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 (sprint return)
Type		Standard type/Switch Set	Standard type/Switch Set
Model number		10Z-3	10Z-3SR
Cylinder bore (mm)		φ12·φ16	
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℃ (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

Bore \ Stroke (mm) / Spring force		15	25	50
φ12	Initial load	8.34	7.37	4.94
	End load	9.81		
φ16	Initial load	10.28	9.32	6.88
	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
φ12	10	15	10	10	10	10	15	15	10	10	15	20
φ16												

Product Lineup

Unit: mm

Series Variations	Type	φ12	φ16
Standard	Double acting single rod — Standard type 10Z-3	●	●
	Double acting single rod — Switch Set 10Z-3	●	●
	Single acting spring return single rod — Standard type 10Z-3SR	●	●
	Single acting spring return single rod — Switch Set 10Z-3SR	●	●

Outline of types

			Basic style	Basic style with bracket	End angles (both sides)	End angles (one side)	Rod flange	Cap flange
Double acting 10Z-3	Standard type	Basic style	●	●	●	●	●	●
		Clevis cut style	●	–	–	●	●	–
		Rear port style	●	–	–	●	●	–
	Switch Set	Basic style	●	●	●	●	●	●
		Clevis cut style	●	–	–	●	●	–
		Rear port style	●	–	–	●	●	–
Single acting (spring return) 10Z-3SR	Standard type	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		SD w/ bracket	LB	LS	FA	FB	LK	FK	LP	FP	Rod eye (T-end)	Rod clevis (Y-end) w/ pin
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

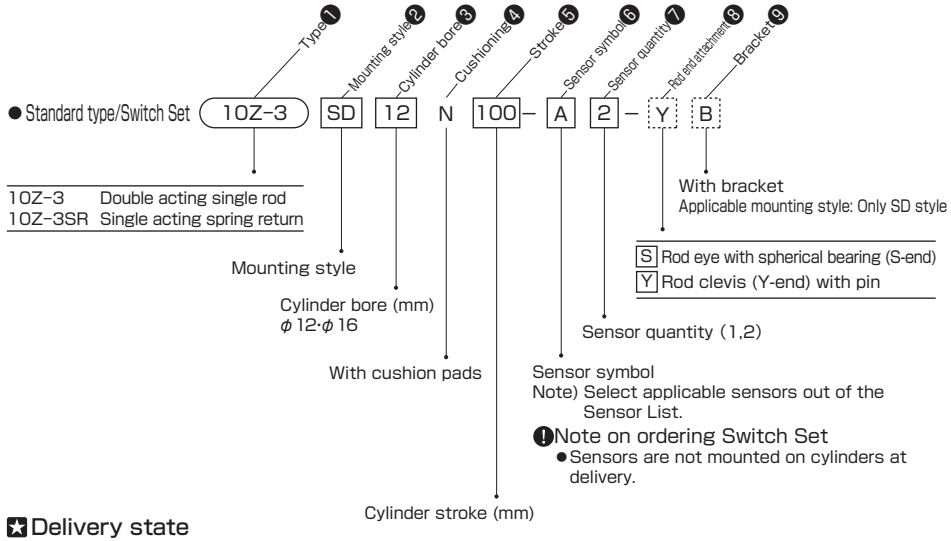
Bore (mm)	ZC type		JR/JS type	
	Cord length 1 m	Cord length 3 m	Cord length 1.5 m	Cord length 5 m
φ12	25	55	35	98
φ16				

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 φ12, 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



★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	15	25	30	50	75	100	Stroke limit
ϕ12	○	○	○	○	○	○	200
ϕ16	○	○	○	○	○	○	200

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

● Single acting type (spring return) Unit: mm

Bore \ Stroke	15	25	30	50	Stroke limit
ϕ12	○	○	○	○	50
ϕ16	○	○	○	○	50

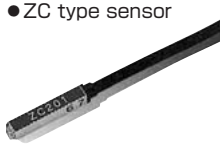
● If a stroke other than the above standard strokes (○-marked) is required, consult us.

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	JA ZC201A	AC: 115 V or less DC: 28 V or less	AC: 25 mA or less DC: 40 mA or less	—	None	None	0.2 mm², 2-core, outer dia. ϕ3 mm, rear wiring	1 m	Small relay, programmable controller
	JB ZC201B							3 m	
	JC ZC205A	DC:10 to 28 V	DC:5 to 40 mA	—	None	LED (Lights when sensing)		1 m	
	JD ZC205B							3 m	
	A JR101	DC:5 to 50 V AC:5 to 120 V	DC:3 to 40 mA AC:3 to 20 mA	DC:1.5 W AC:2 VA	None	LED (Lights in red when sensing)	0.3 mm², 2-core, outer dia. ϕ3.4 mm, rear wiring	1.5 m	
	B JR105							5 m	
Solid state sensor	JJ ZC230A	DC:10 to 28 V	4 to 50 mA	—	Provided	LED (Lights when sensing)	0.2 mm², 2-core, outer dia. ϕ3 mm, rear wiring	1 m	Small relay, programmable controller
	JK ZC230B							3 m	
	JL ZC253A	DC: 28 V or less	100 mA or less	—	Provided	LED (Lights when sensing)	0.2 mm², 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 in red when sensing)	0.3 mm², 2-core, outer dia. ϕ3.4 mm, rear wiring	1.5 m	
	O 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



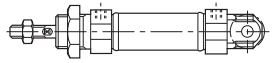
● JR/JS type sensor

Mounting Style

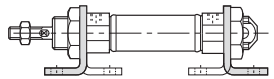
Standard type/Switch Set

Basic style

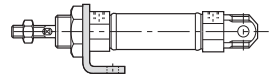
SD Basic style



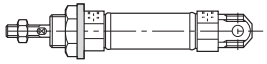
LB End angles



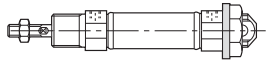
LS End angles



FA Rod flange

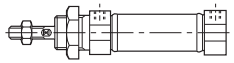


FB Cap flange

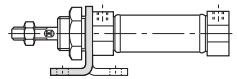


Clevis cut style

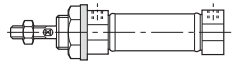
SK Basic style



LK End angles

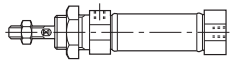


FK Rod flange

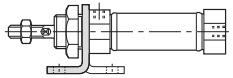


Rear port style

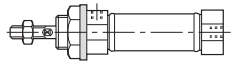
SP Basic style



LP End angles



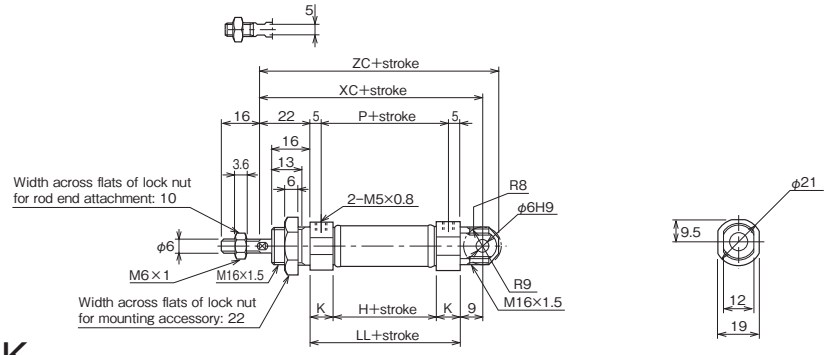
FP Rod flange



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

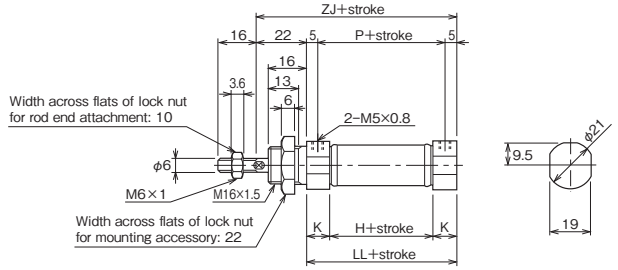
SD

Standard type 10Z-3 SD Bore N Stroke



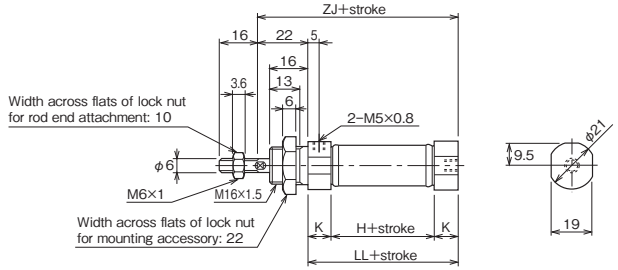
SK

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.

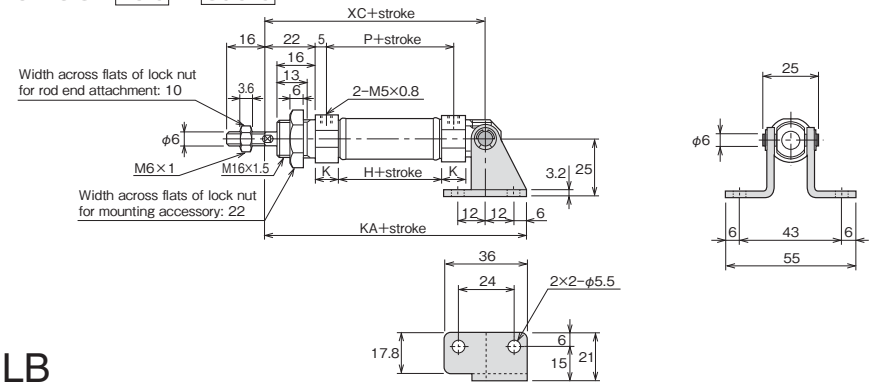
Dimensional Table

Symbol / Bore	H	K	LL	P	XC	ZC	ZJ
ϕ12	25	9.5	44	34	75	82	66
ϕ16	31	10	51	41	82	89	73

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

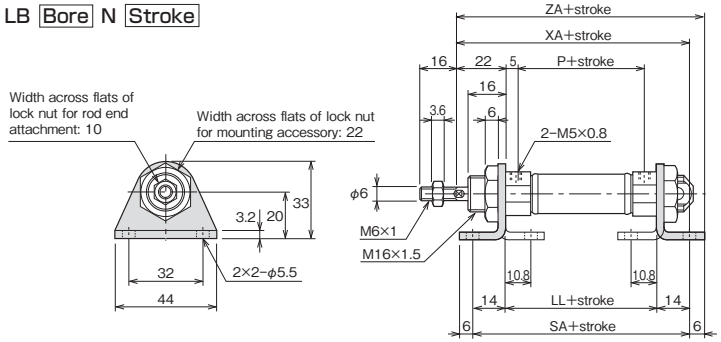
SD with Bracket

10Z-3 SD Bore N Stroke -B



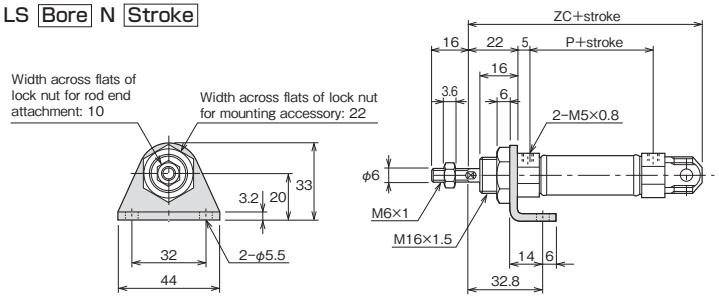
LB

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.

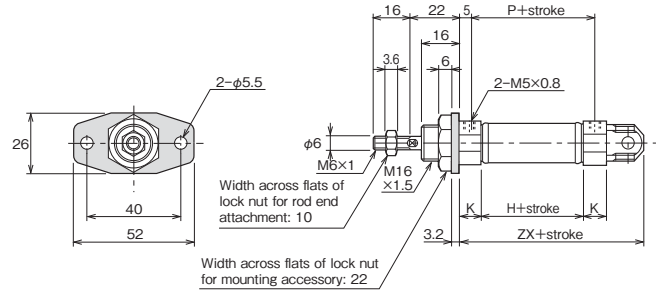
Dimensional Table

Symbol / Bore	H	K	KA	LL	P	SA	XA	XC	ZA	ZC
ϕ12	25	9.5	93	44	34	72	80	75	86	82
ϕ16	31	10	100	51	41	79	87	82	93	89

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

FA

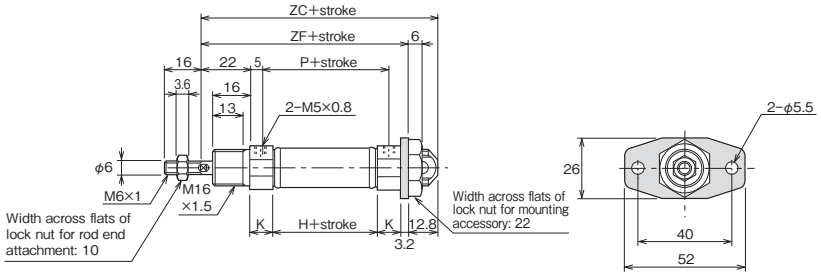
10Z-3 FA Bore N Stroke



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

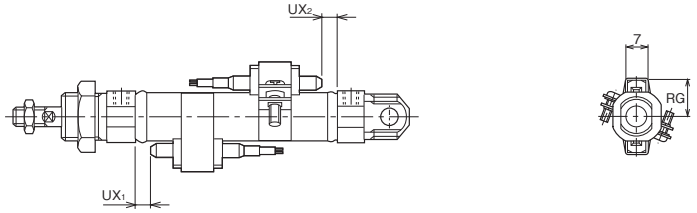
Symbol / Bore	H	K	P	ZC	ZF	ZX
ϕ12	25	9.5	34	82	69.2	60
ϕ16	31	10	41	89	76.2	67

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

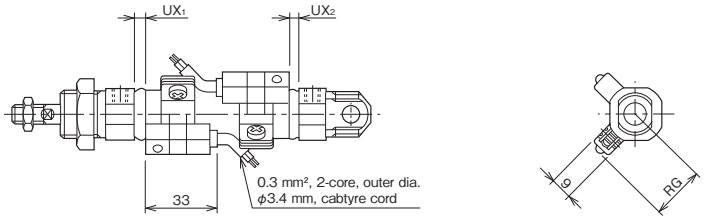
Switch Set

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		UX1					UX2				
			Reed sensor			Solid state sensor		Reed sensor			Solid state sensor	
	ZC type	JR/JS type	ZC201	ZC205	JR type	ZC230·ZC253	JS type	ZC201	ZC205	JR type	ZC230·ZC253	JS type
ϕ12	15	17	4.5	1	0	3	3	5.5	2	1	4	3
ϕ16	17	19	9	5.5	4	7.5	5	8	4.5	3	6.5	5

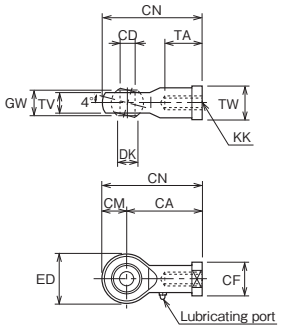
Note) ●Dimension UX indicates the optimum sensor mounting position for detection of stroke end.

Operating Range and Hysteresis

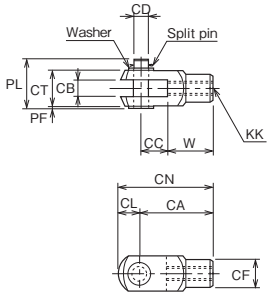
Bore mm	Reed sensor						Solid state sensor					
	ZC201		ZC205		JR type		ZC230		ZC253		JS type	
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis
ϕ12	3 to 6	1.5 or less	4 to 6	1.5 or less	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
ϕ16	4 to 9		4 to 7				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 / Bore	Part number	CA	CD	CF	CM	CN	DK	ED	GW	KK	TA	TV	TW
ϕ12	RSA−06−A	30	ϕ6H9	ϕ13	9	39	ϕ9	18	$9_{-0.1}^{0}$	M6×1	14	6.75±0.1	11
ϕ16													

Dimensional Table/Y-end

Symbol / Bore	Part number	CA	CB	CC	CD	CF	CL	CN	CT	KK	PF	PL	W
ϕ12	RYA−06−A	24	$6^{+0.4}_{+0.15}$	12	$\phi 6^{H8}_{f7}$	ϕ10	7	31	□12	M6×1	1.5	18.5	12
ϕ16													

Lock Nut Part Number

Bore	Part number
ϕ12	LNA−06Z−A
ϕ16	LNA−06Z−A

Handling procedures

Accessory tightening torque

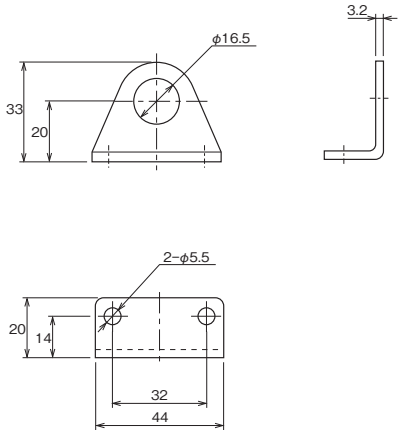
Tighten each nut and bolt to the tightening torque shown in the following table.

	M16 (ϕ12, 16)
Tightening torque of accessory mounting nut	53.9 N・m

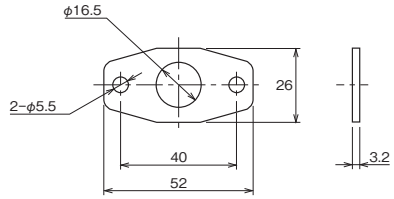
	M6 (ϕ12, 16)
Tightening torque of rod end attachment fixing nut	4.81 N・m

Mounting Accessory

● End angles

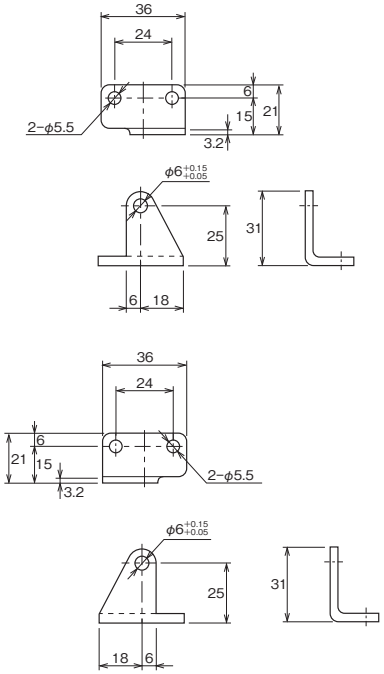


● Flange type



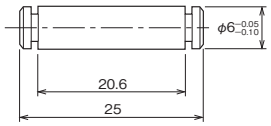
Bracket

● 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)
ϕ12	MAZ3−LB012	MAZ3−LS012	MAZ3−FA012	MAZ3−BK012PA
ϕ16	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: only φ50 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.

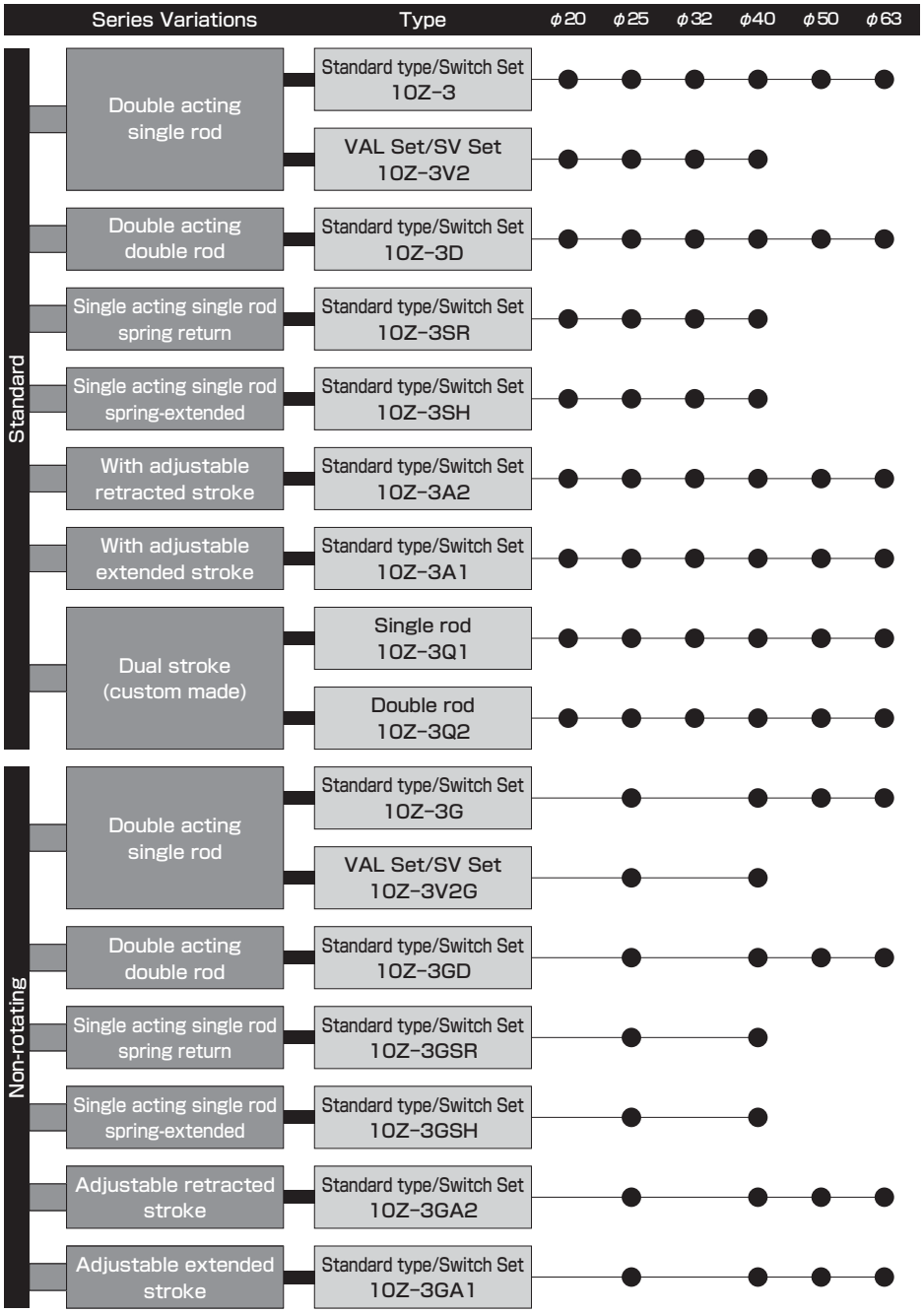
Valve Specifications

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



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	JS type
ϕ20	10	10	15	10	15	10	10	10	10	15	15	15	15	35	20	10	10	20
ϕ25																		
ϕ32					10													
ϕ40									15									
ϕ50									10									
ϕ63																		

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

Cushion Stroke

Bore	Cushion stroke
ϕ50・ϕ63	14 mm

● 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

(1) Type: 10Z-3

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

(2) Mounting style: SD

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

(3) Cylinder bore (mm): 25

Standard ϕ20·ϕ25·ϕ32·ϕ40·ϕ50·ϕ63
Non-rotating ϕ25·ϕ40·ϕ50·ϕ63

(4) Cushioning: N

- N With cushion pad
- B With cushion

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

(5) Cylinder stroke (mm): 100

(6) Sensor symbol: AH

Note) Select applicable sensors out of the Sensor List.

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

(7) Sensor quantity (1,2 to n): 2

(8) Rod end attachment: Y

- S Rod eye with spherical bearing (S-end)
- T Rod eye (T-end) (only ϕ50 and ϕ63)
- Y Rod clevis (Y-end) with pin
- F Floating joint (F-end)

(9) Bracket: B

With bracket
Applicable mounting styles:
SD, TA, TB, TK, CU (ϕ20 to ϕ40),
TA, TB (ϕ50 and ϕ40)

(10) Boots: J

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

● VAL Set/SV Set

10Z-3V2 | SD | 25 | N | 100 | – | A | 2 | AH | 2 | – | Y | B | – | J

(1) Type: 10Z-3V2

Standard
- 10Z-3V2 Double acting single rod

Non-rotating
- 10Z-3V2G Double acting single rod

(2) Mounting style: SD

(3) Cylinder bore (mm): 25

ϕ20·ϕ25·ϕ32·ϕ40
Note) Non-rotating cylinders come in bore sizes of 25 and 40 mm only.

(4) Cushioning: N

With cushion pad

(5) Cylinder stroke (mm): 100

(6) Valve operating method: A

- A Energized extending type (with lamp and protective circuit)
- B Energized retracting type (with lamp and protective circuit)
- G Energized extending type (without lamp)
- H Energized retracting type (without lamp)

(7) Valve voltage: 2

- 1 AC100V 50/60Hz
- 2 AC200V 50/60Hz
- 8 DC24V

Note) For voltage not shown above, contact us.

(8) Sensor symbol: AH

(9) Sensor quantity (1,2 to n): 2

(10) Rod end attachment: Y

(11) Bracket: B

(12) Boots: J

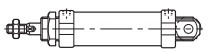
Note) For explanation of other types, refer to the standard and Switch Set types.

Mounting Style

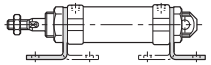
Standard type/Switch Set

Basic style

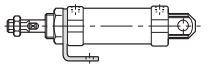
SD Basic style



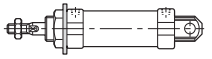
LB End angles



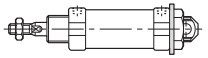
LS End angles (Note)



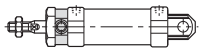
FA Rod flange



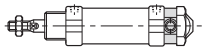
FB Cap flange



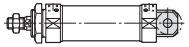
TA Rod trunnion



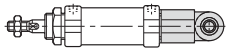
TB Cap trunnion



CA (Cap eye: only ϕ50 and ϕ63)

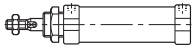


CU Cap eye with spherical bearing

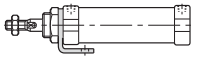


Clevis cut style

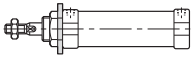
SK Basic style



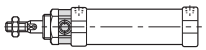
LK End angles (Note)



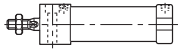
FK Rod flange



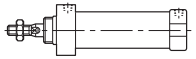
TK Rod trunnion



AD Block type end angles

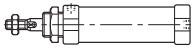


BD Block type flange

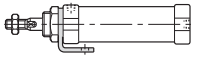


Rear port style

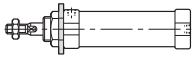
SP Basic style



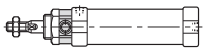
LP End angles (Note)



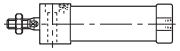
FP Rod flange



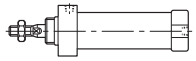
TP Rod trunnion



AP Block type end angles



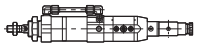
BP Block type flange



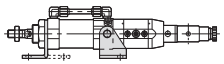
Mounting Style

VAL Set/SV Set

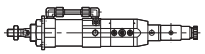
SD Basic style



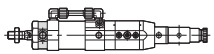
LC End angles



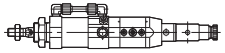
FA Rod flange



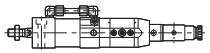
TA Rod trunnion



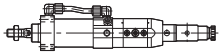
TC Cap trunnion



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.

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 mm², 2-core, outer dia. ϕ4 mm, rear wiring	1.5 m	Small relay, programmable controller
	AG AX105CE							5 m	
	AH AX111CE				Provided			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 mm², 2-core, outer dia. ϕ4 mm, rear wiring	5 m	
	JA ZC201A	AC: 115 V or less DC: 28 V or less	AC: 25 mA or less DC: 40 mA or less	—	None	None	0.2 mm², 2-core, outer dia. ϕ3 mm, rear wiring	1 m	
	JB ZC201B							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 AC: 5 to 120 V	DC: 3 to 40 mA AC: 3 to 20 mA	DC: 1.5 W AC: 2 VA	None	LED (Lights in red when sensing)	0.3 mm², 2-core, outer dia. ϕ3.4 mm, rear wiring	1.5 m	
	B JR105							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 mm², 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 mm², 2-core, outer dia. ϕ4 mm, rear wiring	1.5 m	Small relay, programmable controller
	BF AX205CE-1							5 m	
	CE AX211CE-1					LED (2-LED type in red/green)		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 mm², 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 mm², 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 mm², 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 mm², 2-core, outer dia. ϕ4 mm, rear wiring	1.5 m	
	CU AX215CE-1							5 m	
	CV AX21BCE-1						4-pin connector type, rear wiring	0.5 m	
	CW AZ211CE-1						0.3 mm², 2-core, outer dia. ϕ4 mm, upper wiring	1.5 m	
	CX AZ215CE-1							5 m	
	CY AZ21BCE-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) 15	25	30	50	75	100	125	150	175	200	250	300	350	400	450	500	Stroke limit
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 LK style LP style	MAZ3-LS020		—	—	—	—
FA style FB style FK style FP style	MAZ3-FA020		MAZ3-FA032	MAZ3-FA040	MAZ3-FA050	MAZ3-FA063
TA style TB style TK style TP style	MAZ3-TA020		MAZ3-TA032	MAZ3-TA040	MAZ3-TA050	
TC style	MAZ3-TC020		MAZ3-TC032	MAZ3-TC040	—	—
CU style	MAZ3-CU020	MAZ3-CU025	MAZ3-CU032	MAZ3-CU040	—	—

Bracket Part Number

	ϕ20	ϕ25	ϕ32	ϕ40	ϕ50	ϕ63
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
ϕ20	LNA-08Z-A	—
ϕ25	LNA-10Z-A	LNA-08Z-A
ϕ32		—
ϕ40	LNA-12Z-A	LNA-12Z-A
ϕ50	LNA-16Z-A	LNA-16Z-A
ϕ63		

Custom Made Specifications

Dual stroke (double rod)
● 10Z-3Q2

● Cylinder bore (mm): ϕ20, ϕ25, ϕ32, ϕ40, ϕ50, ϕ63

Dual stroke (single rod)
● 10Z-3Q1

● Cylinder bore (mm): ϕ20, ϕ25, ϕ32, ϕ40, ϕ50, ϕ63

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

● Cylinder bore (mm): ϕ20, ϕ25, ϕ32, ϕ40, ϕ50, ϕ63

Stroke adjusting range: 0 to 50 mm

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

● Cylinder bore (mm): ϕ20, ϕ25, ϕ32, ϕ40, ϕ50, ϕ63

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
ϕ20	155	530	137	137	186	0.85	1.25
ϕ25	220	600	203	203	274	1.15	1.8
ϕ32	320	705	297	297	398	1.65	2.55
ϕ40	520	910	482	487	630	2.15	3.4
ϕ50	985	—	920	935	1165	3.27	5.73
ϕ63	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
ϕ25	220	600	203	203	274	1.1	1.8
ϕ40	510	900	472	472	620	2.1	3.4
ϕ50	985	—	920	935	1165	3.27	5.73
ϕ63	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 TB	TA w/ bracket TB w/ bracket	TC	TC w/ bracket	CU	CU w/ bracket	LK	FK	TK	TK w/ bracket	AD	BD	LP	FP	TP	TP w/ bracket	AP	BP	Rod eye (S-end)	Rod eye (T-end)	Rod clevis (Y-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	−30	335	795	—	—	—	—	—	315	335	795	180(245)	105(170)	—	315	335	795	180(245)	105(170)	210	200	340	380
ϕ63	—	—	705	—	420	−30	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
ϕ20 ϕ25 ϕ32 ϕ40 ϕ50 ϕ63	50	130	40	25	55	35	98	271

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

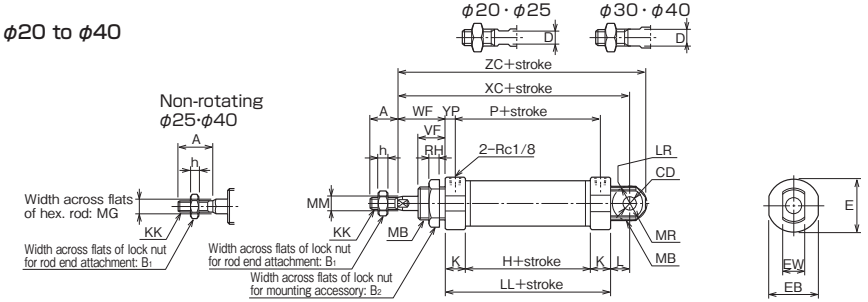
Calculation example: 10Z-3, clevis cut style, bore ϕ20, cylinder stroke 50 mm, 2 pcsof AX215A (cord length 5 m), FK style
137+(0.85×50)+(130×2)+60=499.5g

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

SD

Double acting single rod | Standard | 10Z-3 SD Bore Cushioning Stroke |
| Non-rotating | 10Z-3G SK Bore Cushioning Stroke |

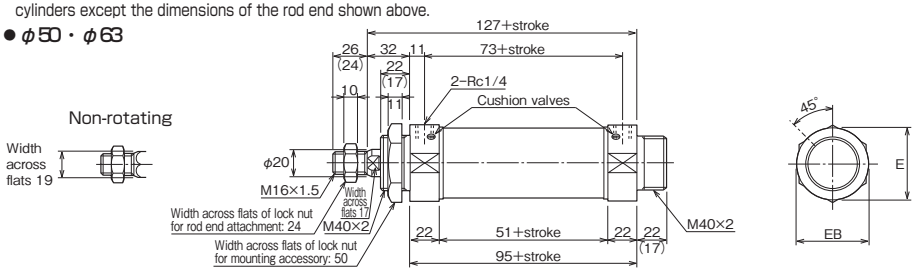
● ϕ20 to ϕ40



● 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.

● ϕ50・ϕ63



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

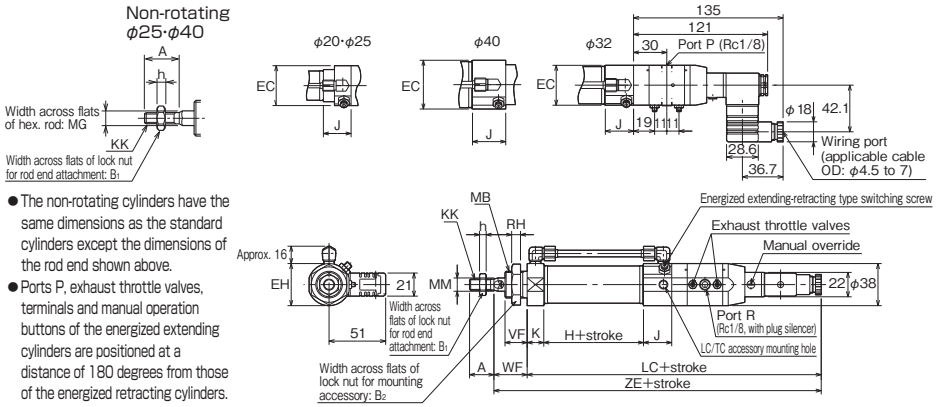
Dimensional Table

Bore \ Symbol	E	EB
ϕ50	ϕ56	54
ϕ63	ϕ70	68

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.

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 |

● ϕ20 to ϕ40



● 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 energized extending cylinders are positioned at a distance of 180 degrees from those of the energized retracting cylinders.

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

Dimensional Table

Bore \ Symbol	AB Standard	AB Non-rotating	A1 Standard	A1 Non-rotating	B2	CD	D	E	EB	EC	EH	EW	H	hK Standard	hK Non-rotating	J	K	K Standard	K 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

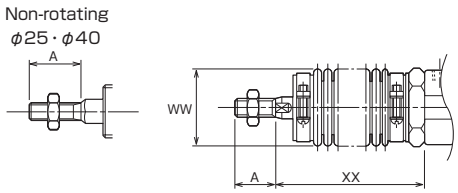
Bore \ Symbol	L	LC	LL	LR	MB	MG	MM	MR	P	RH	VF	WF	XC	YP	ZC	ZE
ϕ20	12	205	59	R11	M22×1.5	—	ϕ8	R12	45	7	16(13)	24	95	7	105	229
ϕ25	12	209.5	64	R11	M22×1.5	9	ϕ10	R12	49	7	18(15)	28	104	7.5	114	237.5
ϕ32	14	215.5	70	R13	M24×2	—	ϕ12	R14	55	8	20(16)	30	114	7.5	126	245.5
ϕ40	16	222	72	R15	M30×2	14	ϕ14	R16	57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

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

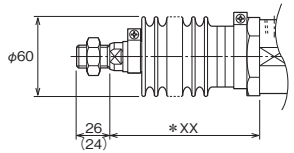
10Z-3/TAZ3 Bore K

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.

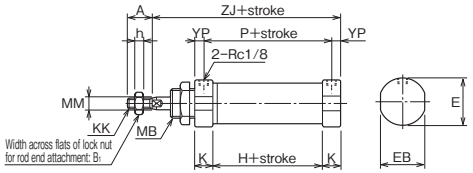
Dimensional Table

Bore \ Symbol / Stroke	A Standard	A Non-rotating	WW	Dimension XX for each stroke: to 25 Standard	to 25 Non-rotating	to 50 Standard	to 50 Non-rotating	to 75 Standard	to 75 Non-rotating	to 100 Standard	to 100 Non-rotating	to 125 Standard	to 125 Non-rotating	to 150 Standard	to 150 Non-rotating	to 175 Standard	to 175 Non-rotating	to 200 Standard	to 200 Non-rotating	to 250 Standard	to 250 Non-rotating	to 300 Standard	to 300 Non-rotating	to 350 Standard	to 350 Non-rotating	to 400 Standard	to 400 Non-rotating	to 450 Standard	to 450 Non-rotating	to 500 Standard	to 500 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

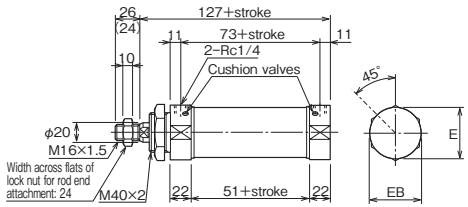
*The parenthesized values of dimension A indicate the screw length.

Clevis cut style/SK (basic style)

● ϕ20 to ϕ40



ϕ50・ϕ63

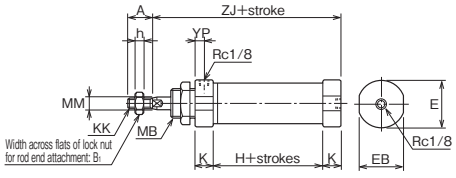


● For the dimensions not shown above, refer to the SD style (basic style).

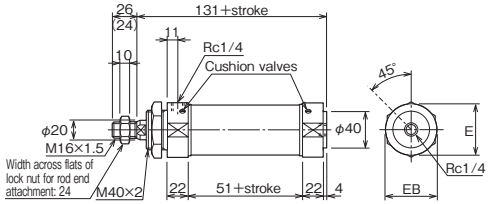
● The parenthesized values indicate the screw length.

Rear port style/SP (basic style)

● ϕ20 to ϕ40



ϕ50・ϕ63



Dimensional Table

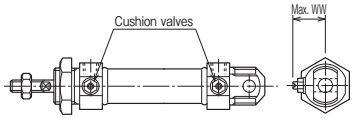
Bore \ Symbol	E	EB
ϕ50	ϕ56	54
ϕ63	ϕ70	68

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

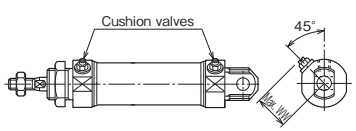
● The parenthesized values indicate the screw length.

Type with cushion/SD (basic style)

● ϕ20・ϕ25

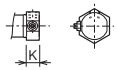


● ϕ32・ϕ40



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

● Clevis cut style



● Rear port style

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

Dimensional Table

Bore \ Symbol	A Standard	A Non-rotating	B1 Standard	B1 Non-rotating	E	EB	H	h Standard	h Non-rotating	K
ϕ20	20(20)	—	13	—	ϕ28	26	31	5	—	14
ϕ25	22(22)	20(17)	17	13	ϕ31	29	35	6	5	14.5
ϕ32	22(19)	—	17	—	ϕ38	36	40	6	—	15
ϕ40	24(21)	24(21)	19	19	ϕ46	44	42	7	7	15

Bore \ Symbol	KK Standard	KK Non-rotating	MB	MM	P	WW	YP	ZJ
ϕ20	M8×1.25	—	M22×1.5	ϕ8	45	21	7	83
ϕ25	M10×1.25	M8×1.25	M22×1.5	ϕ10	49	22.5	7.5	92
ϕ32	M10×1.25	—	M24×2	ϕ12	55	29	7.5	100
ϕ40	M12×1.25	M12×1.25	M30×2	ϕ14	57	33	7.5	104

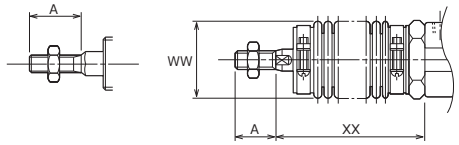
＊The parenthesized values of dimensions A and VF indicate the screw length.

10Z-3/TAZ3 Bore K

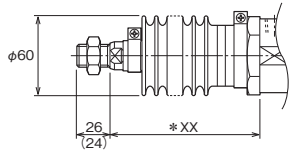
With Boots

ϕ20 to ϕ40

Non-rotating
ϕ25・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

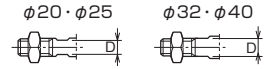
Bore \ Stroke \ Symbol	A Standard	A Non-rotating	WW	Dimension XX for each stroke: to 25 Standard	to 25 Non-rotating	to 50 Standard	to 50 Non-rotating	to 75 Standard	to 75 Non-rotating	to 100 Standard	to 100 Non-rotating	to 125 Standard	to 125 Non-rotating	to 150 Standard	to 150 Non-rotating	to 175 Standard	to 175 Non-rotating	to 200 Standard	to 200 Non-rotating	to 250 Standard	to 250 Non-rotating	to 300 Standard	to 300 Non-rotating	to 350 Standard	to 350 Non-rotating	to 400 Standard	to 400 Non-rotating	to 450 Standard	to 450 Non-rotating	to 500 Standard	to 500 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		

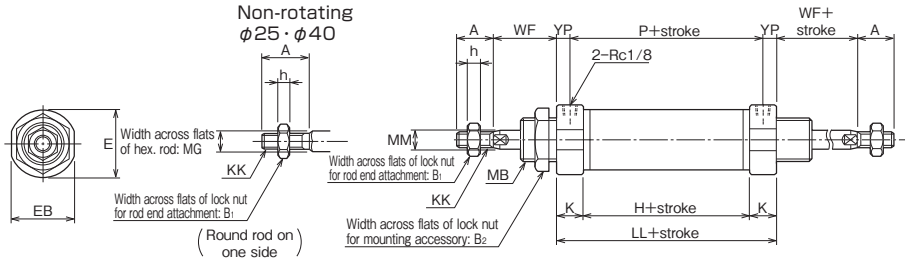
＊The parenthesized values of dimension A indicate the screw length.

SD

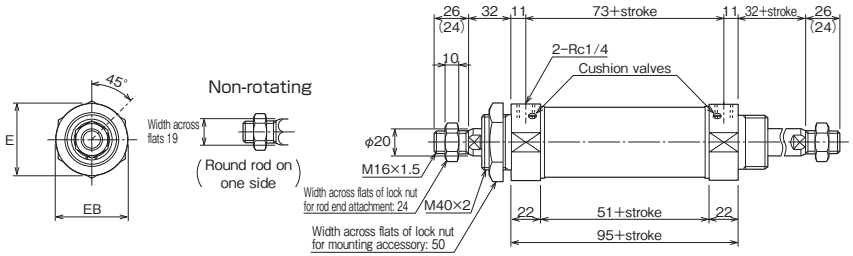
Double acting double rod | Standard | 10Z-3D SD Bore Cushioning Stroke |
| Non-rotating | 10Z-3GD SD Bore Cushioning Stroke |

● ϕ20 to ϕ40





● ϕ50・ϕ63



Dimensional Table

Symbol / Bore	E	EB
ϕ50	ϕ56	54
ϕ63	ϕ70	68

● The parenthesized values indicate the screw length.

Related types: Type with boots

Dimensional Table

Symbol / Bore	A Standard	A Non-rotating	B1 Standard	B1 Non-rotating	B2	D	E	EB	H	h Standard	h Non-rotating	K
ϕ20	20(20)	—	13	—	30	6	ϕ28	26	31	5	—	14
ϕ25	22(22)	20(17)	17	13	30	8	ϕ31	29	35	6	5	14.5
ϕ32	22(19)	—	17	—	32	10	ϕ38	36	40	6	—	15
ϕ40	24(21)	24(21)	19	19	41	12	ϕ46	44	42	7	7	15

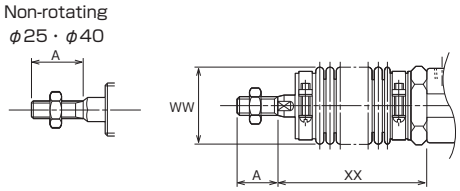
Symbol / Bore	KK Standard	KK Non-rotating	LL	MB	MG	MM	P	WF	YP
ϕ20	M8×1.25	—	59	M22×1.5	—	ϕ8	45	24	7
ϕ25	M10×1.25	M8×1.25	64	M22×1.5	9	ϕ10	49	28	7.5
ϕ32	M10×1.25	—	70	M24×2	—	ϕ12	55	30	7.5
ϕ40	M12×1.25	M12×1.25	72	M30×2	14	ϕ14	57	32	7.5

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

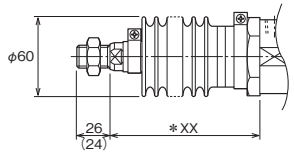
10Z-3/TAZ3 Bore K

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 / Bore	A Standard	A Non-rotating	WW	Dimension XX for each stroke: to 25 Standard	to 25 Non-rotating	to 50 Standard	to 50 Non-rotating	to 75 Standard	to 75 Non-rotating	to 100 Standard	to 100 Non-rotating	to 125 Standard	to 125 Non-rotating	to 150 Standard	to 150 Non-rotating	to 175 Standard	to 175 Non-rotating	to 200 Standard	to 200 Non-rotating	to 250 Standard	to 250 Non-rotating	to 300 Standard	to 300 Non-rotating	to 350 Standard	to 350 Non-rotating	to 400 Standard	to 400 Non-rotating	to 450 Standard	to 450 Non-rotating	to 500 Standard	to 500 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

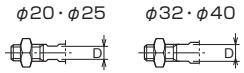
＊The parenthesized values of dimension A indicate the screw length.

General Pneumatic Cylinders 10Z-3

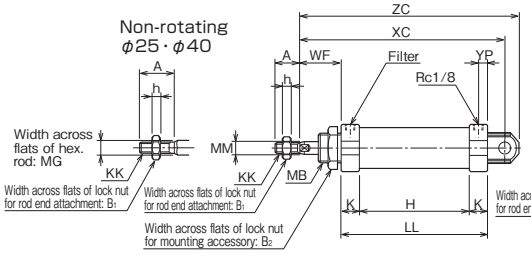
SD

Single acting type

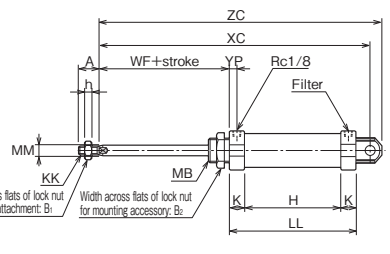
Spring return	Standard	10Z-3SR	SD	Bore	Cushioning	Stroke
	Non-rotating	10Z-3GSR	SK	Bore	Cushioning	Stroke
Spring-extended	Standard	10Z-3SH	SD	Bore	Cushioning	Stroke
	Non-rotating	10Z-3GSH	SK	Bore	Cushioning	Stroke



●Spring return (SR type)



●Spring-extended (SH type)

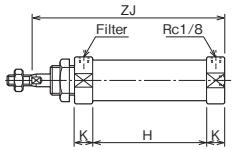


●The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.

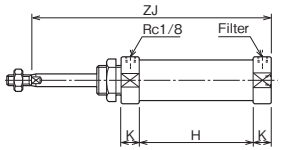
Related types: Clevis cut style (SK), rear port style (SP) and type with boots. The non-rotating cylinders are basically mounted in the clevis cut style.

Related types Clevis cut style/SK (basic style)

●Spring return (SR type)



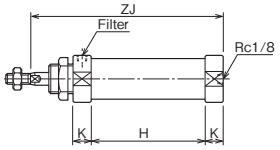
●Spring-extended (SH type)



●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)

●Spring return (SR type)



Dimensional Table

Symbol / Stroke / Bore	AB Standard	AB Non-rotating	A1 Standard	A1 Non-rotating	B2	D	hK Standard	hK Non-rotating	K	K Standard	K Non-rotating	MB	MG	MM	WF	YP
ϕ20	20(20)	—	13	—	30	6	5	—	14	M8×1.25	—	M22×1.5	—	ϕ8	24	7
ϕ25	22(22)	20(17)	17	13	30	8	6	5	14.5	M10×1.25	M8×1.25	M22×1.5	9	ϕ10	28	7.5
ϕ32	22(19)	—	17	—	32	10	6	—	15	M10×1.25	—	M24×2	—	ϕ12	30	7.5
ϕ40	24(21)	24(21)	19	19	41	12	7	7	15	M12×1.25	M12×1.25	M30×2	14	ϕ14	32	7.5

Symbol / Stroke / Bore	H 15	H 25	H 30	H 50	H 75	H 100	H 125	H 150	H 175	H 200	LL 15	LL 25	LL 30	LL 50	LL 75	LL 100	LL 125	LL 150	LL 175	LL 200
ϕ20	71	81	111	131	181	231	281	331	381	431	99	109	139	159	209	259	309	359	409	459
ϕ25	75	85	115	135	185	235	285	335	385	465	104	114	144	164	214	264	314	364	414	464
ϕ32	80	90	120	140	190	240	290	340	390	440	110	120	150	170	220	270	320	370	420	470
ϕ40	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 SR	XC 15 SH	XC 25 SR	XC 25 SH	XC 30 SR	XC 30 SH	XC 50 SR	XC 50 SH	XC 75 SR	XC 75 SH	XC 100 SR	XC 100 SH	XC 125 SR	XC 125 SH	XC 150 SR	XC 150 SH形	XC 175 SR	XC 175 SH	XC 200 SR	XC 200 SH
ϕ20	135	150	145	170	175	205	195	245	245	320	295	395	345	470	395	545	445	620	495	695
ϕ25	144	159	154	179	184	214	204	254	254	329	304	404	354	479	404	554	454	629	504	704
ϕ32	154	169	164	189	194	224	214	264	264	339	314	414	364	489	414	564	464	639	514	714
ϕ40	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 SR	ZC 15 SH	ZC 25 SR	ZC 25 SH	ZC 30 SR	ZC 30 SH	ZC 50 SR	ZC 50 SH	ZC 75 SR	ZC 75 SH	ZC 100 SR	ZC 100 SH	ZC 125 SR	ZC 125 SH	ZC 150 SR	ZC 150 SH	ZC 175 SR	ZC 175 SH	ZC 200 SR	ZC 200 SH
ϕ20	145	160	155	180	185	215	205	255	255	330	305	405	355	480	405	555	455	630	505	705
ϕ25	154	169	164	189	194	224	214	264	264	339	314	414	364	489	414	564	464	639	514	714
ϕ32	166	181	176	201	206	236	226	276	276	351	326	426	376	501	426	676	476	651	526	726
ϕ40	172	187	182	207	212	242	232	282	282	357	332	432	382	507	432	582	482	657	532	732

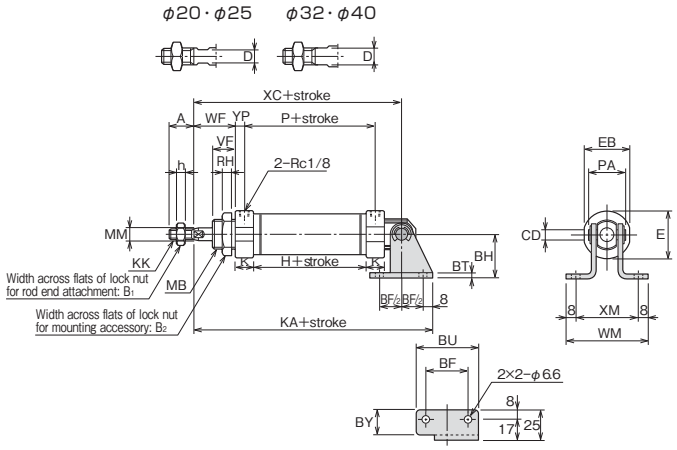
Symbol / Stroke / Bore	ZJ 15 SR	ZJ 15 SH	ZJ 25 SR	ZJ 25 SH	ZJ 30 SR	ZJ 30 SH	ZJ 50 SR	ZJ 50 SH	ZJ 75 SR	ZJ 75 SH	ZJ 100 SR	ZJ 100 SH	ZJ 125 SR	ZJ 125 SH	ZJ 150 SR	ZJ 150 SH	ZJ 175 SR	ZJ 175 SH	ZJ 200 SR	ZJ 200 SH
ϕ20	123	138	133	158	163	193	183	233	233	308	283	383	333	458	383	533	433	608	483	683
ϕ25	132	147	142	167	172	202	192	242	242	317	292	392	342	467	392	542	442	617	492	692
ϕ32	140	155	150	175	180	210	200	250	250	325	300	400	350	475	400	550	450	625	500	700
ϕ40	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

● ϕ20 to ϕ40



● 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
ϕ20	20(20)	13	30	32	32	3.2	48	21.8	ϕ8	6	ϕ28	26	31	5	14
ϕ25	22(22)	17	30	32	32	3.2	48	21.8	ϕ8	8	ϕ31	29	35	6	14.5
ϕ32	22(19)	17	32	36	36	4	52	21	ϕ10	10	ϕ38	36	40	6	15
ϕ40	24(21)	19	41	40	40	4	56	21	ϕ12	12	ϕ46	44	42	7	15

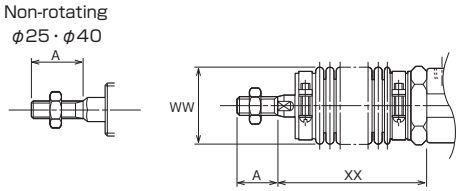
Symbol / Bore	KA	KK	MB	MM	P	PA	RH	VF	WF	WM	XC	XM	YP
ϕ20	119	M8×1.25	M22×1.5	ϕ8	45	31	7	16(13)	24	67	95	51	7
ϕ25	128	M10×1.25	M22×1.5	ϕ10	49	31	7	18(15)	28	67	104	51	7.5
ϕ32	140	M10×1.25	M24×2	ϕ12	55	32	8	20(16)	30	67	114	51	7.5
ϕ40	148	M12×1.25	M30×2	ϕ14	57	36	9	22(18)	32	71	120	55	7.5

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

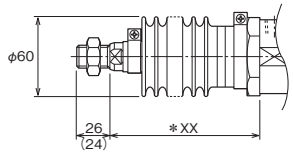
10Z-3/TAZ3 [Bore] K

With Boots

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 / 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	
	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(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.

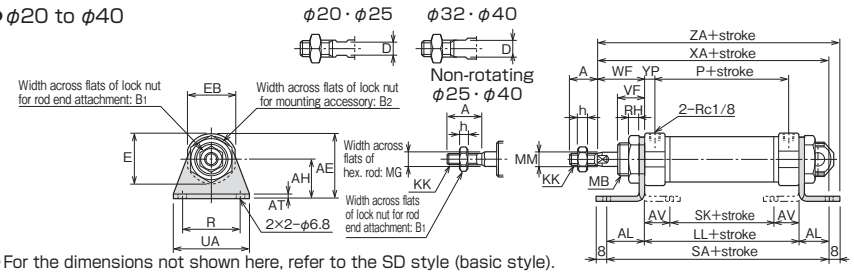
10Z-3/TAZ3 Bore A CAD/DATA is available.

LB

Double acting single rod

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

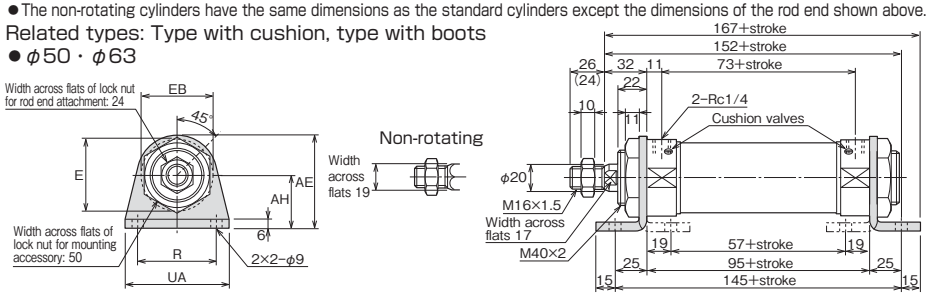
● ϕ20 to ϕ40



● 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

● ϕ50・ϕ63



● 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

Dimensional Table

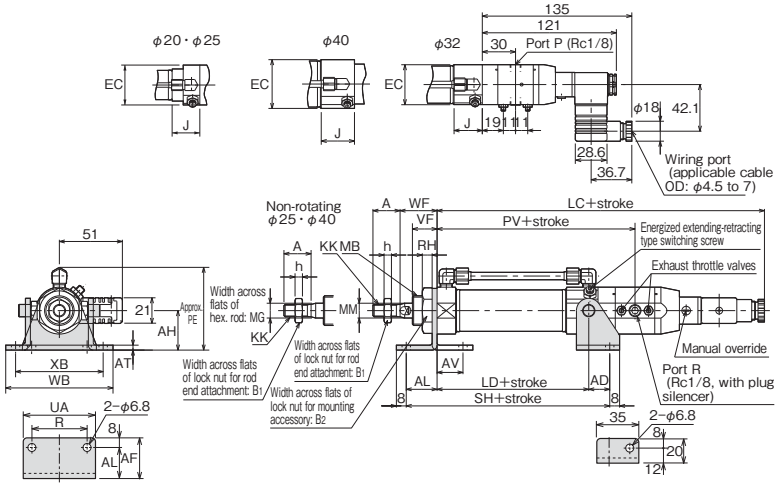
Bore \ Symbol	AE	AH	E	EB	R	UA
ϕ50	70	40	ϕ56	54	60	80
ϕ63	80	45	ϕ70	68	74	95

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	

● ϕ20 to ϕ40



● 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

Bore \ Symbol	A Standard	A Non-rotating	AD	AE	AF	AH	AL	AT	AV	B1 Standard	B1 Non-rotating	B2	D	E	EB	EC	h Standard	h Non-rotating	J	KK Standard	KK Non-rotating
ϕ20	20(20)	—	19	42	24	25	16	3.2	12.8	13	—	30	6	ϕ28	26	36	5	—	25	M8×1.25	—
ϕ25	22(22)	20(17)	19	42	24	25	16	3.2	12.8	17	13	30	8	ϕ31	29	36	6	5	25	M10×1.25	M8×1.25
ϕ32	22(19)	—	17	51	33	32	25	4	21	17	—	32	10	ϕ38	36	36	6	—	25.5	M10×1.25	—
ϕ40	24(21)	24(21)	15	59	33	36	25	4	21	19	19	41	12	ϕ46	44	44	7	7	30	M12×1.25	M12×1.25

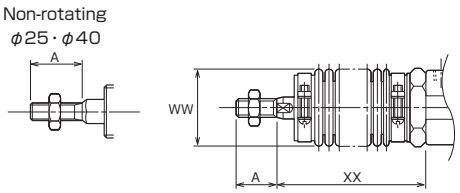
Bore \ Symbol	LC	LD	LL	MB	MG	MM	P	PE	PV	R	RH	SA	SH	SK	UA	VF	WB	WF	XA	XB	YP	ZA
ϕ20	205	62.5	59	M22×1.5	—	ϕ8	45	59	100	40	7	91	97.5	33.4	55	16(13)	87	24	99	71	7	107
ϕ25	209.5	67	64	M22×1.5	9	ϕ10	49	59	104.5	40	7	96	102	38.4	55	18(15)	87	28	108	71	7.5	116
ϕ32	215.5	73	70	M24×2	—	ϕ12	55	66	110.5	45	8	120	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.

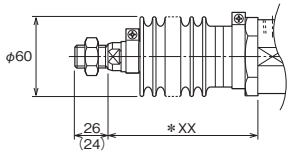
10Z-3/TAZ3 Bore K

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

Bore \ Stroke	A Standard	A Non-rotating	WW	Dimension XX for each stroke: to 25 Standard	to 25 Non-rotating	to 50 Standard	to 50 Non-rotating	to 75 Standard	to 75 Non-rotating	to 100 Standard	to 100 Non-rotating	to 125 Standard	to 125 Non-rotating	to 150 Standard	to 150 Non-rotating	to 175 Standard	to 175 Non-rotating	to 200 Standard	to 200 Non-rotating	to 250 Standard	to 250 Non-rotating	to 300 Standard	to 300 Non-rotating	to 350 Standard	to 350 Non-rotating	to 400 Standard	to 400 Non-rotating	to 450 Standard	to 450 Non-rotating	to 500 Standard	to 500 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

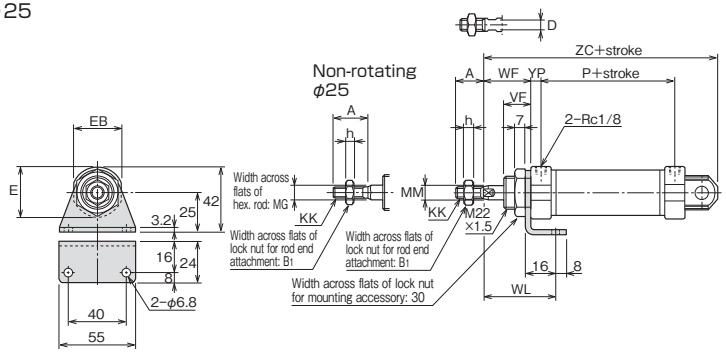
＊The parenthesized values of dimension A indicate the screw length.

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

LS

Double acting single rod | Standard | 10Z-3 LS Bore Cushioning Stroke
Non-rotating | 10Z-3G LK Bore Cushioning Stroke

● ϕ20・ϕ25



- 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 (LK), rear port style (LP), type with cushion, type with boots. The non-rotating cylinders are basically mounted in the clevis cut style.

Dimensional Table

Symbol / Bore	A		B_1		D	E	EB	h	
	Standard	Non-rotating	Standard	Non-rotating				Standard	Non-rotating
ϕ20	20(20)	—	13	—	6	ϕ28	26	5	—
ϕ25	22(22)	20(17)	17	13	8	ϕ31	29	6	5

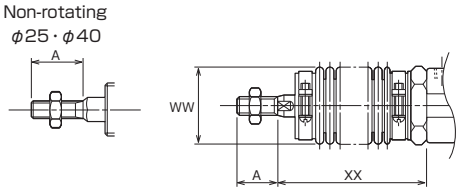
Symbol / Bore	KK		MM	MG	P	VF	WF	WL	YP	ZC
	Standard	Non-rotating								
ϕ20	M8×1.25	—	ϕ8	—	45	16	24	36.8	7	105
ϕ25	M10×1.25	M8×1.25	ϕ10	9	49	18	28	40.8	7.5	114

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

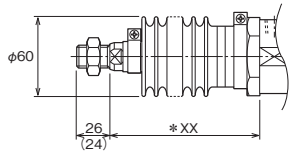
10Z-3/TAZ3 Bore K

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 / 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	
	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(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

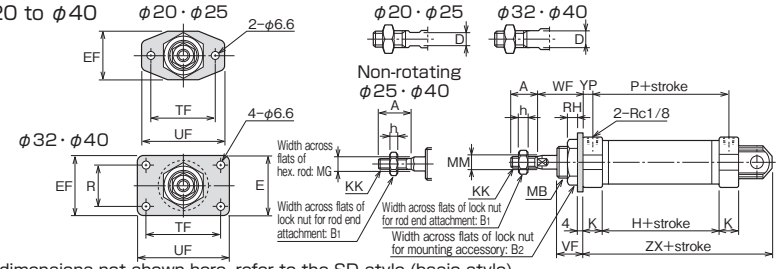
＊The parenthesized values of dimension A indicate the screw length.

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

FA

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

● φ20 to φ40

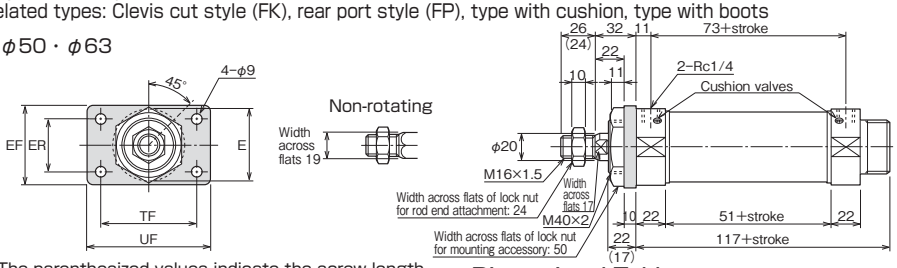


- For dimensions not shown here, refer to the SD style (basic style).
- The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.

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

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

● φ50・φ63



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

Dimensional Table

Bore \ Symbol	E	EF	ER	TF	UF
φ50	φ56	60	40	74	94
φ63	φ70	70	50	80	100

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

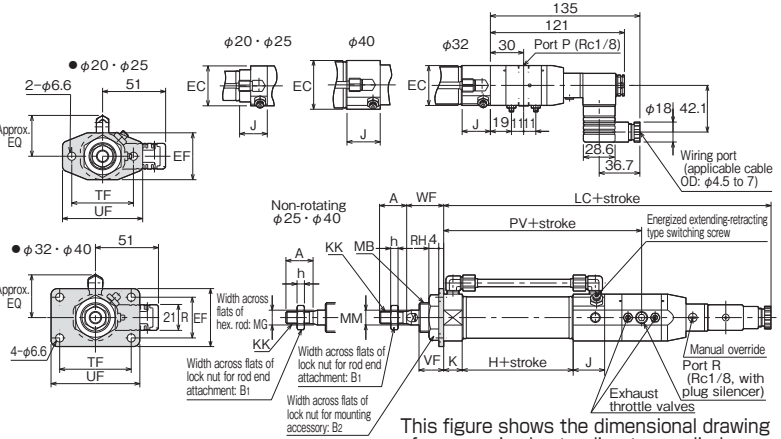
The non-rotating cylinders are basically mounted in the clevis cut style.

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 |

● φ20 to φ40

- 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

Bore \ Symbol	AB Standard	AB Non-rotating	A1 Standard	A1 Non-rotating	B2	D	E	EC	EF	EQ	H	h Standard	h Non-rotating	J	K
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

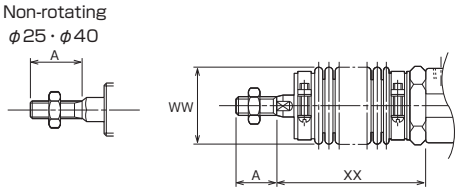
Bore \ Symbol	KK Standard	KK Non-rotating	LC	MB	MG	MM	P	PV	R	RH	TF	UF	VF	WF	YP	ZX
φ20	M8×1.25	—	205	M22×1.5	—	φ8	45	100	—	7	50	65	16	24	7	81
φ25	M10×1.25	M8×1.25	209.5	M22×1.5	9	φ10	49	104.5	—	7	50	65	18	28	7.5	86
φ32	M10×1.25	—	215.5	M24×2	—	φ12	55	110.5	33	8	58	72	20	30	7.5	96
φ40	M12×1.25	M12×1.25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

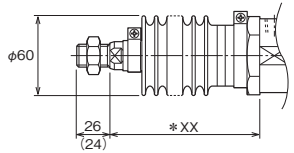
10Z-3/TAZ3 Bore K

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

Bore \ Stroke	A Standard	A Non-rotating	WW	Dimension XX for each stroke: to 25 Standard	to 25 Non-rotating	to 50 Standard	to 50 Non-rotating	to 75 Standard	to 75 Non-rotating	to 100 Standard	to 100 Non-rotating	to 125 Standard	to 125 Non-rotating	to 150 Standard	to 150 Non-rotating	to 175 Standard	to 175 Non-rotating	to 200 Standard	to 200 Non-rotating	to 250 Standard	to 250 Non-rotating	to 300 Standard	to 300 Non-rotating	to 350 Standard	to 350 Non-rotating	to 400 Standard	to 400 Non-rotating	to 450 Standard	to 450 Non-rotating	to 500 Standard	to 500 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

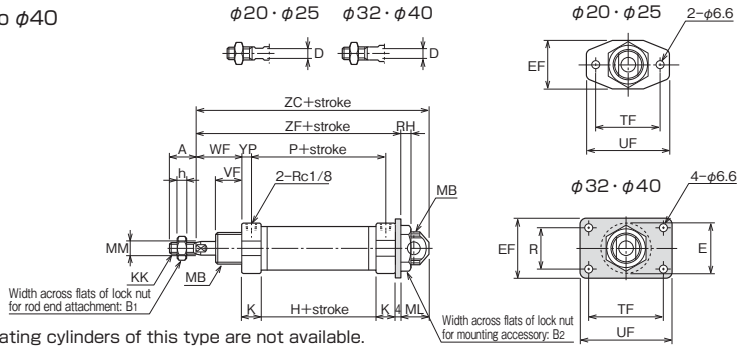
*The parenthesized values of dimension A indicate the screw length.

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

FB

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

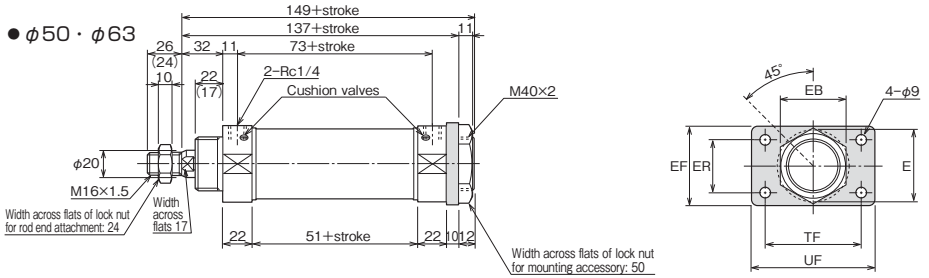
●ϕ20 to ϕ40



●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

●ϕ50・ϕ63



●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
ϕ50	ϕ56	54
ϕ63	ϕ70	68

Dimensional Table

Bore \ Symbol	A	B1	B2	D	E	EF	H	h	K	KK	MB
ϕ20	20(20)	13	30	6	ϕ28	38	31	5	14	M8×1.25	M22×1.5
ϕ25	22(22)	17	30	8	ϕ31	38	35	6	14.5	M10×1.25	M22×1.5
ϕ32	22(19)	17	32	10	ϕ38	47	40	6	15	M10×1.25	M24×2
ϕ40	24(21)	19	41	12	ϕ46	51	42	7	15	M12×1.25	M30×2

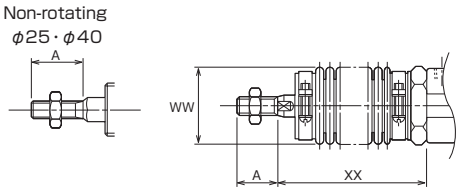
Bore \ Symbol	ML	MM	P	R	RH	TF	UF	VF	WF	YP	ZC	ZF
ϕ20	18	ϕ8	45	—	7	50	65	16(13)	24	7	105	87
ϕ25	18	ϕ10	49	—	7	50	65	18(15)	28	7.5	114	96
ϕ32	22	ϕ12	55	33	8	58	72	20(16)	30	7.5	126	104
ϕ40	24	ϕ14	57	36	9	70	84	22(18)	32	7.5	132	108

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

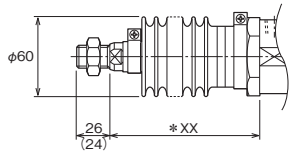
10Z-3/TAZ3 Bore K

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

Bore \ 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
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.

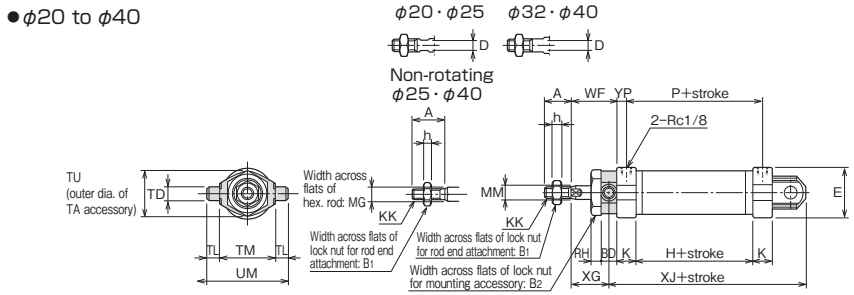
10Z-3/TAZ3 Bore A CAD/DATA is available.

TA

Double acting single rod

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

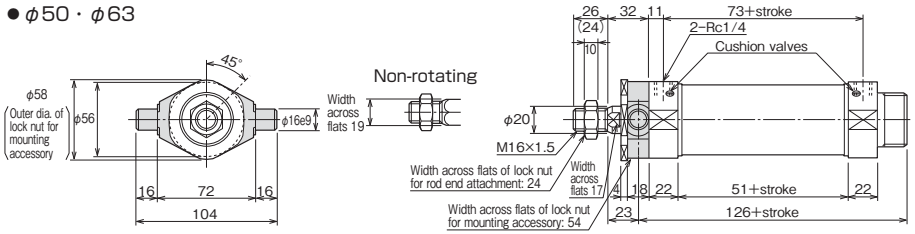
●φ20 to φ40



●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

●φ50・φ63



●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.

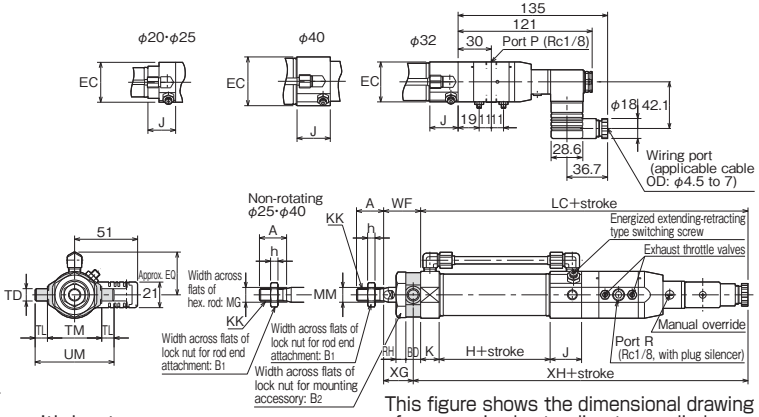
VAL Set

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	

●φ20 to φ40

- ●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	AB Standard	AB Non-rotating	ℓ_1 Standard	ℓ_1 Non-rotating	B_2	BD	D	E	EC	EQ	H	h Standard	h Non-rotating	J	K
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

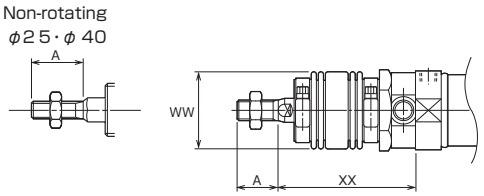
Symbol / Bore	KK Standard	KK Non-rotating	LC	MG	MM	P	RH	TD	TL	TM	TU	UM	WF	XG	XH	XJ	YP
φ20	M8×1.25	—	205	—	φ8	45	7	φ8e9	8	36	32	52	24	19	210	86	7
φ25	M10×1.25	M8×1.25	209.5	9	φ10	49	7	φ8e9	8	36	32	52	28	23	214.5	91	7.5
φ32	M10×1.25	—	215.5	—	φ12	55	8	φ10e9	10	44	36	64	30	24	221.5	102	7.5
φ40	M12×1.25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

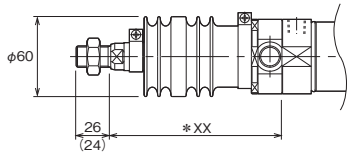
10Z-3/TAZ3 Bore K

With Boots

φ20 to φ40



φ50・φ63



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

Dimensional Table

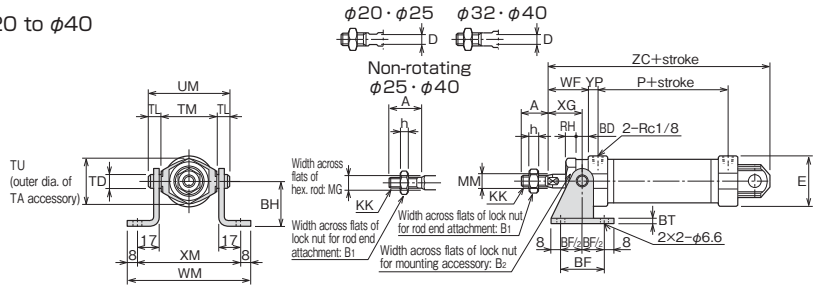
Symbol / Stroke / Bore	A Standard	A Non-rotating	WW	Dimension XX for each stroke: to 25 Standard	to 25 Non-rotating	to 50 Standard	to 50 Non-rotating	to 75 Standard	to 75 Non-rotating	to 100 Standard	to 100 Non-rotating	to 125 Standard	to 125 Non-rotating	to 150 Standard	to 150 Non-rotating	to 175 Standard	to 175 Non-rotating	to 200 Standard	to 200 Non-rotating	to 250 Standard	to 250 Non-rotating	to 300 Standard	to 300 Non-rotating	to 350 Standard	to 350 Non-rotating	to 400 Standard	to 400 Non-rotating	to 450 Standard	to 450 Non-rotating	to 500 Standard	to 500 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.

TA with Bracket

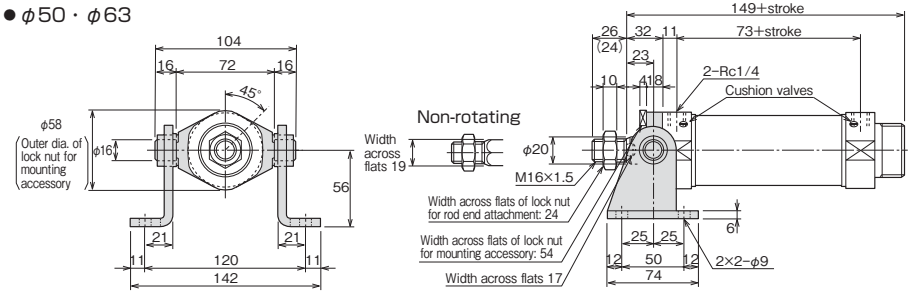
Double acting single rod | Standard | 10Z-3 TA | Bore | Cushioning | Stroke | - B
| Non-rotating | 10Z-3G TK | Bore | Cushioning | Stroke | - B

● φ20 to φ40



● 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

● φ50・φ63



● 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.

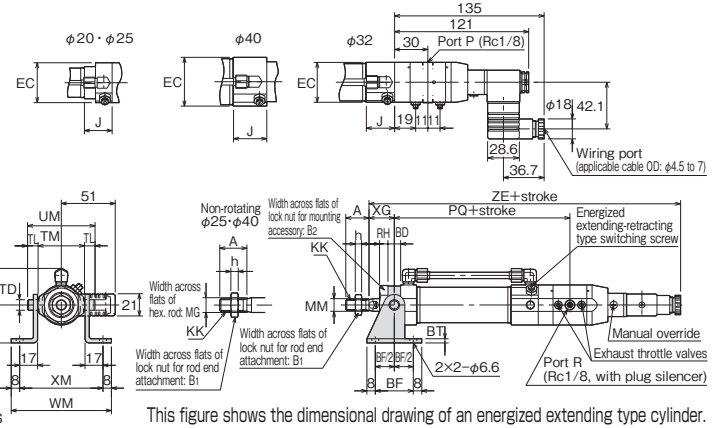
VAL Set

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

● φ20 to φ40

- 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

Bore \ Symbol	AB		A_1		B_2	BD	BF	BH	BT	D	E	EC	EQ	h		J
	Standard	Non-rotating	Standard	Non-rotating										Standard	Non-rotating	
φ20	20(20)	—	13	—	30	10	32	32	3.2	6	φ28	36	34	5	—	25
φ25	22(22)	20(17)	17	13	30	10	32	32	3.2	8	φ31	36	34	6	5	25
φ32	22(19)	—	17	—	32	12	36	36	4	10	φ38	36	35	6	—	25.5
φ40	24(21)	24(21)	19	19	41	14	40	40	4	12	φ46	44	39	7	7	30

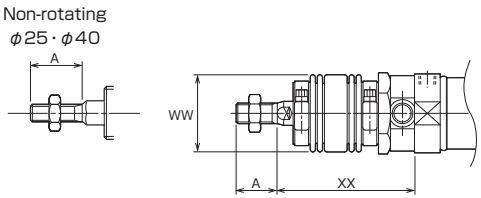
Bore \ Symbol	KK		MG	MM	P	PQ	RH	TD	TL	TM	TU	UM	WF	WM	XG	XM	YP	ZC	ZE
	Standard	Non-rotating																	
φ20	M8×1.25	—	—	φ8	45	105	7	φ8e9	8	36	32	52	24	87	19	71	7	105	229
φ25	M10×1.25	M8×1.25	9	φ10	49	109.5	7	φ8e9	8	36	32	52	28	87	23	71	7.5	114	237.5
φ32	M10×1.25	—	—	φ12	55	116.5	8	φ10e9	10	44	36	64	30	95	24	79	7.5	126	245.5
φ40	M12×1.25	M12×1.25	14	φ14	57	124	9	φ12e9	12	50	44	74	32	101	25	85	7.5	132	254

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

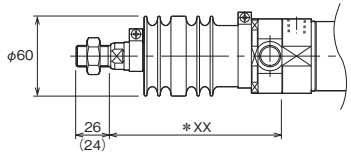
10Z-3/TAZ3 Bore K

With Boots

φ20 to φ40



φ50・φ63



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

Dimensional Table

Bore \ 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
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

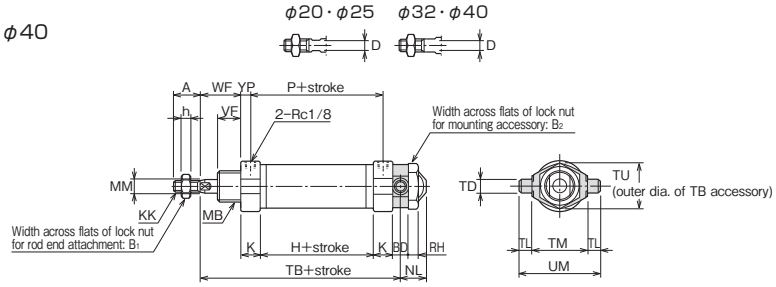
＊The parenthesized values of dimension A indicate the screw length.

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

TB

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

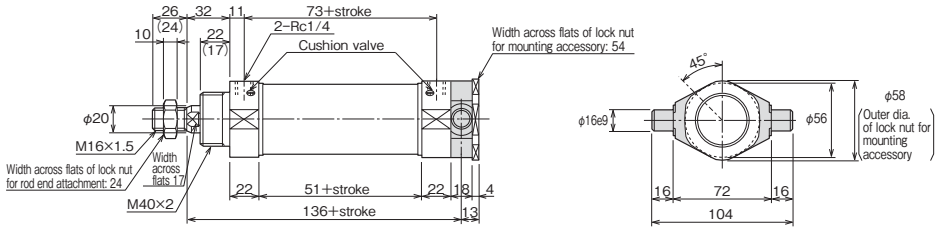
● ϕ20 to ϕ40



- 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

● ϕ50・ϕ63



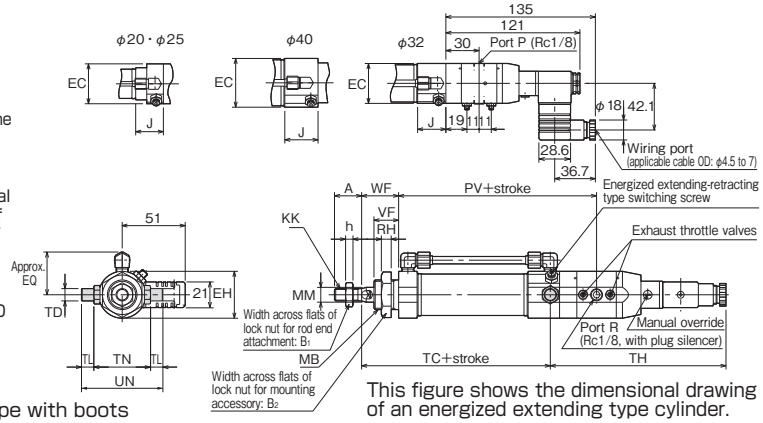
- Non-rotating cylinders of this type are not available.
- The parenthesized values indicate the screw length.

Related types: Type with boots

TC VAL Set

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

● ϕ20 to ϕ40



- 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	B1	B2	BD	D	EC	EH	EQ	H	h	J	K	KK	MB	MM
ϕ20	20(20)	13	30	10	6	36	ϕ38	34	31	5	25	14	M8×1.25	M22×1.5	ϕ8
ϕ25	22(22)	17	30	10	8	36	ϕ38	34	35	6	25	14.5	M10×1.25	M22×1.5	ϕ10
ϕ32	22(19)	17	32	12	10	36	ϕ38	35	40	6	25.5	15	M10×1.25	M24×2	ϕ12
ϕ40	24(21)	19	41	14	12	44	ϕ46	39	42	7	30	15	M12×1.25	M30×2	ϕ14

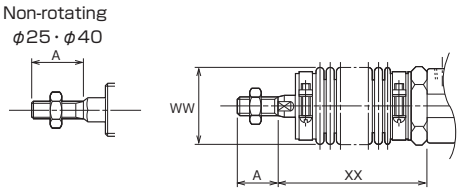
Symbol / Bore	NL	P	PV	RH	TB	TC	TD	TH	TL	TM	TN	TU	UM	UN	VF	WF	YP
ϕ20	17	45	100	7	88	86.5	ϕ8e9	142.5	8	36	46	32	52	62	16(13)	24	7
ϕ25	17	49	104.5	7	97	95	ϕ8e9	142.5	8	36	46	32	52	62	18(15)	28	7.5
ϕ32	20	55	110.5	8	106	103	ϕ10e9	142.5	10	44	46	36	64	66	20(16)	30	7.5
ϕ40	21	57	117	9	111	109	ϕ12e9	145	12	50	54	44	74	78	22(18)	32	7.5

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

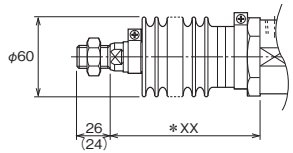
10Z-3/TAZ3 Bore K

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

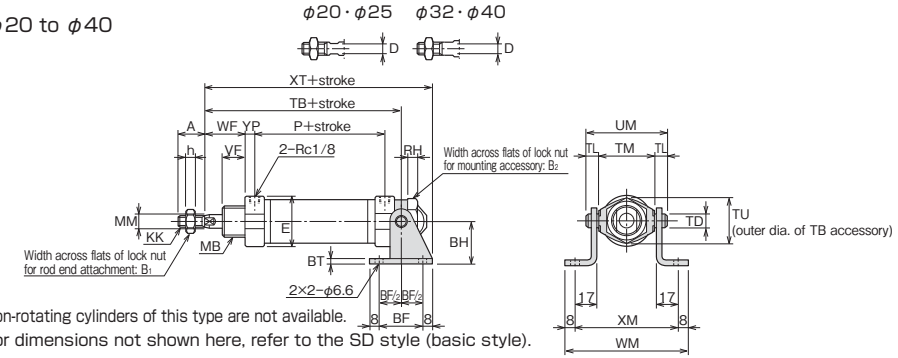
Symbol / Stroke / Bore	A		WW	Dimension XX for each stroke																					
				to 25		to 50		to 75		to 100		to 125		to 150		to 175		to 200		to 250		to 300		to 350		to 400		to 450		to 500	
	Stand-ard	Non-rotating		Stand-ard	Non-rotating	Stand-ard	Non-rotating	Stand-ard	Non-rotating	Stand-ard	Non-rotating	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.

TB with Bracket

Double acting single rod [Standard] 10Z-3 TB [Bore] [Cushioning] [Stroke] – B

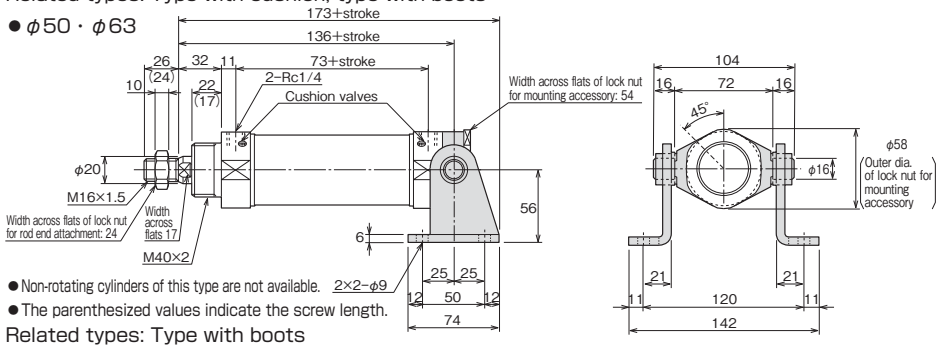
● φ20 to φ40



● 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

● φ50・φ63



● Non-rotating cylinders of this type are not available.
● The parenthesized values indicate the screw length.

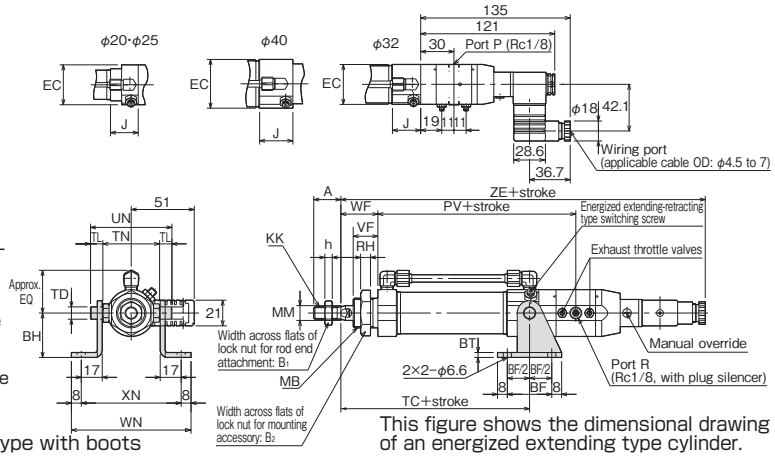
Related types: Type with boots

TC with Bracket VAL Set

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

● φ20 to φ40

- 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

Bore \ Symbol	A	B1	B2	BF	BH	BT	D	E	EC	EQ	h	J	KK	MB	MM	P	PV
φ20	20(20)	13	30	32	32	3.2	6	φ28	36	34	5	25	M8×1.25	M22×1.5	φ8	45	100
φ25	22(22)	17	30	32	32	3.2	8	φ31	36	34	6	25	M10×1.25	M22×1.5	φ10	49	104.5
φ32	22(19)	17	32	36	36	4	10	φ38	36	35	6	25.5	M10×1.25	M24×2	φ12	55	110.5
φ40	24(21)	19	41	40	40	4	12	φ46	44	39	7	30	M12×1.25	M30×2	φ14	57	117

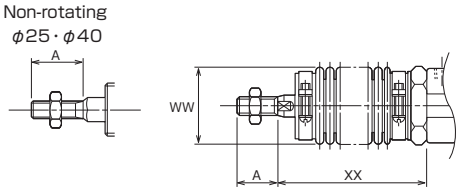
Bore \ Symbol	RH	TB	TC	TD	TL	TM	TN	TU	UM	UN	VF	WF	WM	WN	XM	XN	XT	YP	ZE
φ20	7	88	86.5	φ8e9	8	36	46	32	52	62	16(13)	24	87	97	71	81	112	7	229
φ25	7	97	95	φ8e9	8	36	46	32	52	62	18(15)	28	87	97	71	81	121	7.5	237.5
φ32	8	106	103	φ10e9	10	44	46	36	64	66	20(16)	30	95	97	79	81	132	7.5	245.5
φ40	9	111	109	φ12e9	12	50	54	44	74	78	22(18)	32	101	105	85	89	139	7.5	254

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

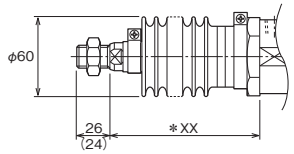
10Z-3/TAZ3 [Bore] K

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

Bore \ 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
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

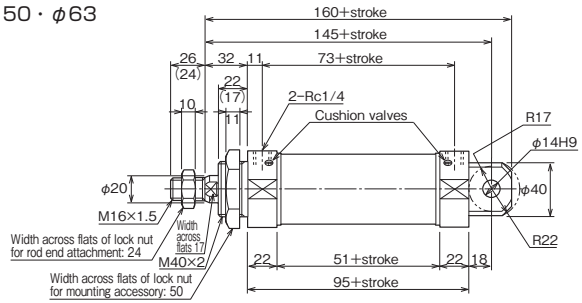
∗The parenthesized values of dimension A indicate the screw length.

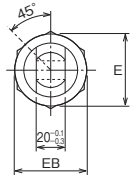
10Z-3/TAZ3 Bore A CAD/DATA is available.

CA

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

● ϕ50 · ϕ63





● 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
ϕ50	ϕ56	54
ϕ63	ϕ70	68

Dimensional Table

Bore \ Symbol	A	B1	B2	BF	BH	BT	BU	BY	CD	CE	CK	D	EE	B	GW	H	HA	HB	HD	HL
ϕ20	20(20)	13	30	32	32	3.2	48	21.8	ϕ8	ϕ32	30	6	ϕ28	26	12 -0 -0.3	31	121	33	10.5	15
ϕ25	22(22)	17	30	36	36	4	52	21	ϕ10	ϕ32	30	8	ϕ31	29	14 -0 -0.3	35	126	33	10.5	15
ϕ32	22(19)	17	32	36	36	4	52	21	ϕ10	ϕ32	30	10	ϕ38	36	14 -0 -0.3	40	132	33	10.5	15
ϕ40	24(21)	19	41	40	40	4	56	21	ϕ12	ϕ38	36	12	ϕ46	44	16 -0 -0.3	42	142	37	12	17

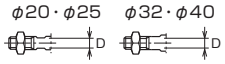
Bore \ Symbol	h	K	KA	KK	LR	MB	MM	MR	P	PA	RH	UC	VF	WF	WM	XM	XU	YP
ϕ20	5	14	155	M8×1.25	R14	M22×1.5	ϕ8	R14	45	27	7	131	16(13)	24	63	47	145	7
ϕ25	6	14.5	166	M10×1.25	R14	M22×1.5	ϕ10	R14	49	29	7	140	18(15)	28	65	49	154	7.5
ϕ32	6	15	174	M10×1.25	R14	M24×2	ϕ12	R14	55	29	8	148	20(16)	30	65	49	162	7.5
ϕ40	7	15	186	M12×1.25	R16	M30×2	ϕ14	R16	57	32	9	158	22(18)	32	67	51	174	7.5

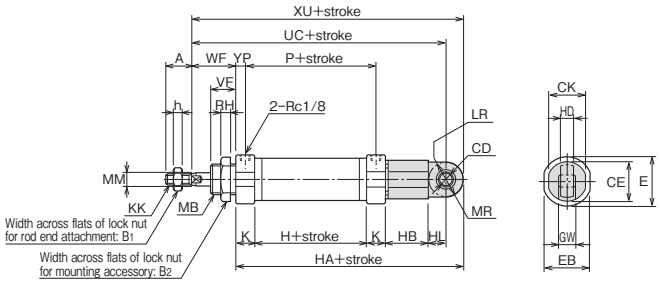
* The parenthesized values of dimensions A and VF indicate the screw length.

CU

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

● ϕ20 to ϕ40





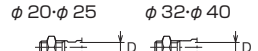
● Non-rotating cylinders of this type are not available.
● For dimensions not shown here, refer to the SD style (basic style).

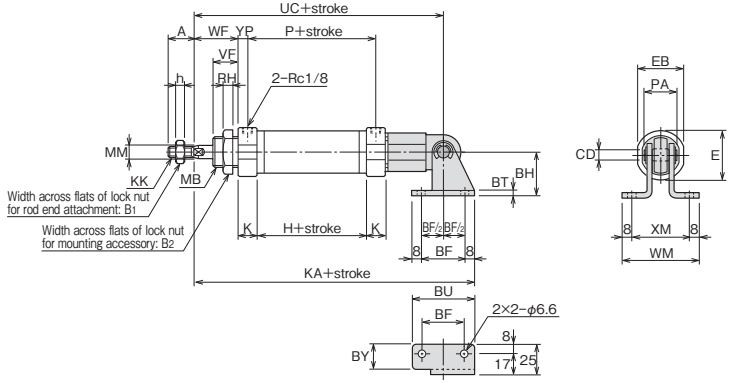
Related types: Type with cushion, type with boots

CU with Bracket

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

● ϕ20 to ϕ40





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

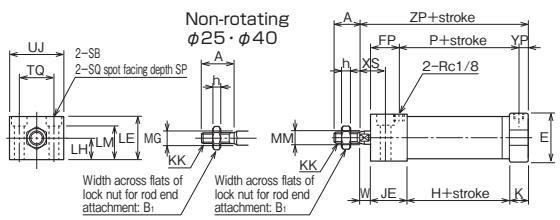
Related types: Type with cushion, type with boots

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

AD

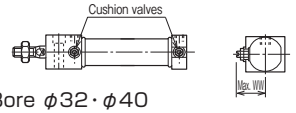
Double acting single rod | Standard | 10Z-3 | AD | Bore | Cushioning | Stroke |
| Non-rotating | 10Z-3G | AD | Bore | Cushioning | Stroke |

●ϕ20 to ϕ40

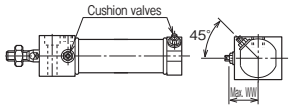


Related type With cushion

●Bore ϕ20・ϕ25



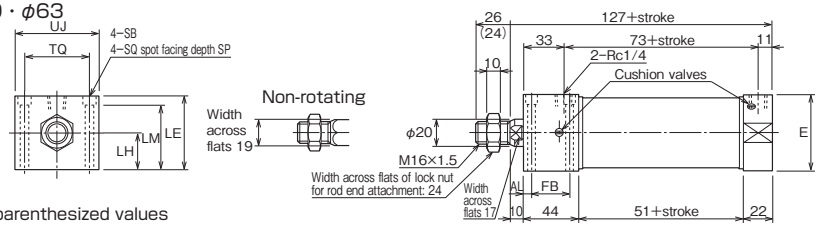
●Bore ϕ32・ϕ40



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

Basic style: Clevis cut

●ϕ50・ϕ63



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

Dimensional Table

Bore \ Symbol	AL	E	FB	LE	LH	LM	SB	SP	SQ	TQ	UJ
ϕ50	7	ϕ56	30	56	28	49.5	ϕ6.6	6.5	ϕ11	50	64
ϕ63	9	ϕ70	27	70	35	61.4	ϕ9	8.6	ϕ14	56	74

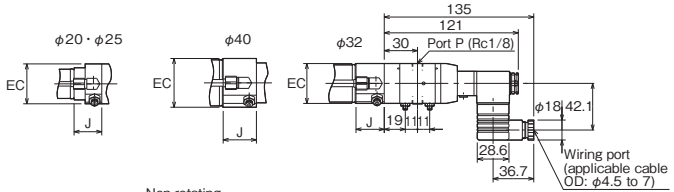
Related types: Rear port style (AP)

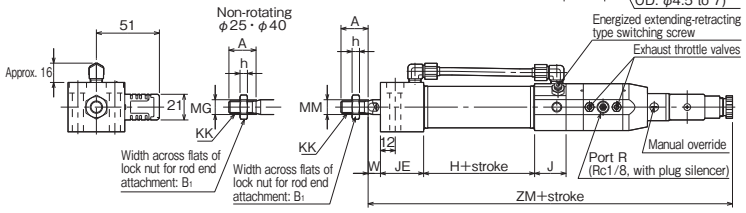
The standard and non-rotating cylinders are basically mounted in the clevis cut style.

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 |

●ϕ20 to ϕ40





- 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

Bore \ Symbol	A Standard	A Non-rotating	B1 Standard	B1 Non-rotating	D	E	EC	FP	H	h Standard	h Non-rotating	J	JE	K
ϕ20	20(20)	—	13	—	6	ϕ28	36	23	31	5	—	25	30	14
ϕ25	22(22)	20(17)	17	13	8	ϕ31	36	25.5	35	6	5	25	32.5	14.5
ϕ32	22(19)	—	17	—	10	ϕ38	36	28	40	6	—	25.5	35	15
ϕ40	24(21)	24(21)	19	19	12	ϕ46	44	30	42	7	7	30	37	15

Bore \ Symbol	KK Standard	KK Non-rotating	LE	LH	LM	MG	MM	P	SB	SP	SQ	TQ	UJ	W	WW	XS	YP	ZP	ZM
ϕ20	M8×1.25	—	28	14	21.5	—	ϕ8	45	ϕ6.6	6.5	ϕ11	20	34	8	25.5	18	7	83	229
ϕ25	M10×1.25	M8×1.25	34	17	27.5	9	ϕ10	49	ϕ6.6	6.5	ϕ11	24	38	10	27	20	7.5	92	237.5
ϕ32	M10×1.25	—	40	20	31.4	—	ϕ12	54.5	ϕ9	8.6	ϕ14	30	46	10	35	22	7.5	100	245.5
ϕ40	M12×1.25	M12×1.25	48	24	37.2	14	ϕ14	56.5	ϕ11	10.8	ϕ17.5	36	56	10	39	22	7.5	104	254

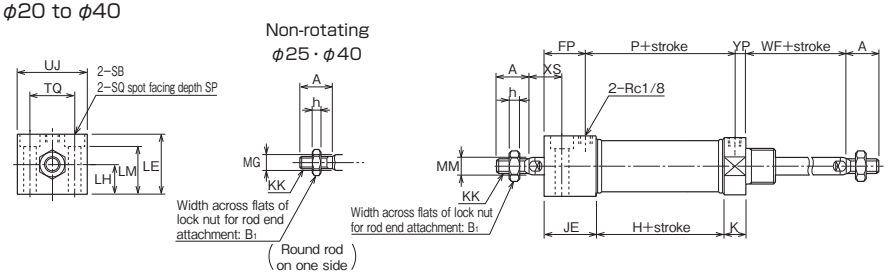
*The parenthesized values of dimension A indicate the screw length.

AD

Double acting double rod

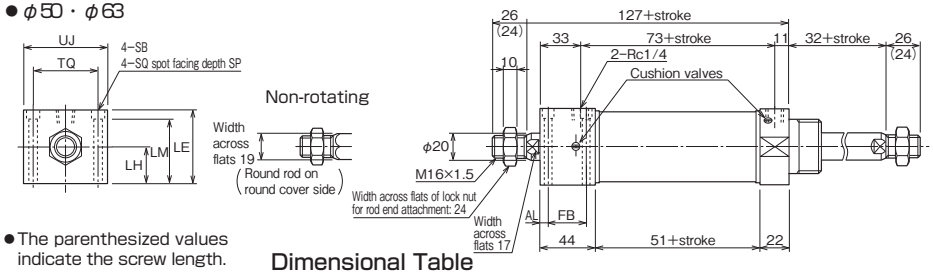
Standard	10Z-3D	AD	Bore	Cushioning	Stroke
Non-rotating	10Z-3GD	AD	Bore	Cushioning	Stroke

●ϕ20 to ϕ40



●For the dimensions not shown here, refer to the AD style (basic style).
●The non-rotating cylinders have the same dimensions as the standard types except the dimensions shown above.
Related types: Type with cushion

●ϕ50・ϕ63



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

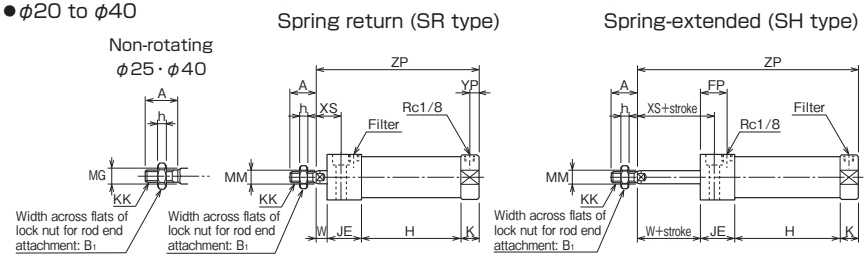
Dimensional Table

Bore \ Symbol	AL	E	FB	LE	LH	LM	SB	SP	SQ	TQ	UJ
ϕ50	7	ϕ56	30	56	28	49.5	ϕ6.6	6.5	ϕ11	50	64
ϕ63	9	ϕ70	27	70	35	61.4	ϕ9	8.6	ϕ14	56	74

Single acting type

Spring return	Standard	10Z-3GSR	AD	Bore	Cushioning	Stroke
	Non-rotating	10Z-3GSR	AD	Bore	Cushioning	Stroke
Spring-extended	Standard	10Z-3GSH	AD	Bore	Cushioning	Stroke
	Non-rotating	10Z-3GSH	AD	Bore	Cushioning	Stroke

●ϕ20 to ϕ40



●For the dimensions not shown here, refer to the AD style (basic style).
●The non-rotating cylinders have the same dimensions as the standard types except the dimensions shown above.
Related types: Rear port style (AP)

Basic style: Clevis cut

Dimensional Table

Bore \ Symbol	A Standard	A Non-rotating	B1 Standard	B1 Non-rotating	FP	h Standard	h Non-rotating	JE	K	KK Standard	KK Non-rotating	LE	LH	LM	MG	MM	P	SB	SP	SQ	TQ	UJ	XS	W	WF	YP
ϕ20	20(20)	—	13	—	23	5	—	30	14	M8×1.25	—	28	14	21.5	—	ϕ8	45	ϕ6.6	6.5	ϕ11	20	34	18	8	24	7
ϕ25	22(22)	20(17)	17	13	25.5	6	5	32.5	14.5	M10×1.25	M8×1.25	34	17	27.5	9	ϕ10	49	ϕ6.6	6.5	ϕ11	24	38	20	10	28	7.5
ϕ32	22(19)	—	17	—	28	6	—	35	15	M10×1.25	—	40	20	31.4	—	ϕ12	54.5	ϕ9	8.6	ϕ14	30	46	22	10	30	7.5
ϕ40	24(21)	24(21)	19	19	30	7	7	37	15	M12×1.25	M12×1.25	48	24	37.2	14	ϕ14	56.5	ϕ11	10.8	ϕ17.5	36	56	22	10	32	7.5

Bore \ Symbol \ Stroke	H Double rod	H Single acting type 15	25	30	50	75	100	ZP 15 SR type	15 SH type	25 SR type	25 SH type	30 SR type	30 SH type	50 SR type	50 SH type	75 SR type	75 SH type	100 SR type	100 SH type
ϕ20	31	71	81	111	131	181	231	123	138	133	158	163	193	183	233	233	308	283	383
ϕ25	35	75	85	115	135	185	235	132	147	142	167	172	202	192	242	242	317	292	392
ϕ32	40	80	90	120	140	190	240	140	155	150	175	180	210	200	250	250	325	300	400
ϕ40	42	82	92	122	142	192	242	144	159	154	179	184	214	204	254	254	329	304	404

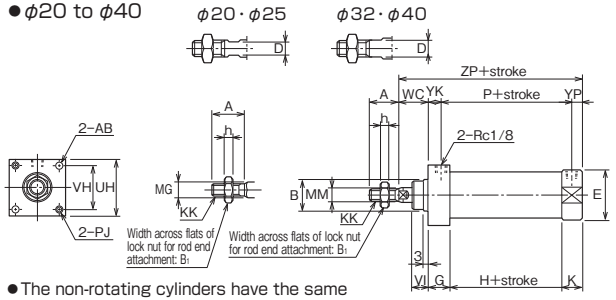
＊The parenthesized values of dimension A indicate the screw length.

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

BD

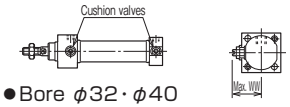
Double acting single rod | Standard | 10Z-3 BD Bore Cushioning Stroke
Non-rotating | 10Z-3G BD Bore Cushioning Stroke

● φ20 to φ40

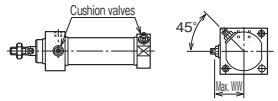


Related type With cushion

● Bore φ20・φ25



● Bore φ32・φ40

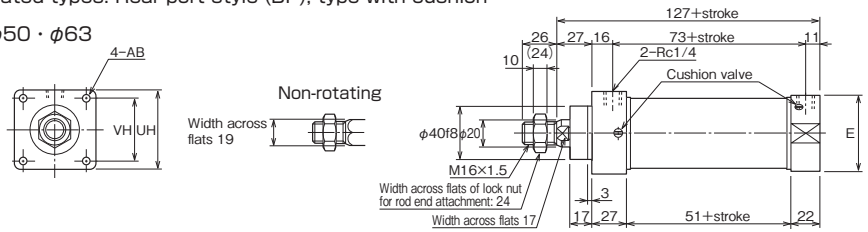


● The non-rotating cylinders have the same dimensions as the standard cylinders except the dimensions of the rod end shown above.

Basic style: Clevis cut

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

● φ50・φ63



● 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

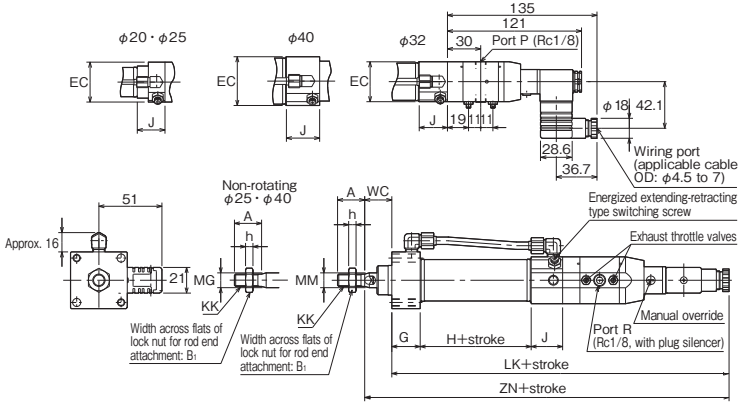
Bore \ Symbol	AB	E	VH	UH
φ50	φ6.6	φ56	□48	□62
φ63	φ9	φ70	□58	□74

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

● φ20 to φ40



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

● 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.

Dimensional Table

Bore \ Symbol	AB Standard	AB Non-rotating	AB	B	ı Standard	ı Non-rotating	D	E	EC	G	H	h Standard	h Non-rotating	J	K
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

Bore \ Symbol	KK Standard	KK Non-rotating	LK	MG	MM	PP	J	UH	VI	VH	WC	WW	YK	YP	ZP	ZN
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

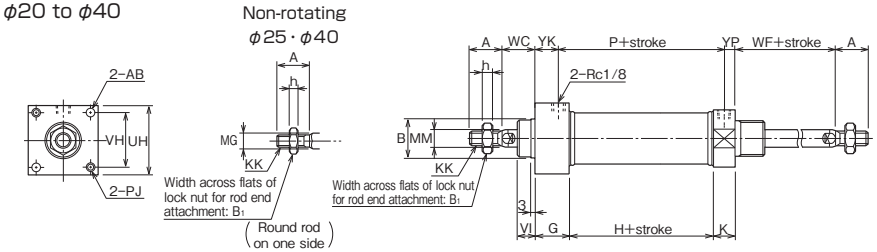
∗The parenthesized values of dimension A indicate the screw length.

BD

Double acting double rod

Standard	10Z-3D	BD	Bore	Cushioning	Stroke
Non-rotating	10Z-3GD	BD	Bore	Cushioning	Stroke

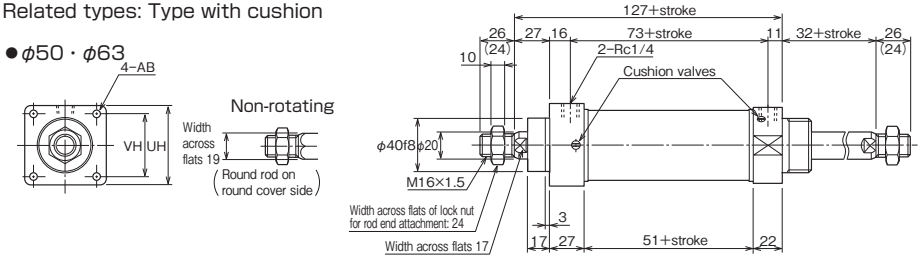
● φ20 to φ40



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

Related types: Type with cushion

● φ50・φ63



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

Dimensional Table

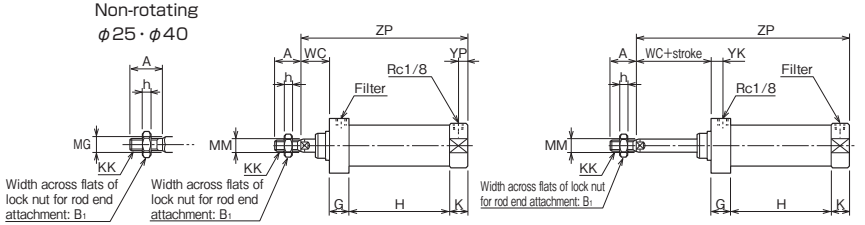
Bore \ Symbol	AB	E	VH	UH
φ50	φ6.6	φ56	□48	□62
φ63	φ9	φ70	□58	□74

Single acting type

Spring return	Standard	10Z-3GSR	BD	Bore	Cushioning	Stroke
	Non-rotating	10Z-3GSR	BD	Bore	Cushioning	Stroke
Spring-extended	Standard	10Z-3GSH	BD	Bore	Cushioning	Stroke
	Non-rotating	10Z-3GSH	BD	Bore	Cushioning	Stroke

● φ20 to φ40

Non-rotating φ25・φ40 | Spring return (SR type) | Spring-extended (SH type)



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

Related types: Rear port style (BP) Basic style: Clevis cut

Dimensional Table

Bore \ Symbol	A Standard	A Non-rotating	AB	B	B1 Standard	B1 Non-rotating	G	h Standard	h Non-rotating	K	KK Standard	KK Non-rotating	MG	MM	PP	J	UH	VH	VI	WC	WF	YK	YP
φ20	20(20)	—	φ5.5	φ20f8	13	—	20	5	—	14	M8×1.25	—	—	φ8	45	M5×0.8	□34	□24	10	18	24	13	7
φ25	22(22)	20(17)	φ5.5	φ22f8	17	13	22.5	6	5	14.5	M10×1.25	M8×1.25	9	φ10	49	M5×0.8	□38	□28	10	20	28	15.5	7.5
φ32	22(19)	—	φ6.6	φ24f8	17	—	23	6	—	15	M10×1.25	—	—	φ12	54.5	M6×1	□46	□36	12	22	30	16	7.5
φ40	24(21)	24(21)	φ9	φ28f8	19	19	25	7	7	15	M12×1.25	M12×1.25	14	φ14	56.5	M8×1.25	□56	□42	12	22	32	18	7.5

Bore \ Stroke	H Double rod	H Single acting type 15	25	30	50	75	100	ZP 15 SR type	15 SH type	25 SR type	25 SH type	30 SR type	30 SH type	50 SR type	50 SH type	75 SR type	75 SH type	100 SR type	100 SH type
φ20	31	71	81	111	131	181	231	123	138	133	158	163	193	183	233	233	308	283	383
φ25	35	75	85	115	135	185	235	132	147	142	167	172	202	192	242	242	317	292	392
φ32	40	80	90	120	140	190	240	140	155	150	175	180	210	200	250	250	325	300	400
φ40	42	82	92	122	142	192	242	144	159	154	179	184	214	204	254	254	329	304	404

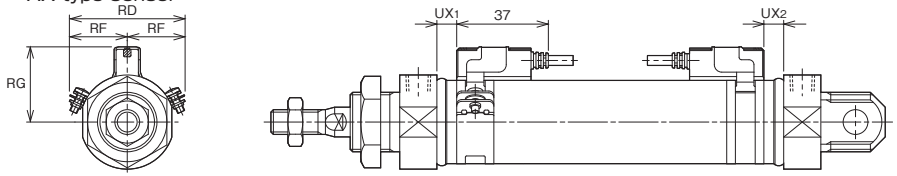
* The parenthesized values of dimension A indicate the screw length.

Switch Set/SV Set
Double acting type

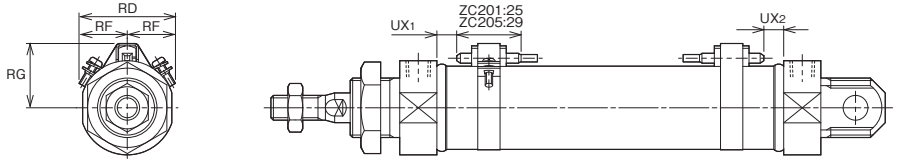
10Z-3 | Mounting style | Bore | Cushioning | Stroke | – | Sensor symbol | Sensor quantity

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

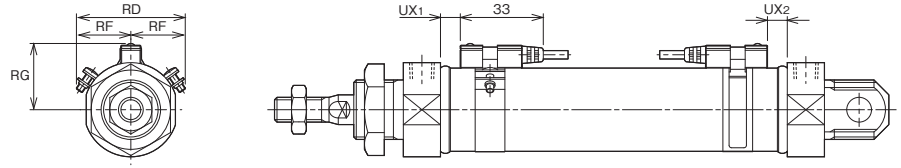
● AX type sensor



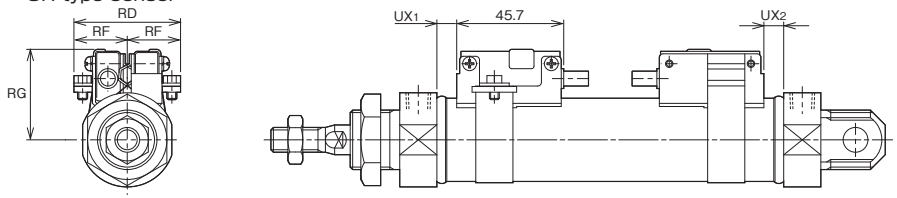
● ZC type sensor



● JR/JS type sensor

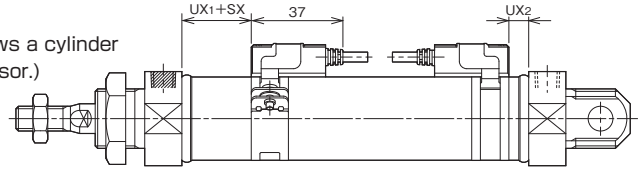


● SR type sensor



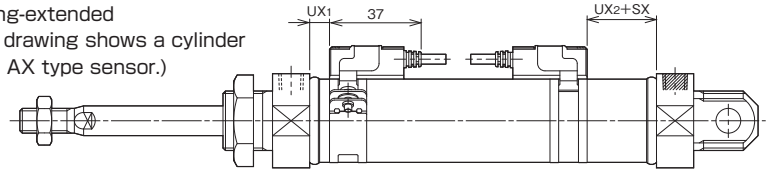
10Z-3SR | Mounting style | Bore | N | Stroke | – | Sensor symbol | Sensor quantity

● 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 / 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	38	33	40	50	19	16.5	20	25	25	20	21	33
ϕ25	44	36	42	52	22	18	21	26	27	22	23	35
ϕ32	48	39	46	54	24	19.5	23	27	31	26	27	38
ϕ40	54	43	50	58	27	21.5	25	29	35	30	31	43
ϕ50	60	49	50	48	30	24.5	25	24	39	35	37	46
ϕ63	68	49	60	52	34	24.5	30	26	47	42	43	53

Symbol / Bore	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
ϕ20	7	7	7	7	9.5	7.5	6	4	8	6
ϕ25	9	8	9	8	11	10	7.5	6.5	9.5	8.5
ϕ32	10	10	10	10	13.5	12.5	10	9	12	11
ϕ40	12	12	12	12	13.5	15.5	10	11	12	13
ϕ50	16	16	16	16	18.5	18.5	15	15	17	17
ϕ63	16	17	16	17	18.5	18.5	15	15	17	17

Symbol / Bore	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
ϕ20	4	3	5	5	2	0	25	50	Stroke
ϕ25	6	5	8	8	1	1			
ϕ32	8	8	10	10	5	5			
ϕ40	8	9	12	12	6	6			
ϕ50	12	12	16	16	7	7	–	–	–
ϕ63	12	12	16	16	7	7	–	–	–

Operating Range and Hysteresis

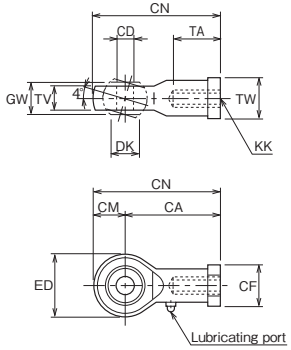
Bore mm	Reed sensor									
	AX1＊＊ type		ZC201 type		ZC205 type		JR type		SR type	
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis
ϕ20	4 to 9	1 or less	5 to 9	2 or less	6 to 8	2 or less	4 to 5	2 or less	6 to 9	2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

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	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
ϕ25			2 to 4				11 to 14	
ϕ32	2 to 6						12 to 15	
ϕ40			2 to 5				13 to 16	
ϕ50			2 to 4				14 to 17	
ϕ63	3 to 6		3 to 5		3 to 5			

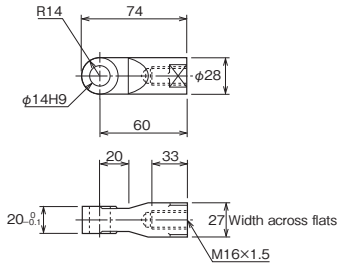
10Z-3/TAZ3 Bore K CAD/DATA is available.

Rod End Attachment

Rod eye with spherical bearing (S-end)
ϕ20 to ϕ63

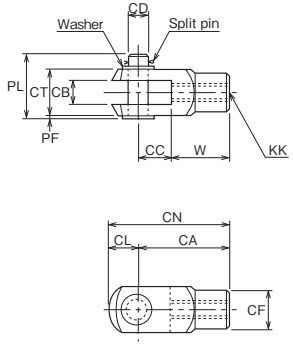


Rod eye (T-end)
ϕ50・ϕ63

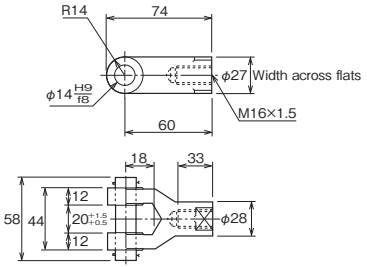


Part number: RTA-16-A

Rod clevis (Y-end) with pin
ϕ20 to ϕ40

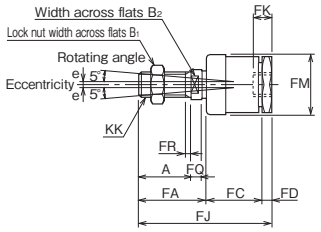


ϕ50・ϕ63

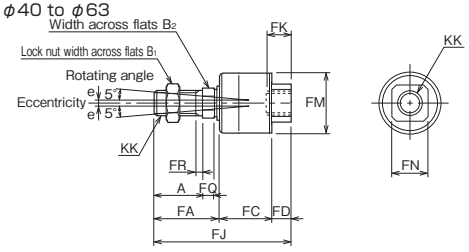


Part number: RYA-16-A

Floating joint (F-end)
ϕ20 to ϕ32



ϕ40 to ϕ63



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
ϕ20	RSA-08-A	36	ϕ8H9	ϕ16	11	47	ϕ10.4	22	$12_{-0.1}^{0}$	M8×1.25	17	9±0.1	14
ϕ25 / ϕ32	RSA-10-A	43	ϕ10H9	ϕ19	13	56	ϕ12.9	26	$14_{-0.1}^{0}$	M10×1.25	21	10.5±0.1	17
ϕ40	RSA-12-A	50	ϕ12H9	ϕ22	15	65	ϕ15.4	30	$16_{-0.1}^{0}$	M12×1.25	24	12±0.1	19
ϕ50 / ϕ63	RSA-16-A	64	ϕ16H9	ϕ27	19	83	ϕ19.4	38	$21_{-0.1}^{0}$	M16×1.5	33	15±0.1	22

＊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
ϕ20	RYA-08-A	32	$8^{+0.4}_{+0.15}$	16	$\phi 8^{H8}_{f7}$	ϕ14	10	42	□16	M8×1.25	2	24.5	16
ϕ25 / ϕ32	RYA-10-A	40	$10^{+0.4}_{+0.15}$	20	$\phi 10^{H8}_{f7}$	ϕ18	12	52	□20	M10×1.25	2.5	30	20
ϕ40	RYA-12-A	48	$12^{+0.4}_{+0.15}$	24	$\phi 12^{H8}_{f7}$	ϕ20	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.

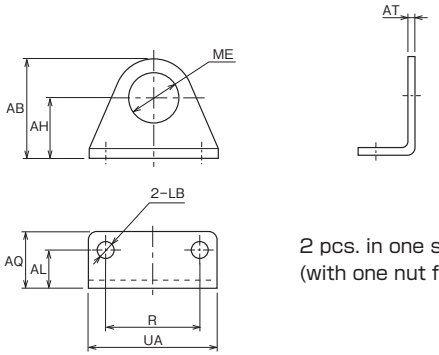
Dimensional Table/Floating joint (F-end)

Symbol / Bore	Part number	A	B_1	B_2	e	FA	FC	FD	FJ	FK	FM	FN	FQ	FR	KK
ϕ20	RFS-08T	22.5	13	8	0.5	28	22.5	3.5	54	9	ϕ20	19	4.5	2.5	M8×1.25
ϕ25 / 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

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

Mounting Accessory

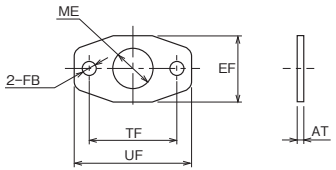
● LB (end angles)



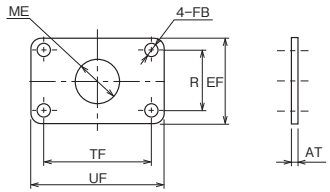
2 pcs. in one set
(with one nut for fitting the accessory)

● FA (rod flange) and FB (cap flange)

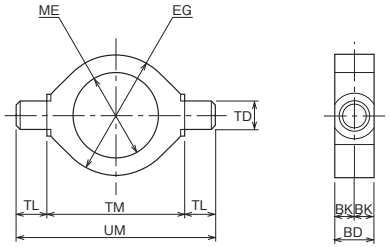
ϕ20 · ϕ25



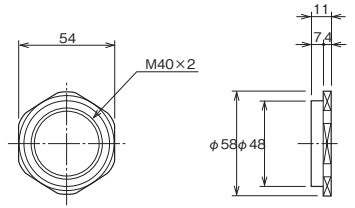
ϕ32 to ϕ63



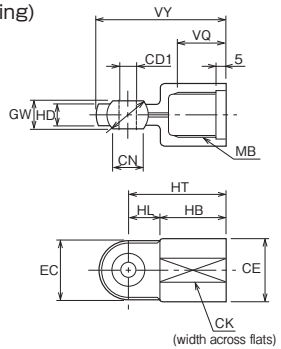
● TA (rod trunnion) and TB (cap trunnion)



● Lock nut for trunnion accessory Only ϕ50 and ϕ63



● CU (cap eye with spherical bearing)



Dimensional Table/LB (end angles)

Symbol / Bore	Part number	AB	AH	AL	AQ	AT	LB	ME	R	UA
ϕ20 / ϕ25	MAZ3–LB020	42	25	16	24	3.2	ϕ6.8	ϕ22.5	40	55
ϕ32	MAZ3–LB032	50	32	25	33	4	ϕ6.8	ϕ24.5	45	60
ϕ40	MAZ3–LB040	58	36	25	33	4	ϕ6.8	ϕ30.5	50	65
ϕ50	MAZ3–LB050	70	40	25	40	6	ϕ9	ϕ40.5	60	80
ϕ63	MAZ3–LB063	77	45	25	40	6	ϕ9	ϕ40.5	74	95

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

Symbol / Bore	Part number	AT	EF	FB	ME	TF	UF	R
ϕ20 / ϕ25	MAZ3–FA020	4	38	ϕ6.6	ϕ22	50	65	—
ϕ32	MAZ3–FA032	4	47	ϕ6.6	ϕ24	58	72	33
ϕ40	MAZ3–FA040	4	51	ϕ6.6	ϕ30	70	84	36
ϕ50	MAZ3–FA050	10	60	ϕ9	ϕ40	74	94	40
ϕ63	MAZ3–FA063	10	70	ϕ9	ϕ40	80	100	50

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

Symbol / Bore	Part number	BD	BK	EG	ME	TD	TM	TL	UM
ϕ20 / ϕ25	MAZ3–TA020	10	5	ϕ32	ϕ22.5	ϕ8e9	36	8	52
ϕ32	MAZ3–TA032	12	6	ϕ36	ϕ24.5	ϕ10e9	44	10	64
ϕ40	MAZ3–TA040	14	7	ϕ44	ϕ30.5	ϕ12e9	50	12	74
ϕ50 / ϕ63	MAZ3–TA050	18	9	ϕ56	ϕ40.5	ϕ16e9	72	16	104

Dimensional Table/CU (cap eye with spherical bearing)

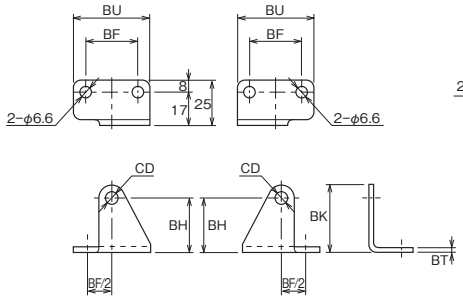
Symbol / Bore	Part number	CD1	CE	CK	CN	EC	GW	HB	HD	HL	HT	MB	VQ	VY
ϕ20	MAZ3–CU020	ϕ8H9	ϕ32	30	ϕ14.8	28	$12^{0}_{-0.3}$	31	10.5	15	46	M22×1.5	23	60
ϕ25	MAZ3–CU025	ϕ10H9	ϕ32	30	ϕ14.8	28	$14^{0}_{-0.3}$	31	10.5	15	46	M22×1.5	23	60
ϕ32	MAZ3–CU032	ϕ10H9	ϕ32	30	ϕ14.8	28	$14^{0}_{-0.3}$	31	10.5	15	46	M24×2	23	60
ϕ40	MAZ3–CU040	ϕ12H9	ϕ38	36	ϕ15.4	32	$16^{0}_{-0.3}$	35	12	17	52	M30×2	26	68

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

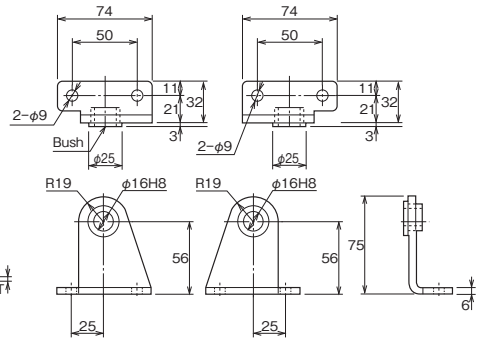
Bracket

● For SD, CU, TA, TB and TC

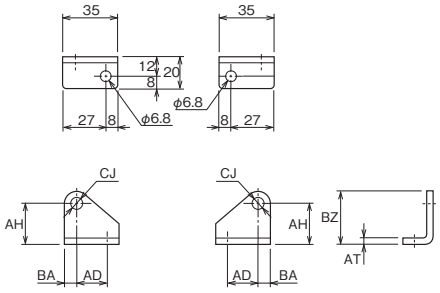
ϕ20 to ϕ40



ϕ50・ϕ63

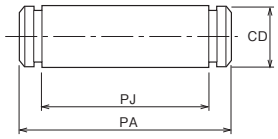


● Bracket for LC



● 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						
ϕ20	MAZ3-BK020PA	MAZ3-BK020PB	MAZ3-BK020	32	32	40	3.2	48	ϕ8
ϕ25		MAZ3-BK032PB							
ϕ32	MAZ3-BK032PA		MAZ3-BK032	36	36	46	4	52	ϕ10
ϕ40	MAZ3-BK040PA	MAZ3-BK040PB	MAZ3-BK040	40	40	52	4	56	ϕ12

Dimensional Table/Brackets for LC (VAL Set)

Symbol / Bore	Part number	AD	AH	AT	BA	BZ	CJ
ϕ20	MAZ3-LC020	19	25	3.2	8	33	ϕ8
ϕ25							
ϕ32	MAZ3-LC032	17	32	4	10	42	ϕ10
ϕ40	MAZ3-LC040	15	36	4	12	48	ϕ12

Dimensional Table/Pins

Symbol / Bore	CD		PA		PJ	
	For SD	For CU	For SD	For CU	For SD	For CU
ϕ20	ϕ8	ϕ8	31	27	26	22
ϕ25	ϕ8	ϕ10	31	29	26	24
ϕ32	ϕ10	ϕ10	32	29	27	24
ϕ40	ϕ12	ϕ12	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)	φ20・φ25・φ32・φ40・φ50・φ63	
Working fluid	Air	
Lubrication	Unnecessary	
Working pressure range	φ20 to φ40: 0.05 to 0.7 MPa, φ50・φ63: 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℃ (No freezing)	
Structure of cushioning	φ20 to φ40: With cushion pads on both ends φ50 and φ63: With cushions on both ends (cushion pad at rod extending end for adjustment)	φ20 to φ40: With cushion pads on both ends (none at rod retracting end for adjustment) φ50 and φ63: 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

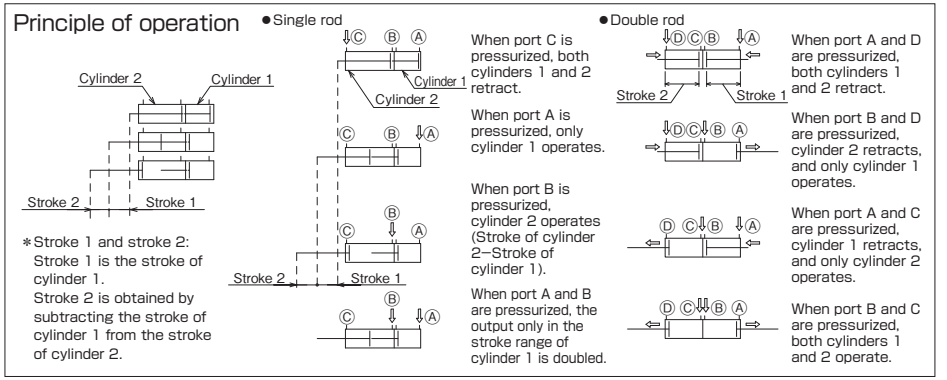
Note) For the working speed range, see the selection materials to check the relationship between the speed and the cushion mechanism.

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)	φ20・φ25・φ32・φ40・φ50・φ63	
Working fluid	Air	
Lubrication	Unnecessary	
Working pressure range	0.1 to 0.7 MPa	φ20 to φ40: 0.05 to 0.7 MPa φ50・φ63: 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℃ (No freezing)	
Structure of cushioning	φ20 to φ40: With cushion pads on both ends φ50 and φ63: 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, TB, TB with bracket

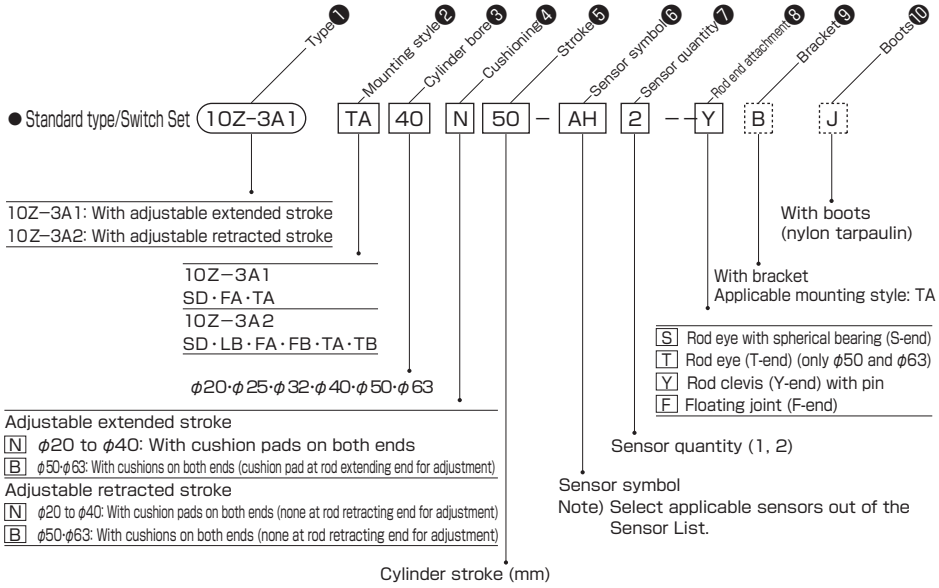
Note) For the working speed range, see the selection materials to check the relationship between the speed and the cushion mechanism.

Principle of operation



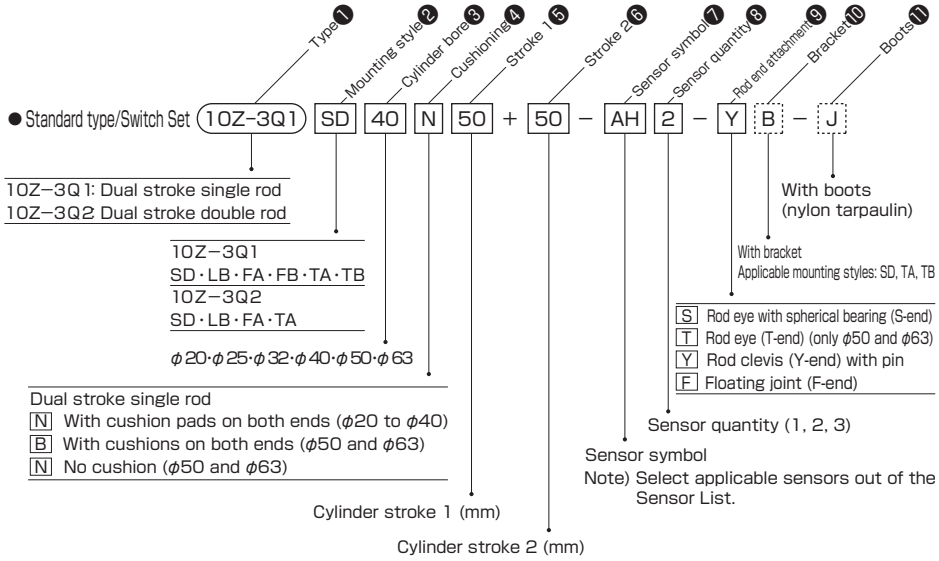
＊Stroke 1 and stroke 2:
Stroke 1 is the stroke of cylinder 1.
Stroke 2 is obtained by subtracting the stroke of cylinder 1 from the stroke of cylinder 2.

● How to order



＊For details, please contact us.

● How to order

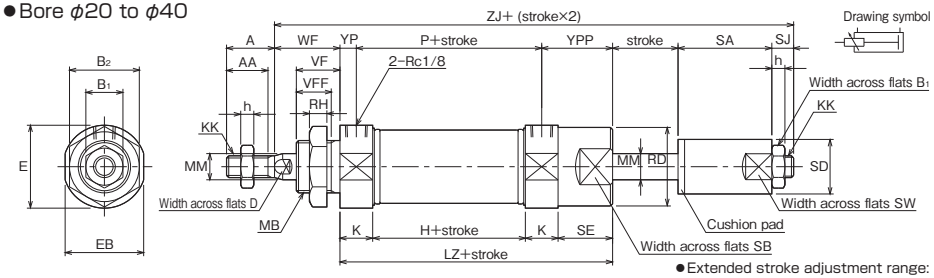


＊For details, please contact us.

Adjustable extended stroke

10Z－3A1 SD Bore N Stroke

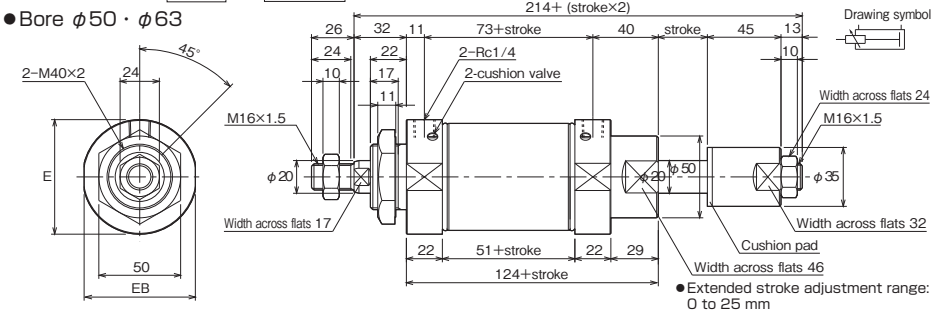
●Bore ϕ20 to ϕ40



●Extended stroke adjustment range:
0 to 25 mm

10Z－3A1 SD Bore B Stroke

●Bore ϕ50・ϕ63

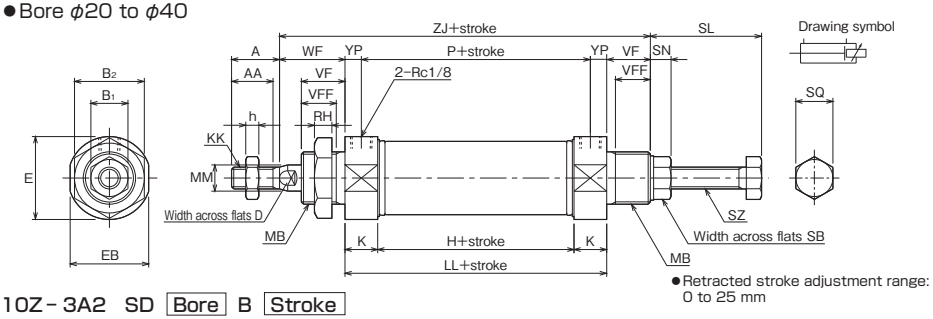


●Extended stroke adjustment range:
0 to 25 mm

Adjustable retracted stroke

10Z－3A2 SD Bore N Stroke

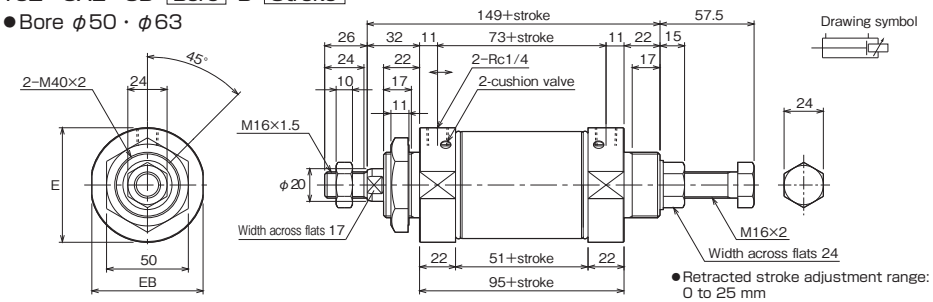
●Bore ϕ20 to ϕ40



●Retracted stroke adjustment range:
0 to 25 mm

10Z－3A2 SD Bore B Stroke

●Bore ϕ50・ϕ63



●Retracted stroke adjustment range:
0 to 25 mm

Dimensional Table/With adjustable extended stroke

Symbol / Bore	A	AA	B1	B2	D	E	EB	H	h	K	KK	LZ	MB	MM	P	RD	RH	SA
ϕ20	20	20	13	30	6	ϕ28	26	31	5	14	M8×1.25	82	M22×1.5	ϕ8	45	ϕ30	7	39
ϕ25	22	22	17	30	8	ϕ31	29	35	6	14.5	M10×1.25	87	M22×1.5	ϕ10	49	ϕ30	7	39
ϕ32	22	19	17	32	10	ϕ38	36	40	6	15	M10×1.25	95	M24×2	ϕ12	55	ϕ35	8	43
ϕ40	24	21	19	41	12	ϕ46	44	42	7	15	M12×1.25	99	M30×2	ϕ14	57	ϕ45	9	43
ϕ50	–	–	–	–	–	ϕ56	54	–	–	–	–	–	–	–	–	–	–	–
ϕ63	–	–	–	–	–	ϕ70	68	–	–	–	–	–	–	–	–	–	–	–

Symbol / Bore	SB	SD	SE	SJ	SW	VF	VFF	WF	YP	YPP	ZJ
ϕ20	27	ϕ20	23	8	17	16	13	24	7	30	153
ϕ25	27	ϕ20	23	9	17	18	15	28	7.5	30.5	163
ϕ32	32	ϕ25	25	9	22	20	16	30	7.5	32.5	177
ϕ40	41	ϕ30	27	10	27	22	18	32	7.5	34.5	184
ϕ50	–	–	–	–	–	–	–	–	–	–	–
ϕ63	–	–	–	–	–	–	–	–	–	–	–

Dimensional Table/With adjustable retracted stroke

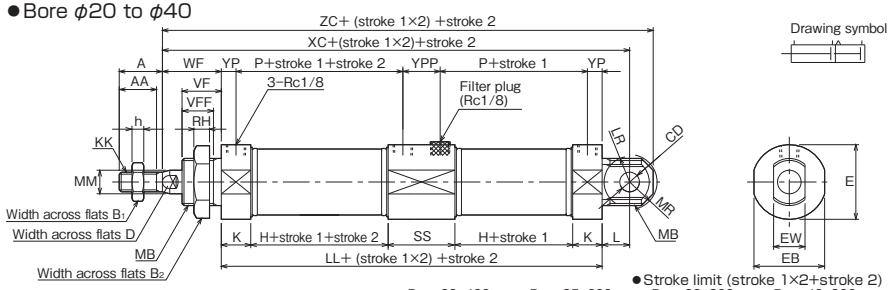
Symbol / Bore	A	AA	B1	B2	D	E	EB	H	h	K	KK	LL	MB	MM	P	RH	SB	SL
ϕ20	20	20	13	30	6	ϕ28	26	31	5	14	M8×1.25	59	M22×1.5	ϕ8	45	7	13	48
ϕ25	22	22	17	30	8	ϕ31	29	35	6	14.5	M10×1.25	64	M22×1.5	ϕ10	49	7	13	46.5
ϕ32	22	19	17	32	10	ϕ38	36	40	6	15	M10×1.25	70	M24×2	ϕ12	55	8	17	51
ϕ40	24	21	19	41	12	ϕ46	44	42	7	15	M12×1.25	72	M30×2	ϕ14	57	9	19	52
ϕ50	–	–	–	–	–	ϕ56	54	–	–	–	–	–	–	–	–	–	–	–
ϕ63	–	–	–	–	–	ϕ70	68	–	–	–	–	–	–	–	–	–	–	–

Symbol / Bore	SN	SQ	SZ	VF	VFF	WF	YP	ZJ
ϕ20	8	13	M8×1.25	16	13	24	7	99
ϕ25	8	13	M8×1.25	18	15	28	7.5	110
ϕ32	9.5	17	M10×1.5	20	16	30	7.5	120
ϕ40	12	19	M12×1.75	22	18	32	7.5	126
ϕ50	–	–	–	–	–	–	–	–
ϕ63	–	–	–	–	–	–	–	–

Dual stroke/single rod

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

●Bore ϕ20 to ϕ40

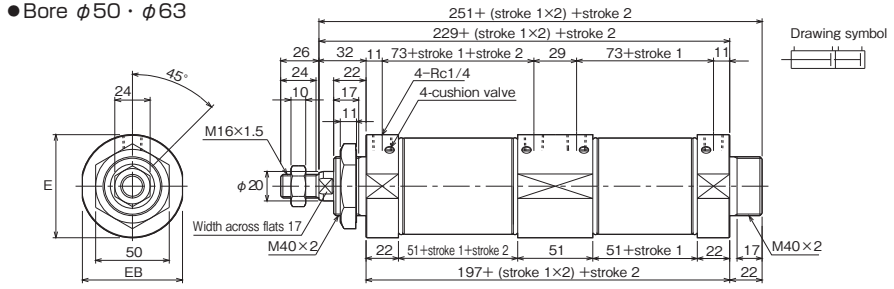


●Stroke limit (stroke 1×2+stroke 2)

Bore 20: 400 mm Bore 25: 600 mm Bore 32: 800 mm Bore 40: 900 mm

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

●Bore ϕ50・ϕ63

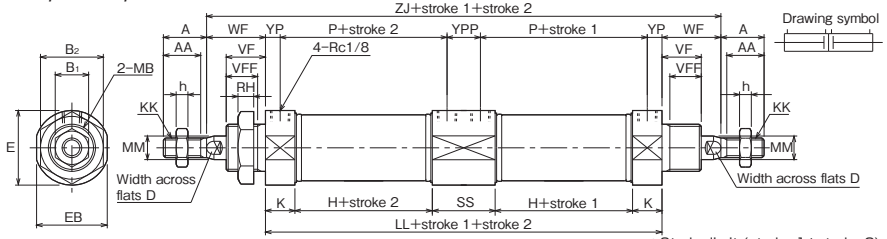


●Stroke limit (stroke 1×2+stroke 2): 900 mm

Dual stroke/double rod

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

●Bore ϕ20 to ϕ40

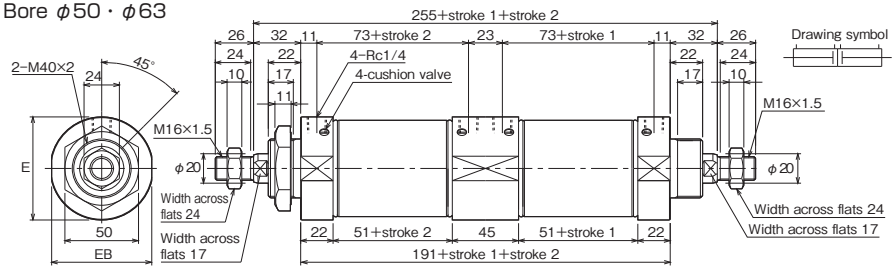


●Stroke limit (stroke 1+stroke 2)

Bore 20: 400 mm Bore 25: 600 mm Bore 32: 800 mm Bore 40: 900 mm

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

●Bore ϕ50・ϕ63



●Stroke limit (stroke 1+stroke 2): 900 mm

Dimensional Table/Dual stroke/Single rod

Symbol / Bore	A	AA	B1	B2	CD	D	E	EB	EW	H	h	K	KK	L	LL	LR	MB
ϕ20	20	20	13	30	ϕ8H9	6	ϕ28	26	$16^{-0.1}_{-0.3}$	31	5	14	M8×1.25	12	121	R11	M22×1.5
ϕ25	22	22	17	30	ϕ8H9	8	ϕ31	29	$16^{-0.1}_{-0.3}$	35	6	14.5	M10×1.25	12	130	R11	M22×1.5
ϕ32	22	19	17	32	ϕ10H9	10	ϕ38	36	$16^{-0.1}_{-0.3}$	40	6	15	M10×1.25	14	144	R13	M24×2
ϕ40	24	21	19	41	ϕ12H9	12	ϕ46	44	$20^{-0.1}_{-0.3}$	42	7	15	M12×1.25	16	149	R15	M30×2
ϕ50	–	–	–	–	–	–	ϕ56	54	–	–	–	–	–	–	–	–	–
ϕ63	–	–	–	–	–	–	ϕ70	68	–	–	–	–	–	–	–	–	–

Symbol / Bore	MM	MR	P	RH	SS	VF	VFF	WF	XC	YP	YPP	ZC
ϕ20	ϕ8	R12	45	7	31	16	13	24	157	7	17	167
ϕ25	ϕ10	R12	49	7	31	18	15	28	170	7.5	17	180
ϕ32	ϕ12	R14	55	8	34	20	16	30	188	7.5	19	200
ϕ40	ϕ14	R16	57	9	35	22	18	32	197	7.5	20	209
ϕ50	–	–	–	–	–	–	–	–	–	–	–	–
ϕ63	–	–	–	–	–	–	–	–	–	–	–	–

Dimensional Table/Dual stroke/Double rod

Symbol / Bore	A	AA	B1	B2	D	E	EB	H	h	K	KK	LL	MB	MM	P	RH	SS	VF
ϕ20	20	20	13	30	6	ϕ28	26	31	5	14	M8×1.25	121	M22×1.5	ϕ8	45	7	31	16
ϕ25	22	22	17	30	8	ϕ31	29	35	6	14.5	M10×1.25	130	M22×1.5	ϕ10	49	7	31	18
ϕ32	22	19	17	32	10	ϕ38	36	40	6	15	M10×1.25	142	M24×2	ϕ12	55	8	32	20
ϕ40	24	21	19	41	12	ϕ46	44	42	7	15	M12×1.25	146	M30×2	ϕ14	57	9	32	22
ϕ50	–	–	–	–	–	ϕ56	54	–	–	–	–	–	–	–	–	–	–	–
ϕ63	–	–	–	–	–	ϕ70	68	–	–	–	–	–	–	–	–	–	–	–

Symbol / Bore	VFF	WF	YP	YPP	ZJ
ϕ20	13	24	7	17	167
ϕ25	15	28	7.5	17	182
ϕ32	16	30	7.5	17	196
ϕ40	18	32	7.5	17	203
ϕ50	–	–	–	–	–
ϕ63	–	–	–	–	–

Setting method of sensor detecting position

AX type sensor

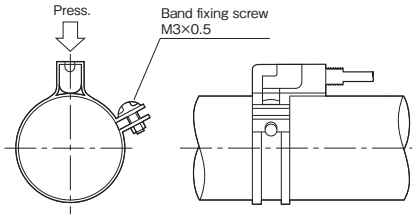
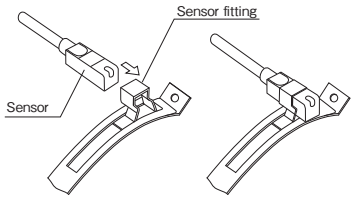


Fig. 1



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

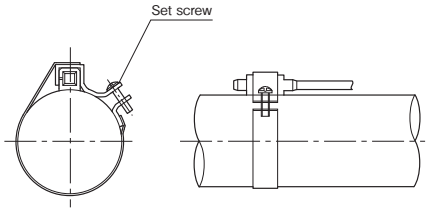
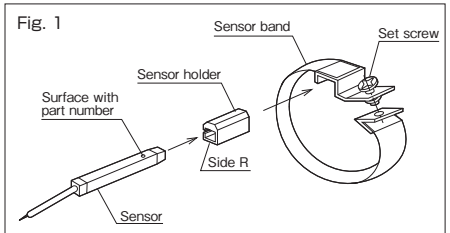


Fig. 1



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

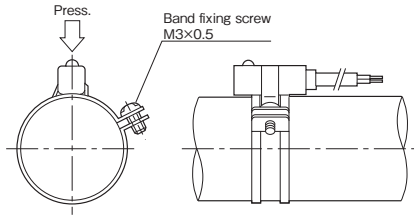
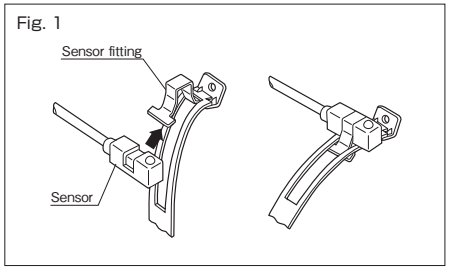
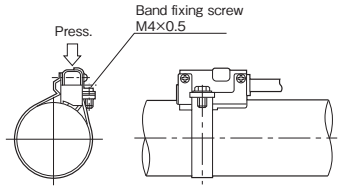


Fig. 1



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.

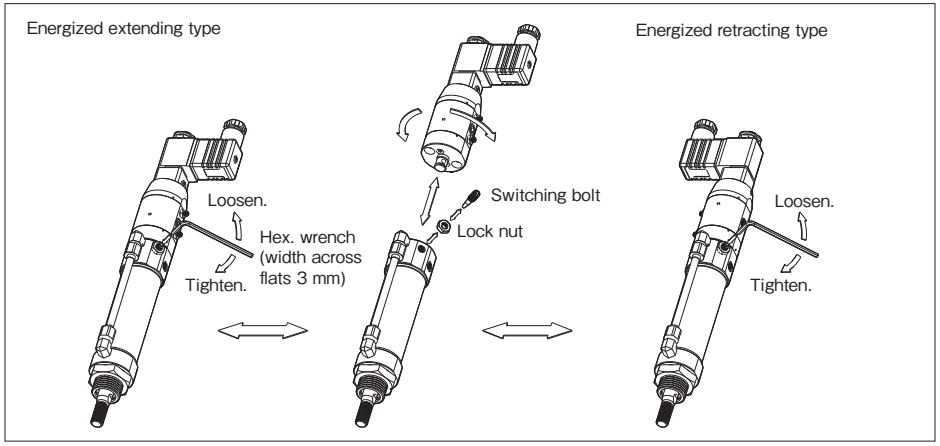
SR type sensor



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.

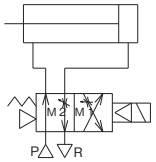
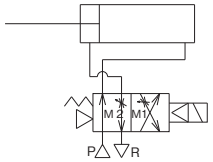
VAL Set handling procedures

Procedures for switching between energized extending and energized retracting types



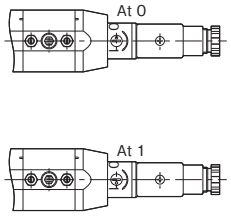
As shown in the figure, tighten the energized extending-retracting type switching mechanism with a hex. wrench having a width across flats of 3 mm.
To change the type, turn the mechanism 180°, and tighten the switching bolt.
Recommended tightening torque: 2.40 N·m

How to use exhaust throttle valves

●Energized extending type	●Energized retracting type
	
Extending speed control: Adjust the exhaust throttle valve M1. Retracting speed control: Adjust the exhaust throttle valve M2.	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.)

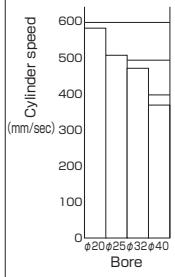
How to use manual override



- 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



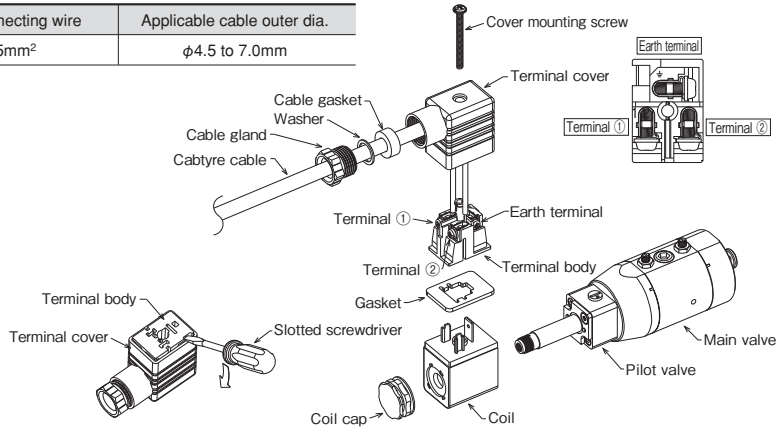
Cylinder load rate: 50 % (actual load)
Supply pressure: 0.5 MPa
Average speed: Average speed after the cylinder starts moving until it reaches the stroke end

Use the graph to find the approximate cylinder speed. Note that the actual speed varies depending on the working conditions. Ensure that the working speed does not exceed the working speed range.

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 1.5mm²	ϕ4.5 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
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 recommended 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

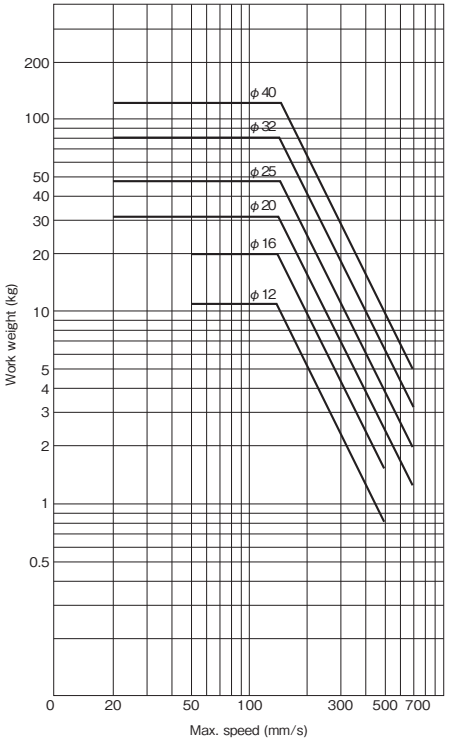
	M8 (ϕ20, ϕ25)	M10 (ϕ32)	M12 (ϕ40)
Recommended tightening torque of rod end attachment fixing nut	12.0N·m	24.0N·m	42.2N·m

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

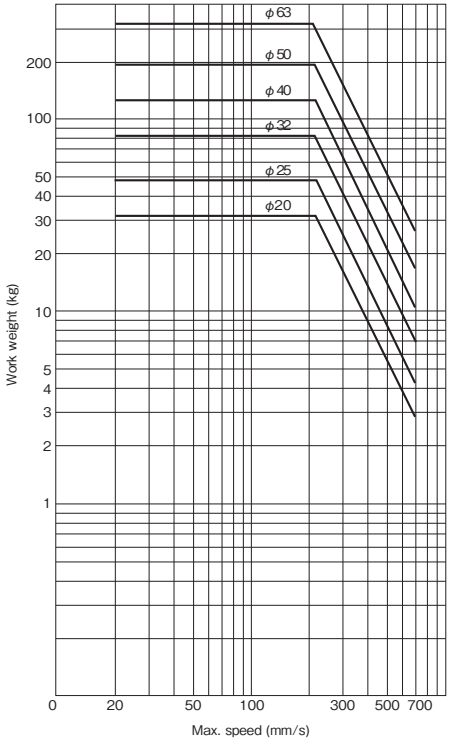
Selection Materials

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 $Ex=\frac{W}{2g}V^2$

W: Work weight (kg)

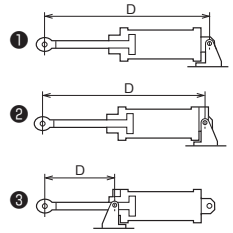
g : Mass acceleration, 980 (cm/s²)

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.

Selection of Stroke

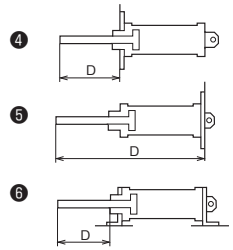
● Pin joints at both ends (D=L)



Max. Stroke Unit: mm

Mounting style / Working pressure (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

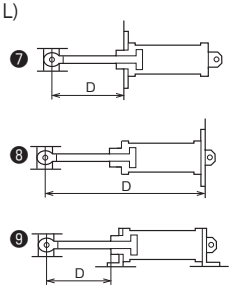
● Fixed cylinder and free rod end (D=L/2)



Max. Stroke Unit: mm

Mounting style / Working pressure (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

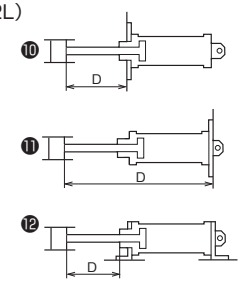
● Fixed cylinder and rod end guide (pin joint) (D=1.4 L)



Max. Stroke Unit: mm

Mounting style / Working pressure (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 (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