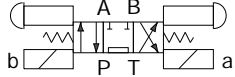
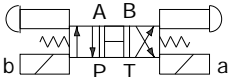

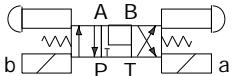
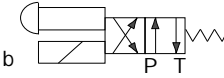
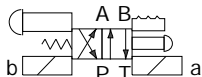
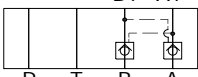


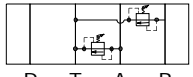


6.10 Valves for DC Systems

NPFA DO3 Directional and Auxiliary Control Valves.

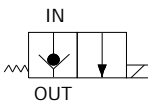
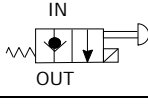
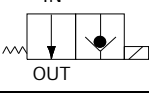
Solenoid directional and auxiliary controls are typically added to the M-3515 and M-3528. Please refer to the Monarch Directional Control Valve brochure for additional information and selection.

Part Number	Schematic	Description
12 VDC - 00962 24 VDC - 00965		4-Way/3-Position. Solenoid Operated. Tandem Center.
12 VDC - 00963 24 VDC - 00966		4-Way/3-Position. Solenoid Operated. Open Center.
12 VDC - 00961 24 VDC - 00964		4-Way/3-Position. Solenoid Operated. Closed Center.
12 VDC - 01040 24 VDC - 01039		4-Way/3-Position, P Blocked. A and B to T. "Motor Spool".
12 VDC - 00460 24 VDC - 00461		4-Way/2-Position. P to A. Spring Offset.
12 VDC - 00460 24 VDC - 00461		4-Way/2-Position. P to A. Spring Offset.
00468		Dual Pilot Operated Check. A and B Port.
00469		Flow Control. Dual Meter Out. A and B Port.
00443		Cross Port Relief. A and B Ports. Adjustable.
00474		Dual Relief. A and B Ports to T. Adjustable.

Consult Bucher Hydraulics about special requirements for explosion proof, shockless (soft shift) and other function and spool configurations not shown here. Other DC as well as AC voltages are available. Functional symbols related to solenoid identity "A" or "B" according to NFPA/ANSI standards, i.e., energizing solenoid "A" gives flow P to A, solenoid "B" gives flow P to B (As Applicable).

Cartridge Valves

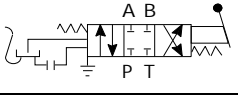
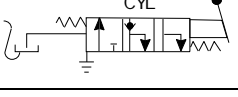
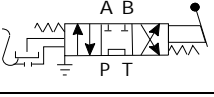
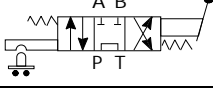
Solenoid operated cartridge valves are used in the M-3319 and various other models.

Part Number	Schematic	Description
12 VDC - 00707 24 VDC - 07158		2-Way/2-Position Normally Closed. Modified Cavity #8. Grounded Coil.
07144		2-Way/2-Position Normally Closed. Modified Cavity #8. Manual Operation. Pull to Open. Spring Closed.
12 VDC - 00501 24 VDC - 00502		2-Way/2-Position Normally Open. Modified Cavity #8. Grounded Coil.

Consult Factory about many additional valve voltages, coil terminations and other options.

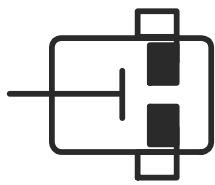
Manual Valves

Manually Operated Directional Control Valves are used on Models M-3310, M-500 and M-300 Special Units.

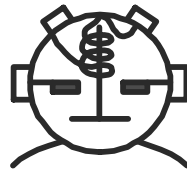
Part Number	Schematic	Description
M-3310 Condenser Type - 01020		4-Way/3-Position. Closed Center. Direct Mounting.
M-500 Type - 00853		3-Way/3-Position. Cylinder Port Checked. Direct Mounting.
M-3310 Condenser Type - 00893 M-500 Type - 00856 (Non Condenser Type)		4-Way/3-Position. Tandem Center. Direct Mounting.
M-3310 Cam Start SW - 07120		4-Way/3-Position. Tandem Center. Direct Mounting.

6.11 Motor Start Switches for D.C. Power Systems

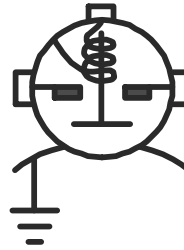
Wiring Diagrams



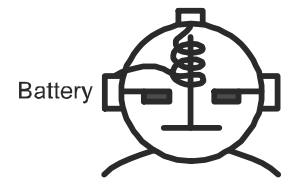
"A"



"B"



"C"



"D"

Part Number	Voltage	Wiring diagram	Coil Duty	Description
03336	12	D	Int.	Insulated Ground
17757	12	C	Int.	
17744	12	B	Int.	
17764	24	B	Int.	
03322	12/24	A	N.A.	Manual Start Only - M-3301, M-3313
04343	12/24	A	N.A.	Round Valve. Cam Start M-3310 Only
01349	N.A.	N.A.	N.A.	Bus Bar
13155	N.A.	N.A.	N.A.	Bus Bar for use with 17764, 17744 & 17757 Solenoids
01361	N.A.	N.A.	N.A.	Battery Cable, 5" Long
01628	N.A.	N.A.	N.A.	Battery Cable, 6" Long

Switches are available with curved mounting for direct attachment to power unit or with flat base for remote mounting. Other Motor Start Switches are also available. Contact Factory.

Key To Abbreviations: H.D. = Heavy Duty
Int. = Intermittent Duty

6.12 Control Boxes

Figure1

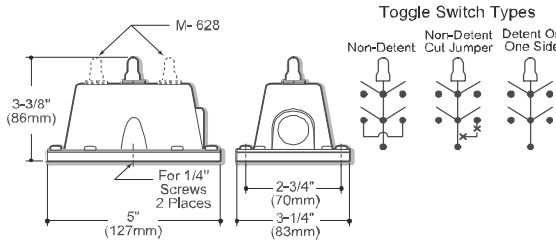


Figure2

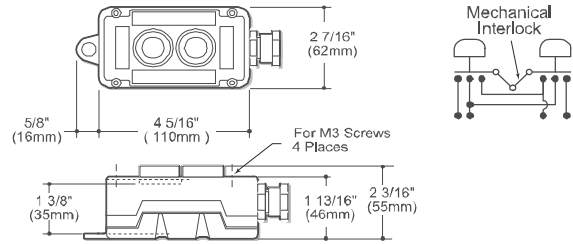


Figure3

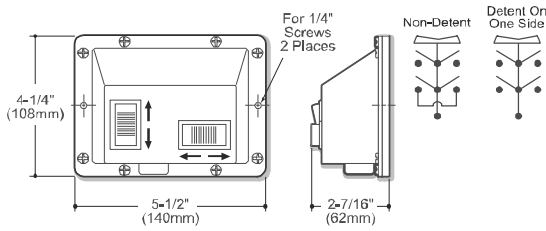


Figure4

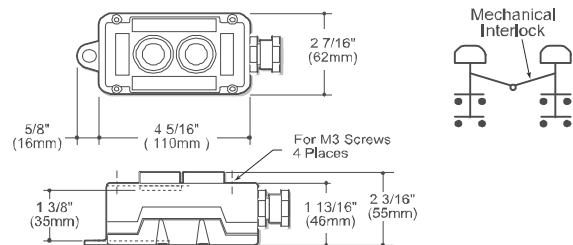
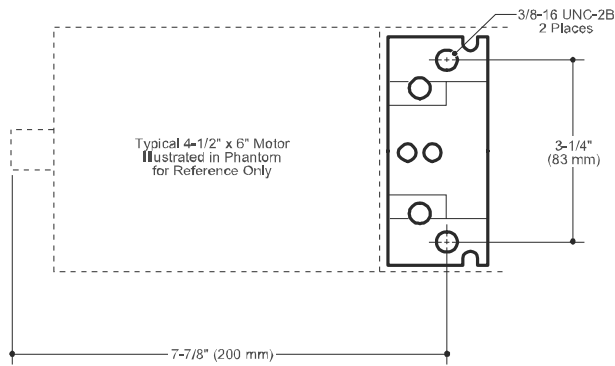


Figure	Switch Symbol	Models used on	Part Number
1*		M-3303, M-3319, M-3314, M-3519, M-3541	03409
1*		M-642, M-3551, M-3515, M-3554	03487
1*		M-3528 M-3303, M-3319, M-3314, M-3519, M-719	03451
1*		M-642, M-3551, M-3515, M-3530, M-3547, M-3554	07995
1*		M-680'S	03197 (Detented) 03201 (Non-Detendet)
1*		M-3303, M-3315, M-3314	07993

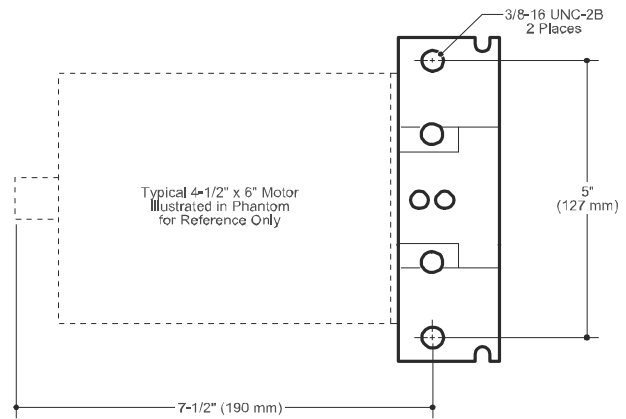
NOTE: The above Control Stations may be used with other Power Units. Consult Factory.

6.13 Mounting Brackets



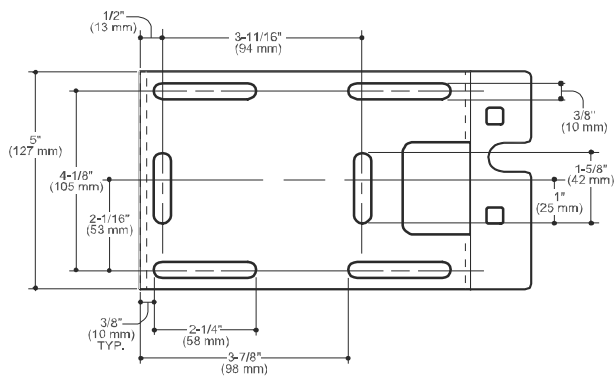
04560

May Be Used on Most M Series Units with 4.5" Ø (114mm Ø) Base, M 10 x 1.5 Thread also Available. Consult Factory.



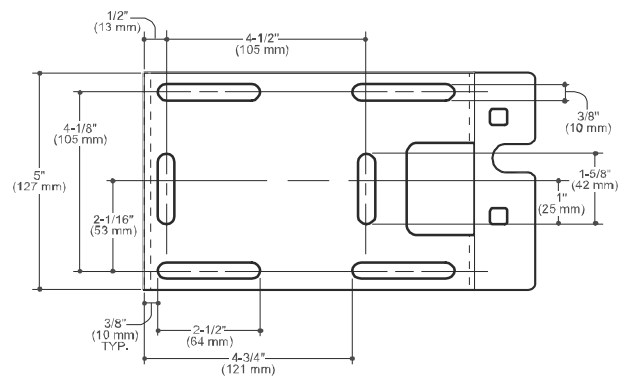
04559

May Be Used on Most M Series Units with 4.5" Ø (114mm Ø) Base, M 10 x 1.5 Thread also Available. Consult Factory.



02238

May Be Used With Motors: 08055, 08111, 18442, 08120



01289

May Be Used With Motor: 08196, 08003

Motors 08035, 08040, 08050, 08163, 08168, and 08174 have their own mounting bracket (see motor dimension section of this catalog). Custom brackets are also available. Contact factory.

6.14 Popular Accessories For DC Power Systems

Part Number	Description
01436	Sight Level/Temperature Gauge. For Use on Large Reservoirs Only.
01516	Reservoir Breather, Flush Mount, .375" NPT. Cross Scored.
03171	Reservoir Breather, .375" NPT.
01143	Reservoir Breather, .750" NPT.
01670	Sight Glass. 3/4" NPT.
03219	Pressure Gauge. Liquid Filled. 1/4" NPT. 0-500 PSI.
01434	Pressure Gauge. Liquid Filled. 1/4" NPT. 0-3000 PSI.
01790	Pressure Gauge. Liquid Filled. 1/4" NPT. 0-5000 PSI.
00570	Gauge Shutoff. 1/4" NPT.
00904	Flow Control, Adjustable. Non Pressure Compensated. 1/4" NPT. F x F For Flows to 3.0 GPM (11.4 LPM).
01720-X.XX	Flow Control, Pressure Compensated. Fixed. 1/4" NPT F x F. Other Types Available. Specify Flow Required.
01875	Filter, Return Line. 15 GPM. 10 Micron Nominal.
04369	Filter, Return Line. 5 GPM. 10 Micron Nominal.
01425	Filter/Breather, Chrome Plated. Basket Strainer.
04202	M-310 Cam Start Switch Conversion Kit.
07157	Relief Valve, Cartridge. 1500-3000 PSI. Other Pressure Ranges Also Available.
01506	Terminal Cover, Rubber. #4 Cable.
03981	Hand Pump, Standard.
03987	Hand Pump, Mini Direct, Right Hand. High Pressure - Low Displacement.
03943	Hand Pump, Mini Direct, Left Hand. High Pressure - Low Displacement.
07435	Hand Pump, High Pressure - Heavy Duty.
03695	Valve Cover Cap Kit, M-693.

Other Available Options and Accessories Include:

- Float Switches
- Special Manifold Circuits
- Pressure Switches
- Multi-Function Valve Controls - Monoblock and Sectional
- Special Cartridge, Industrial and Manual Valve Configurations.

NOTE: Accessories Will Not Fit Every Model. Please Contact the Factory For Assistance.

6.15 Monarch Hand Pumps

Standard - Standard Displacement (0.50 In³/Stroke) High Pressure - Low Displacement (0.25 In³/Stroke) High Pressure/
Heavy Duty - Standard Displacement (0.50 In³/Stroke)

Note: It is recommended that pins and piston be periodically lubricated to prolong hand pump life.

6.16 Standard Hand Pumps

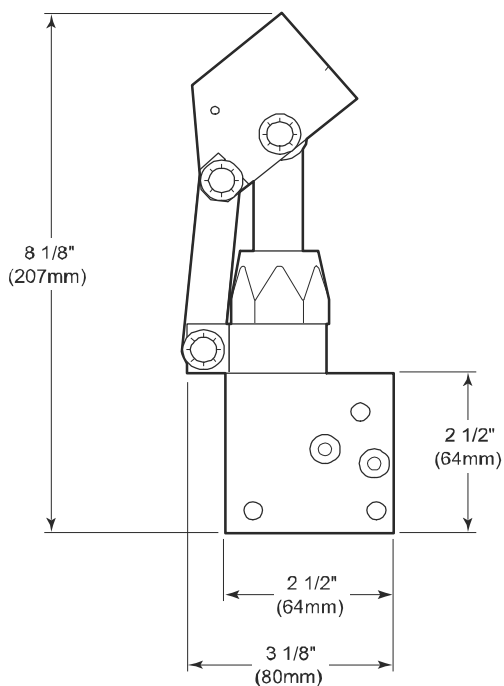
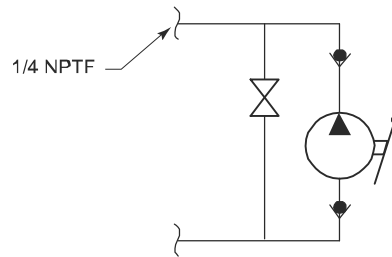
Description

- 0.50 In³/Stroke (8.20 Cm³/Stroke)
- Single Acting
- 2000 PSI (138 Bar)
- Outlet Port: 1/4" NPTF
- Ideal For Emergency Back-Up Application in Case of Primary Pump Failure
- Horizontal or Vertical Mounting
- Designed for Mounting Directly to Monarch Power Units
- Handle May Positioned in any Direction
- Release Valve (Use Handle for Actuating)
- Supplied with Painted Steel "Comfort Grip" Handle
- All Exposed Materials are Aluminum or Plated Steel for Corrosion Resistance

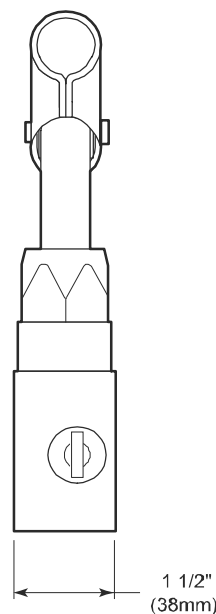
Popular Options

- Remote Mounting
- Ports. Other Styles Available
- Relief Valve
- Integral Reservoir

Schematic



SIDE VIEW



END VIEW

6.17 High Pressure - Low Displacement Hand Pump

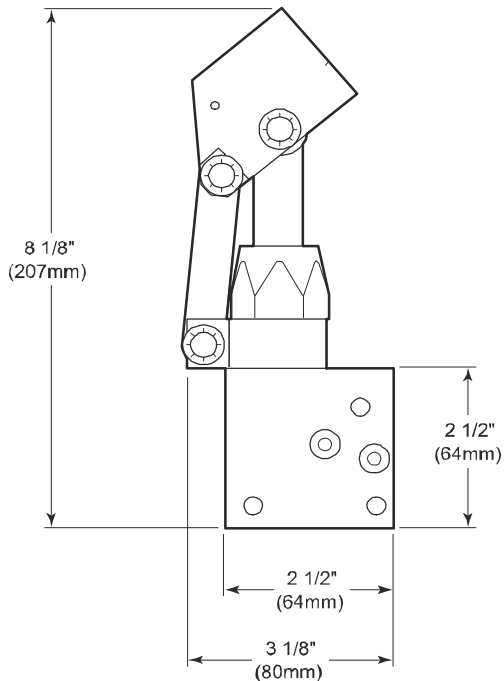
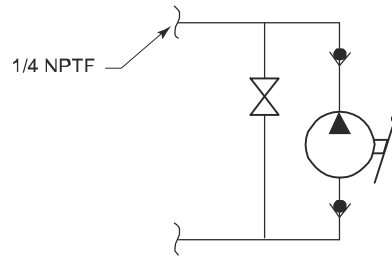
Description

- 0.50 In³/Stroke (8.20 Cm³/Stroke)
- Single Acting
- 3500 PSI (240 Bar)
- Outlet Port: 1/4" NPTF
- Ideal For Emergency Back-Up Application in Case of Primary Pump Failure
- Horizontal or Vertical Mounting
- Designed for Mounting Directly to Monarch Power Units
- Handle May Positioned in any Direction
- Release Valve (Use Handle for Actuating)
- Supplied with Painted Steel "Comfort Grip" Handle
- All Exposed Materials are Aluminum or Plated Steel for Corrosion Resistance

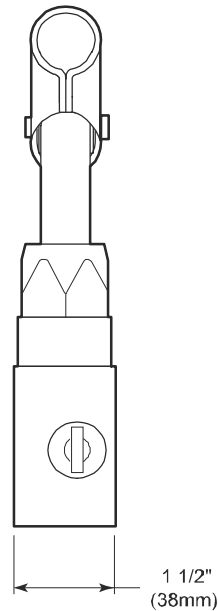
Popular Options

- Remote Mounting
- Ports. Other Styles Available
- Relief Valve

Schematic



SIDE VIEW



END VIEW

6.18 High Pressure - Heavy Duty Hand Pump

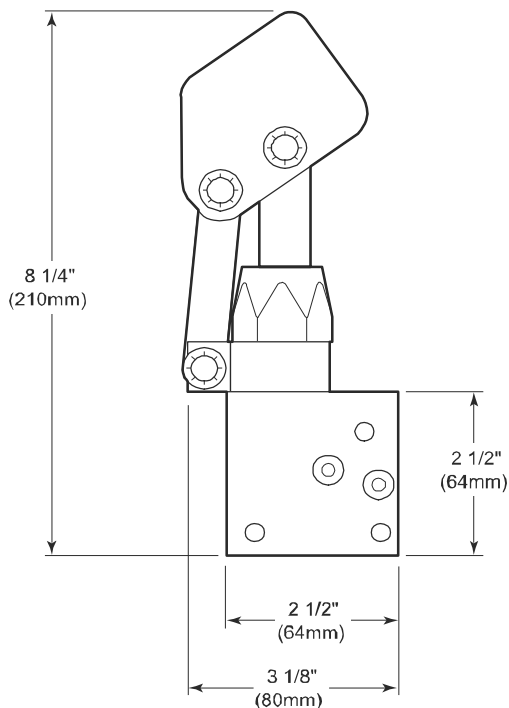
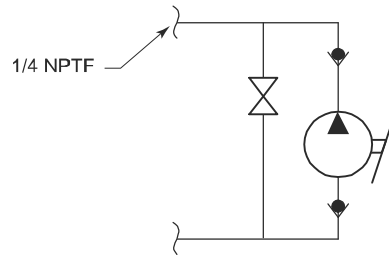
Description

- 0.50 In³/Stroke (8.20 Cm³/Stroke)
- Single Acting
- 4000 PSI (275 Bar)
- Outlet Port: 1/4" NPTF
- Heavy Duty Plated Steel Tension Link and Extruded Aluminum Top and Bottom Brackets
- Ideal For Emergency Back-Up Application in Case of Primary Pump Failure
- Horizontal or Vertical Mounting
- Designed for Mounting Directly to Monarch Power Units
- Handle May Positioned in any Direction
- Release Valve (Use Handle for Actuating)
- Supplied with Painted Steel "Comfort Grip" Handle
- All Exposed Materials are Aluminum or Plated Steel for Corrosion Resistance

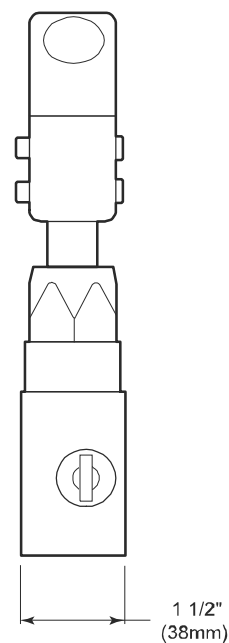
Popular Options

- Remote Mounting
- 1/4" NPTF Ports. Other Styles Available
- Relief Valve

Schematic

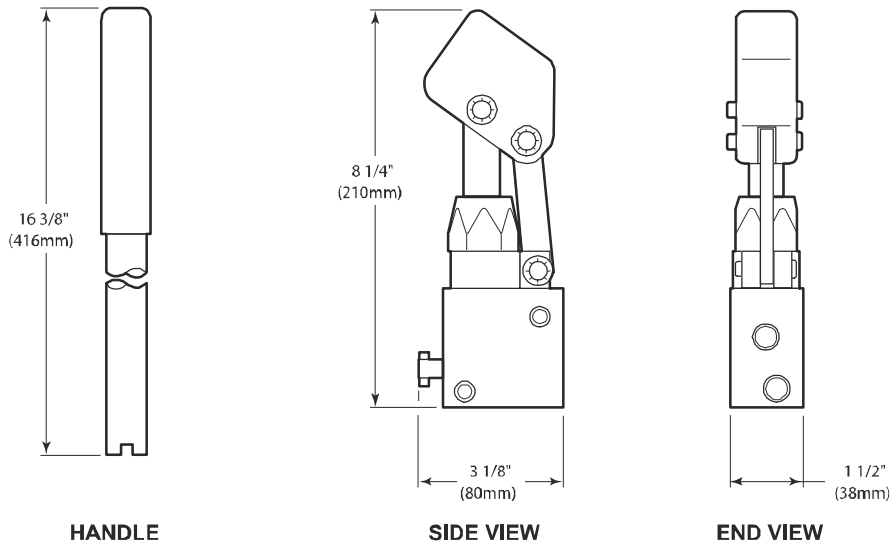


SIDE VIEW



END VIEW

6.19 Heavy Duty Remote Hand Pump



6.20 Model H-100 Series Hand Pumps With Reservoirs

Hand Pump with Relief Valve and Reservoir

- 12139 Standard Duty Hand Pump with Relief Valve
- 12140 Heavy Duty Hand Pump with Relief Valve

