The space-saving KNOCK CYLINDERS

The total length has been shortened as much as possible. The compact, lightweight Knock Cylinder demonstrates space-saving effectiveness.

Single Acting Push Type

- A centering location on the body improves mounting precision.
- Wrench flats built into the body provide secure mounting.
- Drawing presentation for positioning not required.

Single Acting Push Type

Piston Rod Specification

Male thread specification

Plain rod

Mounting

Panel mount

Foot mount

Insert mount

The same cylinder body applies to panel mounting, foot mounting and insert mounting types.

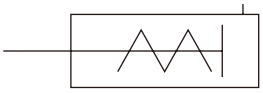
■Single Acting Push Type Selection Chart

Bore size mm [in.]	Cylinder specification		Mounting type		
	Male thread	Plain rod	Panel mount	Foot mount	Insert mount
6 [0.236]					
10 [0.394]					
16 [0.630]					

KNOCK CYLINDERS

Single Acting Push Type

Symbol



Specifications

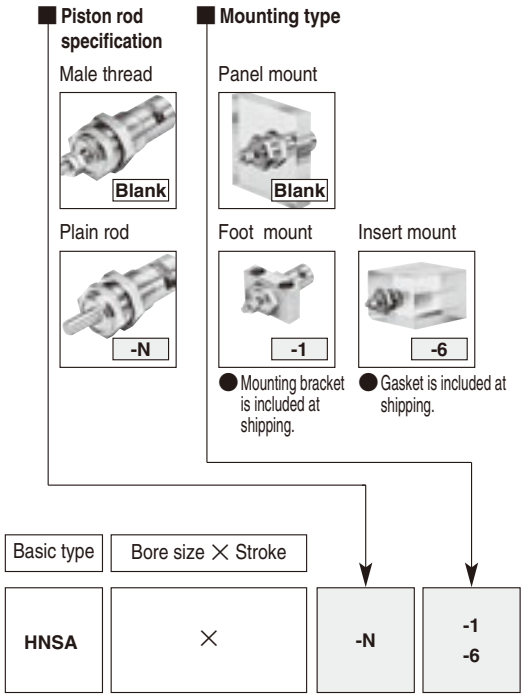
Item \ Bore size mm [in.]	6 [0.236]	10 [0.394]	16 [0.630]
Operation type	Single Acting Push Type		
Media	Air		
Operating pressure range MPa [psi.]	0.2～0.7 [29～102]	0.15～0.7 [22～102]	
Proof pressure MPa [psi.]	1.03 [149]		
Operating temperature range °C [°F]	0～60 [32～140]		
Operating speed range mm/s [in./sec.]	50～500 [2.0～19.7] (In applications with high load ratio or high speed, use externally mounted stopper.)		
Cushion	None		
Lubrication	Not required (If lubrication is required, use Turbine Oil Class 1 [ISO VG32] or equivalent.)		
Mounting type	Panel mount, Foot mount, Insert mount		
Port size	10-32 UNF		
Stroke tolerance mm [in.]	$^{+1}_{0}$ [$^{+0.039}_{0}$]		

Cylinder Thrust (Push Side)

N [lbf.]

Bore size mm [in.]	Pressure area mm² [in.²]	Air pressure MPa [psi]					
		0.2 [29]	0.3 [44]	0.4 [58]	0.5 [73]	0.6 [87]	0.7 [102]
6 [0.236]	28.3 [0.0439]	2.3 [0.52]	5.1 [1.15]	7.9 [1.78]	10.8 [2.43]	13.6 [3.06]	16.4 [3.69]
10 [0.394]	78.5 [0.1216]	8.3 [1.87]	16.2 [3.64]	24.0 [5.40]	31.9 [7.17]	39.7 [8.92]	47.6 [10.70]
16 [0.630]	201 [0.312]	25.5 [5.73]	45.6 [10.25]	65.7 [14.77]	85.8 [19.29]	105.9 [23.81]	126.0 [28.32]

Order Codes for Single Acting Push Type



Remark: For the cylinder joint and cylinder rod end mounted on the piston rod end, see p.1568.

Bore Size and Stroke

inch

Bore size	Standard strokes
6	1/4", 3/8", 1/2"
10	
16	

Mass

g [oz.]

Mounting type	Bore size mm	Stroke inch		
		1/4"	**3/8"**	**1/2"**
Panel mount Insert mount	**6**	14 [0.494]	15 [0.529]	17 [0.600]
	10	28 [0.988]	31 [1.093]	35 [1.235]
	16	77 [2.716]	85 [2.998]	94 [3.316]
Foot mount	**6**	29 [1.023]	31 [1.093]	33 [1.164]
	10	58 [2.046]	61 [2.152]	65 [2.293]
	16	166 [5.855]	174 [6.138]	183 [6.455]

Remarks: 1. One mounting nut is included with the panel mount and insert mount.
2. Two mounting bolts with foot mounting brackets are included with the foot mount.

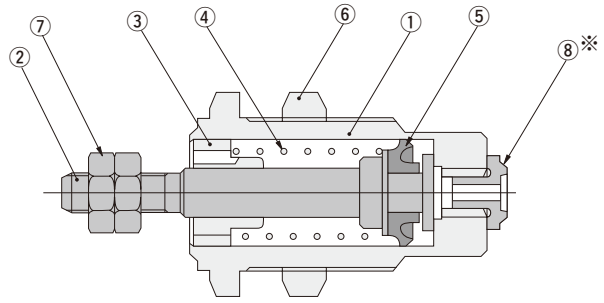
Spring Return Force

N [lbf.]

Bore size mm [in.]	Zero stroke	End of stroke
6 [0.236]	1.5 [0.34]	3.4 [0.76]
10 [0.394]	2.5 [0.56]	7.4 [1.66]
16 [0.630]	5.4 [1.21]	14.7 [3.30]

Remarks: 1. Avoid application that carries loads on the spring return side.
2. This value is virtually constant regardless of the cylinder stroke.

Inner Construction and Major Parts (Figure below shows insert mount type)



Major Parts and Materials

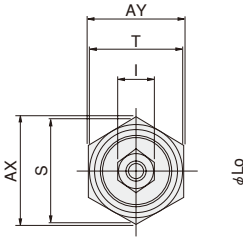
No.	Parts	Materials	
		Standard specification	Non-ion specification
①	Cylinder body	Brass (nickel plated)	Special steel
②	Piston, Piston rod	Stainless steel	←
③	Rod bushing	Phosphor bronze	Special steel
④	Spring	Steel (zinc plated)	←
⑤	Piston seal	Synthetic rubber (NBR)	←
⑥	Mounting nut	Brass (nickel plated)	Special steel
⑦	Rod end nut	Steel (nickel plated)	←
⑧※	Gasket	Synthetic rubber (NBR)	←

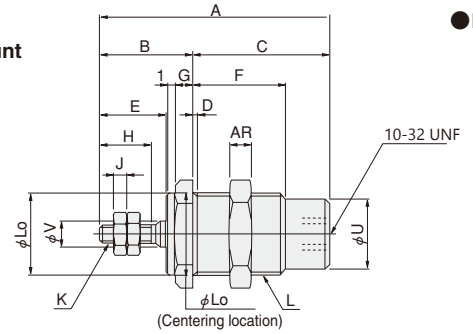
※The gasket is for the insert mount only.

Dimensions of Panel and Insert Mount Type (mm)

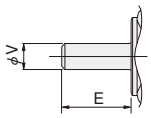
HNSA Bore size × Stroke　　**HNSA** Bore size × Stroke **-N**　　**HNSA** Bore size × Stroke **-6**

●Panel mount

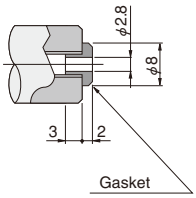




●Plain rod

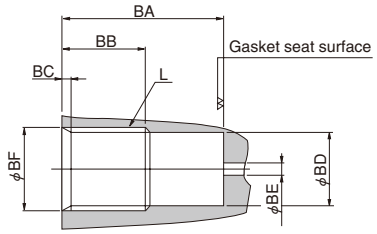


●Insert mount



Code / Stroke / Bore	A			B				E	F			G	H	I	J	K	L	Lo	S	T	U	V	AR	AX	AY
	5	10	15		5	10	15		5	10	15														
6	29	36	43	13	16	23	30	1.5	9	11.5	13	13	2.5	7	5.5	1.8	4-40UNC	M10×1	10 $^{0}_{-0.05}$	13.9	12	8.5	3	3	13.9	12
10	34.5	41	48	16.5	18	24.5	31.5	1.5	12	13.5	16.5	16.5	3	10	7	2.4	8-32UNC	M14×1.25	14 $^{0}_{-0.05}$	18.5	16	12.3	5	4	19.6	17
16	39.5	45.5	52	19.5	20	26	32.5	2	14	15.5	18	18	4	12	8	3.2	10-32UNF	M22×1.5	22 $^{0}_{-0.05}$	27.7	24	20	6	5	31.2	27

●Insert mounting hole

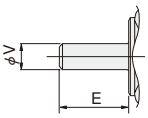


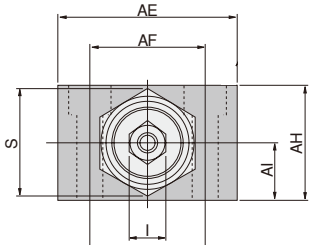
Code / Stroke / Bore	BA			BB			BC	BD	BE	BF
	5	10	15	5	10	15				
6	17.4±0.2	24.4±0.2	31.4±0.2	13 or more	15 or more	15 or more	2	9	4 or less	10 $^{+0.15}_{+0.05}$
10	19.4±0.2	25.9±0.2	32.9±0.2	15 or more	18 or more	18 or more	2	12.7	4 or less	14 $^{+0.15}_{+0.05}$
16	21.4±0.2	27.4±0.2	33.9±0.2	17 or more	20 or more	20 or more	2.5	20.4	4 or less	22 $^{+0.15}_{+0.05}$

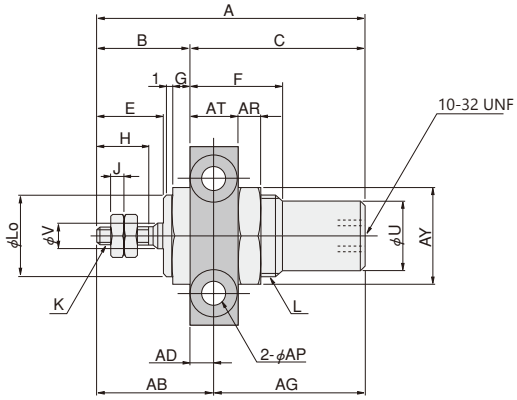
Dimensions of Foot Mount Type (mm)

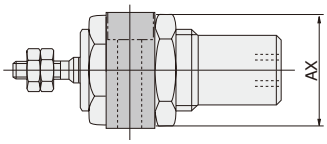
HNSA Bore size × Stroke **-1**

●Plain rod









Code / Stroke / Bore	A			B	C			E	F			G	H	I	J	K	L	Lo	S		U	V	AB	AD	AE
	5	10	15		5	10	15		5	10	15														
6	29	36	43	13	16	23	30	9	11.5	13	13	2.5	7	5.5	1.8	4-40UNC	M10×1	10 $^{0}_{-0.05}$	13.9		8.5	3	17.5	4.5	22
10	34.5	41	48	16.5	18	24.5	31.5	12	13.5	16.5	16.5	3	10	7	2.4	8-32UNC	M14×1.25	14 $^{0}_{-0.05}$	18.5		12.3	5	21	4.5	32
16	39.5	45.5	52	19.5	20	26	32.5	14	15.5	18	18	4	12	8	3.2	10-32UNF	M22×1.5	22 $^{0}_{-0.05}$	27.7		20	6	25.5	6	42

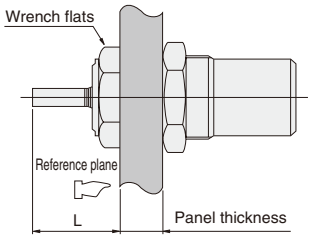
Code / Stroke / Bore	AF	AG			AH	AI		AP		AR	AT	AX	AY
		5	10	15									
6	14	11.5	18.5	25.5	14	7		φ3.4 Counterbore φ6.2 Depth 3.3		3	9	13.9	12
10	20	13.5	20	27	20	10		φ4.5 Counterbore φ7.8 Depth 4.4		4	9	19.6	17
16	30	14	20	26.5	32	16		φ5.5 Counterbore φ9.5 Depth 5.4		5	12	31.2	27

Mounting

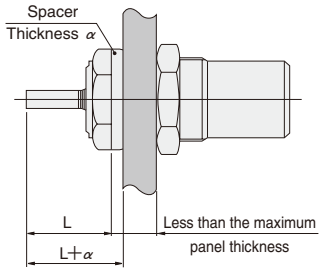
Single acting push type

1. Using the centering location on the body can improve mounting precision on panel mounting. In addition, set the end face of the wrench flat as a reference plane does not need any adjustment of the rod end position. Moreover, the rod end position can be freely set through the use of cylindrical spacer matching the outer diameter of the cylinder body. For the maximum thickness of the panel, use the values in the table below as guidelines.

●Panel mounting



●Panel mounting



(Dimension by using a spacer)

mm [in.]

Bore size	Maximum panel thickness
6 [0.236]	8 [0.315]
10 [0.394]	9 [0.354]
16 [0.630]	10 [0.394]

2. Do not let the tightening torque for the mounting nut exceed the figures in the table below.

N·cm [in·lbf]

Bore size	Maximum tightening torque
6 [0.236in.]	1226 [109]
10 [0.394in.]	1716 [152]
16 [0.630in.]	4903 [434]