retracting mode is changed according to the valve mounting direction.

Mounting style

SD Basic style

LB End angles

FA Rod flange

FB Cap flange

CA Cap eye

CC Cap eye (only φ125 to φ250)

CB Cap clevis

CD Cap clevis (only φ125 to φ250)

TA Rod trunnion

TC Intermediate trunnion

General Pneumatic Cylinders

10A-2

AB 300

10A-2

Heavy Duty Pneumatic Cylinder

How to order

The item enclosed by broken line needs not to be entered, if unnecessary. Semi-standard specification

● Standard type

10A-2

● Switch Set

10A-2R

Double acting single rod

10A-2 : Standard type

10A-2R : Switch Set

Double acting double rod

10A-2D : Standard type

Adjustable stroke (retraction side)

10A-2A2 : Standard type

100 V AC 50/60Hz, ±3%

200 V AC 50/60Hz, ±3%

24 V DC

1 Energized extending type (return type)

2 Energized retracting type (return type)

3 Detent type

4 3-position closed center type

5 3-position exhaust center type

6 Energized extending type (return type)

7 Energized retracting type (return type)

8 Detent type

9 3-position closed center type

10 3-position exhaust center type

For explanation of other types, refer to the standard and Switch Set types.

How to order valve for VAL Set

● How to order valve assembly

VS552- R MM Voltage Wiring method Bore

R Energized extending type (return type)

D Detent type

C Closed center type

E Exhaust center type

1 100 V AC

2 200 V AC

8 24 V DC

R Lead wire type (for AC)

RK Lead wire type/with protective circuit (for DC)

DL DIN terminal type/with lamp (for AC)

DW DIN terminal type/with lamp and protective circuit (for DC)

1 100 V AC

2 200 V AC

8 24 V DC

R Lead wire type (for AC)

RK Lead wire type/with protective circuit (for DC)

DL DIN terminal type/with lamp (for AC)

DW DIN terminal type/with lamp and protective circuit (for DC)

Note) The valve assembly includes valve, speed controller muffler, piping block, joint and tube (1 m). The assembly is supplied without the valve and piping block mounted. Note that the energized extending/retracting mode is changed according to the valve mounting direction.

Lock Nut Part Number

Bore	Part number
φ32	LNA-10Z-A
φ40	LNA-12Z-A
φ50·φ63	LNA-16Z-A
φ80·φ100	LNA-20Z-A
φ125	LNA-27Z-A
φ140·φ160·φ180·φ200	LNA-36Z-A
φ250	LNA-42Z-A

Sensor List

Semi-standard specification

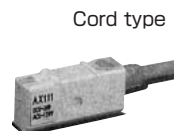
Type	Sensor symbol	Load voltage range	Load current range	Max. switching capacity	Protective circuit	Indicating lamp	Wiring method	Cord length	Applicable load	
Reed sensor	 AX101CE	DC:5 to 30V AC:5 to 120V	DC:5 to 40mA AC:5 to 20mA	DC:1.5W AC:2VA	None	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m	Small relay, programmable controller	
	 AX105CE							5m		
	 AX111CE				Provided			1.5m		
	 AX115CE							5m		
	 AX125CE	DC:30 V or less AC:120 V or less	DC: 40 mA or less AD: 20 mA or less		None	None		5m		
	 AX11ACE	AC:5 to 120V	5 to 20mA	2VA	Provided	LED (Lights in red when sensing)	4-pin connector type, rear wiring	0.5m		
	 AX11BCE	DC:5 to 30V	5 to 40mA	1.5W				0.5m		
	 AX135CE	AC:90 to 240V DC:90 to 240V	5 to 300mA	B contact output	Provided	LED (Lights in red when not sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	5m		
Solid state sensor	 SR405	AC:80 to 220V	2 to 300mA	30VA	Provided	Neon lamp (Lights in red when not sensing)	0.5 mm ² , 2-core, outer dia. φ6 mm, rear wiring	5m	Small relay, programmable controller, small solenoid, pilot lamp	
	 AX201CE-1	DC:5 to 30V	5 to 40mA	—	Provided	LED (Lights in red when sensing)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m	Small relay, programmable controller	
	 AX205CE-1							5m		
	 AX211CE-1					LED (2-LED type in red/green)		1.5m		
	 AX215CE-1							5m		
	 AX211CE-1					LED (2-LED type in red/green)	0.3 mm ² , 2-core, outer dia. φ4 mm, rear wiring	1.5m		
	 AX215CE-1						4-pin connector type, rear wiring	5m		
	 AX21BCE-1						0.5m			
	 AZ211CE-1						0.3 mm ² , 2-core, outer dia. φ4 mm, upper wiring	1.5m		
	 AZ215CE-1						5m			
	 AZ21BCE-1						4-pin connector type, upper wiring	0.5m		

(Notes)

- For the sensors without a protective circuit, be sure to provide a protective circuit (SK-100) with the load when using any induction load (relay, etc.).
- The output logic of AX135CE is a B contact. When the piston is detected, the sensor contact turns off (the lamp turns on).
- For the detailed specifications and handling of sensors, see the sensor specifications at the end of this catalog.
- The AX type sensors can be mounted on any type in addition to the above types. See the sensor specifications at the end of this catalog.
- We recommend AND Unit (AU series) for multiple sensors connected in series. For details, refer to AND Unit at the end of this catalog.

- AX type sensor

- SR type sensor



Standard Stroke Range

Series variations	Type	Bore					
		φ32	φ40	φ50·φ63	φ80·φ100	φ125 to φ160	φ180 to φ250
Double acting type	Standard type	800	1200	1400	1800	2000	2000
	Switch Set	800	1200	1400	1800	2000	—
	VAL Set	—	1200	1400	1800	—	—
	SV Set	—	1200	1400	1800	—	—
Double rod type	Standard type	800	1200	1200	1200	1200	1200
	VAL Set	—	1200	1200	1200	—	—
Adjustable stroke (retraction side)	Standard type	800	1200	1400	1800	2000	—
	VAL Set	—	1200	1400	1800	—	—

Notes) ● The minimum stroke of VAL Set Cylinders is 50 mm. (However, that of TC style cylinders is 75 mm.)
The left table shows the maximum available strokes for the standard type.
● For the rod buckling, check with the buckling chart in the selection materials. Contact us for longer strokes.

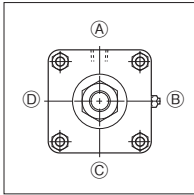
Sensor Mountable Minimum Stroke

Type	AX type		SR type	
	Switch Set	SV Set	Switch Set	SV Set
With 1 sensor	25	50	15	50
With 2 sensors	25	50	15	50
TC style	120	120	125	125

Specifications for Valves for VAL Set

Rated voltage		100 V AC		200 V AC		24 V DC	
Working voltage range V		90 to 132		180 to 264		21.6 to 26.4	
Current value (when rated voltage is applied)	Frequency Hz	50	60	50	60	—	
	Starting mA (r.m.s)	34	32	17	16	—	
	Exciting mA (r.m.s)	22	20	11	10	DIN terminal type: 75mA (1.8W) Lead wire type: 65mA (1.6W)	
Allowable circuit leakage current value mA		4		2		4	
Type of insulation		Class B					
Insulation resistance MΩ		100 or more					
Protective circuit		—				Flywheel diode	
DIN terminal type	Indicator lamp	Yellow		Green		Red	
	Terminal No.	No.1, No.2				No.1(—), No.2(+)	
Lead wire type	Color of lead wire	Yellow		White		Black(—), Red(+)	

★Standard specifications



- With cushions on both ends
- Port position ①, cushion valve position ②

★Change of port and cushion valve positions

The standard port position is ①, and the standard cushion valve position is ②. When modifying the positions, enter the symbol shown in the following figure.

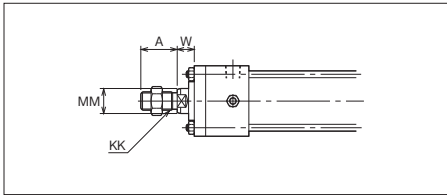
Example) 10A-2R SD63 B200-**B** **C** AH2

Port position (A, B, C, D) Cushion valve position (A, B, C, D, O)

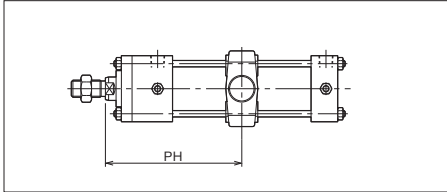
- For the TA style, the standard port position and cushion valve position are ① and ③ on the rod side and ① and ② on the cap side.
- In case that the cushion is not equipped, the cushion valve position is "O". However, the cushion valve is provided.

★Semi-standard range

- With boots
- Adjustable stroke
- Heat proof
- Modification of piston rod end style and dimension



- Modification of TC accessory position (dimensional symbol: PH)



Weight Table/Double acting type

Unit: kg

Bore mm	Basic weight (SD style)				Additional weight per mm of stroke		Mounting accessory weight								Bracket weight		Rod end attachment weight				
	Standard type	Switch Set	VAL Set	SV Set	Standard VAL Set	Switch Set SV Set	LB	FA	FB	CA	CC	CB	CD	TA	TC	CB	TA/TC	Rod eye (S-end)	Rod eye (T-end)	Rod clevis (Y-end)	Floating joint (F-end)
φ32	1.28	1.12	—	—	0.00345	0.00251	0.19	0.18	0.24	0.12	—	0.12	—	0.05	0.30	0.46	0.45	0.08	0.16	0.22	0.10
φ40	1.74	1.51	1.95	1.72	0.00454	0.00338	0.23	0.25	0.32	0.18	—	0.15	—	0.19	0.48	0.66	1.06	0.11	0.16	0.27	0.10
φ50	2.78	2.40	2.99	2.61	0.00779	0.00534	0.36	0.40	0.50	0.26	—	0.30	—	0.19	0.55	0.66	1.06	0.20	0.21	0.34	0.38
φ63	4.18	3.55	4.42	3.79	0.00945	0.00638	0.46	0.55	0.65	0.42	—	0.39	—	0.19	0.70	0.66	1.06	0.20	0.21	0.34	0.38
φ80	8.11	7.17	8.35	7.41	0.0135	0.00916	0.86	1.38	1.59	1.08	—	0.80	—	0.19	1.16	1.97	1.47	0.36	0.62	0.87	0.72
φ100	11.94	10.52	12.18	10.76	0.0153	0.00984	1.12	1.99	2.20	1.39	—	1.05	—	0.19	1.53	1.97	1.47	0.36	0.62	0.87	1.30
φ125	16.60	13.94	—	—	0.0242	0.0154	2.00	2.58	2.58	0.57	2.59	0.76	2.86	0.19	2.20	2.60	3.05	—	1.24	1.47	2.47
φ140	25.52	21.49	—	—	0.0398	0.0223	2.83	4.38	4.38	0.94	5.05	1.72	5.69	0.57	5.00	7.80	8.15	—	2.40	3.32	4.30
φ160	31.36	26.38	—	—	0.0365	0.0222	3.22	5.48	5.48	1.35	6.18	1.82	6.73	0.57	4.95	7.80	8.15	—	2.40	3.32	4.30
φ180	40.70	—	—	—	0.0535	—	5.69	7.22	7.22	1.25	9.04	1.72	9.73	0.57	6.00	7.80	8.15	—	2.40	3.32	—
φ200	46.90	—	—	—	0.0593	—	6.12	8.30	8.30	1.25	10.18	1.72	10.86	0.57	6.30	7.80	8.15	—	2.40	3.32	—
φ250	90.07	—	—	—	0.0635	—	8.38	15.70	15.70	3.23	20.10	4.22	21.30	1.12	10.50	16.65	15.50	—	4.62	5.93	—

Sensor Additional Weight

Unit: kg

Sensor	AX type			SR type	
Bore	Cord length 1.5 m	Cord length 5 m	Connector type	Cord length 5 m	
φ32	0.05	0.13	0.04	0.22	
φ40					
φ50					
φ63	0.07	0.13	0.04		
φ80	0.05	0.13	0.04		
φ100					
φ125	0.07	0.14	0.06		
φ140	0.07	0.15	0.06		
φ160					

Valve Additional Weight

Unit: kg

Valve Bore	Energized extending type	Energized retracting type	Detent type	3-position closed center type	3-position exhaust center type
φ40	0.51	0.59	0.59	0.63	
φ50	0.51	0.59	0.59	0.63	
φ63	0.52	0.60	0.60	0.64	
φ80	0.52	0.60	0.60	0.64	
φ100	0.55	0.63	0.63	0.67	

Note) For VAL Set or SV Set Cylinder, add the valve additional weight according to the operating method.

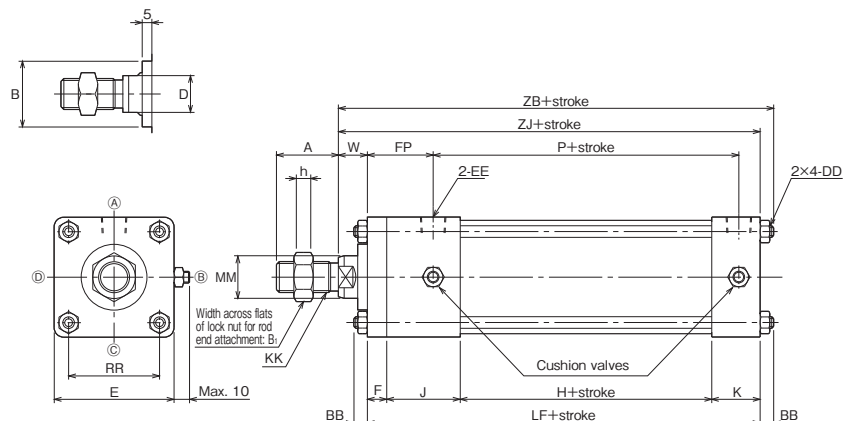
[Calculation formula] Cylinder weight (kg)=basic weight+(sensor additional weight×sensor quantity)+valve additional weight
+mounting accessory weight+(additional weight per mm of stroke×cylinder stroke (mm))

[Calculation example] SV Set Cylinder, energized extending type, 2 pcs of AX sensors (cord length 1.5 m),
LB style, cylinder bore 80 mm, cylinder stroke 200 mm
7.41+(0.05×2)+0.52+0.86+(0.00916×200)=10.722kg

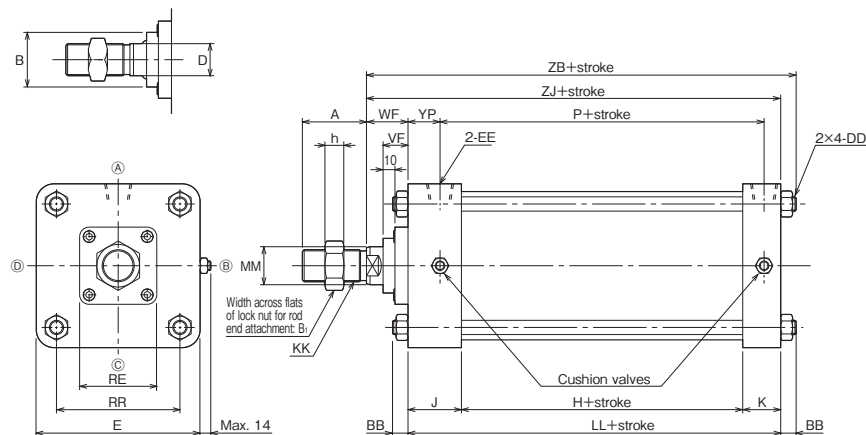
SD

10A-2 SD Bore B Stroke

- $\phi 32$ to $\phi 100$



- $\phi 125$ to $\phi 250$



Dimensional Table

Symbol Bore	A	B	B ₁	BB	D	DD	E	EE	F	FP	H	h	J
φ32	22(19)	φ24	17	7	10	M6×1	□44	Rc1/8	10	34	30	6	38
φ40	24(21)	φ30	19	7	13	M6×1	□50	Rc1/4	10	34	30	7	38
φ50	32(28)	φ34	22	7	19	M6×1	□62	Rc1/4	10	34	30	10	38
φ63	32(28)	φ34	22	9	19	M8×1.25	□76	Rc3/8	10	34	33	10	38
φ80	40(36)	φ39	27	10	22	*M10×1.25	□94	Rc3/8	16	43	31	12	45
φ100	40(36)	φ39	27	10	22	*M10×1.25	□114	Rc1/2	16	43	31	12	45
φ125	54(49)	φ46	36	13	27	*M12×1.5	□138	Rc1/2	—	—	37	16	45
φ140	72(67)	φ55	50	16	36	*M16×1.5	□158	Rc3/4	—	—	43	20	50
φ160	72(67)	φ55	50	16	36	*M16×1.5	□178	Rc3/4	—	—	43	20	50
φ180	72(67)	φ55	50	16	36	*M16×1.5	□200	Rc3/4	—	—	43	20	50
φ200	72(67)	φ55	50	16	36	*M16×1.5	□216	Rc3/4	—	—	43	20	50
φ250	84(79)	φ60	60	19	41	*M20×1.5	□270	Rc1	—	—	55	22	57

Symbol Bore	K	KK	LF	LL	MM	P	RE	RR	VF	W	WF	YP	ZB	ZJ
φ32	25	M10×1.25	103	—	φ12	58	—	□33	—	15	—	—	125	118
φ40	25	M12×1.25	103	—	φ16	58	—	□37	—	15	—	—	125	118
φ50	25	M16×1.5	103	—	φ22	58	—	□47	—	15	—	—	125	118
φ63	25	M16×1.5	106	—	φ22	61	—	□56	—	15	—	—	130	121
φ80	32	M20×1.5	124	—	φ25	67	—	□70	—	19	—	—	153	143
φ100	32	M20×1.5	124	—	φ25	67	—	□84	—	19	—	—	153	143
φ125	32	M27×2	—	114	φ32	73	□65	□104	21	—	35	27	162	149
φ140	38	M36×2	—	131	φ40	85	□76	□123	25	—	41	29	188	172
φ160	38	M36×2	—	131	φ40	85	□76	□134	25	—	41	29	188	172
φ180	38	M36×2	—	131	φ40	85	□76	□156	25	—	41	29	188	172
φ200	38	M36×2	—	131	φ40	85	□76	□163	25	—	41	29	188	172
φ250	50	M42×2	—	162	φ45	109	□90	□202	30	—	48	30	229	210

* The parenthesized values of dimension A indicate the screw length.

Comparison of Screw Pitches of New and Old Tie Rods

Symbol Bore	Dimension DD	
	Old	New
φ80	M10×1.5	M10×1.25
φ100	M10×1.5	M10×1.25
φ125	M12×1.75	M12×1.5
φ140	M16×2	M16×1.5
φ160	M16×2	M16×1.5
φ180	M16×2	M16×1.5
φ200	M16×2	M16×1.5
φ250	M20×2.5	M20×1.5

Note) A part of the screw pitches (dimension DD) of the tie rods have been changed from those shown in the 1996 catalog. The changed values are marked with *. If an SD style (basic style) cylinder is purchased and a tie rod is installed with the tie rod screw supplied with the cylinder or only a tie rod is purchased, the tie rod is not applicable to the old screw pitch. Before placing an order, sufficiently check the pitch. Implemented from shipment on Dec. 1, 1995 (From serial No.512)

Dimensional Table

Symbol Bore	A	AB	AE	AH	AL	AO	AT	B	B ₁	D	E	EE	F	FP
φ32	22 (19)	φ9	55	33	23	10	5	φ24	17	10	□44	Rc1/8	10	34
φ40	24 (21)	φ12	60	35	25	12	5	φ30	19	13	□50	Rc1/4	10	34
φ50	32 (28)	φ12	72	41	26	12	6	φ34	22	19	□62	Rc1/4	10	34
φ63	32 (28)	φ12	86	48	28	12	6	φ34	22	19	□76	Rc3/8	10	34
φ80	40 (36)	φ14	106	59	34	14	8	φ39	27	22	□94	Rc3/8	16	43
φ100	40 (36)	φ14	123	66	34	14	8	φ39	27	22	□114	Rc1/2	16	43
φ125	54 (49)	φ18	148	79	43	18	10	φ46	36	27	□138	Rc1/2	—	—
φ140	72 (67)	φ22	171	93	50	22	10	φ55	50	36	□156	Rc3/4	—	—
φ160	72 (67)	φ22	187	98	50	22	10	φ55	50	36	□178	Rc3/4	—	—
φ180	72 (67)	φ22	215	115	55	22	15	φ55	50	36	□200	Rc3/4	—	—
φ200	72 (67)	φ22	226	118	55	22	15	φ55	50	36	□216	Rc3/4	—	—
φ250	84 (79)	φ26	276	141	60	24	15	φ60	60	41	□270	Rc1	—	—

Symbol Bore	H	h	J	K	KK	MM	P	R	RE	SA	UA	VF	W	WF	XA	YP
φ32	30	6	38	25	M10×1.25	φ12	58	33	—	149	54	—	15	—	141	—
φ40	30	7	38	25	M12×1.25	φ16	58	37	—	153	60	—	15	—	143	—
φ50	30	10	38	25	M16×1.5	φ22	58	47	—	155	70	—	15	—	144	—
φ63	33	10	38	25	M16×1.5	φ22	61	56	—	162	80	—	15	—	149	—
φ80	31	12	45	32	M20×1.5	φ25	67	70	—	192	97	—	19	—	177	—
φ100	31	12	45	32	M20×1.5	φ25	67	84	—	192	114	—	19	—	177	—
φ125	37	16	45	32	M27×2	φ32	73	104	□65	200	138	21	—	35	192	27
φ140	43	20	50	38	M36×2	φ40	85	123	□76	231	156	25	—	41	222	29
φ160	43	20	50	38	M36×2	φ40	85	134	□76	231	178	25	—	41	222	29
φ180	43	20	50	38	M36×2	φ40	85	156	□76	241	200	25	—	41	227	29
φ200	43	20	50	38	M36×2	φ40	85	163	□76	241	216	25	—	41	227	29
φ250	55	22	57	50	M42×2	φ45	109	202	□90	282	270	30	—	48	270	30

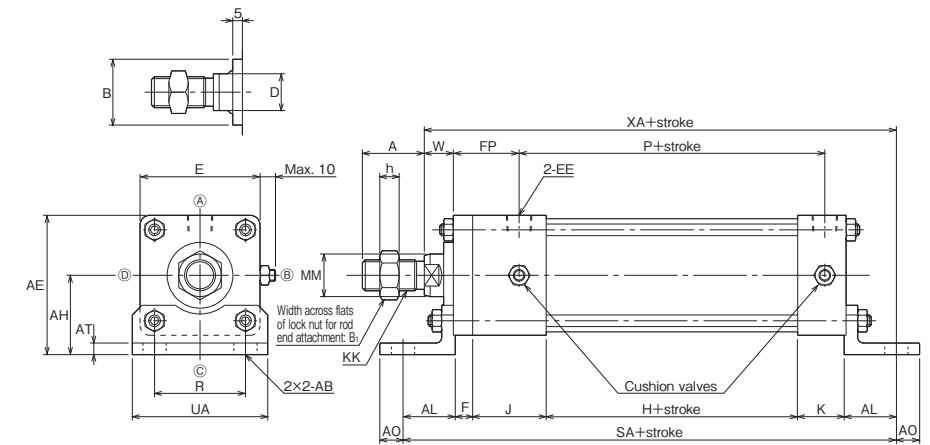
* The parenthesized values of dimension A indicate the screw length.

10A-2/TA2 Bore is available. CAD/DATA is available.

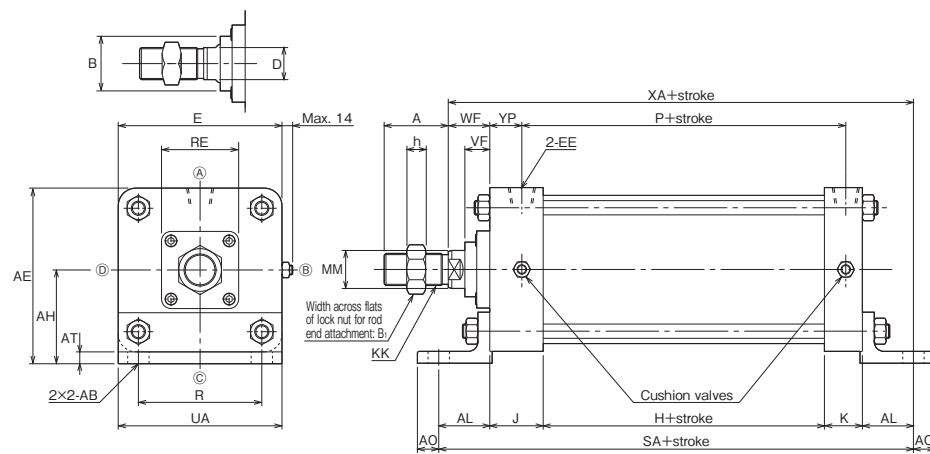
LB

10A-2 LB Bore B Stroke

• φ32 to φ100



• φ125 to φ250



• All dimensions of the bodies and mounting accessories of Switch Set Cylinders (φ32 to φ160), VAL Set Cylinders (φ40 to φ100) and SV Set Cylinders (φ40 to φ100) are the same as those of the standard type cylinders.

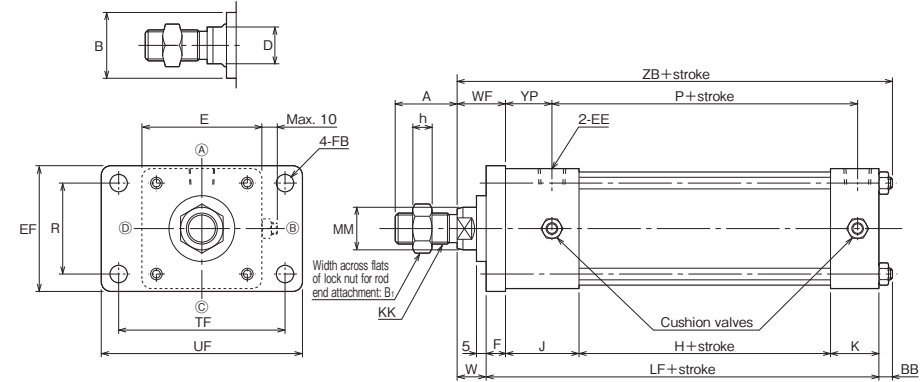
10A-2/TA2 Bore is available. CAD/DATA is available.

FA

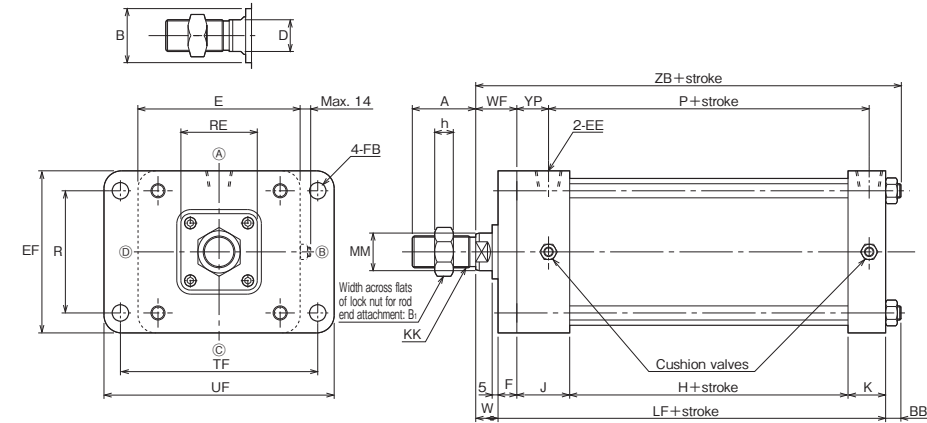
10A-2 FA Bore B Stroke

ISO (140 and 180 mm bore cylinders do not conform to ISO.)

• $\phi 32$ to $\phi 100$



• $\phi 125$ to $\phi 250$



• All dimensions of the bodies and mounting accessories of Switch Set Cylinders ($\phi 32$ to $\phi 160$), VAL Set Cylinders ($\phi 40$ to $\phi 100$) and SV Set Cylinders ($\phi 40$ to $\phi 100$) are the same as those of the standard type cylinders.

Dimensional Table

Symbol Bore	A	B	B ₁	BB	D	E	EE	EF	F	FB	H	h
$\phi 32$	22 (19)	$\phi 24$	17	7	10	$\square 44$	Rc1/8	47	10	$\phi 7$	30	6
$\phi 40$	24 (21)	$\phi 30$	19	7	13	$\square 50$	Rc1/4	52	10	$\phi 7$	30	7
$\phi 50$	32 (28)	$\phi 34$	22	7	19	$\square 62$	Rc1/4	65	10	$\phi 9$	30	10
$\phi 63$	32 (28)	$\phi 34$	22	9	19	$\square 76$	Rc3/8	76	10	$\phi 9$	33	10
$\phi 80$	40 (36)	$\phi 39$	27	10	22	$\square 94$	Rc3/8	95	16	$\phi 12$	31	12
$\phi 100$	40 (36)	$\phi 39$	27	10	22	$\square 114$	Rc1/2	115	16	$\phi 12$	31	12
$\phi 125$	54 (49)	$\phi 46$	36	13	27	$\square 138$	Rc1/2	138	16	$\phi 14$	37	16
$\phi 140$	72 (67)	$\phi 55$	50	16	36	$\square 156$	Rc3/4	156	20	$\phi 18$	43	20
$\phi 160$	72 (67)	$\phi 55$	50	16	36	$\square 178$	Rc3/4	178	20	$\phi 18$	43	20
$\phi 180$	72 (67)	$\phi 55$	50	16	36	$\square 200$	Rc3/4	200	20	$\phi 18$	43	20
$\phi 200$	72 (67)	$\phi 55$	50	16	36	$\square 216$	Rc3/4	216	20	$\phi 18$	43	20
$\phi 250$	84 (79)	$\phi 60$	60	19	41	$\square 270$	Rc1	270	25	$\phi 22$	55	22

Symbol Bore	J	K	KK	LF	MM	P	R	RE	TF	UF	W	WF	YP	ZB
$\phi 32$	38	25	M10×1.25	103	$\phi 12$	58	33	—	58	72	15	25	24	125
$\phi 40$	38	25	M12×1.25	103	$\phi 16$	58	36	—	70	84	15	25	24	125
$\phi 50$	38	25	M16×1.5	103	$\phi 22$	58	47	—	86	104	15	25	24	125
$\phi 63$	38	25	M16×1.5	106	$\phi 22$	61	56	—	98	116	15	25	24	130
$\phi 80$	45	32	M20×1.5	124	$\phi 25$	67	70	—	119	143	19	35	27	153
$\phi 100$	45	32	M20×1.5	124	$\phi 25$	67	84	—	138	162	19	35	27	153
$\phi 125$	45	32	M27×2	130	$\phi 32$	73	104	$\square 65$	168	196	19	35	27	162
$\phi 140$	50	38	M36×2	151	$\phi 40$	85	123	$\square 76$	190	226	21	41	29	188
$\phi 160$	50	38	M36×2	151	$\phi 40$	85	134	$\square 76$	212	248	21	41	29	188
$\phi 180$	50	38	M36×2	151	$\phi 40$	85	156	$\square 76$	234	270	21	41	29	188
$\phi 200$	50	38	M36×2	151	$\phi 40$	85	163	$\square 76$	250	286	21	41	29	188
$\phi 250$	57	50	M42×2	187	$\phi 45$	109	201	$\square 90$	312	356	23	48	30	229

* The parenthesized values of dimension A indicate the screw length.

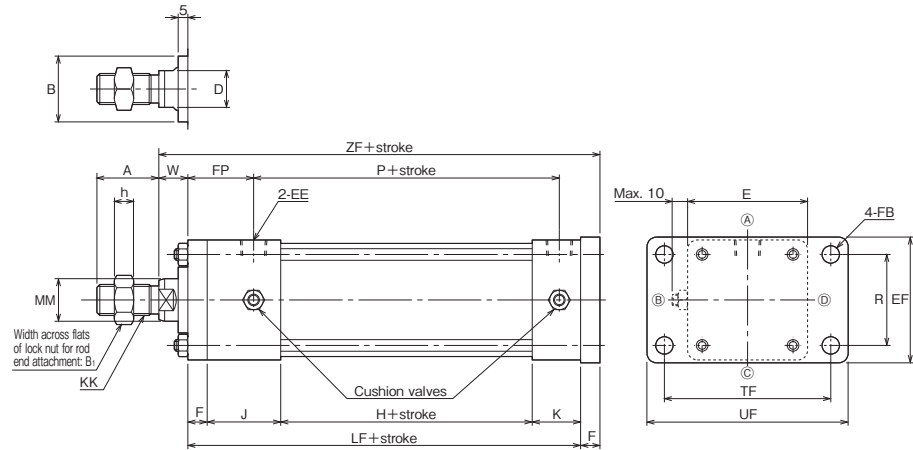
CAD/DATA
10A-2/TA2[Bore] is available.

FB

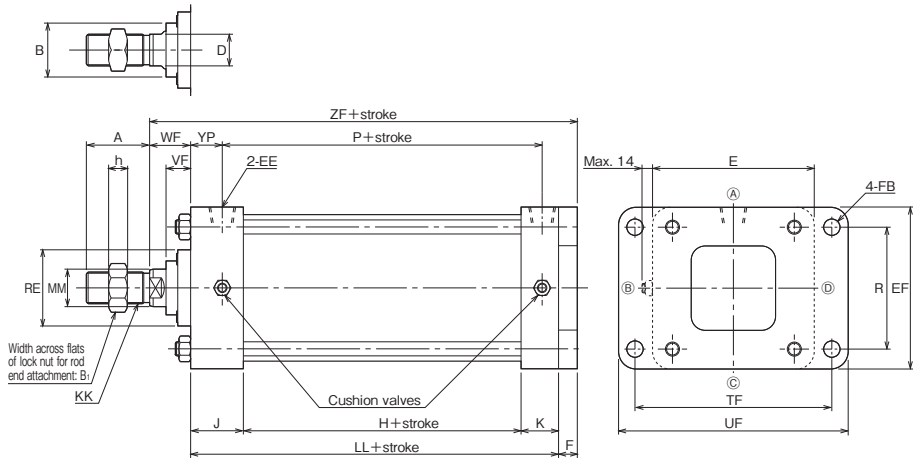
10A-2 FB [Bore] [B] [Stroke]

ISO (140 and 180 mm bore cylinders do not conform to ISO.)

• $\phi 32$ to $\phi 100$



• $\phi 125$ to $\phi 250$



• All dimensions of the bodies and mounting accessories of Switch Set Cylinders ($\phi 32$ to $\phi 160$), VAL Set Cylinders ($\phi 40$ to $\phi 100$) and SV Set Cylinders ($\phi 40$ to $\phi 100$) are the same as those of the standard type cylinders.

Dimensional Table

Symbol Bore	A	B	B ₁	D	E	EE	EF	F	FB	FP	H	h	J
$\phi 32$	22 (19)	$\phi 24$	17	10	$\square 44$	Rc1/8	47	10	$\phi 7$	34	30	6	38
$\phi 40$	24 (21)	$\phi 30$	19	13	$\square 50$	Rc1/4	52	10	$\phi 7$	34	30	7	38
$\phi 50$	32 (28)	$\phi 34$	22	19	$\square 62$	Rc1/4	65	10	$\phi 9$	34	30	10	38
$\phi 63$	32 (28)	$\phi 34$	22	19	$\square 76$	Rc3/8	76	10	$\phi 9$	34	33	10	38
$\phi 80$	40 (36)	$\phi 39$	27	22	$\square 94$	Rc3/8	95	16	$\phi 12$	43	31	12	45
$\phi 100$	40 (36)	$\phi 39$	27	22	$\square 114$	Rc1/2	115	16	$\phi 12$	43	31	12	45
$\phi 125$	54 (49)	$\phi 46$	36	27	$\square 138$	Rc1/2	138	16	$\phi 14$	—	37	16	45
$\phi 140$	72 (67)	$\phi 55$	50	36	$\square 156$	Rc3/4	156	20	$\phi 18$	—	43	20	50
$\phi 160$	72 (67)	$\phi 55$	50	36	$\square 178$	Rc3/4	178	20	$\phi 18$	—	43	20	50
$\phi 180$	72 (67)	$\phi 55$	50	36	$\square 200$	Rc3/4	200	20	$\phi 18$	—	43	20	50
$\phi 200$	72 (67)	$\phi 55$	50	36	$\square 216$	Rc3/4	216	20	$\phi 18$	—	43	20	50
$\phi 250$	84 (79)	$\phi 60$	60	41	$\square 270$	Rc1	270	25	$\phi 22$	—	55	22	57

Symbol Bore	K	KK	LF	LL	MM	P	R	RE	TF	UF	VF	W	WF	YP	ZF
$\phi 32$	25	M10×1.25	103	—	$\phi 12$	58	33	—	58	72	—	15	—	—	128
$\phi 40$	25	M12×1.25	103	—	$\phi 16$	58	36	—	70	84	—	15	—	—	128
$\phi 50$	25	M16×1.5	103	—	$\phi 22$	58	47	—	86	104	—	15	—	—	128
$\phi 63$	25	M16×1.5	106	—	$\phi 22$	61	56	—	98	116	—	15	—	—	131
$\phi 80$	32	M20×1.5	124	—	$\phi 25$	67	70	—	119	143	—	19	—	—	159
$\phi 100$	32	M20×1.5	124	—	$\phi 25$	67	84	—	138	162	—	19	—	—	159
$\phi 125$	32	M27×2	—	114	$\phi 32$	73	104	$\square 65$	168	196	21	—	35	27	165
$\phi 140$	38	M36×2	—	131	$\phi 40$	85	123	$\square 76$	190	226	25	—	41	29	192
$\phi 160$	38	M36×2	—	131	$\phi 40$	85	134	$\square 76$	212	248	25	—	41	29	192
$\phi 180$	38	M36×2	—	131	$\phi 40$	85	156	$\square 76$	234	270	25	—	41	29	192
$\phi 200$	38	M36×2	—	131	$\phi 40$	85	163	$\square 76$	250	286	25	—	41	29	192
$\phi 250$	50	M42×2	—	162	$\phi 45$	109	201	$\square 90$	312	356	30	—	48	30	235

* The parenthesized values of dimension A indicate the screw length.

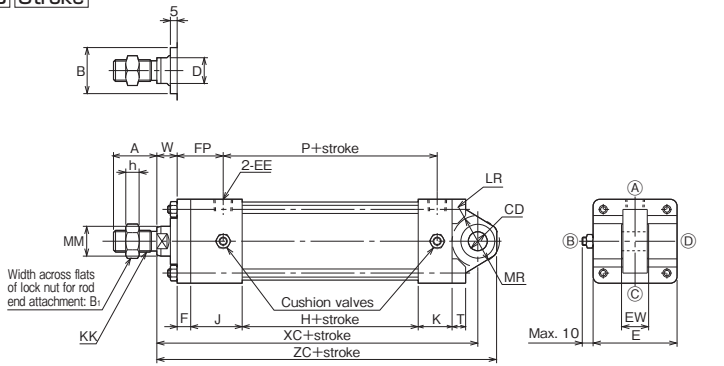
10A-2/TA2 Bore is available. CAD/DATA is available.

CA

10A-2 CA Bore B Stroke

• $\phi 32$ to $\phi 100$

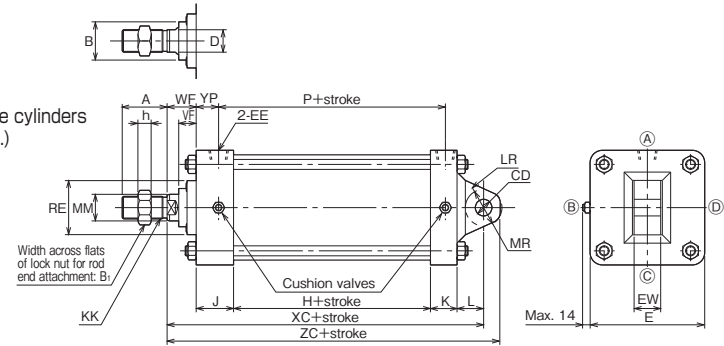
ISO



• $\phi 125$ to $\phi 250$

ISO

(140 and 180 mm bore cylinders do not conform to ISO.)

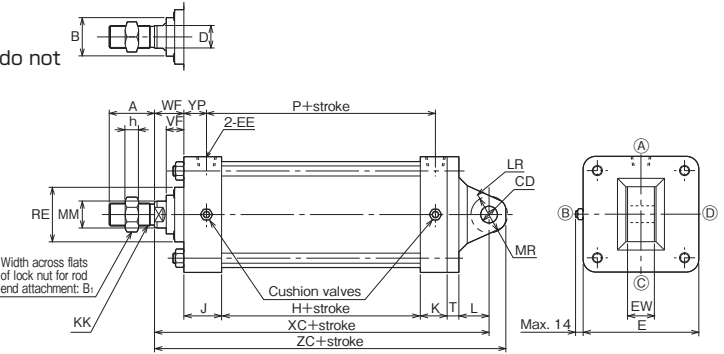


CC

10A-2 CC Bore B Stroke

• $\phi 125$ to $\phi 250$

(CC style cylinders do not conform to ISO.)



• All dimensions of the bodies and mounting accessories of Switch Set Cylinders ($\phi 32$ to $\phi 160$), VAL Set Cylinders ($\phi 40$ to $\phi 100$) and SV Set Cylinders ($\phi 40$ to $\phi 100$) are the same as those of the standard type cylinders.

Dimensional Table

Symbol	A	B	B ₁	CD	D	E	EE	EW	F	FP	H	h	J	K	KK
Bore															
$\phi 32$	22(19)	$\phi 24$	17	$\phi 12H9$	10	44	Rc1/8	16 ⁰ _{-0.070}	10	34	30	6	38	25	M10×1.25
$\phi 40$	24(21)	$\phi 30$	19	$\phi 14H9$	13	50	Rc1/4	20 ⁰ _{-0.084}	10	34	30	7	38	25	M12×1.25
$\phi 50$	32(28)	$\phi 34$	22	$\phi 14H9$	19	62	Rc1/4	20 ⁰ _{-0.084}	10	34	30	10	38	25	M16×1.5
$\phi 63$	32(28)	$\phi 34$	22	$\phi 14H9$	19	76	Rc3/8	20 ⁰ _{-0.084}	10	34	33	10	38	25	M16×1.5
$\phi 80$	40(36)	$\phi 39$	27	$\phi 20H9$	22	94	Rc3/8	32 ⁰ _{-0.100}	16	43	31	12	45	32	M20×1.5
$\phi 100$	40(36)	$\phi 39$	27	$\phi 20H9$	22	114	Rc1/2	32 ⁰ _{-0.100}	16	43	31	12	45	32	M20×1.5
$\phi 125$	54(49)	$\phi 46$	36	$\phi 20H9$	27	138	Rc1/2	32 ⁰ _{-0.100}	—	—	37	16	45	32	M27×2
$\phi 140$	72(67)	$\phi 55$	50	$\phi 28H9$	36	156	Rc3/4	40 ⁰ _{-0.100}	—	—	43	20	50	38	M36×2
$\phi 160$	72(67)	$\phi 55$	50	$\phi 28H9$	36	178	Rc3/4	40 ⁰ _{-0.100}	—	—	43	20	50	38	M36×2
$\phi 180$	72(67)	$\phi 55$	50	$\phi 28H9$	36	200	Rc3/4	40 ⁰ _{-0.100}	—	—	43	20	50	38	M36×2
$\phi 200$	72(67)	$\phi 55$	50	$\phi 28H9$	36	216	Rc3/4	40 ⁰ _{-0.100}	—	—	43	20	50	38	M36×2
$\phi 250$	84(79)	$\phi 60$	60	$\phi 36H9$	41	270	Rc1	50 ⁰ _{-0.100}	—	—	55	22	57	50	M42×2

Symbol	L		LR		MM	MR	P	RE	T	VF	W	WF	XC		YP	ZC	
Bore	CA style	CC style	CA style	CC style									CA style	CC style		CA style	CC style
$\phi 32$	—	—	R17	—	$\phi 12$	R14	58	—	8	—	15	—	137	—	—	149	—
$\phi 40$	—	—	R17	—	$\phi 16$	R16	58	—	8	—	15	—	137	—	—	151	—
$\phi 50$	—	—	R19	—	$\phi 22$	R17	58	—	10	—	15	—	137	—	—	151	—
$\phi 63$	—	—	R19	—	$\phi 22$	R17	61	—	13	—	15	—	140	—	—	154	—
$\phi 80$	—	—	R26	—	$\phi 25$	R22	67	—	18	—	19	—	175	—	—	195	—
$\phi 100$	—	—	R27	—	$\phi 25$	R22	67	—	18	—	19	—	175	—	—	195	—
$\phi 125$	32	36	R22	R26	$\phi 32$	R22	73	65	14	21	—	35	181	199	27	201	219
$\phi 140$	38	44	R30	R32	$\phi 40$	R30	85	76	20	25	—	41	210	236	29	238	264
$\phi 160$	38	44	R30	R32	$\phi 40$	R30	85	76	20	25	—	41	210	236	29	238	264
$\phi 180$	38	44	R30	R32	$\phi 40$	R30	85	76	25	25	—	41	210	241	29	238	269
$\phi 200$	38	44	R30	R32	$\phi 40$	R30	85	76	25	25	—	41	210	241	29	238	269
$\phi 250$	54	58	R42	R46	$\phi 45$	R44	109	90	30	30	—	48	264	298	30	300	334

* The parenthesized values of dimension A indicate the screw length.

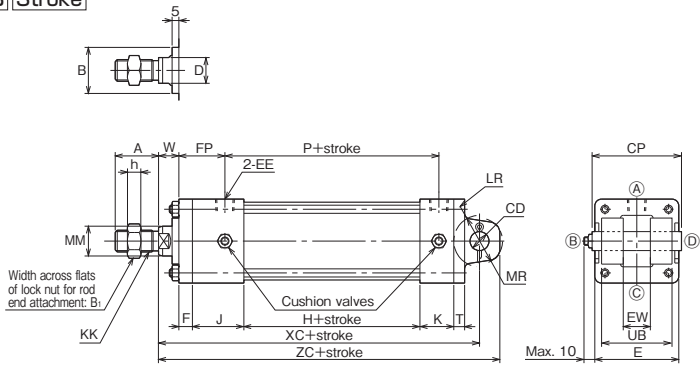
10A-2/TA2 Bore is available. CAD/DATA

CB

10A-2 CB Bore B Stroke

• φ32 to φ100

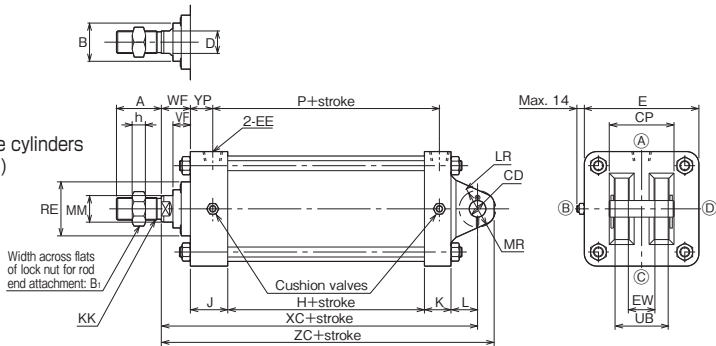
ISO



• φ125 to φ250

ISO

(140 and 180 mm bore cylinders do not conform to ISO.)

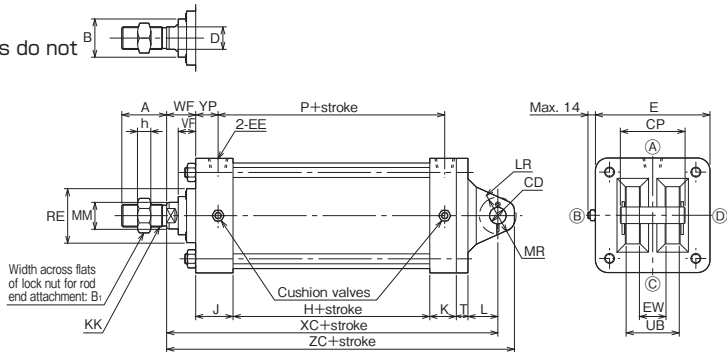


CD

10A-2 CD Bore B Stroke

• φ125 to φ250

(CD style cylinders do not conform to ISO.)



• All dimensions of the bodies and mounting accessories of Switch Set Cylinders (φ32 to φ160), VAL Set Cylinders (φ40 to φ100) and SV Set Cylinders (φ40 to φ100) are the same as those of the standard type cylinders.

Dimensional Table

Symbol	A	B	B ₁	CD	CP	D	E	EE	EW	F	FP	H	h	J	K	KK
Bore																
φ32	22(19)	φ24	17	φ12 ^{+0.08} _{-0.05}	46	10	□44	Rc1/8	16 ^{+0.7} _{+0.5}	10	34	30	6	38	25	M10×1.25
φ40	24(21)	φ30	19	φ14 ^{+0.08} _{-0.05}	58	13	□50	Rc1/4	20 ^{+0.7} _{+0.5}	10	34	30	7	38	25	M12×1.25
φ50	32(28)	φ34	22	φ14 ^{+0.08} _{-0.05}	66	19	□62	Rc1/4	20 ^{+0.7} _{+0.5}	10	34	30	10	38	25	M16×1.5
φ63	32(28)	φ34	22	φ14 ^{+0.08} _{-0.05}	66	19	□76	Rc3/8	20 ^{+0.7} _{+0.5}	10	34	33	10	38	25	M16×1.5
φ80	40(36)	φ39	27	φ20 ^{+0.08} _{-0.05}	78	22	□94	Rc3/8	32 ^{+0.7} _{+0.5}	16	43	31	12	45	32	M20×1.5
φ100	40(36)	φ39	27	φ20 ^{+0.08} _{-0.05}	78	22	□114	Rc1/2	32 ^{+0.7} _{+0.5}	16	43	31	12	45	32	M20×1.5
φ125	54(49)	φ46	36	φ20 ^{+0.08} _{-0.05}	78	27	□138	Rc1/2	32 ^{+0.7} _{+0.5}	—	—	37	16	45	32	M27×2
φ140	72(67)	φ55	50	φ28 ^{+0.08} _{-0.05}	97	36	□156	Rc3/4	40 ^{+0.8} _{+0.5}	—	—	43	20	50	38	M36×2
φ160	72(67)	φ55	50	φ28 ^{+0.08} _{-0.05}	97	36	□178	Rc3/4	40 ^{+0.8} _{+0.5}	—	—	43	20	50	38	M36×2
φ180	72(67)	φ55	50	φ28 ^{+0.08} _{-0.05}	97	36	□200	Rc3/4	40 ^{+0.8} _{+0.5}	—	—	43	20	50	38	M36×2
φ200	72(67)	φ55	50	φ28 ^{+0.08} _{-0.05}	97	36	□216	Rc3/4	40 ^{+0.8} _{+0.5}	—	—	43	20	50	38	M36×2
φ250	84(79)	φ60	60	φ36 ^{+0.08} _{-0.05}	117	41	□270	Rc1	50 ^{+0.8} _{+0.5}	—	—	55	22	57	50	M42×2

Symbol	L		LR	MM	MR	P	RE	T	UB	VF	W	WF	XC		YP	ZC	
Bore	CB style	CD style											CB style	CD style		CB style	CD style
φ32	—	—	R18	φ12	R15	58	—	8	32	—	15	—	137	—	—	150	—
φ40	—	—	R18	φ16	R15	58	—	8	44	—	15	—	137	—	—	150	—
φ50	—	—	R19	φ22	R18	58	—	8	52	—	15	—	137	—	—	152	—
φ63	—	—	R19	φ22	R18	61	—	8	52	—	15	—	140	—	—	155	—
φ80	—	—	R32	φ25	R23	67	—	11	64	—	19	—	175	—	—	196	—
φ100	—	—	R32	φ25	R23	67	—	11	64	—	19	—	175	—	—	196	—
φ125	32	36	R26	φ32	R22	73	□65	14	64	21	—	35	181	199	27	201	219
φ140	38	44	R32	φ40	R30	85	□76	20	80	25	—	41	210	236	29	238	264
φ160	38	44	R32	φ40	R30	85	□76	20	80	25	—	41	210	236	29	238	264
φ180	38	44	R32	φ40	R30	85	□76	25	80	25	—	41	210	241	29	238	269
φ200	38	44	R32	φ40	R30	85	□76	25	80	25	—	41	210	241	29	238	269
φ250	54	58	R46	φ45	R44	109	□90	30	100	30	—	48	264	298	30	300	334

Note) Dimension LR indicates the maximum size of the mating part.
* The parenthesized values of dimension A indicate the screw length.

Dimensional Table

Symbol Bore	A	B	B ₁	BB	D	E	EE	F	FP	H	h	J	K
φ32	22 (19)	φ24	17	7	10	□44	Rc1/8	10	34	30	6	38	25
φ40	24 (21)	φ30	19	7	13	□50	Rc1/4	10	34	30	7	38	25
φ50	32 (28)	φ34	22	7	19	□62	Rc1/4	10	34	30	10	38	25
φ63	32 (28)	φ34	22	9	19	□76	Rc3/8	10	34	33	10	38	25
φ80	40 (36)	φ39	27	10	22	□94	Rc3/8	16	43	31	12	45	32
φ100	40 (36)	φ39	27	10	22	□114	Rc1/2	16	43	31	12	45	32
φ125	54 (49)	φ46	36	13	27	□138	Rc1/2	—	—	37	16	45	32
φ140	72 (67)	φ55	50	16	36	□156	Rc3/4	—	—	43	20	50	38
φ160	72 (67)	φ55	50	16	36	□178	Rc3/4	—	—	43	20	50	38
φ180	72 (67)	φ55	50	16	36	□200	Rc3/4	—	—	43	20	50	38
φ200	72 (67)	φ55	50	16	36	□216	Rc3/4	—	—	43	20	50	38
φ250	84 (79)	φ60	60	19	41	□270	Rc1	—	—	55	22	57	50

Symbol Bore	KK	MM	P	RE	TD	TL	TM	TR	UM	VF	W	WF	XG	YP	ZB
φ32	M10×1.25	φ12	58	—	φ16e9	16	44	R1	76	—	15	—	44	—	125
φ40	M12×1.25	φ16	58	—	φ25e9	25	50	R1.6	100	—	15	—	44	—	125
φ50	M16×1.5	φ22	58	—	φ25e9	25	63	R1.6	113	—	15	—	44	—	125
φ63	M16×1.5	φ22	61	—	φ25e9	25	76	R1.6	126	—	15	—	44	—	130
φ80	M20×1.5	φ25	67	—	φ25e9	25	95	R1.6	145	—	19	—	57	—	153
φ100	M20×1.5	φ25	67	—	φ25e9	25	114	R2	164	—	19	—	57	—	153
φ125	M27×2	φ32	73	□65	φ25e9	25	139	R2	189	21	—	35	57	27	162
φ140	M36×2	φ40	85	□76	φ36e9	36	156	R2.5	228	25	—	41	66	29	188
φ160	M36×2	φ40	85	□76	φ36e9	36	178	R2.5	250	25	—	41	66	29	188
φ180	M36×2	φ40	85	□76	φ36e9	36	200	R2.5	272	25	—	41	66	29	188
φ200	M36×2	φ40	85	□76	φ36e9	36	216	R2.5	288	25	—	41	66	29	188
φ250	M42×2	φ45	109	□90	φ45e9	45	270	R3	360	30	—	48	76	30	229

* The parenthesized values of dimension A indicate the screw length.

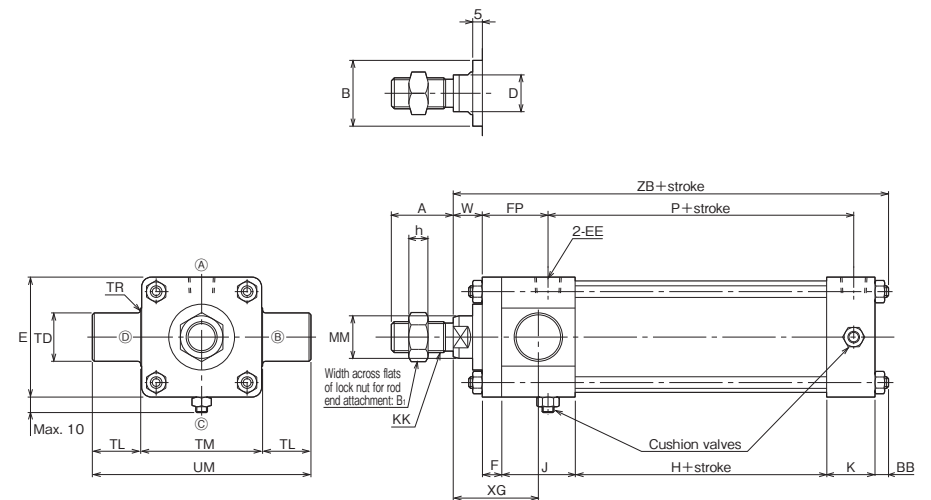
CAD/DATA is available. 10A-2/TA2 Bore

TA

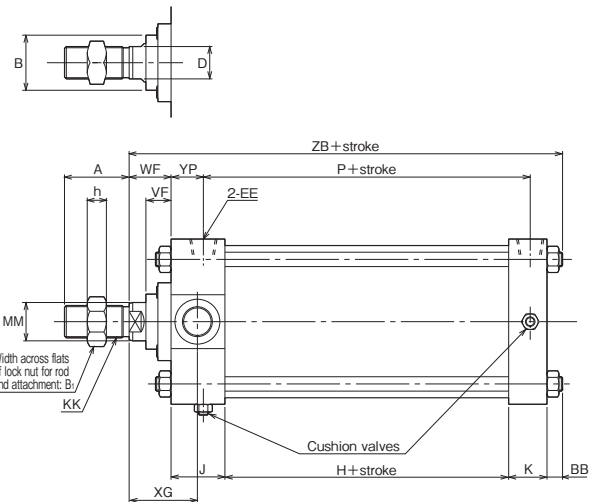
10A-2 TA Bore B Stroke

● φ32 to φ100

ISO (140 and 180 mm bore cylinders do not conform to ISO.)



● φ125 to φ250



- If the TA style mounting bracket interferes with the sensor, change the sensor mounting surface. (Mount on the top surface.)
- On the TA style cylinder, the cushion valve of the rod cover is positioned on © for structural reasons.
- All dimensions of the bodies and mounting accessories of Switch Set Cylinders (φ32 to φ160), VAL Set Cylinders (φ40 to φ100) and SV Set Cylinders (φ40 to φ100) are the same as those of the standard type cylinders.

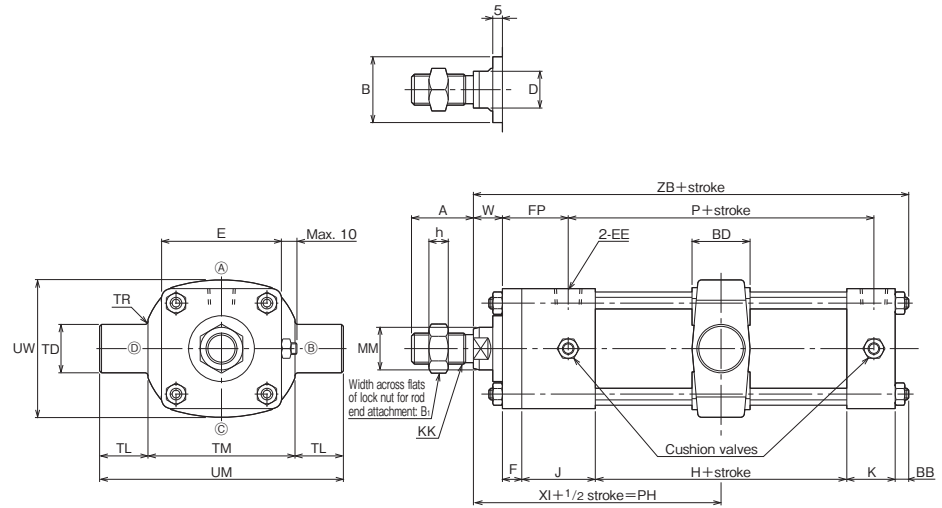
10A-2/TA2 Bore CAD/DATA is available.

TC

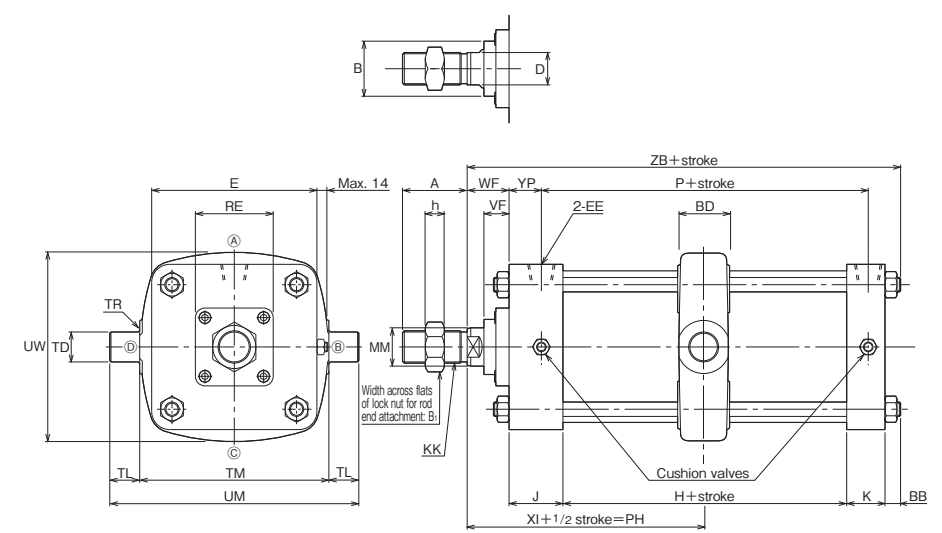
10A-2 TC Bore B Stroke

ISO (140 and 180 mm bore cylinders do not conform to ISO.)

• φ32 to φ100



• φ125 to φ250



• All dimensions of the bodies and mounting accessories of Switch Set Cylinders (φ32 to φ160), VAL Set Cylinders (φ40 to φ100) and SV Set Cylinders (φ40 to φ100) are the same as those of the standard type cylinders.

Dimensional Table

Symbol Bore	A	B	B ₁	BB	BD	D	E	EE	F	FP	H	h	J	K	KK
φ32	22(19)	φ24	17	7	30	10	□44	Rc1/8	10	34	30	6	38	25	M10×1.25
φ40	24(21)	φ30	19	7	30	13	□50	Rc1/4	10	34	30	7	38	25	M12×1.25
φ50	32(28)	φ34	22	7	30	19	□62	Rc1/4	10	34	30	10	38	25	M16×1.5
φ63	32(28)	φ34	22	9	30	19	□76	Rc3/8	10	34	33	10	38	25	M16×1.5
φ80	40(36)	φ39	27	10	35	22	□94	Rc3/8	16	43	31	12	45	32	M20×1.5
φ100	40(36)	φ39	27	10	40	22	□114	Rc1/2	16	43	31	12	45	32	M20×1.5
φ125	54(49)	φ46	36	13	43	27	□138	Rc1/2	—	—	37	16	45	32	M27×2
φ140	72(67)	φ55	50	16	53	36	□156	Rc3/4	—	—	43	20	50	38	M36×2
φ160	72(67)	φ55	50	16	53	36	□178	Rc3/4	—	—	43	20	50	38	M36×2
φ180	72(67)	φ55	50	16	53	36	□200	Rc3/4	—	—	43	20	50	38	M36×2
φ200	72(67)	φ55	50	16	53	36	□216	Rc3/4	—	—	43	20	50	38	M36×2
φ250	84(79)	φ60	60	19	58	41	□270	Rc1	—	—	55	22	57	50	M42×2

Symbol Bore	MM	P	Min. PH	TC style min. stroke	RE	TD	TL	TM	TR	UM	UW	VF	W	WF	XI	YP	ZB
φ32	φ12	58	78	3	—	φ16e9	16	55	R1	87	52	—	15	—	78	—	125
φ40	φ16	58	78	3	—	φ25e9	25	63	R1.6	113	59	—	15	—	78	—	125
φ50	φ22	58	78	3	—	φ25e9	25	76	R1.6	126	71	—	15	—	78	—	125
φ63	φ22	61	78	0	—	φ25e9	25	88	R1.6	138	86	—	15	—	79.5	—	130
φ80	φ25	67	98	7	—	φ25e9	25	114	R1.6	164	104	—	19	—	95.5	—	153
φ100	φ25	67	100	12	—	φ25e9	25	132	R2	182	128	—	19	—	95.5	—	153
φ125	φ32	73	102	9	□65	φ25e9	25	158	R2	208	158	21	—	35	98.5	27	162
φ140	φ40	85	119	13	□76	φ36e9	36	183	R2.5	255	183	25	—	41	112.5	29	188
φ160	φ40	85	119	13	□76	φ36e9	36	200	R2.5	272	200	25	—	41	112.5	29	188
φ180	φ40	85	119	13	□76	φ36e9	36	228	R2.5	300	228	25	—	41	112.5	29	188
φ200	φ40	85	119	13	□76	φ36e9	36	246	R2.5	318	246	25	—	41	112.5	29	188
φ250	φ45	109	134	6	□90	φ45e9	45	304	R3	394	304	30	—	48	132.5	30	229

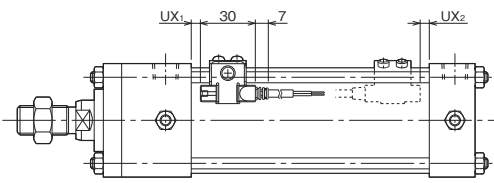
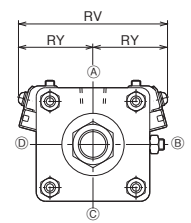
* The parenthesized values of dimension A indicate the screw length.

Switch Set

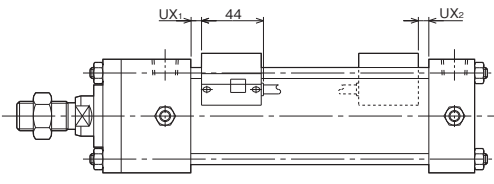
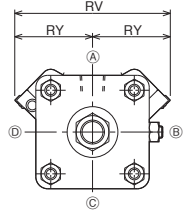
10A-2R [SD] [Bore] [B] [Stroke] - [Sensor symbol] [Sensor quantity]

● $\phi 32$ to $\phi 100$

● AX type sensor

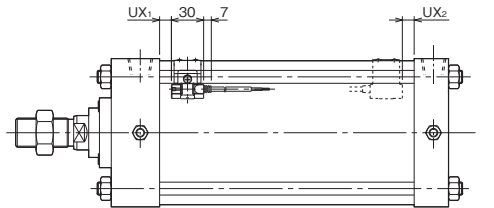
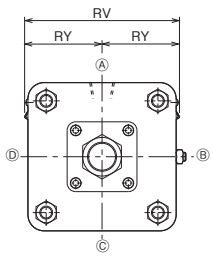


● SR type sensor

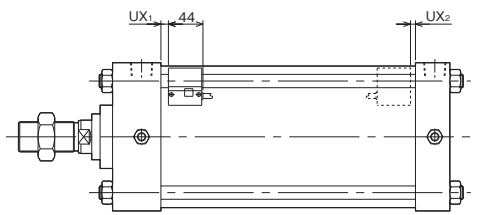
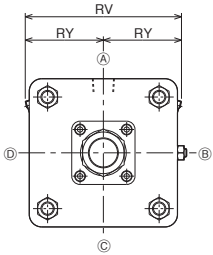


● $\phi 125$ to $\phi 250$

● AX type sensor



● SR type sensor



- All dimensions of the cylinder bodies and mounting accessories are the same as those of the standard type cylinders.
- If the TA style mounting bracket interferes with the sensor, change the sensor mounting surface. (Mount on (A).)

Dimensional Table

Symbol Bore	RV		RY		UX ₁		UX ₂	
	AX type	SR type	AX type	SR type	AX type	SR type	AX type	SR type
$\phi 32$	68	74	34	37	5	1	5	1
$\phi 40$	72	80	36	40	5	1	5	0
$\phi 50$	82	90	41	45	5	1	5	0
$\phi 63$	94	102	47	51	6	1	6	1
$\phi 80$	110	118	55	59	4	0	4	0
$\phi 100$	120	132	60	66	4	0	4	0
$\phi 125$	146	154	73	77	11	6	7	3
$\phi 140$	162	168	81	84	14	8	11	4
$\phi 160$	178	184	89	92	14	9	11	6

Note) Dimension UX indicates the optimum sensor mounting position for detection of stroke end.

Operating Range and Hysteresis

Bore mm	Reed sensor				Solid state sensor							
	AX1 * * type		SR type		AX2 * * type							
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis						
φ 32	5 to 10	2 or less	6 to 10	3 or less	3 to 6	1 or less						
φ 40			9 to 13		3 to 7							
φ 50												
φ 63	7 to 11				4 to 7							
φ 80	8 to 12				5 to 8							
φ 100	10 to 15											
φ 125												
φ 140												
φ 160												

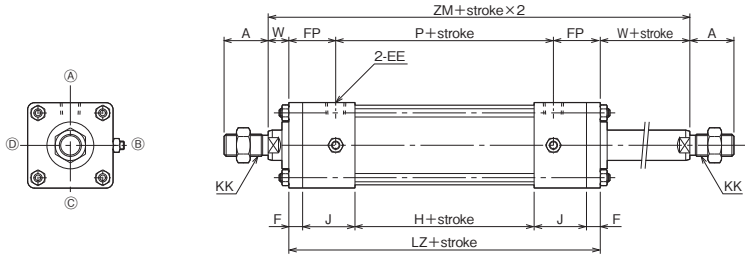
Sensor Mountable Minimum Stroke

Type	AX type		SR type	
	Switch Set	SV Set	Switch Set	SV Set
With 1 sensor	25	50	15	50
With 2 sensors	25	50	15	50
TC style	120	120	125	125

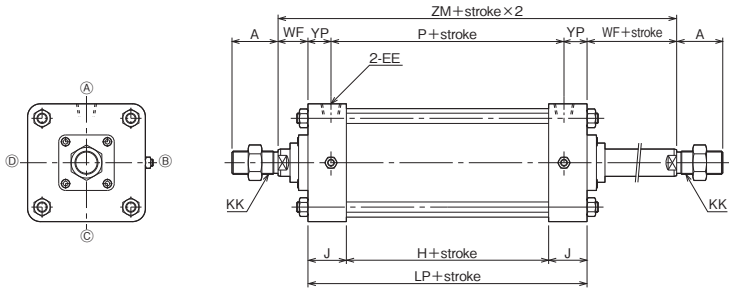
Double Rod Type

10A-2D SD Bore B Stroke

● φ32 to φ100



● φ125 to φ250



● For dimensions of mounting accessories, see the dimensional drawings of each mounting style.

Dimensional Table

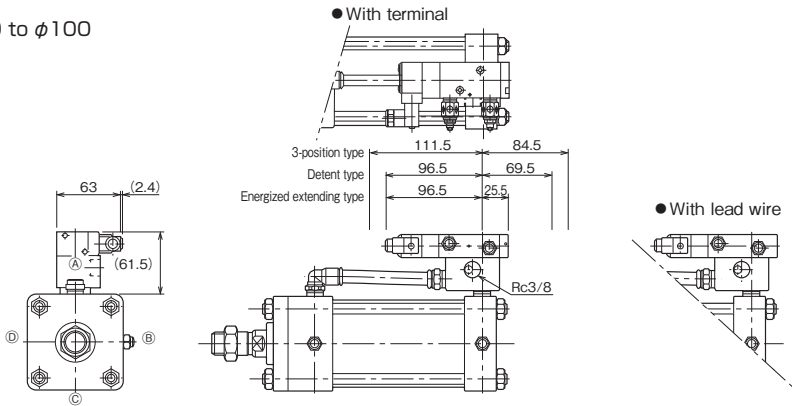
Symbol Bore	A	EE	F	FP	H	J	KK	LP	LZ	P	W	WF	YP	ZM
φ32	22 (19)	Rc1/8	10	34	30	38	M10×1.25	—	126	58	15	—	—	156
φ40	24 (21)	Rc1/4	10	34	30	38	M12×1.25	—	126	58	15	—	—	156
φ50	32 (28)	Rc1/4	10	34	30	38	M16×1.5	—	126	58	15	—	—	156
φ63	32 (28)	Rc3/8	10	34	33	38	M16×1.5	—	129	61	15	—	—	159
φ80	40 (36)	Rc3/8	16	43	31	45	M20×1.5	—	153	67	19	—	—	191
φ100	40 (36)	Rc1/2	16	43	31	45	M20×1.5	—	153	67	19	—	—	191
φ125	54 (49)	Rc1/2	—	—	37	45	M27×2	127	—	73	—	35	27	197
φ140	72 (67)	Rc3/4	—	—	43	50	M36×2	143	—	85	—	41	29	225
φ160	72 (67)	Rc3/4	—	—	43	50	M36×2	143	—	85	—	41	29	225
φ180	72 (67)	Rc3/4	—	—	43	50	M36×2	143	—	85	—	41	29	225
φ200	72 (67)	Rc3/4	—	—	43	50	M36×2	143	—	85	—	41	29	225
φ250	84 (79)	Rc1	—	—	55	57	M42×2	169	—	109	—	48	30	265

* The parenthesized values of dimension A indicate the screw length.

VAL Set

10A-2V2 [SD] [Bore B] [Stroke] – [Valve operating method] [Valve voltage]

●φ40 to φ100



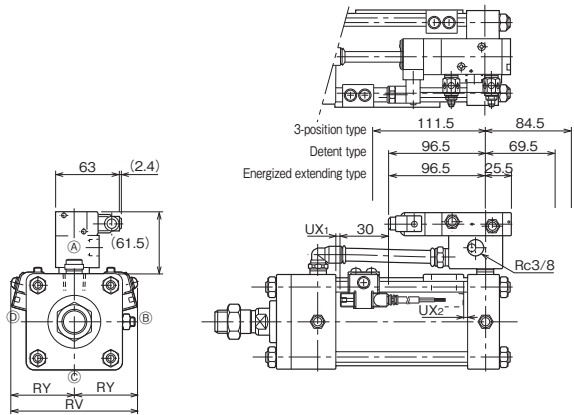
●All dimensions of the cylinder bodies and mounting accessories are the same as those of the standard type cylinders.

SV Set

10A-2K2 [SD] [Bore B] [Stroke] – [Valve operating method] [Valve voltage] [Sensor symbol] [Sensor quantity]

●φ40 to φ100

- All dimensions of the cylinder bodies and mounting accessories are the same as those of the standard type cylinders.
- If the TA style mounting bracket interferes with the sensor, change the sensor mounting surface. (Mount on the top surface.)
- This drawing shows the AX type sensor.

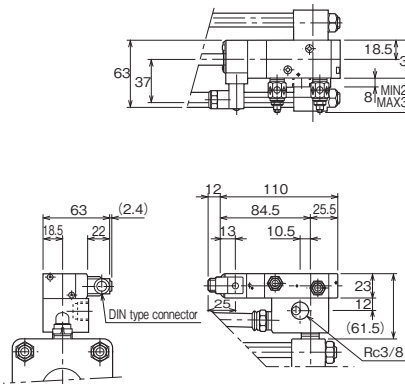


Dimensional Table

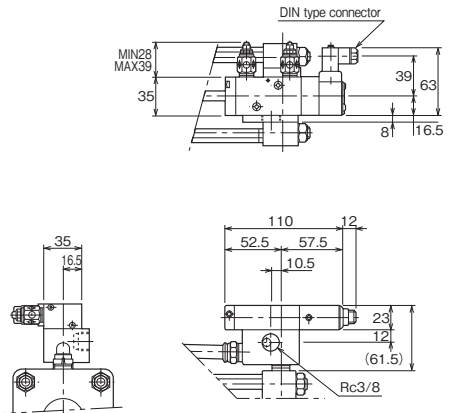
Symbol Bore	RV		RY		UX ₁		UX ₂	
	AX type	SR type	AX type	SR type	AX type	SR type	AX type	SR type
φ40	72	80	36	40	5	1	5	0
φ50	82	90	41	45	5	1	5	0
φ63	94	102	47	51	6	1	6	1
φ80	110	118	55	59	4	0	4	0
φ100	120	132	60	66	4	0	4	0

Drawings of Valve Mounting Dimensions

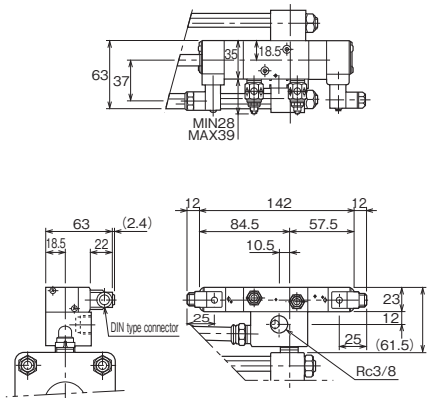
Energized extending type



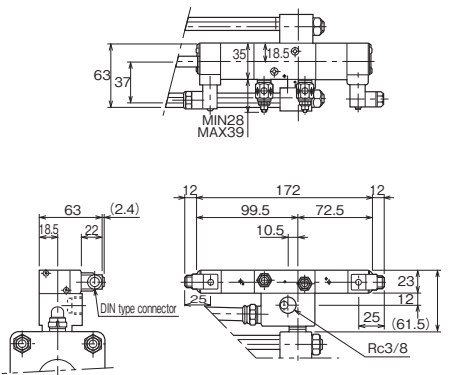
Energized retracting type



Detent type



3-position closed center type
3-position exhaust center type



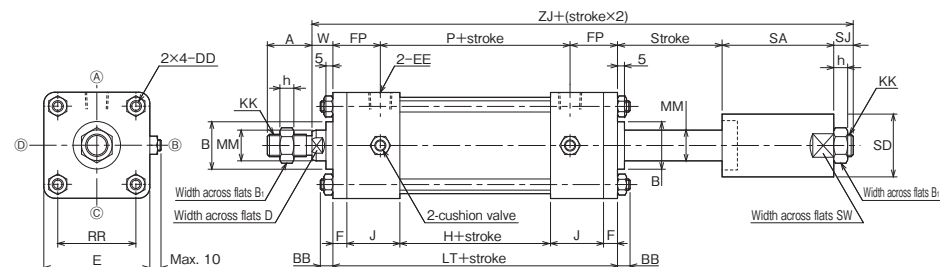
Adjustable Extended Stroke

10A-2A1 SD B

10A-2RA1 SD Bore B Stroke – Sensor symbol Sensor quantity

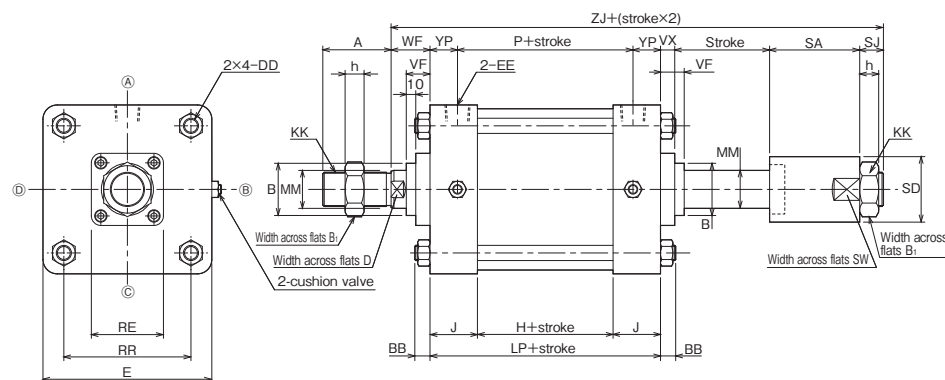


- Bore $\phi 32$ to $\phi 100$



- Extended stroke adjustment range: 0 to 50mm

- Bore $\phi 125$ to $\phi 250$ (10A-2A1)
- Bore $\phi 125$ to $\phi 160$ (10A-2RA1)



- Extended stroke adjustment range: 0 to 50mm

Dimensional Table

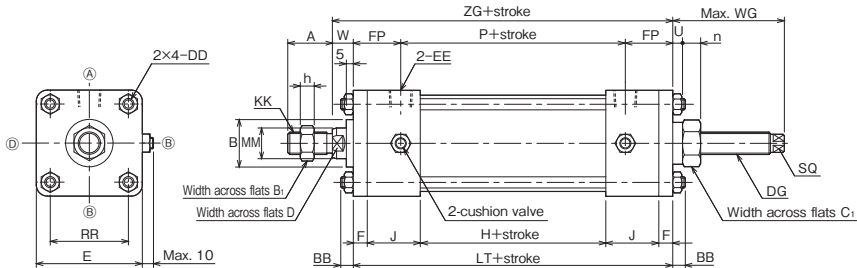
Symbol Bore	A	B	B ₁	BB	D	DD	E	EE	F	FP	H	h	J	KK	LP
φ32	22	φ24	17	7	10	M6×1	□44	Rc1/8	10	34	30	6	38	M10×1.25	—
φ40	24	φ30	19	7	13	M6×1	□50	Rc1/4	10	34	30	7	38	M12×1.25	—
φ50	32	φ34	22	7	19	M6×1	□62	Rc1/4	10	34	30	10	38	M16×1.5	—
φ63	32	φ34	22	9	19	M8×1.25	□76	Rc3/8	10	34	33	10	38	M16×1.5	—
φ80	40	φ39	27	10	22	M10×1.25	□94	Rc3/8	16	43	31	12	45	M20×1.5	—
φ100	40	φ39	27	10	22	M10×1.25	□114	Rc1/2	16	43	31	12	45	M20×1.5	—
φ125	54	φ46	36	13	27	M12×1.5	□138	Rc1/2	—	—	37	16	45	M27×2	127
φ140	72	φ55	50	16	36	M16×1.5	□156	Rc3/4	—	—	43	20	50	M36×2	143
φ160	72	φ55	50	16	36	M16×1.5	□178	Rc3/4	—	—	43	20	50	M36×2	143
φ180	72	φ55	50	16	36	M16×1.5	□200	Rc3/4	—	—	43	20	50	M36×2	143
φ200	72	φ55	50	16	36	M16×1.5	□216	Rc3/4	—	—	43	20	50	M36×2	143
φ250	84	φ60	60	19	41	M20×1.5	□270	Rc1	—	—	55	22	57	M42×2	169

Symbol Bore	LT	MM	P	RE	RR	SA	SD	SJ	SW	VF	VX	W	WF	YP	ZJ
φ32	126	φ12	58	—	□33	75	φ35	10	32	—	—	15	—	—	226
φ40	126	φ16	58	—	□37	80	φ40	11	36	—	—	15	—	—	232
φ50	126	φ22	58	—	□47	85	φ45	14	41	—	—	15	—	—	240
φ63	129	φ22	61	—	□56	85	φ45	14	41	—	—	15	—	—	243
φ80	153	φ25	67	—	□70	85	φ50	17	46	—	—	19	—	—	274
φ100	153	φ25	67	—	□84	85	φ50	17	46	—	—	19	—	—	274
φ125	—	φ32	73	□65	□104	95	φ56	21	50	21	11	—	35	27	289
φ140	—	φ40	85	□76	□123	95	φ70	25	65	25	15	—	41	29	319
φ160	—	φ40	85	□76	□134	95	φ70	25	65	25	15	—	41	29	319
φ180	—	φ40	85	□76	□156	95	φ70	25	65	25	15	—	41	29	319
φ200	—	φ40	85	□76	□163	95	φ70	25	65	25	15	—	41	29	319
φ250	—	φ45	109	□90	□202	100	φ80	27	75	30	20	—	48	30	364

Adjustable Retracted Stroke

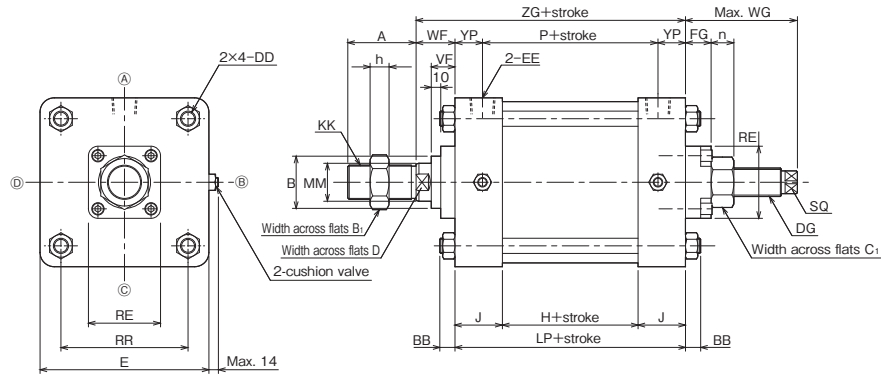
10A- 2A2 SD Bore B Stroke
10A- 2RA2 SD Bore B Stroke - Sensor symbol Sensor quantity

●Bore $\phi 32$ to $\phi 100$



●Retracted stroke adjustment range: 0 to 50mm

●Bore $\phi 125$ to $\phi 160$



●Retracted stroke adjustment range: 0 to 50mm

Dimensional Table

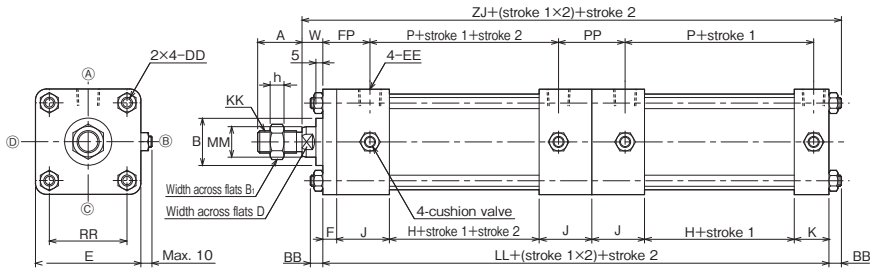
Symbol	A	B	B ₁	BB	C ₁	D	DD	DG	E	EE	F	FG	FP	H	h	J
Bore																
$\phi 32$	22	$\phi 24$	17	7	19	10	M6×1	M12×1.25	□44	Rc1/8	10	—	34	30	6	38
$\phi 40$	24	$\phi 30$	19	7	19	13	M6×1	M12×1.25	□50	Rc1/4	10	—	34	30	7	38
$\phi 50$	32	$\phi 34$	22	7	29	19	M6×1	M16×1.5	□62	Rc1/4	10	—	34	30	10	38
$\phi 63$	32	$\phi 34$	22	9	29	19	M8×1.25	M16×1.5	□76	Rc3/8	10	—	34	33	10	38
$\phi 80$	40	$\phi 39$	27	10	32	22	M10×1.25	M20×1.5	□94	Rc3/8	16	—	43	31	12	45
$\phi 100$	40	$\phi 39$	27	10	32	22	M10×1.25	M20×1.5	□114	Rc1/2	16	—	43	31	12	45
$\phi 125$	54	$\phi 46$	36	13	36	27	M12×1.5	M24×1.5	□138	Rc1/2	—	20	—	37	16	45
$\phi 140$	72	$\phi 55$	50	16	46	36	M16×1.5	M30×2	□156	Rc3/4	—	27	—	43	20	50
$\phi 160$	72	$\phi 55$	50	16	46	36	M16×1.5	M30×2	□178	Rc3/4	—	27	—	43	20	50

Symbol	KK	LP	LT	MM	n	P	RE	RR	SQ	U	VF	W	WF	WG	YP	ZG
Bore																
$\phi 32$	M10×1.25	—	126	$\phi 12$	10	58	—	□33	□8	7	—	15	—	77	—	141
$\phi 40$	M12×1.25	—	126	$\phi 16$	10	58	—	□37	□8	7	—	15	—	77	—	141
$\phi 50$	M16×1.5	—	126	$\phi 22$	13	58	—	□47	□11	7	—	15	—	80	—	141
$\phi 63$	M16×1.5	—	129	$\phi 22$	13	61	—	□56	□11	7	—	15	—	80	—	144
$\phi 80$	M20×1.5	—	153	$\phi 25$	16	67	—	□70	□14	10	—	19	—	88	—	172
$\phi 100$	M20×1.5	—	153	$\phi 25$	16	67	—	□84	□14	10	—	19	—	88	—	172
$\phi 125$	M27×2	127	—	$\phi 32$	19	73	□65	□104	□17	—	21	—	35	103	27	162
$\phi 140$	M36×2	143	—	$\phi 40$	24	85	□76	□123	□19	—	25	—	41	118	29	184
$\phi 160$	M36×2	143	—	$\phi 40$	24	85	□76	□134	□19	—	25	—	41	118	29	184

Dual Stroke/Single Rod

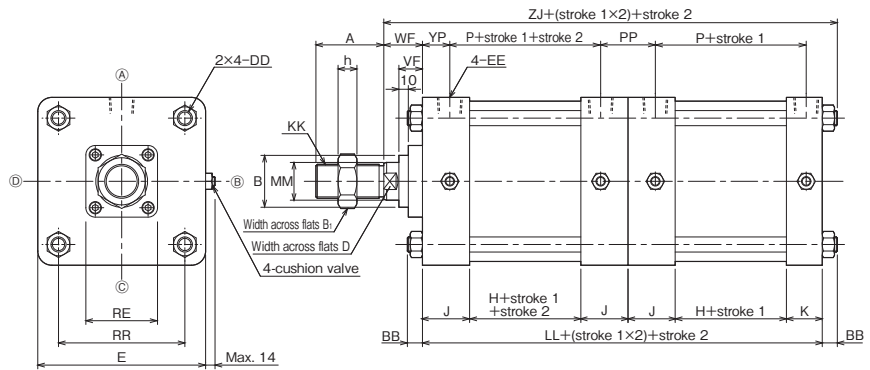
10A-2Q1 SD Bore B Stroke1 + Stroke2
10A-2RQ1 SD Bore B Stroke1 + Stroke2 - Sensor symbol Sensor quantity

● Bore $\phi 32$ to $\phi 100$



● Stroke limit (stroke 1×2+stroke 2)
 $\phi 32$: 1200mm
 $\phi 40$: 1400mm
 $\phi 50, \phi 63$: 1600mm
 $\phi 80, \phi 100$: 1800mm

● Bore $\phi 125$ to $\phi 250$ (10A-2Q1)
● Bore $\phi 125$ to $\phi 160$ (10A-2RQ1)



● Stroke limit (stroke 1×2+stroke 2)
 $\phi 125$ to $\phi 250$: 2000mm

Dimensional Table

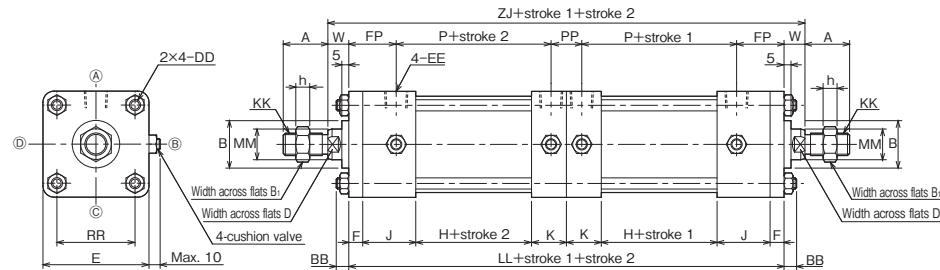
Symbol Bore	A	B	B ₁	BB	D	DD	E	EE	F	FP	H	h	J	K
$\phi 32$	22	$\phi 24$	17	7	10	M6×1	□44	Rc1/8	10	34	30	6	38	25
$\phi 40$	24	$\phi 30$	19	7	13	M6×1	□50	Rc1/4	10	34	30	7	38	25
$\phi 50$	32	$\phi 34$	22	7	19	M6×1	□62	Rc1/4	10	34	30	10	38	25
$\phi 63$	32	$\phi 34$	22	9	19	M8×1.25	□76	Rc3/8	10	34	33	10	38	25
$\phi 80$	40	$\phi 39$	27	10	22	M10×1.25	□94	Rc3/8	16	43	31	12	45	32
$\phi 100$	40	$\phi 39$	27	10	22	M10×1.25	□114	Rc1/2	16	43	31	12	45	32
$\phi 125$	54	$\phi 46$	36	13	27	M12×1.5	□138	Rc1/2	—	—	37	16	45	32
$\phi 140$	72	$\phi 55$	50	16	36	M16×1.5	□156	Rc3/4	—	—	43	20	50	38
$\phi 160$	72	$\phi 55$	50	16	36	M16×1.5	□178	Rc3/4	—	—	43	20	50	38
$\phi 180$	72	$\phi 55$	50	16	36	M16×1.5	□200	Rc3/4	—	—	43	20	50	38
$\phi 200$	72	$\phi 55$	50	16	36	M16×1.5	□216	Rc3/4	—	—	43	20	50	38
$\phi 250$	84	$\phi 60$	60	19	41	M20×1.5	□270	Rc1	—	—	55	22	57	50

Symbol Bore	KK	LL	MM	P	PP	RE	RR	VF	W	WF	YP	ZJ
$\phi 32$	M10×1.25	209	$\phi 12$	58	48	—	□33	—	15	—	—	231
$\phi 40$	M12×1.25	209	$\phi 16$	58	48	—	□37	—	15	—	—	231
$\phi 50$	M16×1.5	209	$\phi 22$	58	48	—	□47	—	15	—	—	231
$\phi 63$	M16×1.5	215	$\phi 22$	61	48	—	□56	—	15	—	—	239
$\phi 80$	M20×1.5	245	$\phi 25$	67	54	—	□70	—	19	—	—	274
$\phi 100$	M20×1.5	245	$\phi 25$	67	54	—	□84	—	19	—	—	274
$\phi 125$	M27×2	241	$\phi 32$	73	54	□65	□104	21	—	35	27	289
$\phi 140$	M36×2	274	$\phi 40$	85	58	□76	□123	25	—	41	29	331
$\phi 160$	M36×2	274	$\phi 40$	85	58	□76	□134	25	—	41	29	331
$\phi 180$	M36×2	274	$\phi 40$	85	58	□76	□156	25	—	41	29	331
$\phi 200$	M36×2	274	$\phi 40$	85	58	□76	□163	25	—	41	29	331
$\phi 250$	M42×2	331	$\phi 45$	109	60	□90	□202	30	—	48	30	398

Dual Stroke/Double Rod

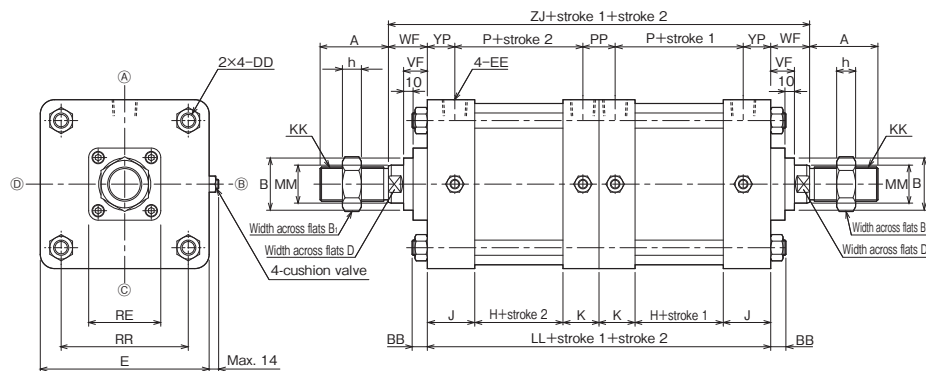
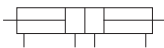
10A-2Q2 SD Bore B Stroke1 + Stroke2
10A-2RQ2 SD Bore B Stroke1 + Stroke2 - Sensor symbol Sensor quantity

- Bore $\phi 32$ to $\phi 100$



- Stroke limit (stroke 1+stroke 2)
 $\phi 32$: 1200mm
 $\phi 40$: 1400mm
 $\phi 50, \phi 63$: 1600mm
 $\phi 80, \phi 100$: 1800mm

- Bore $\phi 125$ to $\phi 250$ (10A-2Q2)
- Bore $\phi 125$ to $\phi 160$ (10A-2RQ2)



- Stroke limit (stroke 1+stroke 2)
 $\phi 125$ to $\phi 250$: 2000mm

Dimensional Table

Symbol Bore	A	B	B ₁	BB	D	DD	E	EE	F	FP	H	h	J	K
$\phi 32$	22	$\phi 24$	17	7	10	M6×1	□44	Rc1/8	10	34	30	6	38	25
$\phi 40$	24	$\phi 30$	19	7	13	M6×1	□50	Rc1/4	10	34	30	7	38	25
$\phi 50$	32	$\phi 34$	22	7	19	M6×1	□62	Rc1/4	10	34	30	10	38	25
$\phi 63$	32	$\phi 34$	22	9	19	M8×1.25	□76	Rc3/8	10	34	33	10	38	25
$\phi 80$	40	$\phi 39$	27	10	22	M10×1.25	□94	Rc3/8	16	43	31	12	45	32
$\phi 100$	40	$\phi 39$	27	10	22	M10×1.25	□114	Rc1/2	16	43	31	12	45	32
$\phi 125$	54	$\phi 46$	36	13	27	M12×1.5	□138	Rc1/2	—	—	37	16	45	32
$\phi 140$	72	$\phi 55$	50	16	36	M16×1.5	□156	Rc3/4	—	—	43	20	50	38
$\phi 160$	72	$\phi 55$	50	16	36	M16×1.5	□178	Rc3/4	—	—	43	20	50	38
$\phi 180$	72	$\phi 55$	50	16	36	M16×1.5	□200	Rc3/4	—	—	43	20	50	38
$\phi 200$	72	$\phi 55$	50	16	36	M16×1.5	□216	Rc3/4	—	—	43	20	50	38
$\phi 250$	84	$\phi 60$	60	19	41	M20×1.5	□270	Rc1	—	—	55	22	57	50

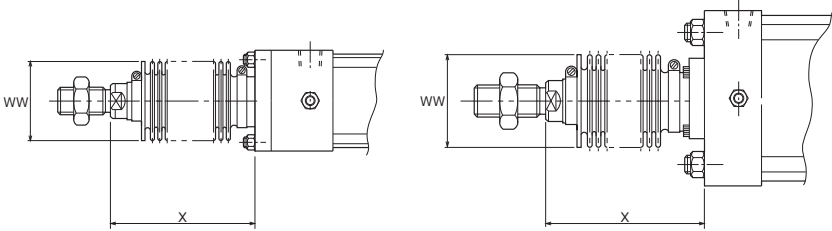
Symbol Bore	KK	LL	MM	P	PP	RE	RR	VF	W	WF	YP	ZJ
$\phi 32$	M10×1.25	206	$\phi 12$	58	22	—	□33	—	15	—	—	236
$\phi 40$	M12×1.25	206	$\phi 16$	58	22	—	□37	—	15	—	—	236
$\phi 50$	M16×1.5	206	$\phi 22$	58	22	—	□47	—	15	—	—	236
$\phi 63$	M16×1.5	212	$\phi 22$	61	22	—	□56	—	15	—	—	242
$\phi 80$	M20×1.5	248	$\phi 25$	67	28	—	□70	—	19	—	—	286
$\phi 100$	M20×1.5	248	$\phi 25$	67	28	—	□84	—	19	—	—	286
$\phi 125$	M27×2	228	$\phi 32$	73	28	□65	□104	21	—	35	27	298
$\phi 140$	M36×2	262	$\phi 40$	85	34	□76	□123	25	—	41	29	344
$\phi 160$	M36×2	262	$\phi 40$	85	34	□76	□134	25	—	41	29	344
$\phi 180$	M36×2	262	$\phi 40$	85	34	□76	□156	25	—	41	29	344
$\phi 200$	M36×2	262	$\phi 40$	85	34	□76	□163	25	—	41	29	344
$\phi 250$	M42×2	324	$\phi 45$	109	46	□90	□202	30	—	48	30	420

CAD/DATA
10A-2/TA2 Bore K is available. 

With Boots

● $\phi 32$ to $\phi 100$

● $\phi 125$ to $\phi 250$



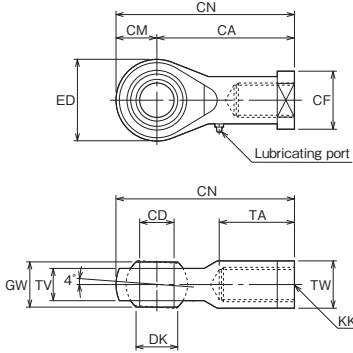
	Standard		Semi-standard
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80℃	100℃	200℃

Notes) ● Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
● Conex is the registered trademark of Teijin Limited.
● If the calculated value has a fractional part, round it up.
● The boots have been mounted at our factory prior to delivery.
● Dimension X is the distance from the cover end. When using the FA accessory, check dimension carefully. (On 32 to 100 mm bore cylinders, the distance is measured from the retainer end face.)
● Note that the seal housings of 32 to 100 mm bore cylinders with boots differ from those of standard type cylinders.

Rod End Attachment

Rod eye with spherical bearing (S-end)

● $\phi 32$ to $\phi 100$



With Boots

Dimensional Table/With boots (nylon tarpaulin/chloroprene)

Symbol Bore	WW	X (standard strokes)												X (other than standard strokes)
		50	75	100	125	150	200	250	300	350	400	450	500	Nylon tarpaulin/chloroprene
$\phi 32$	$\phi 36$	67	75	84	92	100	117	134	150	167	184	200	217	1/3 stroke+50
$\phi 40$	$\phi 40$	67	75	84	92	100	117	134	150	167	184	200	217	
$\phi 50$	$\phi 45$	72	80	89	97	105	122	139	155	172	189	205	222	1/3 stroke+55
$\phi 63$	$\phi 45$	72	80	89	97	105	122	139	155	172	189	205	222	
$\phi 80$	$\phi 60$	78	84	90	97	103	115	128	140	153	165	178	190	1/4 stroke+65
$\phi 100$	$\phi 60$	78	84	90	97	103	115	128	140	153	165	178	190	
$\phi 125$	$\phi 71$	84	90	96	103	109	121	134	146	159	171	184	196	1/4 stroke+71
$\phi 140$	$\phi 80$	88	94	100	107	113	125	138	150	163	175	188	200	
$\phi 160$	$\phi 80$	88	94	100	107	113	125	138	150	163	175	188	200	1/4 stroke+75
$\phi 180$	$\phi 80$	88	94	100	107	113	125	138	150	163	175	188	200	
$\phi 200$	$\phi 80$	88	94	100	107	113	125	138	150	163	175	188	200	
$\phi 250$	$\phi 80$	93	99	105	112	118	130	143	155	168	180	193	205	1/4 stroke+80

Dimensional Table/With boots (Conex)

Symbol Bore	WW	X (standard strokes)												X (other than standard strokes)
		50	75	100	125	150	200	250	300	350	400	450	500	Conex
$\phi 32$	$\phi 61$	70	80	90	100	110	130	150	170	190	210	230	250	1/2.5 stroke+50
$\phi 40$	$\phi 61$	70	80	90	100	110	130	150	170	190	210	230	250	
$\phi 50$	$\phi 61$	75	85	95	105	115	135	155	175	195	215	235	255	1/2.5 stroke+55
$\phi 63$	$\phi 61$	75	85	95	105	115	135	155	175	195	215	235	255	
$\phi 80$	$\phi 61$	82	90	99	107	115	132	149	165	182	199	215	232	1/3 stroke+65
$\phi 100$	$\phi 61$	82	90	99	107	115	132	149	165	182	199	215	232	
$\phi 125$	$\phi 71$	88	96	105	113	121	138	155	171	188	205	221	238	1/3 stroke+71
$\phi 140$	$\phi 80$	92	100	109	117	125	142	159	175	192	209	225	242	
$\phi 160$	$\phi 80$	92	100	109	117	125	142	159	175	192	209	225	242	1/3 stroke+75
$\phi 180$	$\phi 80$	92	100	109	117	125	142	159	175	192	209	225	242	
$\phi 200$	$\phi 80$	92	100	109	117	125	142	159	175	192	209	225	242	
$\phi 250$	$\phi 80$	97	105	114	122	130	147	164	180	197	214	230	247	1/3 stroke+80

Dimensional table/Rod eye with spherical bearing (S-end)

Symbol Bore	Part number	CA	CD	CF	CM	CN	DK	ED	GW	KK	TA	TV	TW
$\phi 32$	RSA-10-A	43	$\phi 10H9$	$\phi 19$	13	56	$\phi 12.9$	26	$14_{-0.1}^0$	M10×1.25	21	10.5 ± 0.1	17
$\phi 40$	RSA-12-A	50	$\phi 12H9$	$\phi 22$	15	65	$\phi 15.4$	30	$16_{-0.1}^0$	M12×1.25	24	12 ± 0.1	19
$\phi 50$	RSA-16-A	64	$\phi 16H9$	$\phi 27$	19	83	$\phi 19.4$	38	$21_{-0.1}^0$	M16×1.5	33	15 ± 0.1	22
$\phi 63$		64	$\phi 16H9$	$\phi 27$	19	83	$\phi 19.4$	38	$21_{-0.1}^0$	M16×1.5	33	15 ± 0.1	22
$\phi 80$	RSA-20-A	77	$\phi 20H9$	$\phi 34$	23	100	$\phi 24.4$	46	$25_{-0.1}^0$	M20×1.5	40	18 ± 0.1	30
$\phi 100$		77	$\phi 20H9$	$\phi 34$	23	100	$\phi 24.4$	46	$25_{-0.1}^0$	M20×1.5	40	18 ± 0.1	30

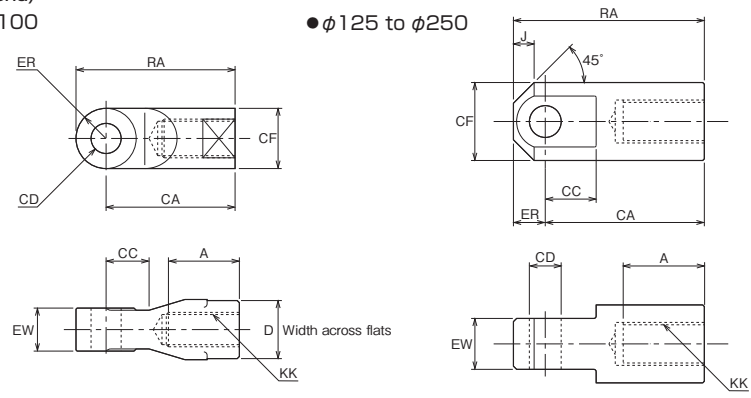
CAD/DATA
10A-2/TA2 [Bore] K is available. 

Rod End Attachment

Rod eye(T-end)

● $\phi 32$ to $\phi 100$

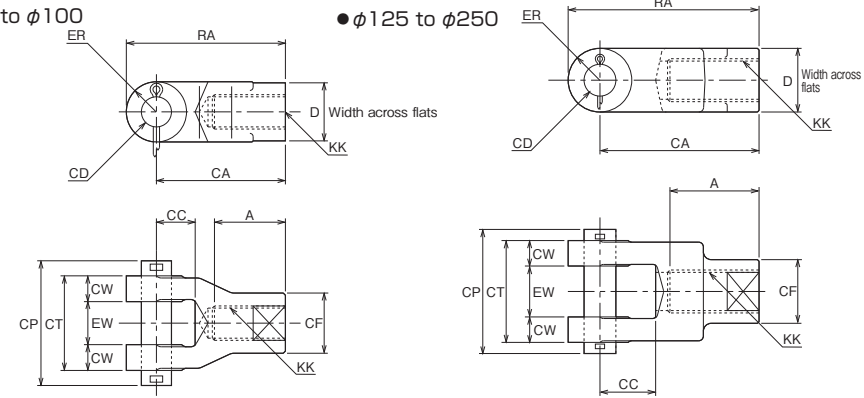
● $\phi 125$ to $\phi 250$



Rod clevis(Y-end) with pin

● $\phi 32$ to $\phi 100$

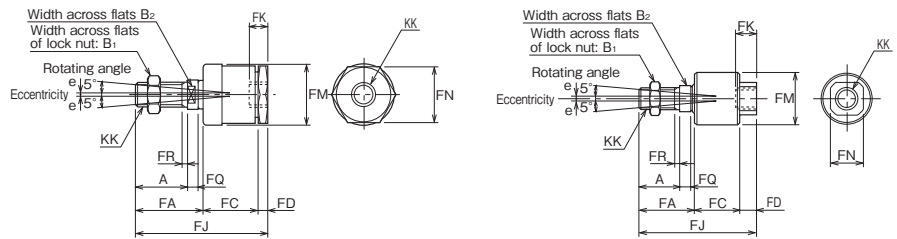
● $\phi 125$ to $\phi 250$



Floating joint(F-end)

● $\phi 32$

● $\phi 40$ to $\phi 160$



- The insertion of the floating joint into the socket shall not equal or exceed the dimension of screw diameter. (Return the joint one or two turns after it gets into contact with the socket bottom, and fix it with a lock nut.) Excessive insertion can cause operation failure.
- DO NOT use together with CA, CB, CC, CD, TA, and TC accessories.

Dimensional Table/Rod eye (T-end)

Symbol	Part number	A	CA	CC	CD	CF	D	ER	EW	J	KK	RA
Bore												
$\phi 32$	RTA-10-A	23	55	20	$\phi 12H9$	$\phi 24$	24	R12	$16_{-0.1}^0$	—	M10×1.25	67
$\phi 40$	RTA-12-A	25	60	20	$\phi 14H9$	$\phi 24$	24	R12	$20_{-0.1}^0$	—	M12×1.25	72
$\phi 50$	RTA-16-A	33	60	20	$\phi 14H9$	$\phi 28$	27	R14	$20_{-0.1}^0$	—	M16×1.5	74
$\phi 63$												
$\phi 80$	RTA-20-A	41	85	30	$\phi 20H9$	$\phi 36$	36	R19	$32_{-0.1}^0$	—	M20×1.5	104
$\phi 100$												
$\phi 125$	RTA-27-A	51	100	32	$\phi 20H9$	$\phi 49$	—	20	$32_{-0.1}^0$	13	M27×2	120
$\phi 140$	RTA-36-A	69	125	33	$\phi 28H9$	$\phi 62$	—	28	$40_{-0.1}^0$	18	M36×2	153
$\phi 160$												
$\phi 180$												
$\phi 200$												
$\phi 250$	RTA-42-A	81	144	48	$\phi 36H9$	$\phi 79$	—	36	$50_{-0.1}^0$	20	M42×2	180

Dimensional Table/Rod clevis (Y-end) with pin

Symbol	Part number	A	CA	CC	CD	CF	CP	CT	CW	D	ER	EW	KK	RA
Bore														
$\phi 32$	RYA-10-1-A	23	55	20	$\phi 12_{+0.05}^{H9/18}$	$\phi 24$	46	32	8	24	R12	$16_{+0.5}^{+1.5}$	M10×1.25	67
$\phi 40$	RYA-12-1-A	25	60	20	$\phi 14_{+0.05}^{H9/18}$	$\phi 24$	58	44	12	24	R12	$20_{+0.5}^{+1.5}$	M12×1.25	71
$\phi 50$	RYA-16-A	33	60	18	$\phi 14_{+0.05}^{H9/18}$	$\phi 28$	58	44	12	27	R14	$20_{+0.5}^{+1.5}$	M16×1.5	74
$\phi 63$														
$\phi 80$	RYA-20-A	41	85	28	$\phi 20_{+0.05}^{H9/18}$	$\phi 36$	78	64	16	36	R19	$32_{+0.5}^{+1.5}$	M20×1.5	104
$\phi 100$														
$\phi 125$	RYA-27-A	56	100	35	$\phi 20_{+0.05}^{H9/18}$	$\phi 40$	78	64	16	40	R20	$32_{+0.5}^{+1.5}$	M27×2	120
$\phi 140$	RYA-36-A	74	125	36.5	$\phi 28_{+0.05}^{H9/18}$	$\phi 55$	97	80	20	55	R27.5	$40_{+0.5}^{+1.5}$	M36×2	152.5
$\phi 160$														
$\phi 180$														
$\phi 200$														
$\phi 250$	RYA-42-A	86	144	49	$\phi 36_{+0.05}^{H9/18}$	$\phi 70$	117	100	25	65	R35	$50_{+0.5}^{+1.5}$	M42×2	179

Dimensional Table/Floating joint (F-end)

Symbol	Part number	A	B ₁	B ₂	e	FA	FC	FD	FJ	FK	FM	FN	FQ	FR	KK
Bore															
$\phi 32$	RFS-10T	24.5	17	10	1	31	28	4	63	11	$\phi 25$	24	4.5	2.5	M10×1.25
$\phi 40$	RFS-12T	24	19	13	1	33	25.5	11	69.5	13.5	$\phi 32$	19	7	3.5	M12×1.25
$\phi 50 \sim \phi 63$	RFS-16T	32	22	17	1.5	43	33	13	89	16	$\phi 40$	24	8	4	M16×1.5
$\phi 80$	RFS-20T080	40	27	22	2	53	42	15	110	22	$\phi 50$	30	9	5	M20×1.5
$\phi 100$	RFS-20T100	40	27	24	2.5	56	49	18	123	24	$\phi 64$	36	12	6	M20×1.5
$\phi 125$	RFS-27T	54	36	32	2.5	74	62	21	157	30	$\phi 76$	46	14	7	M27×2
$\phi 140 \sim \phi 160$	RFS-36T	72	50	36	3	96	80	23	199	36	$\phi 88$	55	18	8	M36×2

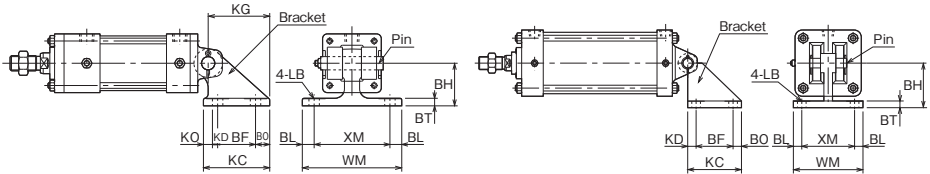
CAD/DATA
10A-2/TA2 Bore K is available. 

Bracket

CB/CD bracket

● $\phi 32$ to $\phi 100$

● $\phi 125$ to $\phi 250$

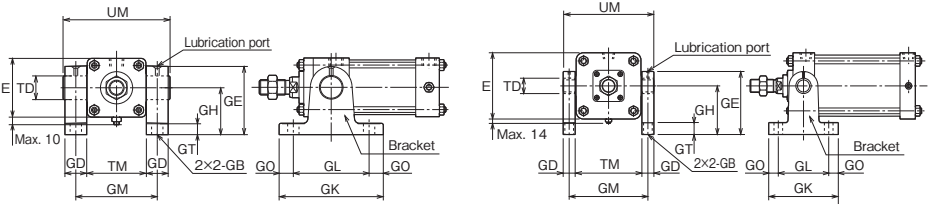


● For the dimensions of the cylinder bodies, see the drawings of CB and CD.

TA bracket

● $\phi 32$ to $\phi 100$

● $\phi 125$ to $\phi 250$

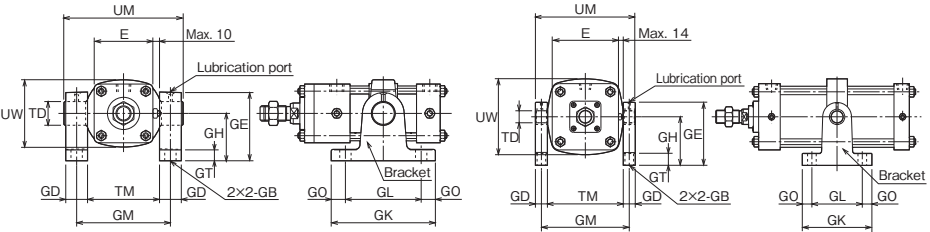


● For the dimensions of the cylinder bodies, see the drawings of TA.

TC bracket

● $\phi 32$ to $\phi 100$

● $\phi 125$ to $\phi 250$



● For the dimensions of the cylinder bodies, see the drawings of TC.

Dimensional Table/CB/CD bracket

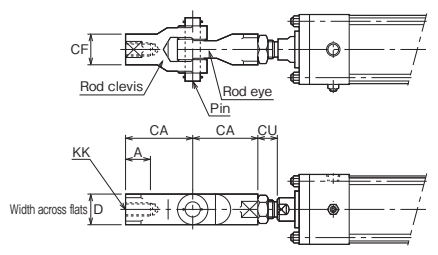
Symbol Bore	Part number	BF	BH	BL	BO	BT	KC	KD	KG	KO	LB	WM	XM
$\phi 32$	BCA-12-A	40	35	10	10	8	60	5	55	5	$\phi 9$	85	65
$\phi 40$	BCA-14-A	40	45	12.5	15	8	70	10	65	5	$\phi 11$	105	80
$\phi 50$													
$\phi 63$													
$\phi 80$	BCA-20-A	65	60	15	16.5	12	98	5	85	10	$\phi 14$	135	105
$\phi 100$													
$\phi 125$	BCA-20-1-A	77	75	17.5	17.5	14	112	17.5	—	—	$\phi 18$	145	110
$\phi 140$	BCA-28-A	120	115	22.5	22.5	23	165	22.5	—	—	$\phi 22$	175	130
$\phi 160$													
$\phi 180$													
$\phi 200$													
$\phi 250$	BCA-36-A	165	140	25	25	28	215	25	—	—	$\phi 26$	220	170

Dimensional Table/TA/TC bracket

Symbol Bore	Part number	E	GB	GD	GE	GH	GK	GL	GM		GO	GT	TD	TM		UM		UW
									TA style	TC style				TA style	TC style	TA style	TC style	
$\phi 32$	BTA-16-A	$\square 44$	$\phi 9$	15	56	40	80	60	59	70	10	12	$\phi 16_{H9/e9}$	44	55	76	87	52
$\phi 40$	BTA-25-A	$\square 50$	$\phi 12$	23	72	50	110	80	73	86	15	12	$\phi 25_{H9/e9}$	50	63	100	113	59
$\phi 50$		$\square 62$							86	99				63	76	113	126	71
$\phi 63$		$\square 76$							99	111				76	88	126	138	86
$\phi 80$	BTA-25-1-A	$\square 94$	$\phi 14$	23	92	70	120	85	118	137	17.5	14	$\phi 25_{H9/e9}$	95	114	145	164	104
$\phi 100$		$\square 114$							137	155				114	132	164	182	128
$\phi 125$	BTA-25-2-A	$\square 138$	$\phi 18$	25	115	85	145	105	164	183	20	25	$\phi 25_{H9/e9}$	139	158	189	208	158
$\phi 140$	BTA-36-A	$\square 156$	$\phi 22$	36	170	130	185	140	192	219	22.5	25	$\phi 36_{H9/e9}$	156	183	228	255	183
$\phi 160$		$\square 178$							214	236				178	200	250	272	200
$\phi 180$		$\square 200$							236	264				200	228	272	300	228
$\phi 200$		$\square 216$							252	282				216	246	288	318	246
$\phi 250$	BTA-45-A	$\square 270$	$\phi 26$	45	210	160	215	165	315	349	25	32	$\phi 45_{H9/e9}$	270	304	360	394	304

Combination of rod end attachments (For 125 to 250 mm bore cylinders, the same combinations can be used. However, dimensions differ from those shown in the following drawings.)

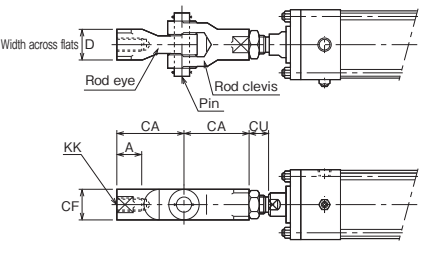
Rod eye—rod clevis



Dimensional Table

Symbol Bore	A	CA	CF	CU		D	KK
				Min.	Max.		
φ32	23	55	φ24	6	12	24	M10×1.25
φ40	25	60	φ24	7	13	24	M12×1.25
φ50	33	60	φ28	10	17	27	M16×1.5
φ63	33	60	φ28	10	17	27	M16×1.5
φ80	41	85	φ36	12	21	36	M20×1.5
φ100	41	85	φ36	12	21	36	M20×1.5

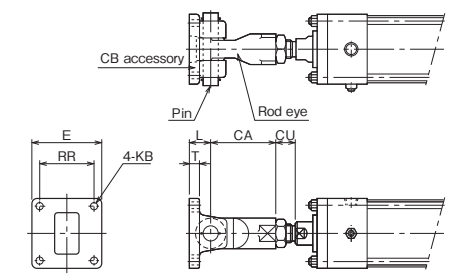
Rod clevis—rod eye



Dimensional Table

Symbol Bore	A	CA	CF	CU		D	KK
				Min.	Max.		
φ32	23	55	φ24	6	12	24	M10×1.25
φ40	25	60	φ24	7	13	24	M12×1.25
φ50	33	60	φ28	10	17	27	M16×1.5
φ63	33	60	φ28	10	17	27	M16×1.5
φ80	41	85	φ36	12	21	36	M20×1.5
φ100	41	85	φ36	12	21	36	M20×1.5

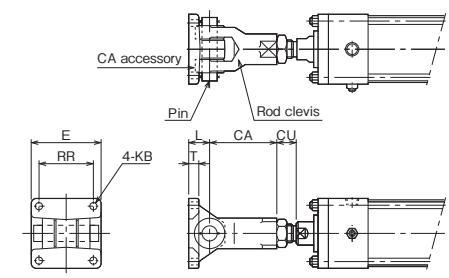
Rod eye—CB accessory



Dimensional Table

Symbol Bore	CA	CU		E	KB	L	RR	T
		Min.	Max.					
φ32	55	6	12	□43	M6×1	19	□33	8
φ40	60	7	13	□49	M6×1	19	□37	8
φ50	60	10	17	□60	M6×1	19	□47	8
φ63	60	10	17	□74	M8×1.25	19	□56	8
φ80	85	12	21	□93	M10×1.25	32	□70	11
φ100	85	12	21	□110	M10×1.25	32	□84	11

Rod clevis—CA accessory

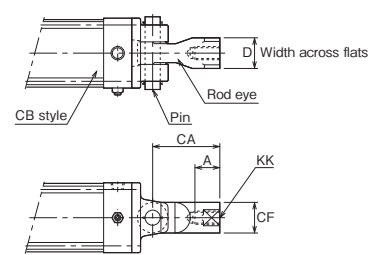


Dimensional Table

Symbol Bore	CA	CU		E	KB	L	RR	T
		Min.	Max.					
φ32	55	6	12	□43	M6×1	19	□33	8
φ40	60	7	13	□49	M6×1	19	□37	8
φ50	60	10	17	□60	M6×1	19	□47	10
φ63	60	10	17	□74	M8×1.25	19	□56	13
φ80	85	12	21	□93	M10×1.25	32	□70	18
φ100	85	12	21	□110	M10×1.25	32	□84	18

Combination of rod end attachments (For 125 to 250 mm bore cylinders, the same combinations can be used. However, dimensions differ from those shown in the following drawings.)

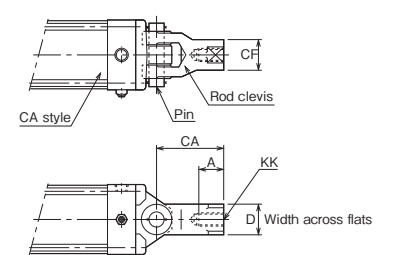
CB style—rod eye



Dimensional Table

Symbol Bore	A	CA	CF	D	KK
φ32	23	55	φ24	24	M10×1.25
φ40	25	60	φ24	24	M12×1.25
φ50	33	60	φ28	27	M16×1.5
φ63	33	60	φ28	27	M16×1.5
φ80	41	85	φ36	36	M20×1.5
φ100	41	85	φ36	36	M20×1.5

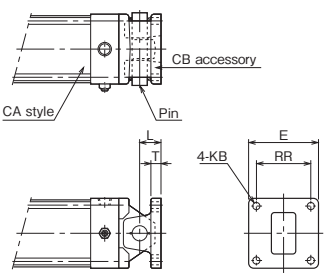
CA style—rod clevis



Dimensional Table

Symbol Bore	A	CA	CF	D	KK
φ32	23	55	φ24	24	M10×1.25
φ40	25	60	φ24	24	M12×1.25
φ50	33	60	φ28	27	M16×1.5
φ63	33	60	φ28	27	M16×1.5
φ80	41	85	φ36	36	M20×1.5
φ100	41	85	φ36	36	M20×1.5

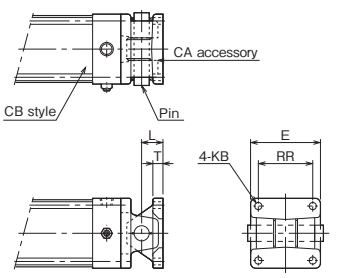
CA style—CB accessory



Dimensional Table

Symbol Bore	E	KB	L	RR	T
φ32	□43	M6×1	19	□33	8
φ40	□49	M6×1	19	□37	8
φ50	□60	M6×1	19	□47	8
φ63	□74	M8×1.25	19	□56	8
φ80	□93	M10×1.25	32	□70	11
φ100	□110	M10×1.25	32	□84	11

CB style—CA accessory

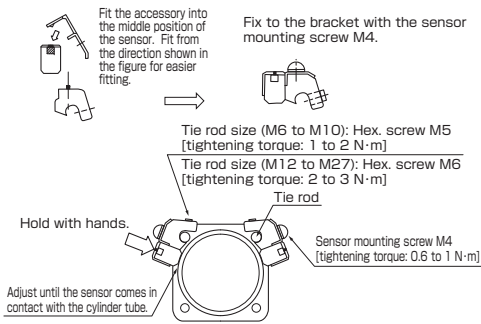


Dimensional Table

Symbol Bore	E	KB	L	RR	T
φ32	□43	M6×1	19	□33	8
φ40	□49	M6×1	19	□37	8
φ50	□60	M6×1	19	□47	10
φ63	□74	M8×1.25	19	□56	13
φ80	□93	M10×1.25	32	□70	18
φ100	□110	M10×1.25	32	□84	18

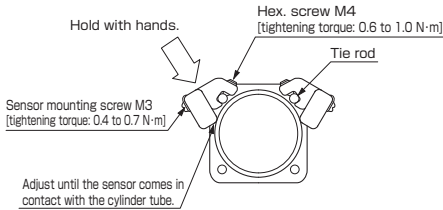
Setting method of sensor detecting position

AX type



1. Loosen the two hex. screws with a hex. wrench, and move them along the tie rod.
2. Adjust the detecting position (for the 2-LED type, the position where the green lamp lights up) 2 to 5 mm (about half of the operating range is appropriate) before the required position where the sensor indicator lamp starts to light up (ON). Then, gently hold the top of the sensor so that the cylinder tube contacts the detecting face of the sensor, and clamp the hex. screw to an appropriate tightening torque.
Note) Inappropriate tightening torque may cause the off-center of the sensor position.
3. The indicating lamp lights up when the sensor is set to the ON position.
4. Sensors can be mounted to any of four tie rods and on the most suitable position depending on the mounting space of the cylinder and wiring method.
5. Mount a sensor to the most suitable position to detect the stroke end with the "sensor mounting dimension" (dimension UX).

SR type



1. Loosen the two hex. screws with a hex. wrench, and move them along the tie rod.
2. Adjust the detecting position 2 to 5 mm (about half of the operating range is appropriate) before the required position where the sensor indicator lamp starts to light up (ON). Then, gently hold the top of the sensor so that the cylinder tube contacts the detecting face of the sensor, and clamp the hex. screw to an appropriate tightening torque.
Note) Inappropriate tightening torque may cause the off-center of the sensor position.
3. The indicating lamp goes out when the sensor is set to the ON position.
4. Sensors can be mounted to any of four tie rods and on the most suitable position depending on the mounting space of the cylinder and wiring method.
5. Mount a sensor to the most suitable position to detect the stroke end with the "sensor mounting dimension" (dimension UX).

Heavy duty pneumatic cylinders using rods having large diameters of 50 to 250 mm

- Larger rod dia. and rod end thread than 10A-2 Series.



Cylinder Specifications

Series Variation		10A-3	
Cylinder bore mm		φ50・φ63・φ80・φ100・φ125・φ160・φ180・φ200・φ250	
Working fluid		Air	
Lubrication		Unnecessary	
Working pressure range		0.1 to 1 MPa	
Proof test pressure		1.5 MPa	
Working speed range		50 to 700 mm/s	
Working temperature range		-10 to +70℃ (No freezing)	
Structure of cushioning		With cushions on both ends	
Cushion stroke		φ50・φ63 : 14 mm (rod side) 13 mm (cap side) φ80 : 15 mm (rod side/cap side) φ100・φ125 : 17 mm (rod side) 15 mm (cap side) φ160 to φ200: 20 mm (rod side/cap side) φ250 : 22 mm (rod side/cap side)	
Tolerance for thread		JIS6g/6H	
Tolerance of stroke		0 to 250 mm ^{+1.0} ₀ 251 to 1000 ^{+1.5} ₀ 1001 to 2000 ^{+2.0} ₀	
Mounting style		SD・LB・FA・FB・CA CB・CC・CD・TA・TC	
Accessories	Boots	Standard: Nylon tarpaulin Semi-standard: Chloroprene, Conex	
	Rod end attachments	Rod eye (T-end), rod clevis (Y-end) with pin	
	Others	CB/CD bracket, TA/TC bracket	

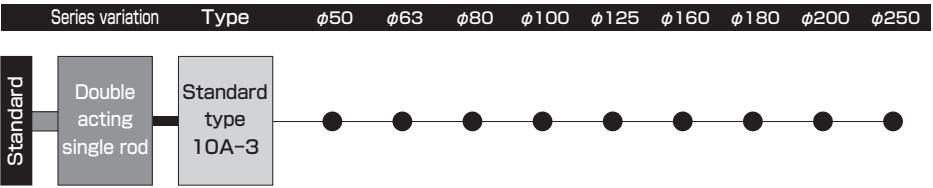
•Conex is the registered trademark of Teijin Limited.

Standard Stroke Range

Bore	φ 50・φ 63	φ 80・φ 100	φ 125 to φ 250
Stroke limit	1400	1800	2000

- The above strokes indicate the maximum available strokes for the standard type.
- For the rod buckling, check with the buckling chart in the selection materials.
- Contact us or longer strokes.

Product Lineup



Weight Table

Bore mm	Basic weight (SD style)	Additional weight per mm of stroke	Mounting accessory weight										Bracket weight		Rod end attachment weight	
			LB	FA	FB	CA	CC	CB	CD	TA	TC	CB	TA/TC	Rod eye (T-end)	Rod clevis (Y-end) with pin	
φ50	2.80	0.00779	0.36	0.40	0.50	0.26	—	0.30	—	0.19	0.55	0.66	1.06	0.21	0.41	
φ63	4.20	0.00945	0.46	0.55	0.65	0.42	—	0.39	—	0.19	0.70	0.66	1.06	0.21	0.41	
φ80	8.14	0.0135	0.86	1.36	1.59	1.08	—	0.80	—	0.19	1.16	1.97	1.47	0.62	1.06	
φ100	12.29	0.0178	1.12	1.60	2.20	1.39	—	1.05	—	0.19	1.53	1.97	1.47	0.62	1.06	
φ125	17.29	0.0340	2.00	2.39	2.58	0.57	2.59	0.76	2.86	0.19	2.20	2.60	3.05	1.24	1.47	
φ160	32.25	0.0421	3.22	4.96	5.48	1.35	6.18	1.82	6.73	0.57	4.95	7.80	8.15	2.40	3.32	
φ180	41.59	0.0549	5.69	6.70	7.22	1.25	9.04	1.72	9.73	0.57	6.00	7.80	8.15	2.40	3.32	
φ200	47.79	0.0591	6.12	7.78	8.30	1.25	10.18	1.72	10.86	0.57	6.30	7.80	8.15	2.40	3.32	
φ250	92.87	0.0755	8.38	14.36	15.70	3.23	20.10	4.22	21.30	1.12	10.50	16.65	15.50	4.62	5.83	

Calculation
formula

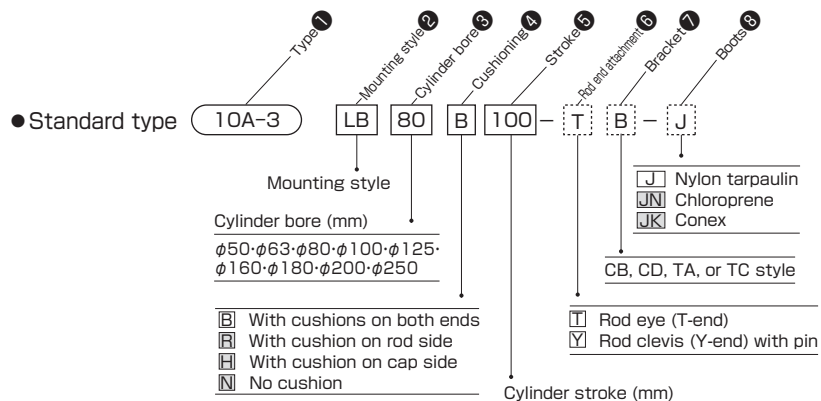
Cylinder weight (kg)=basic weight+(additional weight per mm of stroke×cylinder stroke (mm))
+mounting accessory weight

Calculation
example

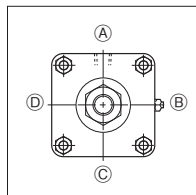
10A-3, bore φ100, cylinder stroke 100 mm, LB
12.29+(0.0178×100)+1.12=15.19kg

● How to order

The item enclosed by broken line needs not to be entered, if unnecessary. ■ Semi-standard specification



★ Standard specifications



- With cushions on both ends
- Port position (A), cushion valve position (B)

★ Change of port and cushion valve positions

The standard port position is (A), and the standard cushion valve position is (B).
When modifying the positions, enter the symbol shown in the dimensional drawing.

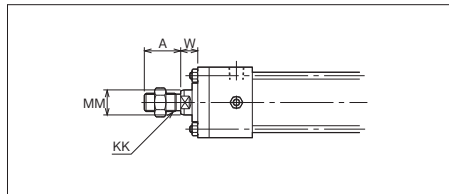
Example) 10A-3 SD63 B200-**B** **C**-B-J

Port position (A, B, C, D) Cushion valve position (A, B, C, D, O)

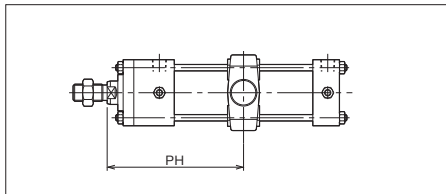
- For the TA style, the standard port position and cushion valve position are (A) and (C) on the rod side and (A) and (B) on the cap side.
- In case that the cushion is not equipped, the cushion valve position is "O".

★ Semi-standard range

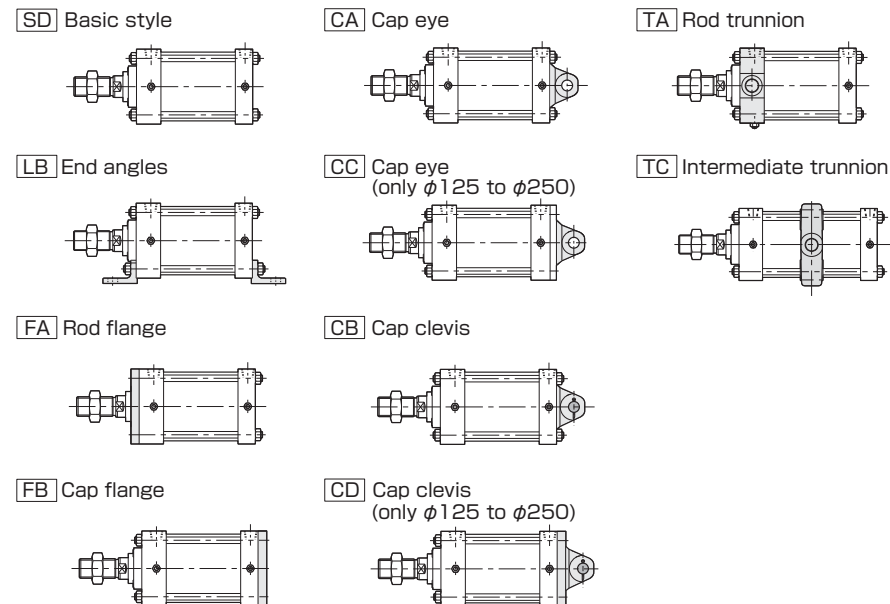
- With boots
- Change of piston rod end (W, WF, A, KK)



- Change of TC accessory position (dimensional symbol: PH)



Mounting Style

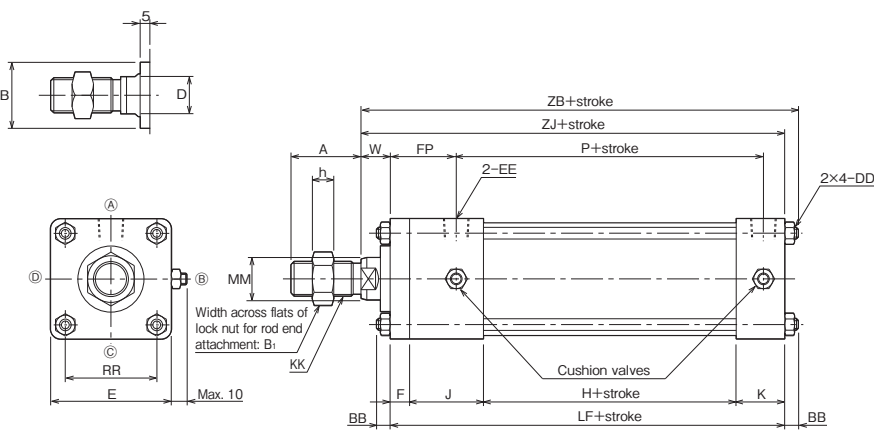


10A-3/TA3 Bore is available. CAD/DATA

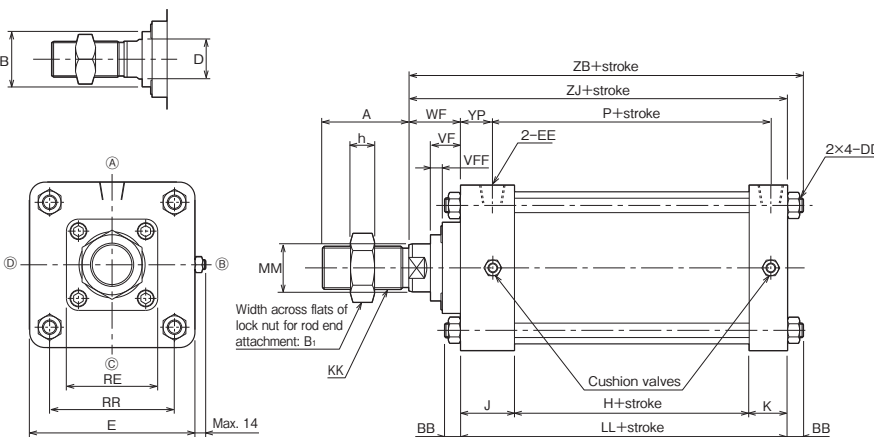
SD

10A-3 SD Bore B Stroke

• $\phi 50$ to $\phi 80$



• $\phi 100$ to $\phi 250$



Dimensional Table

Symbol	A	B	B ₁	BB	D	DD	E	EE	F	FP	H	h	J
Bore													
$\phi 50$	36(32)	$\phi 34$	24	7	19	M6×1	□62	Rc ¹ / ₄	10	34	30	11	38
$\phi 63$	36(32)	$\phi 34$	24	9	19	M8×1.25	□76	Rc ³ / ₈	10	34	33	11	38
$\phi 80$	44(40)	$\phi 39$	30	10	22	*M10×1.25	□94	Rc ³ / ₈	16	43	31	13	45
$\phi 100$	54(49)	$\phi 46$	36	10	27	*M10×1.25	□114	Rc ¹ / ₂	—	—	31	16	45
$\phi 125$	72(67)	$\phi 55$	50	13	36	*M12×1.5	□138	Rc ¹ / ₂	—	—	37	20	45
$\phi 160$	84(79)	$\phi 65$	60	16	46	*M16×1.5	□178	Rc ³ / ₄	—	—	43	22	50
$\phi 180$	84(79)	$\phi 65$	60	16	46	*M16×1.5	□200	Rc ³ / ₄	—	—	43	22	50
$\phi 200$	84(79)	$\phi 65$	60	16	46	*M16×1.5	□216	Rc ³ / ₄	—	—	43	22	50
$\phi 250$	112(107)	$\phi 85$	80	19	55	*M20×1.5	□270	Rc 1	—	—	55	30	57

Symbol	K	KK	LF	LL	MM	P	RE	RR	VF	VFF	W	WF	YP	ZB	ZJ
Bore															
$\phi 50$	25	M18×1.5	103	—	$\phi 22$	58	—	□47	—	—	15	—	—	125	118
$\phi 63$	25	M18×1.5	106	—	$\phi 22$	61	—	□56	—	—	15	—	—	130	121
$\phi 80$	32	M22×1.5	124	—	$\phi 25$	67	—	□70	—	—	19	—	—	153	143
$\phi 100$	32	M27×2	—	108	$\phi 32$	67	□65	□84	21	10	—	37	27	155	145
$\phi 125$	32	M36×2	—	114	$\phi 40$	73	□76	□104	25	10	—	43	27	170	157
$\phi 160$	38	M42×2	—	131	$\phi 50$	85	□94	□134	30	11	—	52	29	199	183
$\phi 180$	38	M42×2	—	131	$\phi 50$	85	□94	□156	30	11	—	52	29	199	183
$\phi 200$	38	M42×2	—	131	$\phi 50$	85	□94	□163	30	11	—	52	29	199	183
$\phi 250$	50	M56×2	—	162	$\phi 63$	109	□125	□202	33	10	—	60	30	241	222

* The parenthesized values of dimension A indicate the screw length.

Comparison of Screw Pitches of New and Old Tie Rods

Symbol	Dimension DD	
	Old	New
$\phi 80$	M10×1.5	M10×1.25
$\phi 100$	M10×1.5	M10×1.25
$\phi 125$	M12×1.75	M12×1.5
$\phi 160$	M16×2	M16×1.5
$\phi 180$	M16×2	M16×1.5
$\phi 200$	M16×2	M16×1.5
$\phi 250$	M20×2.5	M20×1.5

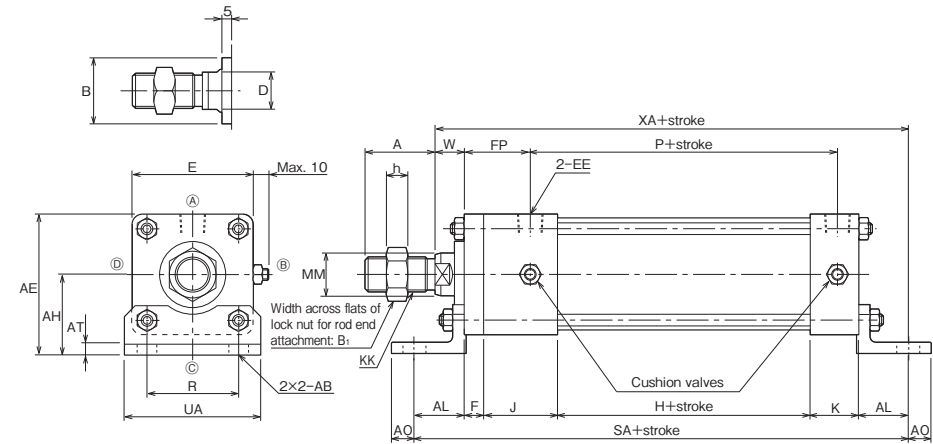
Note) A part of the screw pitches (dimension DD) of the tie rods have been changed from those shown in the 1996 catalog. The changed values are marked with *. If an SD style (basic style) cylinder is purchased and a tie rod is installed with the tie rod screw supplied with the cylinder or only a tie rod is purchased, the tie rod is not applicable to the old screw pitch. Before placing an order, sufficiently check the pitch. Implemented from shipment on Dec. 1, 1995 (From serial No.512)

10A-3/TA3 Bore is available. CAD/DATA is available.

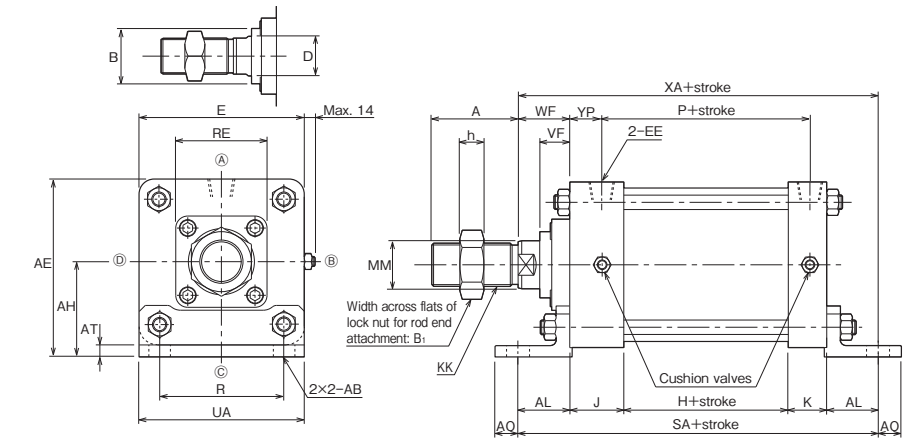
LB

10A-3 LB Bore B Stroke

• $\phi 50$ to $\phi 80$



• $\phi 100$ to $\phi 250$



Dimensional Table

Symbol Bore	A	AB	AE	AH	AL	AO	AT	B	B ₁	D	E	EE	F	FP	H
$\phi 50$	36(32)	$\phi 12$	72	41	26	12	6	$\phi 34$	24	19	$\square 62$	Rc ¹ / ₄	10	34	30
$\phi 63$	36(32)	$\phi 12$	86	48	28	12	6	$\phi 34$	24	19	$\square 76$	Rc ³ / ₈	10	34	33
$\phi 80$	44(40)	$\phi 14$	106	59	34	14	8	$\phi 39$	30	22	$\square 94$	Rc ³ / ₈	16	43	31
$\phi 100$	54(49)	$\phi 14$	123	66	34	14	8	$\phi 46$	36	27	$\square 114$	Rc ¹ / ₂	—	—	31
$\phi 125$	72(67)	$\phi 18$	148	79	43	18	10	$\phi 55$	50	36	$\square 138$	Rc ¹ / ₂	—	—	37
$\phi 160$	84(79)	$\phi 22$	187	98	50	22	10	$\phi 65$	60	46	$\square 178$	Rc ³ / ₄	—	—	43
$\phi 180$	84(79)	$\phi 22$	215	115	55	22	15	$\phi 65$	60	46	$\square 200$	Rc ³ / ₄	—	—	43
$\phi 200$	84(79)	$\phi 22$	226	118	55	22	15	$\phi 65$	60	46	$\square 216$	Rc ³ / ₄	—	—	43
$\phi 250$	112(107)	$\phi 26$	276	141	60	24	15	$\phi 85$	80	55	$\square 270$	Rc 1	—	—	55

Symbol Bore	h	J	K	KK	MM	P	R	RE	SA	UA	VF	W	WF	XA	YP
$\phi 50$	11	38	25	M18×1.5	$\phi 22$	58	47	—	155	70	—	15	—	144	—
$\phi 63$	11	38	25	M18×1.5	$\phi 22$	61	56	—	162	80	—	15	—	149	—
$\phi 80$	13	45	32	M22×1.5	$\phi 25$	67	70	—	192	97	—	19	—	177	—
$\phi 100$	16	45	32	M27×2	$\phi 32$	67	84	$\square 65$	176	114	21	—	37	179	27
$\phi 125$	20	45	32	M36×2	$\phi 40$	73	104	$\square 76$	200	138	25	—	43	200	27
$\phi 160$	22	50	38	M42×2	$\phi 50$	85	134	$\square 94$	231	178	30	—	52	233	29
$\phi 180$	22	50	38	M42×2	$\phi 50$	85	156	$\square 94$	241	200	30	—	52	238	29
$\phi 200$	22	50	38	M42×2	$\phi 50$	85	163	$\square 94$	241	216	30	—	52	238	29
$\phi 250$	30	57	50	M56×2	$\phi 63$	109	202	$\square 125$	282	270	33	—	60	282	30

* The parenthesized values of dimension A indicate the screw length.

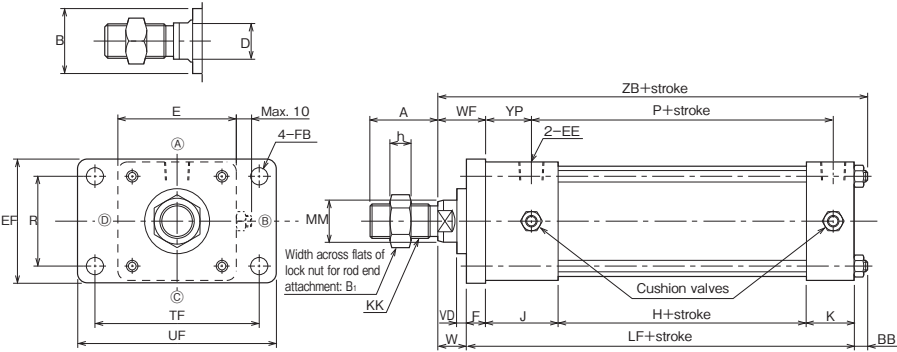
10A-3/TA3 Bore is available. CAD/DATA is available.



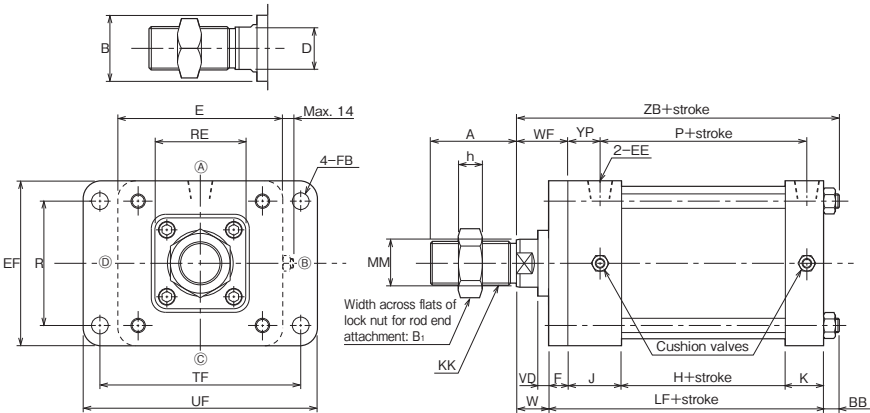
FA

10A-3 FA Bore B Stroke

• $\phi 50$ to $\phi 80$



• $\phi 100$ to $\phi 250$



Dimensional Table

Symbol Bore	A	B	B ₁	BB	D	E	EE	EF	F	FB	H	h	J
$\phi 50$	36(32)	$\phi 34$	24	7	19	$\square 62$	Rc ¹ / ₄	65	10	$\phi 9$	30	11	38
$\phi 63$	36(32)	$\phi 34$	24	9	19	$\square 76$	Rc ³ / ₈	76	10	$\phi 9$	33	11	38
$\phi 80$	44(40)	$\phi 39$	30	10	22	$\square 94$	Rc ³ / ₈	95	16	$\phi 12$	31	13	45
$\phi 100$	54(49)	$\phi 46$	36	10	27	$\square 114$	Rc ¹ / ₂	115	16	$\phi 12$	31	16	45
$\phi 125$	72(67)	$\phi 55$	50	13	36	$\square 138$	Rc ¹ / ₂	138	16	$\phi 14$	37	20	45
$\phi 160$	84(79)	$\phi 65$	60	16	46	$\square 178$	Rc ³ / ₄	178	20	$\phi 18$	43	22	50
$\phi 180$	84(79)	$\phi 65$	60	16	46	$\square 200$	Rc ³ / ₄	200	20	$\phi 18$	43	22	50
$\phi 200$	84(79)	$\phi 65$	60	16	46	$\square 216$	Rc ³ / ₄	216	20	$\phi 18$	43	22	50
$\phi 250$	112(107)	$\phi 85$	80	19	55	$\square 270$	Rc 1	270	25	$\phi 22$	55	30	57

Symbol Bore	K	KK	LF	MM	P	R	RE	TF	UF	VD	W	WF	YP	ZB
$\phi 50$	25	M18×1.5	103	$\phi 22$	58	47	—	86	104	5	15	25	24	125
$\phi 63$	25	M18×1.5	106	$\phi 22$	61	56	—	98	116	5	15	25	24	130
$\phi 80$	32	M22×1.5	124	$\phi 25$	67	70	—	119	143	5	19	35	27	153
$\phi 100$	32	M27×2	124	$\phi 32$	67	84	$\square 65$	138	162	5	21	37	27	155
$\phi 125$	32	M36×2	130	$\phi 40$	73	104	$\square 76$	168	196	9	27	43	27	170
$\phi 160$	38	M42×2	151	$\phi 50$	85	134	$\square 94$	212	248	10	32	52	29	199
$\phi 180$	38	M42×2	151	$\phi 50$	85	156	$\square 94$	234	270	10	32	52	29	199
$\phi 200$	38	M42×2	151	$\phi 50$	85	163	$\square 94$	250	286	10	32	52	29	199
$\phi 250$	50	M56×2	187	$\phi 63$	109	201	$\square 125$	312	356	8	35	60	30	241

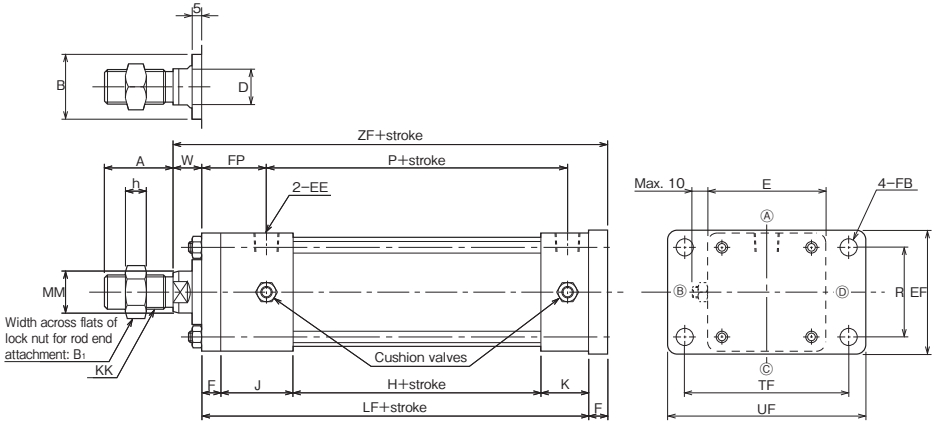
* The parenthesized values of dimension A indicate the screw length.

10A-3/TA3 Bore is available. 

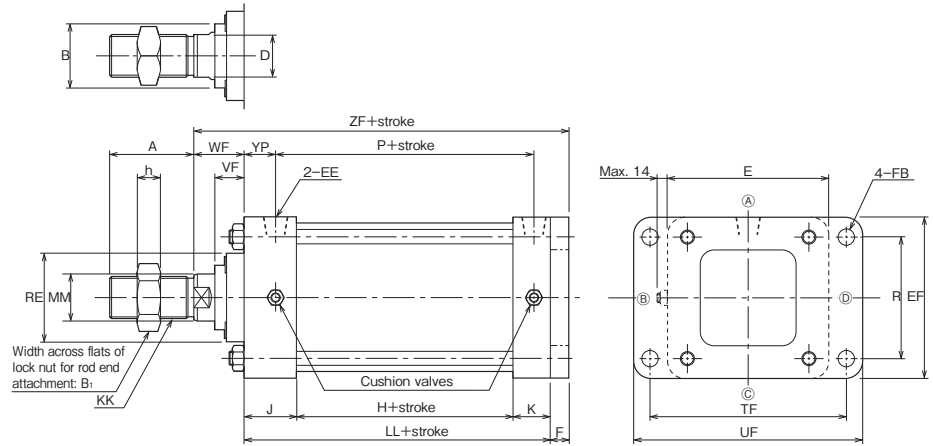
FB

10A-3 FB Bore B Stroke

● $\phi 50$ to $\phi 80$



● $\phi 100$ to $\phi 250$



Dimensional Table

Symbol Bore	A	B	B ₁	D	E	EE	EF	F	FB	FP	H	h	J
$\phi 50$	36(32)	$\phi 34$	24	19	$\square 62$	Rc ¹ / ₄	65	10	$\phi 9$	34	30	11	38
$\phi 63$	36(32)	$\phi 34$	24	19	$\square 76$	Rc ³ / ₈	76	10	$\phi 9$	34	33	11	38
$\phi 80$	44(40)	$\phi 39$	30	22	$\square 94$	Rc ³ / ₈	95	16	$\phi 12$	43	31	13	45
$\phi 100$	54(49)	$\phi 46$	36	27	$\square 114$	Rc ¹ / ₂	115	16	$\phi 12$	—	31	16	45
$\phi 125$	72(67)	$\phi 55$	50	36	$\square 138$	Rc ¹ / ₂	138	16	$\phi 14$	—	37	20	45
$\phi 160$	84(79)	$\phi 65$	60	46	$\square 178$	Rc ³ / ₄	178	20	$\phi 18$	—	43	22	50
$\phi 180$	84(79)	$\phi 65$	60	46	$\square 200$	Rc ³ / ₄	200	20	$\phi 18$	—	43	22	50
$\phi 200$	84(79)	$\phi 65$	60	46	$\square 216$	Rc ³ / ₄	216	20	$\phi 18$	—	43	22	50
$\phi 250$	112(107)	$\phi 85$	80	55	$\square 270$	Rc 1	270	25	$\phi 22$	—	55	30	57

Symbol Bore	K	KK	LF	LL	MM	P	R	RE	TF	UF	VF	W	WF	YP	ZF
$\phi 50$	25	M18×1.5	103	—	$\phi 22$	58	47	—	86	104	—	15	—	—	128
$\phi 63$	25	M18×1.5	106	—	$\phi 22$	61	56	—	98	116	—	15	—	—	131
$\phi 80$	32	M22×1.5	124	—	$\phi 25$	67	70	—	119	143	—	19	—	—	159
$\phi 100$	32	M27×2	—	108	$\phi 32$	67	84	$\square 65$	138	162	21	—	37	27	161
$\phi 125$	32	M36×2	—	114	$\phi 40$	73	104	$\square 76$	168	196	25	—	43	27	173
$\phi 160$	38	M42×2	—	131	$\phi 50$	85	134	$\square 94$	212	248	30	—	52	29	203
$\phi 180$	38	M42×2	—	131	$\phi 50$	85	156	$\square 94$	234	270	30	—	52	29	203
$\phi 200$	38	M42×2	—	131	$\phi 50$	85	163	$\square 94$	250	286	30	—	52	29	203
$\phi 250$	50	M56×2	—	162	$\phi 63$	109	201	$\square 125$	312	356	33	—	60	30	247

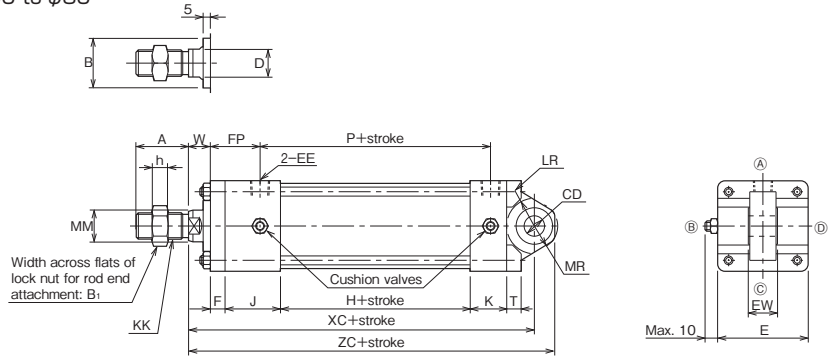
* The parenthesized values of dimension A indicate the screw length.

CAD/DATA
10A-3/TA3 Bore is available.

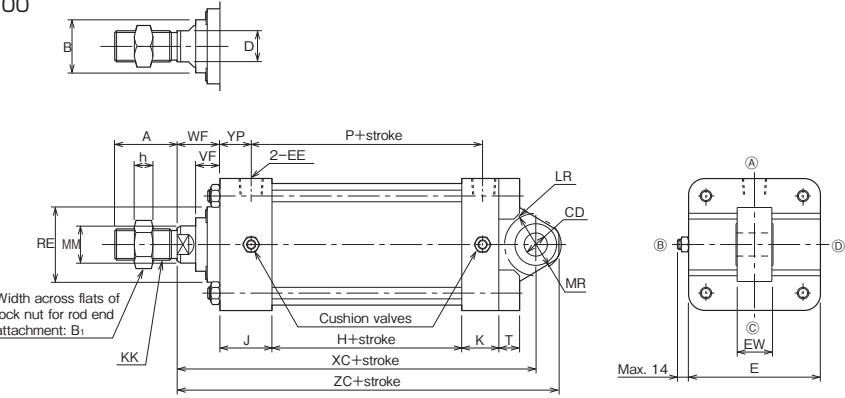
CA

10A-3 CA Bore B Stroke

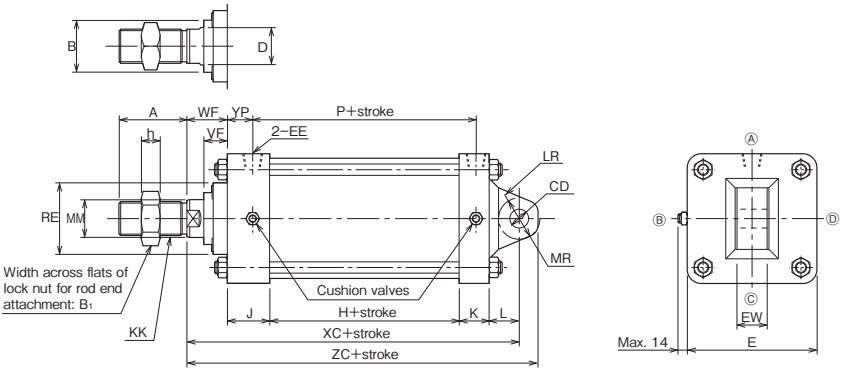
• $\phi 50$ to $\phi 80$



• $\phi 100$



• $\phi 125$ to $\phi 250$



Dimensional Table

Symbol	A	B	B ₁	CD	D	E	EE	EW	F	FP	H	h	J	K	KK
Bore															
$\phi 50$	36(32)	$\phi 34$	24	$\phi 14H9$	19	$\square 62$	Rc ¹ / ₄	20 ⁰ _{-0.084}	10	34	30	11	38	25	M18×1.5
$\phi 63$	36(32)	$\phi 34$	24	$\phi 14H9$	19	$\square 76$	Rc ³ / ₈	20 ⁰ _{-0.084}	10	34	33	11	38	25	M18×1.5
$\phi 80$	44(40)	$\phi 39$	30	$\phi 20H9$	22	$\square 94$	Rc ³ / ₈	32 ⁰ _{-0.100}	16	43	31	13	45	32	M22×1.5
$\phi 100$	54(49)	$\phi 46$	36	$\phi 20H9$	27	$\square 114$	Rc ¹ / ₂	32 ⁰ _{-0.100}	—	—	31	16	45	32	M27×2
$\phi 125$	72(67)	$\phi 55$	50	$\phi 20H9$	36	$\square 138$	Rc ¹ / ₂	32 ⁰ _{-0.100}	—	—	37	20	45	32	M36×2
$\phi 160$	84(79)	$\phi 65$	60	$\phi 28H9$	46	$\square 178$	Rc ³ / ₄	40 ⁰ _{-0.100}	—	—	43	22	50	38	M42×2
$\phi 180$	84(79)	$\phi 65$	60	$\phi 28H9$	46	$\square 200$	Rc ³ / ₄	40 ⁰ _{-0.100}	—	—	43	22	50	38	M42×2
$\phi 200$	84(79)	$\phi 65$	60	$\phi 28H9$	46	$\square 216$	Rc ³ / ₄	40 ⁰ _{-0.100}	—	—	43	22	50	38	M42×2
$\phi 250$	112(107)	$\phi 85$	80	$\phi 36H9$	55	$\square 270$	Rc 1	50 ⁰ _{-0.100}	—	—	55	30	57	50	M56×2

Symbol	L		LR		MM	MR	P	RE	T	VF	W	WF	XC		YP	ZC	
Bore	CA style	CC style	CA style	CC style									CA style	CC style		CA style	CC style
$\phi 50$	—	—	R19	—	$\phi 22$	R17	58	—	10	—	15	—	137	—	—	151	—
$\phi 63$	—	—	R19	—	$\phi 22$	R17	61	—	13	—	15	—	140	—	—	154	—
$\phi 80$	—	—	R26	—	$\phi 25$	R22	67	—	18	—	19	—	175	—	—	195	—
$\phi 100$	—	—	R27	—	$\phi 32$	R22	67	$\square 65$	18	21	—	37	177	—	27	197	—
$\phi 125$	32	36	R22	R26	$\phi 40$	R22	73	$\square 76$	14	25	—	43	189	207	27	209	227
$\phi 160$	38	44	R30	R32	$\phi 50$	R30	85	$\square 94$	20	30	—	52	221	247	29	249	275
$\phi 180$	38	44	R30	R32	$\phi 50$	R30	85	$\square 94$	25	30	—	52	221	252	29	249	280
$\phi 200$	38	44	R30	R32	$\phi 50$	R30	85	$\square 94$	25	30	—	52	221	252	29	249	280
$\phi 250$	54	58	R42	R46	$\phi 63$	R44	109	$\square 125$	30	33	—	60	276	310	30	312	346

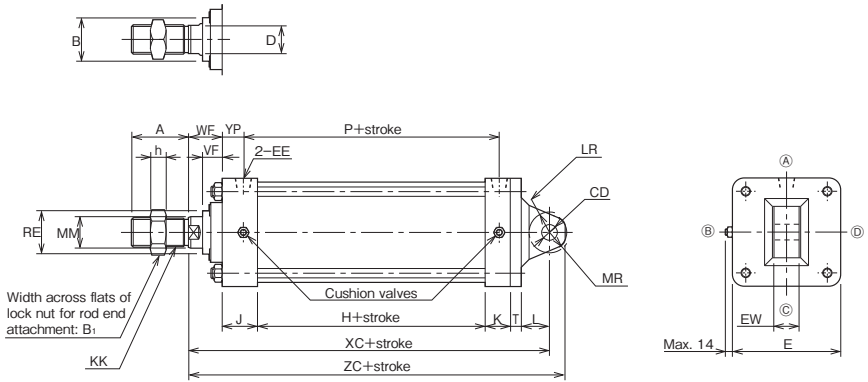
* The parenthesized values of dimension A indicate the screw length.

10A-3/TA3 Bore

CC

10A-3 CC Bore B Stroke

• $\phi 125$ to $\phi 250$

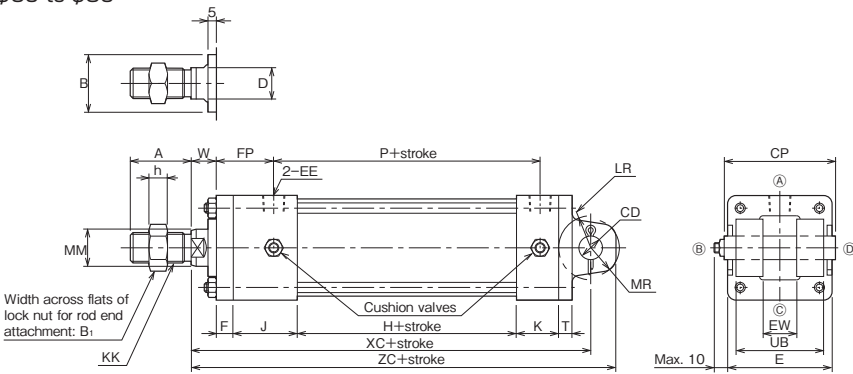


CAD/DATA
10A-3/TA3 is available.

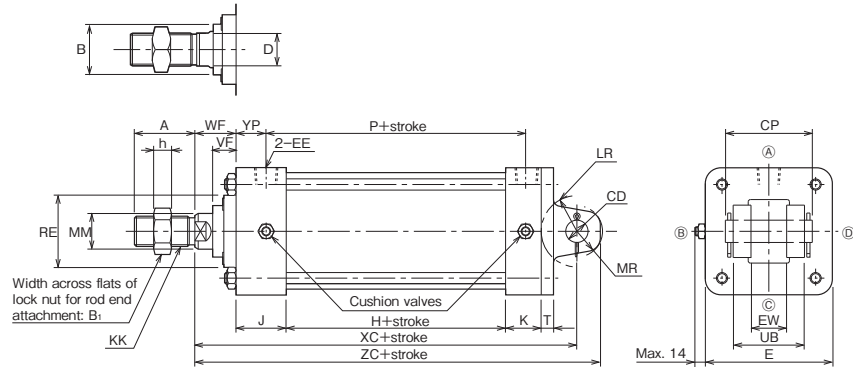
CB

10A-3 CB

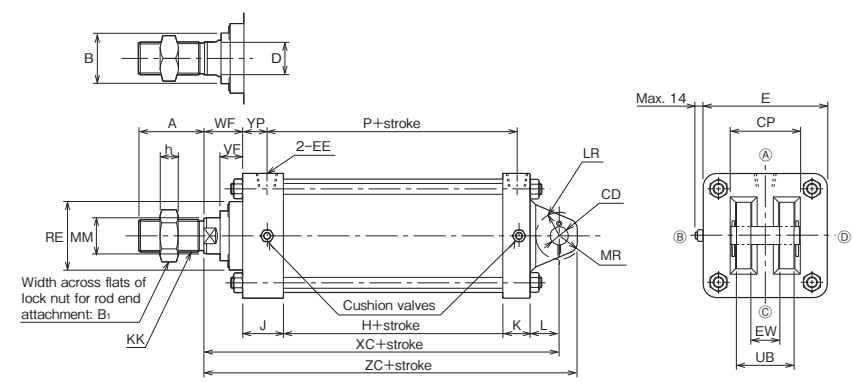
• $\phi 50$ to $\phi 80$



• $\phi 100$



• $\phi 125$ to $\phi 250$



Dimensional Table

Symbol	A	B	B ₁	CD	CP	D	E	EE	EW	F	FP	H	h	J	K	KK
Bore																
$\phi 50$	36(32)	$\phi 34$	24	$\phi 14^{+0.07}_{-0.05}$	66	19	$\square 62$	Rc ¹ / ₄	$20^{+0.7}_{+0.5}$	10	34	30	11	38	25	M18×1.5
$\phi 63$	36(32)	$\phi 34$	24	$\phi 14^{+0.07}_{-0.05}$	66	19	$\square 76$	Rc ³ / ₈	$20^{+0.7}_{+0.5}$	10	34	33	11	38	25	M18×1.5
$\phi 80$	44(40)	$\phi 39$	30	$\phi 20^{+0.07}_{-0.05}$	78	22	$\square 94$	Rc ³ / ₈	$32^{+0.7}_{+0.5}$	16	43	31	13	45	32	M22×1.5
$\phi 100$	54(49)	$\phi 46$	36	$\phi 20^{+0.07}_{-0.05}$	78	27	$\square 114$	Rc ¹ / ₂	$32^{+0.7}_{+0.5}$	—	—	31	16	45	32	M27×2
$\phi 125$	72(67)	$\phi 55$	50	$\phi 20^{+0.07}_{-0.05}$	78	36	$\square 138$	Rc ¹ / ₂	$32^{+0.7}_{+0.5}$	—	—	37	20	45	32	M36×2
$\phi 160$	84(79)	$\phi 65$	60	$\phi 28^{+0.08}_{-0.05}$	97	46	$\square 178$	Rc ³ / ₄	$40^{+0.8}_{+0.5}$	—	—	43	22	50	38	M42×2
$\phi 180$	84(79)	$\phi 65$	60	$\phi 28^{+0.08}_{-0.05}$	97	46	$\square 200$	Rc ³ / ₄	$40^{+0.8}_{+0.5}$	—	—	43	22	50	38	M42×2
$\phi 200$	84(79)	$\phi 65$	60	$\phi 28^{+0.08}_{-0.05}$	97	46	$\square 216$	Rc ³ / ₄	$40^{+0.8}_{+0.5}$	—	—	43	22	50	38	M42×2
$\phi 250$	112(107)	$\phi 85$	80	$\phi 36^{+0.08}_{-0.05}$	117	55	$\square 270$	Rc 1	$50^{+0.8}_{+0.5}$	—	—	55	30	57	50	M56×2

Symbol	L		LR	MM	MR	P	RE	T	UB	VF	W	WF	XC		YP	ZC	
Bore	CB style	CD style											CB style	CD style		CB style	CD style
$\phi 50$	—	—	R19	$\phi 22$	R18	58	—	8	52	—	15	—	137	—	—	152	—
$\phi 63$	—	—	R19	$\phi 22$	R18	61	—	8	52	—	15	—	140	—	—	155	—
$\phi 80$	—	—	R32	$\phi 25$	R23	67	—	11	64	—	19	—	175	—	—	196	—
$\phi 100$	—	—	R32	$\phi 32$	R23	67	$\square 65$	11	64	21	—	37	177	—	27	198	—
$\phi 125$	32	36	R26	$\phi 40$	R22	73	$\square 76$	14	64	25	—	43	189	207	27	209	227
$\phi 160$	38	44	R32	$\phi 50$	R30	85	$\square 94$	20	80	30	—	52	221	247	29	249	275
$\phi 180$	38	44	R32	$\phi 50$	R30	85	$\square 94$	25	80	30	—	52	221	252	29	249	280
$\phi 200$	38	44	R32	$\phi 50$	R30	85	$\square 94$	25	80	30	—	52	221	252	29	249	280
$\phi 250$	54	58	R46	$\phi 63$	R44	109	$\square 125$	30	100	33	—	60	276	310	30	312	346

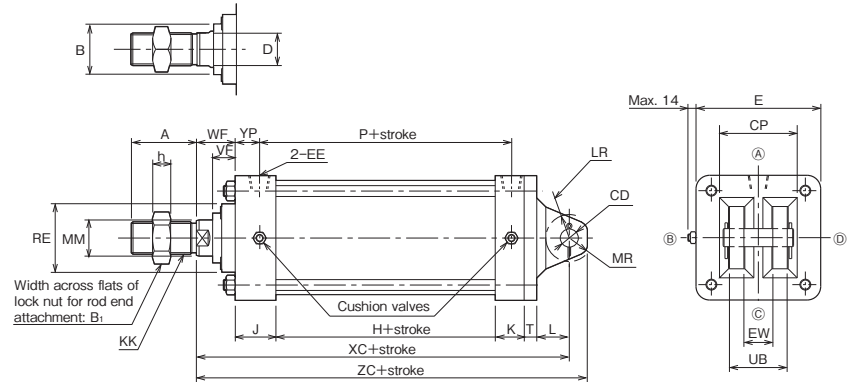
* The parentized values of dimension A indicate the screw length.

10A-3/TA3

CD

10A-3 CD

• $\phi 125$ to $\phi 250$

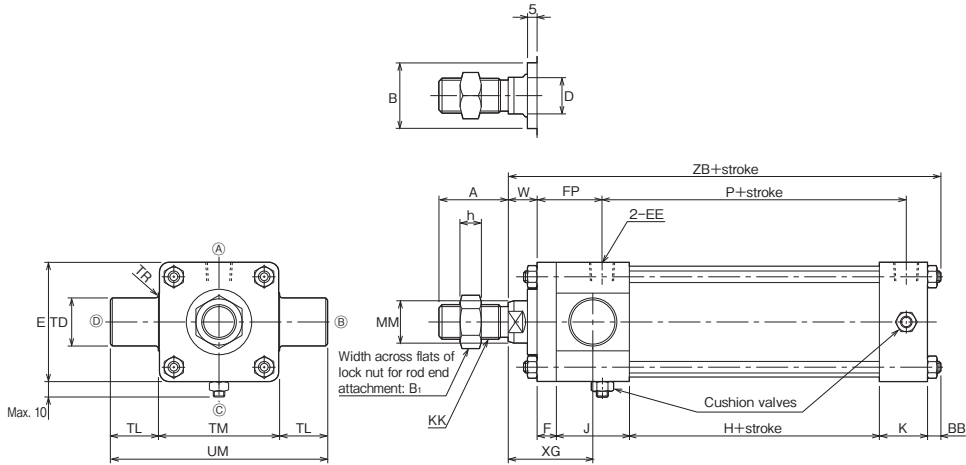


10A-3/TA3 Bore is available. 

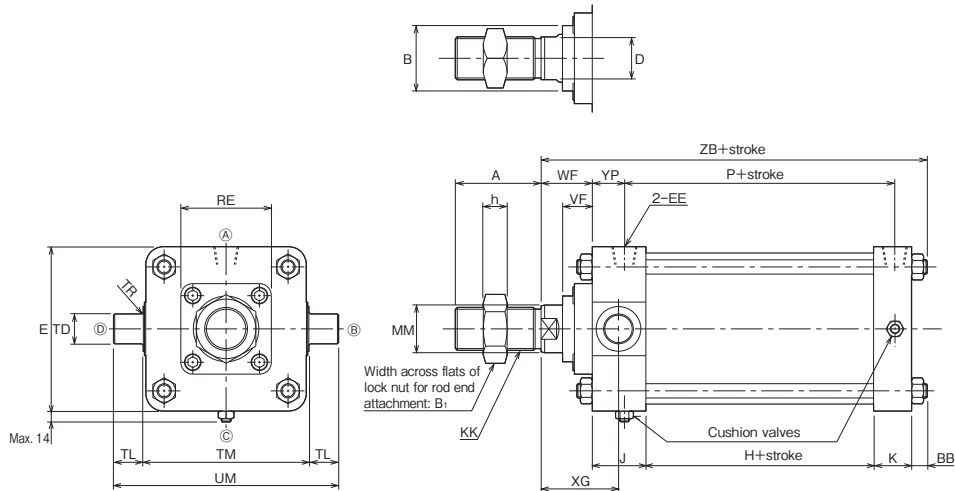
TA

10A-3 TA Bore B Stroke

• $\phi 50$ to $\phi 80$



• $\phi 100$ to $\phi 250$



Dimensional Table

Symbol Bore	A	B	B ₁	BB	D	E	EE	F	FP	H	h	J	K
$\phi 50$	36(32)	$\phi 34$	24	7	19	$\square 62$	Rc ¹ / ₄	10	34	30	11	38	25
$\phi 63$	36(32)	$\phi 34$	24	9	19	$\square 76$	Rc ³ / ₈	10	34	33	11	38	25
$\phi 80$	44(40)	$\phi 39$	30	10	22	$\square 94$	Rc ³ / ₈	16	43	31	13	45	32
$\phi 100$	54(49)	$\phi 46$	36	10	27	$\square 114$	Rc ¹ / ₂	—	—	31	16	45	32
$\phi 125$	72(67)	$\phi 55$	50	13	36	$\square 138$	Rc ¹ / ₂	—	—	37	20	45	32
$\phi 160$	84(79)	$\phi 65$	60	16	46	$\square 178$	Rc ³ / ₄	—	—	43	22	50	38
$\phi 180$	84(79)	$\phi 65$	60	16	46	$\square 200$	Rc ³ / ₄	—	—	43	22	50	38
$\phi 200$	84(79)	$\phi 65$	60	16	46	$\square 216$	Rc ³ / ₄	—	—	43	22	50	38
$\phi 250$	112(107)	$\phi 85$	80	19	55	$\square 270$	Rc 1	—	—	55	30	57	50

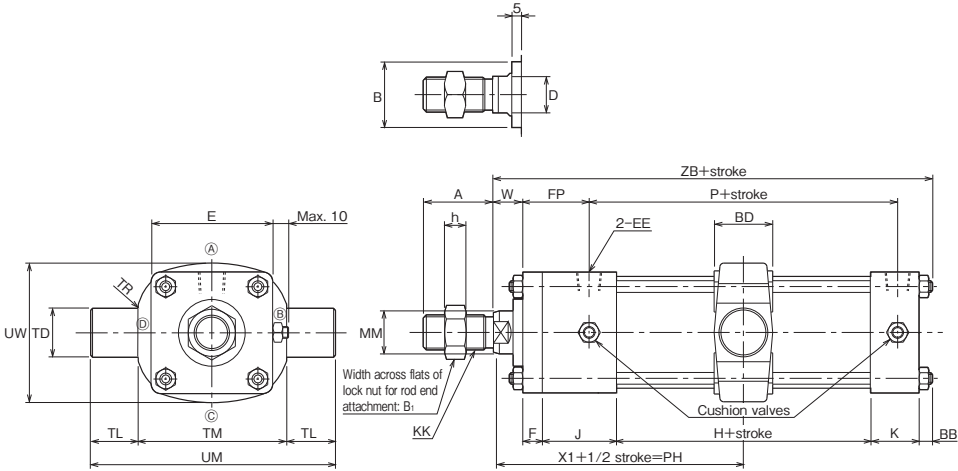
Symbol Bore	KK	MM	P	RE	TD	TL	TM	TR	UM	VF	W	WF	XG	YP	ZB
$\phi 50$	M18×1.5	$\phi 22$	58	—	$\phi 25e9$	25	63	R1.6	113	—	15	—	44	—	125
$\phi 63$	M18×1.5	$\phi 22$	61	—	$\phi 25e9$	25	76	R1.6	126	—	15	—	44	—	130
$\phi 80$	M22×1.5	$\phi 25$	67	—	$\phi 25e9$	25	95	R1.6	145	—	19	—	57	—	153
$\phi 100$	M27×2	$\phi 32$	67	$\square 65$	$\phi 25e9$	25	114	R2	164	21	—	37	59	27	155
$\phi 125$	M36×2	$\phi 40$	73	$\square 76$	$\phi 25e9$	25	139	R2	189	25	—	43	65	27	170
$\phi 160$	M42×2	$\phi 50$	85	$\square 94$	$\phi 36e9$	36	178	R2.5	250	30	—	52	77	29	199
$\phi 180$	M42×2	$\phi 50$	85	$\square 94$	$\phi 36e9$	36	200	R2.5	272	30	—	52	77	29	199
$\phi 200$	M42×2	$\phi 50$	85	$\square 94$	$\phi 36e9$	36	216	R2.5	288	30	—	52	77	29	199
$\phi 250$	M56×2	$\phi 63$	109	$\square 125$	$\phi 45e9$	45	270	R3	360	33	—	60	88	30	241

* The parenthesized values of dimension A indicate the screw length.

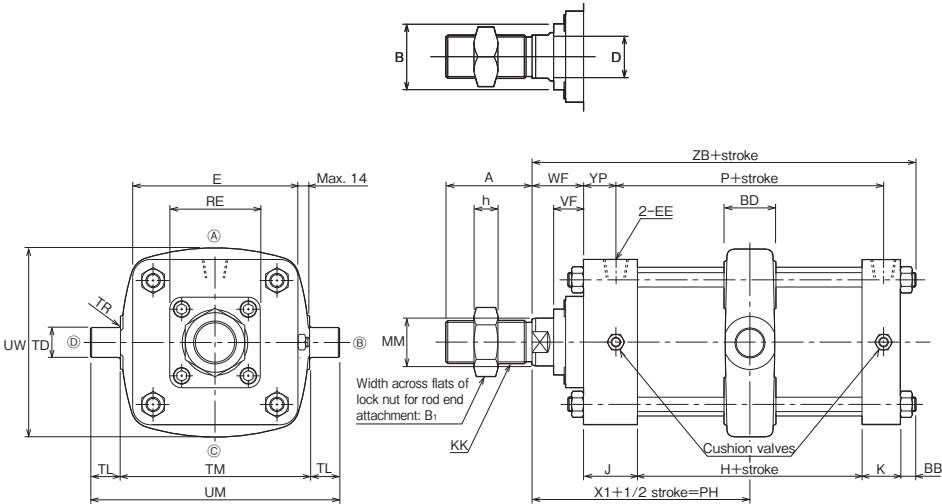
10A-3/TA3 Bore is available. CAD/DATA is available.

TC
10A-3 TC Bore B Stroke

• $\phi 50$ to $\phi 80$



• $\phi 100$ to $\phi 250$



Dimensional Table

Symbol Bore	A	B	B ₁	BB	BD	D	E	EE	F	FP	H	h	J	K	KK	MM
$\phi 50$	36(32)	$\phi 34$	24	7	30	19	$\square 62$	Rc 1/4	10	34	30	11	38	25	M18×1.5	$\phi 22$
$\phi 63$	36(32)	$\phi 34$	24	9	30	19	$\square 76$	Rc 3/8	10	34	33	11	38	25	M18×1.5	$\phi 22$
$\phi 80$	44(40)	$\phi 39$	30	10	35	22	$\square 94$	Rc 3/8	16	43	31	13	45	32	M22×1.5	$\phi 25$
$\phi 100$	54(49)	$\phi 46$	36	10	40	27	$\square 114$	Rc 1/2	—	—	31	16	45	32	M27×2	$\phi 32$
$\phi 125$	72(67)	$\phi 55$	50	13	43	36	$\square 138$	Rc 1/2	—	—	37	20	45	32	M36×2	$\phi 40$
$\phi 160$	84(79)	$\phi 65$	60	16	53	46	$\square 178$	Rc 3/4	—	—	43	22	50	38	M42×2	$\phi 50$
$\phi 180$	84(79)	$\phi 65$	60	16	53	46	$\square 200$	Rc 3/4	—	—	43	22	50	38	M42×2	$\phi 50$
$\phi 200$	84(79)	$\phi 65$	60	16	53	46	$\square 216$	Rc 3/4	—	—	43	22	50	38	M42×2	$\phi 50$
$\phi 250$	112(107)	$\phi 85$	80	19	58	55	$\square 270$	Rc 1	—	—	55	30	57	50	M56×2	$\phi 63$

Symbol Bore	P	Min. PH	TC style min. stroke	RE	TD	TL	TM	TR	UM	UW	VF	W	WF	XI	YP	ZB
$\phi 50$	58	78	3	—	$\phi 25e9$	25	76	R1.6	126	71	—	15	—	78	—	125
$\phi 63$	61	78	0	—	$\phi 25e9$	25	88	R1.6	138	86	—	15	—	79.5	—	130
$\phi 80$	67	98	7	—	$\phi 25e9$	25	114	R1.6	164	104	—	19	—	95.5	—	153
$\phi 100$	67	102	12	$\square 65$	$\phi 25e9$	25	132	R2	182	128	21	—	37	97.5	27	155
$\phi 125$	73	110	9	$\square 76$	$\phi 25e9$	25	158	R2	208	158	25	—	43	106.5	27	170
$\phi 160$	85	129	13	$\square 94$	$\phi 36e9$	36	200	R2.5	272	200	30	—	52	123.5	29	199
$\phi 180$	85	129	13	$\square 94$	$\phi 36e9$	36	228	R2.5	300	228	30	—	52	123.5	29	199
$\phi 200$	85	129	13	$\square 94$	$\phi 36e9$	36	246	R2.5	318	246	30	—	52	123.5	29	199
$\phi 250$	109	146	6	$\square 125$	$\phi 45e9$	45	304	R3	394	304	33	—	60	144.5	30	241

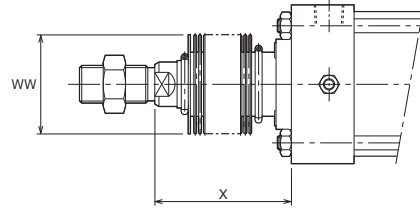
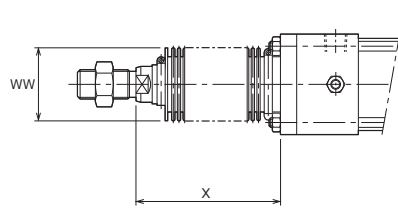
* The parenthesized values of dimension A indicate the screw length.

10A-3/TA3 Bore K CAD/DATA is available. 

With Boots

● $\phi 50$ to $\phi 80$

● $\phi 100$ to $\phi 250$



Lock Nut Part Number

Bore	Part number
$\phi 50 \cdot \phi 63$	LNA-18Z-A
$\phi 80$	LNA-22Z-A
$\phi 100$	LNA-27Z-A
$\phi 125$	LNA-36Z-A
$\phi 160 \cdot \phi 180 \cdot \phi 200$	LNA-42Z-A
$\phi 250$	LNA-56Z-A

- (Notes)
- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
 - Conex is the registered trademark of Teijin Limited.
 - If the calculated value has a fractional part, round it up.
 - The boots have been mounted at our factory prior to delivery.
 - Dimension X is the distance from the cover end. When using the FA accessory, check dimension carefully. (On 50 to 80 mm bore cylinders, the distance is measured from the retainer end face.)
 - Note that the seal housings of 32 to 80 mm bore cylinders with boots differ from those of standard type cylinders.

Dimensional Table/With boots (nylon tarpaulin/chloroprene)

Symbol Bore	WW	X (standard strokes)												X (other than standard strokes)
		50	75	100	125	150	200	250	300	350	400	450	500	Nylon tarpaulin/chloroprene
φ50	φ45	72	80	89	97	105	122	139	155	172	189	205	222	1/3 stroke+55
φ63	φ45	72	80	89	97	105	122	139	155	172	189	205	222	
φ80	φ60	78	84	90	97	103	115	128	140	153	165	178	190	
φ100	φ71	86	92	98	105	111	123	136	148	161	173	186	198	1/4 stroke+73
φ125	φ80	88	94	100	107	113	125	138	150	163	175	188	200	1/4 stroke+75
φ160	φ100	98	104	110	117	123	135	148	160	173	185	198	210	1/4 stroke+85
φ180	φ100	98	104	110	117	123	135	148	160	173	185	198	210	
φ200	φ100	98	104	110	117	123	135	148	160	173	185	198	210	
φ250	φ125	103	109	115	122	128	140	153	165	178	190	203	215	1/4 stroke+90

Dimensional Table/With boots (Conex)

Symbol Bore	WW	X (standard strokes)												X (other than standard strokes)
		50	75	100	125	150	200	250	300	350	400	450	500	Conex
φ50	φ61	75	85	95	105	115	135	155	175	195	215	235	255	1/2.5 stroke+55
φ63	φ61	75	85	95	105	115	135	155	175	195	215	235	255	
φ80	φ61	82	90	99	107	115	132	149	165	182	199	215	232	
φ100	φ71	90	98	107	115	123	140	157	173	190	207	223	240	1/3 stroke+73
φ125	φ80	92	100	109	117	125	142	159	175	192	209	225	242	1/3 stroke+75
φ160	φ100	102	110	119	127	135	152	169	185	202	219	235	252	1/3 stroke+85
φ180	φ100	102	110	119	127	135	152	169	185	202	219	235	252	
φ200	φ100	102	110	119	127	135	152	169	185	202	219	235	252	
φ250	φ125	107	115	124	132	140	157	174	190	207	224	240	257	1/3 stroke+90

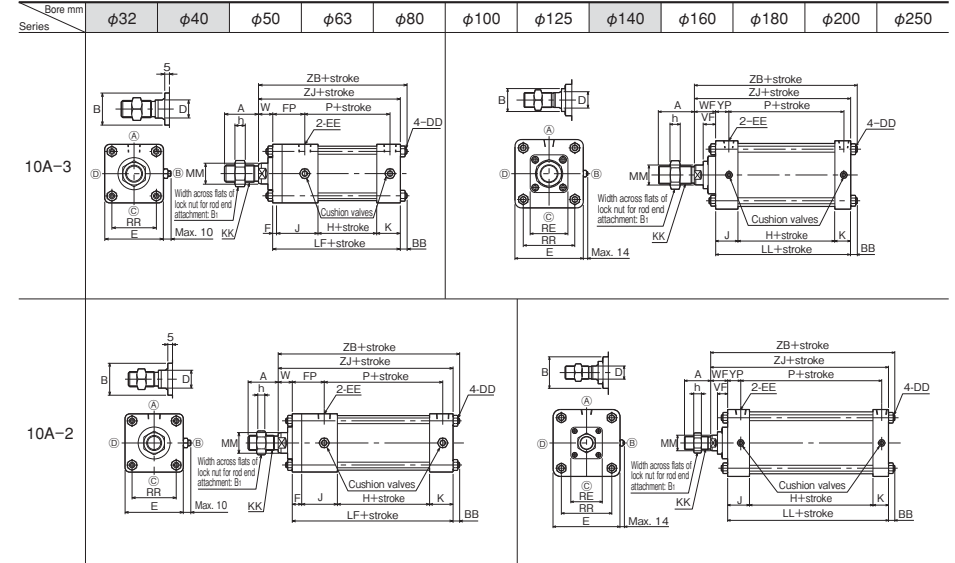
Information

Differences between 10A-3 and 10A-2

- 10A-3 cylinders are more heavy duty type cylinders having thicker piston rods than those of 10A-2.

Appearance

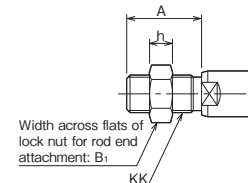
10A-3 Series cylinders marked with are not available.



Differences in Rod Diameter and Rod End Screw Diameter

Series	Item	Dimension symbol	Bore mm											
			$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$	$\phi 125$	$\phi 140$	$\phi 160$	$\phi 180$	$\phi 200$	$\phi 250$
10A-3	Rod dia.	MM	—	—	$\phi 22$	$\phi 22$	$\phi 25$	$\phi 32$	$\phi 40$	—	$\phi 50$	$\phi 50$	$\phi 50$	$\phi 63$
	Rod end thread dia.	KK	—	—	M18×1.5	M18×1.5	M22×1.5	M27×2	M36×2	—	M42×2	M42×2	M42×2	M56×2
10A-2	Rod dia.	MM	$\phi 12$	$\phi 16$	$\phi 22$	$\phi 22$	$\phi 25$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 40$	$\phi 40$	$\phi 40$	$\phi 45$
	Rod end thread dia.	KK	M10×1.25	M12×1.25	M16×1.5	M16×1.5	M20×1.5	M20×1.5	M27×2	M36×2	M36×2	M36×2	M36×2	M42×2

The following dimensions vary depending on the bore.



Other Differences

	Difference
$\phi 50$ to $\phi 80$	Same dimensions as 10A-2 Series
$\phi 100$ to $\phi 250$	- Body overall length (dimensional symbol: LL (only $\phi 100$)) - Rod diameter (dimensional symbol: MM, D, B) - Rod protrusion (dimensional symbol: WF, VF, ZB, ZJ)

- The securing method of 100 mm bore cylinders was changed from the retainer which is secured from tie rod nuts to hex bolts.

The mounting accessories for 10A-3 and 10A-2 are interchangeable.

CAD/DATA
10A-3/TA3  is available. 

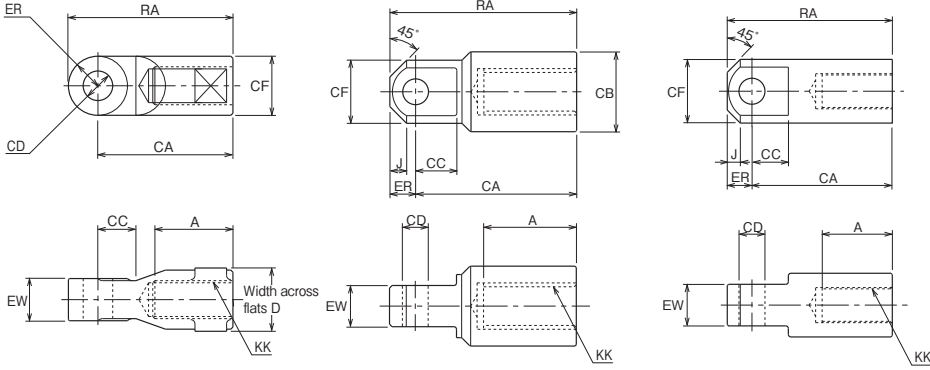
Rod End Attachment

● Rod eye (T-end)

● $\phi 50$ to $\phi 80$

● $\phi 125$

● $\phi 100 \cdot \phi 160$ to $\phi 250$

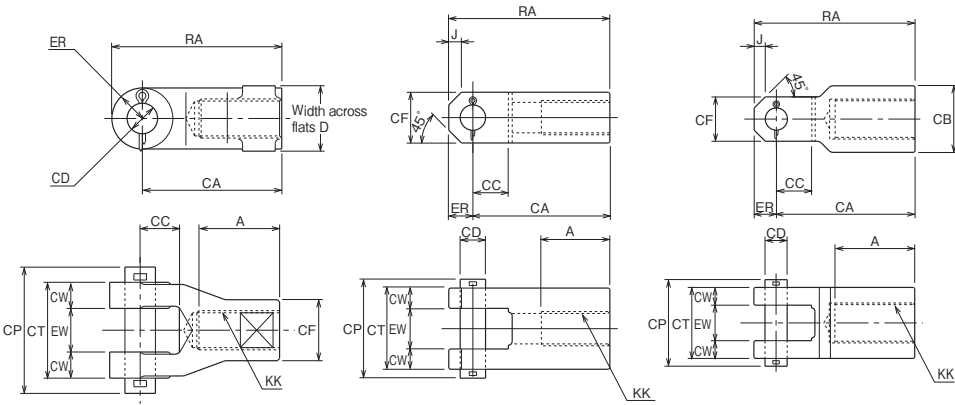


● Rod clevis (Y-end) with pin

● $\phi 50$ to $\phi 80$

● $\phi 100 \cdot \phi 250$

● $\phi 125$ to $\phi 200$



Dimensional Table/Rod eye (T-end)

Symbol Bore	Part number	A	CA	CB	CC	CD	CF	D	ER	EW	J	KK	RA
$\phi 50$	RTA-18-A	37	64	—	18	$\phi 14H9$	$\phi 28$	30	R14	$20_{-0.1}^0$	—	M18×1.5	78
$\phi 63$													
$\phi 80$	RTA-22-A	45	100	—	30	$\phi 20H9$	$\phi 38$	41	R19	$32_{-0.1}^0$	—	M22×1.5	119
$\phi 100$	RTA-27-1-A	54	108	—	28	$\phi 20H9$	$\phi 49$	—	19	$32_{-0.1}^0$	10	M27×2	127
$\phi 125$	RTA-36-1-A	72	125	$\phi 62$	32	$\phi 20H9$	$\phi 49$	—	20	$32_{-0.1}^0$	13	M36×2	145
$\phi 160$	RTA-42-1-A	84	140	—	33	$\phi 28H9$	$\phi 62$	—	28	$40_{-0.1}^0$	18	M42×2	168
$\phi 180$													
$\phi 200$													
$\phi 250$	RTA-56-A	110	188	—	48	$\phi 36H9$	$\phi 79$	—	36	$50_{-0.1}^0$	20	M56×2	224

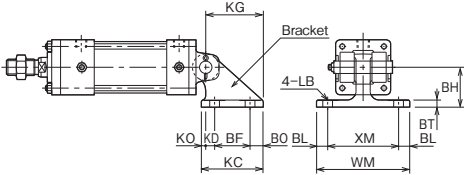
Dimensional Table/Rod clevis (Y-end) with pin

Symbol Bore	Part number	A	CA	CB	CC	CD	CF	CP	CT	CW	D	ER	EW	J	KK	RA
$\phi 50$	RYA-18-A	37	64	—	18	$\phi 14_{+0.018}^{H9}$	$\phi 28$	58	44	12	30	R14	$20_{+0.5}^{+1.5}$	—	M18×1.5	78
$\phi 63$																
$\phi 80$	RYA-22-A	45	100	—	28	$\phi 20_{+0.018}^{H9}$	$\phi 38$	78	64	16	41	R19	$32_{+0.5}^{+1.5}$	—	M22×1.5	119
$\phi 100$	RYA-27-1-A	54	108	—	28	$\phi 20_{+0.018}^{H9}$	40	78	64	16	—	19	$32_{+0.5}^{+1.5}$	10	M27×2	127
$\phi 125$	RYA-36-1-A	72	125	60	32	$\phi 20_{+0.018}^{H9}$	40	78	64	16	—	20	$32_{+0.5}^{+1.5}$	10	M36×2	145
$\phi 160$	RYA-42-1-A	84	140	60	33	$\phi 28_{+0.018}^{H9}$	54	97	80	20	—	28	$40_{+0.5}^{+1.5}$	16	M42×2	168
$\phi 180$																
$\phi 200$																
$\phi 250$	RYA-56-A	110	188	—	48	$\phi 36_{+0.018}^{H9}$	80	117	100	25	—	36	$50_{+0.5}^{+1.5}$	23	M56×2	224

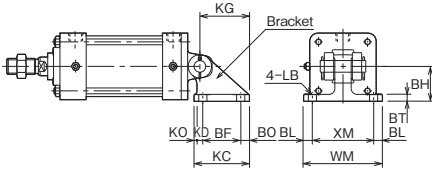
CAD/DATA
10A-3/TA3 Bore K is available. 

Bracket
●CB/CD bracket

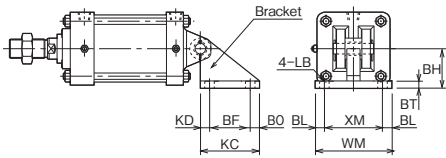
●φ50 to φ80



●φ100

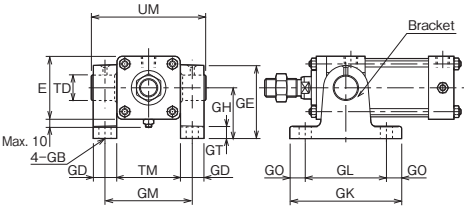


●φ125 to φ250

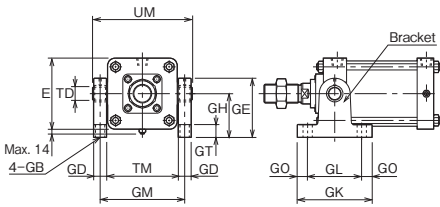


●TA bracket

●φ50 to φ80

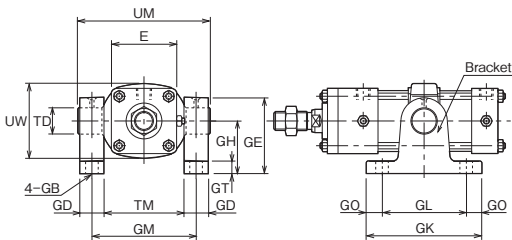


●φ100 to φ250

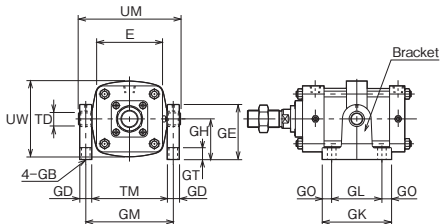


●TC bracket

●φ50 to φ80



●φ100 to φ250



Dimensional Table/CB/CD bracket

Symbol Bore	Part number	BF	BH	BL	BO	BT	KC	KD	KG	KO	LB	WM	XM
φ50	BCA-14-A	40	45	12.5	15	8	70	10	65	5	φ11	105	80
φ63													
φ80	BCA-20-A	65	60	15	16.5	12	98	5	85	10	φ14	135	105
φ100													
φ125	BCA-20-1-A	77	75	17.5	17.5	14	112	17.5	—	—	φ18	145	110
φ160	BCA-28-A	120	115	22.5	22.5	23	165	22.5	—	—	φ22	175	130
φ180													
φ200													
φ250	BCA-36-A	165	140	25	25	28	215	25	—	—	φ26	220	170

Dimensional Table/TA/TC bracket

Symbol Bore	Part number	E	GB	GD	GE	GH	GK	GL	GM		GO	GT	TD	TM		UM		UW
									TA type	TC type				TA type	TC type	TA type	TC type	
φ50	BTA-25-A	62 76	φ12	23	72	50	110	80	86	99	15	12	φ25 ^{H9/g9}	63	76	113	126	71
φ63									99	111				76	88	126	138	86
φ80	BTA-25-1-A	94 114	φ14	23	92	70	120	85	118	137	17.5	14	φ25 ^{H9/g9}	95	114	145	164	104
φ100									137	155				114	132	164	182	128
φ125	BTA-25-2-A	138	φ18	25	115	85	145	105	164	183	20	25	φ25 ^{H9/g9}	139	158	189	208	158
φ160	BTA-36-A	178	φ22	36	170	130	185	140	214	236	22.5	25	φ36 ^{H9/g9}	178	200	250	272	200
φ180		200							236	264				200	228	272	300	228
φ200		216							252	282				216	246	288	318	246
φ250	BTA-45-A	270	φ26	45	210	160	215	165	315	349	25	32	φ45 ^{H9/g9}	270	304	360	394	304

The largest bore size (280 to 400mm) in general cylinders. The piston and rod seal used on U seals that has durable specification.

- Conforming to ISO Standards
- (The 320 mm bore cylinders conform to ISO Standards. The cylinders with other bores are manufactured in accordance with similar standards.)



Cylinder Specifications

Type	Standard type
Cylinder bore (mm)	φ 280 · φ 320 · φ 360 · φ 400
Working fluid	Air
Lubrication	Necessary [JIS K2213 Class 1 (additive-free turbine oil ISO VG32) or its equivalent]
Working pressure range	0.1 to 1 MPa
Proof test pressure	1.6 MPa
Note 1) Working speed range	50 to 500 mm/s
Working temperature range	−10 to +70℃ (No freezing)
Structure of cushioning	With cushions on both ends
Cushion stroke (cushion ring length)	φ 280 · φ 320 : 25mm φ 360 · φ 400 : 30mm
Tolerance for thread	JIS 6g/6H
Tolerance of stroke	0 to 100mm ^{+0.8} ₀ 101 to 250mm ^{+1.0} ₀ 251 to 630mm ^{+1.25} ₀ 631 to 1,000mm ^{+1.4} ₀ 1,001 to 1,600mm ^{+1.6} ₀ 1,601 to 2,000mm ^{+1.8} ₀
Mounting style	LB · FA · FB · CA · TC
Accessories	Note 2) Boots Standard: Nylon tarpaulin Semi-standard: Chloroprene, Conex
	Rod end attachments Rod eye (T-end), rod clevis (Y-end) with pin
	Others Lock nut

Note 1) If the speed is less than this lower limit, chattering or jerking may be caused. If the speed exceeds this upper limit, the seals may wear earlier.

Note 2) Conex is the registered trademark of Teijin Limited.

Standard Stroke Range

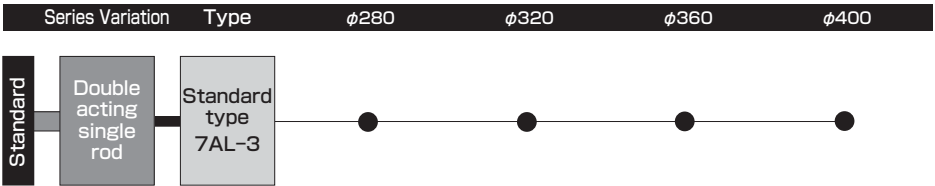
Unit: mm

Bore	φ 280	φ 320	φ 360	φ 400
Stroke limit	2000	2000	2000	2000

- The above strokes indicate the maximum available strokes for the standard type.
- For the rod buckling, check with the buckling chart in the selection materials. Contact us for longer strokes.

Product Lineup

Unit: mm



Weight Table

Unit: kg

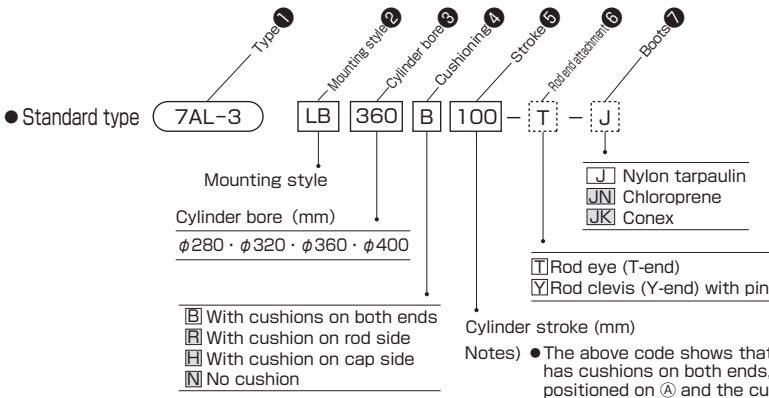
Bore (mm)	Basic weight	Additional weight per mm of stroke	Mounting accessory weight				Rod end attachment weight	
			LB	FA·FB	CA	TC	Rod eye (T-end)	Rod clevis (Y-end) with pin
φ280	115.6	0.104	23.4	4.9	5.0	18.6	7.0	9.0
φ320	148.6	0.127	29.0	5.9	5.0	23.6	7.0	9.0
φ360	217.1	0.152	53.2	9.0	8.8	35.5	12.0	17.0
φ400	266.6	0.161	62.0	10.2	8.8	43.5	12.0	17.0

Calculation formula Cylinder weight (kg)=basic weight+(additional weight per mm of stroke×cylinder stroke (mm)) +mounting accessory weight+rod end attachment weight

Calculation example 7AL-2, bore φ360, cylinder stroke 300 mm, CA
217.1+(0.152×300)+8.8=271.5kg

● How to order

The item enclosed by broken line needs not to be entered, if unnecessary. ■ Semi-standard specification

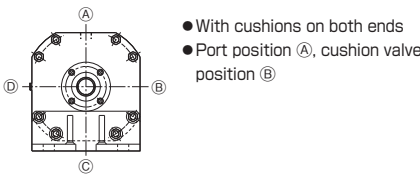


Notes) ● The above code shows that the cylinder has cushions on both ends, the port is positioned on ④ and the cushion valve is positioned on ⑥. In case that the cushion is not equipped (N), the cushion valve position is "⑥".

● Pressure vessels with a cylinder inner volume of 0.04 m³ or more at the actual gauge pressure are subject to the standard for class 2 pressure vessels.

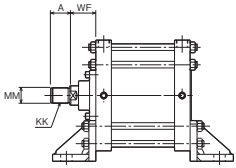
● Conex is the registered trademark of Teijin Limited.

★ Standard specifications



★ Semi-standard range

- Change of piston rod end (dimensional symbol: WF, A, KK)
- When the lock nut is provided, dimension A is increased. (See the accessories.)



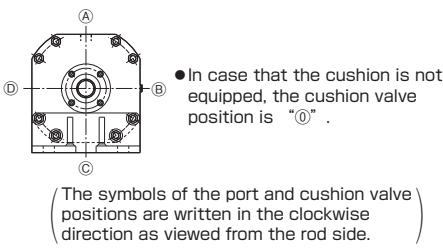
★ Change of port and cushion valve positions

The standard port position is ④, and the standard cushion valve position is ⑥. When modifying the positions, enter the symbol shown in the dimensional drawing.

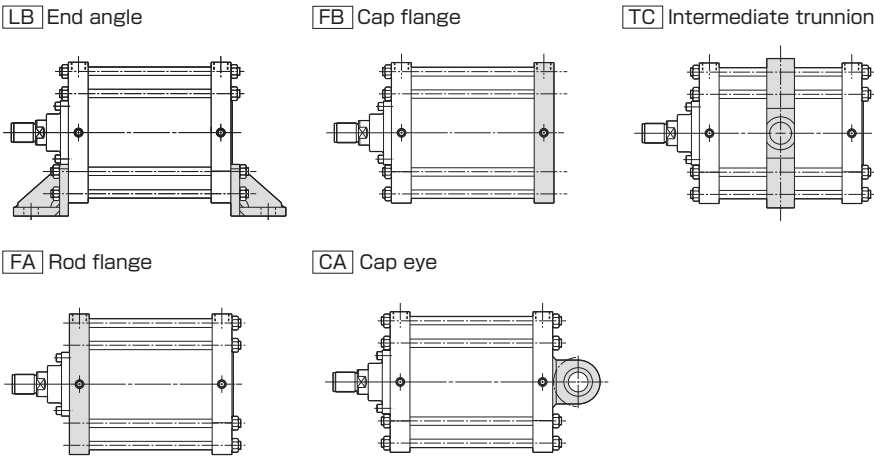
Example) 7AL-3 LB360B500- B D -J

Port position (A, B, C, D)

Cushion valve position (A, B, C, D, O)

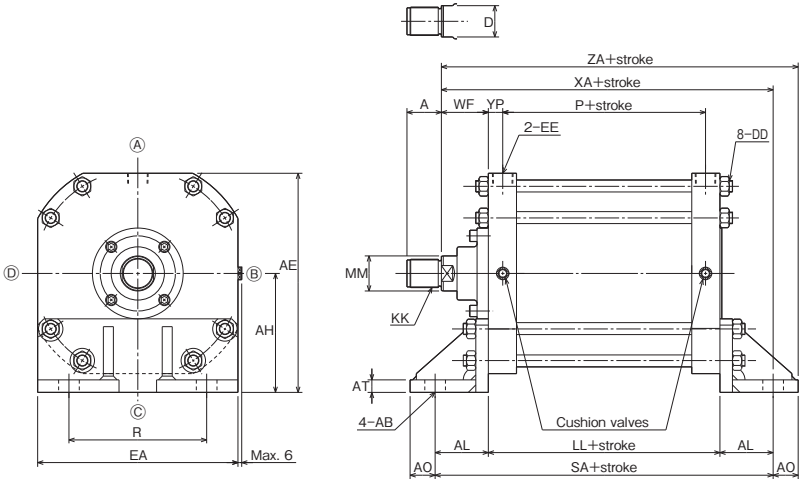


Mounting Style

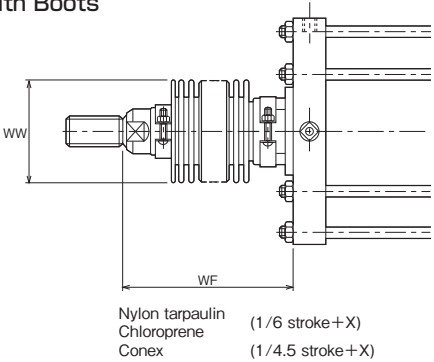


LB

7AL-3 LB Bore B Stroke



With Boots



	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	130°C	200°C

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- The boots have been mounted at our factory prior to delivery.
- Conex is the registered trademark of Teijin Limited.

Dimensional Table

Symbol	A	AB	AE	AH	AL	AO	AT	D	DD	EA
Bore										
φ 280	55	φ 33	350	190	85	40	20	50	M18 × 1.5	320
φ 320	55	φ 33	390	210	85	40	20	50	M20 × 1.5	360
φ 360	60	φ 39	440	240	100	45	30	65	M22 × 1.5	400
φ 400	60	φ 39	480	260	100	45	30	65	M24 × 1.5	440

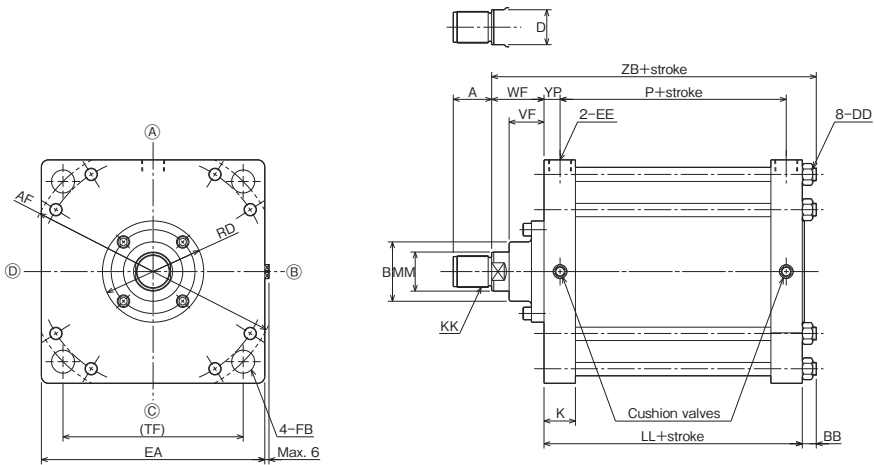
Symbol	EE	KK	LL	MM	P	R	SA	WF	XA	YP	ZA
Bore											
φ 280	Rc1	M48 × 2	170	φ 56	124	220	340	75	330	23	370
φ 320	Rc1	M48 × 2	170	φ 56	124	260	340	75	330	23	370
φ 360	Rc1 1/4	M56 × 2	200	φ 71	146	300	400	85	385	27	430
φ 400	Rc1 1/4	M56 × 2	200	φ 71	146	340	400	85	385	27	430

With Boots

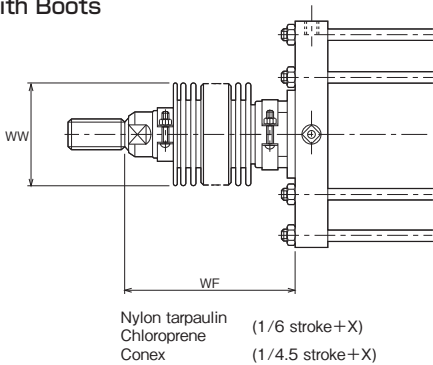
Symbol	X	WW
Bore		
φ 280	85	φ 160
φ 320	85	φ 160
φ 360	95	φ 180
φ 400	95	φ 180

FA

7AL-3 FA Bore B Stroke



With Boots



	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	130°C	200°C

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- The boots have been mounted at our factory prior to delivery.
- Conex is the registered trademark of Teijin Limited.

Dimensional Table

Symbol	A	AF	B	BB	D	DD	EA	EE	FB
Bore									
φ 280	55	φ 365	φ 85	18	50	M18 × 1.5	□ 320	Rc1	φ 33
φ 320	55	φ 415	φ 85	19	50	M20 × 1.5	□ 360	Rc1	φ 33
φ 360	60	φ 460	φ 95	21	65	M22 × 1.5	□ 400	Rc1 1/4	φ 39
φ 400	60	φ 510	φ 95	22	65	M24 × 1.5	□ 440	Rc1 1/4	φ 39

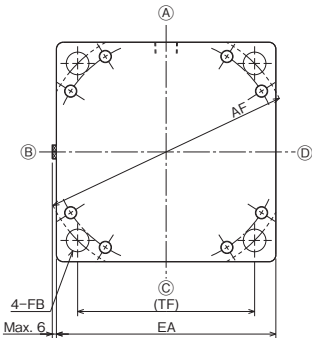
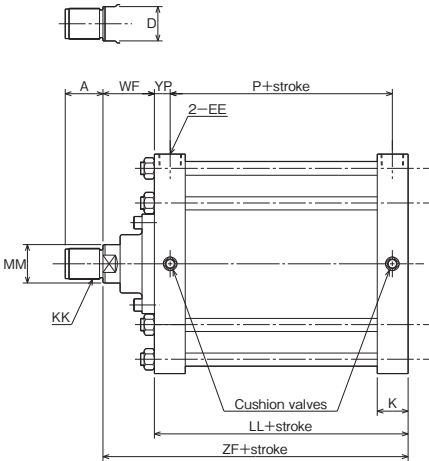
Symbol	K	KK	LL	MM	P	RD	(TF)	VF	WF	YP	ZB
Bore											
φ 280	45	M48 × 2	170	φ 56	124	φ 145	258	50	75	23	263
φ 320	45	M48 × 2	170	φ 56	124	φ 145	293	50	75	23	264
φ 360	55	M56 × 2	200	φ 71	146	φ 165	325	60	85	27	306
φ 400	55	M56 × 2	200	φ 71	146	φ 165	360	60	85	27	307

With Boots

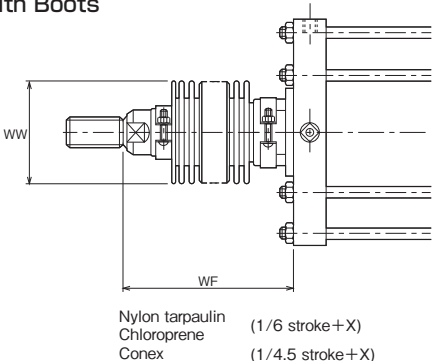
Symbol	X	WW
Bore		
φ 280	85	φ 160
φ 320	85	φ 160
φ 360	95	φ 180
φ 400	95	φ 180

FB

7AL-3 FB Bore B Stroke



With Boots



	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	130°C	200°C

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- The boots have been mounted at our factory prior to delivery.
- Conex is the registered trademark of Teijin Limited.

Dimensional Table

Symbol	A	AF	D	EA	EE	FB	K
Bore							
φ 280	55	φ 365	50	□ 320	Rc1	φ 33	45
φ 320	55	φ 415	50	□ 360	Rc1	φ 33	45
φ 360	60	φ 460	65	□ 400	Rc1 1/4	φ 39	55
φ 400	60	φ 510	65	□ 440	Rc1 1/4	φ 39	55

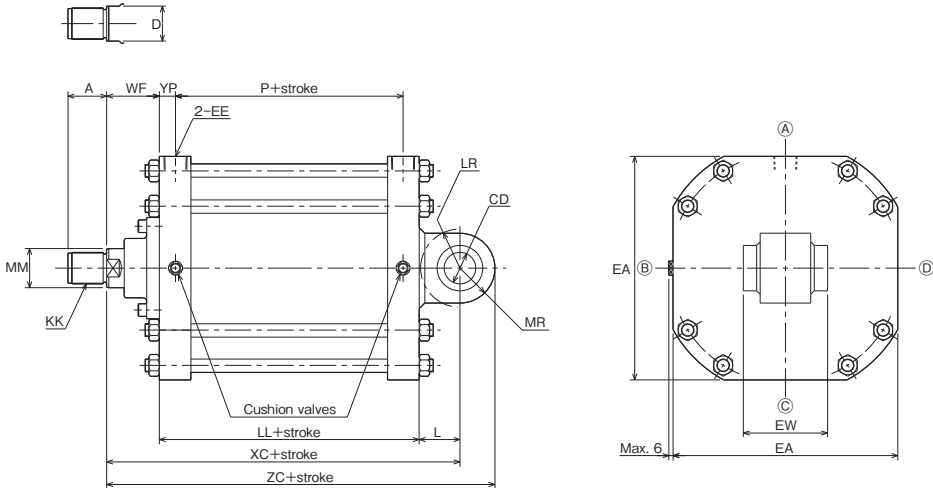
Symbol	KK	LL	MM	P	(TF)	WF	YP	ZF
Bore								
φ 280	M48×2	170	φ 56	124	258	75	23	245
φ 320	M48×2	170	φ 56	124	293	75	23	245
φ 360	M56×2	200	φ 71	146	325	85	27	285
φ 400	M56×2	200	φ 71	146	360	85	27	285

With Boots

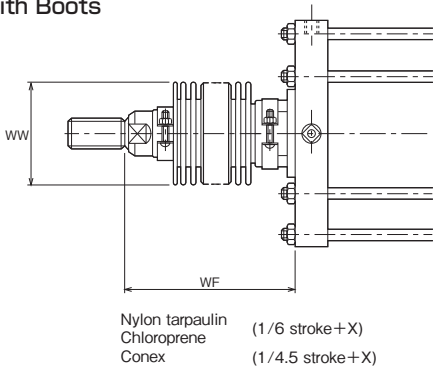
Symbol	X	WW
Bore		
φ 280	85	φ 160
φ 320	85	φ 160
φ 360	95	φ 180
φ 400	95	φ 180

CA

7AL-3 CA Bore B Stroke



With Boots



	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	130°C	200°C

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- The boots have been mounted at our factory prior to delivery.
- Conex is the registered trademark of Teijin Limited.

Dimensional Table

Symbol	A	CD	D	EA	EE	EW	KK
Bore							
φ 280	55	φ 45 ^{+0.062} ₀	50	320	Rc1	120 ⁰ _{-0.35}	M48×2
φ 320	55	φ 45 ^{+0.062} ₀	50	360	Rc1	120 ⁰ _{-0.35}	M48×2
φ 360	60	φ 56 ^{+0.074} ₀	65	400	Rc1 ¹ / ₄	140 ⁰ _{-0.40}	M56×2
φ 400	60	φ 56 ^{+0.074} ₀	65	440	Rc1 ¹ / ₄	140 ⁰ _{-0.40}	M56×2

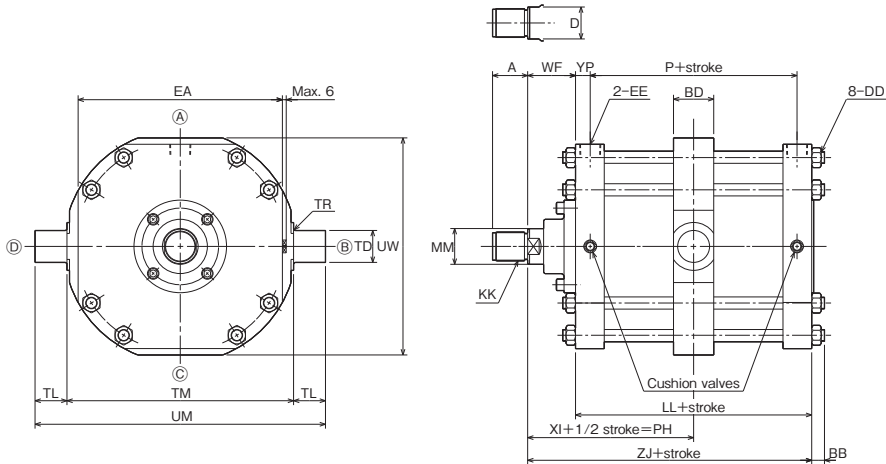
Symbol	L	LL	LR	MM	MR	P	WF	XC	YP	ZC
Bore										
φ 280	58	170	R56	φ 56	R50	124	75	303	23	353
φ 320	58	170	R56	φ 56	R50	124	75	303	23	353
φ 360	70	200	R68	φ 71	R65	146	85	355	27	420
φ 400	70	200	R68	φ 71	R65	146	85	355	27	420

With Boots

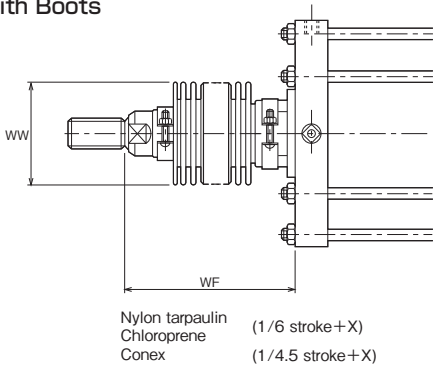
Symbol	X	WW
Bore		
φ 280	85	φ 160
φ 320	85	φ 160
φ 360	95	φ 180
φ 400	95	φ 180

TC

7AL-3 TC Bore B Stroke



With Boots



	Standard	Semi-standard	
Material	Nylon tarpaulin	Chloroprene	Conex
Heat proof	80°C	130°C	200°C

- Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.
- The boots have been mounted at our factory prior to delivery.
- Conex is the registered trademark of Teijin Limited.

Dimensional Table

Symbol	A	BB	BD	D	DD	EA	EE	KK	LL	MM	P
Bore											
φ 280	55	18	63	50	M18×1.5	320	Rc1	M48×2	170	φ 56	124
φ 320	55	19	63	50	M20×1.5	360	Rc1	M48×2	170	φ 56	124
φ 360	60	21	78	65	M22×1.5	400	Rc1 ¹ / ₄	M56×2	200	φ 71	146
φ 400	60	22	78	65	M24×1.5	440	Rc1 ¹ / ₄	M56×2	200	φ 71	146

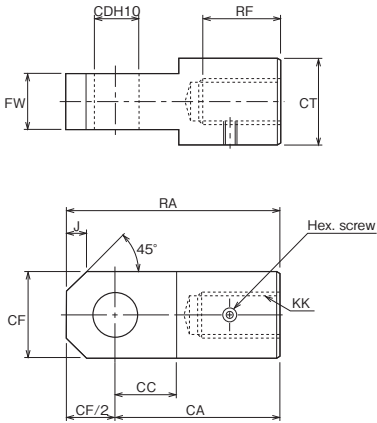
Symbol	Min. PH	TD	TL	TM	TR	UM	UW	WF	XI	YP	ZJ
Bore											
φ 280	157	φ 50 ^{-0.05} / _{-0.112}	50	355 ⁰ / _{-1.4}	R3	455	340	75	160	23	245
φ 320	157	φ 50 ^{-0.05} / _{-0.112}	50	400 ⁰ / _{-1.4}	R3	500	380	75	160	23	245
φ 360	185	φ 63 ^{-0.06} / _{-0.134}	63	445 ⁰ / _{-1.55}	R4	571	425	85	185	27	285
φ 400	185	φ 63 ^{-0.06} / _{-0.134}	63	495 ⁰ / _{-1.55}	R4	621	470	85	185	27	285

With Boots

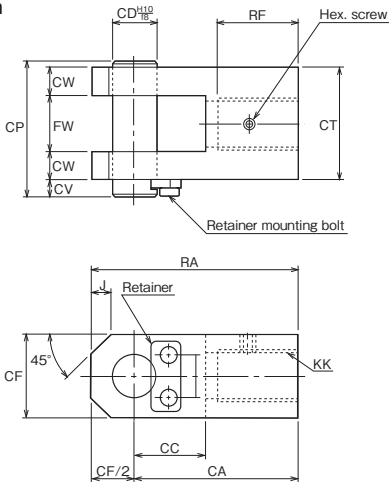
Symbol	X	WW
Bore		
φ 280	85	φ 160
φ 320	85	φ 160
φ 360	95	φ 180
φ 400	95	φ 180

Rod End Attachment

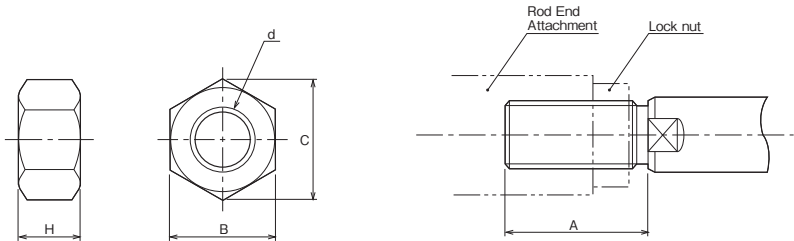
- Rod eye (T-end)



- Rod clevis (Y-end) with pin



- Lock nut



Dimensional Table: Rod eye (T-end)

Symbol	Part number	CA	CC	CD	CF	CP	CT	CV	CW	FW	J	KK	RA	RF
Bore														
φ 280	RTA-48-A	140	50	φ 45	90	122	75	18	25	50	20	M48×2	185	60
φ 320	RTA-48-A	140	50	φ 45	90	122	75	18	25	50	20	M48×2	185	60
φ 360	RTA-56-1-A	170	65	φ 56	110	148	85	18	31.5	63	25	M56×2	225	65
φ 400	RTA-56-1-A	170	65	φ 56	110	148	85	18	31.5	63	25	M56×2	225	65

Dimensional Table: Rod clevis (Y-end) with pin

Symbol	Part number	CA	CC	CD	CF	CP	CT	CV	CW	FW	J	KK	RA	RF
Bore														
φ 280	RYA-48-1-A	140	60	φ 45	90	122	100	18	25	50	20	M48×2	185	60
φ 320	RYA-48-1-A	140	60	φ 45	90	122	100	18	25	50	20	M48×2	185	60
φ 360	RYA-56-1-A	170	75	φ 56	110	148	126	18	31.5	63	25	M56×2	225	65
φ 400	RYA-56-1-A	170	75	φ 56	110	148	126	18	31.5	63	25	M56×2	225	65

Dimensional Table: Lock nut

Symbol	Part number	d	H	B	C
Bore					
φ 280	LNA-48F-A	M48×2	26	70	80.8
φ 320	LNA-48F-A	M48×2	26	70	80.8
φ 360	LNA-56F-A	M56×2	30	80	92.4
φ 400	LNA-56F-A	M56×2	30	80	92.4

Dimensional Table

Symbol	A
Bore	
φ 280	80
φ 320	80
φ 360	90
φ 400	90