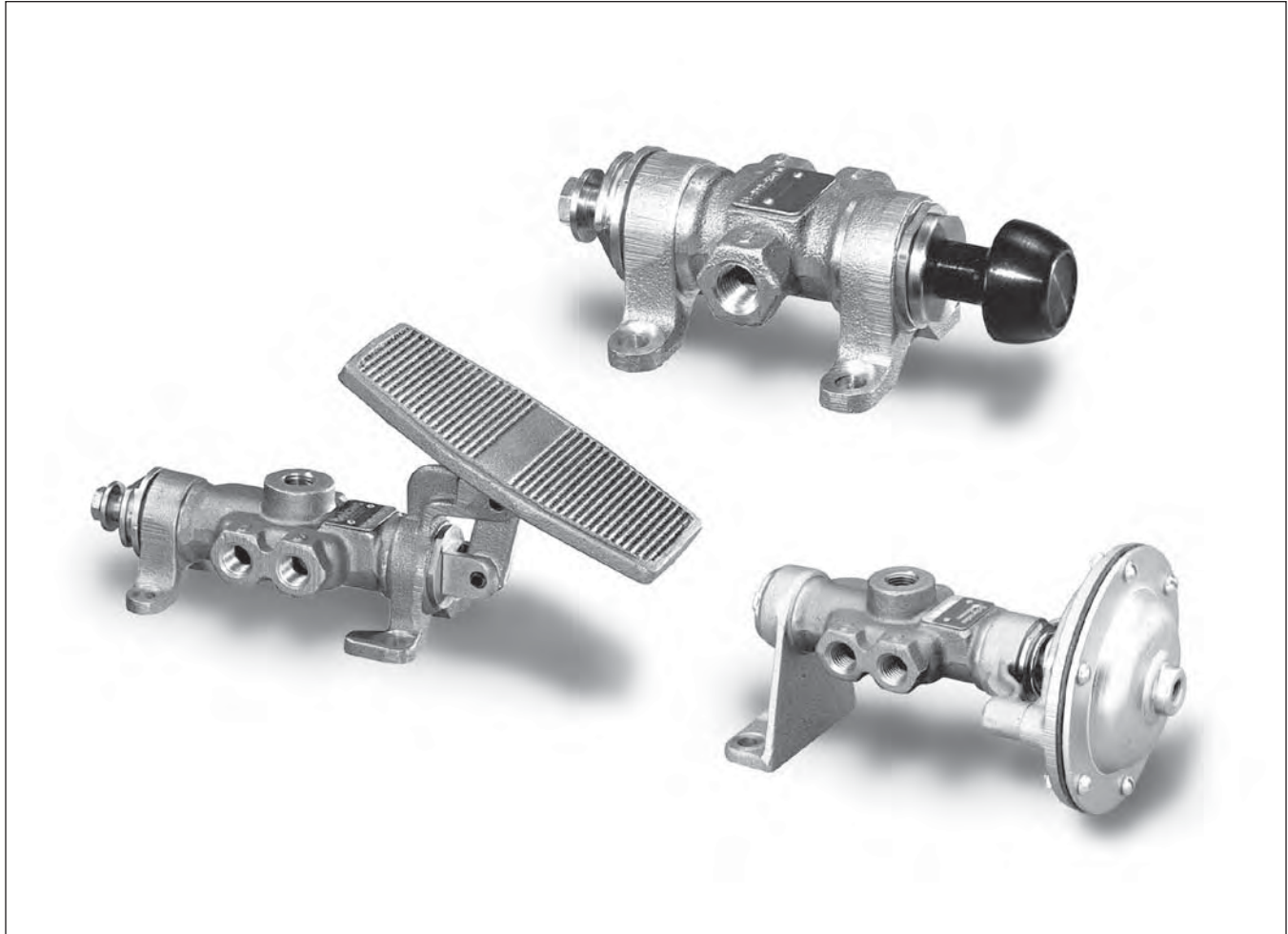




# Valvair Manual Spool Valves

Air Pilot, Manual & Mechanically Actuated

Section F  
[www.parker.com/pneu](http://www.parker.com/pneu)



Features & Specifications.....	F52	End Sections .....	F61-F62
Part Numbers .....	F53-F54	Body Sections .....	F63
Technical Data.....	F55	Accessories & Service Kits .....	F64
Model Numbering System.....	F56	Dimensions.....	F65-F80
Manual Mechanical Operators .....	F57-F58		
Pneumatic Operators .....	F59-F60		

Brass Poppet
LV / EZ
MO
Viking Lever
42
Directair 4
Directair 2

## F



## Features

- 1/4" to 3/4" NPTF ports
- Standard operators listed. Consult factor for variations in orientation
- Standard 2 position 3-way and 4-way valves listed. Consult factory for 2-way and 3 position valves
- Corrosion resistant bronze body
- High flow brass spacers position o-ring, permit reverse piping and vacuum service
- Specially compounded o-rings suitable for non-lube air service and low pressure oil service
- Floating stem of hard chrome plated stainless steel; no metal to metal contact
- Closed at crossover design for air savings
- Piped exhaust convenient for muffling
- Interchangeable operators
- Interchangeable end sections
- Service without disturbing plumbing
- Dual mounting brackets on most models



## Operating Information

**Pressure limitations knob (manual and spring return) and palm operators (manual and spring return)**

Media	Port Size	PSI (kPa)	
		3-Way	4-Way
Air and Hydraulic ‡	1/4	200 (1380)	180 (1240)
	3/8	175 (1210)	170 (1170)
	1/2	160 (1100)	150 (1030)
	3/4	150 (1030)	150 (1030)
Vacuum	All	Within 1" Hg of perfect	
Other	Consult factory		

**Pressure limitations knob (detent), lever, pedal, treadle, clevis, cam air operated diaphragm and cylinder**

Media	Port Size	PSI (kPa)	
		3-Way	4-Way
Air and Hydraulic ‡	1/4	225 (1550)	225 (1550)
	3/8	225 (1550)	225 (1550)
	1/2	215 (1480)	215 (1480)
	3/4	200 (1380)	200 (1380)
Vacuum	All	Within 1" Hg of perfect	
Other	Consult factory		

Temperature range: -15°F to 200°F (-26° to 93°C)

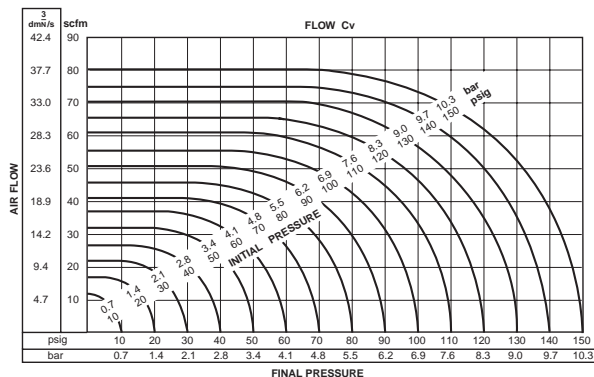
Lubrication: For best results and service life use clean, moisture free lubricated air.

‡ For technical information see CD

## Flow Cv Ratings

Valve Type	Port size	Port 1 to 2	Port 1 to 3	Port 2 to 3	Port 2 to 4	Port 3 to 4
3-Way 2-Position	1/4	2.4	—	2.4	—	—
	3/8	3.2	—	3.4	—	—
	1/2	5.0	—	5.1	—	—
	3/4	9.5	—	9.8	—	—
4-Way 2-Position	1/4	2.4	2.4	—	2.0	2.2
	3/8	3.4	3.2	—	3.0	3.1
	1/2	5.2	5.3	—	4.7	4.7
	3/4	8.7	9.2	—	7.9	8.0

## Flow Cv



## Flow Capacities

The capacity curves shown in the chart are for a theoretical valve having a Cv = 1.0 for air at standard conditions.

Flow rating determined in accordance with NFPA recommended standard NFPA/T3.21.3 - 1974.







































## Materials

Body	High pressure valve bronze
Knobs And Palm Buttons	Anodized aluminum
Operators	Iron castings; steel rod, bar and tube, and plated for corrosion resistance
O-Rings	Buna-N and impregnated with Molybdenum Disulfide
Spacers And End Bearings	Brass bar stock
Springs	high quality steel and plated for corrosion resistance
Stem	Stainless steel and hard chrome plated

## Warnings

- ⚠ Install guards on all hand operated valves if accidental operation can cause personal injury.
- ⚠ Foot operated valves must be protected against inadvertent operation that can cause serious bodily injury. Use of a guard is strongly recommended as it will reduce the likelihood of inadvertent operation.

## M0 Series Air Pilot, Manual & Mechanically Actuated Valves

3-Way and 4-Way Knob Operated	Description	Part Number 1/4 NPT	Part Number 3/8 NPT	Part Number 1/2 NPT	Part Number 3/4 NPT
	 3-way, detent ball, foot bracket	<b>M05422448</b>	<b>M05432448</b>	<b>M05442448</b>	<b>M05462448</b>
	 3-way, detent ball, panel mount with nut	<b>M05822451</b>	<b>M05832451</b>	<b>M05842451</b>	M05862451
	 3-way, N.C., manual, foot bracket	<b>M08521848</b>	<b>M08531848</b>	<b>M08541848</b>	M08561848
	 3-way, N.C., manual, panel nut	<b>M08521851</b>	<b>M08531851</b>	<b>M08541851</b>	<b>M08561851</b>
	 3-way, N.C., pull to operate, spring return, foot bracket	<b>M09721848</b>	<b>M09731848</b>	<b>M09741848</b>	M09761848
	 3-way, N.C., pull to operate, spring return, panel mount with nut	<b>M06421851</b>	<b>M06431851</b>	<b>M06441851</b>	M06461851
	 3-way, N.C., push to operate, spring return, foot bracket	<b>M09821848</b>	<b>M09831848</b>	<b>M09841848</b>	M09861848
	 3-way, N.C., push to operate, spring return, panel mount with nut	<b>M06521851</b>	<b>M06531851</b>	<b>M06541851</b>	M06561851
	 4-way, detent ball, foot bracket	<b>M05425448</b>	<b>M05435448</b>	<b>M05445448</b>	M05465448
	 4-way, detent ball, panel mount with nut	<b>M05825451</b>	<b>M05835451</b>	<b>M05845451</b>	M05865451
	 4-way, manual, foot bracket	<b>M08524648</b>	<b>M08534648</b>	<b>M08544648</b>	M08564648
	 4-way, manual, panel nut	<b>M08524651</b>	<b>M08534651</b>	<b>M08544651</b>	M08564651
	 4-way, pull to operate, spring return, foot bracket	<b>M09724648</b>	<b>M09734648</b>	<b>M09744648</b>	<b>M09764648</b>
	 4-way, pull to operate, spring return, panel mount with nut	<b>M06424651</b>	<b>M06434651</b>	<b>M06444651</b>	M06464651
	 4-way, push to operate, spring return, foot bracket	<b>M09824648</b>	<b>M09834648</b>	<b>M09844648</b>	M09864648
	 4-way, push to operate, spring return, panel mount with nut	<b>M06524651</b>	<b>M06534651</b>	<b>M06544651</b>	M06564651
<b>3-Way and 4-Way Palm Button Operated</b>					
	 3-way, N.C., pull palm button to operate, spring return, panel mount with nut	<b>M06421859</b>	<b>M06431859</b>	<b>M06441859</b>	M06461859
	 3-way, N.C., push palm button to operate, spring return, panel mount with nut	<b>M06521859</b>	<b>M06531859</b>	<b>M06541859</b>	M06561859
	 4-way, pull palm button to operate, spring return panel mount with nut	<b>M06424659</b>	<b>M06434659</b>	<b>M06444659</b>	M06464659
	 4-way, push palm button to operate, spring return, panel mount with nut	<b>M06524659</b>	<b>M06534659</b>	<b>M06544659</b>	M06564659
<b>3-Way and 4-Way Lever Operated</b>					
	 3-way, detent ball, foot bracket	<b>M05422443</b>	<b>M05432443</b>	<b>M05442443</b>	<b>M05462443</b>
	 3-way, manual, foot bracket	<b>M08521843</b>	<b>M08531843</b>	<b>M08541843</b>	<b>M08561843</b>
	 3-way, N.C., pull lever to operate, spring return, foot bracket	<b>M09621843</b>	<b>M09631843</b>	<b>M09641843</b>	<b>M09661843</b>
	 3-way, N.C., push lever to operate, spring return, foot bracket	<b>M09521843</b>	<b>M09531843</b>	<b>M09541843</b>	<b>M09561843</b>
	 4-way, detent ball, foot bracket	<b>M05425443</b>	<b>M05435443</b>	<b>M05445443</b>	<b>M05465443</b>
	 4-way, manual, foot bracket	<b>M08524643</b>	<b>M08534643</b>	<b>M08544643</b>	<b>M08564643</b>
	 4-way, pull lever to operate, spring return, foot bracket	<b>M09624643</b>	<b>M09634643</b>	<b>M09644643</b>	<b>M09664643</b>
	 4-way, push lever to operate, spring return, foot bracket	<b>M09524643</b>	<b>M09534643</b>	<b>M09544643</b>	<b>M09564643</b>







Brass Poppet  
LV / EZ  
M0  
Viking Lever  
42  
Directair 4  
Directair 2

F

**BOLD ITEMS ARE MOST POPULAR.**











## M0 Series Air Pilot, Manual & Mechanically Actuated Valves

3-Way and 4-Way, Foot Operated: Treadle / Pedal Type		Description	Part Number 1/4 NPT	Part Number 3/8 NPT	Part Number 1/2 NPT	Part Number 3/4 NPT
Brass Poppet		3-way, treadle operated, detent ball, foot bracket	M05422488	M05432488	M05442488	-
		3-way, treadle operated, manual return, foot bracket	M08521888	M08531888	M08541888	-
		3-way, N.C., spring return, pedel operated, foot bracket	M06221840	M06231840	M06241840	-
LV / EZ		4-way, treadle operated, denent ball, foot bracket	M05425488	M05435488	M05445488	-
		4-way, treadle operated, manual return, foot bracket	M08524688	M08534688	M08544688	-
		4-way, spring return, pedel operated, foot bracket	M06224640	M06234640	M06244640	-







**CAUTION:**  
This valve shall not be used to actuate a punch press. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.

### 3-Way and 4-Way Air Operated: Diaphragm or Cylinder



Viking Lever		3-way, N.C., single air diaphragm, air signal to actuate, spring return foot bracket	M08421830	M08431830	M08441830	-
		3-way, single air cylinder signal to actuate, spring return foot bracket	M08521826	M08531826	M08541826	M08561826
42		3-way, double air diaphragm	M03321833	M03331833	M03341833	-
		3-way, double air cylinder foot bracket	M01921819	M01931819	M01941819	M01961819
Directair 4		4-way, single air diaphragm, air signal to actuate, spring return foot bracket	M08424630	M08434630	M08444630	-
		4-way, single air cylinder signal to actuate, spring return foot bracket	M08524626	M08534626	M08544626	M08564626
Directair 2		4-way, double air diaphragm	M03324633	M03334633	M03344633	-
		4-way, double air cylinder foot bracket	M01924619	M01934619	M01944619	M01964619

Note: Diaphragm operators: pilot signal pressures from 20 to 60 psi. Cylinder operators: pilot signal pressures from 20 to 250 psi.

### 3-Way and 4-Way Clevis Operated

F		3-way, manual, foot bracket	M08521805	M08531805	M08541805	M08561805
		3-way, N.C., pull to operate, spring return foot bracket	M09621805	M09631805	M09641805	M09661805
		3-way, N.C., push to operate, spring return, foot bracket	M09521805	M09531805	M09541805	M09561805
		4-way, manual, foot bracket	M08524605	M08534605	M08544605	M08564605
		4-way, pull clevis to operate, spring return, foot bracket	M09624605	M09634605	M09644605	M09664605
		4-way, push clevis to operate, spring return, foot bracket	M09524605	M09534605	M09544605	M09564605

### 3-Way and 4-Way Cam Operated

F		3-way, N.C., spring return, cam operated, foot bracket	M09521803	M09531803	M09541803	M09561803
		4-way, spring return, cam operated, foot bracket	M09524603	M09534603	M09544603	M09564603

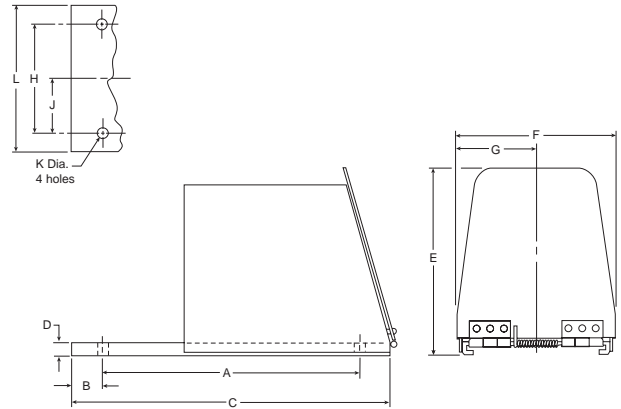
**Pedal Guard**  
 (Fits all pedal operated valves)

Description	Model number
Guard with door	<b>M232 001</b>
Guard without door	<b>M232 002</b>
Guard with door for 1/4 and 3/8 valve	<b>M232 003*</b>
Guard without door for 1/4 and 3/8 valve	<b>M232 004*</b>
Guard with door for 1/2 and 3/4	<b>M232 005*</b>
Guard without door for 1/2 and 3/4	<b>M232 006*</b>

\* Includes mounting hardware.

**CAUTION:**

Foot valves utilizing this guard shall not be used to actuate a punch presse. Do not use this valve on punch presses or press brakes. See OSHA 1910.217.



**Dimensions**

<b>A</b> 10.50 266.7	<b>B</b> 1.25 31.8	<b>C</b> 13.00 330.2	<b>D</b> .50 12.7	<b>E</b> 7.38 187.4	<b>F</b> 6.36 161.5	<b>G</b> 3.18 80.8
<b>H</b> 4.50 114.3	<b>J</b> 2.25 57.2	<b>K</b> .44 11.2	<b>L</b> 6.00 152.4			

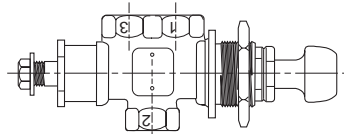
**M0 Valve 9 Digit Part Number Dissection**

The M0 Valve Series has with wide variety of operating and return ends which can be ordered either on the left or right hand side of the valve body. Common part numbers on the previous pages can be ordered with the left and right hand ends swapped. Swapping operator and return end sections does not change the spool function, but can reverse the expected function of the valve. For example, a 3-way,

normally closed, "NC", spring return valve will become a 3-way normally open, "NO", valve when the operator and return section is swapped. There are other non-cataloged options available and this part number dissection will enable you to discuss your valve part number with the factory for options.

**3-Way**

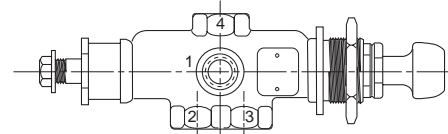
Series name	Left end	Port size	Body function	Right end
<b>M0</b>	<b>XX</b>	<b>X</b>	<b>XX</b>	<b>XX</b>



Left End Section in relation to port #2 ← → Right End Section in relation to port #2

**4-Way**

Series name	Left end	Port size	Body function	Right end
<b>M0</b>	<b>XX</b>	<b>X</b>	<b>XX</b>	<b>XX</b>



Left End Section in relation to port #2 ← → Right End Section in relation to port #3

Brass Poppet

LV / EZ

M0

Viking Lever

42

Directair 4

Directair 2

**F**



**M0 Valve: 1/4", 3/8", 1/2" Port Size**

**M0 85 3 18 48**

Valve Series	
Basic Series	M0

Left End Section	
Double Cylinder	19
Double Air Diaphragm	33
Ball Detent, Small Bracket	54
Ball Detent, Panel Mounted	58
Direct Acting Spring Return, Less Bracket (Push Lever)	62
Reverse Acting Spring Return, Less Bracket (Pull Lever)	63
Light Spring Return Direct Acting, Less Bracket (Pull Knob)	64
Light Spring Return Reverse Acting, Less Bracket (Push Knob)	65
Stem Stop, Large Bracket	84
Stem Stop, Small Bracket	85
Direct Acting Spring Return, Small Bracket (Push Lever)	95
Reverse Acting Spring Return, Small Bracket (Pull Lever)	96
Light Spring Return Direct Acting, Small Bracket (Pull Knob)	97
Light Spring Return Reverse Acting, Small Bracket (Push Knob)	98

Operating End Section: Right End	
03	Cam Follower
05	Clevis, Small Bracket
19	Double Cylinder
26	Single Cylinder
30	Single Diaphragm, Std. Spring
32	Single Diaphragm, Light Spring
33	Double Diaphragm
40	Pedal
43	Lever, Mounting Feet
48	Knob, Small Bracket
51	Knob, Panel Mounted
59	Palm Button, Panel Mounted
88	Treadle
99	Palm Button

Body / Function	
18	3-Way
24*	3-Way, 2-Position Detent
46	4-Way
54*	4-Way, 2-Position Detent

\* At least one end section must be coded 54.

Pipe Size	
NPT	Port Size
1/4	2
3/8	3
1/2	4

**M0 Valve: 3/4" Port Size**

**M0 85 6 18 48**

Valve Series	
Basic Series	M0

Left End Section	
Double Cylinder	19
Ball Detent, Small Bracket	54
Ball Detent, Panel Mounted	58
Direct Acting Spring Return, Less Bracket (Push Lever)	62
Reverse Acting Spring Return, Less Bracket (Pull Lever)	63
Light Spring Return Direct Acting, Less Bracket (Pull Knob)	64
Light Spring Return Reverse Acting, Less Bracket (Push Knob)	65
Stem Stop, Small Bracket	85
Direct Acting Spring Return, Small Bracket (Push Lever)	95
Reverse Acting Spring Return, Small Bracket (Pull Lever)	96
Light Spring Return Direct Acting, Small Bracket (Pull Knob)	97
Light Spring Return Reverse Acting, Small Bracket (Push Knob)	98

Operating End Section: Right End	
03	Cam Follower
05	Clevis, Small Bracket
19	Double Cylinder
26	Single Cylinder
43	Lever, Mounting Feet
48	Knob, Small Bracket
51	Knob, Panel Mounted
59	Palm Button, Panel Mounted
99	Palm Button

Body / Function	
18	3-Way
24*	3-Way, 2-Position Detent
46	4-Way
54*	4-Way, 2-Position Detent

\* At least one end section must be coded 54.

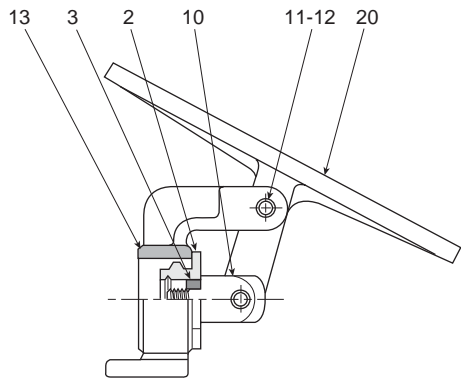
Pipe Size	
NPT	Port Size
3/4	6



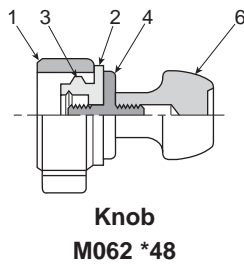
**CAUTION:**

Be sure to order end sections that are functionally effective with each other and with the body section selected. Model number combinations are possible which may not operate.

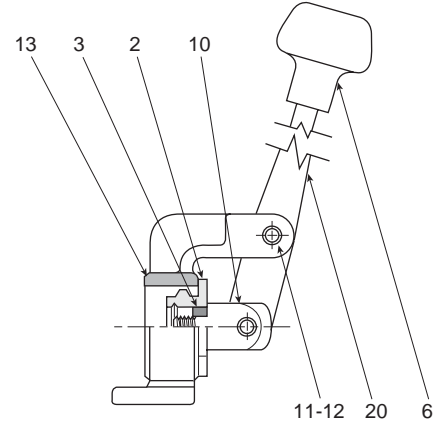
**NOTE:** Bold items are standard body and end sections.



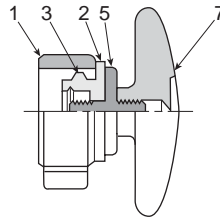
**Treadle**  
**M062 \*88**



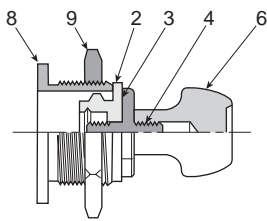
**Knob**  
**M062 \*48**



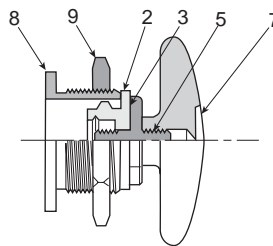
**Lever**  
**M062 \*43**



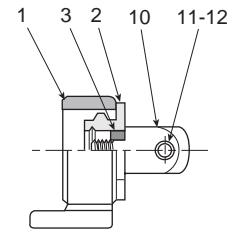
**Palm Button**  
**M062 \*99**



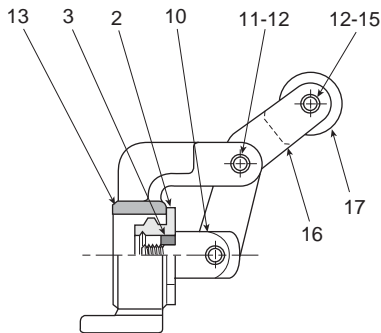
**Panel Mounted Knob**  
**M062 \*51**



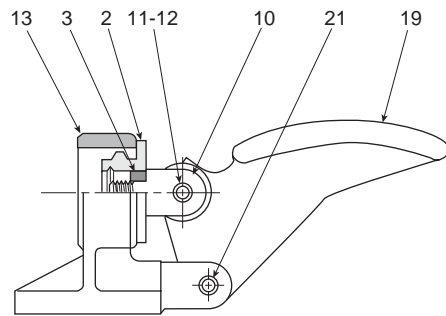
**Panel Mounted Palm Button**  
**M062 \*59**



**Clevis**  
**M062 \*05**



**Cam**  
**M062 \*03**



**Pedal**  
**M062 \*40**

Port Size	Use No. *
1/4	2
3/8	3
1/2	4
3/4	6

Brass  
 Poppet

LV / EZ

M0

Viking  
 Lever

42

Directair  
 4

Directair  
 2

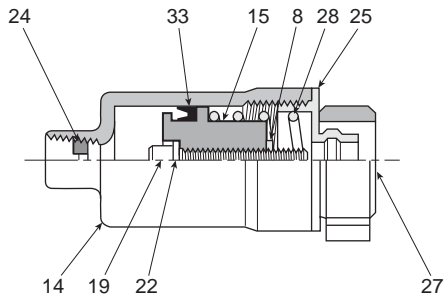
**F**

Item No.	Part Number				Description
	1/4"	3/8"	1/2"	3/4"	
1	M073 016	M073 026	M073 037	M073 046	Bracket
2	M103 012	M103 047	M103 066	M103 108	End Bearing
3	H177 05	H177 05	H177 06	H174 08	Lockwasher
4	M013 011	M013 011	M013 012	M013 013	Knob Adapter
5	M013 011	M013 011	M013 012	M013 013	Palm Knob Adapter
6	H050 28	H050 28	H050 28	H050 28	Knob
7	H050 29	H050 29	H050 29	H050 29	Palm Button
8	M013 014	M013 015	M013 016	M013 017	Panel Adapter
9	M303 005	M303 006	M303 007	M303 008	Jam Nut
10	M133 003	M133 003	M133 012	M133 018	Clevis
11	H072 29	H072 29	M333 013	M333 013	Pivot Pin (2)
12	—	—	H089 03	H089 03	Retaining Ring (4)
13	M073 009	M073 022	M073 033	M073 042	Bracket
14	M273 022	M273 022	M273 023	M273 024	Lever
15	H072 30	H072 30	M333 016	M333 016	Roller Trunnion
16	M273 002	M273 002	M273 006	M273 007	Cam Arm
17	M443 003	M443 003	M443 002	M443 002	Roller
18	M073 003	M073 019	M073 030	—	Bracket
19	M323 005	M323 005	M323 006	M323 007	Pedal
20	M553 004	M553 004	M553 005	—	Treadle
21	H072 29	H072 29	M333 013	M333 014	Pivot Pin

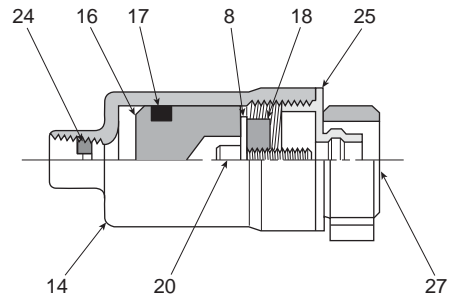
NOTE: ( ) denotes quantity required when more than one.

Brass  
 Poppet  
 LV / EZ  
 M0  
 Viking  
 Lever  
 42  
 Directair  
 4  
 Directair  
 2

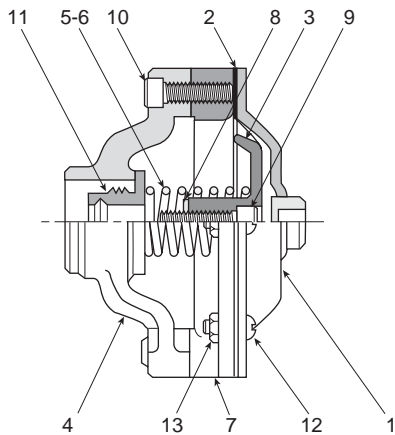




**Single Cylinder  
 M062 \*26**

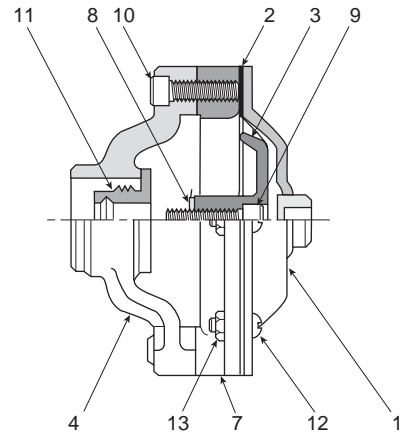


**Double Cylinder  
 M062 \*19**



**Single Diaphragm  
 M062 \*30**

**Inst. Air Single Diaphragm  
 M062 \*32**



**Double Diaphragm  
 M062 \*33**

Port Size	Use No. *
1/4	2
3/8	3
1/2	4
3/4	6

Brass Poppet
LV / EZ
M0
Viking Lever
42
Directair 4
Directair 2

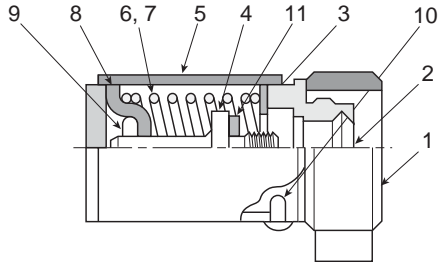


Item No.	Part Number				Description
	1/4"	3/8"	1/2"	3/4"	
1	M163 005	M163 005	M163 005	M163 012	Cover
2	M193 002	M193 002	M193 002	M193 005	Diaphragm
3	M343 038	M343 038	M343 032	M343 039	Piston
4	M573 004	M573 003	M573 001	M573 011	Yoke
5	M493 024	M493 024	M493 010	M493 023	Spring
6	M493 022	M493 022	M493 009	M493 028	Spring (Inst. Air)
7	M423 002	M423 002	M423 002	M423 004	Ring
8	H177 05	H177 05	H177 06	H174 08	Lockwasher
9	H101 19	H101 19	H101 45	H102 17	Screw
10	H101 15	H101 15	H101 15	H101 15	Screw (2)
11	M103 012	M103 047	M103 066	M103 108	End Bearing
12	H113 33	H113 33	H113 33	H113 33	Screw (6)
13	H064 16	H064 16	H064 16	H064 16	Nut (6)
14	M243 028	M243 028	M243 028	M243 036	Housing
15	M343 019	M343 019	M343 018	M343 027	Piston – Single Act.
16	M343 022	M343 022	M343 022	M343 028	Piston – Double Cyl.
17	H145 15	H145 15	H145 15	H145 20	Packer
18	M013 005	M013 005	M013 007	M013 009	Adapter
19	H101 21	H101 21	H101 47	H102 19	Screw – Single Act.
20	H101 17	H101 17	H101 45	H102 15	Screw – Double Act.
22	H175 14	H175 14	H175 19	H175 24	Lockwasher
24	M363 002	M363 002	M363 002	M363 002	Restrictor
25	M383 007	M383 011	M383 018	M383 029	Retainer
27	M073 016	M073 026	M073 037	M073 046	Bracket
28	M493 015	M493 015	M493 015	M493 020	Spring
33	H222 32	H222 32	H222 32	H145 20	Packer

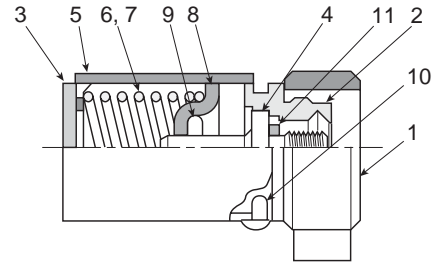
NOTE: ( ) denotes quantity required when more than one.

Brass  
Poppet  
LV / EZ  
M0  
Viking  
Lever  
42  
Directair  
4  
Directair  
2

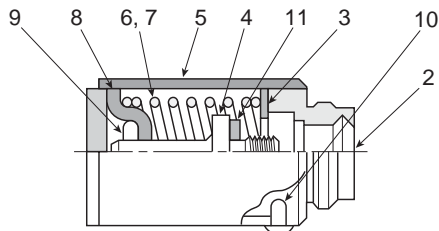




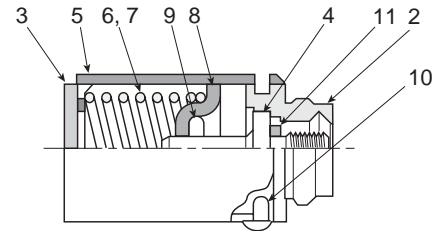
**Direct Acting Spring Return with Bracket**  
 M062 \*95 Push Lever  
 M062 \*97 Pull Knob



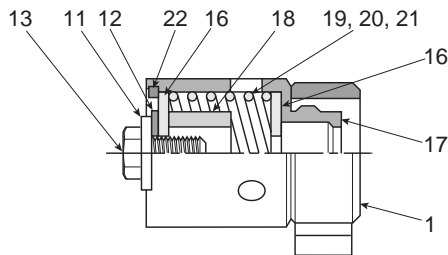
**Reverse Acting Spring Return with Bracket**  
 M062 \*96 Pull Lever  
 M062 \*98 Push Knob



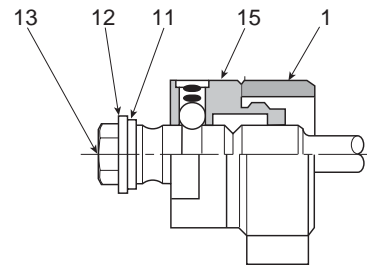
**Direct Acting Spring Return less Bracket**  
 M062 \*62 Push Lever  
 M062 \*64 Pull Knob



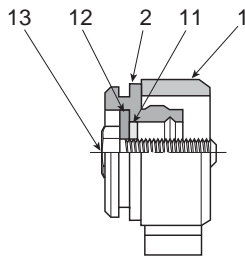
**Reverse Acting Spring Return less Bracket**  
 M062 \*63 Pull Lever  
 M062 \*65 Push Knob



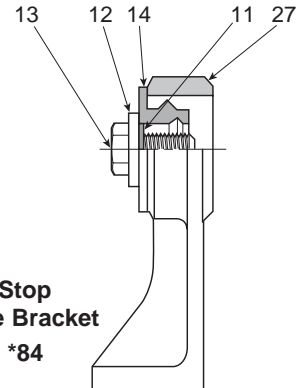
**Spring Centered Neutral**  
 M062 \*74 Standard Spring  
 M062 \*76 Light Spring  
 M062 \*78 Heavy Spring



**Ball Detent, 3-Position**  
 M062 \*54



**Stem Stop  
 with Small Bracket**  
 M062 \*85



**Stem Stop  
 with Large Bracket**  
 M062 \*84

Port Size	Use No. *
1/4	2
3/8	3
1/2	4
3/4	6

Brass Poppet
LV / EZ
M0
Viking Lever
42
Directair 4
Directair 2

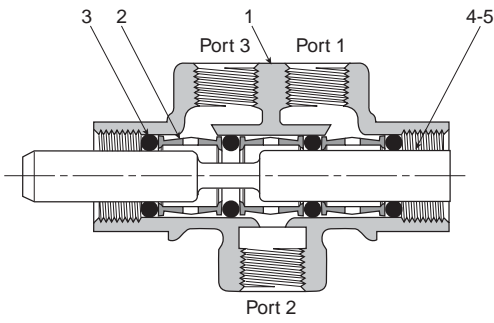


Item No.	Part Number				Description
	1/4"	3/8"	1/2"	3/4"	
1	M073 016	M073 026	M073 037	M073 046	Bracket
2	M103 111	M103 112	M103 113	M103 114	End Bearing
3	M413 015	M413 015	M413 016	M413 017	Spring Retainer Washer
4	M523 009	M523 009	M523 010	M523 011	Stem Stop – Guide
5	M243 043	M243 043	M243 044	M243 045	Spring Housing
6	M493 037	M493 037	M493 027	M493 026	Spring – Knob Oper.
7	M493 038	M493 038	M493 011	M493 012	Spring – Other Oper.
8	M383 032	M383 032	M383 033	M383 034	Spring Retainer
9	H072 54	H072 54	H072 70	H072 71	Roll Pin
10	H11215	H11215	H11216	H11217	Screw
11	H177 05	H177 05	H177 06	H174 08	Lockwasher
12	M563 002	M563 002	M563 006	M563 014	Stem Stop
13	H096 26	H096 26	H096 45	H097 06	Stem Stop Screw
14	M103 012	M103 047	M103 066	M103 108	End Bearing – Plain
15	M012 001	M012 002	M012 003	M012 005	Ball Detent Assembly
16	M563 007	M563 009	M563 008	M563 016	Washer
17	M243 008	M243 019	M243 027	M243 032	Spring Housing
18	M083 003	M083 004	M083 005	M083 008	Spacer
19	M493 008	M493 008	M493 008	M493 014	Spring
20	M493 019	M493 019	M493 019	—	Spring – Knob Oper.
21	M493 006	M493 006	M493 006	M493 007	Spring – Dbl. Act. Cyl.
22	H090 25	H090 25	H090 25	H090 12	Retainer Ring
24	—	—	—	M353 036	Lock Plate
27	M073 006	M073 017	M073 028	—	Large Bracket

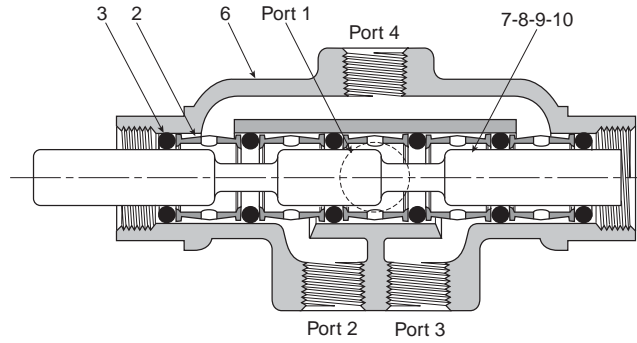
NOTE: ( ) denotes quantity required when more than one.

Brass  
 Poppet  
 LV / EZ  
 M0  
 Viking  
 Lever  
 42  
 Directair  
 4  
 Directair  
 2





**M032 \*18**  
**Standard 3-Way**  
**M032 \*24**  
**2-Position Detent 3-Way**



**M032 \*46**  
**Standard 4-Way**  
**M032 \*54**  
**2-Position Detent 4-Way**

Port Size	Use No. *
1/4	2
3/8	3
1/2	4
3/4	6

Item No.	Part Number				Description
	1/4"	3/8"	1/2"	3/4"	
1	M053 007	M053 019	M053 030	M053 038	Body – 3-Way
2	M313 004	M313 011	M313 013	M313 017	Spacer (2-3-5)
3	H134 66	H135 88	H135 80	H135 84	O-Ring (3-4-6)
4	M373 014	M373 060	M373 102	M373 142	Stem – 3-Way
5	M373 020	M373 064	M373 103	M373 146	Stem – 3-Way 2-Pos. Detent
6	M053 003	M053 020	M053 033	M053 039	Body – 4-Way
7	M373 033	M373 074	M373 116	M373 156	Stem – 4-Way
8	M373 039	M373 076	M373 118	—	Stem – 4-Way 2-Pos. Detent

**NOTE:** ( ) denotes quantity required when more than one.

Brass Poppet
LV / EZ
M0
Viking Lever
42
Directair 4
Directair 2

## Replacement Knobs & Palm Buttons

Description	1/4" & 3/8"	1/2"	3/4"
<b>Knob &amp; Adapter Kit</b>	M122001	M122002	M122003
<b>Palm Button &amp; Adapter Kit</b>	M122004	M122005	M122006



Knob & Adapter Kit



Palm Button & Adapter Kit

## Hex Drive Pipe Plugs

Port Size	1/4"	3/8"	1/2"	3/4"
<b>Part Number</b>	K21R02025L	K21R02037L	K21R02050L	K21R02075L

## Service Kits

(Field Service Instructions)

Description (For all 3 & 4-Way Valves)	1/4	3/8	1/2	3/4
Manual & Mechanical Operators	M242 001	M242 002	M242 003	M242 004
Cylinder (Single, Double & Double-Acting)	M242 006	M242 007	M242 008	M242 009
Diaphragm (Single & Double)	M242 011	M242 012	M242 013	M242 014

Brass  
Poppet

LV / EZ

M0

Viking  
Lever

42

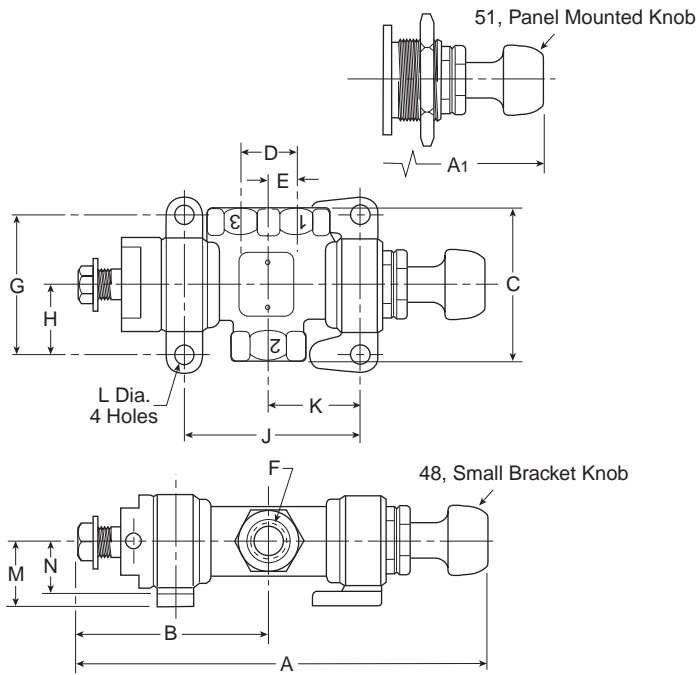
Directair  
4

Directair  
2

**P**



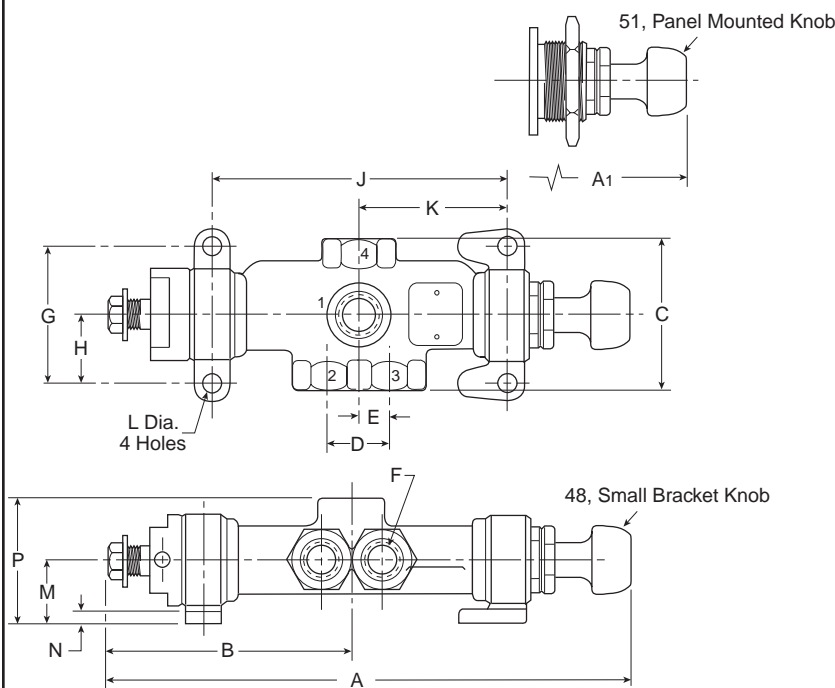
**M054 Ball Detent, Small Bracket &  
M058 Ball Detent, Panel Mounted  
3-Way**



	1/4	3/8	1/2	3/4
A	6.57 (166.9)	7.30 (185.4)	8.56 (217.4)	10.40 (264.2)
A1	6.57 (166.9)	7.30 (185.4)	8.56 (217.4)	10.40 (264.2)
B	3.25 (82.6)	3.66 (93.0)	4.39 (111.5)	5.41 (137.4)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)	4.56 (115.8)
K	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)	2.28 (57.9)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)

Inches (mm)

**M054 Ball Detent, Small Bracket &  
M058 Ball Detent, Panel Mounted  
4-Way**



	1/4	3/8	1/2	3/4
A	8.02 (203.7)	9.13 (231.9)	11.17 (283.7)	13.10 (332.7)
A1	8.02 (203.7)	9.13 (231.9)	11.17 (283.7)	13.10 (332.7)
B	4.00 (101.6)	4.57 (116.1)	5.44 (138.2)	6.76 (171.7)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)

Inches (mm)

Brass  
Poppet

LV / EZ

M0

Viking  
Lever

42

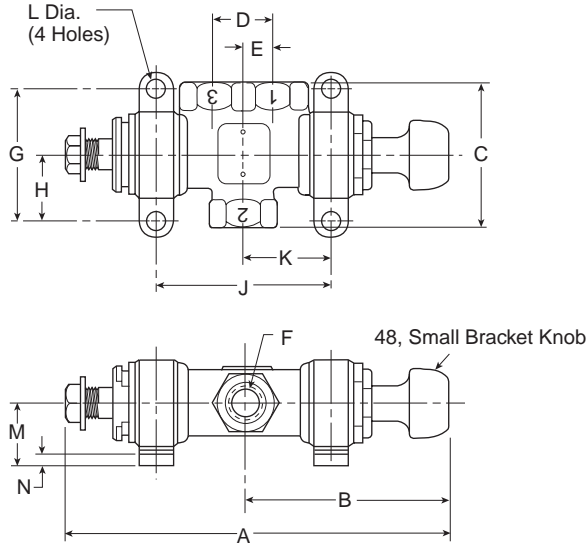
Directair  
4

Directair  
2

**F**

Brass Poppet  
 LV / EZ  
 M0  
 Viking Lever  
 42  
 Directair 4  
 Directair 2  
**P**

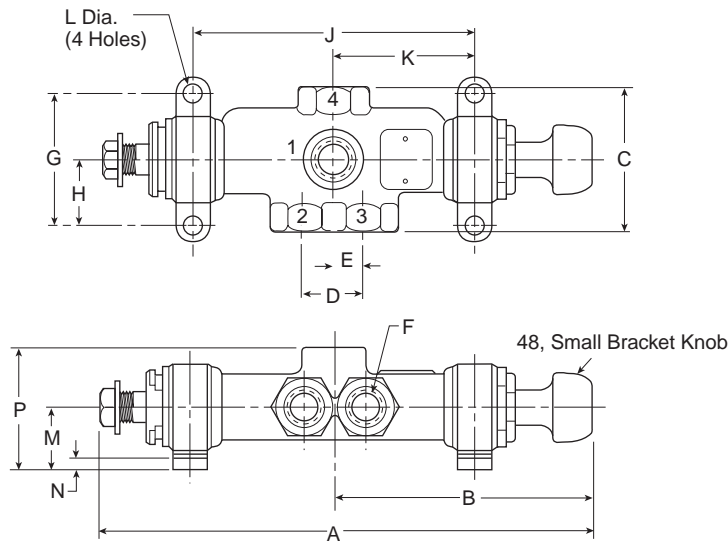
**M085 Stem Stop, Small Bracket 3-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	5.99 (152.2)	6.69 (169.9)	7.90 (200.7)	9.60 (243.8)
<b>B</b>	3.32 (84.3)	3.64 (92.5)	4.17 (105.9)	4.99 (126.8)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	2.64 (67.1)	3.14 (79.8)	3.73 (94.7)	4.67 (118.6)
<b>K</b>	1.32 (33.5)	1.57 (39.9)	1.87 (47.5)	2.33 (59.2)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
<b>Travel</b>	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

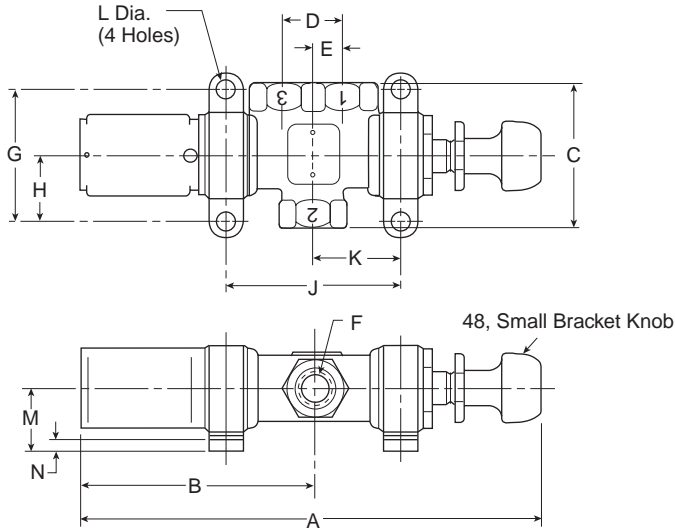
**M085 Stem Stop, Small Bracket 4-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	7.49 (190.2)	8.53 (216.7)	10.01 (254.2)	12.31 (312.7)
<b>B</b>	4.02 (102.1)	4.56 (115.8)	5.73 (145.5)	6.34 (161.0)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
<b>K</b>	2.07 (52.6)	2.49 (63.2)	2.93 (74.4)	3.69 (93.7)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
<b>P</b>	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
<b>Travel</b>	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

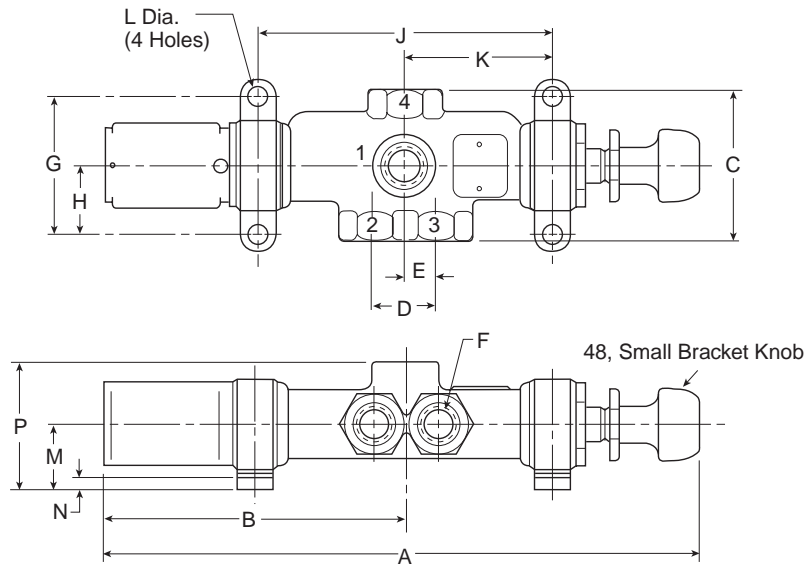
**M097 Light Spring Return Direct Acting,  
 Small Bracket (Pull Knob)  
 3-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	7.86 (199.8)	8.55 (217.2)	10.36 (263.1)	13.01 (330.4)
<b>B</b>	3.92 (99.6)	4.24 (107.7)	5.32 (135.2)	6.92 (175.8)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	2.64 (67.1)	3.14 (79.8)	3.73 (94.7)	4.67 (118.6)
<b>K</b>	1.32 (33.5)	1.57 (39.9)	1.87 (47.5)	2.33 (59.2)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
<b>Travel</b>	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

**M097 Light Spring Return Direct Acting,  
 Small Bracket (Pull Knob)  
 4-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	9.36 (237.9)	10.39 (263.9)	12.48 (317.0)	15.73 (399.5)
<b>B</b>	4.67 (118.5)	5.15 (130.8)	6.37 (161.8)	8.27 (210.1)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
<b>K</b>	2.07 (52.6)	2.49 (63.2)	2.93 (74.4)	3.69 (93.7)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
<b>P</b>	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
<b>Travel</b>	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

Brass  
Poppet

LV / EZ

M0

Viking  
Lever

42

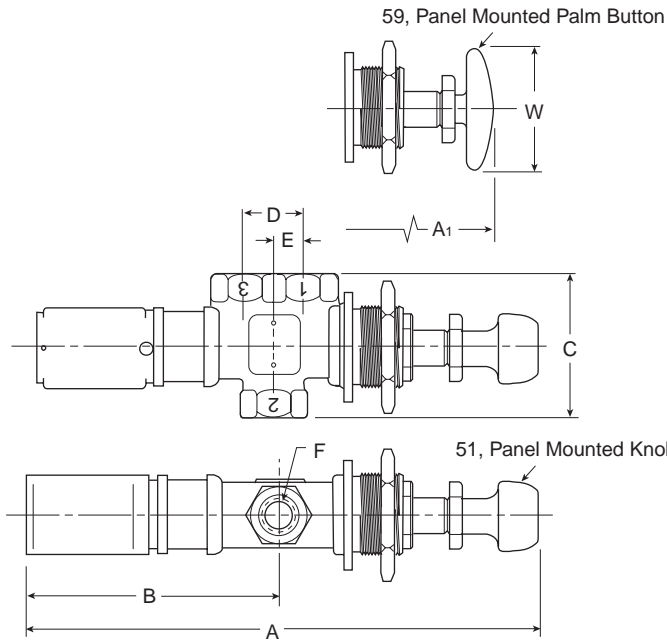
Directair  
4

Directair  
2

**F**

Brass  
 Poppet  
 LV / EZ  
 M0  
 Viking  
 Lever  
 42  
 Directair  
 4  
 Directair  
 2  
**U**

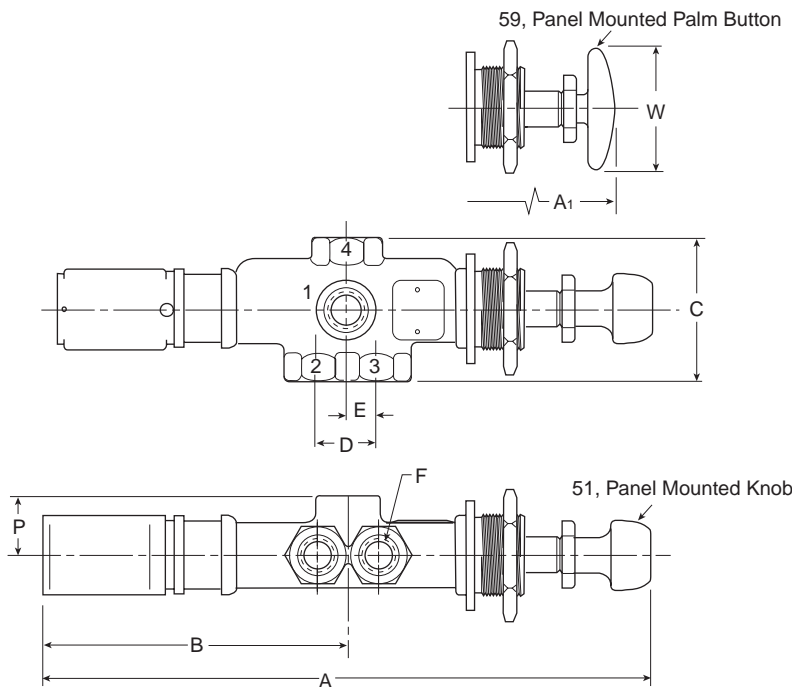
**M064 Light Spring Return Direct Acting, Less Bracket (Pull Knob) & M065 Light Spring Return Reverse Acting, Less Bracket (Push Knob) 3-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	7.86 (199.6)	8.55 (217.1)	10.36 (263.1)	13.01 (330.4)
<b>A1</b>	7.55 (191.8)	8.24 (209.3)	10.05 (255.3)	12.70 (322.6)
<b>B</b>	3.96 (99.5)	4.23 (107.4)	5.31 (134.9)	6.91 (175.5)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>W</b>	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)
<b>Travel</b>	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

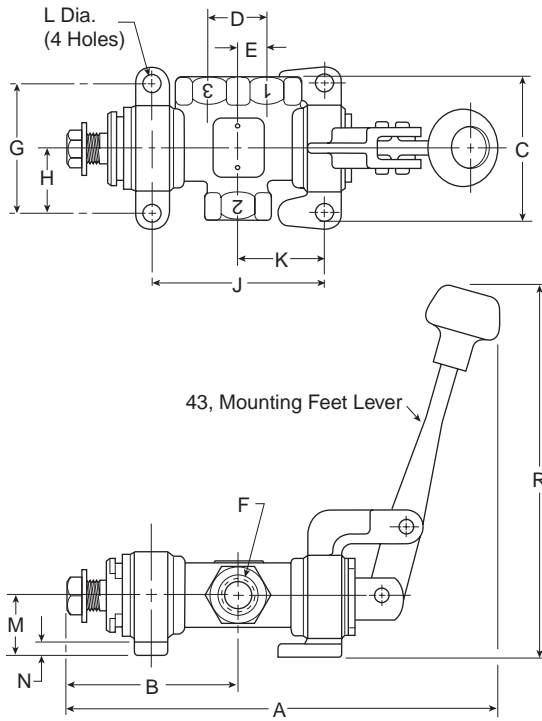
**M064 Light Spring Return Direct Acting, Less Bracket (Pull Knob) & M065 Light Spring Return Reverse Acting, Less Bracket (Push Knob) 4-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	9.36 (237.7)	10.39 (263.9)	12.48 (317.0)	15.73 (399.5)
<b>A1</b>	9.05 (229.9)	10.08 (256.0)	12.17 (309.1)	15.42 (391.7)
<b>B</b>	4.67 (118.5)	5.15 (130.8)	6.37 (161.8)	8.27 (210.1)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>P</b>	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
<b>W</b>	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)
<b>Travel</b>	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

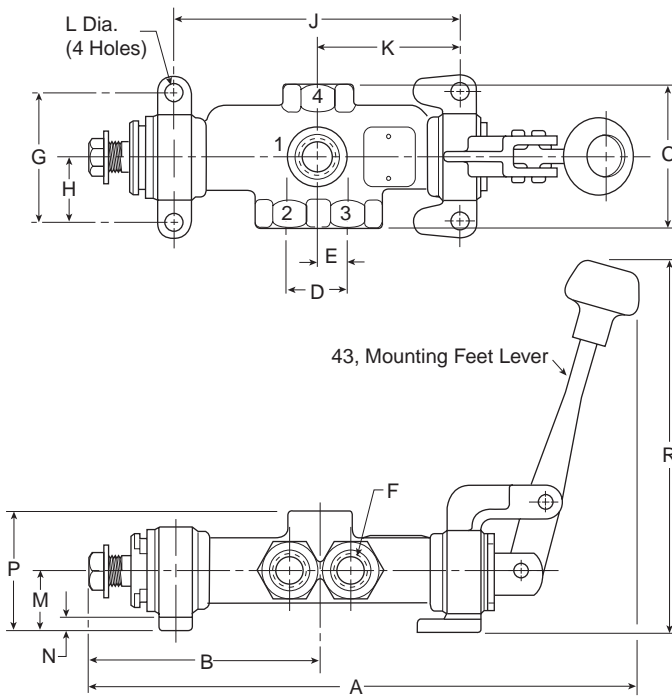
**M085 Stem Stop, Small Bracket**  
**3-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	6.77 (172.0)	7.76 (197.1)	9.29 (236.0)	11.46 (291.1)
<b>B</b>	2.67 (67.8)	3.05 (77.5)	3.72 (94.5)	4.61 (117.1)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)	4.56 (115.8)
<b>K</b>	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)	2.28 (57.9)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
<b>R</b>	6.78 (172.2)	6.78 (172.2)	8.10 (205.7)	10.73 (272.5)
<b>Travel</b>	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

**M085 Stem Stop, Small Bracket**  
**4-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	8.28 (210.3)	9.60 (243.8)	11.08 (281.4)	14.17 (359.9)
<b>B</b>	3.42 (86.9)	3.97 (100.8)	4.78 (121.4)	5.97 (151.6)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
<b>K</b>	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
<b>P</b>	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
<b>R</b>	6.78 (172.2)	6.78 (172.2)	8.10 (205.7)	10.73 (272.5)
<b>Travel</b>	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

Brass  
Poppet

LV / EZ

M0

Viking  
Lever

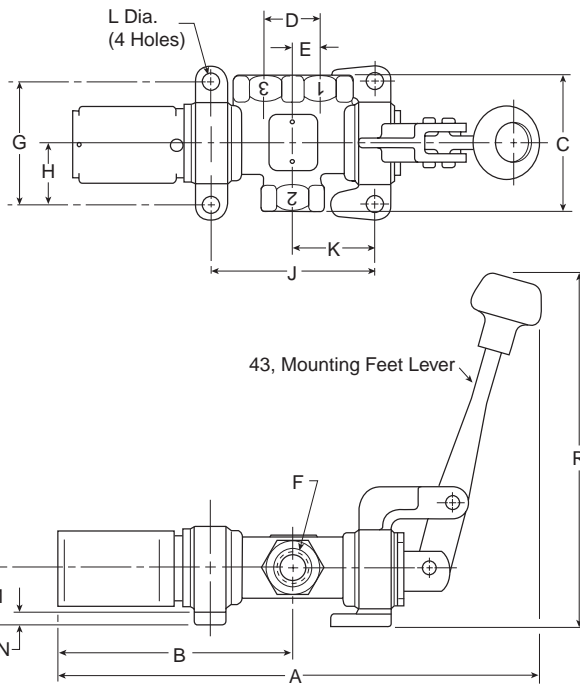
42

Directair  
4

Directair  
2

F

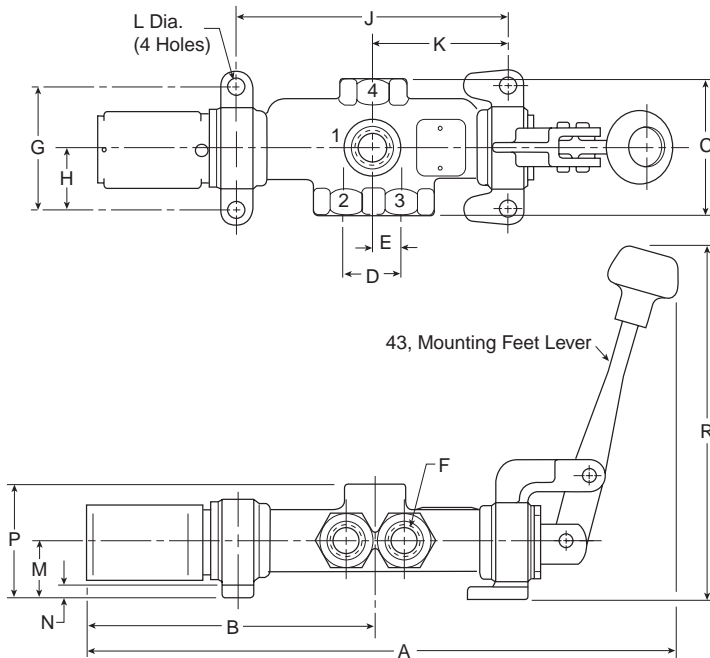
**M095 Direct Acting Spring Return, Small Bracket (Push Lever) & M096 Reverse Acting Spring Return, Small Bracket (Pull Lever) 3-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	7.99 (202.8)	8.94 (227.0)	10.88 (276.4)	13.76 (349.5)
<b>B</b>	3.92 (99.5)	4.24 (107.6)	5.31 (134.9)	6.92 (175.8)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)	4.56 (115.8)
<b>K</b>	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)	2.28 (57.9)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
<b>R</b>	6.78 (172.2)	6.78 (172.2)	8.10 (205.7)	10.73 (272.5)
<b>Travel</b>	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

**M095 Direct Acting Spring Return, Small Bracket (Push Lever) & M096 Reverse Acting Spring Return, Small Bracket (Pull Lever) 3-Way**



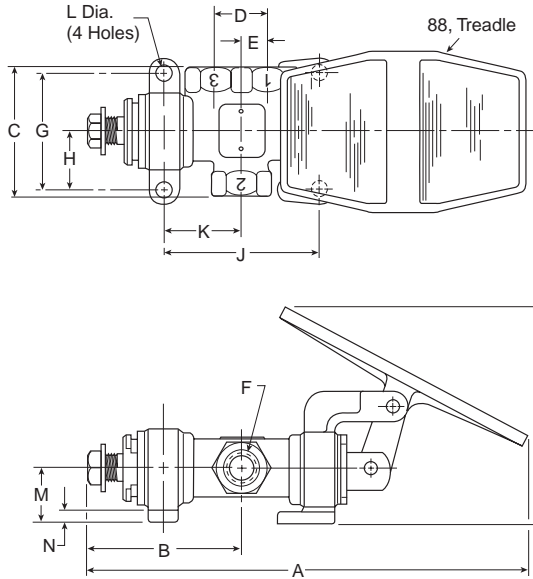
	1/4	3/8	1/2	3/4
<b>A</b>	9.53 (242.1)	10.78 (273.8)	12.67 (321.8)	16.47 (418.3)
<b>B</b>	4.67 (118.6)	5.15 (130.8)	5.68 (144.3)	8.27 (210.1)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
<b>K</b>	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
<b>P</b>	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
<b>R</b>	6.78 (172.2)	6.78 (172.2)	8.10 (205.7)	10.73 (272.5)
<b>Travel</b>	0.62 (15.7)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

Brass Poppet  
 LV / EZ  
 M0  
 Viking Lever  
 42  
 Directair 4  
 Directair 2



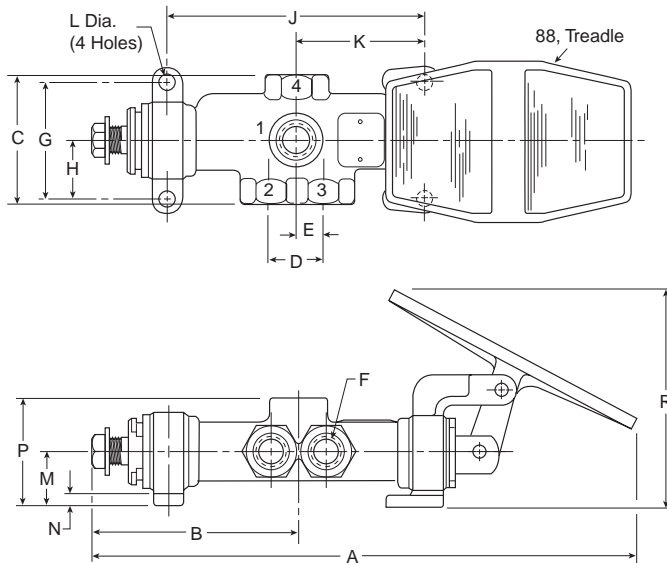
**M085 Stem Stop, Small Bracket**  
**3-Way**



	1/4	3/8	1/2
<b>A</b>	8.01 (203.4)	8.73 (221.7)	10.32 (262.1)
<b>B</b>	2.67 (68.8)	3.06 (77.7)	4.06 (103.1)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)
<b>J</b>	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)
<b>K</b>	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)
<b>N</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)
<b>R</b>	4.51 (114.6)	4.65 (118.1)	4.85 (123.2)
<b>Travel</b>	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)

Inches (mm)

**M085 Stem Stop, Small Bracket**  
**4-Way**



	1/4	3/8	1/2
<b>A</b>	9.52 (241.8)	10.57 (268.5)	12.11 (307.6)
<b>B</b>	3.42 (86.9)	3.97 (100.8)	4.78 (121.4)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)
<b>J</b>	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)
<b>K</b>	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)
<b>N</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)
<b>P</b>	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)
<b>R</b>	4.51 (114.6)	4.65 (118.1)	4.85 (123.2)
<b>Travel</b>	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)

Inches (mm)

Brass  
Poppet

LV / EZ

M0

Viking  
Lever

42

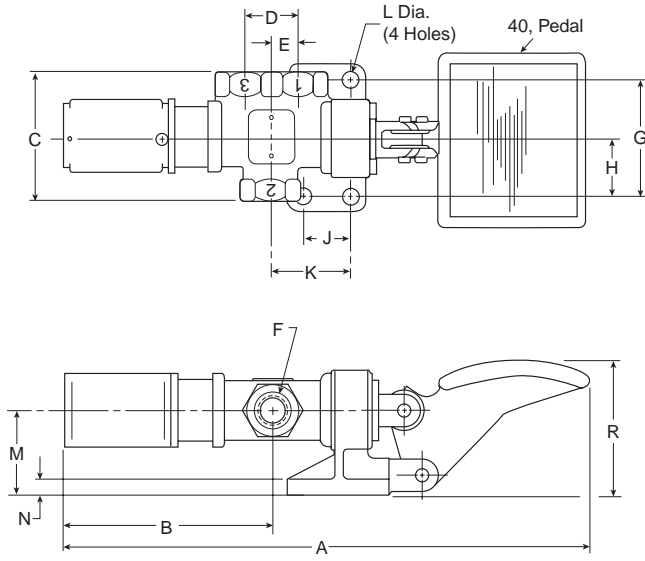
Directair  
4

Directair  
2

**F**

Brass Poppet  
 LV / EZ  
 M0  
 Viking Lever  
 42  
 Directair 4  
 Directair 2

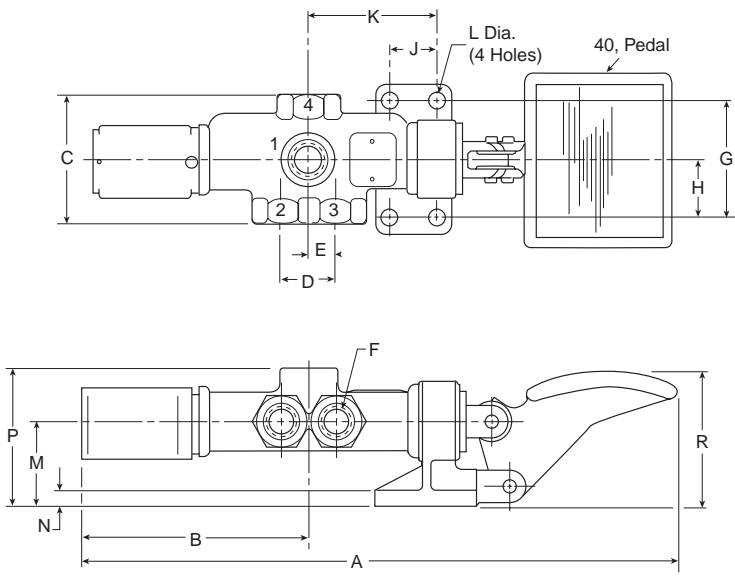
**M062 Direct Acting Spring Return, Less Bracket (Push Lever)**  
**3-Way**



	1/4	3/8	1/2
<b>A</b>	9.99 (253.8)	10.50 (269.2)	12.66 (321.6)
<b>B</b>	3.92 (99.5)	4.23 (107.4)	5.31 (134.9)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)
<b>J</b>	0.97 (24.6)	0.97 (24.6)	1.12 (28.4)
<b>K</b>	1.44 (36.6)	1.56 (39.6)	1.83 (46.5)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)
<b>M</b>	1.72 (43.7)	1.72 (43.7)	2.00 (50.8)
<b>N</b>	0.31 (7.9)	0.31 (7.9)	0.38 (9.6)
<b>R</b>	2.66 (67.6)	2.71 (68.8)	2.74 (69.6)
<b>Travel</b>	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)

Inches (mm)

**M062 Direct Acting Spring Return, Less Bracket (Push Lever)**  
**4-Way**

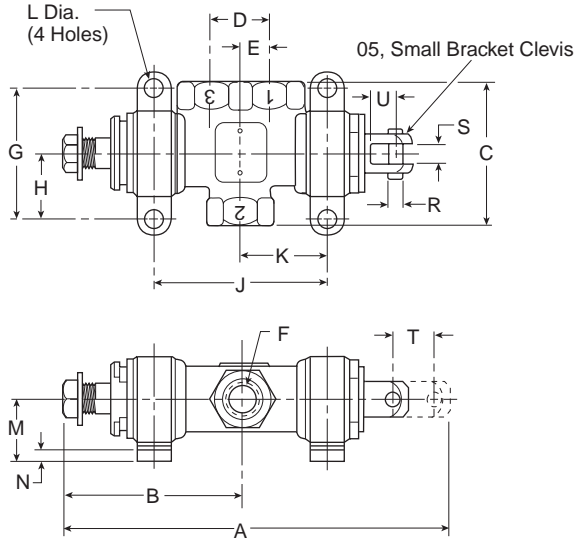


	1/4	3/8	1/2
<b>A</b>	11.50 (292.1)	12.44 (315.9)	14.45 (367.0)
<b>B</b>	4.67 (118.5)	5.15 (130.8)	5.68 (144.3)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)
<b>J</b>	0.97 (24.6)	0.97 (24.6)	1.12 (28.4)
<b>K</b>	2.19 (55.6)	2.48 (63.0)	2.89 (73.4)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)
<b>M</b>	1.72 (43.7)	1.72 (43.7)	2.00 (50.8)
<b>N</b>	0.31 (7.9)	0.31 (7.9)	0.38 (9.6)
<b>P</b>	2.72 (69.1)	2.78 (70.6)	3.38 (85.8)
<b>R</b>	2.66 (67.6)	2.71 (68.8)	2.74 (69.6)
<b>Travel</b>	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)

Inches (mm)



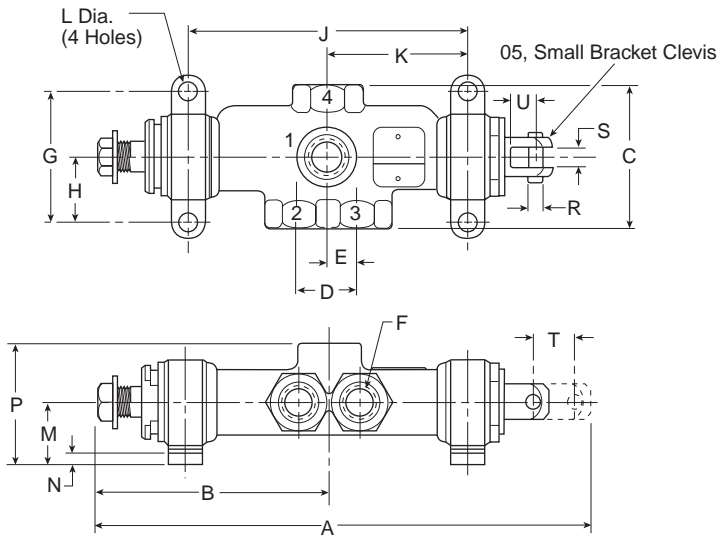
**M085 Stem Stop, Small Bracket**  
**3-Way**



Inches (mm)

	1/4	3/8	1/2	3/4
<b>A</b>	5.31 (134.9)	6.01 (152.6)	7.36 (186.9)	8.92 (226.6)
<b>B</b>	2.68 (68.1)	3.06 (77.7)	4.85 (123.2)	4.62 (117.3)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	2.64 (67.1)	3.14 (79.8)	3.73 (94.7)	4.67 (118.6)
<b>K</b>	1.32 (33.5)	1.57 (39.9)	1.87 (47.5)	2.33 (59.2)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
<b>R</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
<b>S</b>	0.38 (9.6)	0.38 (9.6)	0.44 (11.2)	0.44 (11.2)
<b>U</b>	0.47 (11.9)	0.47 (11.9)	0.56 (14.2)	0.62 (15.8)
<b>Travel</b>	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

**M085 Stem Stop, Small Bracket**  
**4-Way**



Inches (mm)

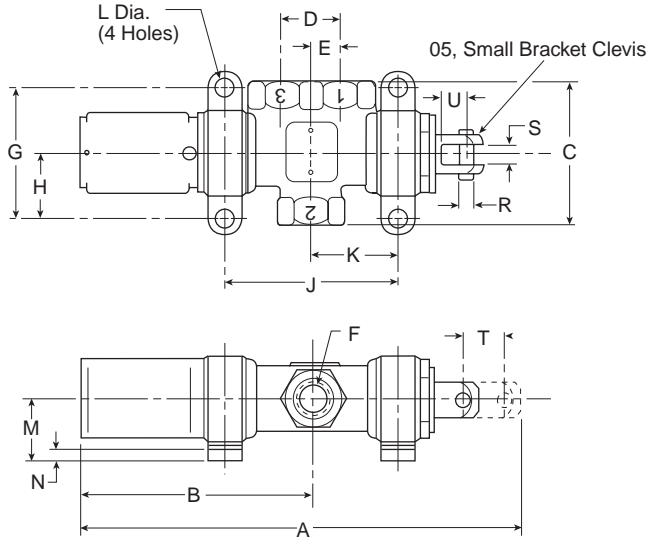
	1/4	3/8	1/2	3/4
<b>A</b>	6.81 (173.0)	7.85 (199.4)	9.48 (240.8)	11.64 (295.7)
<b>B</b>	3.42 (86.9)	3.97 (100.8)	5.91 (150.1)	5.97 (151.6)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
<b>K</b>	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
<b>L</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
<b>P</b>	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
<b>R</b>	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
<b>S</b>	0.38 (9.6)	0.38 (9.6)	0.44 (11.2)	0.44 (11.2)
<b>U</b>	0.47 (11.9)	0.47 (11.9)	0.56 (14.2)	0.62 (15.8)
<b>Travel</b>	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Brass Poppet  
 LV / EZ  
 M0  
 Viking Lever  
 42  
 Directair 4  
 Directair 2

**F**

Brass Poppet  
 LV / EZ  
 M0  
 Viking Lever  
 42  
 Directair 4  
 Directair 2  
**U**

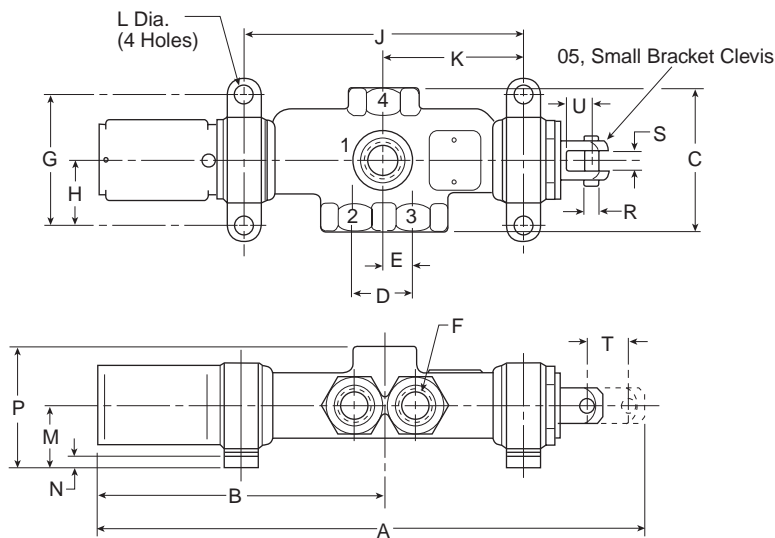
**M095 Direct Acting Spring Return, Small Bracket (Push Lever) & M096 Reverse Acting Spring Return, Small Bracket (Pull Lever) 3-Way**



Inches (mm)

	1/4	3/8	1/2	3/4
A	6.56 (166.5)	7.19 (182.6)	8.95 (227.3)	11.22 (285.0)
B	3.92 (99.5)	4.24 (107.6)	5.31 (134.9)	6.92 (175.8)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)	4.56 (115.8)
K	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)	2.28 (57.9)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
R	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
S	0.38 (9.6)	0.38 (9.6)	0.44 (11.2)	0.44 (11.2)
U	0.47 (11.9)	0.47 (11.9)	0.56 (14.2)	0.62 (15.8)
<b>Travel</b>	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

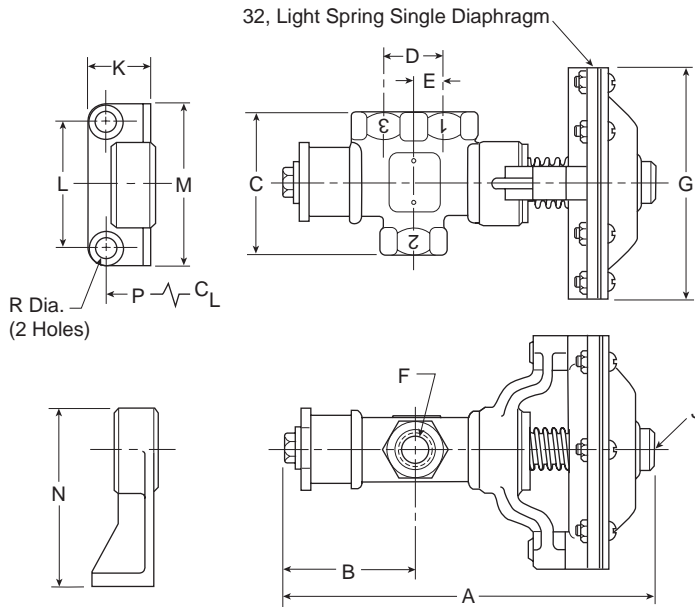
**M095 Direct Acting Spring Return, Small Bracket (Push Lever) & M096 Reverse Acting Spring Return, Small Bracket (Pull Lever) 4-Way**



Inches (mm)

	1/4	3/8	1/2	3/4
A	8.06 (204.6)	9.03 (229.3)	11.07 (281.2)	13.94 (354.1)
B	4.67 (118.6)	5.15 (130.8)	5.68 (144.3)	8.27 (210.1)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.9 (74.2)	3.69 (93.7)
L	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
R	0.25 (6.4)	0.25 (6.4)	0.31 (7.9)	0.31 (7.9)
S	0.38 (9.6)	0.38 (9.6)	0.44 (11.2)	0.44 (11.2)
U	0.47 (11.9)	0.47 (11.9)	0.56 (14.2)	0.62 (15.8)
<b>Travel</b>	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

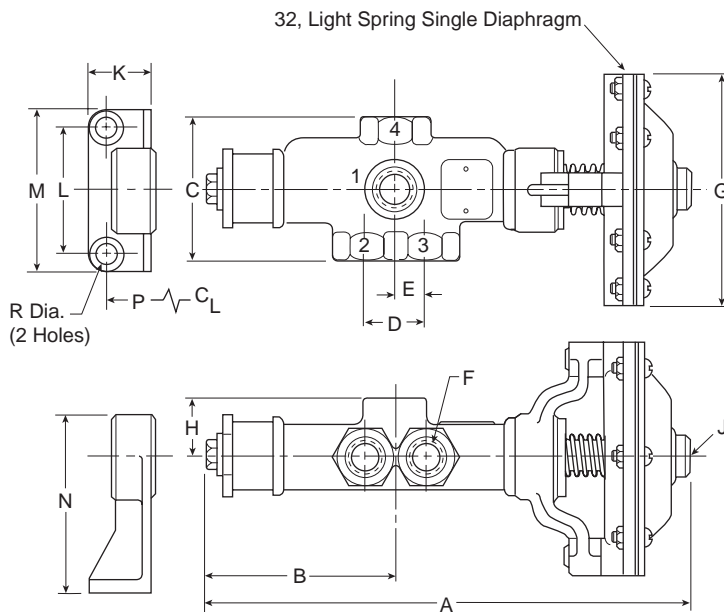
**M084 Stem Stop, Large Bracket  
 3-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	6.14 (156.0)	6.85 (174.0)	8.03 (204.0)	9.89 (251.2)
<b>B</b>	2.03 (51.6)	2.36 (59.9)	2.83 (71.9)	3.48 (88.4)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	4.34 (110.2)	4.34 (110.2)	4.34 (110.2)	5.27 (133.9)
<b>J</b>	1/8" Pipe	1/8" Pipe	1/8" Pipe	1/8" Pipe
<b>K</b>	1.12 (28.4)	1.12 (28.4)	1.75 (44.4)	2.00 (50.8)
<b>L</b>	2.00 (50.8)	2.38 (60.4)	2.00 (50.8)	3.25 (82.6)
<b>M</b>	2.75 (69.8)	3.00 (76.2)	3.00 (76.2)	4.19 (106.4)
<b>N</b>	3.22 (81.8)	3.28 (83.3)	3.40 (86.4)	4.00 (101.6)
<b>P</b>	1.81 (46.0)	2.03 (51.6)	2.74 (69.6)	3.18 (80.8)
<b>R</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
<b>Travel</b>	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

**M084 Stem Stop, Large Bracket  
 4-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	7.65 (194.3)	8.69 (220.7)	9.82 (249.4)	12.60 (320.0)
<b>B</b>	2.79 (70.9)	3.28 (83.3)	3.89 (98.8)	4.84 (122.9)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
<b>D</b>	0.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	0.47 (11.9)	0.53 (13.5)	0.62 (15.8)	0.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	4.34 (110.2)	4.34 (110.2)	4.34 (110.2)	5.27 (133.9)
<b>H</b>	1.00 (25.4)	1.06 (26.9)	1.38 (30.0)	1.50 (38.1)
<b>J</b>	1/8" Pipe	1/8" Pipe	1/8" Pipe	1/8" Pipe
<b>K</b>	1.12 (28.4)	1.12 (28.4)	1.75 (44.4)	2.00 (50.8)
<b>L</b>	2.00 (50.8)	2.38 (60.4)	2.00 (50.8)	3.25 (82.6)
<b>M</b>	2.75 (69.8)	3.00 (76.2)	3.00 (76.2)	4.19 (106.4)
<b>N</b>	3.22 (81.8)	3.28 (83.3)	3.40 (86.4)	4.00 (101.6)
<b>P</b>	2.57 (65.3)	2.95 (74.9)	3.80 (96.5)	4.54 (115.3)
<b>R</b>	0.34 (8.6)	0.34 (8.6)	0.41 (10.4)	0.41 (10.4)
<b>Travel</b>	0.62 (15.8)	0.69 (17.5)	0.88 (22.4)	1.12 (28.4)

Inches (mm)

Brass  
Poppet

LV / EZ

M0

Viking  
Lever

42

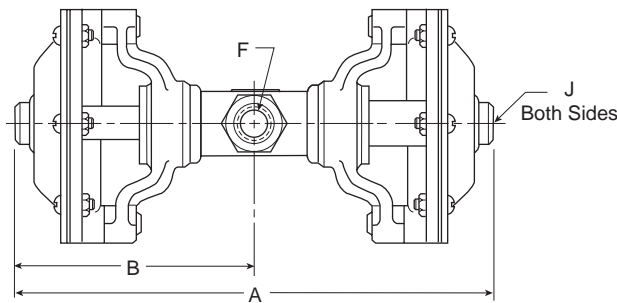
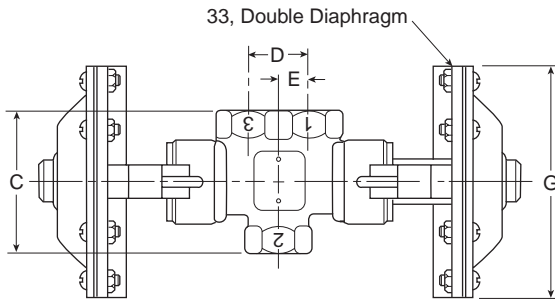
Directair  
4

Directair  
2

**F**

Brass Poppet  
 LV / EZ  
 M0  
 Viking Lever  
 42  
 Directair 4  
 Directair 2  
**U**

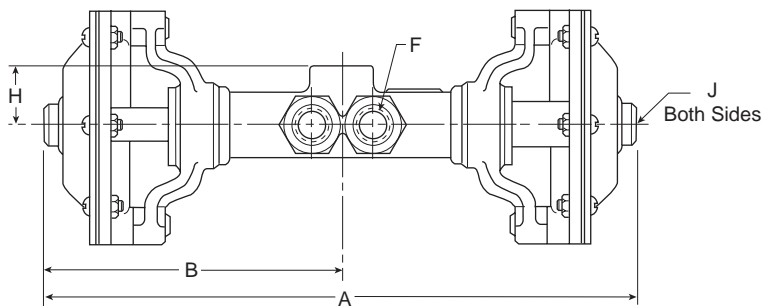
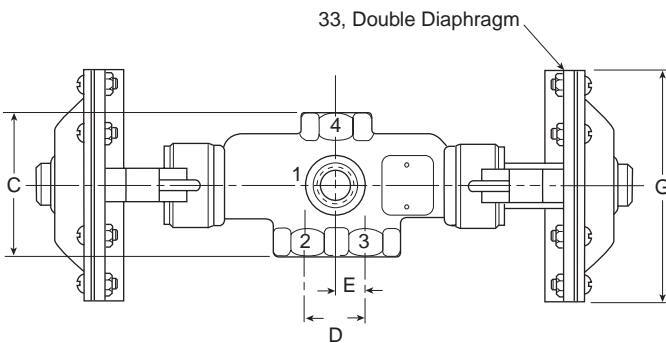
**M033 Double Diaphragm  
 3-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	8.22 (208.8)	8.98 (228.1)	10.40 (264.2)	12.82 (325.6)
<b>B</b>	4.11 (104.4)	4.49 (114.0)	5.20 (132.1)	6.41 (162.8)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
<b>D</b>	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	4.34 (110.2)	4.34 (110.2)	4.34 (110.2)	5.27 (133.9)
<b>J</b>	1/8" Pipe	1/8" Pipe	1/8" Pipe	1/8" Pipe

Inches (mm)

**M033 Double Diaphragm  
 4-Way**

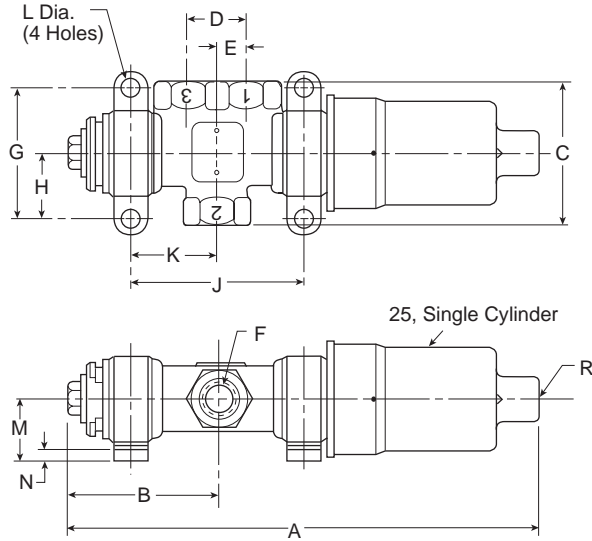


	1/4	3/8	1/2	3/4
<b>A</b>	9.72 (246.9)	10.82 (274.8)	11.86 (301.2)	15.52 (394.2)
<b>B</b>	4.86 (123.4)	5.41 (137.4)	5.93 (150.6)	7.76 (197.1)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
<b>D</b>	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	4.34 (110.2)	4.34 (110.2)	4.34 (110.2)	5.27 (133.9)
<b>H</b>	1.00 (25.4)	1.06 (26.9)	1.38 (30.0)	1.50 (38.1)
<b>J</b>	1/8" Pipe	1/8" Pipe	1/8" Pipe	1/8" Pipe

Inches (mm)



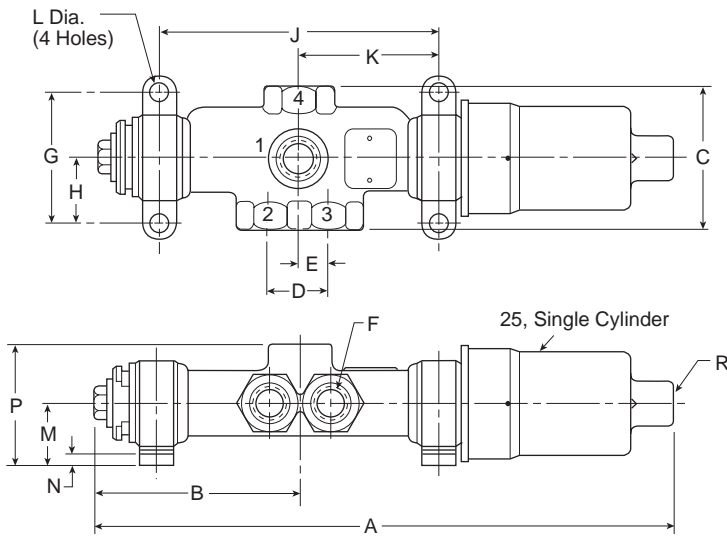
**M085 Stem Stop, Small Bracket  
 3-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	7.50 (190.5)	8.14 (206.8)	9.03 (229.4)	11.18 (284.0)
<b>B</b>	2.03 (51.6)	2.36 (59.9)	2.83 (71.9)	3.48 (88.4)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
<b>D</b>	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	2.64 (67.1)	3.14 (79.8)	3.73 (94.7)	4.67 (118.6)
<b>K</b>	1.32 (33.5)	1.57 (39.9)	1.87 (47.5)	2.33 (59.2)
<b>L</b>	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
<b>R</b>	1/4" Pipe	1/4" Pipe	1/4" Pipe	1/4" Pipe
<b>Travel</b>	.62 (15.7)	.69 (17.5)	.88 (22.4)	1.12 (28.4)

Inches (mm)

**M085 Stem Stop, Small Bracket  
 4-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	9.00 (228.6)	9.98 (253.5)	11.15 (283.2)	13.90 (353.1)
<b>B</b>	2.79 (70.9)	3.28 (83.3)	3.89 (98.8)	4.84 (122.9)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
<b>D</b>	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
<b>K</b>	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
<b>L</b>	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
<b>P</b>	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
<b>R</b>	1/4" Pipe	1/4" Pipe	1/4" Pipe	1/4" Pipe
<b>Travel</b>	.62 (15.8)	.69 (17.5)	.88 (22.4)	1.12 (28.4)

Inches (mm)

Brass  
Poppet

LV / EZ

M0

Viking  
Lever

42

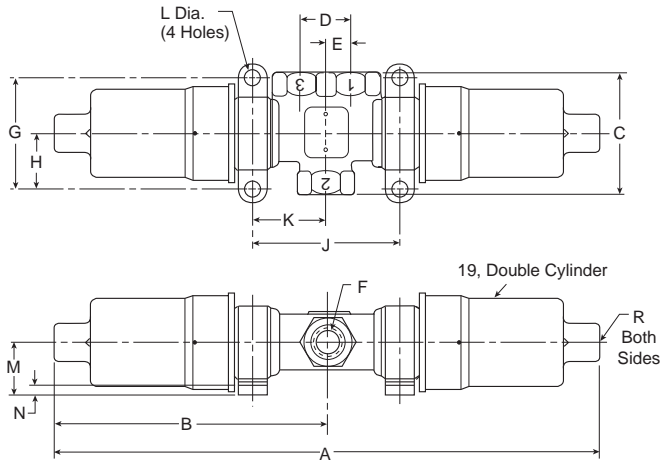
Directair  
4

Directair  
2

**F**

Brass  
 Poppet  
 LV / EZ  
 M0  
 Viking  
 Lever  
 42  
 Directair  
 4  
 Directair  
 2  
**F**

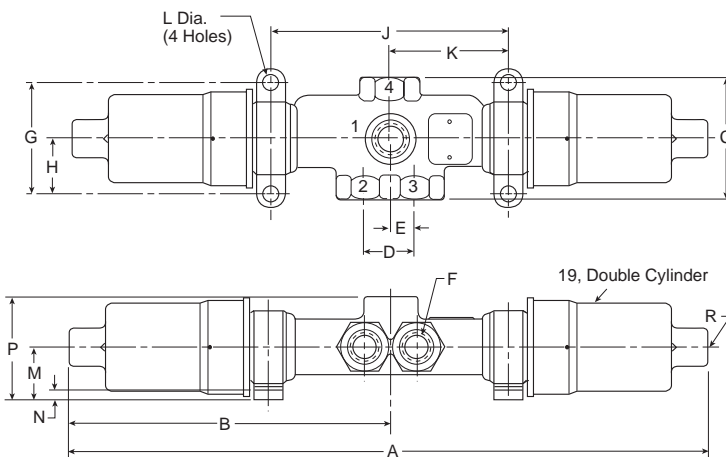
**M019 Double Cylinder  
 3-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	10.94 (277.9)	11.56 (293.6)	12.40 (315.0)	15.40 (391.2)
<b>B</b>	5.47 (138.9)	5.78 (146.8)	6.20 (157.5)	7.70 (195.6)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
<b>D</b>	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	2.64 (67.1)	3.14 (79.8)	3.73 (94.7)	4.67 (118.6)
<b>K</b>	1.32 (33.5)	1.57 (39.9)	1.87 (47.5)	2.33 (59.2)
<b>L</b>	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
<b>R</b>	1/4" Pipe	1/4" Pipe	1/4" Pipe	1/4" Pipe

Inches (mm)

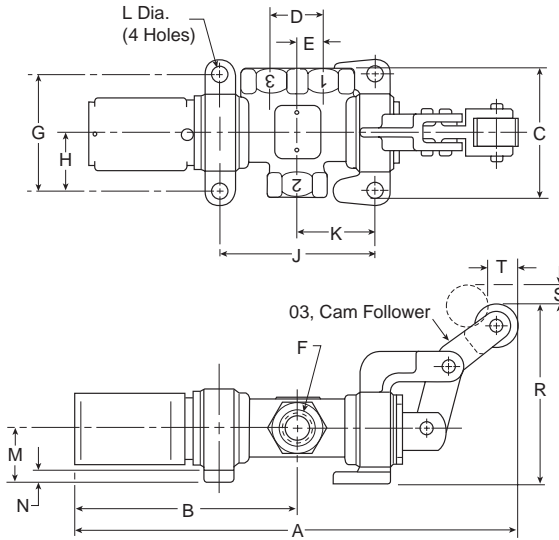
**M019 Double Cylinder  
 4-Way**



	1/4	3/8	1/2	3/4
<b>A</b>	12.42 (315.5)	13.40 (340.4)	14.52 (368.8)	18.12 (460.2)
<b>B</b>	6.21 (157.7)	6.70 (170.2)	7.26 (184.4)	9.06 (230.1)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
<b>D</b>	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
<b>K</b>	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
<b>L</b>	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
<b>P</b>	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
<b>R</b>	1/4" Pipe	1/4" Pipe	1/4" Pipe	1/4" Pipe

Inches (mm)

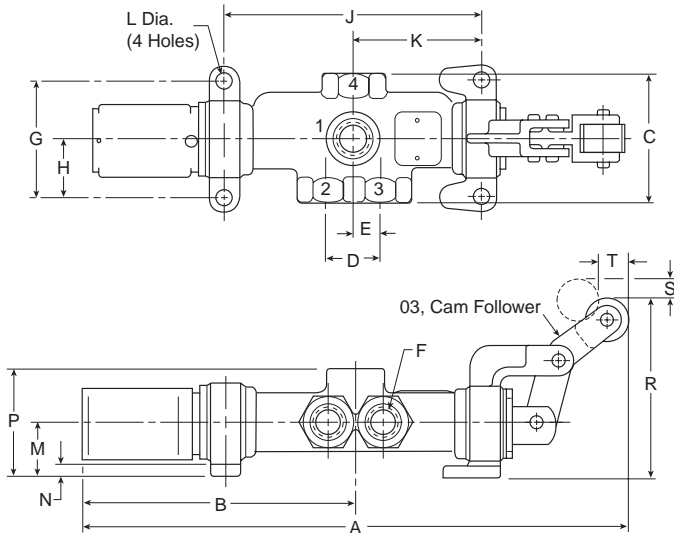
**M095 Direct Acting Spring Return, Small Bracket (Push Lever)**  
**3-Way**



Inches (mm)

	1/4	3/8	1/2	3/4
<b>A</b>	7.98 (202.6)	8.72 (221.5)	10.77 (273.6)	13.54 (343.9)
<b>B</b>	3.92 (99.6)	4.24 (107.7)	5.31 (134.9)	6.92 (175.8)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
<b>D</b>	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)	4.56 (115.8)
<b>K</b>	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)	2.28 (57.9)
<b>L</b>	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
<b>R</b>	3.88 (98.6)	3.88 (98.6)	4.23 (107.4)	4.88 (124.0)
<b>S</b>	.43 (10.9)	.47 (11.9)	.70 (17.8)	.67 (17.0)
<b>Travel</b>	.53 (13.5)	.59 (15.0)	.75 (19.0)	.81 (20.6)

**M095 Direct Acting Spring Return, Small Bracket (Push Lever)**  
**4-Way**



Inches (mm)

	1/4	3/8	1/2	3/4
<b>A</b>	9.48 (204.7)	10.56 (268.2)	12.89 (327.4)	16.26 (413.0)
<b>B</b>	4.67 (118.6)	5.15 (130.8)	5.68 (144.3)	8.27 (210.1)
<b>C</b>	2.38 (60.4)	2.62 (66.6)	3.12 (79.2)	3.62 (92.0)
<b>D</b>	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
<b>E</b>	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
<b>F</b>	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
<b>G</b>	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
<b>H</b>	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
<b>J</b>	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
<b>K</b>	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
<b>L</b>	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
<b>M</b>	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
<b>N</b>	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
<b>P</b>	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
<b>R</b>	3.88 (98.6)	3.88 (98.6)	4.23 (107.4)	4.88 (124.0)
<b>S</b>	.43 (10.9)	.47 (11.9)	.70 (17.8)	.67 (17.0)
<b>Travel</b>	.53 (13.5)	.59 (15.0)	.75 (19.0)	.81 (20.6)

Brass  
Poppet

LV / EZ

M0

Viking  
Lever

42

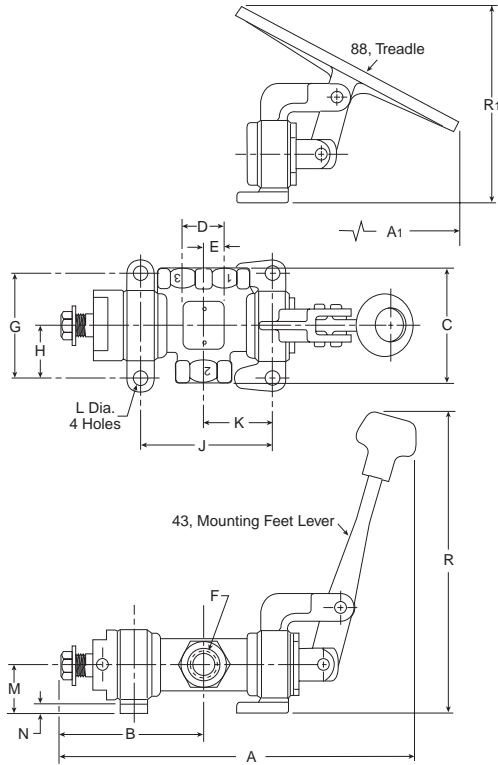
Directair  
4

Directair  
2

**F**

Brass  
Poppet  
LV / EZ  
M0  
Viking  
Lever  
42  
Directair  
4  
Directair  
2

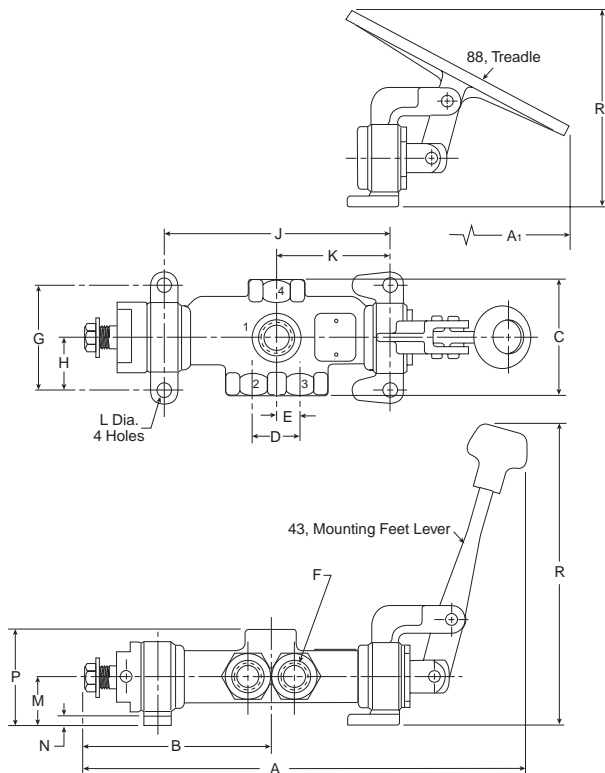
**M054 Ball Detent, Small Bracket**  
**3-Way**



Inches (mm)

	1/4	3/8	1/2	3/4
A	7.35 (186.7)	8.36 (212.3)	9.95 (252.7)	12.25 (311.2)
A1	8.59 (218.2)	9.33 (237.0)	10.65 (270.5)	12.90 (327.7)
B	3.25 (82.6)	3.66 (93.0)	4.39 (111.5)	5.41 (137.4)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	2.63 (66.8)	3.13 (79.5)	3.72 (94.5)	4.56 (115.8)
K	1.31 (33.3)	1.56 (39.6)	1.86 (47.2)	2.28 (57.9)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
R1	6.78 (172.2)	6.78 (172.2)	8.10 (205.7)	10.73 (272.5)
R2	4.51 (114.6)	4.65 (118.1)	4.85 (123.2)	6.03 (153.2)

**M054 Ball Detent, Small Bracket**  
**4-Way**



Inches (mm)

	1/4	3/8	1/2	3/4
A	8.86 (225.0)	10.20 (259.1)	11/74 (298.2)	14/96 (380.0)
A1	10.01 (254.2)	11.17 (283.7)	12.77 (324.4)	15.62 (396.8)
B	4.00 (101.6)	4.57 (116.1)	5.44 (138.2)	6.76 (171.7)
C	2.38 (60.4)	2.62 (66.6)	3.00 (76.2)	3.62 (92.0)
D	.94 (23.9)	1.06 (26.9)	1.25 (31.8)	1.62 (41.2)
E	.47 (11.9)	.53 (13.5)	.62 (15.8)	.81 (20.6)
F	1/4" Pipe	3/8" Pipe	1/2" Pipe	3/4" Pipe
G	2.25 (57.2)	2.38 (60.4)	2.62 (66.6)	3.25 (82.6)
H	1.12 (28.4)	1.19 (30.2)	1.31 (33.3)	1.62 (41.2)
J	4.14 (105.2)	4.98 (126.5)	5.85 (148.6)	7.39 (187.7)
K	2.07 (52.6)	2.49 (63.2)	2.92 (74.2)	3.69 (93.7)
L	.34 (8.6)	.34 (8.6)	.41 (10.4)	.41 (10.4)
M	1.12 (28.4)	1.12 (28.4)	1.25 (31.8)	1.56 (39.6)
N	.25 (6.4)	.25 (6.4)	.31 (7.9)	.31 (7.9)
P	2.12 (53.8)	2.18 (55.4)	2.63 (66.8)	3.06 (77.7)
R1	6.78 (172.2)	6.78 (172.2)	8.10 (205.7)	10.73 (272.5)
R2	4.51 (114.6)	4.65 (118.1)	4.85 (123.2)	6.03 (153.2)