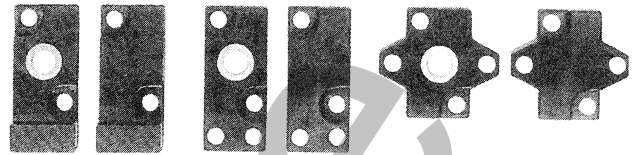


MOUNTING BRACKETS

ROD SIDE/HEAD SIDE



MOUNTING BRACKET MODEL (ORDER CODE)

Mounting bracket location	Cylinder model	Cylinder bore in. (nom.) / mm (actual)	Mounting brackets			
			Side mount	Foot mount	Flange A mount	Flange B mount
Rod side	HBDAS □, HBSAS □, HBTAS □, HBDADS □	1/4 (6)	HDB60A	HDB61A	HDB63A	HDB63B
		3/8 (10)	HD100A	HD101A	HD103A	HD103B
		5/8 (16)	HD160A	HD161A	HD163A	HD163B
	HBDALS □, HBSALS □, HBTALS □, HBDADLS □	1/4 (6)	HLB60A	— NOTE 4	HLB63A	HLB63B
		3/8 (10)	HL100A	— NOTE 4	HL103A	HL103B
		5/8 (16)	HL160A	— NOTE 4	HL163A	HL163B
Head side	For all models except double end rod.	1/4 (6)	HBB60A	HBB61A	HBB63A	HBB63B
		3/8 (10)	HB100A	HB101A	HB103A	HB103B
		5/8 (16)	HB160A	HB161A	HB163A	HB163B

NOTE 1: All mounting brackets come with two mounting screws.

NOTE 2: The Side Mount is standard on the head side of all models. Other head side mounting brackets are optional and are sold separately.

NOTE 3: Standard type and non-rotating type cylinders are offered with various rod side mounting as standard, as is explained in the individual model information in this catalog. Consult the Order Examples that appear following the specifications of standard and non-rotating type cylinders for a comprehensive overview of the various models available.

NOTE 4: The Foot Mount cannot be used on the rod side of non-rotating cylinders. However, the Foot Mount can be used on the head side of all these models. It can also be used on double rod end types by installing it opposite the rod with the non-rotation plate.

NOTE 5: All rod end mounting brackets have oil permeated bronze rod bushings for smooth operation and long cycle life.

CHANGING MOUNTING BRACKETS

ROD SIDE MOUNTING BRACKETS

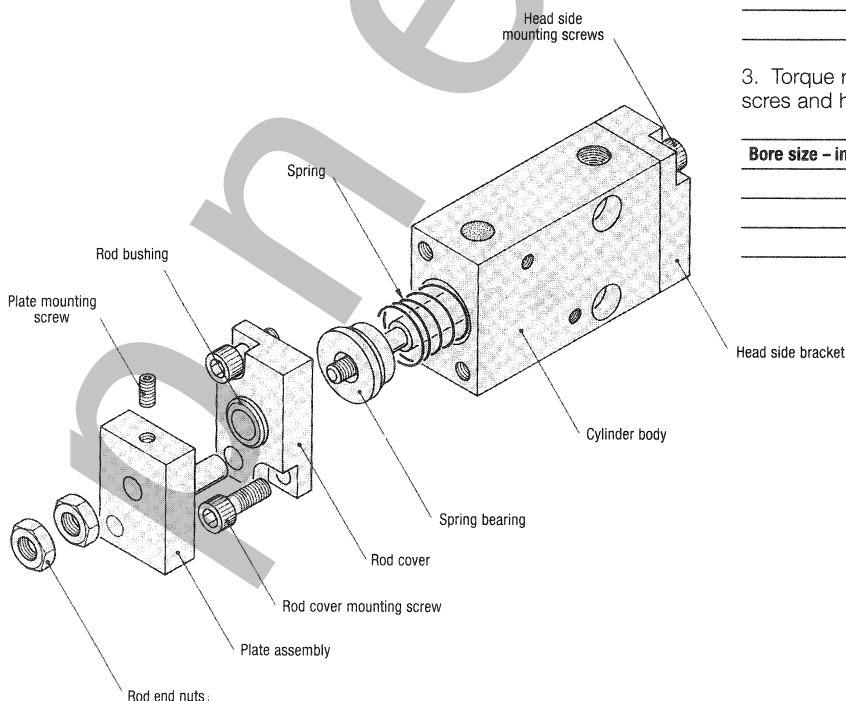
Standard type cylinders:

Remove rod side mounting bracket screws and remove bracket. Reverse procedure for replacing mounting bracket.

Non-rotating type cylinders:

Remove the plate assembly by unscrewing the plate set screws before removing the rod side mounting bracket.

Re-mount by securing mounting bracket to cylinder head. Next, attach plate assembly to piston rod with set screws. Maintain a clearance of 0.02" (0.5mm) between plate assembly and rod bushing when rod is in the fully retracted position.



HEAD SIDE MOUNTING BRACKETS

Unscrew head side mounting bracket screws and remove bracket. Reverse procedure for replacing mounting bracket.

- For optimum performance be sure that mounting bracket is attached to cylinder body squarely and accurately. Bracket must not protrude from cylinder surface.
- Use mounting screws supplied with brackets. If other screws are used they should be to the following specifications.

Bore size – in. (nom.) / mm (actual)	Screw size	Thread length (mm)
1/4 (6)	M2.6x0.45	6
3/8 (10)	M3x0.5	8
5/8 (16)	M4x0.7	8

- Torque requirements for non-rotating cylinder plate assembly set screws and hex wrench sizes are as follows:

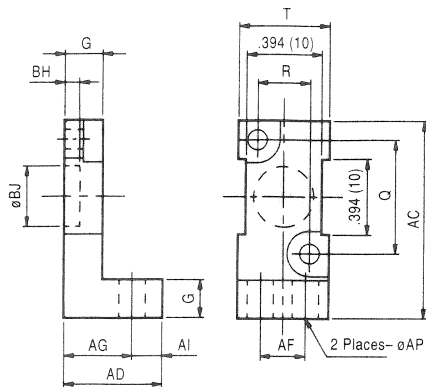
Bore size – in. (nom.) / mm (actual)	Torque – lb•in (kgf•cm)	Hex wrench (mm)
1/4 (6)	4.3 (5)	(1.27)
3/8 (10)	8.7 (10)	(1.5)
5/8 (16)	12.2 (14)	(2)

HEAD SIDE MOUNTING BRACKET DIMENSION DIAGRAMS

in. (mm)

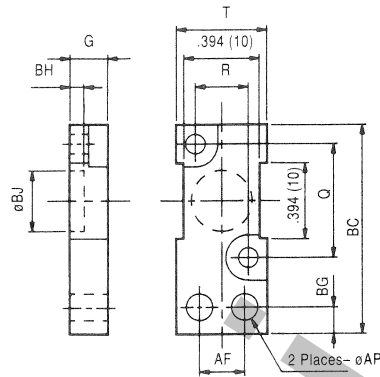
Foot mount

1/4 (6)



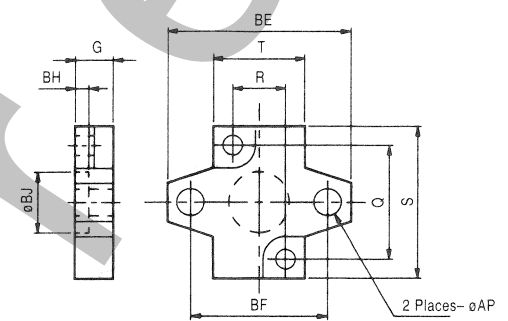
Flange A mount

1/4 (6)

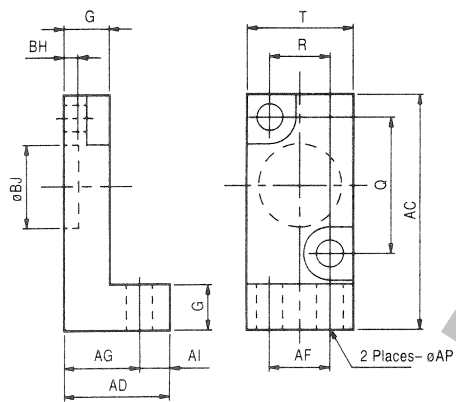


Flange B mount

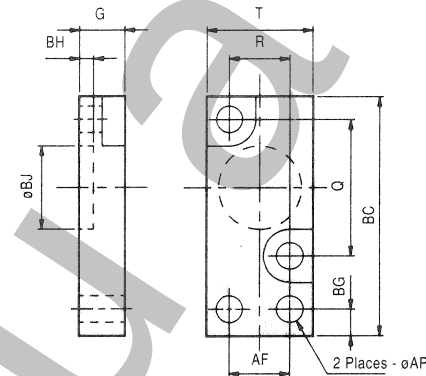
1/4 (6)



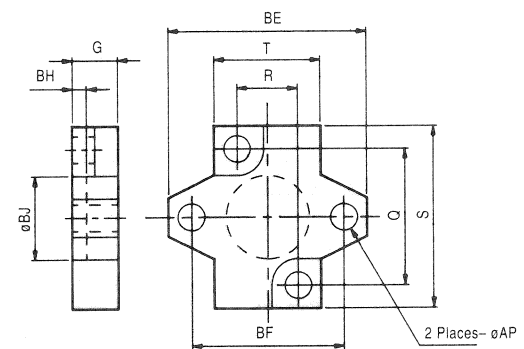
3/8 (10), 5/8 (16)



3/8 (10), 5/8 (16)



3/8 (10), 5/8 (16)



Bore Nominal in. (mm)	Code - in. (mm)												
	G	Q	R	S	T	AC	AD	AF	AG	AI	AP	BC	BE
1/4 (6)	0.197 (5)	0.591 (15)	0.276 (7)	0.787 (20)	0.472 (12)	1.024 (26)	0.512 (13)	0.236 (6)	0.354 (9)	0.157 (4)	0.138 (3.5)	1.083 (27.5)	0.945 (24)
3/8 (10)	0.236 (6)	0.709 (18)	0.315 (8)	0.945 (24)	0.551 (14)	1.220 (31)	0.551 (14)	0.315 (8)	0.394 (10)	0.157 (4)	0.138 (3.5)	1.240 (31.5)	1.024 (26)
5/8 (16)	0.276 (7)	0.984 (25)	0.472 (12)	1.299 (33)	0.787 (20)	1.634 (41.5)	0.669 (17)	0.472 (12)	0.472 (12)	0.197 (5)	0.177 (4.5)	1.654 (42)	1.417 (36)

Bore Nominal in. (mm)	Code - in. (mm)			
	BF	BG	BH ^{NOTE 1}	BJ ^{NOTE 2}
1/4 (6)	0.709 (18)	0.138 (3.5)	0.079 (2)	0.315 (8)
3/8 (10)	0.787 (20)	0.138 (3.5)	0.079 (2)	0.472 (12)
5/8 (16)	1.102 (28)	0.177 (4.5)	0.079 (2)	0.709 (18)

NOTE: Do not use 4 - M3x0.5 for mounting cylinders. This is for sensor switch mounting.

NOTE 1: 0.079 in. (2mm) = $^{+0.002}_{-0.005}$

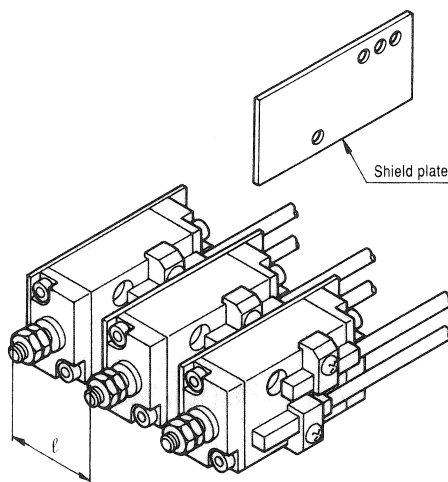
NOTE 2: 0.315 in. (8mm) = $^{+0.0004}_{-0.005}$

0.472 in. (12mm) = $^{+0.0004}_{-0.005}$

0.709 in. (18mm) = $^{+0.0004}_{-0.005}$

CAUTIONS WHEN MOUNTING CYLINDER WITH SENSOR SWITCHES

When mounting multi-mount cylinders with sensor switches in close proximity, install shield plate/s to prevent unintended actuation of a sensor by a neighboring cylinder.



LUBRICATION

Lubrication is not required. If lubricating oils are used ensure that they are of sufficient viscosity to assure adequate lubrication. Thin or low viscosity oils (spindle oil, machine oil, etc.) do not provide a good residual film of lubrication.

MEDIA/FILTRATION

Humphrey Multi-Mount cylinders are designed for use with compressed air or inert gases. Consult factory if using any other media. Compressed air should be clean and uncontaminated. When in doubt, install an air filter with filtering capacity of 40 microns. Periodically remove and clean or replace filter element.

CAUTION

Compressed air is powerful and may be dangerous. Before attempting to remove a component from an air line or system, *always* disconnect the supply air and thoroughly exhaust the line or system. *Never* attempt to construct, operate, or service anything using compressed air unless you have been properly trained to do so. Failure to heed this warning could result in **SERIOUS, EVEN FATAL, PERSONAL INJURY.**

Bore size in. (nom.) mm (actual)	Without shield plate – in. (mm)		With shield plate – in. (mm)
1/4 (6)	0.984 (25) min.	0.906 (23) min.	0.866 (22) min.
3/8 (10)	1.142 (29) min.	1.220 (31) min.	0.984 (25) min.
5/8 (16)	1.378 (35) min.	1.535 (39) min.	1.220 (31) min.

NOTE: No limitations to all other mountings.

SHIELD PLATES (order code)

in. (mm)

Bore size in. (mm) mm (actual)	Double acting (including Double end rod)		Single acting – push, pull	
	Strokes			
	<3/4	3/4 ~ 1 1/4	1/4	1/2
1/4 (6)	HBS061	HBS062	HBS061	HBS062
3/8 (10)	HBS101	HBS102	HBS101	HBS102
5/8 (16)	HBS161	HBS162	HBS161	HBS162

NOTE 1: Shield plate supplied with two mounting screws.

NOTE 2: Shield plates are sold separately.