

SLIM CYLINDERS

Use durable piston seals.

The two piston seals are the durable PPY type. This prevents inner air leakage, and achieves smooth operation from low-speed to high-speed ranges.

Sensor switches can be installed anytime after cylinder installation.

Magnets as standard equipment across the entire series allow sensor switches to be installed anytime after the cylinder has been installed.

High installation accuracy and simple mounting operations.

A centering location on the rod cover improves mounting precision. Moreover, the mounting nut's improved thread precision means that holding the cylinder body in place by hand is sufficient for mounting nut tightening operations. Mounting in hard-to-reach places is easy.

Criteria for Selection: Slim Cylinder Allowable Kinetic Energy

Slim cylinders (with the exception of heat resistant specifications) include a cushioning mechanism.

This mechanism is intended to reduce as much as possible the impact of pistons with high kinetic energy when they stop at the end of the stroke. There are two types of cushions, as shown below.

● Rubber bumpers (Standard equipment)

Rubber bumpers installed on both sides of the piston soften the impact at the end of the stroke, and absorb the impact noise during stopping, in response to high-frequency and high-speed operations. They are standard equipment across the whole series, with the exception of heat resistant specifications.

Note that a certain amount of rebound will occur at the end of the stroke on the cylinder with the rubber bumpers.

● Variable cushions

Use variable cushions for large load or high-speed operations that rubber bumpers cannot adequately absorb. The impact is absorbed by compressing air, when the piston stops at the end of the stroke. Since the cushioning stroke is included within the cylinder stroke, be careful to ensure that the cushion is not excessively performed during cylinder applications of 25mm strokes or less. An excessively performed cushion can result in too much time for each stroke, reducing efficiency. When operated at or below the absorbable kinetic energy shown in the table below, the cushion seal life is 1 million operations or more.

The load kinetic energy can be obtained through the formulas shown below.

$$E_x = \frac{m}{2} v^2$$

Ex: Kinetic energy (J)
m: Load mass (kg)
v: Piston speed (m/s)

$$E'_x = \frac{W}{2g} v'^2$$

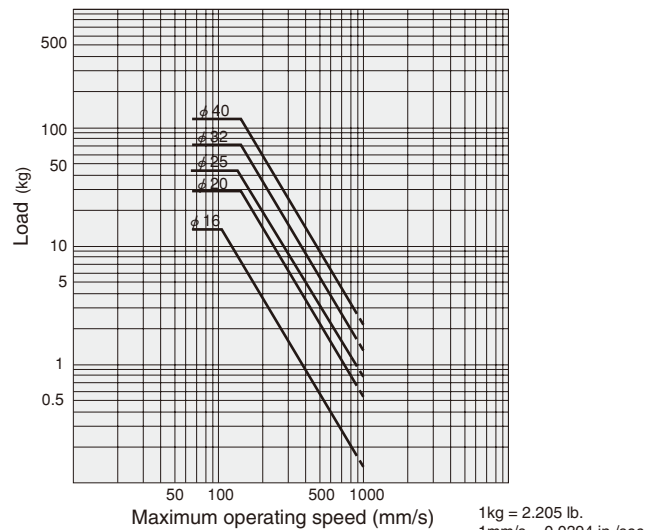
E'x: Kinetic energy [ft·lbf]
W: Load [lbf.]
v': Piston speed [ft./sec.]
g: Acceleration of gravity 32.2 [ft./sec.²]

Operating speed range

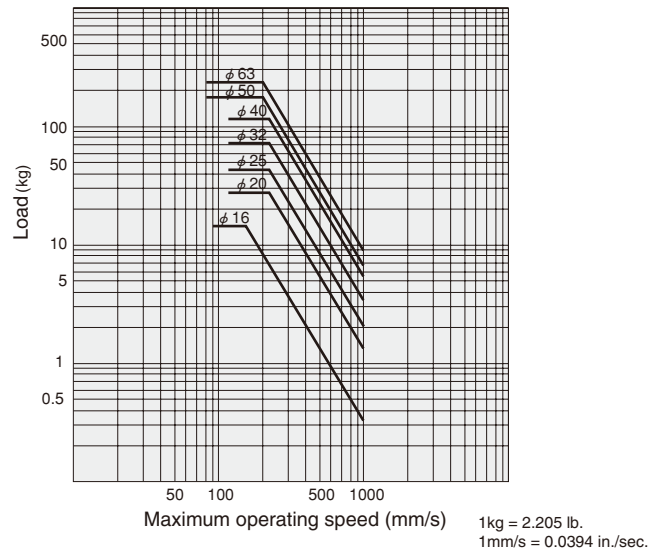
- Rubber bumper 30~800mm/s [1.2~31.5in./sec.]
- Variable cushion 30~1000mm/s [1.2~39.4in./sec.]

Bore size mm [in.]	Allowable kinetic energy J [ft·lbf]	
	With rubber bumpers	With variable cushion
16 [0.630]	0.07 [0.052]	0.18 [0.13]
20 [0.787]	0.27 [0.20]	0.7 [0.52]
25 [0.984]	0.40 [0.30]	1.05 [0.77]
32 [1.260]	0.65 [0.48]	1.8 [1.33]
40 [1.575]	1.2 [0.89]	2.8 [2.07]
50 [1.969]	—	3.5 [2.58]
63 [2.480]	—	4.5 [3.32]

Rubber bumper (Graph 1)



Variable cushion (Graph 2)



How to read the graphs

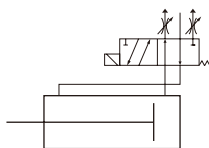
From Graph 1, the capacity of the rubber bumpers limits the maximum speed to 500mm/s [19.7in./sec.] or less when a φ32 Slim Cylinder is used to carry a load of 5kg [11.0lb.].

From Graph 2, a φ32 cylinder with variable cushion can be selected to carry a load of 8kg [17.6lb.] at a maximum speed of 600mm/s [23.6in./sec.].

SLIM VALPACK CYLINDERS

Standard Rod Cylinders, Square Rod Cylinders

Symbol



Specifications

● Valpack cylinders specifications

Bore size	mm [in.]	20 [0.787]	25 [0.984]	32 [1.260]	40 [1.575]	40 [1.575]
Item	Solenoid valve series	062 series				125 series
Operation type		Double acting type				
Media		Air				
Mounting type		Basic type, Foot type, Flange type, Rod trunnion type, Head trunnion type				
Operating pressure range MPa [psi.]	Air cylinder	0.04~0.9 [6~131]				
	Square rod cylinders (φ 25 and φ 40 only)	0.1~0.9 [15~131]				
Proof pressure	MPa [psi.]	1.32 [191]				
Operating temperature range	°C [°F]	0~60 [32~140]				
Operating speed range	mm/s [in./sec.]	30~800 [1.2~31.5]	30~500 [1.2~19.7]	30~300 [1.2~11.8]	30~210 [1.2~8.3]	30~450 [1.2~17.7]
Speed controller		Exhaust throttle valve (in both directions) is standard equipment.				
Cushion		Fixed type (Rubber bumper)				
Lubrication		Not required				Required (Turbine Oil Class 1 [ISO VG32] or equivalent)
Port size	Rc	1/4				

Note: Solenoid valve 125 series is available (as an option) for bore size φ 40 only.

● Solenoid valve specifications

	Series	062 series	125 series
	Solenoid specification	Single	Single
Item	Model	VPS062-4E1-70	VPS125-4E1-70
Operation type		Direct operation	
Number of positions and ports		2 positions, 5 ports	
Effective area	mm ² [Cv]	1.8 [0.1]	3.5 [0.19]
Port size	Rc	1/4	
Lubrication		Not required	Required (Turbine Oil Class 1 [ISO VG32] or equivalent)
Operating pressure range MPa [psi.]		0~0.9 [0~131] (For the solenoid valve alone, however)	
Proof pressure MPa [psi.]		1.32 [191]	
Operating temperature range °C [°F]		0~60 [32~140]	
Shock resistance m/s ² [G]	Lateral direction	980.7 [100]	
	Axial direction	980.7 [100]	
Mounting direction		Any	
Maximum operation frequency Hz		5	

● Solenoid specifications

Rated voltage		AC100V		AC200V		DC24V
Item						
Operating voltage range V		90~110 (100±10%)		180~220 (200±10%)		21.6~26.4 (24±10%)
Current value (Applied rated voltage)	Frequency Hz	50	60	50	60	—
	Current mA (r.m.s)	140	130	70	65	400
Insulation resistance MΩ		100 or more				
Wiring and lead wire length		Grommet type: About 300mm [11.8in.]				
Color of lead wire		Yellow and black		White and black		Red and black

- Notes: 1. While voltages other than those listed above can be manufactured, consult us about delivery for voltages other than AC100V and AC200V.
2. Since air pressure being used as a self-holding force could cause it to be unstable when using the VPS062-4E2 solenoid valve, always supply power with an electric circuit, to the solenoid valve, while the cylinder is in operation.
3. Consult us about surge suppression measures.



SLIM CYLINDERS

Bore Size and Stroke

● Standard rod cylinder

Bore size	Standard strokes	Maximum stroke	Maximum available stroke
20	25 50 75 100 125 150	200	1050 (740)
25	25 50 75 100 125 150 200	250	
32	25 50 75 100 125 150 200	300	
40	25 50 75 100 125 150 200 250 300	400 (300)	

● Square rod cylinders

Bore size	Standard strokes	Maximum stroke	Maximum available stroke
20	25 50 75 100 125 150	150	500
40			

- Remarks: 1. Stroke tolerance $+1 \begin{smallmatrix} +0.039in. \\ 0 \end{smallmatrix}$
2. For non-standard strokes, consult us.
3. Figures in parentheses () are for cylinders with bellows.
4. The minimum operating pressure when the stroke is over the maximum stroke is 0.2MPa [29psi].

Mass

● Standard rod cylinder

Solenoid valve	Bore size mm	Zero stroke mass				Additional mass for each 1mm [0.0394in.] stroke
		Basic type	Foot type	Flange type	Trunnion type	
062 series	20	0.49 [1.08]	0.62 [1.37]	0.57 [1.26]	0.69 [1.52]	0.0008 [0.0018]
	25	0.54 [1.19]	0.68 [1.50]	0.62 [1.37]	0.73 [1.61]	0.0011 [0.0024]
	32	0.64 [1.41]	0.79 [1.74]	0.74 [1.63]	0.82 [1.81]	0.0015 [0.0033]
	40	0.80 [1.76]	1.01 [2.23]	0.93 [2.05]	0.97 [2.14]	0.0024 [0.0053]
125 series	40	0.86 [1.90]	1.08 [2.38]	0.99 [2.18]	1.04 [2.29]	0.0024 [0.0053]

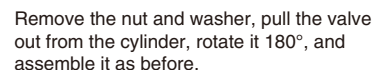
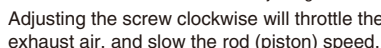
Calculation example: For the mass of foot mounting type of 32mm bore size and 100mm stroke
 $0.79 + (0.0015 \times 100) = 0.94\text{kg}$ [2.07lb.]

● Square rod cylinder

Solenoid valve	Bore size mm	Zero stroke mass				Additional mass for each 1mm [0.0394in.] stroke
		Basic type	Foot type	Flange type	Trunnion type	
062 series	25	0.53 [1.17]	0.67 [1.48]	0.61 [1.35]	0.72 [1.59]	0.0009 [0.0020]
	40	0.81 [1.79]	1.02 [2.25]	0.94 [2.07]	0.98 [2.16]	0.0021 [0.0046]
125 series	40	0.87 [1.92]	1.09 [2.40]	1.00 [2.21]	1.05 [2.32]	0.0021 [0.0046]

Calculation example: For the mass of foot mounting type of 25mm bore size and 100mm stroke
 $0.67 + (0.0009 \times 100) = 0.76\text{kg}$ [1.68lb.]

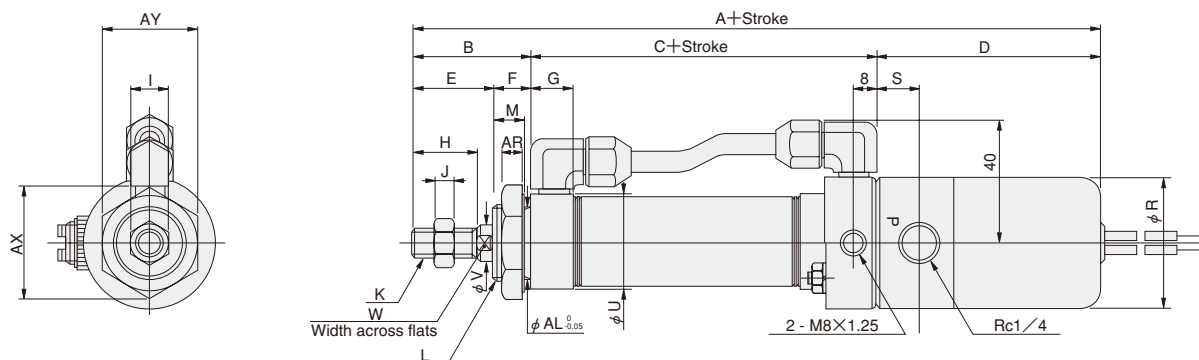
- For the mass of the mounting bracket, see p.315.



Remarks: 1. Order code for the Valpack valve only is **VPS062-4E1-70-voltage** (or **VPS125-4E1-70-voltage**).
2. Can also be manufactured with keep solenoid type (momentarily energizing holding type) valve.

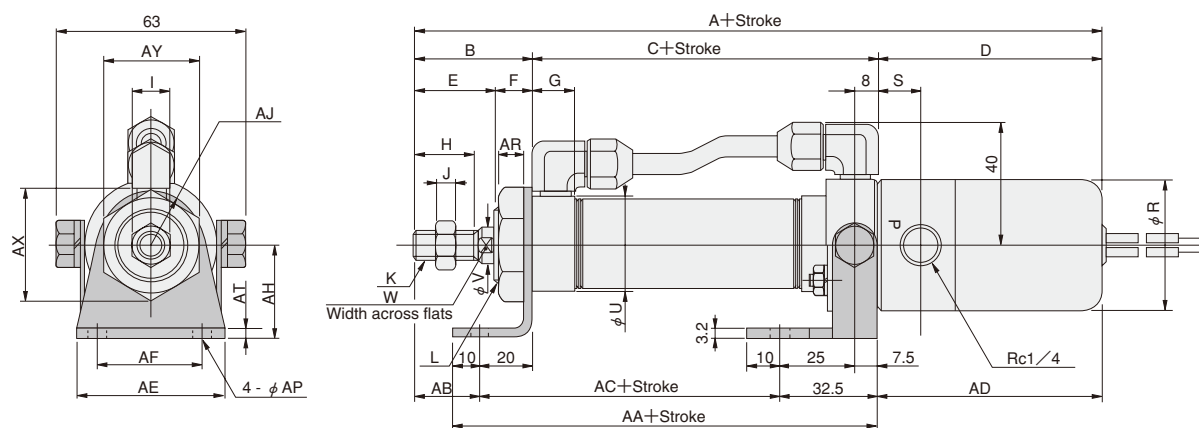
Dimensions of Valpack Cylinder (mm)

● Basic type DV Bore size × Stroke



Solenoid valve	Bore mm [in.]	Code	A	B	C	D	E	F	G	H	I	J	K	L	M	R	S	U	V	W	AR	AX	AY	AL
062 series	20	[0.787]	196	35	88	73	23	12	16	15	12	5	M 8×1	M20×1.5	10	42	14.5	27	8	6	7.5	31.2	27	20
	25	[0.984]	201	40	88	73	26	14	16	18	14	6	M10×1.25	M22×1.5	12	42	14.5	29	10	8	9.5	34.6	30	22
	32	[1.260]	206	45	88	73	31	14	16	23	14	6	M10×1.25	M27×2	12	42	14.5	35	12	10	9.5	41.6	36	27
	40	[1.575]	211	45	93	73	31	14	(14.5)	23	19	8	M14×1.5	M33×2	12	42	14.5	41.6	16	14	9.5	47.3	41	33
125 series	40	[1.575]	221	45	93	83	31	14	(14.5)	23	19	8	M14×1.5	M33×2	12	46	16.5	41.6	16	14	9.5	47.3	41	33

● Foot mounting type DV Bore size × Stroke -1

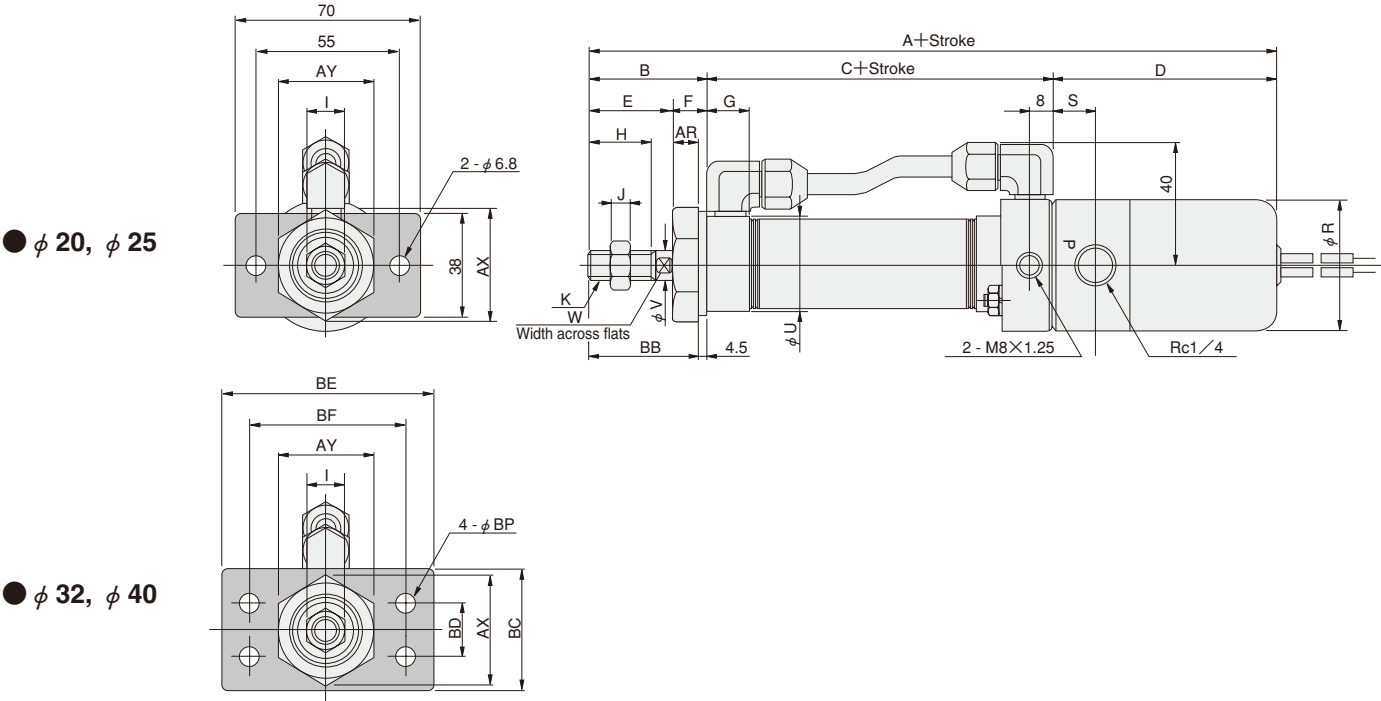


Solenoid valve	Bore mm [in.]	Code	A	B	C	D	E	F	G	H	I	J	K	R	S	U	V	W
062 series	20	[0.787]	196	35	88	73	23	12	16	15	12	5	M 8×1	42	14.5	27	8	6
	25	[0.984]	201	40	88	73	26	14	16	18	14	6	M10×1.25	42	14.5	29	10	8
	32	[1.260]	206	45	88	73	31	14	16	23	14	6	M10×1.25	42	14.5	35	12	10
	40	[1.575]	211	45	93	73	31	14	(14.5)	23	19	8	M14×1.5	42	14.5	41.6	16	14
125 series	40	[1.575]	221	45	93	83	31	14	(14.5)	23	19	8	M14×1.5	46	16.5	41.6	16	14

Solenoid valve	Bore mm [in.]	Code	AA	AB	AC	AD	AE	AF	AH	AJ	AP	AR	AT	AX	AY
062 series	20	[0.787]	117.5	15	75	73.5	55	40	25	15.5	6.8	7.5	3.2	31.2	27
	25	[0.984]	117.5	20	75	73.5	55	40	30	17	6.8	9.5	3.2	34.6	30
	32	[1.260]	117.5	25	75	73.5	55	40	35	20	6.8	9.5	3.2	41.6	36
	40	[1.575]	122.5	25	80	73.5	75	55	40	23.5	9	9.5	4	47.3	41
125 series	40	[1.575]	122.5	25	80	83.5	75	55	40	23.5	9	9.5	4	47.3	41

Dimensions of Valpack Cylinder (mm)

● Flange mounting type DV
 Bore size
 ×
 Stroke
 -3

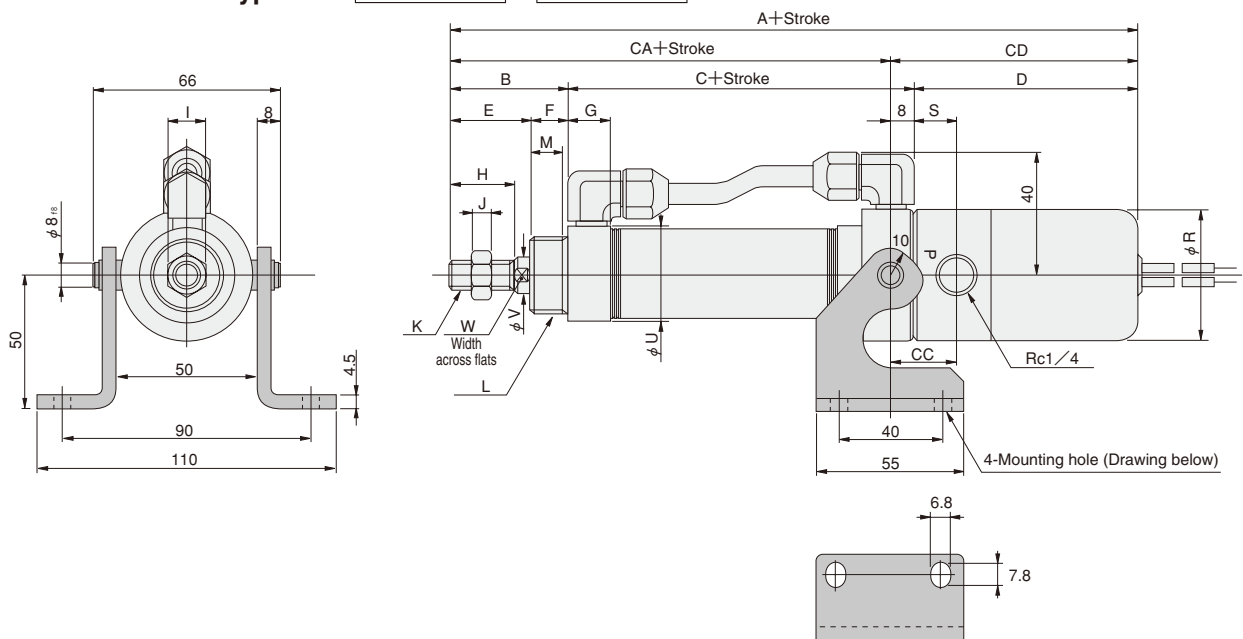


Solenoid valve	Bore mm [in.]	Code	A	B	C	D	E	F	G	H	I	J	K	R	S	U	V	W
062 series	20	[0.787]	196	35	88	73	23	12	16	15	12	5	M 8 \times 1	42	14.5	27	8	6
	25	[0.984]	201	40	88	73	26	14	16	18	14	6	M10 \times 1.25	42	14.5	29	10	8
	32	[1.260]	206	45	88	73	31	14	16	23	14	6	M10 \times 1.25	42	14.5	35	12	10
	40	[1.575]	211	45	93	73	31	14	(14.5)	23	19	8	M14 \times 1.5	42	14.5	41.6	16	14
125 series	40	[1.575]	221	45	93	83	31	14	(14.5)	23	19	8	M14 \times 1.5	46	16.5	41.6	16	14

Solenoid valve	Bore mm [in.]	Code	AR	AX	AY	BB	BC	BD	BE	BF	BP
062 series	20	[0.787]	7.5	31.2	27	30.5	—	—	—	—	—
	25	[0.984]	9.5	34.6	30	35.5	—	—	—	—	—
	32	[1.260]	9.5	41.6	36	40.5	45	20	80	60	6.8
	40	[1.575]	9.5	47.3	41	40.5	50	30	100	80	9
125 series	40	[1.575]	9.5	47.3	41	40.5	50	30	100	80	9

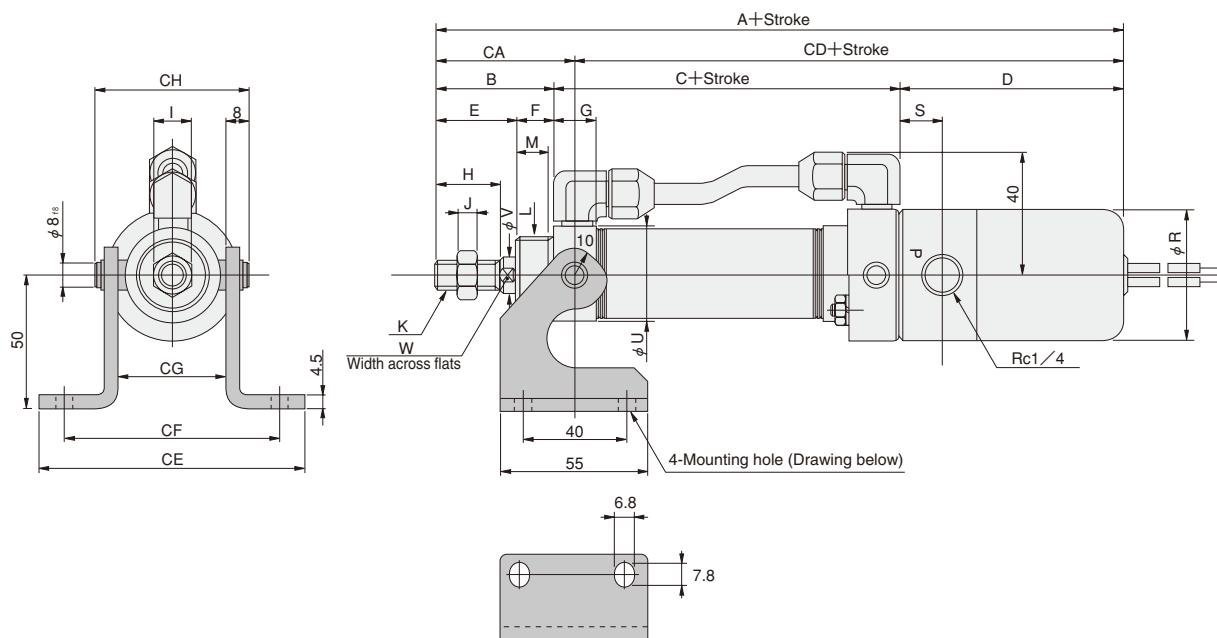
Dimensions of Valpack Cylinder (mm)

● Head side trunnion type DV Bore size × Stroke -11T



Solenoid valve	Bore mm [in.]	Code	A	B	C	D	E	F	G	H	I	J	K	L	M	R	S	U	V	W	CA	CC	CD
062 series	20 [0.787]		196	35	88	73	23	12	16	15	12	5	M8×1	M20×1.5	10	42	14.5	27	8	6	115	22.5	81
	25 [0.984]		201	40	88	73	26	14	16	18	14	6	M10×1.25	M22×1.5	12	42	14.5	29	10	8	120	22.5	81
	32 [1.260]		206	45	88	73	31	14	16	23	14	6	M10×1.25	M27×2	12	42	14.5	35	12	10	125	22.5	81
	40 [1.575]		211	45	93	73	31	14	(14.5)	23	19	8	M14×1.5	M33×2	12	42	14.5	41.6	16	14	130	22.5	81
125 series	40 [1.575]		221	45	93	83	31	14	(14.5)	23	19	8	M14×1.5	M33×2	12	46	16.5	41.6	16	14	130	24.5	91

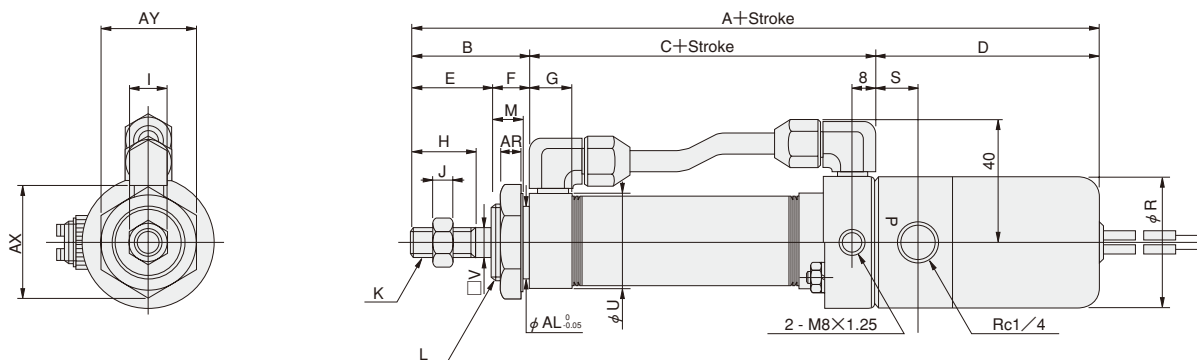
● Rod side trunnion type DV Bore size × Stroke -12



Solenoid valve	Bore mm [in.]	Code	A	B	C	D	E	F	G	H	I	J	K	L	M	R	S	U	V	W	CA	CD	CE	CF	CG	CH
062 series	20 [0.787]		196	35	88	73	23	12	16	15	12	5	M8×1	M20×1.5	10	42	14.5	27	8	6	43	153	92	72	32	48
	25 [0.984]		201	40	88	73	26	14	16	18	14	6	M10×1.25	M22×1.5	12	42	14.5	29	10	8	48	153	94	74	34	50
	32 [1.260]		206	45	88	73	31	14	16	23	14	6	M10×1.25	M27×2	12	42	14.5	35	12	10	53	153	100	80	40	56
	40 [1.575]		211	45	93	73	31	14	(14.5)	23	19	8	M14×1.5	M33×2	12	42	14.5	41.6	16	14	53	158	107	87	47	63
125 series	40 [1.575]		221	45	93	83	31	14	(14.5)	23	19	8	M14×1.5	M33×2	12	46	16.5	41.6	16	14	53	168	107	87	47	63

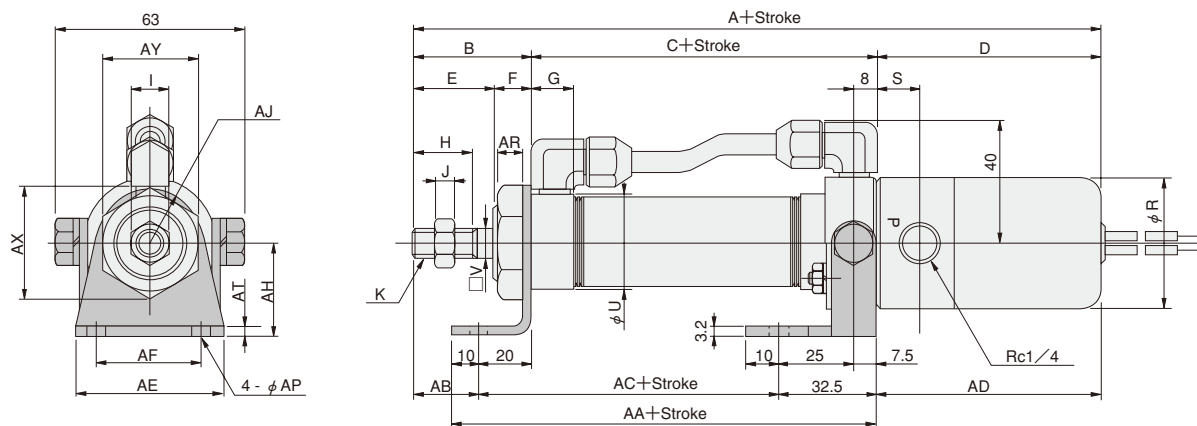
Dimensions of Valpack Square Rod Cylinder (mm)

● Basic type DVL Bore size × Stroke



Solenoid valve	<div>Bore mm [in.]</div> <div>Code</div>	A	B	C	D	E	F	G	H	I	J	K	L	M	R	S	U	V	AR	AX	AY	AL
062 series	25 [0.984]	201	40	88	73	26	14	16	18	12	5	M8×1	M22×1.5	12	42	14.5	29	7.4	9.5	34.6	30	22
	40 [1.575]	211	45	93	73	31	14	(14.5)	23	19	8	M14×1.5	M33×2	12	42	14.5	41.6	13	9.5	47.3	41	33
125 series	40 [1.575]	221	45	93	83	31	14	(14.5)	23	19	8	M14×1.5	M33×2	12	46	16.5	41.6	13	9.5	47.3	41	33

● Foot mounting type DVL Bore size × Stroke -1

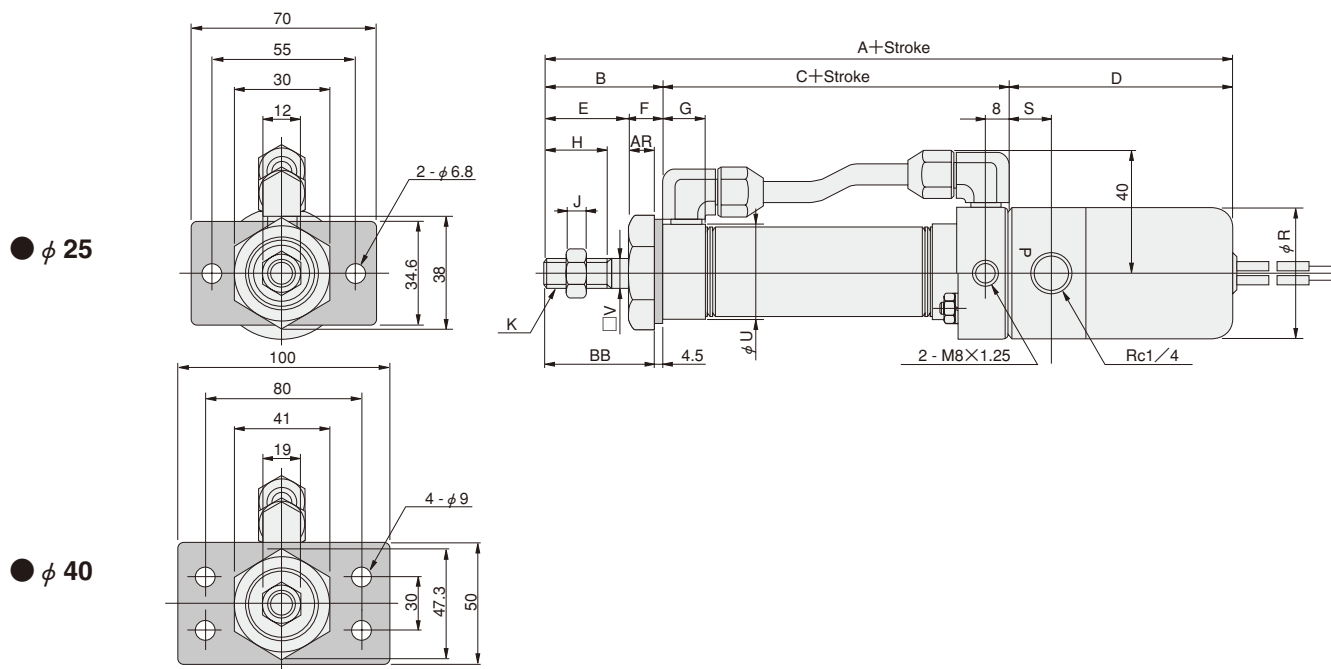


Solenoid valve	<div>Bore mm [in.]</div> <div>Code</div>	A	B	C	D	E	F	G	H	I	J	K	R	S	U	V
062 series	25 [0.984]	201	40	88	73	26	14	16	18	12	5	M8×1	42	14.5	29	7.4
	40 [1.575]	211	45	93	73	31	14	(14.5)	23	19	8	M14×1.5	42	14.5	41.6	13
125 series	40 [1.575]	221	45	93	83	31	14	(14.5)	23	19	8	M14×1.5	46	16.5	41.6	13

Solenoid valve	<div>Bore mm [in.]</div> <div>Code</div>	AA	AB	AC	AD	AE	AF	AH	AJ	AP	AR	AT	AX	AY
062 series	25 [0.984]	117.5	20	75	73.5	55	40	30	17	6.8	9.5	3.2	34.6	30
	40 [1.575]	122.5	25	80	73.5	75	55	40	23.5	9	9.5	4	47.3	41
125 series	40 [1.575]	122.5	25	80	83.5	75	55	40	23.5	9	9.5	4	47.3	41

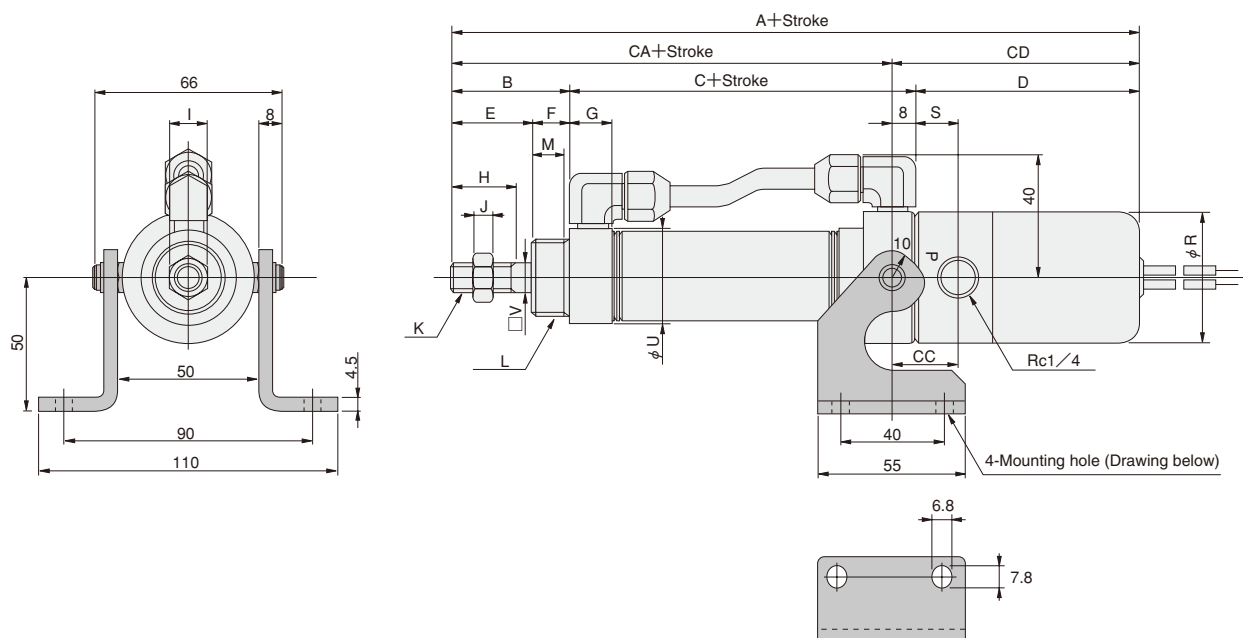
Dimensions of Valpack Square Rod Cylinder (mm)

● Flange mounting type DVL Bore size × Stroke -3



Solenoid valve	Bore mm [in.]	Code	A	B	C	D	E	F	G	H	J	K	R	S	U	V	AR	BB
062 series	25 [0.984]		201	40	88	73	26	14	16	18	5	M8×1	42	14.5	29	7.4	9.5	35.5
	40 [1.575]		211	45	93	73	31	14	(14.5)	23	8	M14×1.5	42	14.5	41.6	13	9.5	40.5
125 series	40 [1.575]		221	45	93	83	31	14	(14.5)	23	8	M14×1.5	46	16.5	41.6	13	9.5	40.5

● Head side trunnion type DVL Bore size × Stroke -11T



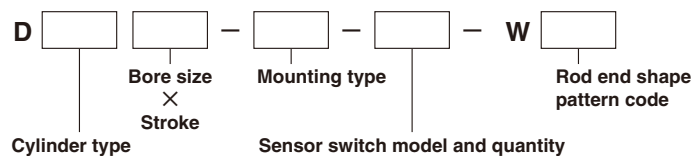
Solenoid valve	Bore mm [in.]	Code	A	B	C	D	E	F	G	H	I	J	K	L	M	R	S	U	V	CA	CC	CD
062 series	25 [0.984]		201	40	88	73	26	14	16	18	12	5	M8×1	M22×1.5	12	42	14.5	29	7.4	120	22.5	81
	40 [1.575]		211	45	93	73	31	14	(14.5)	23	19	8	M14×1.5	M33×2	12	42	14.5	41.6	13	130	22.5	81
125 series	40 [1.575]		221	45	93	83	31	14	(14.5)	23	19	8	M14×1.5	M33×2	12	46	16.5	41.6	13	130	24.5	91

OPTIONAL ROD END SHAPE PATTERNS

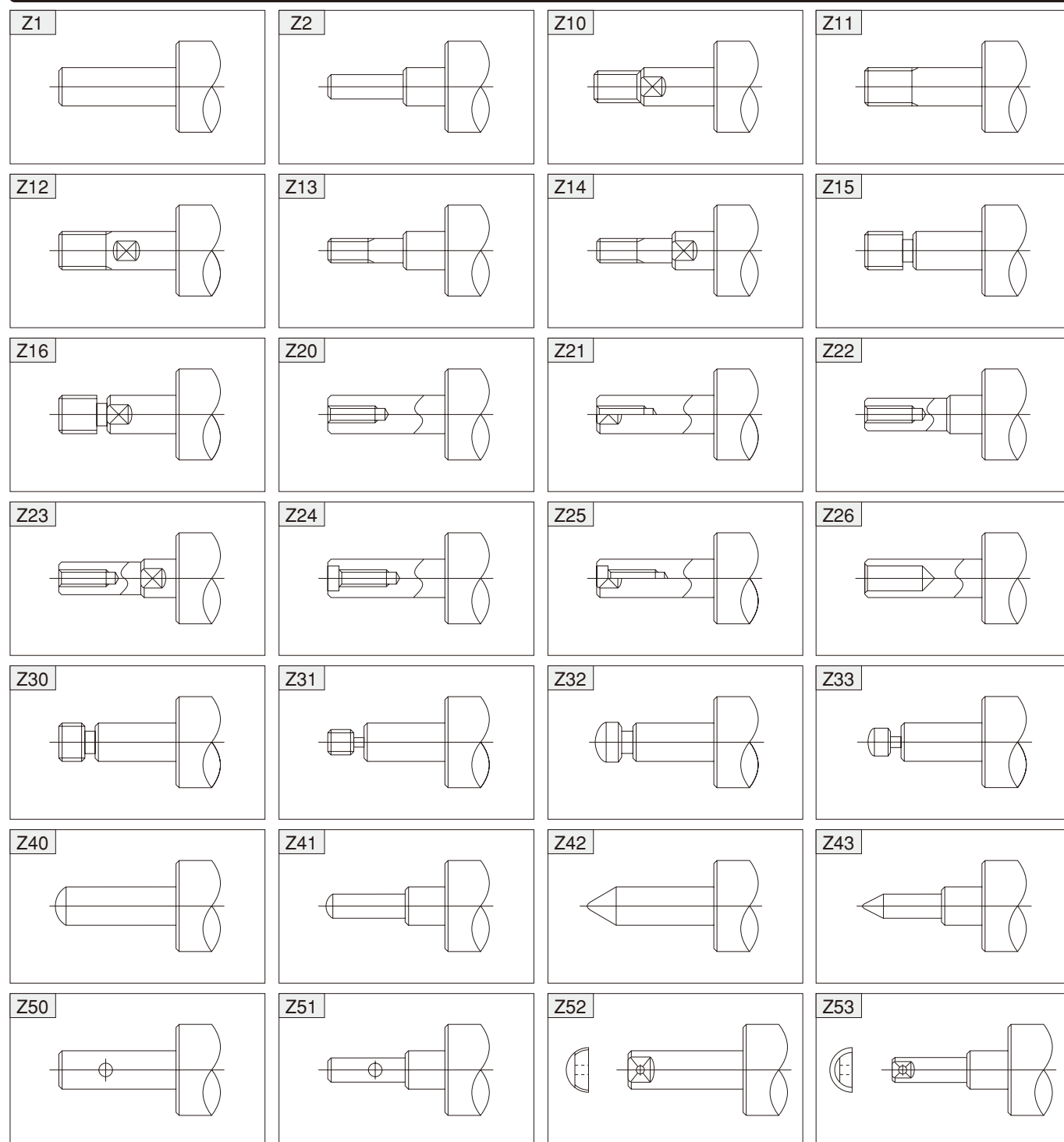
Use an order form of rod end pattern and fill the items on the selected one from among 28 types of optional patterned shapes to obtain made-to-order cylinders of non-standard rod end shapes.

The shapes can be applied to the entire Slim cylinders series with the exception of square rod cylinders and cylinders with bellows. For the order form containing the optional patterned shapes, consult us.

Order Codes



Piston Rod End Shape Pattern Diagram (28 Types)



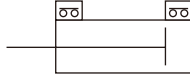
SENSOR SWITCHES

Solid State Type, Reed Switch Type

- Since a magnet is already standard on the Slim cylinders series^{Note}, mounting a sensor switch will enable use in sensor switch applications.

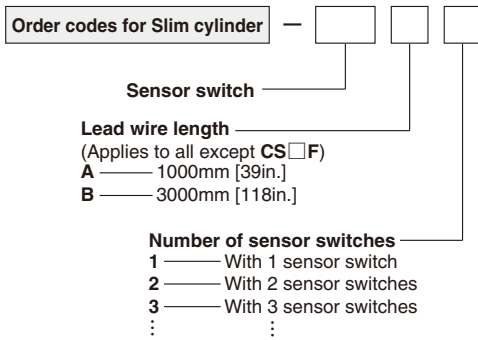
Note: Except the heat resistant specification cylinder.

Symbol



Order Codes

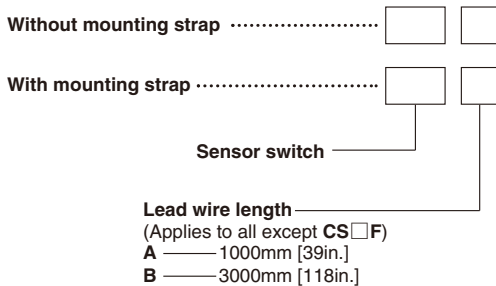
● Order codes for sensor switches mounted on the Slim cylinders



Sensor switch

ZG530	Solid state type	For $\phi 16 \sim \phi 63$	with indicator lamp	DC10~30V
ZG553	Solid state type	For $\phi 16 \sim \phi 63$	with indicator lamp	DC4.5~28V
CS3M	Reed switch type	For $\phi 16 \sim \phi 63$	with indicator lamp	DC10~30V
CS4M	Reed switch type	For $\phi 16 \sim \phi 63$	with indicator lamp	AC85~230V
CS5M	Reed switch type	For $\phi 16 \sim \phi 63$	without indicator lamp	DC3~30V
CS2F	Reed switch type	For $\phi 20 \sim \phi 63$	with indicator lamp	AC85~115V
CS3F	Reed switch type	For $\phi 20 \sim \phi 63$	with indicator lamp	AC85~230V
CS4F	Reed switch type	For $\phi 20 \sim \phi 63$	with indicator lamp	DC10~30V
CS5F	Reed switch type	For $\phi 20 \sim \phi 63$	without indicator lamp	DC10~30V
				DC3~30V

● Order codes for sensor switch only

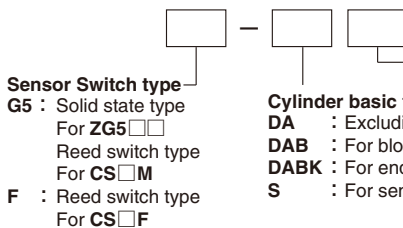


Bore size

Cylinder basic type

DA	: Excluding DAB $\phi 16$ and DABK $\phi 16$
DAB	: For block cylinder $\phi 16$
DABK	: For end keep cylinder $\phi 16$
S	: For sensor switch model CS□F

● Order codes for mounting strap only



Bore size

16	: For $\phi 16$ [0.630in.] ^{Note}
20	: For $\phi 20$ [0.787in.]
25	: For $\phi 25$ [0.984in.]
32	: For $\phi 32$ [1.260in.]
40	: For $\phi 40$ [1.575in.]
50	: For $\phi 50$ [1.969in.]
63	: For $\phi 63$ [2.480in.]

Note: Not available for CS□F

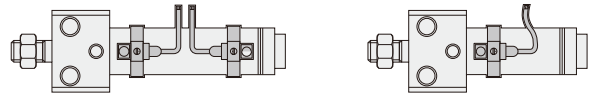
Minimum Cylinder Strokes When Using Sensor Switches

Sensor switch model	Bore size	2 pcs. mounting		1 pc. mounting
		Along a straight line	In staggered positions	
ZG530	16	20	10	10
ZG553	20~63	20	10	10
CS□M	16~63	20	15	15
CS□F	20~63	40	21	15

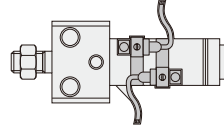
mm

● Two pieces mounting ● One piece mounting

● When mounted in-line



● When mounted in staggered positions



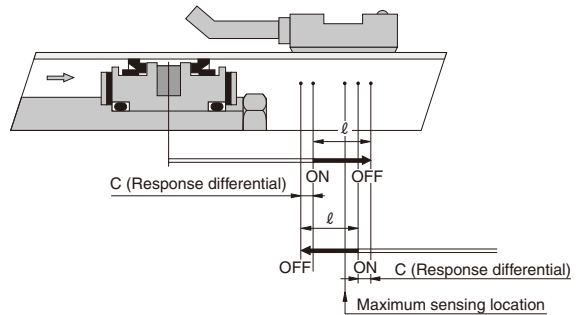
Sensor Switch Operating Range, Response Differential, and Maximum Sensing Location

● Operating range : ℓ

The distance the piston travels in one direction, while the switch is in the ON position.

● Response differential : C

The distance between the point where the piston turns the switch ON and the point where the switch is turned OFF as the piston travels in the opposite direction.



		mm [in.]						
Item	Bore size	16 [0.630]	20 [0.787]	25 [0.984]	32 [1.260]	40 [1.575]	50 [1.969]	63 [2.480]
Operating range : ℓ	ZG530□	2.5~4.1	2.5~4.2	2.6~4.3	3.0~4.8	3.1~5.0	3.3~5.4	3.5~5.7
	ZG533□	[0.098~0.161]	[0.098~0.165]	[0.102~0.169]	[0.118~0.189]	[0.122~0.197]	[0.130~0.213]	[0.138~0.224]
	CS□M	6.7~7 [0.264~0.276]	7~8.5 [0.276~0.335]	7~8.5 [0.276~0.335]	8~9 [0.315~0.354]	9~10.5 [0.354~0.413]	7~8 [0.276~0.315]	8~9.5 [0.315~0.374]
	CS□F	—	7~8.5 [0.276~0.335]	8.5~10 [0.335~0.394]	9~10.5 [0.354~0.413]	10.5~12 [0.413~0.472]	9~10 [0.354~0.394]	9~10.5 [0.354~0.413]
Response differential : C	ZG530	0.7 [0.028] or less	0.7 [0.028] or less	0.8 [0.031] or less	0.7 [0.028] or less	0.8 [0.031] or less	0.8 [0.031] or less	0.8 [0.031] or less
	ZG533	0.7 [0.028] or less	0.7 [0.028] or less	0.8 [0.031] or less	0.7 [0.028] or less	0.8 [0.031] or less	0.8 [0.031] or less	0.8 [0.031] or less
	CS□M	1 [0.039] or less	1 [0.039] or less	1 [0.039] or less	1 [0.039] or less	1 [0.039] or less	1.2 [0.047] or less	1.2 [0.047] or less
	CS□F	—	1.5 [0.059] or less	1.5 [0.059] or less	1.5 [0.059] or less	1.5 [0.059] or less	2 [0.079] or less	1.5 [0.059] or less
Maximum sensing location	ZG530, ZG553 ^{Note 1}	11 [0.433]	11 [0.433]	11 [0.433]	11 [0.433]	11 [0.433]	11 [0.433]	11 [0.433]
	CS□M ^{Note 1}	11 [0.433]	11 [0.433]	11 [0.433]	11 [0.433]	11 [0.433]	11 [0.433]	11 [0.433]
	CS□F ^{Note 2}	—	16 [0.630]	16 [0.630]	16 [0.630]	16 [0.630]	16 [0.630]	16 [0.630]

Remark: Figures in the table above are reference values.

Notes: 1. Figures are lengths measured from the switch's opposite end side to the lead wire.

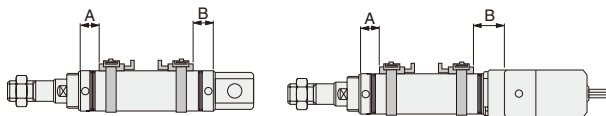
2. Figures are lengths measured from the connector side's end surface to the lead wire.

Mounting Location of End of Stroke Detection Sensor Switch

When the sensor switch is mounted in the location shown in the diagram (figures in the table are reference values), the magnet comes to the sensor switch's maximum sensing location at the end of the stroke.

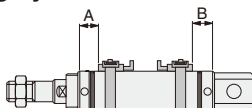
● Air cylinder, Low hydraulic cylinder, Valpack cylinder

● Air cylinder, Low hydraulic cylinder ● Valpack cylinder



		mm [in.]											
Sensor switch model	Bore size	Air cylinder, Low hydraulic cylinder						Valpack cylinder					
	Code	20	25	32	40	50	63	20	25	32	40		
ZG530□ ZG553□	A	27 [1.063]	27 [1.063]	27 [1.063]	27 [1.063]	36 [1.417]	36 [1.417]	27 [1.063]	27 [1.063]	27 [1.063]	27 [1.063]		
	B	27 [1.063]	27 [1.063]	27 [1.063]	27 [1.063]	36 [1.417]	36 [1.417]	39 [1.535]	39 [1.535]	39 [1.535]	44 [1.732]		
CS□M	A	27 [1.063]	27 [1.063]	27 [1.063]	27 [1.063]	36 [1.417]	36 [1.417]	27 [1.063]	27 [1.063]	27 [1.063]	27 [1.063]		
	B	27 [1.063]	27 [1.063]	27 [1.063]	27 [1.063]	36 [1.417]	36 [1.417]	39 [1.535]	39 [1.535]	39 [1.535]	44 [1.732]		
CS□F	A	22 [0.866]	22 [0.866]	22 [0.866]	22 [0.866]	32 [1.260]	32 [1.260]	22 [0.866]	22 [0.866]	22 [0.866]	22 [0.866]		
	B	22 [0.866]	22 [0.866]	22 [0.866]	22 [0.866]	32 [1.260]	32 [1.260]	34 [1.339]	34 [1.339]	34 [1.339]	39 [1.535]		

● Single acting cylinder

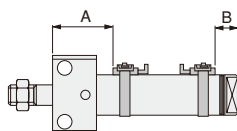


mm [in.]

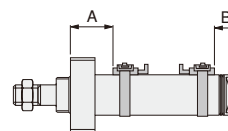
Sensor switch model		Bore size		20	25	32	40
		Code	Stroke	[0.787]	[0.984]	[1.260]	[1.575]
ZG530□ ZG553□ CS□M	A	0~25	35 [1.378]	36 [1.417]	35 [1.378]	37 [1.457]	
		26~50	52 [2.047]	49 [1.929]	49 [1.929]	53 [2.087]	
		51~75	72 [2.835]	71 [2.795]	72 [2.835]	68 [2.677]	
		76~100	—	84 [3.307]	86 [3.386]	95 [3.740]	
		101~125	—	—	—	110 [4.331]	
		126~150	—	—	—	125 [4.921]	
B	—	27 [1.063]	27 [1.063]	27 [1.063]	27 [1.063]		
CS□F	A	0~25	30 [1.181]	31 [1.220]	30 [1.181]	32 [1.260]	
		26~50	47 [1.850]	44 [1.732]	44 [1.732]	48 [1.890]	
		51~75	67 [2.638]	66 [2.598]	67 [2.638]	63 [2.480]	
		76~100	—	79 [3.110]	81 [3.189]	90 [3.543]	
		101~125	—	—	—	105 [4.134]	
		126~150	—	—	—	120 [4.724]	
	B	—	22 [0.866]	22 [0.866]	22 [0.866]	22 [0.866]	

● Block cylinder

● Side mount



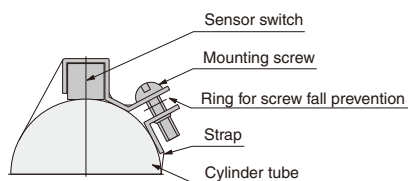
● Front mount



mm [in.]																
Mounting type		Side mount							Front mount							
Bore size		16	20	25	32	40	50	63	16	20	25	32	40	50	63	
ZG530	A Rod side	32 [1.260]	39 [1.535]	41 [1.614]	47 [1.850]	57 [2.244]	67 [2.638]	67 [2.638]	23 [0.906]	27 [1.063]	27 [1.063]	27 [1.063]	29 [1.142]	37 [1.457]	37 [1.457]	
ZG553	B Rod side	16 [0.630]	20 [0.787]	20 [0.787]	21 [0.827]	25 [0.984]	45 [1.772]	45 [1.772]	16 [0.630]	20 [0.787]	20 [0.787]	21 [0.827]	25 [0.984]	45 [1.772]	45 [1.772]	
CS	M	A Rod side	32 [1.260]	39 [1.535]	41 [1.614]	47 [1.850]	57 [2.244]	66 [2.598]	66 [2.598]	23 [0.906]	27 [1.063]	27 [1.063]	27 [1.063]	29 [1.142]	36 [1.417]	36 [1.417]
		B Rod side	16 [0.630]	20 [0.787]	20 [0.787]	21 [0.827]	25 [0.984]	44 [1.732]	44 [1.732]	16 [0.630]	20 [0.787]	20 [0.787]	21 [0.827]	25 [0.984]	44 [1.732]	44 [1.732]
CS	F	A Rod side	—	36 [1.417]	38 [1.496]	44 [1.732]	52 [2.047]	64 [2.520]	64 [2.520]	—	24 [0.945]	24 [0.945]	24 [0.945]	24 [0.945]	34 [1.339]	34 [1.339]
		B Rod side	—	17 [0.669]	17 [0.669]	18 [0.709]	20 [0.787]	42 [1.654]	42 [1.654]	—	17 [0.669]	17 [0.669]	18 [0.709]	22 [0.866]	42 [1.654]	42 [1.654]

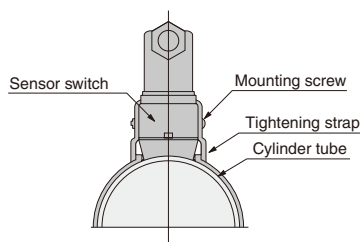
Moving Sensor Switch

● ZG530 ☐
 ZG553 ☐
 CS ☐ M



- Loosening the mounting screw allows the sensor switch to be moved freely along with the strap in the axial and circumferential direction. The sensor switch alone cannot be moved.
- To remove the sensor switch from the strap, first detach the strap from the cylinder tube and then remove the sensor switch from the strap.
- Tighten the mounting screw with a tightening torque of 49N·cm [4.3in·lbf].

● CS ☐ F

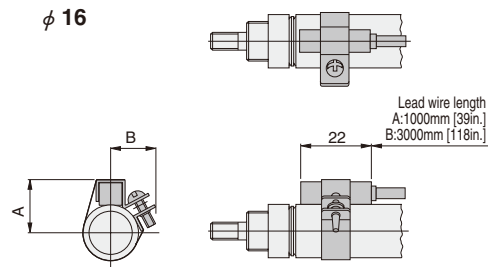


- Loosening the mounting screw allows the sensor switch to be moved freely in the axial and circumferential direction.
- Slightly loosening the mounting screw allows fine adjustment of the lead switch only, up to 5mm [0.2in.] in the axial direction. Tighten the mounting screw with a tightening torque of 68.6N·cm [6.1in·lbf].

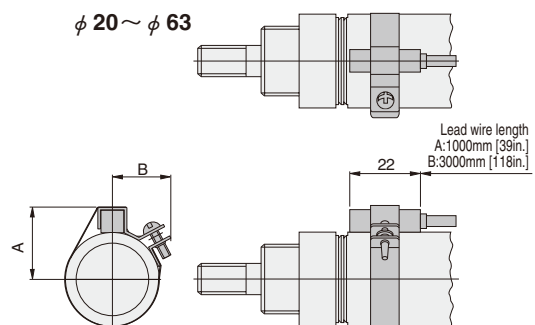
Dimensions of Sensor Switch (mm)

● ZG530 ☐
 ZG553 ☐
 CS ☐ M

φ 16



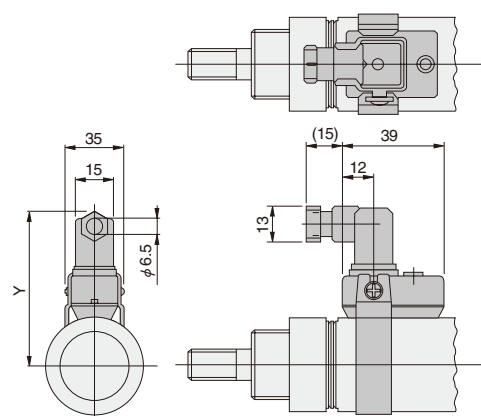
φ 20 ~ φ 63



mm [in.]		
Bore	Code	
16	16	15
[0.630]	[0.630]	[0.591]
20	19	17
[0.787]	[0.748]	[0.669]
25	20.5	17.5
[0.984]	[0.807]	[0.689]
32	25	19
[1.260]	[0.984]	[0.748]
40	29	—※
[1.575]	[1.142]	
50	34	—※
[1.969]	[1.339]	
63	41	—※
[2.480]	[1.614]	

※ At φ 40 or larger, dimension B is the radius of the cylinder tube. Therefore, the protrusion in the B direction of the mounting section disappears.

● CS ☐ F



mm [in.]	
Bore	Code
20	59
[0.787]	[2.323]
25	61.5
[0.984]	[2.421]
32	65
[1.260]	[2.559]
40	69
[1.575]	[2.717]
50	76
[1.969]	[2.992]
63	83
[2.480]	[3.268]

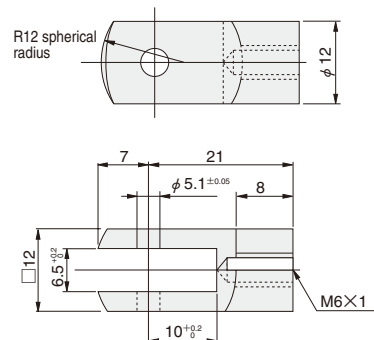
ROD END ACCESSORIES

Option

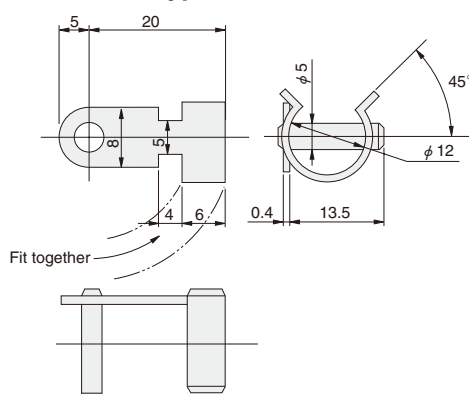
Dimensions

● $\phi 16$

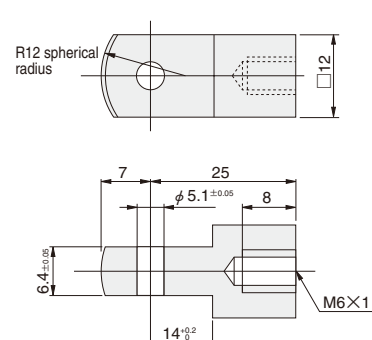
● Y type



Pin for Y type knuckle

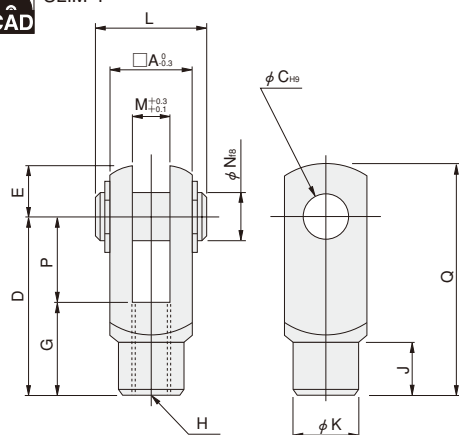


● I type

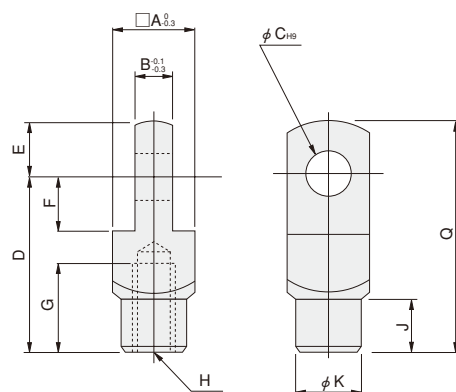


● $\phi 20 \sim \phi 63$

● Y type



● I type



mm [in.]															
<div>Bore</div> <div>Code</div>	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
20 [0.787], 25 [0.984]*	16	8	8	30	10	11	15	M8×1	10	14	21	8	8	15	40
25 [0.984], 32 [1.260]	19	10	10	40	12	13	20	M10×1.25	12	16	25	10	10	20	52
40 [1.575], 50 [1.969], 63 [2.480]	24	14	10	45	12	13	25	M14×1.5	15	22	30	14	10	20	57

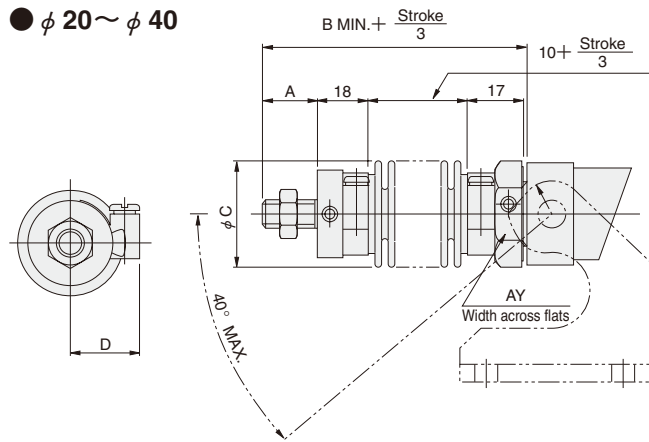
Note: Items marked with ※ are for the square rod cylinders.

BELLOWS, MOUNTING BRACKETS



Dimensions (For brake cylinders with bellows, see p.367.)

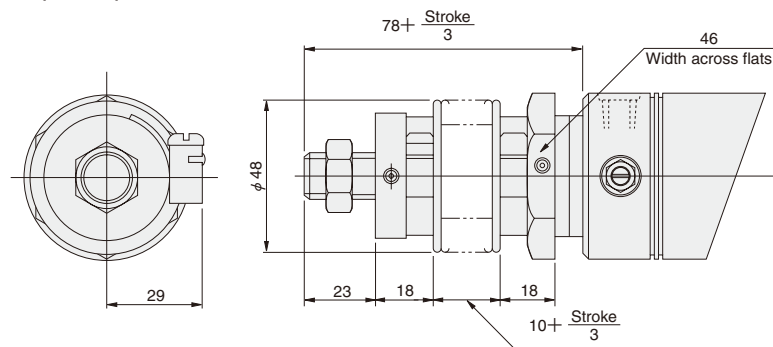
● $\phi 20 \sim \phi 40$



mm [in.]					
Bore	Code	A	B	C	D
20	[0.787]	15 [0.591]	63 [2.480]	35 [1.378]	23 [0.906]
25	[0.984]	18 [0.709]	66 [2.598]	35 [1.378]	23 [0.906]
32	[1.260]	23 [0.906]	71 [2.795]	40 [1.575]	26 [1.024]
40	[1.575]	23 [0.906]	71 [2.795]	48 [1.890]	29 [1.142]

Note: Supporting brackets for the rod trunnion type with bellows should be mounted in the direction opposite to the case of no bellows shown in the diagram.

● $\phi 50, \phi 63$



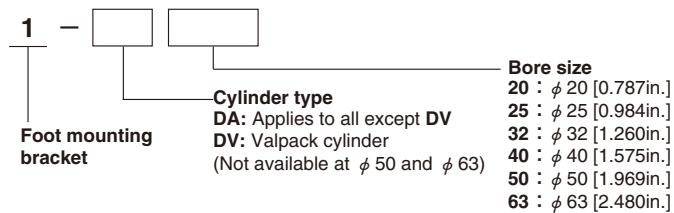
Mass of Slim Cylinder with Bellows

Bore size mm [in.]	Zero stroke mass				Additional mass for each 1mm [0.0394in.] stroke
	Standard head	Short head	Pivot mounting type	Trunnion type	
20 [0.787]	0.25 [0.55] (0.23 [0.51])	0.24 [0.53] (0.22 [0.49])	—	0.44 [0.97]	0.0009 [0.0020]
25 [0.984]	0.29 [0.64] (0.27 [0.60])	0.28 [0.62] (0.26 [0.57])	—	0.47 [1.04]	0.0013 [0.0029]
32 [1.260]	0.43 [0.95] (0.40 [0.88])	0.41 [0.90] (0.38 [0.84])	—	0.60 [1.32]	0.0018 [0.0040]
40 [1.575]	0.62 [1.37] (0.56 [1.23])	0.58 [1.28] (0.52 [1.15])	—	0.78 [1.72]	0.0029 [0.0064]
50 [1.969]	1.03 [2.27]	0.98 [2.16]	0.95 [2.09]	—	0.0033 [0.0073]
63 [2.480]	1.36 [3.00]	1.32 [2.91]	1.29 [2.84]	—	0.0038 [0.0084]

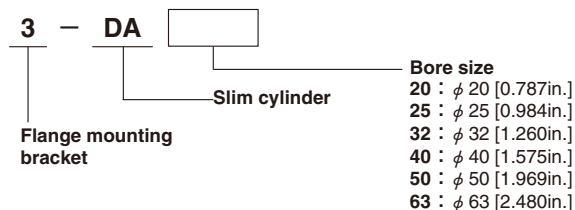
Note: Figures in parentheses () are for the cylinder with variable cushion.

Order Codes for Mounting Bracket

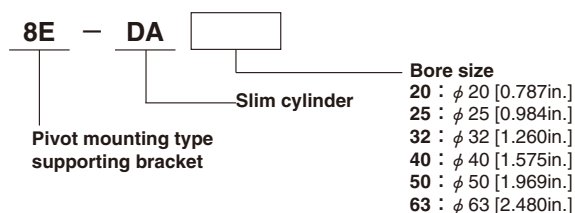
(1) Foot mounting bracket



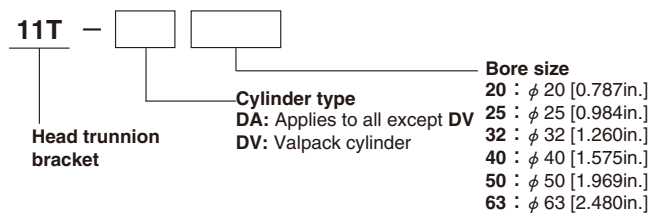
(2) Flange mounting bracket



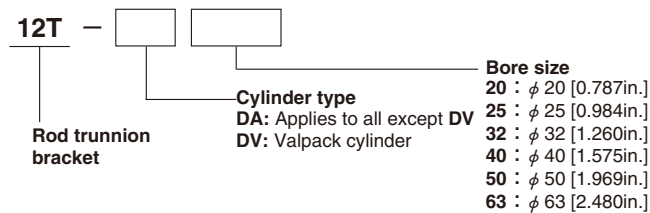
(3) Pivot mounting type supporting bracket



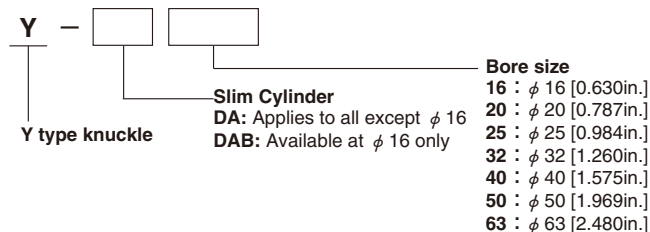
(4) Head trunnion bracket



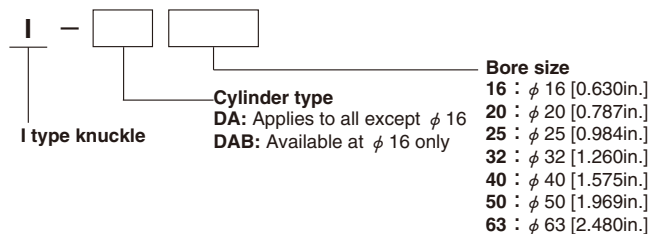
(5) Rod trunnion bracket



(6) Y type knuckle



(7) I type knuckle



SLIM CYLINDERS