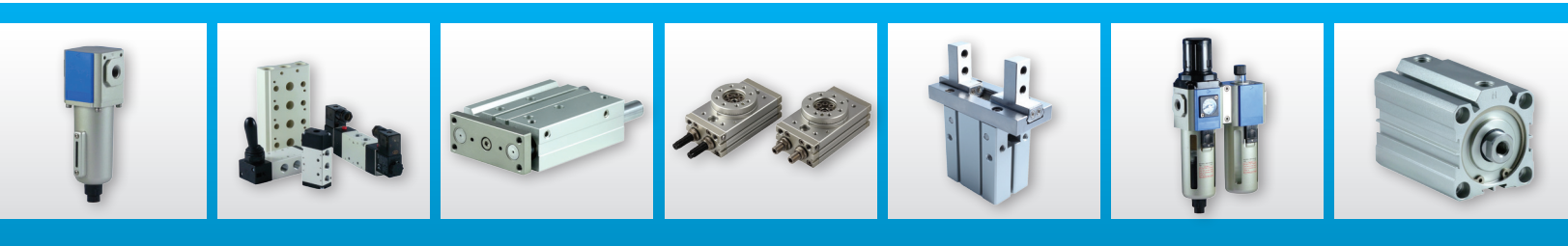




MFD

Catalog

Product Catalog



Setting a new standard for:

- Quality
- Reliability
- Value
- Global Compatibility

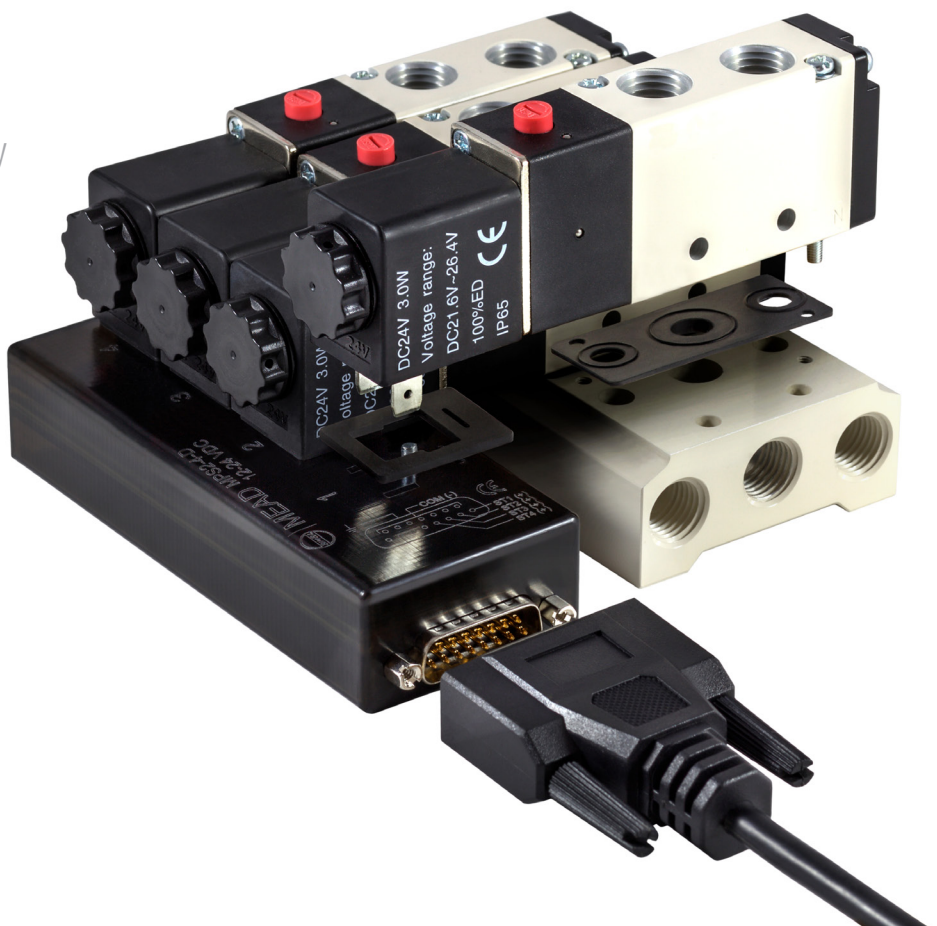


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MFD

Mead Fluid Dynamics, Inc.
Mead USA

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Chicago, IL 60641
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(866) 264-9560
sales@mead-usa.com

Visit www.mfdpneumatics.com for downloadable:

- PDF Files
- CAD Drawings
- Exploded Views

Solenoid Valves - M3VI Series

How to Order

M3V1 - 06 - 24VDC - X

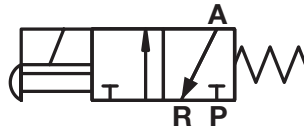


PORT SIZE
06 - 1/8 NPT

VOLTAGE
12VDC
24VDC
24VAC 50/60 Hz
120VAC 50/60 Hz

ELECTRICAL CONNECTION
Blank - DIN Connector
FL - Flying Leads ¹
X - Explosion Proof ²

¹ Not available with 24VAC
Flying Leads are 300mm long
² See page 13 for specifications.
Leads are 580mm long.

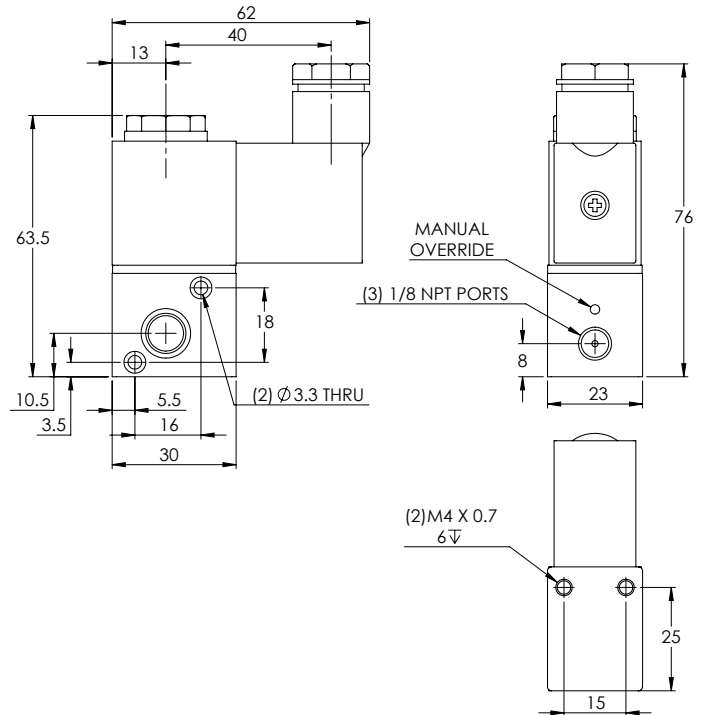


Engineering Specifications

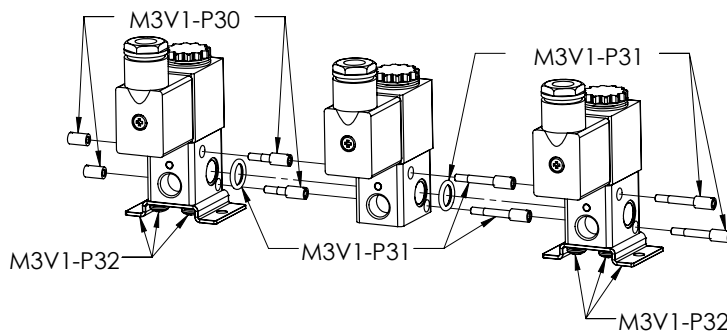
Model	M3V1-06
Fluid	Air (Clean/Dry)
Actuation	Direct Acting
Type	3 Port - 2 Position
Flow	Cv 0.051
Port Size	1/8 NPT
Lubrication	Not Required
Pressure Range	0 to 116 PSI (0 to 0.8 MPa)
Proof Pressure	215 PSI (1.5 MPa)
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C) (Explosion Proof -4 °F to 140 °F [-20 °C to 60 °C])
Max. Frequency	10 cycle/sec
Electrical Connection	DIN / LED Connector or Flying Leads or Explosion Proof Coil Conduit Entry
Voltage Range	AC: ±15% DC: ±10%
Power Consumption ³	AC: 3.5VA / DC: 3.0W
Protection	IP65 (DIN40050)
Insulation	Class B
Max. Response Time	50ms
Includes	Manual Override
Material	Aluminum Alloy Body
Connector/Coil ³	11mm DIN Connector, Industrial Form B

³ See page 13 for explosion proof specifications

Dimensions (mm)



Stacking Assembly



Part Number	Description
M3V1-P30	Stack Starting Kit
M3V1-P31	Stack Coupling Kit
M3V1-P32	Mounting Bracket Kit

Note: Stacking Assembly not compatible with Explosion Proof coils

Solenoid Valves - M3V Series

How to Order



M3V 2 10 - 08 - NC - 24VDC - X

MODEL

1 - 100 Series
2 - 200 Series
3 - 300 Series

PORT SIZE

06 - 1/8 NPT (100, 200 Series)
08 - 1/4 NPT (200, 300 Series)
10 - 3/8 NPT (300 Series)

VOLTAGE

12VDC
24VDC
24VAC 50/60 Hz
120VAC 50/60 Hz

TYPE

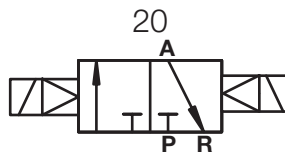
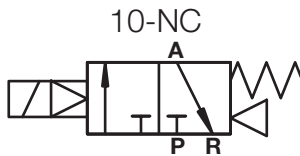
10 - Single Solenoid
20 - Double Solenoid

OPERATION¹

NC - Normally Closed
¹ Required for Single Solenoid only

ELECTRICAL CONNECTION

Blank - DIN Connector
FL - Flying Leads²
X - Explosion Proof³



² Not available with 100 series 24VAC
Flying Leads are 300mm long

³ Not available with 100 series. See page 13 for specifications. Leads are 580mm long.

Engineering Specifications

Model	M3V110-06 M3V120-06	M3V210-06 M3V220-06	M3V210-08 M3V220-08	M3V310-08 M3V320-08	M3V310-10 M3V320-10
Fluid	Air (Clean/Dry)				
Actuation	Internally Piloted				
Type	3 Port - 2 Position				
Flow	Cv 0.67	Cv 0.78	Cv 0.89	Cv 1.39	Cv 1.67
Port Size	1/8 NPT	1/8 NPT	1/4 NPT	1/4 NPT	3/8 NPT
Lubrication	Not Required				
Pressure Range	22 to 116 PSI (0.15 to 0.8 MPa)				
Proof Pressure	215 PSI (1.5 MPa)				
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C) [Explosion Proof -4 °F to 140 °F (-20 °C to 60 °C)]				
Max. Frequency	5 cycle/sec				
Electrical Connection	DIN / LED Connector or Flying Leads or Explosion Proof Coil Conduit Entry				
Voltage Range	AC: ±15% DC: ±10%				
Power Consumption ⁴	AC: 2.5VA / DC: 2.5W	AC: 3.5VA / DC: 3.0W			
Protection	IP65 (DIN40050)				
Insulation	Class B				
Max. Response Time	50ms				
Material	Aluminum Alloy Body				
Connector/Coil ³	9.4mm DIN, Industrial Form C	11mm DIN Connector, Industrial Form B			

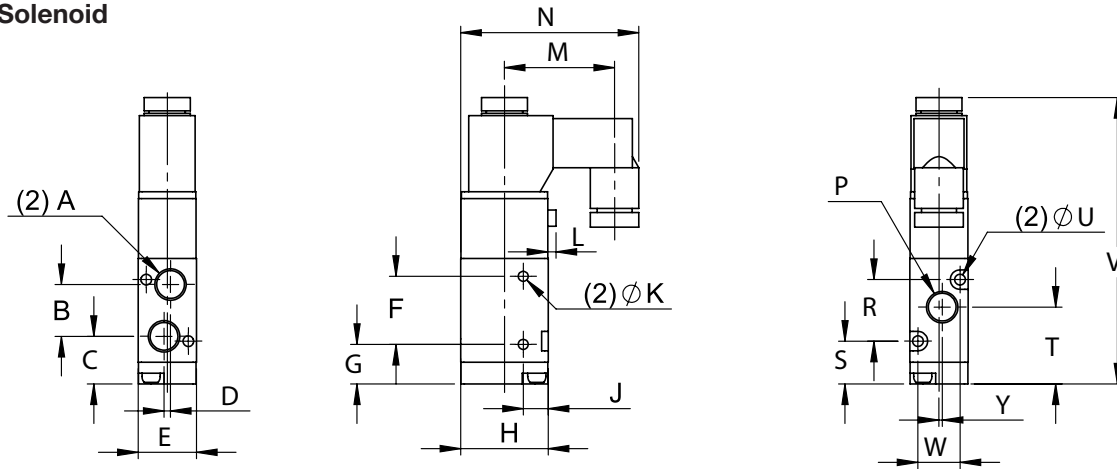
⁴ See page 13 for explosion proof specifications

Note: Manifold (shown on page 8) not compatible with Explosion Proof coils

Solenoid Valves - M3V Series

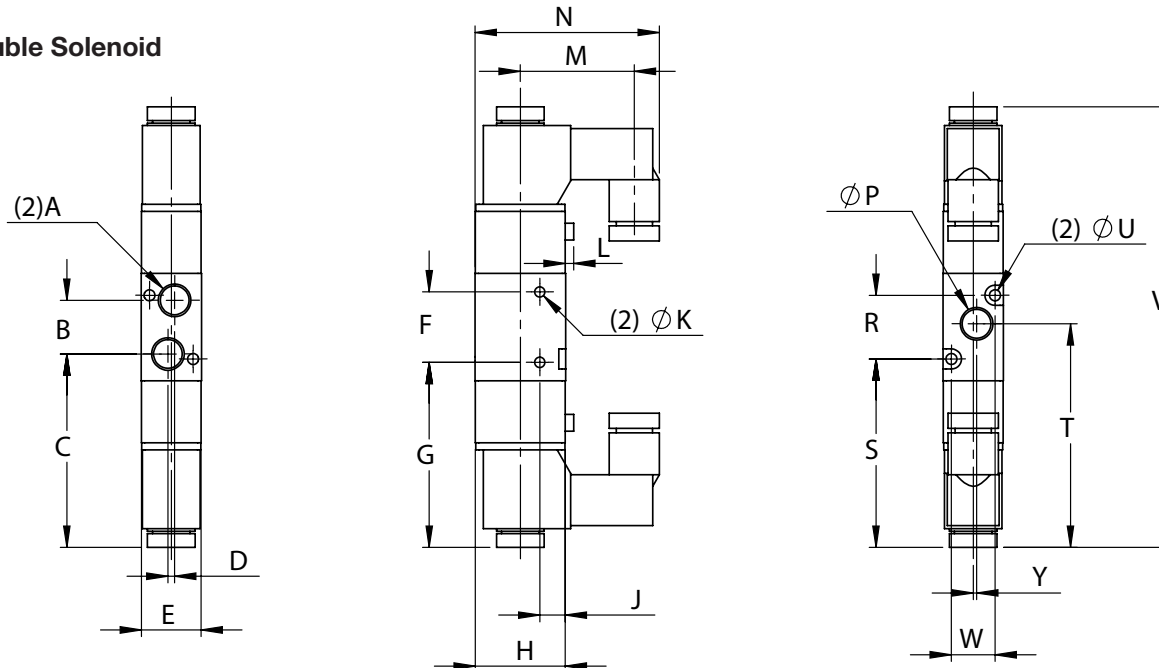
Dimensions (mm)

Single Solenoid



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	Y
M3V110-06	1/8 NPT	16	14.7	2	18	21	12.2	27	7.7	3.1	2.5	34	55	1/8 NPT	19	13.2	23.7	3.3	88.4	13	1
M3V210-06	1/8 NPT	22	16.7	0	22	25	15.2	35	8.2	4.2	3	40	67	1/8 NPT	30	12.7	27.7	3.3	109	17	0
M3V210-08	1/4 NPT	22.5	16.5	0	22	25	15.2	35	8.2	4.2	3	40	67	1/4 NPT	30	12.7	28.7	3.3	109	17	1.5
M3V310-08	1/4 NPT	24	20.5	0	27	30	17.5	40	10.5	4.3	2.4	40	69	1/4 NPT	35	15	32.5	4.3	120	20	0
M3V310-10	3/8 NPT	24	20.5	0	27	30	17.5	40	10.5	4.3	2.4	40	69	3/8 NPT	35	15	32.5	4.3	120	20	2

Double Solenoid



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	Y
M3V120-06	1/8 NPT	16	57.7	2	18	21	55.2	27	7.7	3.1	2.5	34	55	1/8 NPT	19	56.2	66.7	3.3	131.4	13	1
M3V220-06	1/8 NPT	22	70.4	0	22	25	69	35	8.2	4.2	3	40	67	1/8 NPT	30	66.4	81.4	3.3	162.8	17	0
M3V220-08	1/4 NPT	22.5	70.2	0	22	25	69	35	8.2	4.2	3	40	67	1/4 NPT	30	66.4	82.4	3.3	162.8	17	1.5
M3V320-08	1/4 NPT	24	75.4	0	27	30	72.4	40	10.5	4.3	2.4	40	69	1/4 NPT	35	70	87.4	4.3	174.8	20	0
M3V320-10	3/8 NPT	24	75.4	0	27	30	72.4	40	10.5	4.3	2.4	40	69	3/8 NPT	35	70	87.4	4.3	174.8	20	2

Solenoid Valves - M4V Series

How to Order

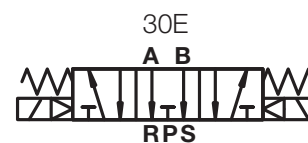
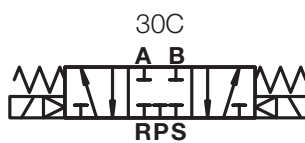
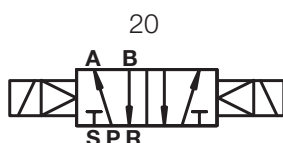
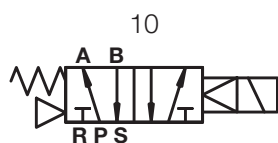
M4V 2 10 - 08 - 24VDC - X



MODEL	TYPE	PORT SIZE	VOLTAGE	ELECTRICAL CONNECTION
1 - 100 Series 2 - 200 Series 3 - 300 Series 4 - 400 Series	10 - Single Solenoid 20 - Double Solenoid 30C - 3 Position Double Solenoid Closed Center 30E - 3 Position Double Solenoid Exhaust Center	06 - 1/8 NPT (100, 200 Series) 08 - 1/4 NPT (200, 300 Series) 10 - 3/8 NPT (300 Series) 15 - 1/2 NPT (400 Series)	12VDC 24VDC 24VAC 50/60 Hz 120VAC 50/60 Hz	Blank - DIN Connector FL - Flying Leads ¹ X - Explosion Proof ²

¹ Not available with 100 series 24VAC. Flying Leads are 300mm long

² Not available with 100 series. See page 13 for specifications. Leads are 580mm long.



Engineering Specifications

Model	M4V110-06 M4V120-06	M4V130C-06 M4V130E-06	M4V210-06 M4V220-06	M4V230C-06 M4V230E-06	M4V210-08 M4V220-08	M4V230C-08 M4V230E-08
Fluid	Air (Clean/Dry)					
Actuation	Internally Piloted					
Type	5 Port-2 Position	5 Port-3 Position	5 Port-2 Position	5 Port-3 Position	5 Port-2 Position	5 Port-3 Position
Flow	Cv 0.67	Cv 0.50	Cv 0.78	Cv 0.67	Cv 0.89	Cv 0.67
Port Size	1/8 NPT		1/8 NPT		Inlet/Outlet Ports 1/4 NPT Exhaust Ports 1/8 NPT	
Lubrication	Not Required					
Pressure Range	22 to 116 PSI (0.15 to 0.8 MPa)					
Proof Pressure	215 PSI (1.5 MPa)					
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C) (Explosion Proof -4 °F to 140 °F ([20 °C to 60 °C])					
Max. Frequency	5 cycle/sec	3 cycle/sec	5 cycle/sec	3 cycle/sec	5 cycle/sec	3 cycle/sec
Electrical Connection	DIN / LED Connector or Flying Leads or Explosion Proof Coil Conduit Entry					
Voltage Range	AC: ±15% DC: ±10%					
Power Consumption³	AC: 2.5VA / DC: 2.5W			AC: 3.5VA / DC: 3.0W		
Protection	IP65 (DIN40050)					
Insulation	Class B					
Max. Response Time	50ms					
Material	Aluminum Alloy Body					
Connector/Coil³	9.4mm DIN, Industrial Form C			11mm DIN Connector, Industrial Form B		

Model	M4V310-08 M4V320-08	M4V330C-08 M4V330E-08	M4V310-10 M4V320-10	M4V330C-10 M4V330E-10	M4V410-15 M4V420-15	M4V430C-15 M4V430E-15
Fluid	Air (Clean/Dry)					
Actuation	Internally Piloted					
Type	5 Port-2 Position	5 Port-3 Position	5 Port-2 Position	5 Port-3 Position	5 Port-2 Position	5 Port-3 Position
Flow	Cv 1.40	Cv 1.00	Cv 1.68	Cv 1.00	Cv 2.79	Cv 1.68
Port Size	1/4 NPT		Inlet/Outlet Ports 3/8 NPT Exhaust Ports 1/4 NPT		1/2 NPT	
Lubrication	Not Required					
Pressure Range	22 to 116 PSI (0.15 to 0.8 MPa)					
Proof Pressure	215 PSI (1.5 MPa)					
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C) (Explosion Proof -4 °F to 140 °F (-20 °C to 60 °C))					
Max. Frequency	4 cycle/sec	3 cycle/sec	4 cycle/sec	3 cycle/sec	3 cycle/sec	
Electrical Connection	DIN / LED Connector or Flying Leads or Explosion Proof Coil Conduit Entry					
Voltage Range	AC: ±15% DC: ±10%					
Power Consumption³	AC: 3.5VA / DC: 3.0W					
Protection	IP65 (DIN40050)					
Insulation	Class B					
Max. Response Time	50ms					
Material	Aluminum Alloy Body					
Connector/Coil³	11mm DIN Connector, Industrial Form B					

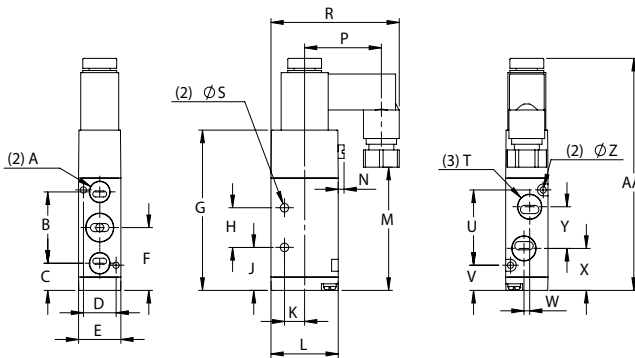
³ See page 13 for explosion proof specifications

Note: Manifold (shown on page 9) not compatible with Explosion Proof coils

Solenoid Valves - M4V Series

Dimensions (mm)

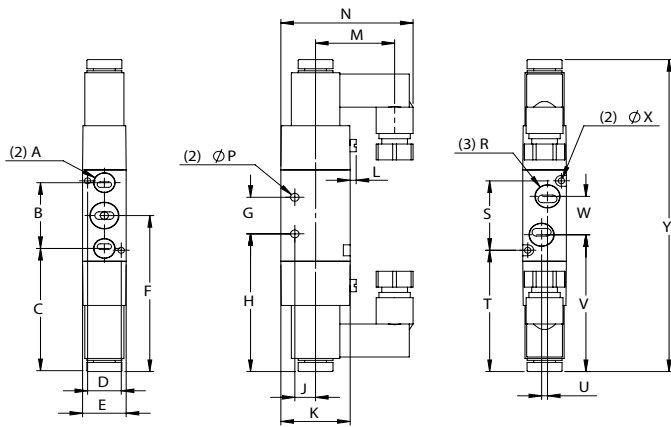
Single Solenoid



MODEL	A	B	C	D	E	F	G	H	J	K	L
M4V110-06	1/8 NPT	28	14.2	13	18	28.2	70.4	14	21.2	9.5	27
M4V210-06	1/8 NPT	36	13.7	17	22	31.7	81	20	21.7	10.5	35
M4V210-08	1/8 NPT	36	13.7	17	22	31.7	81	20	21.7	10.5	35
M4V310-08	1/4 NPT	45	17.5	20	27	40	98.7	24	28	13.5	40
M4V310-10	1/4 NPT	45	17.5	20	27	40	98.7	24	28	13.5	40
M4V410-15	1/2 NPT	63	25.5	27	34	57	132.3	28	43	17.5	50

MODEL	M	N	P	R	S	T	U	V	W	Y	Z	AA
M4V110-06	59.4	2.5	34	55	3.3	1/8 NPT	30	13.2	3	16	3.3	99.4
M4V210-06	62	3	40	67	4.3	1/8 NPT	38	12.7	0	18	3.3	117
M4V210-08	62	3	40	67	4.3	1/4 NPT	38	12.7	3	21	3.3	117
M4V310-08	80	2.4	40	69	4.3	1/4 NPT	50	15	0	22	4.3	135
M4V310-10	80	2.4	40	69	4.3	3/8 NPT	50	15	4	24	4.3	135
M4V410-15	114	2.8	40	74	5.5	1/2 NPT	72	21	4	36	4.3	168.4

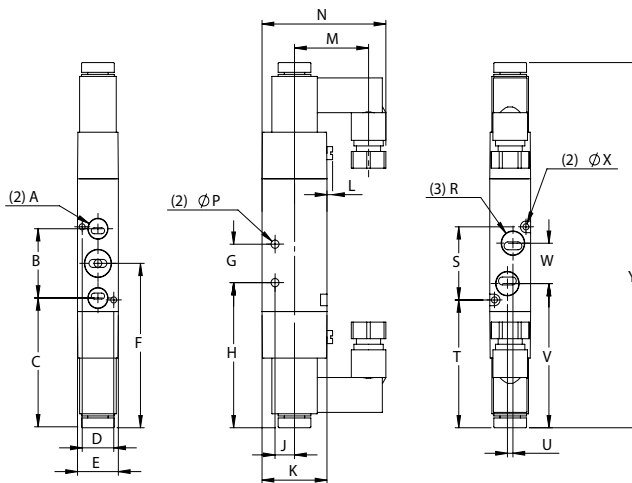
Double Solenoid



MODEL	A	B	C	D	E	F	G	H	J	K	L
M4V120-06	1/8 NPT	28	57.2	13	18	71.2	14	64.2	9.5	27	2.5
M4V220-06	1/8 NPT	36	67.4	17	22	85.4	20	75.4	10.5	35	3
M4V220-08	1/8 NPT	36	67.4	17	22	85.4	20	75.4	10.5	35	3
M4V320-08	1/4 NPT	45	72.4	20	27	94.9	24	83	13.5	40	2.4
M4V320-10	1/4 NPT	45	72.4	20	27	94.9	24	83	13.5	40	2.4
M4V420-15	1/2 NPT	63	80	27	34	111.4	28	97.4	17.5	50	2.8

MODEL	M	N	P	R	S	T	U	V	W	X	Y
M4V120-06	34	55	3.3	1/8 NPT	30	56.2	3	63.2	16	3.3	142.4
M4V220-06	40	67	4.3	1/8 NPT	38	66.4	0	76.4	18	3.3	171
M4V220-08	40	67	4.3	1/4 NPT	38	66.4	3	74.9	21	3.3	171
M4V320-08	40	69	4.3	1/4 NPT	50	70	0	83.9	22	4.3	190
M4V320-10	40	69	4.3	3/8 NPT	50	70	4	82.9	24	4.3	190
M4V420-15	40	74	5.5	1/2 NPT	72	75.4	4	93.4	36	4.3	223

Double Solenoid - Three Position



MODEL	A	B	C	D	E	F	G	H	J	K	L
M4V130_-06	1/8 NPT	28	57.2	13	18	71.2	14	64.2	9.5	27	2.5
M4V230_-06	1/8 NPT	36	67.4	17	22	85.4	20	75.4	10.5	35	3
M4V230_-08	1/8 NPT	36	67.4	17	22	85.4	20	75.4	10.5	35	3
M4V330_-08	1/4 NPT	45	72.4	20	27	94.9	24	83	13.5	40	2.4
M4V330_-10	1/4 NPT	45	72.4	20	27	94.9	24	83	13.5	40	2.4
M4V430_-15	1/2 NPT	63	80	27	34	111.4	28	97.4	17.5	50	2.8

MODEL	M	N	P	R	S	T	U	V	W	X	Y
M4V130_-06	34	55	3.3	1/8 NPT	30	56.2	3	63.2	16	3.3	157.4
M4V230_-06	40	67	4.3	1/8 NPT	38	66.4	0	76.4	18	3.3	190
M4V230_-08	40	67	4.3	1/4 NPT	38	66.4	3	74.9	21	3.3	190
M4V330_-08	40	69	4.3	1/4 NPT	50	70	0	83.9	22	4.3	209
M4V330_-10	40	69	4.3	3/8 NPT	50	70	4	82.9	24	4.3	209
M4V430_-15	40	74	5.5	1/2 NPT	72	75.4	4	93.4	36	4.3	243.8

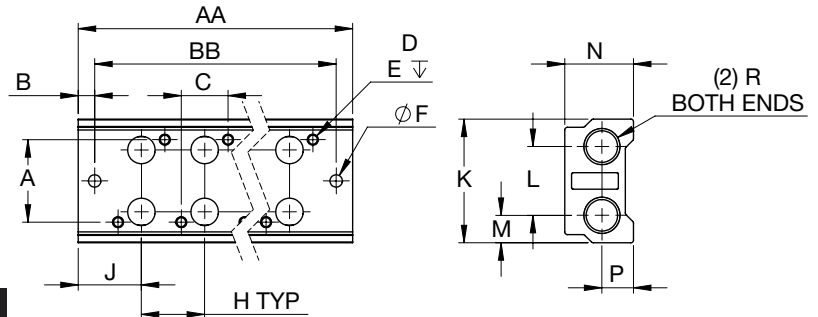
Solenoid and Air Pilot Valves - Accessories



Manifolds for M3V Valves

See page 4 for compatible valves.

Dimensions (mm)



How to Order M200H - 4F

MODEL	STYLE	NUMBER OF STATIONS
1 - 100 Series	H - Manifold for 3 Way Valves	2F - 2 Stations
2 - 200 Series		4F - 4 Stations
3 - 300 Series		6F - 6 Stations
		8F - 8 Stations

Engineering Specifications

Model	Manifold
Fluid	Air (Clean/Dry)
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)
Material	Aluminum Alloy
Includes	Gaskets and Screws
Compatible With	M3V Series

Model	A	B	C	D	E	F	H	J	K	L	M
M100H	19	5	13	M3X0.5	7	4.5	19	20	39	22	8.5
M200H	30	6	17	M3X0.5	7	4.5	23	23	45	25	10
M300H	35	6	20	M4X0.7	7	4.5	28	27	52	28	12

Model	N	P	R	AA				BB			
				2F	4F	6F	8F	2F	4F	6F	8F
M100H	25	11.5	1/4 NPT	57	95	133	171	47	85	123	161
M200H	25	11.5	1/4 NPT	69	115	161	207	57	103	149	195
M300H	29	13.5	3/8 NPT	82	138	194	250	70	126	182	238

Manifold Blanking Plates¹



¹ Each kit includes one blanking plate and two screws.

How to Order

M200H - B

MODEL	STYLE
1 - 100 Series	H - Manifold for 3 Way Valves
2 - 200 Series	
3 - 300 Series	

Manifold Gasket and Screw Kit²



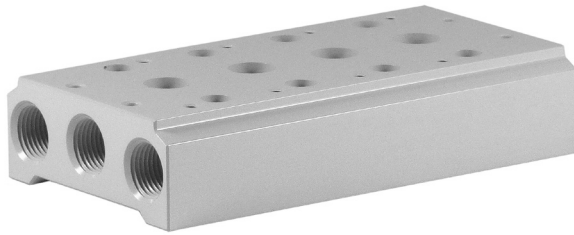
² Each kit includes one gasket and two screws.

How to Order

M200H - G

MODEL	STYLE
1 - 100 Series	H - Manifold for 3 Way Valves
2 - 200 Series	
3 - 300 Series	

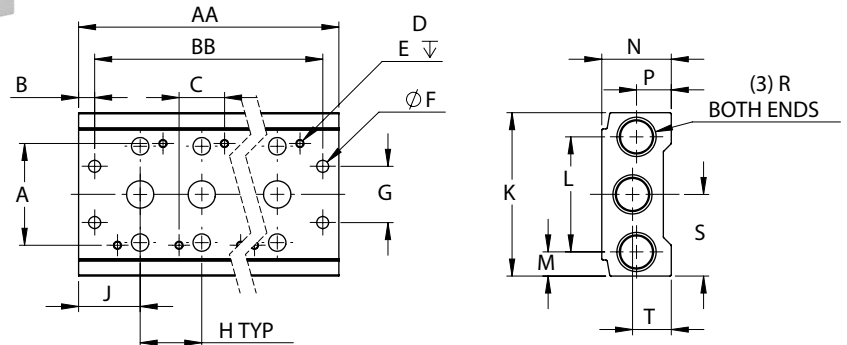
Solenoid and Air Pilot Valves - Accessories



Manifolds for M4V Valves

See page 6 for compatible valves.

Dimensions (mm)



How to Order M200M - 4F

MODEL	STYLE	NUMBER OF STATIONS
1 - 100 Series	M - Manifold for 4 Way Valves	2F - 2 Stations
2 - 200 Series		4F - 4 Stations
3 - 300 Series		6F - 6 Stations
4 - 400 Series		8F - 8 Stations

Engineering Specifications

Model	Manifold
Fluid	Air (Clean/Dry)
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)
Material	Aluminum Alloy
Includes	Gaskets and Screws
Compatible With	M4V, M4A, M4L Series

Model	A	B	C	D	E	F	G	H	J	K	L	M
M100M	30	5	13	M3X0.5	5.5	4.5	20	19	19	58	40	9
M200M	38	6	17	M3X0.5	5	4.5	21	23	23	61	43	9
M300M	50	6	20	M4X0.7	5	4.5	26	28	27	75	53	11
M400M	72	7	27	M4X0.7	6	5.5	32	35	31.5	104	68	18

Model	N	P	R	S	T	AA				BB			
						2F	4F	6F	8F	2F	4F	6F	8F
M100M	26	12.5	1/4 NPT	29	14	57	95	133	171	47	85	123	161
M200M	27	13	1/4 NPT	30.5	14.5	69	115	161	207	57	103	149	195
M300M	31	15	3/8 NPT	37.5	16.5	82	138	194	250	70	126	182	238
M400M	39	19	1/2 NPT	52	19	98	168	238	273	84	154	224	294

Manifold Blanking Plates¹



¹ Each kit includes one blanking plate and two screws.

How to Order

M200M - B

MODEL	STYLE
1 - 100 Series	M - Manifold for 4 Way Valves
2 - 200 Series	
3 - 300 Series	
4 - 400 Series	

Manifold Gasket and Screw Kit²



² Each kit includes one gasket and two screws.

How to Order

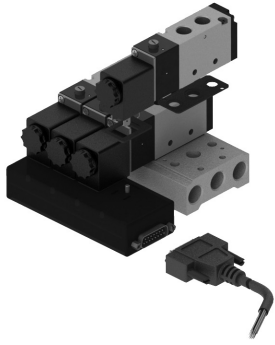
M200M - G

MODEL	STYLE
1 - 100 Series	M - Manifold for 4 Way Valves
2 - 200 Series	
3 - 300 Series	
4 - 400 Series	

Valve Accessories - MPS Series

How to Order

MPS 2 - 4 - D - C3



MODEL
1 - M3V100 & M4V100 Series
2 - M3V200, M4V200, & M3V1 Series
3 - M3V300 & M4V300 Series
4 - M3V400 & M4V400 Series

NUMBER OF STATIONS
2 to 8 Stations

VOLTAGE
A - 24-120VAC
D - 12-24VDC

OPTIONAL CABLE
Blank - None
C3 - 3M Mating Cable
C10 - 10M Mating Cable

Valves and manifold not included.
See page 11 for valves, manifold,
and PowerStrip™ selection guide.

Engineering Specifications

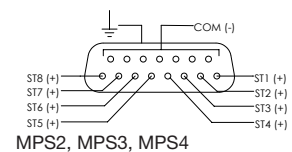
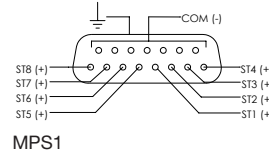
Product Contents	
Model	Includes
MPS1- • • •	Manifold PowerStrip™, Screws, Gaskets, Connector Seal
MPS2- • • •	
MPS3- • • •	
MPS4- • • •	
MPS1- • • • -C3	Manifold PowerStrip™, Screws, Gaskets, 3m DB15 Cable, Connector Seal
MPS2- • • • -C3	
MPS3- • • • -C3	
MPS4- • • • -C3	
MPS1- • • • -C10	Manifold PowerStrip™, Screws, Gaskets, 10m DB15 Cable, Connector Seal
MPS2- • • • -C10	
MPS3- • • • -C10	
MPS4- • • • -C10	

Model	MPS
Voltage Range	(-D) 12-24 VDC, (-A) 24-120VAC
Temperature Range	0 °F to 120 °F (-20 °C to 49 °C)
Max. Coil Power	4W
Electrical Connection	15-Pin D-Sub (DB15) Male
Circuit Protection	(-D) N4004 Diode, (-A) MOV
Enclosure Rating	IP65
LED Indicator	Yes
Material	ABS Body

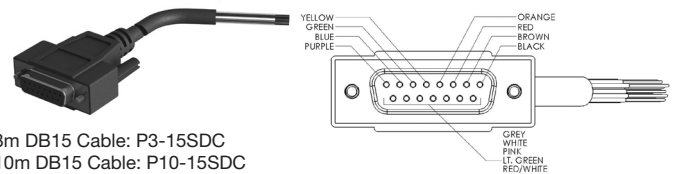
Valve Compatibility		
Valves	Manifold	Manifold PowerStrip™
M•V1• • • • AC	M100• • • F	MPS1- • • -A- •
M•V1• • • • DC		MPS1- • • -D- •
M•V2• • • • AC	M200• • • F	MPS2- • • -A- •
M•V2• • • • DC		MPS2- • • -D- •
M•V3• • • • AC	M300• • • F	MPS3- • • -A- •
M•V3• • • • DC		MPS3- • • -D- •
M4V4• • • • AC	M400M • • F	MPS4- • • -A- •
M4V4• • • • DC		MPS4- • • -D- •

Accessories	Part Number
Blanking Plug - MPS1	MPS1-B
Blanking Plug - MPS2/MPS3/MPS4	MPS2-B

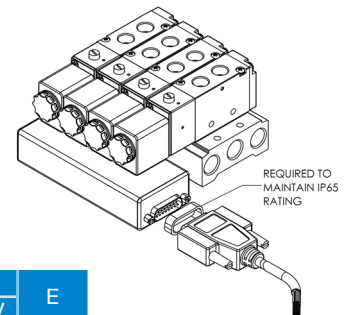
Wiring Diagrams



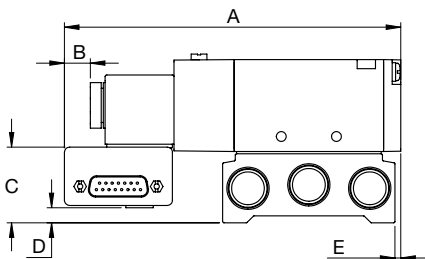
Accessories



DB15 Connector Seal
P/N: 3701400



Dimensions (mm)



MODEL	A		B	C		D		E
	M3V	M4V		M3V	M4V	M3V	M4V	
MPS1	100.4	111.4	11.9	23.9	23.9	-2.5	-2.5	-0.8
MPS2	120.4	128.3	11.4	25.4	26.4	-1	0	1.5
MPS3	131.4	146.4	11.4	31.9	32.9	5.5	6.5	2.5
MPS4	-	180.0	11.4	-	45.6	-	20.2	5

Manifold PowerStrip™ Reference - Selection Guide

Step 1: Valve

Select an MFD solenoid valve.

3 Way Valve

M3V 2 10 - 08 - NC - 24VDC

MODEL	PORT SIZE	VOLTAGE	TYPE	OPERATION
1 - 100 Series	06 - 1/8 NPT	12VDC	10 - Single Solenoid	NC - Normally Closed
2 - 200 Series	08 - 1/4 NPT	24VDC	20 - Double Solenoid	
3 - 300 Series	10 - 3/8 NPT	24VAC		
		120VAC		

See page 4 for full valve specifications.

4 Way Valve

M4V 2 10 - 08 - 24VDC

MODEL	PORT SIZE	VOLTAGE	TYPE
1 - 100 Series	06 - 1/8 NPT	12VDC	10 - Single Solenoid
2 - 200 Series	08 - 1/4 NPT	24VDC	20 - Double Solenoid
3 - 300 Series	10 - 3/8 NPT	24VAC	30C - 3 Position Double Solenoid Closed Center
4 - 400 Series	15 - 1/2 NPT	120VAC	30E - 3 Position Double Solenoid Exhaust Center

See page 6 for full valve specifications.

Step 2: Manifold

Match the manifold model to the valve model.

3 Way Manifold

M200H - 4F

MODEL	NUMBER OF STATIONS
1 - 100 Series	2F - 2 Stations
2 - 200 Series	4F - 4 Stations
3 - 300 Series	6F - 6 Stations
	8F - 8 Stations

See page 8 for full manifold specifications.

4 Way Manifold

M200M - 4F

MODEL	NUMBER OF STATIONS
1 - 100 Series	2F - 2 Stations
2 - 200 Series	4F - 4 Stations
3 - 300 Series	6F - 6 Stations
4 - 400 Series	8F - 8 Stations

See page 9 for full manifold specifications.

Step 3: PowerStrip™

Match the Manifold PowerStrip™ to the valve model, voltage, and manifold length.



MPS 2 - 4 - D - C3

MODEL	NUMBER OF STATIONS	VOLTAGE	OPTIONAL CABLE
1 - M3V100 & M4V100 Series	2 to 8 Stations	A - 24-120VAC	Blank - None
2 - M3V200, M4V200, & M3V1 Series		D - 12-24VDC	C3 - 3M Mating Cable
3 - M3V300 & M4V300 Series			C10 - 10M Mating Cable
4 - M3V400 & M4V400 Series			

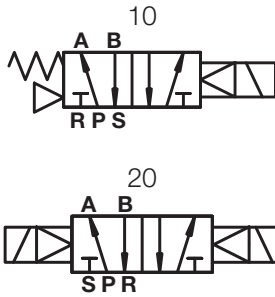
See page 10 for full PowerStrip™ specifications.

Manifolds with double solenoid valves require two PowerStrips.
See setup guide on www.Bimba.com for more information.

Example Bill of Materials

ITEM	QTY.	PART NUMBER
Valve	4	M4V210-08-24VDC
Manifold	1	M200M-4F
Manifold PowerStrip™	1	MPS2-4-D-C3

Solenoid Valves - M4M (NAMUR) Series



How to Order

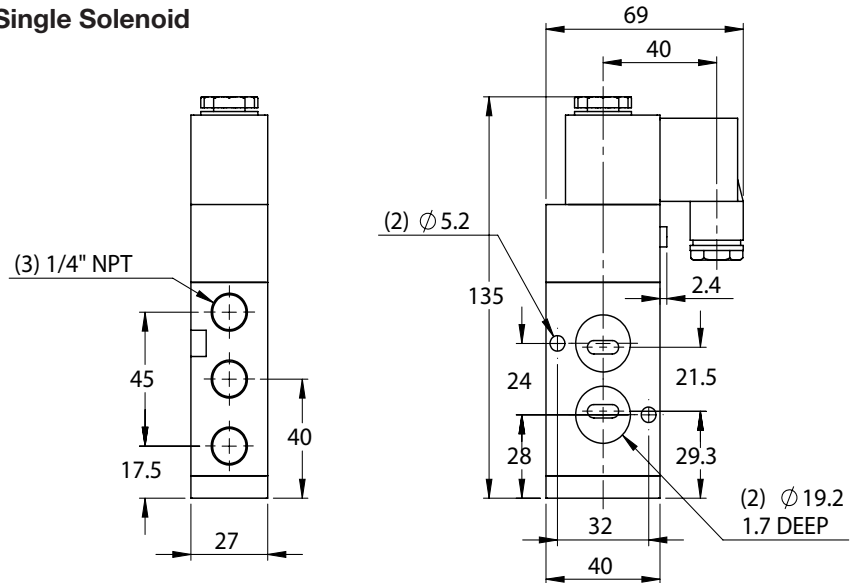
M4M 3 10 - 08 - 24VDC-FL

MODEL	TYPE	PORT SIZE	VOLTAGE	ELECTRICAL CONNECTION
3 - 300 Series	10 - Single Solenoid 20 - Double Solenoid	08 - 1/4 NPT	12VDC 24VDC 24VAC 50/60 Hz 120VAC 50/60 Hz	Blank - DIN Connector FL - Flying Leads ¹

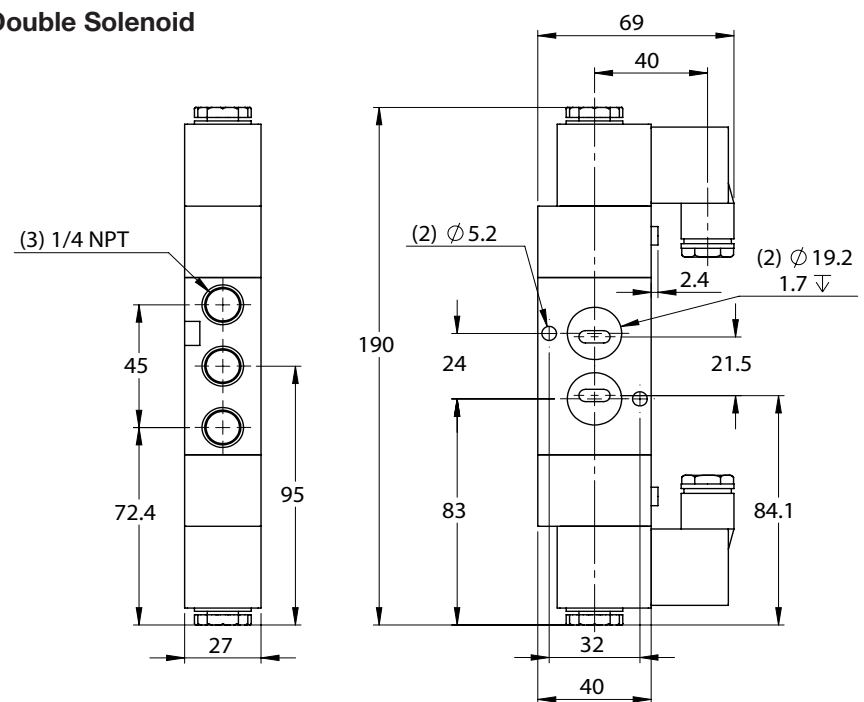
¹ Not available with 100 series 24VAC. Flying Leads are 300mm long

Dimensions (mm)

Single Solenoid



Double Solenoid



Engineering Specifications

Model	M4M310-08 M4M320-08
Fluid	Air (Clean/Dry)
Actuation	Internally Piloted
Type	5 Port - 2 Position
Flow	Cv 1.40
Port Size	1/4 NPT
Lubrication	Not Required
Pressure Range	22 to 116 PSI (0.15 to 0.8 MPa)
Proof Pressure	215 PSI (1.5 MPa)
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)
Max. Frequency	4 cycle/sec
Electrical Connection	DIN / LED Connector or Flying Leads
Voltage Range	AC: ±15% DC: ±10%
Power Consumption	AC: 3.5VA / DC: 3.0W
Protection	IP65 (DIN40050)
Insulation	Class B
Max. Response Time	50ms
Material	Aluminum Alloy Body
Screws	M5 X 0.8, 27.5mm long, Socket Head Cap Screw, Zinc Plated
Connector/Coil	11mm DIN Connector, Industrial Form B

Explosion Proof Coil Specifications



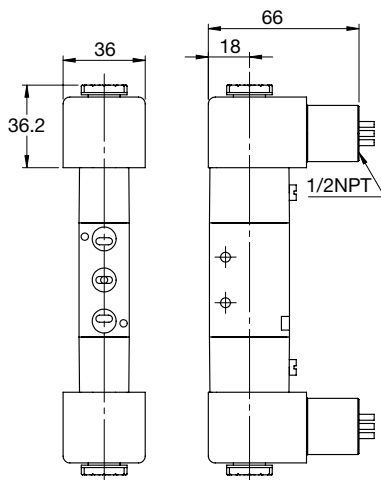
Engineering Specifications

Model	Explosion Proof Coils
Available On	M3V1, M3V200, M3V300, M4V200, M4V300, M4V400, MGV200, MGV300, and MGV400 Series
Voltages Available	12VDC, 24VDC, 120VAC
Power Consumption	AC: 6.8VA / DC: 4.6W
Temperature Range	-4 °F to 140 °F (-20 °C to 60 °C)
Duty Cycle	100%
Protection	IP65
Material	Thermoplastic
Leads Length	24 inches
Connection Type	1/2 NPT Conduit
Hazardous Location	Ex m II T4 and Division 1 Class 1, Group A, B, C, and D Class II, Group E, F, and G Class III
Tested According To	CAN / CSA-E79-0-95 CAN / CSA-E79-18-95 for CSA ANSI / ISA-S12.00.01-1999 ANSI / ISA-S12.23.01-1998 for FM

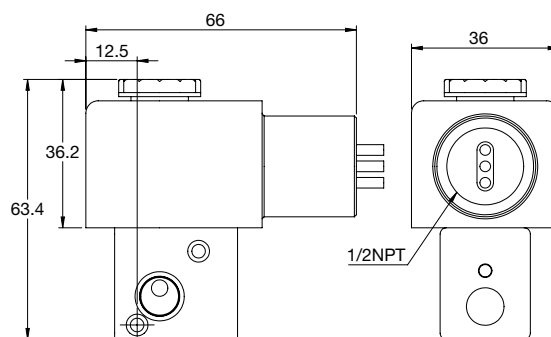
Dimensions (mm)

M3V and M4V Series

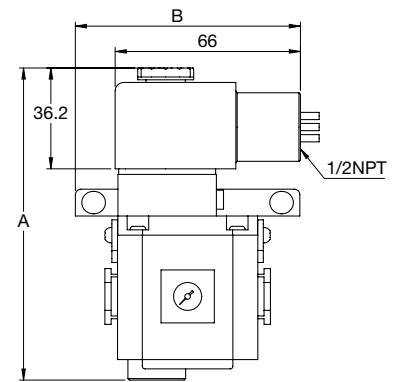
(M4V part shown)



M3V1 Series



MGV Series



MODEL	A	B
MGV200	112	80.2
MGV300	118	82.7
MGV400	130	91.2

See pages 5 and 7 for all other dimensions.
Note: overall length is the same as the equivalent DIN connector model.

Solenoid Valve Service Parts

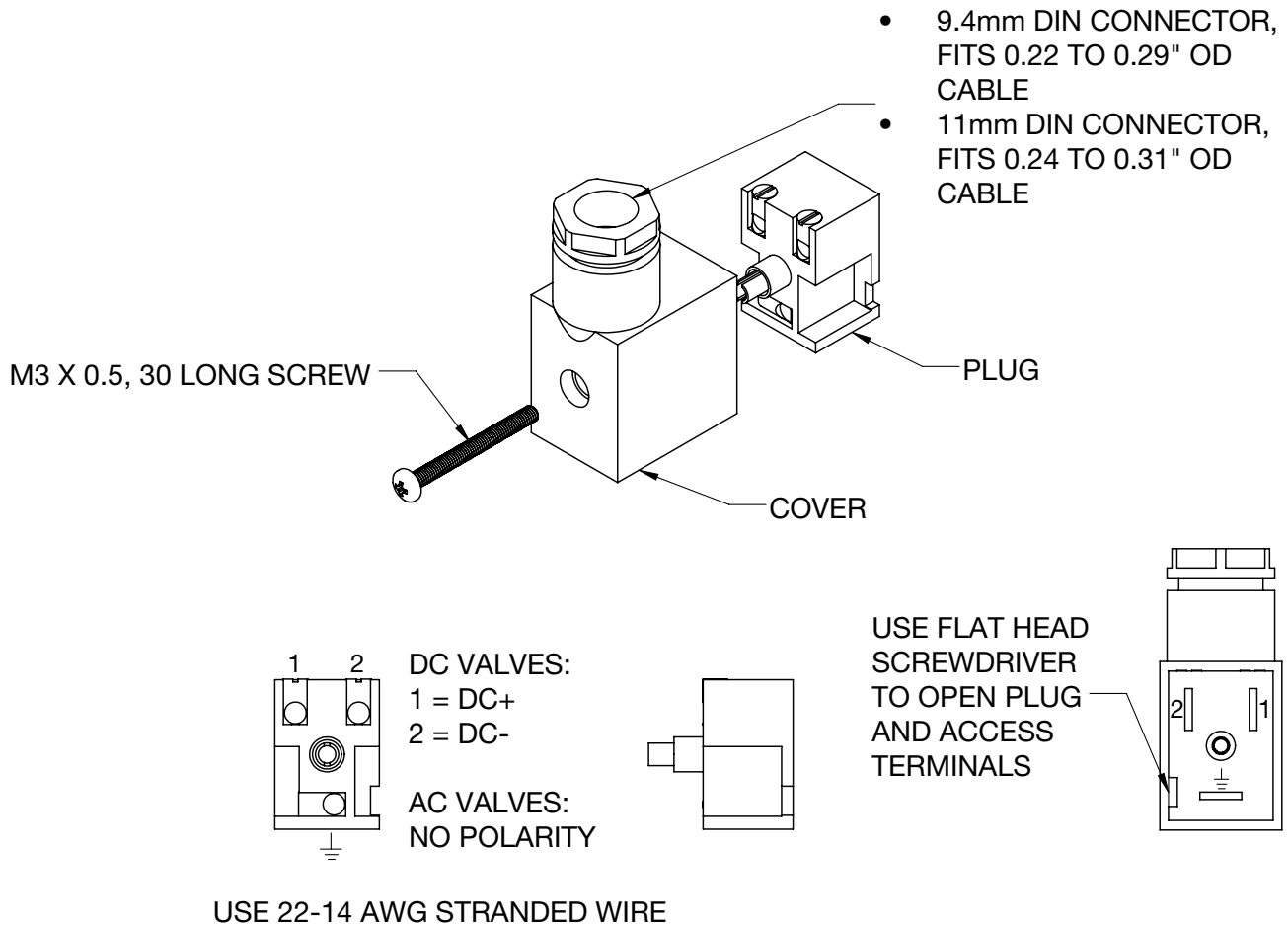
Type	Description	Part Number	Compatibility
Solenoid Valve Coils			
Coils for DIN Connectors 	Coil for 9.4mm DIN Connector, 110/120 VAC	M4V110-016-4A	100 Series Solenoid Valves
	Coil for 9.4mm DIN Connector, 12VDC	M4V110-016-2A	
	Coil for 9.4mm DIN Connector, 24VAC	M4V110-016-6A	
	Coil for 9.4mm DIN Connector, 24VDC	M4V110-016-8A	
	Coil for 11mm DIN Connector, 110/120 VAC	M4V210-016-2E	200, 300, 400 Series Solenoid Valves MGV Soft Start Valves M3V1 Direct Acting Valves
	Coil for 11mm DIN Connector, 12VDC	M4V210-016-4E	
	Coil for 11mm DIN Connector, 24VAC	M4V210-016-6E	
	Coil for 11mm DIN Connector, 24VDC	M4V210-016-8E	
Coils with Flying Leads¹ 	Coil with Flying Leads, 110/120 VAC	S100C-120VAC	100 Series Solenoid Valves
	Coil with Flying Leads, 12VDC	S100C-12VDC	
	Coil with Flying Leads, 24VDC	S100C-24VDC	
	Coil with Flying Leads, 110/120 VAC	S300C-120VAC	200, 300, 400 Series Solenoid Valves MGV Soft Start Valves M3V1 Direct Acting Valves
	Coil with Flying Leads, 12VDC	S300C-12VDC	
	Coil with Flying Leads, 24VAC	S300C-24VAC	
	Coil with Flying Leads, 24VDC	S300C-24VDC	
Explosion Proof Coils² 	Explosion Proof Coil 110/120VAC	3080172-003	200, 300, 400 Series Solenoid Valves MGV Soft Start Valves M3V1 Direct Acting Valves
	Explosion Proof Coil 12VDC	3080172-005	
	Explosion Proof Coil 24VDC	3080172-006	
Solenoid Valve Connectors			
DIN Connectors 	9.4mm Industrial Form C DIN Connector, AC	M4V110-005-P2	100 Series Solenoid Valves with AC coil
	9.4mm Industrial Form C DIN Connector, DC	M4V110-005-P3	100 Series Solenoid Valves with DC coil
	11mm Industrial Form B DIN Connector, AC	M4V210-005-P2	200, 300, 400 Series, MGV Soft Start Valves, M3V1 Direct Acting Valves with AC coil
	11mm Industrial Form B DIN Connector, DC	M4V210-005-P3A	200, 300, 400 Series MGV Soft Start Valves M3V1 Direct Acting Valves with DC coil

¹ Flying leads are 300mm long.

² Not available for 100 series solenoid valves. Leads are 580mm long.

Solenoid Valve - Reference

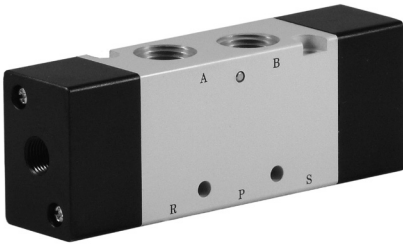
Wiring Instructions



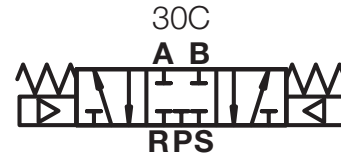
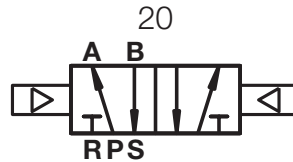
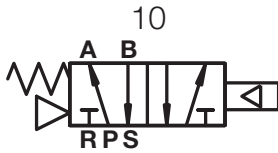
Air Pilot Valves - M4A Series

How to Order

M4A 2 10 - 08



MODEL	TYPE	PORT SIZE
2 - 200 Series	10 - Single Air Pilot	06 - 1/8 NPT (200 Series)
3 - 300 Series	20 - Double Air Pilot	08 - 1/4 NPT (200, Series)
4 - 400 Series	30C - 3 Position Double Air Pilot Closed Center	10 - 3/8 NPT (300 Series)
		15 - 1/2 NPT (400 Series)



Engineering Specifications

Model	M4A210-06 M4A220-06	M4A230C-06	M4A210-08 M4A220-08	M4A230C-08
Fluid	Air (Clean/Dry)			
Actuation	Externally Piloted			
Type	5 Port - 2 Position	5 Port - 3 Position	5 Port - 2 Position	5 Port - 3 Position
Flow	Cv 0.78	Cv 0.67	Cv 0.89	Cv 0.67
Port Size	1/8 NPT		Inlet/Outlet Ports 1/4 NPT Exhaust Ports 1/8 NPT	
Lubrication	Not Required			
Pressure Range	22 to 116 PSI (0.15 to 0.8 MPa)			
Proof Pressure	215 PSI (1.5 MPa)			
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)			
Max. Frequency	5 cycle/sec	3 cycle/sec	5 cycle/sec	3 cycle/sec
Material	Aluminum Alloy Body			

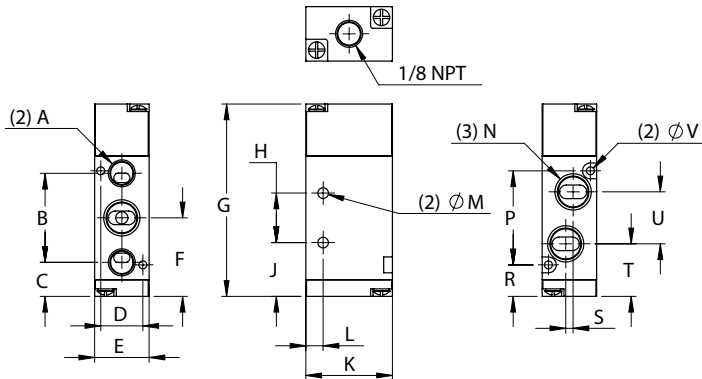
Model	M4A310-10 M4A320-10	M4A330C-10	M4A410-15 M4A420-15	M4A430C-15
Fluid	Air (Clean/Dry)			
Actuation	Externally Piloted			
Type	5 Port - 2 Position	5 Port - 3 Position	5 Port - 2 Position	5 Port - 3 Position
Flow	Cv 1.68	Cv 1.00	Cv 2.79	Cv 1.68
Port Size	Inlet/Outlet Ports 3/8 NPT Exhaust Ports 1/4 NPT		1/2 NPT	
Lubrication	Not Required			
Pressure Range	22 to 116 PSI (0.15 to 0.8 MPa)			
Proof Pressure	215 PSI (1.5 MPa)			
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)			
Max. Frequency	4 cycle/sec	3 cycle/sec	3 cycle/sec	
Material	Aluminum Alloy Body			

See page 9 for compatible manifolds.

Air Pilot Valves - M4A Series

Dimensions (mm)

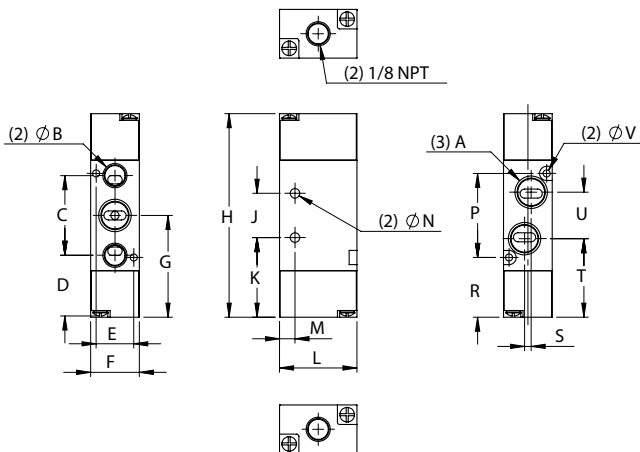
Single Air Pilot



Model	A	B	C	D	E	F	G	H	J
M4A210-06	1/8 NPT	36	13.7	17	22	31.7	77.7	20	21.7
M4A210-08	1/8 NPT	36	13.7	17	22	31.7	77.7	20	21.7
M4A310-10	1/4 NPT	45	17.5	20	27	40	95.5	24	28
M4A410-15	1/2 NPT	63	25.5	27	34	57	128	28	43

Model	K	L	M	N	P	R	S	T	U	V
M4A210-06	35	7	4.3	1/8 NPT	38	12.7	0	22.7	18	3.3
M4A210-08	35	7	4.3	1/4 NPT	38	12.7	3	21.2	21	3.3
M4A310-10	40	6.5	4.3	3/8 NPT	50	15	4	28	24	4.3
M4A410-15	50	7.5	5.5	1/2 NPT	72	21	4	39	36	4.3

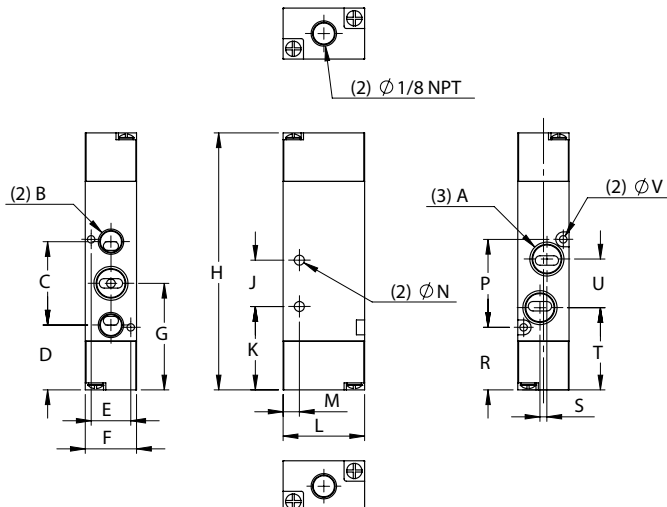
Double Air Pilot



Model	A	B	C	D	E	F	G	H	J
M4A220-06	1/8 NPT	1/8 NPT	36	28	17	22	46	92	20
M4A220-08	1/4 NPT	1/8 NPT	36	28	17	22	46	92	20
M4A320-10	3/8 NPT	1/4 NPT	45	33	20	27	55.5	111	24
M4A420-15	1/2 NPT	1/2 NPT	63	39.5	27	34	71	142	28

Model	K	L	M	N	P	R	S	T	U	V
M4A220-06	36	35	7	4.3	38	27	0	37	18	3.3
M4A220-08	36	35	7	4.3	38	27	3	35.5	21	3.3
M4A320-10	43.5	40	6.5	4.3	50	30.5	4	43.5	24	4.3
M4A420-15	57	50	7.5	5.5	72	35	4	53	36	4.3

Double Air Pilot - Closed Center



Model	A	B	C	D	E	F	G	H	J
M4A230C-06	1/8 NPT	1/8 NPT	36	28	17	22	46	111	20
M4A230C-08	1/4 NPT	1/8 NPT	36	28	17	22	46	111	20
M4A330C-10	3/8 NPT	1/4 NPT	45	33	20	27	55.5	130	24
M4A430C-15	1/2 NPT	1/2 NPT	63	39.5	27	34	71	163	28

Model	K	L	M	N	P	R	S	T	U	V
M4A230C-06	36	35	7	4.3	38	27	0	37	18	3.3
M4A230C-08	36	35	7	4.3	38	27	3	35.5	21	3.3
M4A330C-10	43.5	40	6.5	4.3	50	30.5	4	43.5	24	4.3
M4A430C-15	57	50	7.5	5.5	72	35	4	53	36	4.3

Hand Lever Valves - M4H Series



How to Order

M4H 2 10 - 06

MODEL	SIZE	TYPE	PORT SIZE
M4H - Manual Return M4HA - Spring Return	2 - 200 Series 3 - 300 Series	10 - 5 Port - 2 Position 30C - 5 Port - 3 Position Closed Center 30E - 5 Port - 3 Position Exhaust Center	06 - 1/8 NPT (200 Series) 08 - 1/4 NPT (300 Series)

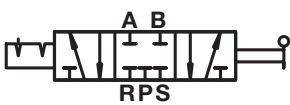
10 (Manual Return)



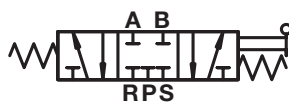
10 (Spring Return)



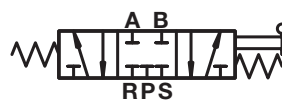
30C (Manual Return)



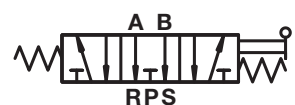
30C (Spring Return)



30E (Manual Return)

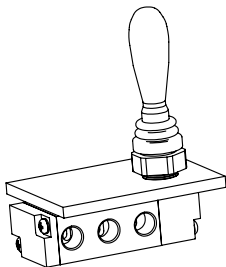


30E (Spring Return)



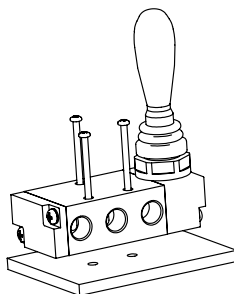
Installation Options

Panel Mount Installation



- Unscrew and remove handle, nut, and boot
- Reassemble in panel
- Panel thickness (200 Series: ≤5mm, 300 Series: ≤6mm)
- Panel mounting hole diameter (200 Series: Ø16.75mm, 300 Series: Ø21mm)

Body Mount Installation

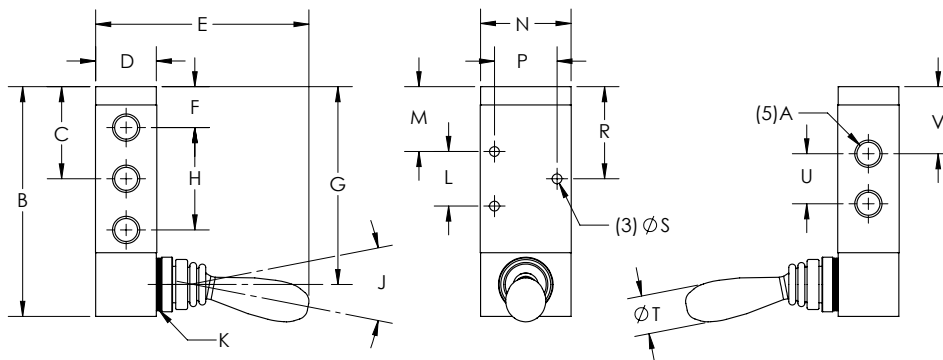


- See Dimensions for mounting hole size and spacing
- Screws not included

Engineering Specifications

Model	210-06	230-06	310-08	330-08
Fluid	Air (Clean/Dry)			
Actuation	Hand Lever			
Type	5 Port - 2 Position	5 Port - 3 Position	5 Port - 2 Position	5 Port - 3 Position
Flow	Cv 0.78	Cv 0.67	Cv 1.39	Cv 1.00
Port Size	1/8 NPT		1/4 NPT	
Lubrication	Not Required			
Pressure Range	0 to 116 PSI (0 to 0.8 MPa)			
Proof Pressure	215 PSI (1.5 MPa)			
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)			
Material	Aluminum Alloy Body			

Dimensions (mm)



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V
M4H210-06/M4HA210-06	1/8 NPT	81.5	32.5	22	90	14.5	69.5	36	15	M16X1.5	20	22.5	35	23.5	32.5	4.3	18	18	23.5
M4H310-08/M4HA310-08	1/4 NPT	101	40.5	27	93.5	18	87	45	18	M20X1.5	24	28.5	40	27.5	40.5	4.3	18	22	29.5
M4H230C-06/M4H230E-06	1/8 NPT	81.5	32.5	22	90.5	14.5	69.5	36	17	M16X1.5	20	22.5	35	23.5	32.5	4.3	18	18	23.5
M4H330C-08/M4H330E-08	1/4 NPT	101	40.5	27	94	18	87	45	20	M20X1.5	24	28.5	40	27.5	40.5	4.3	18	22	29.5
M4HA230C-06/M4HA230E-06	1/8 NPT	100.5	32.5	22	90.5	14.5	88.5	36	17	M16X1.5	20	22.5	35	23.5	32.5	4.3	18	18	23.5
M4HA330C-08/M4HA330E-08	1/4 NPT	120	40.5	27	94	18	106	45	20	M20X1.5	24	28.5	40	27.5	40.5	4.3	18	22	29.5

Hand Lever Valves - M4HV Series



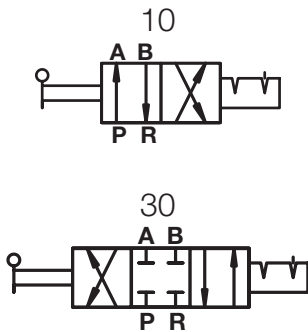
How to Order

M4HV 3 10 - 08 - S

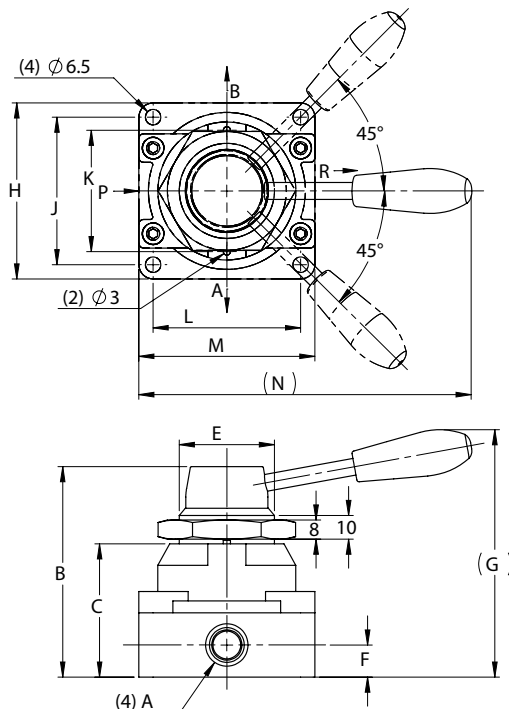
MODEL	TYPE	PORT SIZE	MOUNTING STYLE
3 - 300 Series 4 - 400 Series	10 - 4 Port - 2 Position 30 - 4 Port - 3 Position Closed Center	08 - 1/4 NPT (300 Series) 15 - 1/2 NPT (400 Series)	S - Panel Nut

Engineering Specifications

Model	M4HV310-08-S	M4HV330-08-S	M4HV410-15-S	M4HV430-15-S
Fluid	Air (Clean/Dry)			
Actuation	Rotary Hand Lever			
Type	4 Port - 2 Position - Detented	4 Port - 3 Position - Closed Center - Detented	4 Port - 2 Position - Detented	4 Port - 3 Position - Closed Center - Detented
Flow	Cv 1.67		Cv 4.89	
Port Size	1/4 NPT		1/2 NPT	
Lubrication	Not Required			
Pressure Range	0 to 145 PSI (0 to 1.0 MPa)			
Proof Pressure	215 PSI (1.5 MPa)			
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)			
Material	Aluminum Alloy Body			



Dimensions (mm)



Model	A	B	C	E	F
M4HV3	1/4 NPT	88.5	56	M40X1.5	13.5
M4HV4	1/2 NPT	110	72	M52X1.5	18

Model	G	H	J	K	L	M	N
M4HV3	104	74	62	51	62	74	140
M4HV4	128	102	89	64	81	94	160

Push-Pull Valves - M4L Series

How to Order

M4L 2 10 - 06

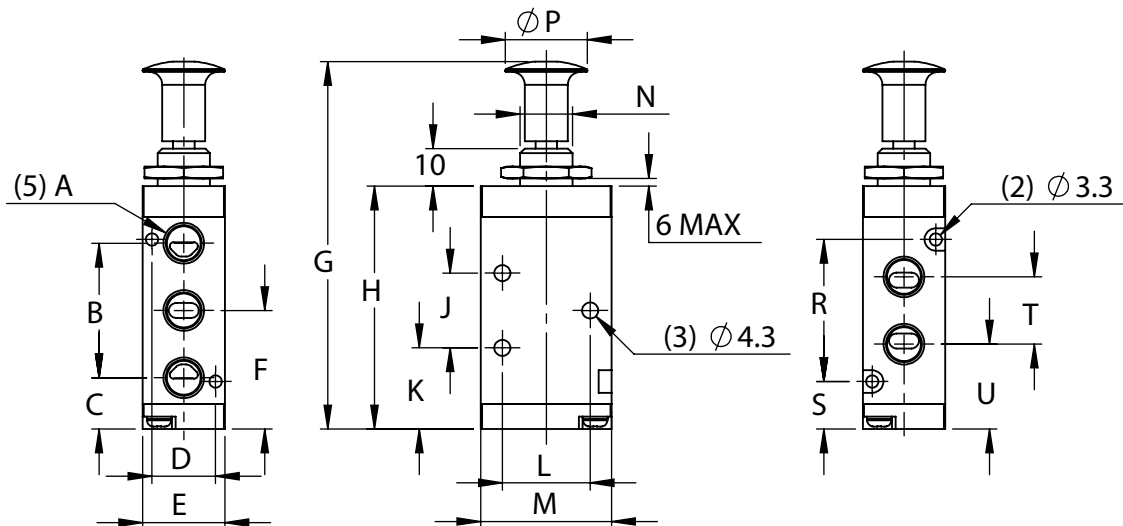
MODEL	TYPE	PORT SIZE
2 - 200 Series 3 - 300 Series	10 - 5 Port - 2 Position	06 - 1/8 NPT (200 Series) 08 - 1/4 NPT (300 Series)



Engineering Specifications

Model	M4L210-06	M4L310-08
Fluid	Air (Clean/Dry)	
Actuation	Push-Pull Knob	
Type	5 Port - 2 Position - Detented	
Flow	Cv 0.78	Cv 1.39
Port Size	1/8 NPT	1/4 NPT
Lubrication	Not Required	
Pressure Range	0 to 116 PSI (0 to 0.8 MPa)	
Proof Pressure	215 PSI (1.5 MPa)	
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)	
Material	Aluminum Alloy Body	

Dimensions (mm)



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
M4L210-06	1/8 NPT	36	14.5	17	22	32.5	106	65.8	20	22.5	23.5	35	M14X1.0	25	38	13.5	18	23.5
M4L310-08	1/4 NPT	45	18	20	27	40.5	121.5	81	24	28.5	27.5	40	M16X1.0	25	50	15.5	22	29.5

Foot Pedal Valves - M4F Series

How to Order

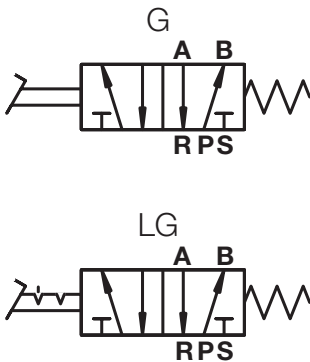
M4F 2 10 - 08 - G



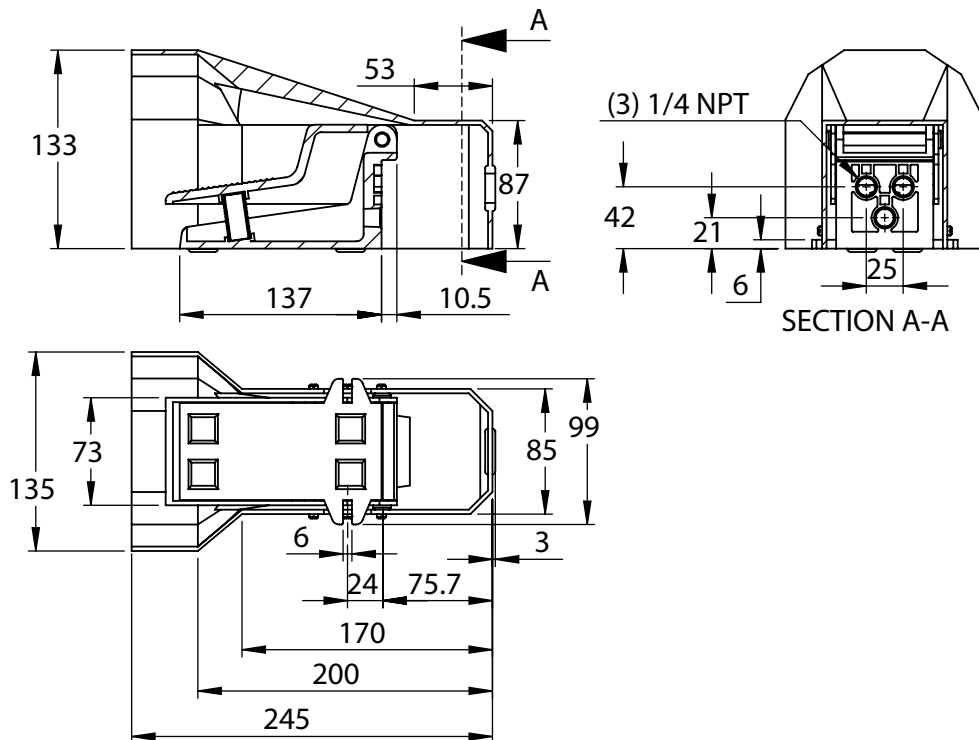
MODEL	TYPE	PORT SIZE	STYLE
2 - 200 Series	10 - 5 Port - 2 Position	08 - 1/4 NPT	G - Non-Locking with Guard LG - Locking with Guard

Engineering Specifications

Model	M4F210-08-G	M4F210-08-LG
Fluid	Air (Clean/Dry)	
Actuation	Foot Pedal	
Type	5 Port - 2 Position	
Flow	Cv 0.78	Cv 0.78
Lubrication	Not Required	
Pressure Range	0 to 116 PSI (0 to 0.8 MPa)	
Proof Pressure	215 PSI (1.5 MPa)	
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)	
Material	Aluminum Alloy Body	



Dimensions (mm)



Flow Control - MASC Series



How to Order

MASC 200 - 08

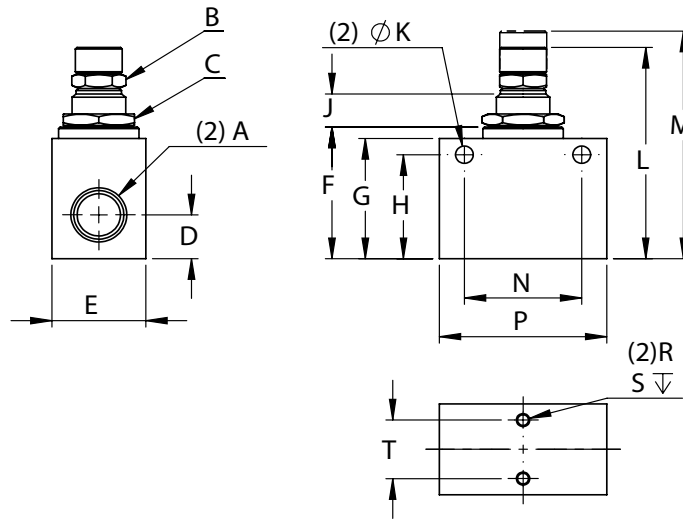
MODEL	PORT SIZE
1 - 100 Series	06 - 1/8 NPT (100 Series)
2 - 200 Series	08 - 1/4 NPT (200 Series)
3 - 300 Series	10 - 3/8 NPT (300 Series)
	15 - 1/2 NPT (300 Series)

Engineering Specifications

Model	MASC100-06	MASC200-08	MASC300-10	MASC300-15
Fluid	Air (Clean/Dry)			
Port Size	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT
Pressure Range	7 to 138 PSI (0.05 to 0.95 MPa)			
Proof Pressure	215 PSI (1.5 MPa)			
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)			
Max. Flow (SCFM)	Controlled	7.1	15.9	44.1
	Free	14.1	28.3	53.0
Material	Aluminum Alloy Body			

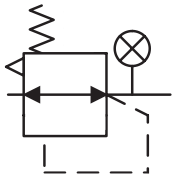


Dimensions (mm)



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T
MASC100-06	1/8 NPT	M6X0.5	M12X0.75	10	18	26	23	18	8.6	4.3	47	52.5	22	32	-	-	-
MASC200-08	1/4 NPT	M6X0.5	M12X0.75	13.5	18	30	27	23	8.6	4.3	51	56.5	26	36	-	-	-
MASC300-10	3/8 NPT	M8X0.75	M16X1.0	17.5	28	40.5	37	32	10	5.3	65	74	35	50	M4X0.7	6	18
MASC300-15	1/2 NPT	M8X0.75	M16X1.0	17.5	28	40.5	37	32	10	5.3	65	74	35	50	M4X0.7	6	18

Air Preparation Equipment - Mini Regulators



How to Order

MSR 200 - 08

MODEL
200

PORT SIZE
06 - 1/8 NPT
08 - 1/4 NPT

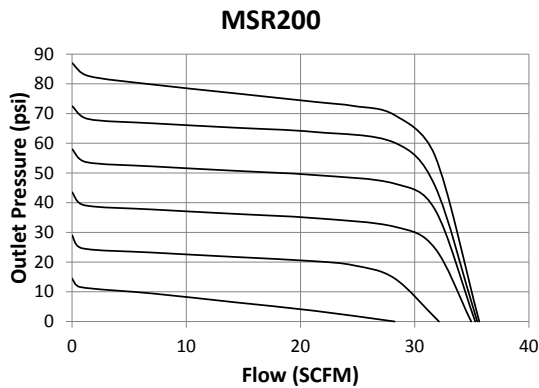
Engineering Specifications

Model	MSR200-06	MSR200-08
Fluid	Air (Clean/Dry)	
Port Size	1/8 NPT	1/4 NPT
Type	Relieving Regulator with Push to Lock Adjustment Knob	
Pressure Range	7 to 130 PSI (0.05 to 0.9 MPa)	
Proof Pressure	215 PSI (1.5 MPa)	
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)	
Material	Aluminum Alloy Body	
Mounting	Inline via Bracket / Panel Mount	
Includes	Gauge ¹ / Stamped Steel Bracket / Panel Nut / 2 Gauge Locations	

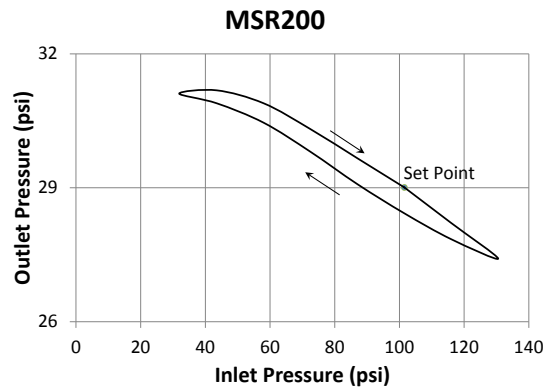
¹ 1/8 NPT, 40mm round gauge, 0-140 PSI

Performance Data

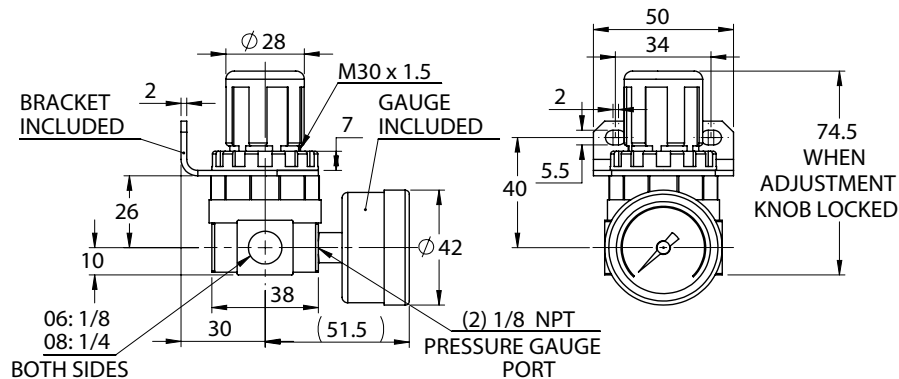
Flow Characteristics



Regulation Characteristics



Dimensions (mm)



Air Preparation Equipment - Regulators

How to Order

MGR K 300 - 08 - L - R



SERIES
Blank - Standard Relieving Regulator
K - Relieving Regulator with Reverse Flow ¹

¹ K option only available with 200, 300 and 400 series

MODEL
200
300
400
600

PORT SIZE
06 - 1/8 NPT (200 Series)
08 - 1/4 NPT (200, 300 Series)
10 - 3/8 NPT (300 Series)
15 - 1/2 NPT (400 Series)
20 - 3/4 NPT (600 Series)
25 - 1 NPT (600 Series)

GAUGE TYPE
Blank - Square/Flush
R - Round/Port-Mounted ³

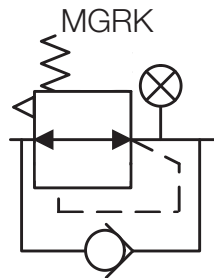
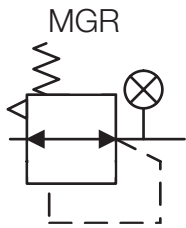
³ See page 42 for dimensions

PRESSURE RANGE
Blank - 7-130 PSI
L - 7-60 PSI ²

² L option only available with 200, 300 and 400 series

Engineering Specifications

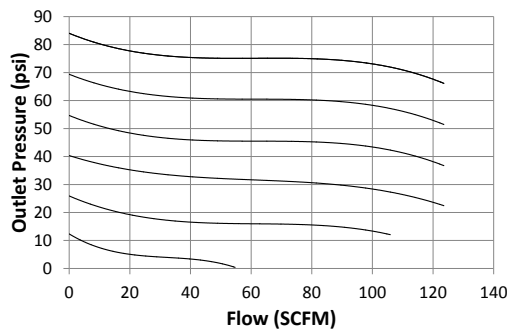
Model	MGR
Fluid	Air (Clean/Dry)
Type	Relieving Regulator with Push to Lock Adjustment Knob
Pressure Range	Blank - 7 to 130 PSI (0.05 to 0.9 MPa) L - 7 to 60 PSI (0.05 to 0.4 MPa)
Proof Pressure	215 PSI (1.5 MPa)
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)
Material	Aluminum Alloy Body
Pressure Gauge	Square/Flush-Mounted Gauge or Large Round/Port-Mounted Gauge
Mounting	Individual Stamped Steel Bracket or Modular Connecting Kit (page 38) or Panel Mount
Includes	Stamped Steel Bracket / Panel Nut



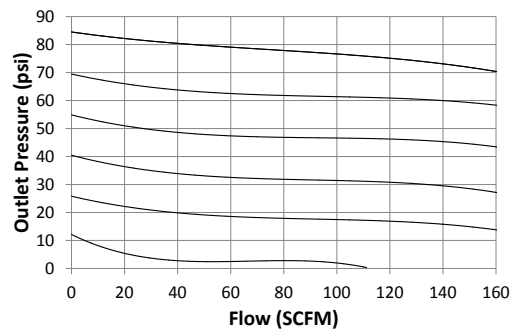
Performance Data

Flow Characteristics

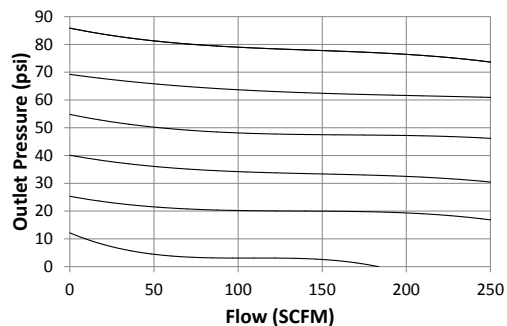
MGR200



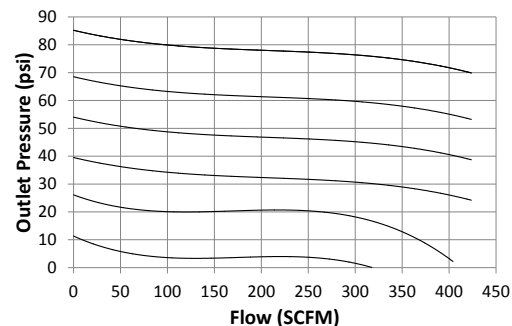
MGR300



MGR400



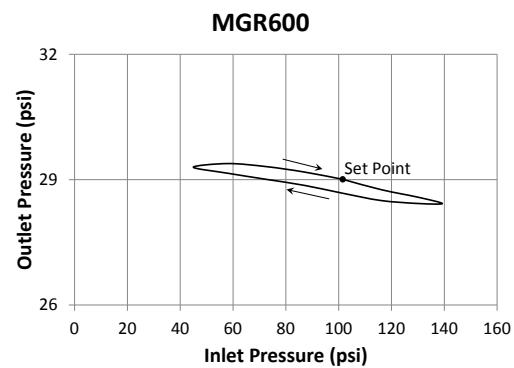
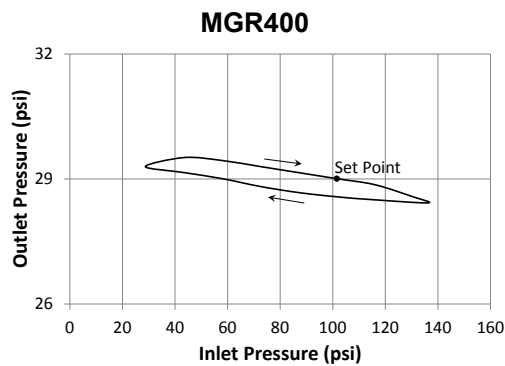
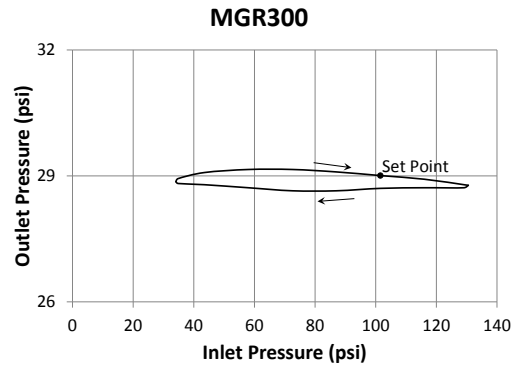
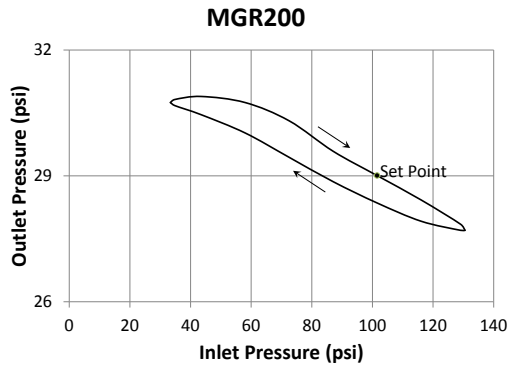
MGR600



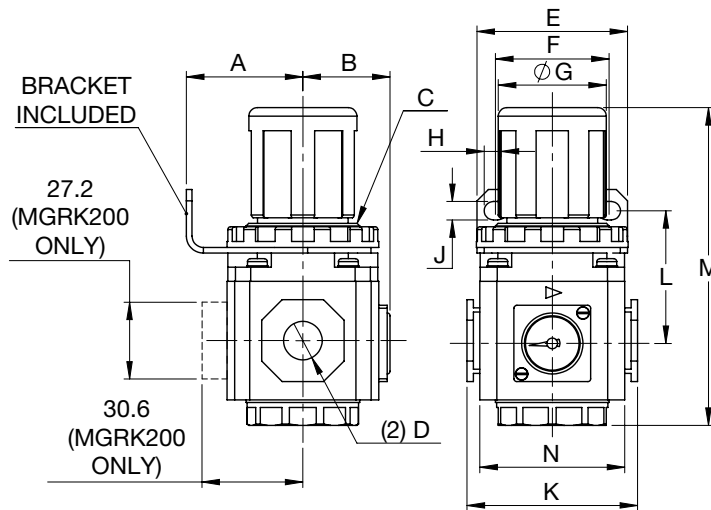
Air Preparation Equipment - Regulators

Performance Data

Regulation Characteristics

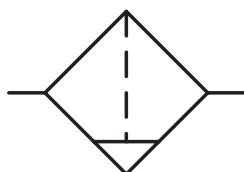


Dimensions (mm)



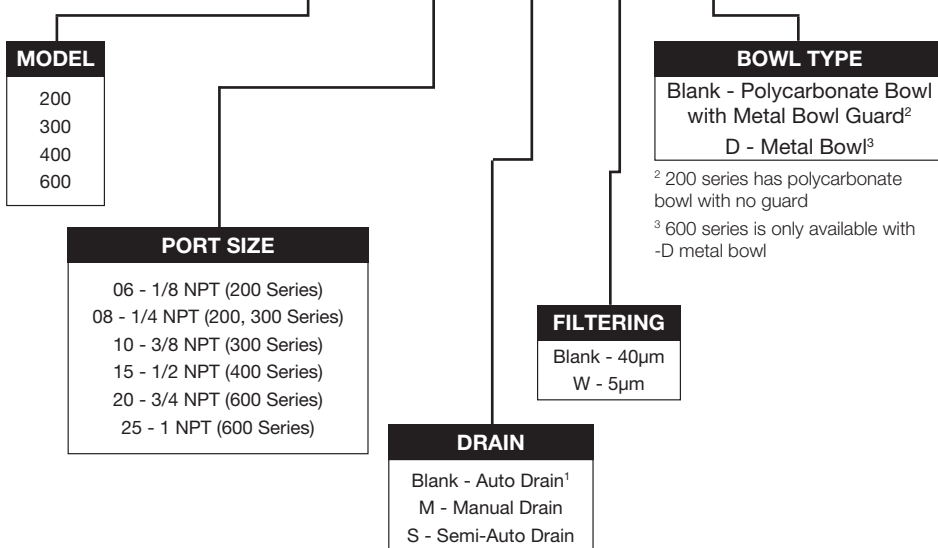
Model	A	B	C	D	E	F	G	H	J	K	L	M	N
MGR_200-06	30	32	M30 x 1.5	1/8 NPT	55	34	28	15.5	5.5	47	43	89	38
MGR_200-08	30	32	M30 x 1.5	1/4 NPT	55	34	28	15.5	5.5	47	43	89	38
MGR_300-08	41	31	M40 x 1.5	1/4 NPT	53	40	38	8	6.5	60	46	112.5	50.8
MGR_300-10	41	31	M40 x 1.5	3/8 NPT	53	40	38	8	6.5	60	46	112.5	50.8
MGR_400-15	50	40	M55 x 2.0	1/2 NPT	72	55	52	11	8.5	80	53	140.5	67.5
MGR_600-20	70	48	M68 x 1.5	3/4 NPT	90	66	64	13	11	99	73.5	191.5	85
MGR_600-25	70	48	M68 x 1.5	1 NPT	90	66	64	13	11	99	73.5	191.5	85

Air Preparation Equipment - General Purpose Filters



How to Order

MGF 300 - 08 - S - W - D



¹ Not available on 200 series

Engineering Specifications

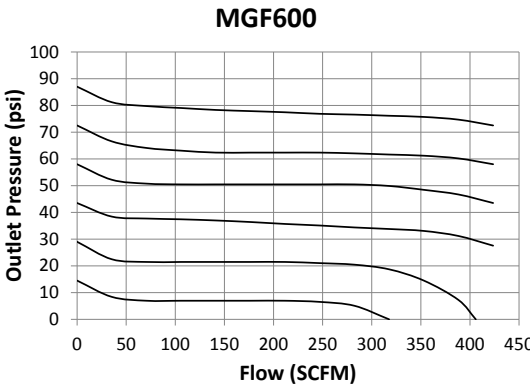
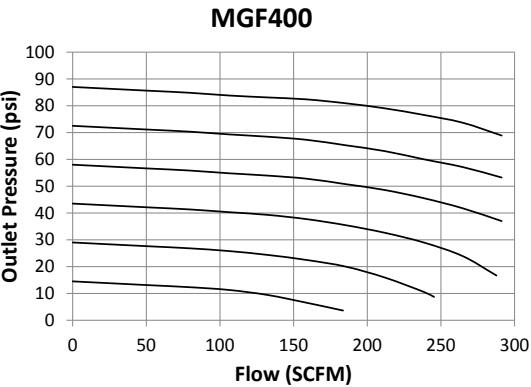
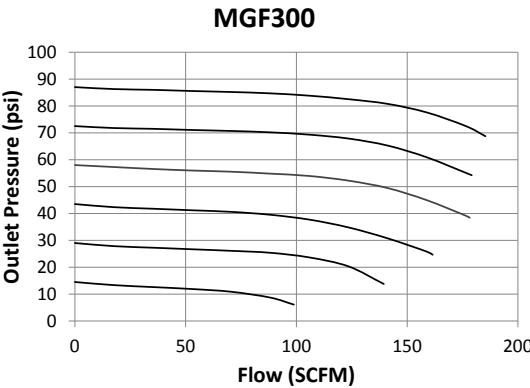
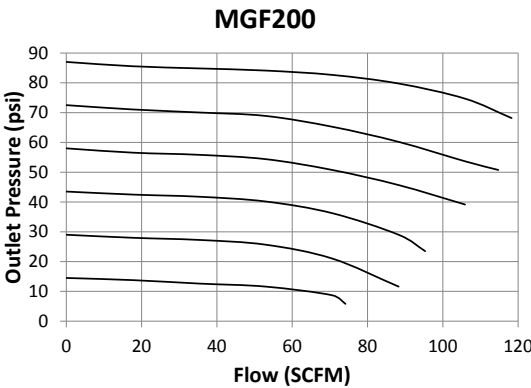
Model	MGF200	MGF300	MGF400	MGF600
Fluid	Air			
Pressure Range	Semi- Auto and Auto Drain: 22 to 130 PSI (0.15 to 0.9 MPa) Manual Drain: 7 to 130 PSI (0.05 to 0.9 MPa)			
Proof Pressure	215 PSI (1.5 MPa)			
Temperature Range	23 °F to 158 °F (-5 °C to 70 °C)			
Polycarbonate Bowl Capacity	0.34 FL OZ (10CC)	1.35 FL OZ (40CC)	2.7 FL OZ (80CC)	N/A
Metal Bowl Capacity	0.57 FL OZ (17CC)	1.35 FL OZ (40CC)	2.7 FL OZ (80CC)	7.8 FL OZ (230CC)
Bowl Material	Polycarbonate Bowl or Metal Bowl with Polycarbonate Level Indicator	Polycarbonate Bowl with Metal Bowl Guard or Metal Bowl with Polycarbonate Level Indicator		Metal Bowl with Polycarbonate Level Indicator
Material	Aluminum Alloy Body			
Mounting	Individual Stamped Steel Bracket or Modular Connecting Kit (page 38)			
Includes	Stamped Steel Bracket			

See page 41 for service parts.

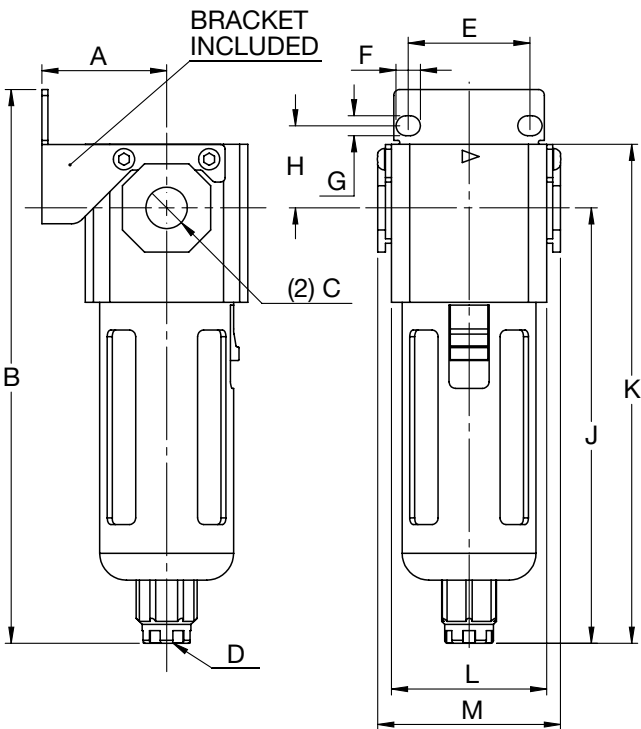
Air Preparation Equipment - General Purpose Filters

Performance Data

Flow Characteristics



Dimensions (mm)



Model	A	B	C	D	E	F
MGF200-06	30	123* 137**	1/8 NPT	-	27	8.4
MGF200-08	30	123* 137**	1/4 NPT	-	27	8.4
MGF300-08	41	182	1/4 NPT	G 1/8	40	8
MGF300-10	41	182	3/8 NPT	G 1/8	40	8
MGF400-15	50	208	1/2 NPT	G 1/4	55	11
MGF600-20	70	280	3/4 NPT	G 1/4	66	13
MGF600-25	70	280	1 NPT	G 1/4	66	13

Model	G	H	J	K	L	M
MGF200-06	5.4	23	93* 107**	110* 124**	38	47
MGF200-08	5.4	23	93* 107**	110* 124**	38	47
MGF300-08	6.5	27	143	164	50.8	60
MGF300-10	6.5	27	143	164	50.8	60
MGF400-15	8.6	33.5	166.5	191.5	67.5	80
MGF600-20	11	50	219	256	84.5	99
MGF600-25	11	50	219	256	84.5	99

* Polycarbonate Bowl

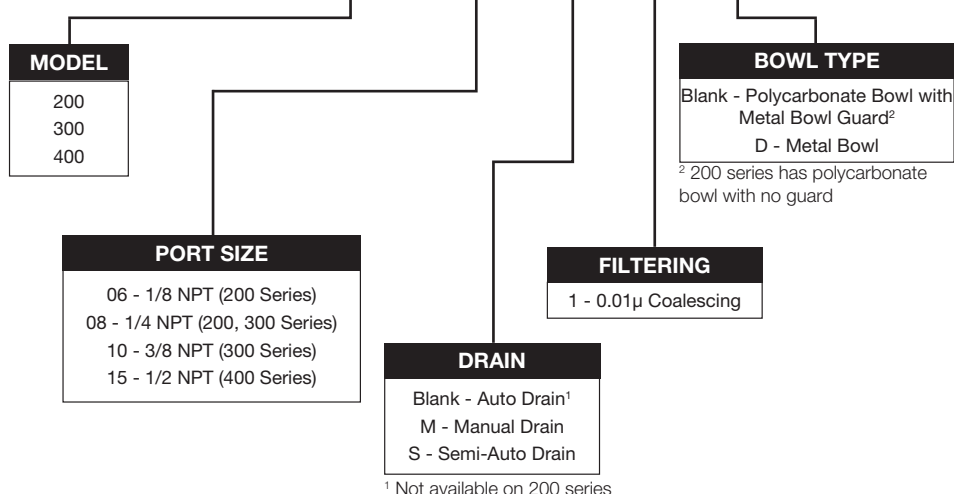
** Metal Bowl

Air Preparation Equipment - Coalescing Filters



How to Order

MGFB 300 - 08 - S - 1 - D



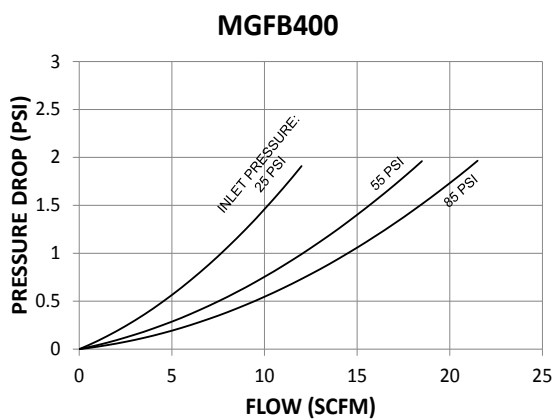
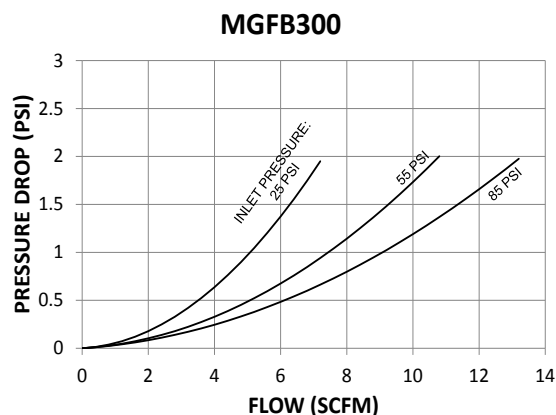
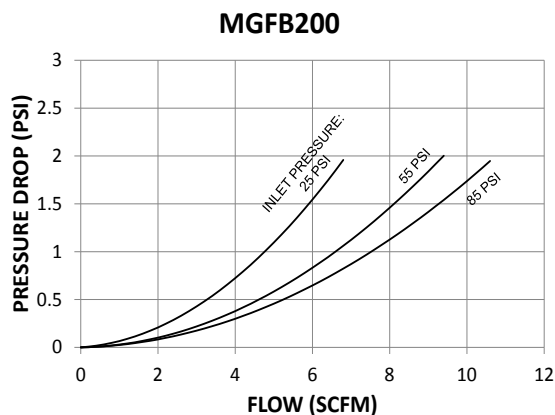
Engineering Specifications

Model	MGFB200	MGFB300	MGFB400
Fluid	Air to be filtered to 5μ or better		
Pressure Range	Semi- Auto and Auto Drain: 25 to 130 PSI (0.17 to 0.9 MPa) Manual Drain: 7 to 130 PSI (0.05 to 0.9 MPa)		
Proof Pressure	215 PSI (1.5 MPa)		
Temperature Range	23 to 158 °F (-5 to 70 °C)		
Filtration Rating	0.01μ (95% efficiency)		
Max Flow Rate ³	5 SCFM	10 SCFM	20 SCFM
Polycarbonate Bowl Capacity	0.34 FL OZ (10CC)	1.35 FL OZ (40CC)	2.7 FL OZ (80CC)
Metal Bowl Capacity	0.57 FL OZ (17CC)	1.35 FL OZ (40CC)	2.7 FL OZ (80CC)
Bowl Material	Polycarbonate Bowl or Metal Bowl with Polycarbonate Level Indicator	Polycarbonate Bowl with Metal Bowl Guard or Metal Bowl with Polycarbonate Level Indicator	
Material	Aluminum Alloy Body		
Mounting	Individual Stamped Steel Bracket or Modular Connecting Kit (page 38)		
Includes	Stamped Steel Bracket		

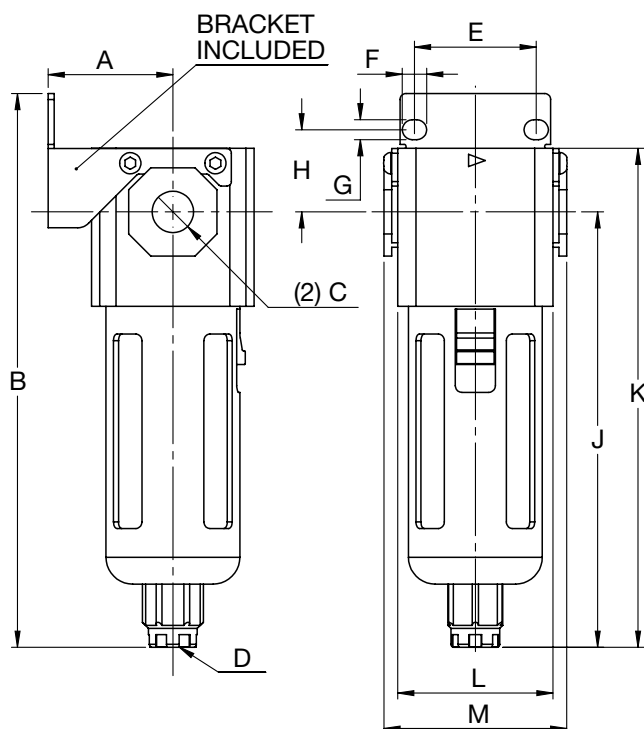
³ Maximum rated flow at 85 PSI inlet pressure for coalescing function.

Air Preparation Equipment - Coalescing Filters

Performance Data



Dimensions (mm)



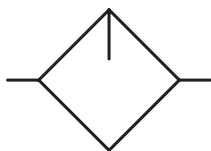
Model	A	B	C	D	E
MGFB200-06	30	123* 137**	1/8 NPT	-	27
MGFB200-08	30	123* 137**	1/4 NPT	-	27
MGFB300-08	41	182	1/4 NPT	G 1/8	40
MGFB300-10	41	182	3/8 NPT	G 1/8	40
MGFB400-15	50	208	1/2 NPT	G 1/4	55

Model	F	G	H	J	K	L
MGFB200-06	8.4	5.4	23	93* 107**	110* 124**	38
MGFB200-08	8.4	5.4	23	93* 107**	110* 124**	38
MGFB300-08	8	6.5	27	143	164	50.8
MGFB300-10	8	6.5	27	143	164	50.8
MGFB400-15	11	8.6	33.5	166.5	191.5	67.5

* Polycarbonate Bowl

** Metal Bowl

Air Preparation Equipment - General Purpose Lubricators



How to Order MGL 300 - 08 - D

MODEL
200
300
400
600

PORT SIZE
06 - 1/8 NPT (200 Series)
08 - 1/4 NPT (200, 300 Series)
10 - 3/8 NPT (300 Series)
15 - 1/2 NPT (400 Series)
20 - 3/4 NPT (600 Series)
25 - 1 NPT (600 Series)

BOWL TYPE
Blank - Polycarbonate Bowl with Metal Bowl Guard ¹
D - Metal Bowl ²

¹ 200 series has polycarbonate bowl with no guard

² 600 series is only available with -D metal bowl

Engineering Specifications

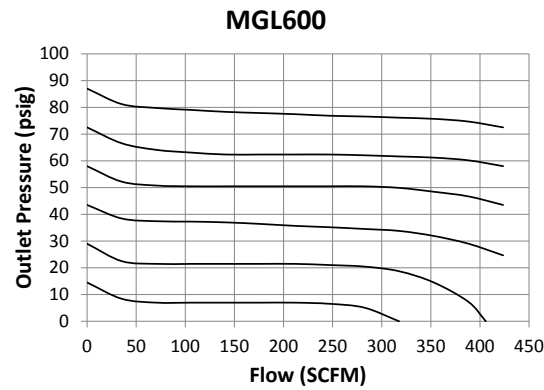
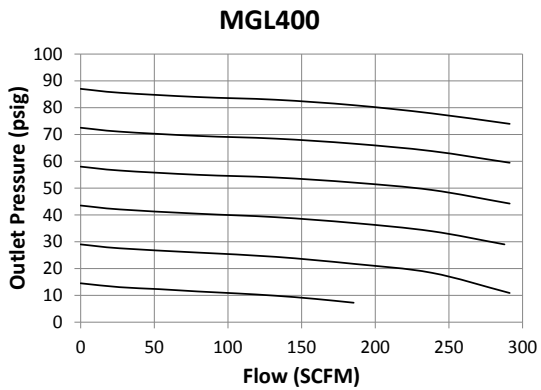
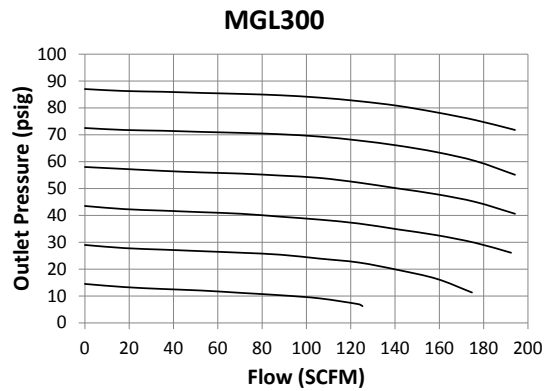
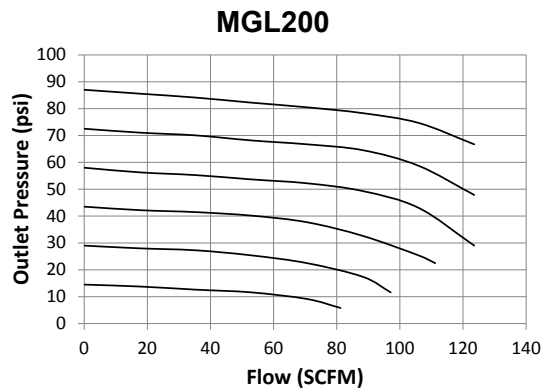
Model	MGL200	MGL300	MGL400	MGL600
Fluid	Air (Clean/Dry)			
Type	Fine Oil Mist			
Pressure Range	7 to 130 PSI (0.05 to 0.9 MPa)			
Proof Pressure	215 PSI (1.5 MPa)			
Temperature Range	23 °F to 158 °F (-5 °C to 70 °C)			
Polycarbonate Bowl Capacity	0.85 FL OZ (25CC)	2.5 FL OZ (75CC)	5.4 FL OZ (160CC)	N/A
Metal Bowl Capacity	1.08 FL OZ (32CC)	2.5 FL OZ (75CC)	5.4 FL OZ (160CC)	12.8 FL OZ (380CC)
Bowl Material	Polycarbonate Bowl or Metal Bowl with Polycarbonate Level Indicator	Polycarbonate Bowl with Metal Bowl Guard or Metal Bowl with Polycarbonate Level Indicator		Metal Bowl with Polycarbonate Level Indicator
Material	Aluminum Alloy Body			
Recommended Lubricant	Non-Detergent SAE10, ISO VG32, or equivalent			
Mounting	Individual Stamped Steel Bracket or Modular Connecting Kit (page 38)			
Includes	Stamped Steel Bracket			

See page 41 for service parts.

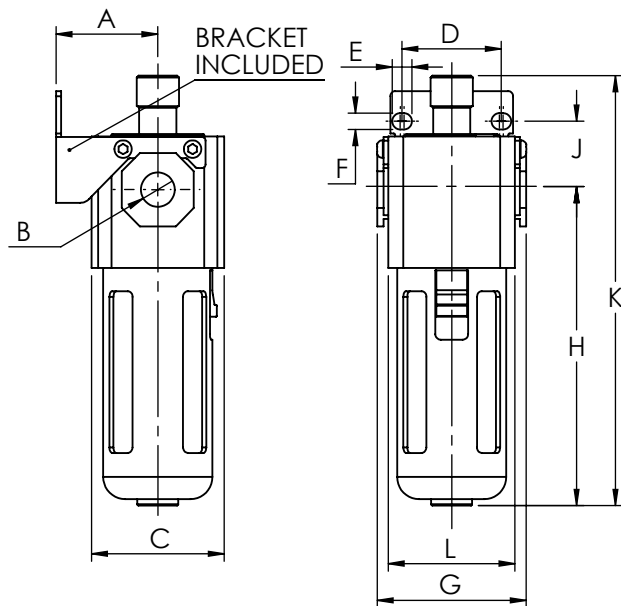
Air Preparation Equipment - General Purpose Lubricators

Performance Data

Flow Characteristics



Dimensions (mm)



Model	A	B	C	D	E
MGL200-06	30	1/8 NPT	40	27	8.5
MGL200-08	30	1/4 NPT	40	27	8.5
MGL300-08	41	1/4 NPT	53.5	40	8
MGL300-10	41	3/8 NPT	53.5	40	8
MGL400-15	50	1/2 NPT	71	55	11
MGL600-20	70	3/4 NPT	89	66	13
MGL600-25	70	1 NPT	89	66	13

Model	F	G	H	J	K	L
MGL200-06	5.5	47	80* 94**	23	119* 133**	38
MGL200-08	5.5	47	80* 94**	23	119* 133**	38
MGL300-08	6.5	60	125	27	169	50.8
MGL300-10	6.5	60	125	27	169	50.8
MGL400-15	8.5	80	142	33.5	190	67.5
MGL600-20	11	99	194.5	50	256	84.5
MGL600-25	11	99	194.5	50	256	84.5

* Polycarbonate Bowl

** Metal Bowl

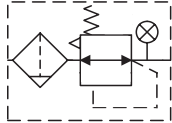
Air Preparation Equipment - Filter-Regulators



How to Order

MGFR 300 - 08 - S - L - W - D - R

MODEL	PORT SIZE	DRAIN	PRESSURE RANGE	FILTERING	BOWL TYPE	GAUGE TYPE
200 300 400 600	06 - 1/8 NPT (200 Series) 08 - 1/4 NPT (200, 300 Series) 10 - 3/8 NPT (300 Series) 15 - 1/2 NPT (400 Series) 20 - 3/4 NPT (600 Series) 25 - 1 NPT (600 Series)	Blank - Auto Drain ¹ M - Manual Drain S - Semi-Auto Drain	Blank - Standard L - Low ²	Blank - 40µm W - 5µm	Blank - Polycarbonate Bowl with Metal Bowl Guard ³ D - Metal Bowl ⁴	Blank - Square/Flush R - Round/ Port-Mounted ⁵
		¹ Not available on 200 series	² L option only available with 200, 300 and 400 series <i>note:</i> See Engineering Specifications for Pressure Range		³ 200 series has polycarbonate bowl with no guard ⁴ 600 series is only available with -D metal bowl	⁵ See page 42 for dimensions



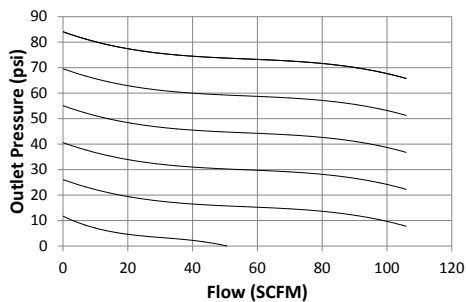
Engineering Specifications

Model	MGFR200	MGFR300	MGFR400	MGFR600
Fluid	Air			
Type	Relieving Regulator with Push to Lock Adjustment Knob			
Pressure Range	Semi- Auto and Auto Drain: Standard Pressure - 22 to 130 PSI (0.15 to 0.9 MPa) Low Pressure - 22 to 60 PSI (0.15 to 0.4 MPa) Manual Drain: Standard Pressure - 7 to 130 PSI (0.05 to 0.9 MPa) Low Pressure - 7 to 60 PSI (0.05 to 0.4 MPa)			
Proof Pressure	215 PSI (1.5 MPa)			
Temperature Range	23 °F to 158 °F (-5 °C to 70 °C)			
Polycarbonate Bowl Capacity	0.34 FL OZ (10CC)	1.35 FL OZ (40CC)	2.7 FL OZ (80CC)	N/A
Metal Bowl Capacity	0.57 FL OZ (17CC)	1.35 FL OZ (40CC)	2.7 FL OZ (80CC)	7.8 FL OZ (230CC)
Bowl Material	Polycarbonate Bowl or Metal Bowl with Polycarbonate Level Indicator	Polycarbonate Bowl with Metal Bowl Guard or Metal Bowl with Polycarbonate Level Indicator		Metal Bowl with Polycarbonate Level Indicator
Material	Aluminum Alloy Body			
Mounting	Individual Stamped Steel Bracket or Modular Connecting Kit (page 38) or Panel Mount			
Includes	Stamped Steel Bracket / Panel Nut			

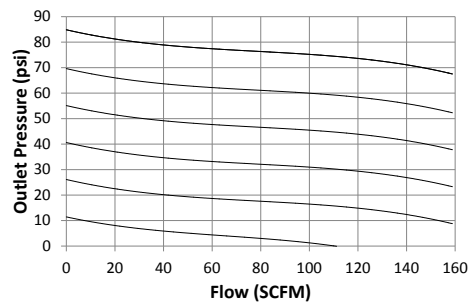
Performance Data

Flow Characteristics

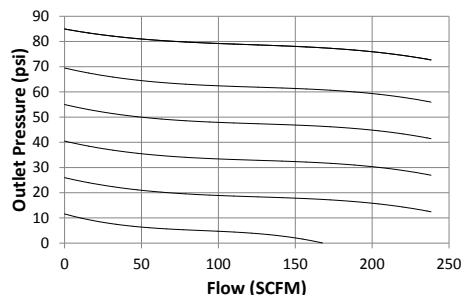
MGFR200



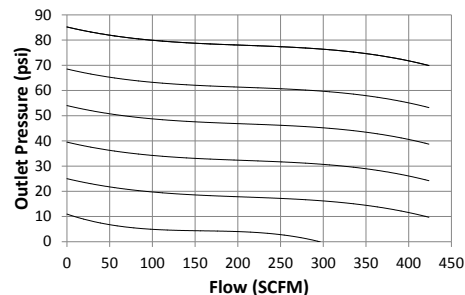
MGFR300



MGFR400



MGFR600

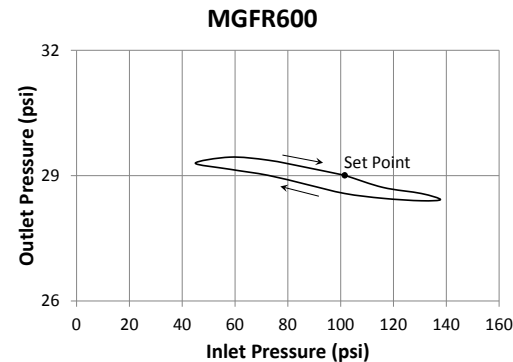
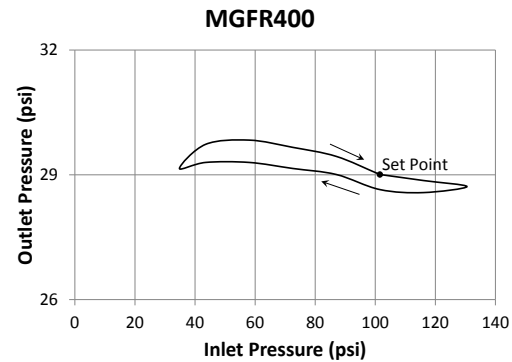
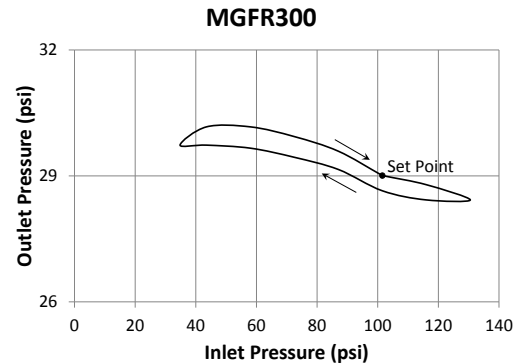
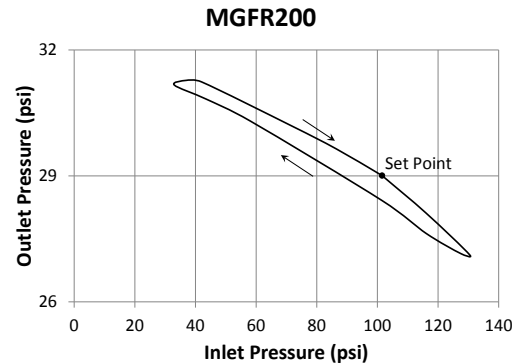


See page 41 for service parts.

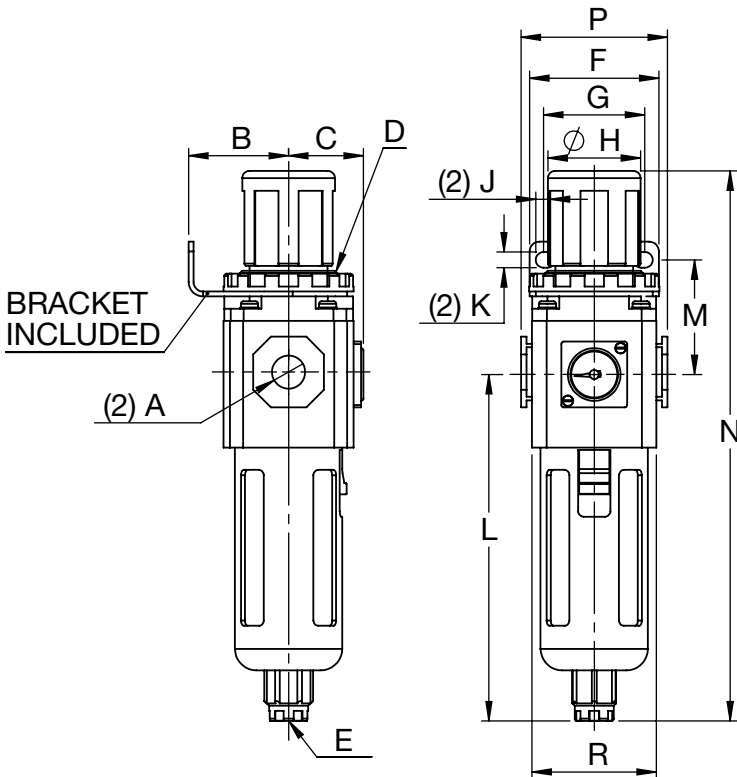
Air Preparation Equipment - Filter-Regulators

Performance Data

Regulation Characteristics



Dimensions (mm)



Model	A	B	C	D	E	F	G
MGFR200-06	1/8 NPT	30	32	M30X1.5	-	55	34
MGFR200-08	1/4 NPT	30	32	M30X1.5	-	55	34
MGFR300-08	1/4 NPT	41	31	M40X1.5	G 1/8	53	40
MGFR300-10	3/8 NPT	41	31	M40X1.5	G 1/8	53	40
MGFR400-15	1/2 NPT	50	40	M55X2.0	G 1/4	72	52
MGFR600-20	3/4 NPT	70	48	M68X1.5	G 1/4	90	66
MGFR600-25	1 NPT	70	48	M68X1.5	G 1/4	90	66

Model	H	J	K	L	M	N	P	R
MGFR200-06	28	15.5	5.5	93* 107**	48	161* 175**	47	38
MGFR200-08	28	15.5	5.5	93* 107**	48	161* 175**	47	38
MGFR300-08	38	8	6.5	143	46	225.5	60	50.8
MGFR300-10	38	8	6.5	143	46	225.5	60	50.8
MGFR400-15	52	11	8.5	166.5	53	270.5	80	67.5
MGFR600-20	64	13	11	219	76	363	99	84.5
MGFR600-25	64	13	11	219	76	363	99	84.5

* Polycarbonate Bowl

** Metal Bowl

Air Preparation Equipment - Filter Regulator Lubricators

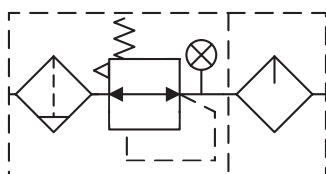


How to Order

MGFC 200 - 08 - S - W

MODEL	PORT SIZE	DRAIN	FILTERING
200 300 400	06 - 1/8 NPT (200 Series) 08 - 1/4 NPT (200, 300 Series) 10 - 3/8 NPT (300 Series) 15 - 1/2 NPT (400 Series)	Blank - Auto Drain ¹ S - Semi-Auto Drain ²	Blank - 40µm W - 5µm

¹ Not available on 200 series
² Not available on 300, 400 series



Engineering Specifications

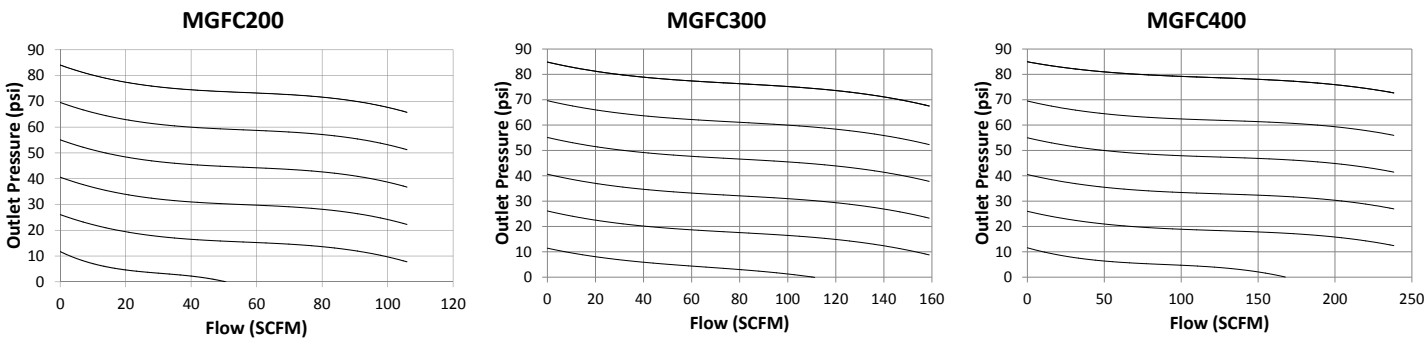
Model	MGFC200-06-S	MGFC200-08-S	MGFC300-08	MGFC300-10	MGFC400-15
Fluid	Air				
Port Size	1/8 NPT	1/4 NPT	1/4 NPT	3/8 NPT	1/2 NPT
Type	Relieving Regulator with Push to Lock Adjustment Knob and Fine Oil Mist Lubricator				
Pressure Range	22 to 130 PSI (0.15 to 0.9 MPa)				
Proof Pressure	215 PSI (1.5 MPa)				
Temperature Range	23 °F to 158 °F (-5 °C to 70 °C)				
Drain Bowl Capacity	0.34 FL OZ (10CC)		1.35 FL OZ (40CC)		2.7 FL OZ (80CC)
Oil Bowl Capacity	0.85 FL OZ (25CC)		2.5 FL OZ (75CC)		5.4 FL OZ (160CC)
Bowl Material	Polycarbonate Bowl		Polycarbonate Bowl with Metal Bowl Guard		
Material	Aluminum Alloy Body				
Mounting	Modular Connecting Kit (page 38) included				
Recommended Lubricant	Non-Detergent SAE10, ISO VG32, or equivalent				
Drain	Semi-Auto Drain		Auto Drain		
Includes	T Style Modular Connecting Kit / Panel Nut				

See page 41 for service parts.

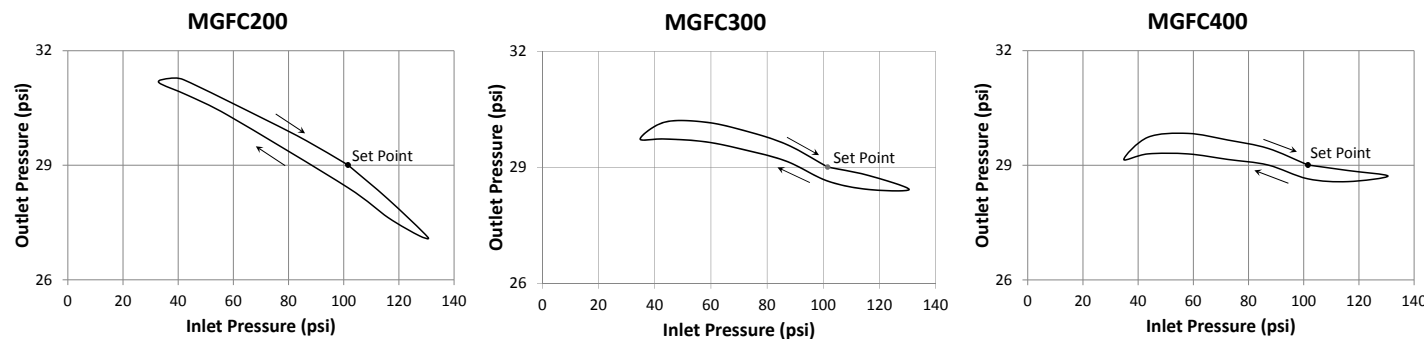
Air Preparation Equipment - Filter Regulator Lubricators

Performance Data

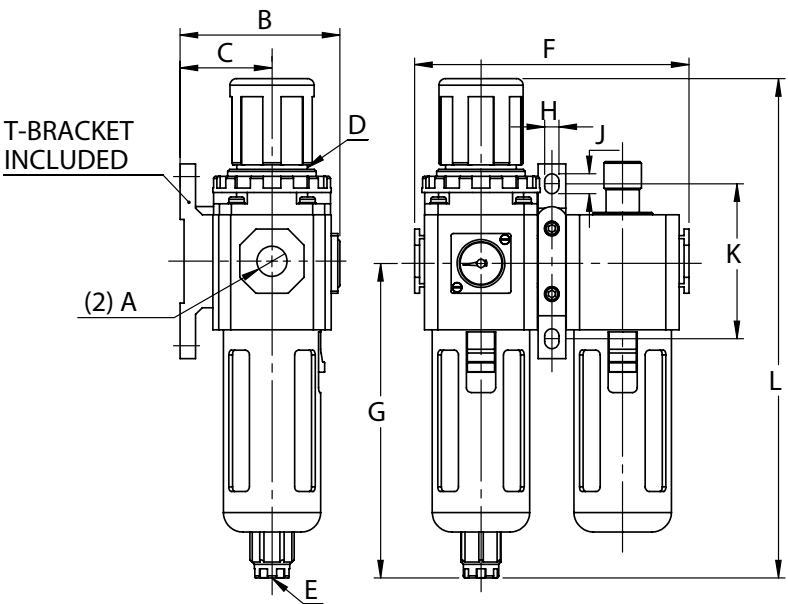
Flow Characteristics



Regulation Characteristics



Dimensions (mm)



Model	A	B	C	D	E
MGFC200-06-S	1/8 NPT	62	30	M30X1.5	-
MGFC200-08-S	1/4 NPT	62	30	M30X1.5	-
MGFC300-08	1/4 NPT	72	41.5	M40X1.5	G 1/8
MGFC300-10	3/8 NPT	72	41.5	M40X1.5	G 1/8
MGFC400-15	1/2 NPT	89	50	M55X2.0	G 1/4

Model	F	G	H	J	K	L
MGFC200-06-S	97	93	5.5	8.5	50	161
MGFC200-08-S	97	93	5.5	8.5	50	161
MGFC300-08	124	143	6.5	9	70	225.5
MGFC300-10	124	143	6.5	9	70	225.5
MGFC400-15	164	165.5	8.5	12	80	270.5

Air Preparation Equipment - Pressure Relief Valves



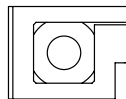
How to Order MGZ 300 - 08 - T

MODEL	PORT SIZE	MODULAR CONNECTING KIT ¹
200	06 - 1/8 NPT (200 Series)	T - T Style
300	08 - 1/4 NPT (200, 300 Series)	L - L Style
400	10 - 3/8 NPT (300 Series)	U - U Style
	15 - 1/2 NPT (400 Series)	

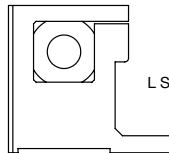
¹ All Pressure Relief Valves also includes stamped bracket



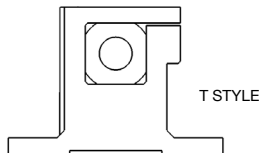
MODULAR CONNECTING KIT INCLUDED



U STYLE



L STYLE

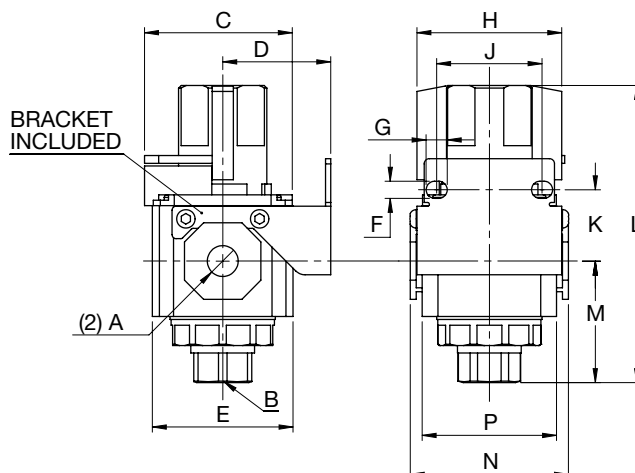
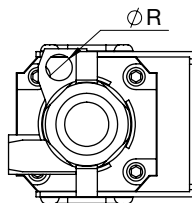


T STYLE

Engineering Specifications

Model	MGZ
Fluid	Air (Clean/Dry)
Actuation	Manual
Valve Type	3 Port - 2 Position
Pressure Range	0 to 130 PSI (0 to 0.9 MPa)
Proof Pressure	215 PSI (1.5 MPa)
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)
Material	Aluminum Alloy Body
Mounting	Individual Stamped Steel Bracket or Modular Connecting Kit
Knob Motion	90° Twist
Includes	Modular Connecting Kit / Stamped Steel Bracket / Lock and Key

Dimensions (mm)



Model	A	B	C	D	E	F	G
MGZ200-06	1/8 NPT	1/4 NPT	42.5	30	40	5.5	8.5
MGZ200-08	1/4 NPT	1/4 NPT	42.5	30	40	5.5	8.5
MGZ300-08	1/4 NPT	3/8 NPT	56.5	41	53.4	6.5	8
MGZ300-10	3/8 NPT	3/8 NPT	56.5	41	53.4	6.5	8
MGZ400-15	1/2 NPT	1/2 NPT	66	50	64	8.5	11

Model	H	J	K	L	M	N	P	R
MGZ200-06	42	27	23	89	36.5	47	38	7.1
MGZ200-08	42	27	23	89	36.5	47	38	7.1
MGZ300-08	55	40	27	112.5	46	60	51	9.3
MGZ300-10	55	40	27	112.5	46	60	51	9.3
MGZ400-15	65	55	33.5	134	58.5	75	63	10.5

Air Preparation Equipment - Soft Start/Dump Valves



How to Order

MGV 300 - 08 - T - 24VDC - X

MODEL	PORT SIZE	MODULAR CONNECTING KIT ¹	VOLTAGE	ELECTRICAL CONNECTION
200 300 400	06 - 1/8 NPT (200 Series) 08 - 1/4 NPT (200, 300 Series) 10 - 3/8 NPT (300 Series) 15 - 1/2 NPT (400 Series)	T - T Style L - L Style U - U Style	12VDC 24VDC 24VAC 50/60 Hz 120VAC 50/60 Hz	Blank - DIN Connector FL - Flying Leads ² X - Explosion Proof ³

¹ All Pressure Relief Valves also includes stamped bracket

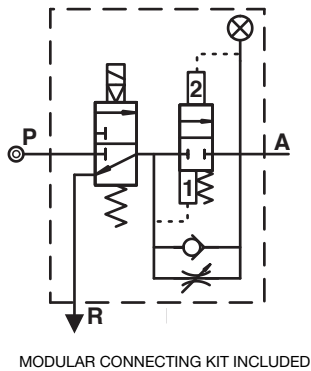
² Not available with 24VAC. Flying Leads are 300mm long.

³ See page 13 for specifications. Leads are 580mm long.

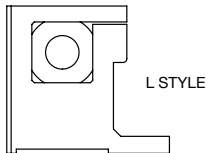
Engineering Specifications

Model	MGV200-06	MGV200-08	MGV300-08	MGV300-10	MGV400-15
Fluid	Air (Clean/Dry)				
Actuation	Solenoid Operated, 3/2 Soft Start				
Port Size	1/8 NPT	1/4 NPT	1/4 NPT	3/8 NPT	1/2 NPT
Exhaust Port Size	1/4 NPT		3/8 NPT		1/2 NPT
Pressure Range	36 to 130 PSI (0.25 to 0.9 MPa)				
Proof Pressure	215 PSI (1.5 MPa)				
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C) (Explosion Proof -4 °F to 140 °F [-20 °C to 60 °C])				
Electrical Connection	DIN / LED Connector or Flying Leads or Explosion Proof Coil Conduit Entry				
Voltage Range	-15% to +10%				
Insulation	Class B				
Power Consumption ³	AC: 3.5VA / DC: 2.5W				
Mounting	Individual Stamped Steel Bracket or Modular Connecting Kit				
Material	Aluminum Alloy Body				
Connector/Coil ⁴	11mm DIN Connector, Industrial Form B				
Includes	Modular Connecting Kit / Stamped Steel Bracket				

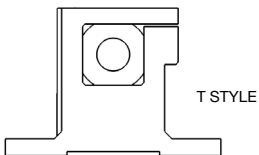
⁴ See page 13 for explosion proof specifications



U STYLE

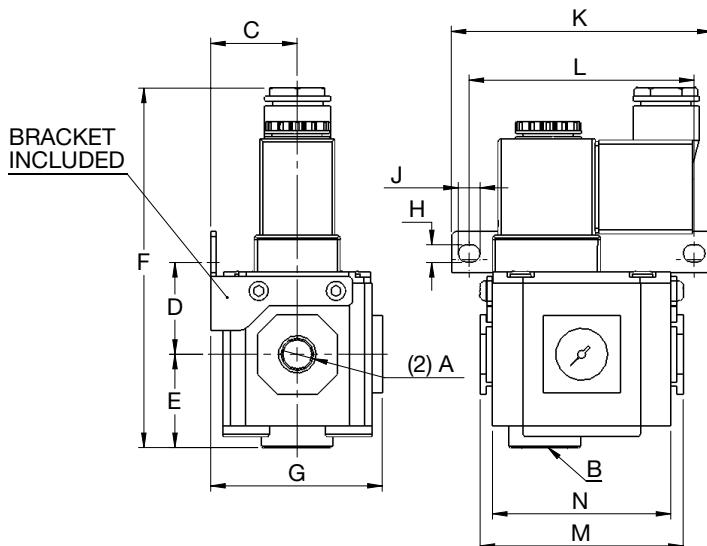


L STYLE



T STYLE

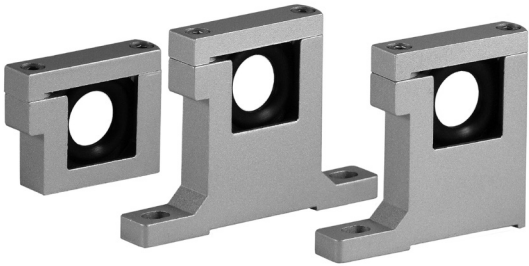
Dimensions (mm)



Model	A	B	C	D	E	F
MGV200-06	1/8 NPT	1/4 NPT	24.5	30.5	30	123.5
MGV200-08	1/4 NPT	1/4 NPT	24.5	30.5	30	123.5
MGV300-08	1/4 NPT	3/8 NPT	31.5	34.5	34	131
MGV300-10	3/8 NPT	3/8 NPT	31.5	34.5	34	131
MGV400-15	1/2 NPT	1/2 NPT	40.5	39	40.5	142.5

Model	G	H	J	K	L	M	N
MGV200-06	57	5.5	8	80	67	59	50
MGV200-08	57	5.5	8	80	67	59	50
MGV300-08	62.2	6.5	8	95	82	74	65
MGV300-10	62.2	6.5	8	95	82	74	65
MGV400-15	80	8.5	11	120	102	90	78

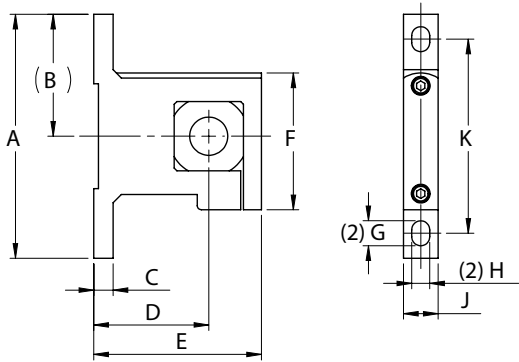
Air Preparation Accessories - Modular Connecting Kits



How to Order MGA 3 02 - P1

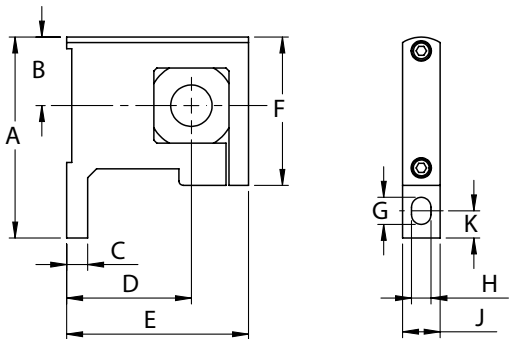
MODEL	TYPE	MATERIAL
2 - 200 Series 3 - 300 Series 4 - 400 Series 6 - 600 Series	01 - T Style (connecting and mounting) 02 - L Style (connecting and mounting) 03 - U Style (connecting only)	P1 - Aluminum

Dimensions (mm)



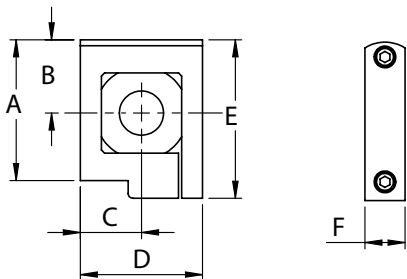
T Style

Model	A	B	C	D	E	F	G	H	J	K
MGA201-P1	66	33	5	30	45	38.3	8.5	5.5	11.5	50
MGA301-P1	88	44	7	41.5	60.4	49.3	9	6.5	13	70
MGA401-P1	104	52	7	50	76	58.5	12	8.6	15.5	80
MGA601-P1	128	64	10	70	104	79.5	16	11	19.8	100



L Style

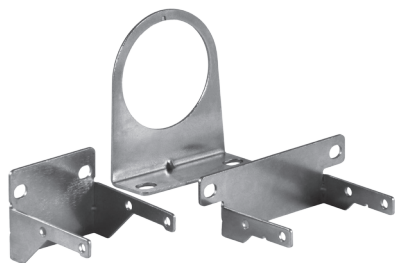
Model	A	B	C	D	E	F	G	H	J	K
MGA202-P1	51	18.3	5	30	45	38.3	8.4	5.4	11.5	8
MGA302-P1	69	22.9	7	41.5	60.4	49.3	9	6.5	13	10.8
MGA402-P1	80	27.5	7	50	76	58.5	12	8.6	15.5	11.8
MGA602-P1	103.4	38.5	10	70	104	79.3	16	11	19.8	13.8



U Style

Model	A	B	C	D	E	F
MGA203-P1	35	18.3	15	30	38.3	11.5
MGA303-P1	43.8	22.9	19.5	38	49.3	13
MGA403-P1	52.5	27.5	26	52	58.5	15.5
MGA603-P1	76	38.5	34	68	79.3	19.8

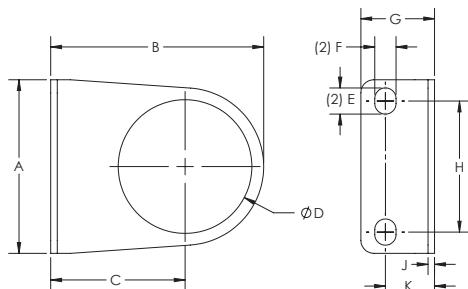
Air Preparation Accessories - Mounting Brackets



How to Order MGB 3 02 - P2

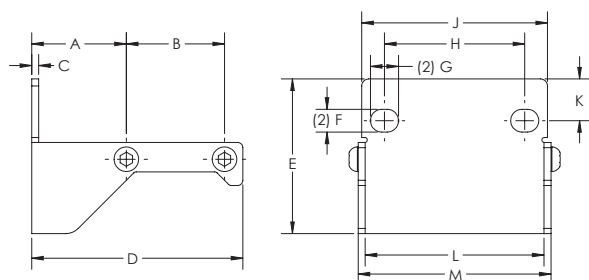
MODEL	TYPE	MATERIAL
2 - 200 Series 3 - 300 Series 4 - 400 Series 6 - 600 Series	01 - Bracket for MGFR, MGR Series 02 - Bracket for MGF, MGL Series 03 - Bracket for MGV Series 04 - Bracket for MSR Series 05 - Bracket for MGZ Series	P2 - Steel

Dimensions (mm)



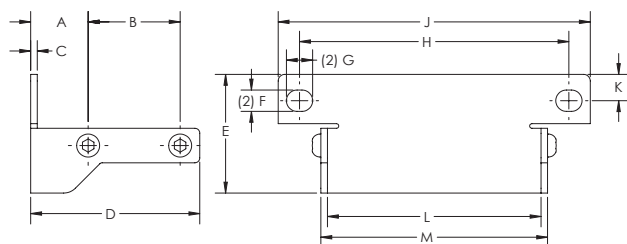
Brackets for MGFR, MGR Series

Model	A	B	C	D	E	F	G	H	J	K
MGB201-P2	55	49	30	30	15	5.2	24	34.5	2	17.5
MGB301-P2	53	65	41	40.8	8	6.5	22.5	40	2	15
MGB401-P2	72	83	56	55	11	8.5	27	55	2	18
MGB601-P2	90	110.5	70	68	13	11	35	66	2.5	24



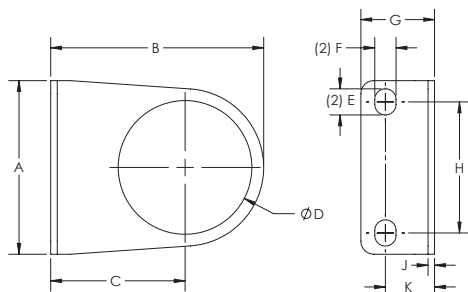
Brackets for MGF, MGL Series

Model	A	B	C	D	E	F	G	H	J	K	L	M
MGB202-P2	20	20	2	45	33	5.4	8.4	27	40	6.4	38.2	42.3
MGB302-P2	27	28	2	60	44	6.5	8	40	55	11.7	51	55
MGB402-P2	30	42	2	75.5	47.3	8.5	11	55	72	9.5	68	72
MGB602-P2	42.4	53.2	2.5	104	51	11	13	66	90	10.7	84.5	90



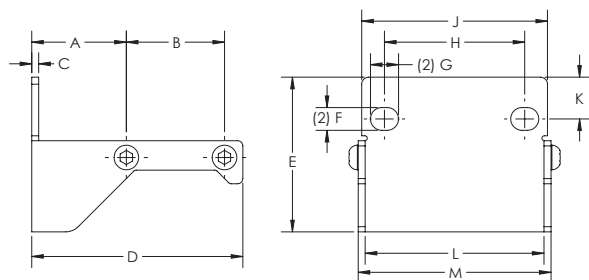
Brackets for MGZ Series

Model	A	B	C	D	E	F	G	H	J	K	L	M
MGB203-P2	14.8	20	2	39	27.7	5.3	8	67	80	6	50.2	54.2
MGB303-P2	19	25	2	50.2	32.5	6.5	8	82	95	8	65	69
MGB403-P2	21.5	36	2	65.3	40	8.5	11	102	120	8	78	82



Brackets for MSR Series

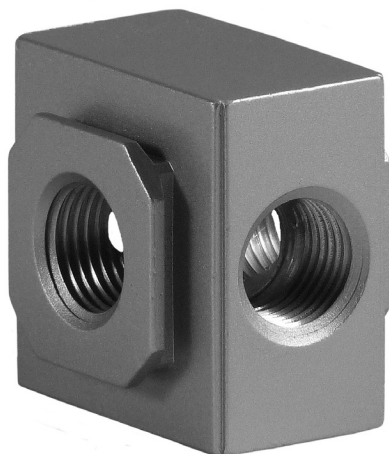
Model	A	B	C	D	E	F	G	H	J	K
MGB204-P2	50	49	30	30	7.2	5.5	20	34	2	14



Brackets for MGZ Series

Model	A	B	C	D	E	F	G	H	J	K	L	M
MGB205-P2	20	20	2	45	33	5.4	8.4	27	40	6.4	38.2	42.3
MGB305-P2	27	28	2	60	44	6.5	8	40	55	11.7	51	55
MGB405-P2	30	42	2	75	48	8.5	11	55	72	9.5	64	67

Air Preparation Accessories - Air Distribution Blocks



How to Order MGA 314 - 08 - T

MODEL
214 - 200 Series
314 - 300 Series
414 - 400 Series
614 - 600 Series

PORT SIZE
06 - 1/8 NPT (200 Series)
08 - 1/4 NPT (200, 300 Series)
10 - 3/8 NPT (300 Series)
15 - 1/2 NPT (400 Series)
20 - 3/4 NPT (600 Series)
25 - 1 NPT (600 Series)

MODULAR CONNECTING KIT ¹
T - T Style
L - L Style
U - U Style

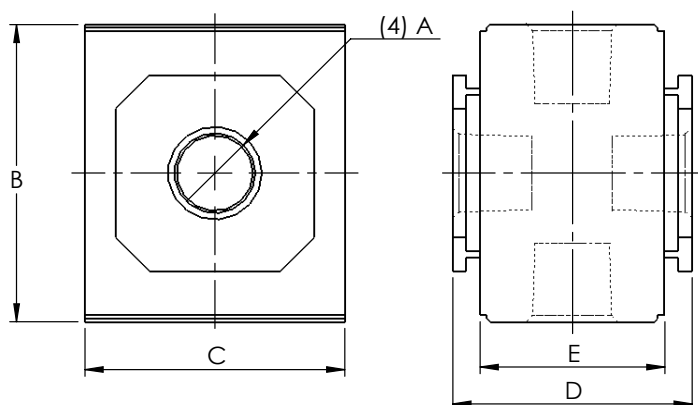
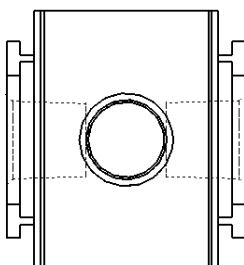
¹ All Pressure Relief Valves also includes stamped bracket

Engineering Specifications

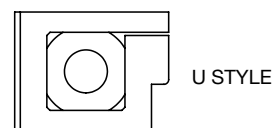
Model	MGA Distribution Block
Fluid	Air (Clean/Dry)
No. of Auxiliary Ports	2
Pressure Range	0 to 130 PSI (0 to 0.9 MPa)
Proof Pressure	215 PSI (1.5 MPa)
Temperature Range	-4 °F to 158 °F (-20 °C to 70 °C)
Material	Aluminum Alloy Body
Includes	Modular Connecting Kit

Dimensions (mm)

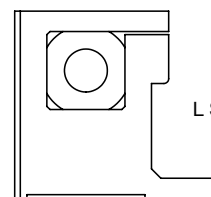
Model	A	B	C	D	E
MGA200-06-T	1/8 NPT	36	30	28.5	19
MGA200-08-T	1/4 NPT	36	30	28.5	19
MGA300-08-T	1/4 NPT	44	38	35	26
MGA300-10-T	3/8 NPT	44	38	35	26
MGA400-15-T	1/2 NPT	52	52	42	29.5
MGA600-20-T	3/4 NPT	76	68	60	47
MGA600-25-T	1 NPT	76	68	60	47



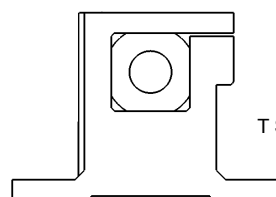
MODULAR CONNECTING KIT INCLUDED



U STYLE



L STYLE



T STYLE

Air Preparation Equipment - Accessories

Replacement Filter Elements



How to Order

MGF 300 - 004 - 1

STYLE	MODEL	FILTERING
MGF - Standard Filter Element ¹ MGFB - Coalescing Filter Element ²	200 - 200 Series 300 - 300 Series 400 - 400 Series 600 - 600 Series ³	1 - 40µm 2 - 5µm 4 - 0.01µm

¹ Only available with 40µm or 5µm filtering

² Only available with 0.01µm filtering

³ MGFB not available with 600 Series

Filtering	Material
40µm	Bronze
5µm	Plastic (200, 300, 400 series) Bronze (600 series)
0.01µm	Dual-Layer Borosilicate Glass

Replacement Filter, Filter/Regulator, and Lubricator Bowls

Type	Drain Style	Description	Part Number	Compatibility
Filter and Filter/Regulator Bowls	Manual Drain	200 Series Polycarbonate Bowl	MGF200-M	200 Series MGF, MGFB, MGFR
		300 Series Polycarbonate Bowl	MGF300-M	300 Series MGF, MGFB, MGFR
		400 Series Polycarbonate Bowl	MGF400-M	400 Series MGF, MGFB, MGFR
		600 Series Metal Bowl	MGF600-M	600 Series MGF, MGFR
	Semi-Auto Drain	200 Series Polycarbonate Bowl	MGF200-SA	200 Series MGF, MGFB, MGFR
		300 Series Polycarbonate Bowl	MGF300-SA	300 Series MGF, MGFB, MGFR
		400 Series Polycarbonate Bowl	MGF400-SA	400 Series MGF, MGFB, MGFR
		600 Series Metal Bowl	MGF600-SA	600 Series MGF, MGFR
	Auto Drain	300 Series Polycarbonate Bowl	MGF300-A	300 Series MGF, MGFB, MGFR
		400 Series Polycarbonate Bowl	MGF400-A	400 Series MGF, MGFB, MGFR
		600 Series Metal Bowl	MGF600-A	600 Series MGF, MGFR
Lubricator Bowls		200 Series Polycarbonate Bowl	MGL200-BWL	200 Series MGL
		300 Series Polycarbonate Bowl	MGL300-BWL	300 Series MGL
		400 Series Polycarbonate Bowl	MGL400-BWL	400 Series MGL
		600 Series Metal Bowl	MGL600-BWL	600 Series MGL

Air Preparation Accessories - Round Gauges



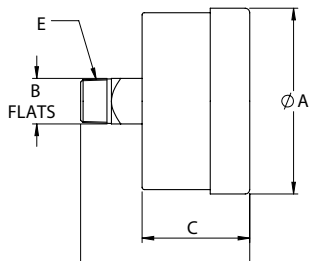
How to Order RGK - 40 - L

MODEL ¹	GAUGE SIZE	PRESSURE RANGE
RGK - Gauge, Adapter, Hardware	40 - 1/8 NPT, 40mm Round	Blank - 0-140 PSI
RG - Gauge Only	50 - 1/4 NPT, 50mm Round	L - 0-60 PSI ²
RK - Adapter and Hardware		

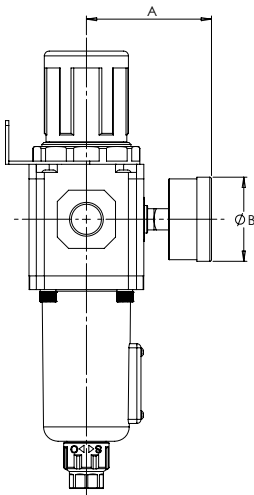
¹ See "Ordered as a Kit" section below for model descriptions

² Only available on RGK-40 & RG-40

Dimensions (mm)



Model	A	B	C	D	E
RGK/RG-40	42	11	24.5	38.5	1/8 NPT
RGK/RG-50	52	14	26.5	44.5	1/4 NPT



Model	A	B
MGFR200/MGR200	62	42
MGFR300/MGR300	61.7	42
MGFR400/MGR400	77.3	52
MGFR600/MGR600	85	52

Engineering Specifications

Model	Round Gauges
Fluid	Air (Clean/Dry)
Units	PSI and kgf/cm ²
Pressure Range	Blank: 0 to 140 PSI (0 to 1.0 MPa) Low Pressure: 0 to 60 PSI (0 to 0.4 MPa)
Temperature Range	-4 °F to 140 °F (-20 °C to 60 °C)
Material	Shell: SPCC Steel Core: Brass

Ordered as an Option

Specify "-R" for NPT round gauge in regulator or filter/regulator part number (see pages 24-25, 32-33).

Note: to prevent shipment damage, units ship as base model with flush plate gauge assembled, along with RGK kit components for NPT round gauge.



Ordered as a Kit

Model	Includes
RGK	Gauge, Adapter Plate, (2) Assembly Screws, O-Ring
RG	Gauge Only
RK	Adapter Plate, (2) Assembly Screws, O-Ring



Air Preparation Accessories - Digital Gauges



Engineering Specifications

Model	DG
Fluid	Air (Clean/Dry)
Pressure Range	0 to 145 PSI (0 to 1.0 MPa)
Proof Pressure	215 PSI (1.5 MPa)
Pressure Resolution	MPa 0.001
	kgf/cm ² 0.01
	bar 0.01
	PSI 0.1
Battery	CR 2032 Lithium
Backlight	No
Battery Life	3 years (5 uses/day)
Low-Power Indicator	Yes
Battery Replaceable	Yes
Automatic Display Off	Display turns off after 30 sec.
Sampling Rate	2 Hz (2 times/sec.)
Pressure Units	PSI, bar, kgf/cm ² , MPa user selectable
Repeatability	≤ ±0.2% F.S. ±1 digit
LCD Display	3 1/2 digit, 7 segment
Indicator Accuracy	≤ ±0.2% F.S. ±1 digit (ambient temp.: 25±3°C)
Enclosure Rating	IP65 (breather tube must be installed)
Temperature Range	32 °F to 120 °F (0 °C to 50 °C) Operation 32 °F to 140 °F (0 °C to 60 °C) Storage
Humidity Range	35 to 85% (no condensation)
Vibration	Total amplitude, 1.5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, 2 hours each direction (X, Y, and Z)
Shock	100m/s ² (10G), 3 times in each direction (X, Y, and Z)
Temperature Characteristic	≤ ±0.2% F.S. of detected pressure (77°F (25°C)) at temp. range of 32 to 120 °F (0 to 50°C)

Display Description

Pressure Unit
Display Section

Battery Meter

Pressure Display

Setting Button



How to Order

DG - 08

PORT SIZE

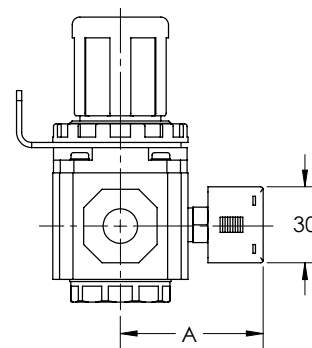
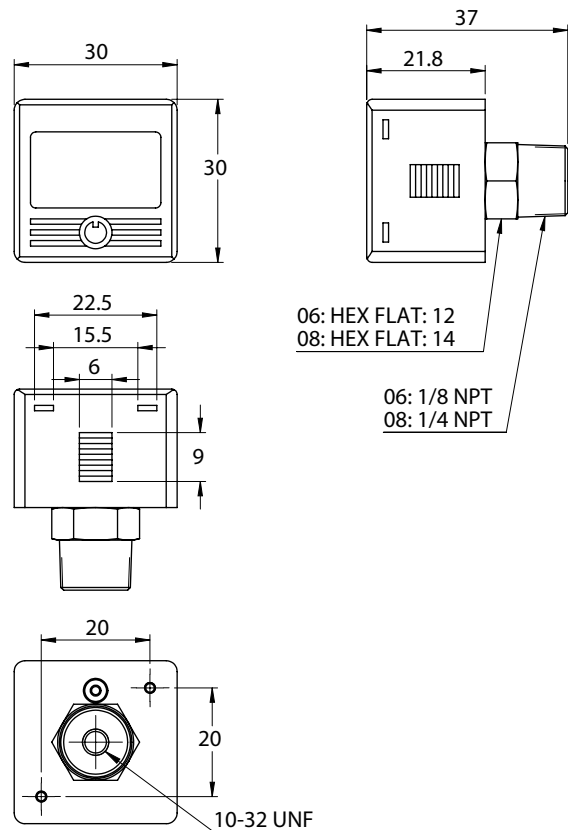
06 - 1/8 NPT, 10-32 UNF¹

08 - 1/4 NPT, 10-32 UNF²

¹ RK-40 needed for installation on MGFR or MGR (not included)

² RK-50 needed for installation on MGFR or MGR (not included)

Dimensions (mm)



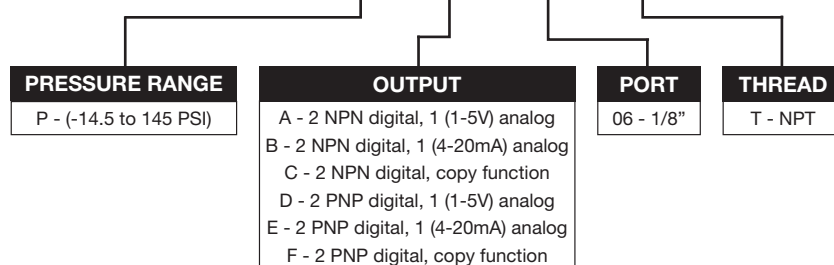
Model	A
MGFR200/MGR200	50
MGFR300/MGR300	56.5
MGFR400/MGR400	65.5
MGFR600/MGR600	80

Air Preparation Accessories - Digital Pressure Switches



How to Order

DPS P - A - 06 - T

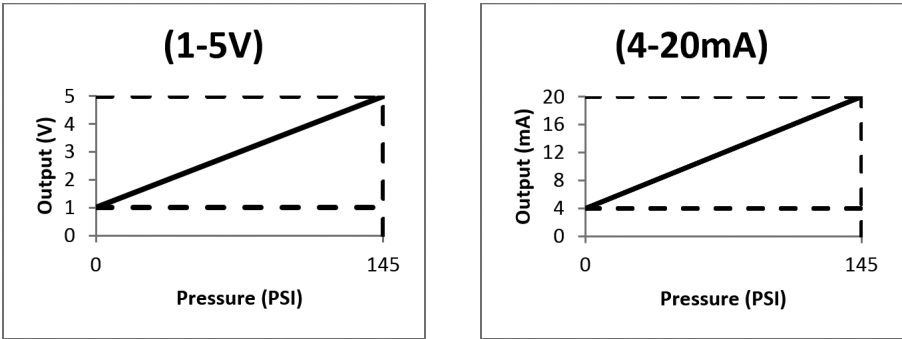


Engineering Specifications

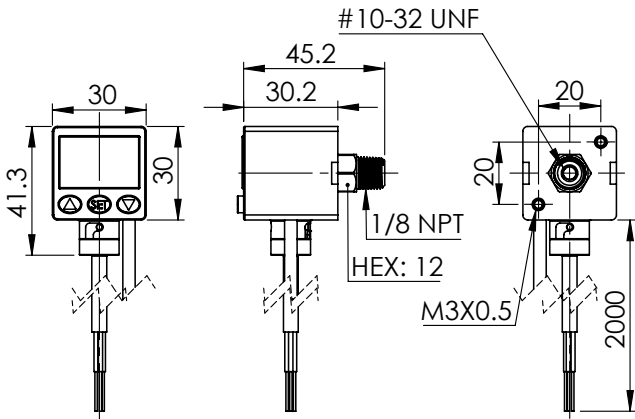
Model		DPSP-A	DPSP-B	DPSP-C	DPSP-D	DPSP-E	DPSP-F
Fluid		Air or Inert Gas (Clean/Dry)					
Rated Pressure Range		0 to 145 PSI (0 to 1.0 Mpa)					
Proof Pressure		217 PSI (1.5 Mpa)					
Pressure Setting Range		-14.5 to 145 PSI (-0.1 to 1.0 Mpa)					
Temperature Range		32 °F to 120 °F (0 °C to 50 °C)					
Voltage		12 to 24 VDC +/- 10%, 10% max. ripple (P-P)					
Current Consumption		<= 40mA (no loads)					
Digital Outputs	Type	2 - NPN (Sinking)			2 - PNP (Sourcing)		
	Max. Load	125mA (each)					
	Residual Voltage	<= 1.5V					
	Response Time	<= 2.5ms (user-selectable: 25ms, 100ms, 250ms, 500ms, 1000ms, 1500ms anti-chatter function)					
	Short Circuit Protection	Yes					
	Repeatability	+/-0.2% F.S. +/-1 digit					
Analog Output	Type	1-5V (+/- 2.5% F.S.)	4-20mA (+/- 2.5% F.S.)	-	1-5V (+/- 2.5% F.S.)	4-20mV (+/- 2.5% F.S.)	-
	Impedance	~1kΩ	20-250Ω (12V Supply), 50-600Ω (24V Supply)	-	~1kΩ	20-250Ω (12V Supply), 50-600Ω (24V Supply)	-
	Linearity	+/- 1% F.S.			-	+/- 1% F.S.	
Display	Type	3-1/2 digit, 7-segment (red, green, orange)					
	Resolution	0.001 Mpa, 0.01 kgf/cm2, 0.01 bar, 0.1 PSI					
	Switch Indicator	One per digital output					
	Refresh Rate	~0.2s					
	Indicator Accuracy	+/-2% F.S. +/-1 digit at 77+/-5 °F (25+/-3 °C)					
Enclosure Rating		IP65 (with breather tube installed)					
Storage Temperature Rating		14 °F to 140 °F (-10 °C to 60 °C)					
Ambient Humidity Range		35 - 85% RH (no condensation)					
Withstand Voltage		1000VAC for 1 min between case and lead wire					
Insulation Resistance		50MΩ (at 500VDC between case and lead wire)					
Vibration Resistance		Total amplitude 1.5mm or 10g, 10Hz-55Hz-10Hz (one minute scan), two hours in X, Y, and Z					
Shock		100m/s2 (10g), three times X, Y, and Z					
Temperature Characteristic		+/-2% F.S. of detected pressure at 77°F (25°C)					
Included Cable		Oil-resistant, 2m long					
Weight		86g					

Air Preparation Accessories - Digital Pressure Switches

Analog Output Characteristics

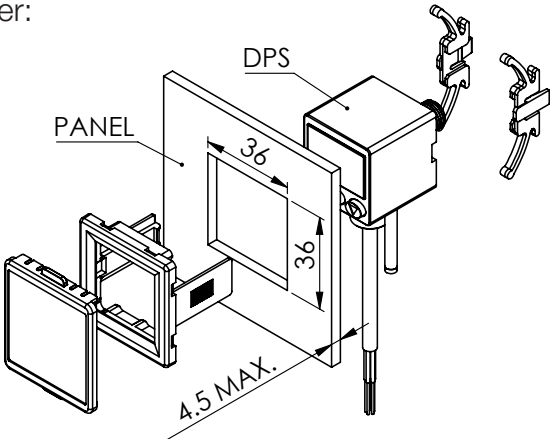


Dimensions (mm)

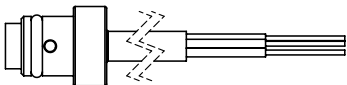
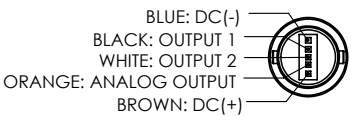


Accessories

Panel Adapter and Cover:
DPS-PA



5m Data Cable:
DPS-C5M



Actuators - Extruded Thrusters

How to Order



MODEL
MTC - Extruded Thruster

BUSHING TYPE
M - Bronze Bushing
L - Linear Ball Bushing

MAGNET
S - With Magnet

PORTS
T - Standard¹

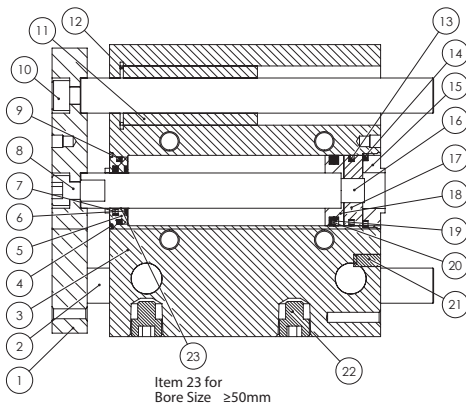
¹ See Port Size in Engineering Specifications Table below.

MTC M - 16 X 70 - S - T

Engineering Specifications

Bore Size (mm)		12	16	20	25	32	40	50	63
Fluid		Air (Clean/Dry)							
Action		Double Acting							
Pressure Range		14 to 145 PSI (0.1 to 1.0 MPa)							
Proof Pressure		215 PSI (1.5 MPa)							
Temperature Range		-4 °F to 158 °F (-20 °C to 70 °C)							
Lubrication		Not Required							
Cushion Type		Bumper							
Speed Range		30 to 500 mm/s							
Stroke Tolerance		+1.0 / -0							
Non-Rotating Tolerance	Linear Bushing (MTCL)	± 0.08°		± 0.07°		± 0.06°		± 0.05°	
	Brass Bushing (MTCM)	± 0.10°		± 0.09°		± 0.08°		± 0.06°	
Port Size		M5X0.8		1/8NPT			1/4NPT		
Sensor Switch Compatibility ²	Reed Switch	MCS1-G							
	Solid State Switch	MDS1-G							

² See page 64 for switch specifications



Type	Bore Size	Stroke
MTCL	Ø12 ~ Ø16	≤30mm
	Ø20 ~ Ø63	≤50mm
MTCM	Ø12 ~ Ø63	≤50mm

Type	Bore Size	Stroke
MTCL	Ø12 ~ Ø16	30<Stroke≤100mm
	Ø20 ~ Ø63	50<Stroke≤100mm
MTCM	Ø12 ~ Ø63	50<Stroke≤100mm

Type	Bore Size	Stroke
MTCL	Ø12 ~ Ø63	>100mm
MTCM	Ø12 ~ Ø63	>100mm

BORE (mm) STROKE (mm)	12	16	20	25	32	40	50	63
10	X	X						
20	X	X	X	X				
25	X	X	X	X	X	X	X	X
30	X	X	X	X	X	X	X	X
40	X	X	X	X	X	X	X	X
50	X	X	X	X	X	X	X	X
60	X	X	X	X	X	X	X	X
70	X	X	X	X	X	X	X	X
75	X	X	X	X	X	X	X	X
80	X	X	X	X	X	X	X	X
90	X	X	X	X	X	X	X	X
100	X	X	X	X	X	X	X	X
125	X	X	X	X	X	X	X	X
150	X	X	X	X	X	X	X	X
175		X	X	X	X	X	X	X
200		X	X	X	X	X	X	X
225			X	X	X	X	X	X
250			X	X	X	X	X	X

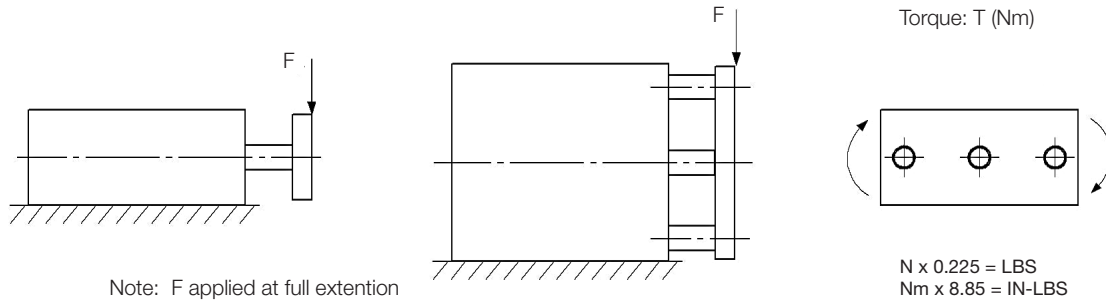
Materials

No.	Item	Material	No.	Item	Material
1	Tooling Plate	Free-Machining Steel	13	O-Ring	NBR
2	Guide Shaft	SAE440/SUS440C Steel; Chrome Plated	14	O-Ring	NBR
3	Body	Aluminum; 6463-T5; Anodized	15	Rear Cap	Brass; Ni Plated
4	Retaining Ring	Spring Steel	16	Piston Rod	Carbon Steel; Chrome Plated
5	Rod Guide	Brass; Ni Plated	17	Piston	Brass; Ni Plated
6	Bumper	Urethane	18	Magnet Seat	Brass; Ni Plated
7	Rod Seal	NBR	19	Magnet Washer	NBR
8	Screw	Stainless Steel	20	Magnet	Sintered Metal (Neodymium)
9	O-Ring	NBR	21	Plug	Carbon Steel; Zinc Plated
10	Screw/Rivet ³	Stainless Steel	22	Auxiliary Port Plug	Carbon Steel; Zinc Plated
11	Bearing	MTCM: Bronze MTCL: Steel Ball	23	Rod Bearing	Bronze (50mm and 63mm only)
12	Retaining Ring	Spring Steel	24	Spacer	Aluminum Alloy

³ Item number 10 on MTCL-12 and MTCL-16 thrusters are screws. All other thrusters are rivets.

Actuators - Extruded Thrusters

Maximum Recommended Loads

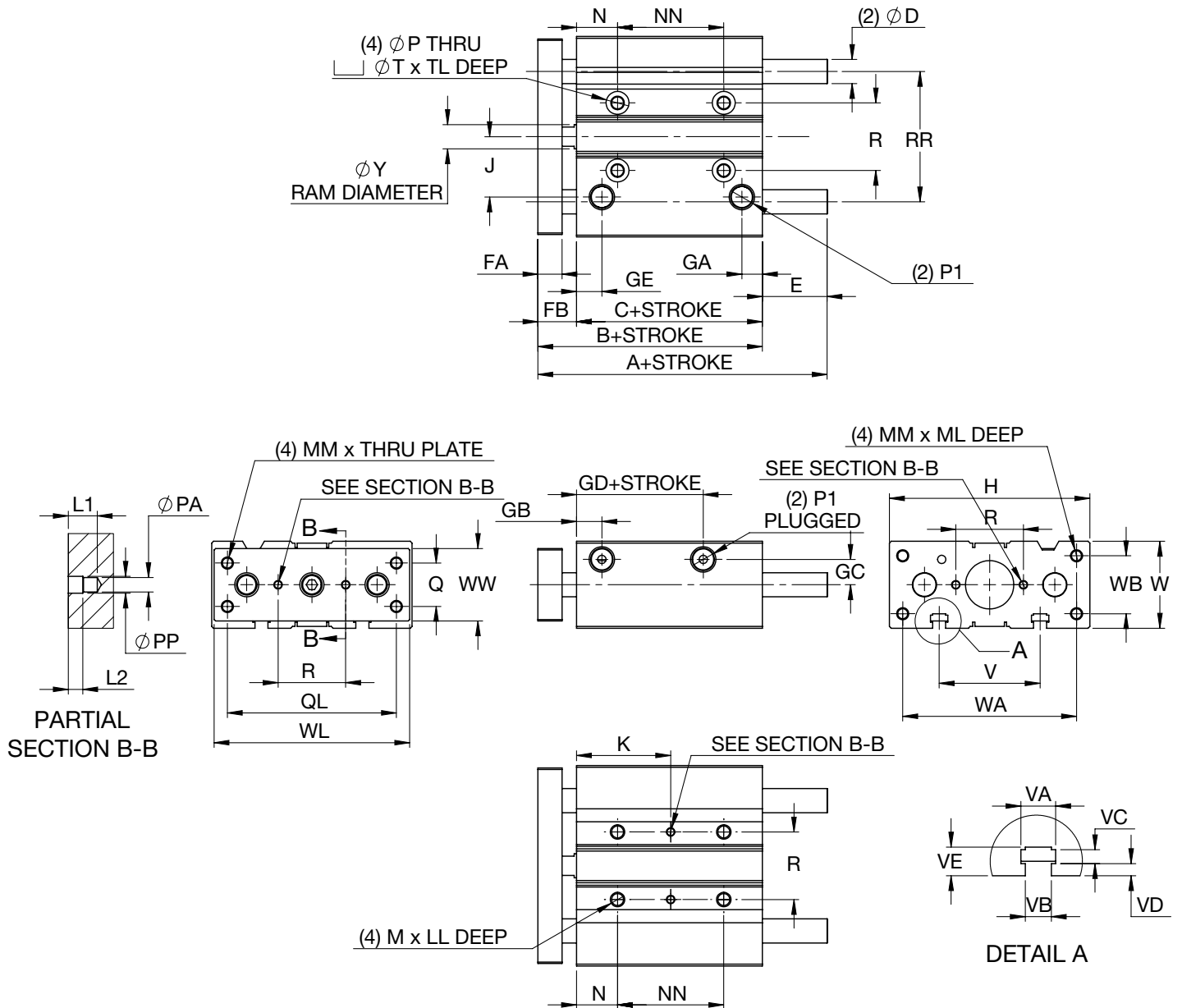


Bore Size	Type	Maximum Side Load (N)																	
		Stroke (mm)																	
		10	20	25	30	40	50	60	70	75	80	90	100	125	150	175	200	225	250
12	MTCM	44	33	29	26	41	36	30	28	26	25	24	22	19	17	-	-	-	-
	MTCL	37	27	25	22	35	30	27	24	23	21	19	18	15	12	-	-	-	-
16	MTCM	67	51	42	37	63	58	49	41	37	35	33	32	27	24	22	20	-	-
	MTCL	54	40	37	32	54	47	42	38	35	32	30	28	23	20	17	15	-	-
20	MTCM	-	78	61	57	123	112	99	91	87	84	79	75	66	59	54	49	45	42
	MTCL	-	58	52	48	101	90	83	74	70	69	63	58	62	54	48	43	39	35
25	MTCM	-	93	89	76	142	131	119	107	101	97	90	85	68	79	71	65	61	55
	MTCL	-	82	79	68	132	118	109	99	93	88	81	77	80	70	62	55	50	45
32	MTCM	-	-	203	190	179	164	221	197	182	172	163	157	142	127	116	106	98	91
	MTCL	-	-	191	182	166	157	207	178	164	156	150	144	203	186	171	158	146	137
40	MTCM	-	-	203	190	179	164	221	197	182	172	163	159	142	127	116	106	97	91
	MTCL	-	-	190	182	166	157	210	179	163	156	150	144	203	185	171	158	146	137
50	MTCM	-	-	296	283	268	245	303	288	273	266	253	241	216	195	179	164	155	142
	MTCL	-	-	208	196	185	173	259	232	223	212	207	199	264	242	224	207	195	181
63	MTCM	-	-	296	283	268	245	303	288	273	266	253	241	216	195	179	164	153	142
	MTCL	-	-	206	196	180	171	259	232	221	212	205	196	262	240	221	205	191	178

Bore Size	Type	Maximum Torque (Nm)																	
		Stroke (mm)																	
		10	20	25	30	40	50	60	70	75	80	90	100	125	150	175	200	225	250
12	MTCM	0.90	0.79	0.71	0.65	0.77	0.72	0.65	0.53	0.50	0.47	0.41	0.36	0.31	0.27	-	-	-	-
	MTCL	0.61	0.45	0.40	0.35	0.58	0.50	0.44	0.39	0.37	0.35	0.32	0.29	0.24	0.20	-	-	-	-
16	MTCM	1.21	1.04	0.94	0.88	1.23	1.11	0.99	0.72	0.69	0.65	0.61	0.58	0.50	0.44	0.40	0.36	-	-
	MTCL	0.99	0.74	0.66	0.59	0.99	0.86	0.77	0.69	0.65	0.61	0.57	0.52	0.43	0.37	0.32	0.28	-	-
20	MTCM	-	1.57	1.42	1.31	2.39	2.15	1.97	1.90	1.88	1.86	1.72	1.63	1.44	1.28	1.16	1.06	1.01	0.90
	MTCL	-	1.26	1.14	1.03	2.17	1.94	1.79	1.59	1.52	1.46	1.33	1.25	1.34	1.17	1.03	0.93	0.88	0.76
25	MTCM	-	2.40	2.22	2.01	3.66	3.35	3.17	3.06	2.96	2.91	2.77	2.57	2.26	2.02	1.83	1.67	1.57	1.42
	MTCL	-	2.11	1.96	1.75	3.37	3.02	2.71	2.42	2.38	2.33	2.19	1.97	2.05	1.78	1.58	1.41	1.22	1.16
32	MTCM	-	-	6.35	6.00	5.73	5.13	5.98	5.74	5.69	5.62	5.11	4.97	4.42	3.98	3.61	3.31	2.97	2.84
	MTCL	-	-	5.95	5.73	5.44	4.89	5.43	5.15	5.11	5.02	4.70	4.51	6.34	5.79	5.33	4.93	4.33	4.29
40	MTCM	-	-	7.00	6.60	6.11	5.66	6.66	6.31	6.27	6.23	5.86	5.48	4.87	4.38	3.98	3.65	3.34	3.13
	MTCL	-	-	6.55	6.21	5.77	5.39	6.17	5.67	5.62	5.58	5.33	4.96	6.98	6.38	5.87	5.43	5.00	4.72
50	MTCM	-	-	13.0	12.6	11.0	10.8	13.7	12.7	12.0	11.8	11.1	10.8	9.50	8.60	7.86	7.24	6.80	6.24
	MTCL	-	-	9.17	8.75	8.30	7.62	10.3	9.94	9.83	9.77	8.82	8.74	11.6	10.7	9.83	9.12	8.95	7.95
63	MTCM	-	-	14.7	13.6	12.9	12.1	19.4	16.2	13.5	12.7	12.1	11.9	10.7	9.69	8.86	8.16	7.52	7.04
	MTCL	-	-	10.2	9.74	9.20	8.48	17.5	14.0	11.0	10.6	10.2	9.74	13.0	11.9	11.0	10.2	9.63	8.84

Actuators - Extruded Thrusters

Dimensions (mm)



Dimensions (mm)

Bore Sizes 12-25						Bore Sizes 32-63					
Bore (mm)		12	16	20	25	Bore (mm)		32	40	50	63
Stroke (mm)						Stroke (mm)					
A	0-30	42	46	53	53.5	A	0-50	65 (MTCL) 78 (MTCM)	66 (MTCL) 78 (MTCM)	76 (MTCL) 89 (MTCM)	77 (MTCL) 89 (MTCM)
	31-100	55	65	80	82		51-100	102	102	118	118
	101-200	85	95	104	104.5		101-200	118	118	134	134
	201+	-	-	122	122		201+	140	140	161	161
B		42	46	53	53.5	B		59.5	66	72	77
C		29	33	37	37.5	C		37.5	44	44	49
D		6 (MTCL) 8 (MTCM)	8 (MTCL) 10 (MTCM)	10 (MTCL) 12 (MTCM)	12 (MTCL) 16 (MTCM)	D		16 (MTCL) 20 (MTCM)	16 (MTCL) 20 (MTCM)	20	20

Actuators - Extruded Thrusters

Dimensions (mm)

	Bore Sizes 12-25				
	Bore (mm) Stroke (mm)	12	16	20	25
E	0-30	0	0	0	0
	31-50	13 (MTCL) 0 (MTCM)	19 (MTCL) 0 (MTCM)	27 (MTCL) 0 (MTCM)	28.5 (MTCL) 0 (MTCM)
	51-100	13	19	27	28.5
	101-200	43	49	51	51
	201+	-	-	69	68.5
FA		8	8	10	10
FB		13	13	16	16
GA		7.5	8	9	9
GB		11	11	10.5	11.5
GC		8	10	10.5	13.5
GD		13	15	12.5	12.5
GE		11	11	10.5	11.5
H		58	64	83	93
J		18	19	25	28.5
K	0-30	15	17	29	29
	31-100	25	27	39	39
	101-200	60	60	77	77
	201+	-	-	117	117
LL		10	10	12	12
L1		6	6	6	6
L2		3	3	3	3
M		M5 X 0.8	M5 X 0.8	M6 X 1.0	M6 X 1.0
ML		10	12	13	15
MM		M4 X 0.7	M5 X 0.8	M5 X 0.8	M6 X 1.0
N		5	5	17	17
NN	0-30	20	24	24	24
	31-100	40	44	44	44
	101-200	110	110	120	120
	201+	-	-	200	200
P		4.5	4.5	5.5	5.5
PA		3	3	3	4
PP		3.5	3.5	3.5	4.5
P1		M5 X 0.8	M5 X 0.8	1/8 NPT	1/8 NPT
Q		14	16	18	26
QL		48	54	70	78
R		23	24	28	34
RR		41	46	54	64
T		8	8	9.5	9.5
TL		4.5	4.5	5.5	5.5
V		37	38	44	50
VA		7.5	7.5	8.5	8.5
VB		4.5	4.5	5.5	5.5
VC		4	4	4.5	4.5
VD		2	2.5	3	3
VE		6.5	7	8	8.5
W		26	30	36	42
WA		50	56	72	82
WB		18	22	24	30
WL		56	62	81	91
WW		22	25	30	38
Y		6	8	10	12

	Bore Sizes 32-63				
	Bore (mm) Stroke (mm)	32	40	50	63
E	0-50	5.5 (MTCL) 18.5 (MTCM)	0 (MTCL) 12 (MTCM)	4 (MTCL) 17 (MTCM)	0 (MTCL) 12 (MTCM)
	51-100	42.5	36	46	41
	101-200	58.5	52	62	57
	201+	80.5	74	89	84
FA		12	12	16	16
FB		22	22	28	28
GA		9	10	11	13.5
GB		12.5	14	12	16.5
GC		15	18	21.5	28
GD		7	13	9	14
GE		12.5	14	14	16.5
H		112	120	148	162
J		34	38	47	55
K	0-40	33	34	36	38
	41-100	45	46	48	50
	101-200	83	84	86	88
	201+	121	122	124	124
LL		16	16	20	20
L1		6	6	8	8
L2		3	3	4	4
M		M8 X 1.25	M8 X 1.25	M10 X 1.5	M10 X 1.5
ML		20	20	22	22
MM		M8 X 1.25	M8 X 1.25	M10 X 1.5	M10 X 1.5
N		21	22	24	24
NN	0-40	24	24	24	28
	41-100	48	48	48	52
	101-200	124	124	124	128
	201+	200	200	200	200
P		6.5	6.5	8.5	8.5
PA		4	4	5	5
PP		4.5	4.5	6	6
P1		1/8 NPT	1/8 NPT	1/4 NPT	1/4 NPT
Q		30	30	40	50
QL		96	104	130	130
R		42	50	66	80
RR		78	86	110	124
T		11	11	14	14
TL		7.5	7.5	9	9
V		63	72	92	110
VA		10.5	10.5	13.5	18
VB		6.5	6.5	8.5	11
VC		5.5	5.5	7.5	10
VD		3.5	4	4.5	7
VE		9.5	11	13.5	18.5
W		48	54	64	78
WA		98	106	130	142
WB		34	40	46	58
WL		110	118	146	158
WW		44	44	60	70
Y		16	16	20	20

Actuators - Compact Cylinders



How to Order

MODEL
MACQ - Compact Cylinder

MAGNET
Blank - No Magnet
S - With Magnet

PORTS
T - Standard ¹

¹ See Port Size in Engineering Specifications Table below.

MACQ - 16 X 30 - S - T

BORE (mm) STROKE (mm)	12	16	20	25	32	40	50	63	80	100
5	X	X	X	X	X	X	X	X	X	X
10	X	X	X	X	X	X	X	X	X	X
15	X	X	X	X	X	X	X	X	X	X
20	X	X	X	X	X	X	X	X	X	X
25	X	X	X	X	X	X	X	X	X	X
30	X	X	X	X	X	X	X	X	X	X
40	X	X	X	X	X	X	X	X	X	X
50	X	X	X	X	X	X	X	X	X	X
75			X	X	X	X	X	X	X	X
100			X	X	X	X	X	X	X	X
125					X	X	X	X	X	X
150					X	X	X	X	X	X

Engineering Specifications

Bore Size (mm)		12	16	20	25	32	40	50	63	80	100
Fluid		Air (Clean/Dry)									
Action		Double Acting									
Pressure Range		14 to 145 PSI (0.1 to 1.0 MPa)									
Proof Pressure		215 PSI (1.5 MPa)									
Temperature Range		-4 °F to 176 °F (-20 °C to 80 °C)									
Cushion Type		Bumper									
Speed Range		30 to 500 mm/s									
Stroke Tolerance		+1.0 / -0									
Port Size		M5 X 0.8				1/8 NPT		1/4 NPT		3/8 NPT	
Thrust, N (lbs) ²	Pushing Force	68 (15)	121 (27)	189 (42)	295 (66)	483 (108)	754 (169)	1178 (264)	1870 (420)	3016 (678)	4712 (1059)
	Pulling Force	51 (11)	91 (20)	141 (32)	227 (51)	362 (81)	633 (142)	990 (222)	1682 (378)	2721 (611)	4230 (950)
Sensor Switch Compatibility ³	Reed Switch	MCS1-G									
	Solid State Switch	MDS1-G									

² Thrust at 0.6 MPa (87psi) inlet pressure.

³ See page 64 for switch specifications.

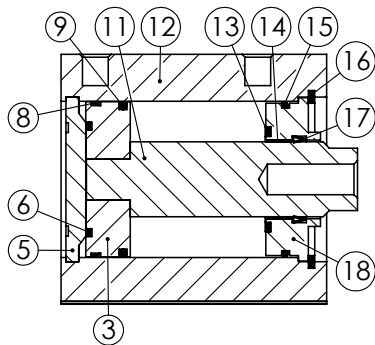
See page 55 for male thread adapter.

Actuators - Compact Cylinders

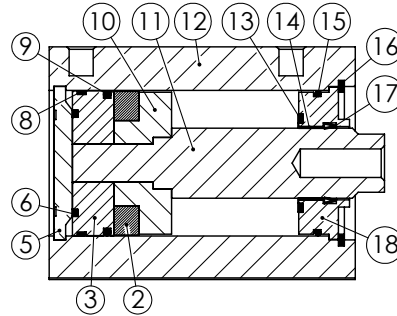
Materials

Number	Item	Material
1	Washer	No Washer (Ø12-Ø25 and Ø32-Ø100 with stroke ≤100mm); NBR (Ø32-Ø100 with stroke >100mm)
2	Magnet	Sintered Metal (Neodymium-Iron-Boron) (Ø12-Ø25); Plastic (Ø32-Ø100)
3	Piston	Brass (Ø12, Ø16); Aluminum Alloy (Ø20-Ø100)
4	O-Ring	NBR
5	Back Cap	Cap incorporated into body (Ø12, Ø16); Hard Anodized Aluminum Alloy
6	Bumper	TPU (Ø12-Ø25); NBR (Ø32-Ø100)
7	Retaining Ring	Spring Steel
8	Wear Ring	No Wear Ring (Ø12-Ø32); Polymer Bearing Material (Ø40-Ø100)
9	Piston Seal	NBR
10	Magnet Holder	Brass (Ø12, Ø16); Aluminum Alloy (Ø20-Ø100)
11	Piston Rod	Carbon Steel with 20µm Chrome Plating
12	Body	Hard Anodized Aluminum Alloy
13	Bumper	NBR
14	Bearing	No Bearing (Ø12-Ø32); Bearing Alloy (Ø40-Ø100)
15	O-Ring	NBR
16	Retaining Ring	Spring Steel
17	Rod Seal	NBR
18	Front Cap	Aluminum Alloy

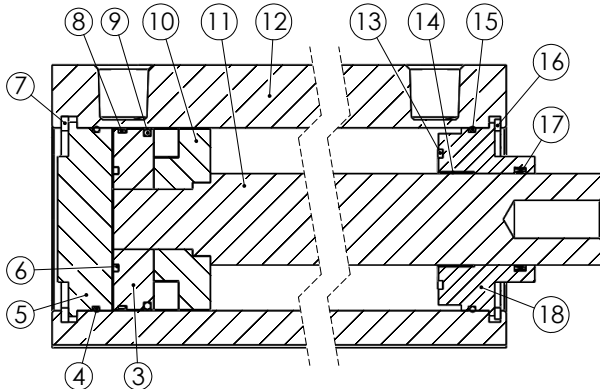
Stroke ≤100mm, No Magnet



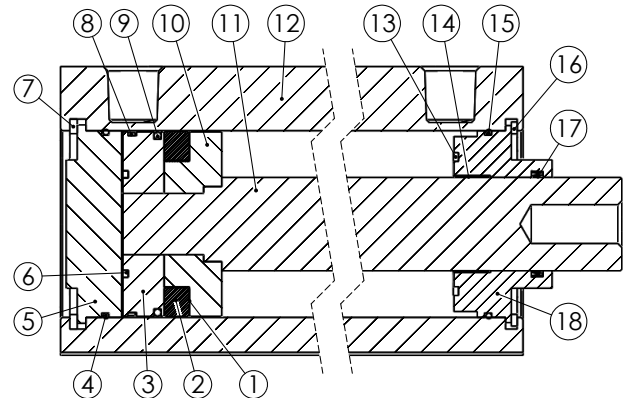
Stroke ≤100mm, With Magnet



Stroke >100mm, No Magnet



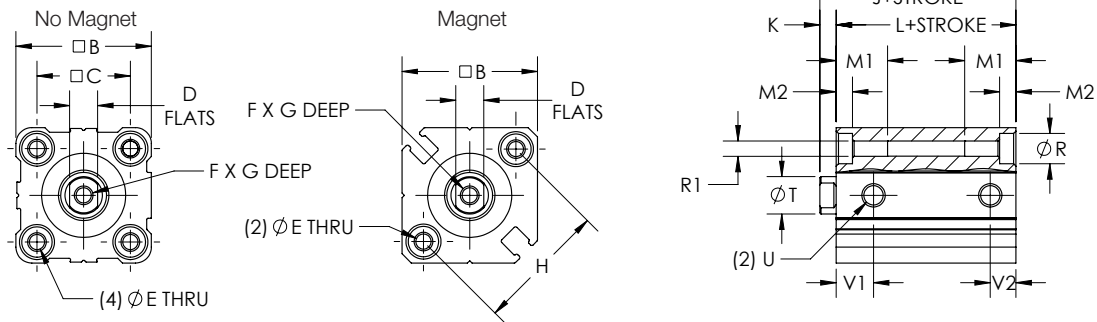
Stroke >100mm, With Magnet



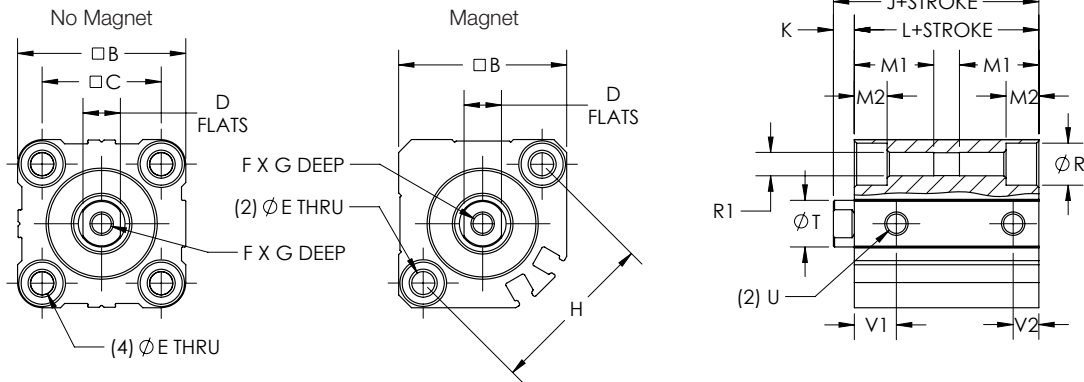
Actuators - Compact Cylinders

Dimensions (mm)

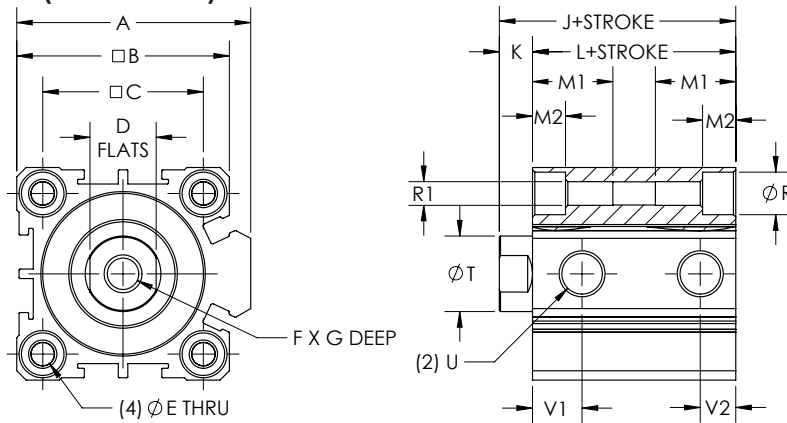
Ø12, Ø16



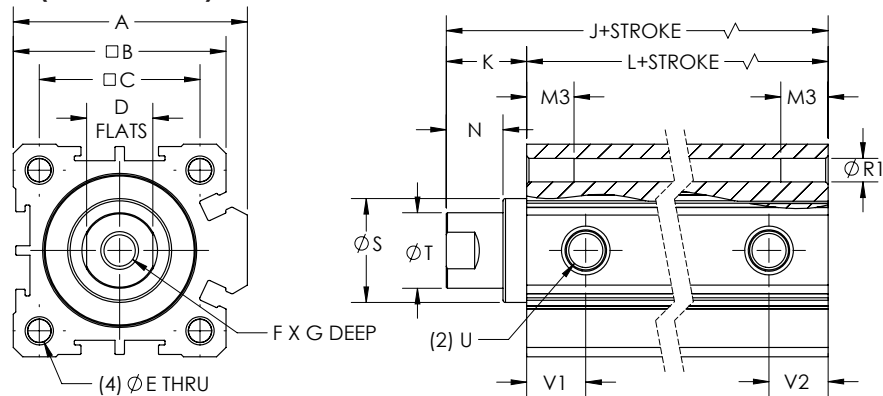
Ø20, Ø25



Ø32 - Ø100 (Stroke ≤ 100)



Ø32 - Ø100 (Stroke > 100)



Actuators - Compact Cylinders

Dimensions (mm)

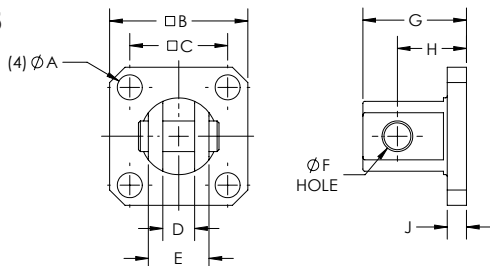
	Bore (mm) Stroke (mm)	12	16	20	25	32	40	50	63	80	100
A		-	-	-	-	49.5	57	71	84	104	123.5
B		25	29	36	40	45	53	64	77	98	117
C		15.5	20	25.5	28	34	40	50	60	77	94
D		5	6	8	10	14	14	17	17	22	27
E		3.4	3.4	5.2	5.2	5.2	5.2	6.8	8.5	10.3	10.3
F		M3 X 0.5	M4 X 0.7	M5 X 0.8	M6 X 1.0	M8 X 1.25	M8 X 1.25	M10 X 1.5	M10 X 1.5	M16 X 2.0	M20 X 2.5
G	5-100	6	8	7	12	13	13	15	15	20	26
	125+	-	-	-	-	13	13	15	15	21	27
H		22	28	36	40	-	-	-	-	-	-
J	5-50	20.5* 31.5**	22* 34**	24* 36**	27.5* 37.5**	30* 40**	36.5* 46.5**	38.5* 48.5**	44* 54**	53.5* 63.5**	65* 75**
	75-100	-	-	34* 36**	37.5	40	46.5	48.5	54	63.5	75
	125+	-	-	-	-	62.5	72	73.5	75	86	97.5
K	5-100	3.5	3.5	4.5	5	7	7	8	8	10	12
	125+	-	-	-	-	17	17	18	18	20	22
L	5-50	17* 28**	18.5* 30.5**	19.5* 31.5**	22.5* 32.5**	23* 33**	29.5* 39.5**	30.5* 40.5**	36* 46**	43.5* 53.5**	53* 63**
	75-100	-	-	29.5* 31.5**	32.5	33	39.5	40.5	46	53.5	63
	125+	-	-	-	-	45.5	55	55.5	57	66	75.5
M1		11	11	17	17	17	17	22	28.5	35.5	35.5
M2		3.5	3.5	7	7	7	7	8	10.5	13.5	13.5
M3		-	-	-	-	17	17	22	27	32	33
N	5-100	-	-	-	-	-	-	-	-	-	-
	125+	-	-	-	-	12	12	13	13	15	17
P		3.5	3	4	4.5	6	6	6.5	6.5	8.5	9.5
R	5-100	6.5	6.5	9	9	9	9	11	14	17.5	17.5
R1		M4 X 0.7	M4 X 0.7	M6 X 1.0	M6 X 1.0	M6 X 1.0	M6 X 1.0	M8 X 1.25	M10 X 1.5	M12 X 1.75	M12 X 1.75
S	5-100	-	-	-	-	-	-	-	-	-	-
	125+	-	-	-	-	22	28	35	35	43	59
T		6	8	10	12	16	16	20	20	25	32
U		M5 X 0.8	M5 X 0.8	M5 X 0.8	M5 X 0.8	1/8 NPT	1/8 NPT	1/4 NPT	1/4 NPT	3/8 NPT	3/8 NPT
V1	5	7.5* 9**	8* 9.5**	9* 9.5*	11	7.5* 10.5**	11	9* 10.5**	14* 15**	16	20
	10-100	7.5* 9**	8* 9.5**	9* 9.5**	11	10.5	11	10.5	15	16	20
	125+	-	-	-	-	12.5	14	14	16.5	19	23
V2	5	5* 7**	5.5	5.5	5.5	6.5* 7.5**	8	9* 10.5**	9.5* 10.5**	14	17.5
	10-100	5* 7**	5.5	5.5	5.5	7.5	8	10.5	10.5	14	17.5
	125+	-	-	-	-	12.5	14	14	16.5	19	23

* No Magnet

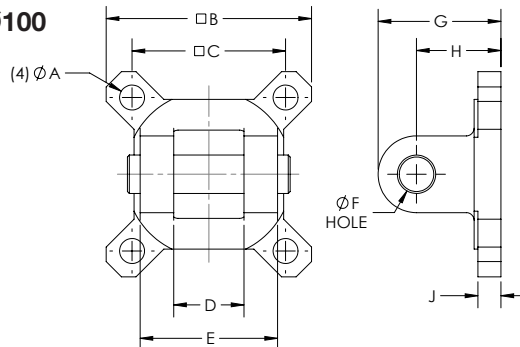
** With Magnet

Actuators - Compact Cylinder Accessories

Ø12 - Ø25



Ø32 - Ø100



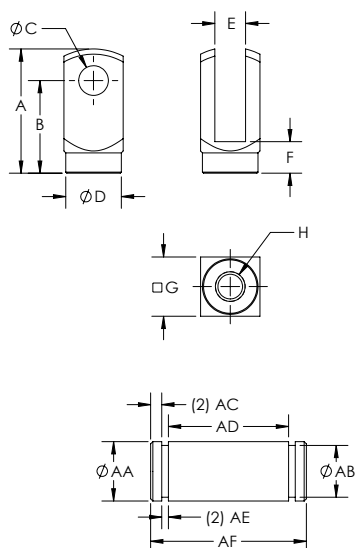
Clevis Brackets for MACQ Series

Model	A	B	C	D	E	F	G	H	J
F-MACQ-12-CB	4.5	25	15.5	5.3	9.8	5	20	14	4
F-MACQ-16-CB	4.5	29	20	6.8	11.8	5	21	15	4
F-MACQ-20-CB	6.5	36	25.5	8.3	15.8	8	27	18	5
F-MACQ-25-CB	6.5	40	28	10.3	19.8	10	30	20	5
F-MACQ-32-CB	6.5	45.5	34	18.3	35.8	10	30	20	5.5
F-MACQ-40-CB	6.5	53.5	40	18.3	35.8	10	32	22	7
F-MACQ-50-CB	8.5	64.5	50	22.3	43.8	14	42	28	8
F-MACQ-63-CB	10.5	77.5	60	22.3	43.8	14	44	30	10
F-MACQ-80-CB	12.5	98.5	77	28.3	55.8	18	56	38	10
F-MACQ-100-CB	12.5	117.5	94	32.3	63.8	22	67	45	13

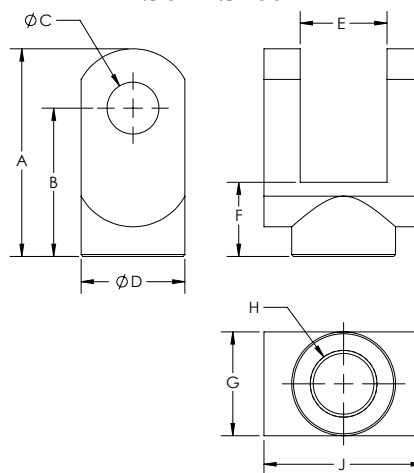
Pin, c-clips, and hardware included with all Clevis Brackets

Rod Clevis Brackets for MACQ Series

Ø12 - Ø25



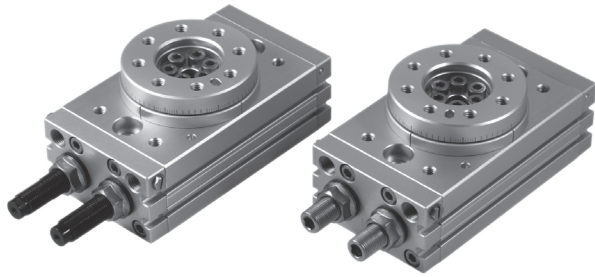
Ø32 - Ø100



Pin, c-clips, and male adapter included with all Rod Clevis Brackets

Model	A	B	C	D	E	F	G	H	J	AA	AB	AC	AD	AE	AF
F-MACQ-12-Y	22	16	5 +.048/-0	9	5.3±0.1	6	10	M5 X 0.8	-	5 -.03/-0.06	4	1.5	10.2	0.7	14.6
F-MACQ-16-Y	28	21	5 +.048/-0	11	6.6±0.1	11	12	M6 X 1.0	-	5 -.03/-0.06	4	1.5	12.4	0.7	16.8
F-MACQ-20-Y	34	25	8 +.058/-0	15	8.3±0.1	8.5	16	M8 X 1.25	-	8 -.04/-0.076	7	1.5	16.2	0.9	21
F-MACQ-25-Y	41	30	10 +.058/-0	19	10.3±0.1	10.5	20	M10 X 1.25	-	10 -.04/-0.076	8	2	20.2	1.1	26.4
F-MACQ-32-Y	42	30	10 +.058/-0	22	18.4±0.1	16	22	M14 X 1.5	36	10 -.04/-0.076	8	2	36.2	1.1	42.4
F-MACQ-40-Y	42	30	10 +.058/-0	22	18.4±0.1	16	22	M14 X 1.5	36	10 -.04/-0.076	8	2	36.2	1.1	42.4
F-MACQ-50-Y	56	40	14 +.07/-0	28	22.4±0.1	20	28	M18 X 1.5	44	14 -.05/-0.093	12	2	44.2	1.1	50.4
F-MACQ-63-Y	56	40	14 +.07/-0	28	22.4±0.1	20	28	M18 X 1.5	44	14 -.05/-0.093	12	2	44.2	1.1	50.4
F-MACQ-80-Y	71	50	18 +.07/-0	38	28.4±0.1	23	38	M22 X 1.5	56	18 -.05/-0.093	15	2	56.2	1.7	63.6
F-MACQ-100-Y	79	55	22 +.084/-0	44	32.4±0.1	24	44	M26 X 1.5	64	22 -.065/-1.117	19	2.5	64.2	1.7	72.6

Actuators - Rotary Actuators



How to Order MHRQ 20 - A

MODEL
10
20
30
50

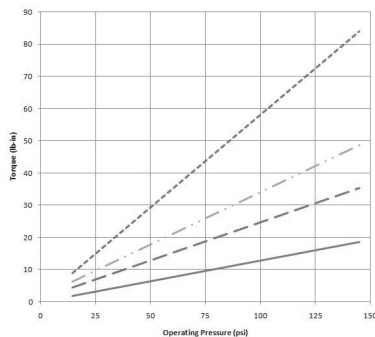
END STOP
Blank - Bolt Adjustment
A - Shock Absorber

Engineering Specifications

Model		10	20	30	50
Fluid		Air (Clean/Dry)			
Action		Double Rack and Pinion (Double Acting)			
Pressure Range	Bolt Adjustment	14 to 145 PSI (0.1 to 1.0 MPa)			
	Shock Absorber	14 to 87 PSI (0.1 to 0.6 MPa)			
Proof Pressure		215 PSI (1.5 MPa)			
Temperature Range		32 °F to 140 °F (0 °C to 60 °C)			
Adjustment Angle Range		0° to 190° Rotation			
Repeatable Precision	Bolt Adjustment	0.2°			
	Shock Absorber	0.05°			
Rotation Times (s/90°)	Bolt Adjustment	0.2~1.0			
	Shock Absorber	0.2~0.7			
Cushion Type	Bolt Adjustment	Rubber Bumper			
	Shock Absorber	Shock Absorber			
Port Size		M5 X 0.8		Rear Ports 1/8 NPT Side Ports M5 X 0.8	
Sensor Switch Compatibility ¹	Reed Switch	MCS1-H			
	Solid State Switch	MDS1-H			
Includes		Magnet			

¹ See page 65 for switch specifications

Torque Output



Maximum Loads

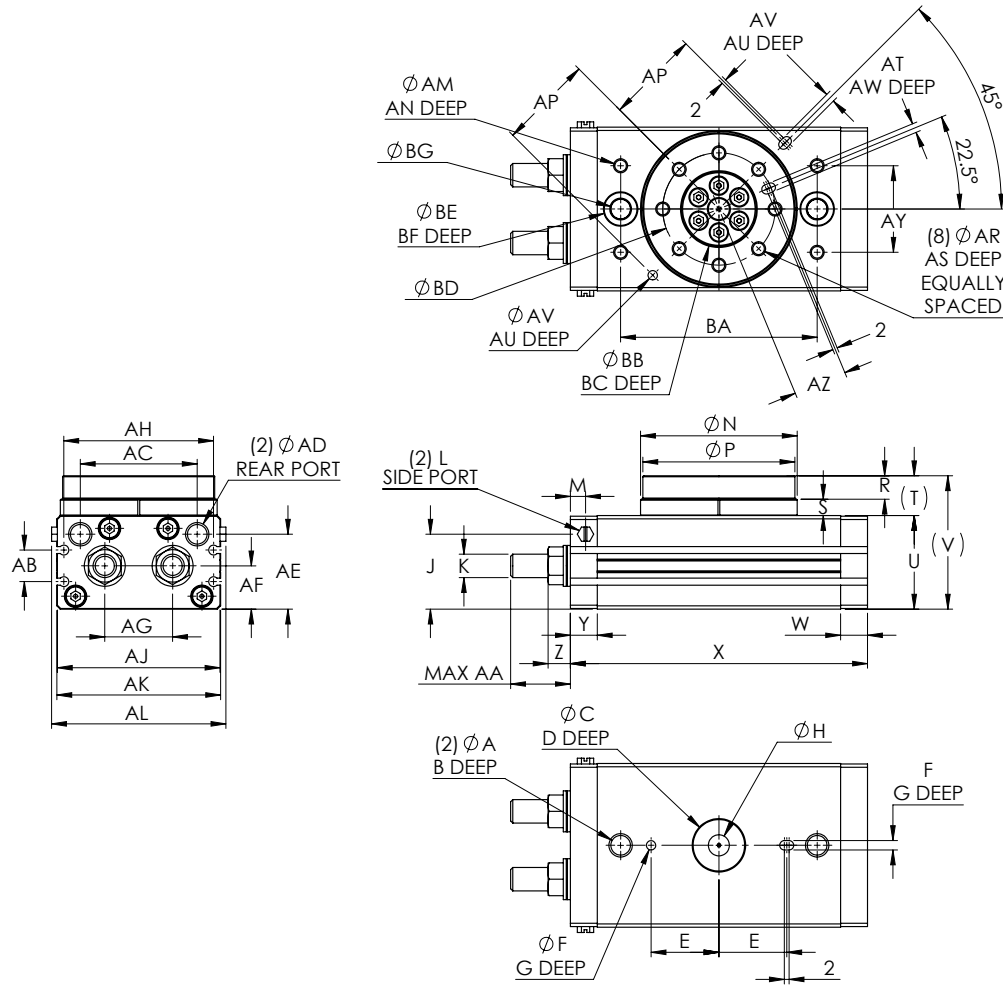
Loading Type	MHRQ10	MHRQ20	MHRQ30	MHRQ50
Maximum allowed radial loading	80N (18lbs)	150N (33.7lbs)	200N (45lbs)	300N (67.4lbs)
Maximum allowed axial loading	80N (18lbs)	150N (33.7lbs)	200N (45lbs)	300N (67.4lbs)
Maximum allowed bending moment	2.5Nm (22.1in-lbs)	4.0Nm (35.4in-lbs)	5.5Nm (48.7in-lbs)	10.0Nm (88.5in-lbs)

Maximum Energy Absorption (J)

Model	With Bolt Adjustment	With Shock Absorber
MHRQ10	0.01	0.04
MHRQ20	0.025	0.12
MHRQ30	0.05	0.12
MHRQ50	0.08	0.30

Actuators - Rotary Actuators

Dimensions (mm)



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MHRQ10	M8 X 1.25	12	15 +.043/-0	3	20	3 +.03/-0	3.5	5	29	M10 X 1.0	M5 X 0.8	4.5	46 +0/-0.062	45 +0/-0.062
MHRQ20	M10 X 1.5	15	17 +.043/-0	2.5	25	4 +.03/-0	4.5	9	30	M12 X 1.0	M5 X 0.8	6	61 +0/-0.074	60 +0/-0.074
MHRQ30	M10 X 1.5	15	22 +.052/-0	3	29	4 +.03/-0	4.5	9	34	M12 X 1.0	M5 X 0.8	6.5	67 +0/-0.074	65 +0/-0.074
MHRQ50	M12 X 1.75	18	26 +.052/-0	3	34	5 +.03/-0	5.5	10	38	M14 X 1.5	M5 X 0.8	10	77 +0/-0.074	75 +0/-0.074

Model	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM
MHRQ10	8	4.5	13	34	47	9.5	92	9.5	9.5	17.5* 28.5**	13.5	34.5	M5 X 0.8	28	15.5	20.5	45	49.5	50	54.5	M5 X 0.8
MHRQ20	10	6.5	17	37	54	11	117	11	9.8	26* 39**	12	47	M5 X 0.8	30	16	27.5	59	64.5	65	69.5	M6 X 1.0
MHRQ30	10	6.5	17	40	57	11.5	127	11.5	9.5	25.5* 39**	13.5	50	1/8 NPT	32	18.5	29	64	69.5	70	74.5	M6 X 1.0
MHRQ50	12	7.5	20	46	66	15	152	15	14	31.5* 51**	15	63	1/8 NPT	38	22	38	74.5	79.5	80	84.5	M8 X 1.25

Model	AN	AP	AR	AS	AT	AU	AV	AW	AY	AZ	BA	BB	BC	BD	BE	BF	BG
MHRQ10	8	28	M5 X 0.8	8	3 +.03/-0	3.5	3 +.03/-0	3.5	27	15	60	20 +.052/-0	4.5	32	11	6.5	6.5
MHRQ20	8	37	M6 X 1.0	10	4 +.03/-0	4.5	4 +.03/-0	4.5	34	20.5	76	28 +.052/-0	6.5	43	14	8.5	8.5
MHRQ30	8	40	M6 X 1.0	10	4 +.03/-0	4.5	4 +.03/-0	5	37	23	84	32 +.062/-0	5	48	14	8.5	8.5
MHRQ50	8	46	M8 X 1.25	12	5 +.03/-0	5.5	5 +.03/-0	6	50	26.5	100	35 +.062/-0	5.5	55	18	10.5	10.5

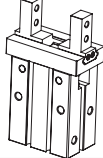
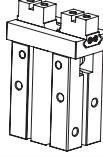
* Bolt Adjustment

** Shock Absorber

Actuators - Parallel Grippers

How to Order MHFZ 20 - F



MODEL	BORE SIZE	FINGER STYLE	
MHFZ - Double Acting MHFSZ - Single Acting, Normally Closed MHFTZ - Single Acting, Normally Open	06 - 6mm 10 - 10mm 16 - 16mm 20 - 20mm 25 - 25mm 32 - 32mm 40 - 40mm	Blank - Standard 	F - Bottom 

Engineering Specifications

Bore Size (mm)			6	10	16	20	25	32	40
Fluid			Air (Clean/Dry)						
Pressure Range	Double Acting	6mm, 10mm	29 to 101 PSI (0.2 to 0.7 MPa)						
		16mm to 40mm	15 to 101 PSI (0.1 to 0.7 MPa)						
	Single Acting	6mm, 10mm	50 to 101 PSI (0.35 to 0.7 MPa)						
		16mm to 40mm	36 to 101 PSI (0.25 to 0.7 MPa)						
Temperature Range			-4 ° F to 160 ° F (-20 ° C to 70 ° C)						
Lubrication			Not Required						
Repeatability			±0.01mm					±0.02mm	
Maximum Frequency			180 Cycles/Min					60 Cycles/Min	
Port Size			M3x0.5		M5x0.8				
Sensor Switch Compatibility ¹	Reed Switch		MCS1-H	MCS1-G	MCS1-G, MCS1-H				
	Solid State Switch		MDS1-H	MDS1-G	MDS1-G, MDS1-H				
Includes			Magnet						

¹ See page 64-65 for switch specifications

1 MPa = 145.04 PSI
1 N = 0.225 lbf
1 lbf = 453.6 g

Gripping Force and Stroke

Model		Double Acting (MHFZ)						
Bore Size (mm)		6	10	16	20	25	32	40
Gripping Force ² , Fg (N)	Closing ³	3.3	11	34	45	69	160	255
	Opening ³	6.1	17	45	68	102	195	320
Closing/Opening Stroke (mm)		4	4	6	10	14	22	30
Weight (g)	Standard	25	56	124	236	428	729	1268
	Bottom	24	56	124	236	418	750	1340

Model		Single Acting Normally Open (MHFTZ)						
Bore Size (mm)		6	10	16	20	25	32	40
Gripping Force ² , Fg (N)	Closing ³	1.9	7	27	35	55	133	220
	Opening ³	-	-	-	-	-	-	-
Closing/Opening Stroke (mm)		4	4	6	10	14	22	30
Weight (g)	Standard	26	57	125	238	430	778	1365
	Bottom	25	57	125	238	420	799	1437

Model		Single Acting Normally Closed (MHFSZ)						
Bore Size (mm)		6	10	16	20	25	32	40
Gripping Force ² , Fg (N)	Closing ³	-	-	-	-	-	-	-
	Opening ³	3.7	13	38	59	87	163	270
Closing/Opening Stroke (mm)		4	4	6	10	14	22	30
Weight (g)	Standard	26	57	125	238	430	778	1365
	Bottom	25	57	125	238	420	799	1437

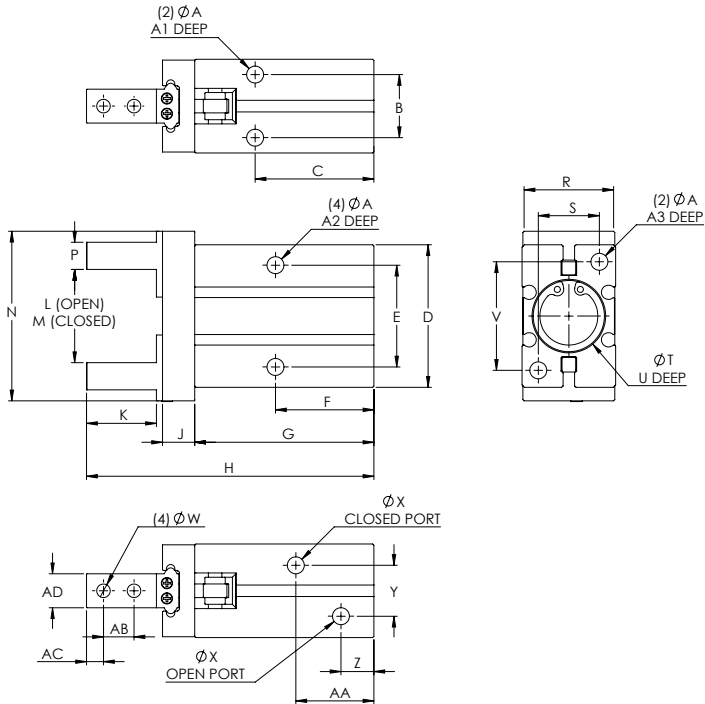
² Gripping force, F, measured with an operating pressure of 0.5MPa (72.5 PSI) at a gripping point of 20mm. See figure 1 on page 62.

³ See figure 2 on page 62.

Actuators - Parallel Grippers

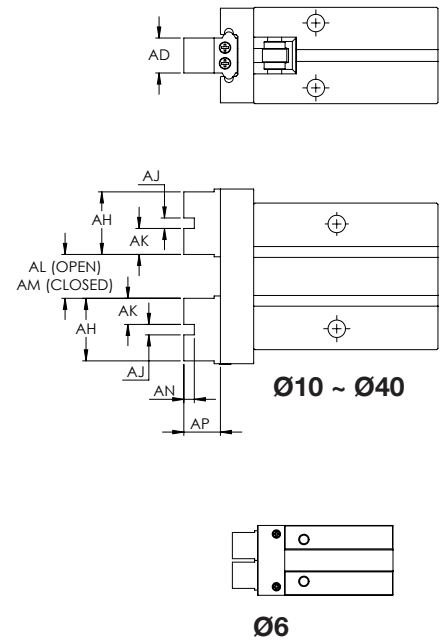
Dimensions (mm)

Standard Mounting Style



Bottom Mounting Style

Dimensionally same as Standard except as shown



BORE SIZE (mm)	A	A1	A2	A3	B	C	D	E	F	G	H	J	K	L	M
6	-	-	-	-	-	-	20	12	25.5	31	53	7.9	11	11 +2/-0	8 +0/-1
10	M3 X 0.5	6	5.5	6	11.5	27	23	16	23	37.5	57	6	12	15.5 +2/-0	11.5 +0/-1
16	M4 X 0.7	4.5	8	8	16	30	30.5	24	24.5	42.5	67.5	7.5	15	21 +2/-0	15 +0/-1
20	M5 X 0.8	8	10	10	18.5	35	42	30	29	53	84.5	9.5	20	26.5 +2/-0	16.5 +0/-1
25	M6 X 1.0	10	12	12	22	36.5	52	36	30	63.6	102.5	11	25	33.5 +2/-0	19.5 +0/-1
32	M6 X 1.0	10	13	13	26	48* 57**	60	46	40* 49**	67* 76**	113* 122**	12	29	48 +2.5/-0	26 +0/-1
40	M8 X 1.25	13	16	17	32	58* 71**	72	56	49* 62**	83* 96**	139* 152**	15	36	60 +2.5/-0	30 +0/-1

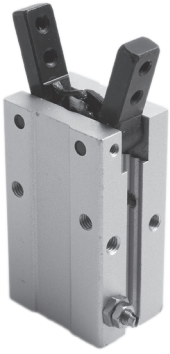
BORE SIZE (mm)	N	P	R	S	T	U	V	W	X	Y	Z	AA	AB
6	20	4 +0/-0.05	10 +/-0.05	-	7 +0.05/-0	1.5	-	M2 X 0.4	M3 X 0.5	1.6	5.5	19	5
10	29	4 +0/-0.05	16.4	12	11 +0.05/-0	2	18	M2.5 X 0.45	M3 X 0.5	10	7.5	19	5.7
16	38	5 +0/-0.05	23.6	15	17 +0.05/-0	2	22	M3 X 0.5	M5 X 0.8	13	7.5	19	7
20	50	8 +0/-0.05	27.6	18	21 +0.05/-0	3	32	M4 X 0.7	M5 X 0.8	15	9.5	23	9
25	63	10 +0/-0.05	33.6	22	26 +0.05/-0	3.5	40	M5 X 0.8	M5 X 0.8	20	10	24	12
32	97	12 +0/-0.05	40	26	34 +0.05/-0	4	46	M6 X 1.0	M5 X 0.8	24	11	31* 40**	14
40	119	14 +0/-0.05	48	32	42 +0.05/-0	4	56	M8 X 1.25	M5 X 0.8	28	12	38* 50**	17

BORE SIZE (mm)	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	AN	AP
6	2.5	4 +0/-0.05	2	3	3.5	7.5	-	-	4 +1.5/-0	1.5 +0/-0.5	-	7
10	3	5 +0/-0.05	2.45	4	6	11	2 +0.025/-0	4.5	5.5 +2/-0	1.5 +0/-0.5	2	5
16	4	8 +0/-0.05	3.05	6	8	14	2.5 +0.025/-0	5.8	7.5 +2/-0	1.5 +0/-0.5	2.5	8
20	5	10 +0/-0.05	3.95	8	10	18	3 +0.025/-0	7.5	11.5 +2/-0	1.5 +0/-0.5	3	10.5
25	6	12 +0/-0.05	4.9	10	12	22	4 +0.030/-0	9	16 +2.5/-0	2 +0/-0.5	4	13
32	7	15 +0/-0.05	7.3	12	20	34.5	5 +0.030/-0	14.8	25 +2.5/-0	3 +0/-0.5	5	18
40	9	18 +0/-0.05	8.7	16	24	41.5	6 +0.030/-0	17.7	33 +3/-0	3 +0/-0.5	6	22

* Double Acting

** Single Acting

Actuators - Angular Grippers



How to Order MHFY 20

MODEL	BORE SIZE
MHFY - Double Acting	06 - 6mm
MHFTY - Single Acting, Normally Open	10 - 10mm
	16 - 16mm
	20 - 20mm
	25 - 25mm
	32 - 32mm

Engineering Specifications

Bore Size (mm)			6	10	16	20	25	32
Fluid			Air (Clean/Dry)					
Pressure Range	Double Acting	6mm	22 to 101 PSI (0.15 to 0.7 MPa)					
		10mm to 32mm	15 to 101 PSI (0.1 to 0.7 MPa)					
	Single Acting	6mm	45 to 101 PSI (0.3 to 0.7 MPa)					
		10mm to 32mm	36 to 101 PSI (0.25 to 0.7 MPa)					
Temperature Range			-4 °F to 160 °F (-20 °C to 70 °C)					
Lubrication			Cylinder: Not Required Jaws: Grease Regularly					
Cushion Type			Bumper					
Integrated Flow Control			Not Available	Standard - Flow Control in Closing Direction				
Maximum Frequency			180 cycles per minute					
Port Size			M3x0.5		M5x0.8			
Sensor Switch Compatibility ¹		Reed Switch	MCS1-H	MCS1-G				
		Solid State Switch	MDS1-H	MDS1-G				
Includes			Magnet					

¹ See page 64-65 for switch specifications

Gripping Force and Stroke

1 MPa = 145.04 PSI
1 N-cm = 0.089 lb-in

Model		Double Acting (MHFY)					
Bore Size (mm)		6	10	16	20	25	32
Gripping Moment ² , M _g (N-cm)	Closing ³	7.4 x P	17.6 x P	90 x P	152 x P	304 x P	637 x P
	Opening ³	10.6 x P	29.4 x P	129 x P	252 x P	473 x P	904 x P
Maximum Recommended Length to Gripping Point ⁴ (mm)		30	30	40	60	70	85
Opening Angle ³		30° +3/-0					
Closing Angle ³		10° +0/-3					

Model		Single Acting Normally Open (MHFTY)					
Bore Size (mm)		6	10	16	20	25	32
Gripping Moment ² , M _g (N-cm)	Closing ³	5.7 x P	11.8 x P	71.2 x P	122.4 x P	252 x P	589 x P
	Opening ³	-	-	-	-	-	-
Maximum Recommended Length to Gripping Point ⁴ (mm)		30	30	40	60	70	85
Opening Angle ³		30° +3/-0					
Closing Angle ³		10° +0/-3					

Note: P = Operating Pressure (MPa)

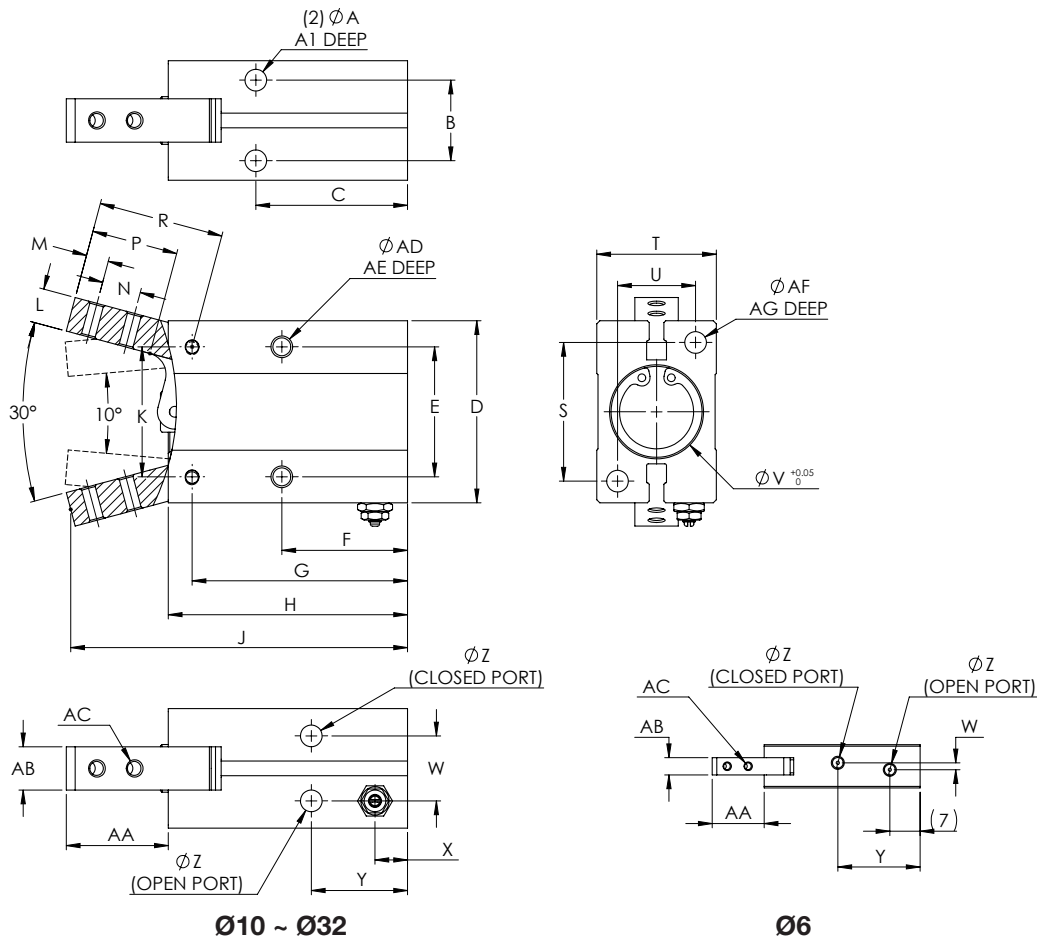
² See figure 3 on page 62.

³ See figure 4 on page 62.

⁴ See figure 5 on page 62.

Actuators - Angular Grippers

Dimensions (mm)



Bore Size (mm)	A	A1	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S
6	-	-	-	-	20	12	26	32	36	47.5	14	4	2.5	5	11	16	-
10	M3 X 0.5	6	11.5	27	23	16	23	35.8	38.5	52.5	14	4	3	5.7	12	17.2	18
16	M4 X 0.7	8	16	30	30.5	24	24.5	39.7	44.5	62.5	24	7	4	7	16	23.6	22
20	M5 X 0.8	10	18.5	35	42	30	29	49.7	55	78	30	8	5	9	20	29	32
25	M6 X 1.0	10	22	36.5	52	36	30	54.8	60.5	92	36	10	8	12	27	38.5	40
32	M6 X 1.0	10	26	30	60	44	37.5	58	68	96.5	42	10	6	14	27	40	46

Bore Size (mm)	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG
6	10.5	-	7	1.5	-	19	M3 X 0.5	12	4	M2 X 0.4	M3 X 0.5	-	-	-
10	16.5	12	11	10	6.5	19	M3 X 0.5	14.5	6.4	M2.5 X 0.45	M3 X 0.5	5	M3 X 0.5	6
16	23.5	15	17	13	7	18.5	M5 X 0.8	19	8	M3 X 0.5	M4 X 0.7	8	M4 X 0.7	8
20	27.5	18	21	15	7.5	22	M5 X 0.8	23.5	10	M4 X 0.7	M5 X 0.8	10	M5 X 0.8	10
25	33.5	22	26	20	7.7	23.5	M5 X 0.8	32.5	12	M5 X 0.8	M6 X 1.0	12	M6 X 1.0	12
32	40	26	34	24	9.2	31	M5 X 0.8	29.5	18	M6 X 1.0	M6 X 1.0	16	M6 X 1.0	12

Gripper Reference

Figure 1
Parallel Grippers
Gripping Force and Point

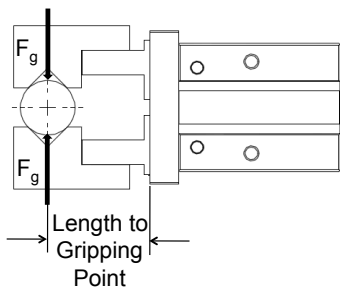


Figure 2
Parallel Grippers
Gripping Direction

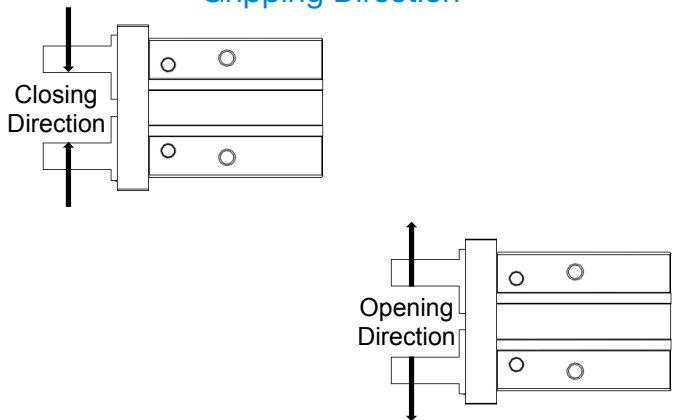


Figure 3
Angular Grippers
Gripping Moment

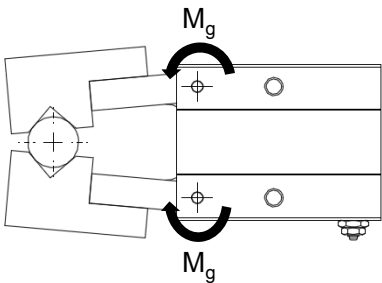


Figure 4
Angular Grippers
Opening and Closing Angles

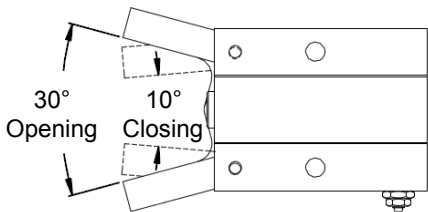
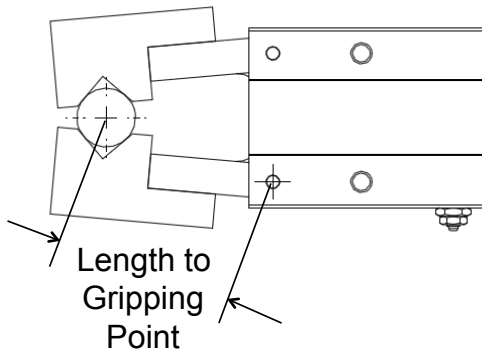


Figure 5
Angular Grippers
Gripping Point



Actuator Service Parts

Type	Description	Part Number	Compatibility
Seal Kits			
Extruded Thruster Seal Kits	Seal Kit, MTCL/MTCM 12mm Bore	MTCK-12	12mm MTCL and MTCM Thrusters
	Seal Kit, MTCL/MTCM 16mm Bore	MTCK-16	16mm MTCL and MTCM Thrusters
	Seal Kit, MTCL/MTCM 20mm Bore	MTCK-20	20mm MTCL and MTCM Thrusters
	Seal Kit, MTCL/MTCM 25mm Bore	MTCK-25	25mm MTCL and MTCM Thrusters
	Seal Kit, MTCL/MTCM 32mm Bore	MTCK-32	32mm MTCL and MTCM Thrusters
	Seal Kit, MTCL/MTCM 40mm Bore	MTCK-40	40mm MTCL and MTCM Thrusters
	Seal Kit, MTCL/MTCM 50mm Bore	MTCK-50	50mm MTCL and MTCM Thrusters
	Seal Kit, MTCL/MTCM 63mm Bore	MTCK-63	63mm MTCL and MTCM Thrusters
	High Temperature Seal Kit, MTCL/MTCM 12mm Bore	MTCK-12V	12mm MTCL and MTCM Thrusters
	High Temperature Seal Kit, MTCL/MTCM 16mm Bore	MTCK-16V	16mm MTCL and MTCM Thrusters
	High Temperature Seal Kit, MTCL/MTCM 20mm Bore	MTCK-20V	20mm MTCL and MTCM Thrusters
	High Temperature Seal Kit, MTCL/MTCM 25mm Bore	MTCK-25V	25mm MTCL and MTCM Thrusters
	High Temperature Seal Kit, MTCL/MTCM 32mm Bore	MTCK-32V	32mm MTCL and MTCM Thrusters
	High Temperature Seal Kit, MTCL/MTCM 40mm Bore	MTCK-40V	40mm MTCL and MTCM Thrusters
	High Temperature Seal Kit, MTCL/MTCM 50mm Bore	MTCK-50V	50mm MTCL and MTCM Thrusters
	High Temperature Seal Kit, MTCL/MTCM 63mm Bore	MTCK-63V	63mm MTCL and MTCM Thrusters
Compact Cylinder Seal Kits	Seal Kit, MACQ 12mm Bore	MACQK-12	12mm MACQ Cylinders
	Seal Kit, MACQ 16mm Bore	MACQK-16	16mm MACQ Cylinders
	Seal Kit, MACQ 20mm Bore	MACQK-20	20mm MACQ Cylinders
	Seal Kit, MACQ 25mm Bore	MACQK-25	25mm MACQ Cylinders
	Seal Kit, MACQ 32mm Bore	MACQK-32	32mm MACQ Cylinders
	Seal Kit, MACQ 40mm Bore	MACQK-40	40mm MACQ Cylinders
	Seal Kit, MACQ 50mm Bore	MACQK-50	50mm MACQ Cylinders
	Seal Kit, MACQ 63mm Bore	MACQK-63	63mm MACQ Cylinders
	Seal Kit, MACQ 80mm Bore	MACQK-80	80mm MACQ Cylinders
	Seal Kit, MACQ 100mm Bore	MACQK-100	100mm MACQ Cylinders
	High Temperature Seal Kit, MACQ 12mm Bore	MACQK-12V	12mm MACQ Cylinders
	High Temperature Seal Kit, MACQ 16mm Bore	MACQK-16V	16mm MACQ Cylinders
	High Temperature Seal Kit, MACQ 20mm Bore	MACQK-20V	20mm MACQ Cylinders
	High Temperature Seal Kit, MACQ 25mm Bore	MACQK-25V	25mm MACQ Cylinders
	High Temperature Seal Kit, MACQ 32mm Bore	MACQK-32V	32mm MACQ Cylinders
	High Temperature Seal Kit, MACQ 40mm Bore	MACQK-40V	40mm MACQ Cylinders
	High Temperature Seal Kit, MACQ 50mm Bore	MACQK-50V	50mm MACQ Cylinders
	High Temperature Seal Kit, MACQ 63mm Bore	MACQK-63V	63mm MACQ Cylinders
	High Temperature Seal Kit, MACQ 80mm Bore	MACQK-80V	80mm MACQ Cylinders
	High Temperature Seal Kit, MACQ 100mm Bore	MACQK-100V	100mm MACQ Cylinders

Actuator Accessories

Track-Mounted Switch - Rectangular Shaped How to Order



MDS1 - GN - C08

MODEL	OUTPUT	WIRE STYLE
MCS1 - Reed Switch MDS1 - Solid State Switch	G - 2 Wire (Reed) ¹ GN - 3 Wire, NPN (Sinking) ² GP - 3 Wire, PNP (Sourcing) ²	050 - Flying Leads, 5 Meter Wire Length C08 - M8 Male Quick Connect, 150mm Wire Length C12 - M12 Male Quick Connect, 150mm Wire Length

¹ Available with MCS1 only

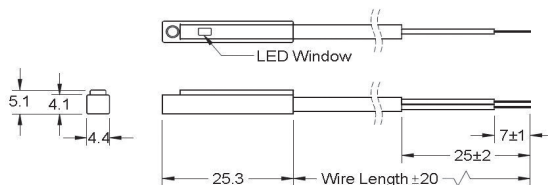
² Available with MDS1 only

See page 66 for Switch Selection Guide.

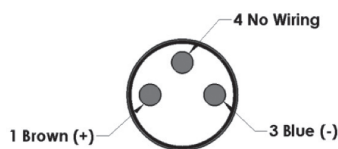
Engineering Specifications

Item/Type	MCS1-G	MDS1-GN	MDS1-GP
Switch Logic	SPST Normally Open	Solid State Transistor, Normally Open	
Sensor Type	Reed Switch	NPN	PNP
Operating Voltage (V)	5-240V AC/DC	5-30V DC	
Max. Switching Current (mA)	100	200	
Max. Switching Power (W)	10	6	
Current Consumption	-	15mA Max. @ 24V	
Voltage Drop	2.5V Max @ 100mA DC	0.5V Max. @ 200mA DC	
Cable	Ø2.8, 2C, Oil Resistant PVC (Flame Retardant)	Ø3.3, 3C, Oil Resistant PVC	
Indicator	LED		
Leakage Current	-	0.01mA Max.	
Sensitivity (Gauss)	60-75	60-75	
Max. Frequency (Hz)	200	1000	
Shock (m/s²)	300	500	
Vibration (m/s²)	90		
Temperature Range (°C)	-10 to 70		
Enclosure Classification	IP67 (NEMA6)		
Protection Circuit	None	Power Reverse Polarity, Surge Suppression	

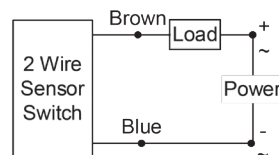
Dimensions (mm)



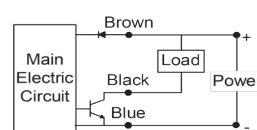
Wiring Diagrams



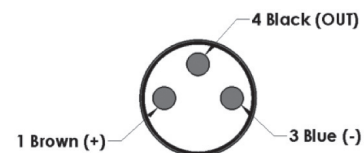
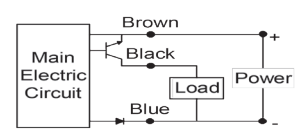
2 Wire Reed Switch



3 Wire Solid State NPN



3 Wire Solid State PNP



Actuator Accessories

Track-Mounted Switch - Round Shaped How to Order

MDS1 - HN - C08



MODEL	OUTPUT	WIRE STYLE
MCS1 - Reed Switch MDS1 - Solid State Switch	H - 2 Wire (Reed) ¹ HN - 3 Wire, NPN (Sinking) ² HP - 3 Wire, PNP (Sourcing) ²	010 - Flying Leads, 1 Meter Wire Length 050 - Flying Leads, 5 Meter Wire Length

¹ Available with MCS1 only

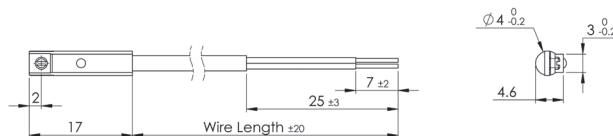
² Available with MDS1 only

See page 66 for Switch Selection Guide.

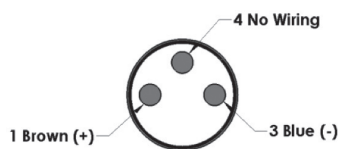
Engineering Specifications

Item/Type	MCS1-H	MDS1-HN	MDS1-HP
Switch Logic	SPST Normally Open	Solid State Transistor, Normally Open	
Sensor Type	Reed Switch	NPN	PNP
Operating Voltage (V)	5-120V AC/DC	5-30V DC	
Max. Switching Current (mA)	50	200	
Max. Switching Power (W)	6	6	
Current Consumption	-	15mA Max. @ 24V	
Voltage Drop	3.0V Max	0.5V Max. @ 200mA DC	
Cable	Ø2.8, Polyurethane	Ø3.3, 3C, Oil Resistant PVC	
Indicator	LED		
Leakage Current	-	0.01mA Max.	
Sensitivity (Gauss)	40	60-75	
Max. Frequency (Hz)	200	1000	
Shock (m/s²)	300	500	
Vibration (m/s²)	90		
Temperature Range (°C)	-10 to 70		
Enclosure Classification	IP67 (NEMA6)		
Protection Circuit	None	Power Reverse Polarity, Surge Suppression	

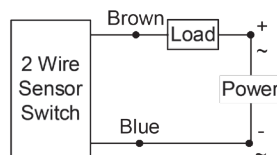
Dimensions (mm)



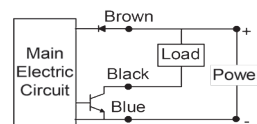
Wiring Diagrams



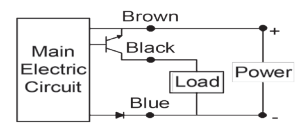
2 Wire Reed Switch



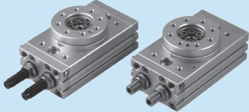
3 Wire Solid State NPN



3 Wire Solid State PNP



Switch Selector Guide

			Reed Switch		Solid State Switch	
			MCS1-G	MCS1-H	MDS1-G	MDS1-H
MTC Thrusters		All Bore Sizes	X		X	
MACQ Compact Cylinders		All Bore Sizes	X		X	
MHRQ Rotary Actuators		All Bore Sizes		X		X
MHFZ Parallel Grippers		6mm Bore		X		X
		10mm Bore	X		X	
		16-40mm Bore	X	X	X	X
MHFY Angular Grippers		6mm Bore		X		X
		10-32mm Bore	X		X	

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