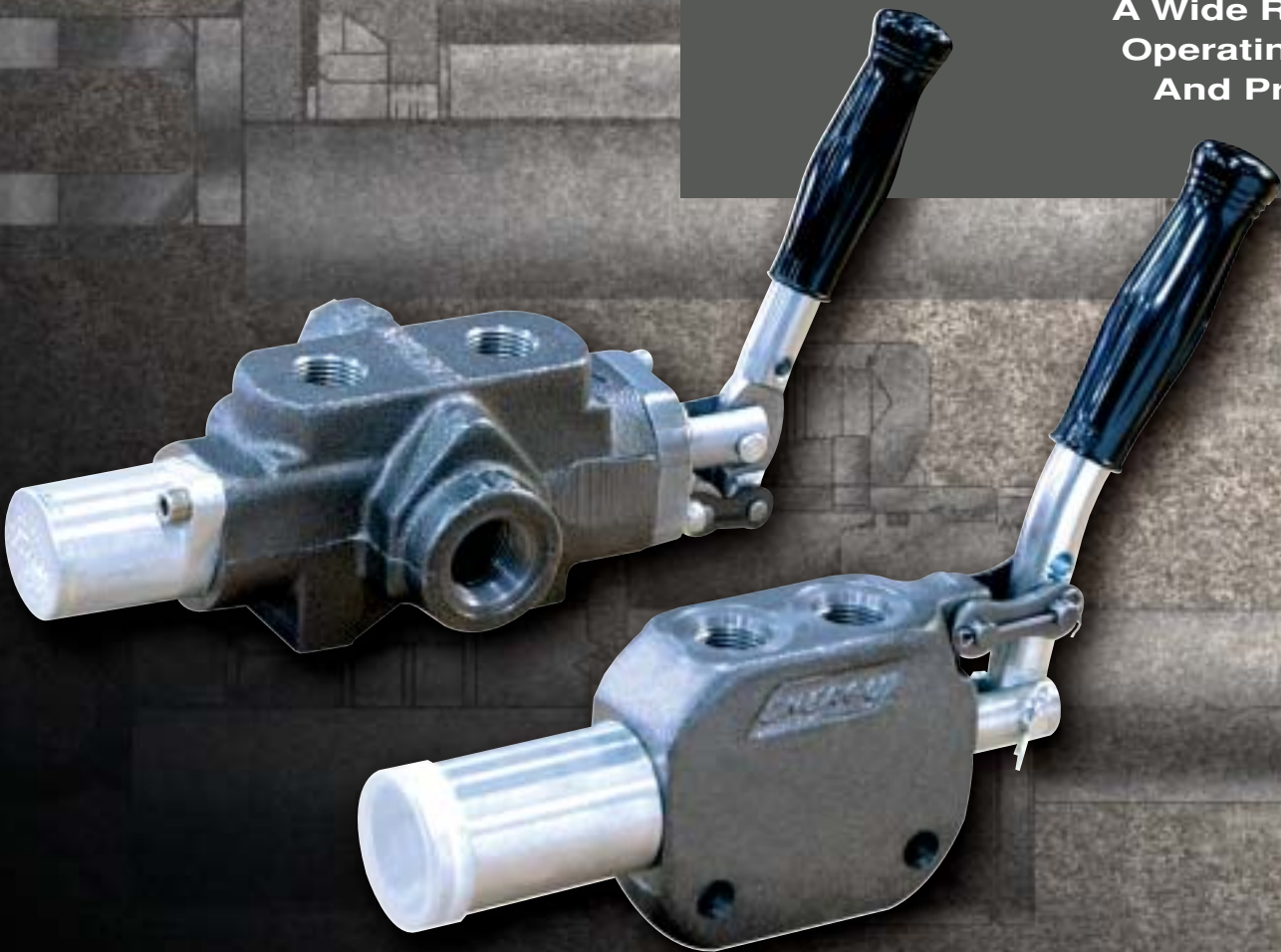


**ENERGY**<sup>®</sup>  
Manufacturing Company, Inc.

## HYDRAULIC DIRECTIONAL CONTROL VALVES

Components For  
The Control Of  
A Wide Range Of  
Operating Flows  
And Pressures



# CVA, DCVA, AND ROTARY DIRECTIONAL CONTROL VALVES; FOR FLOWS UP TO 20 GPM (76 LPM) AND WORKING PRESSURES UP TO 2,500 PSIG (172 BAR)



## SPRING RETURN AND DETENT OPTIONS; PRESSURES TO 2,500 PSIG (172 BAR)

These 20 GPM (76 LPM) manual spool valves are available with an externally adjustable pressure relief valve on all but the closed center models. *NOTE: The maximum recommended flow rate for the internal relief valve at 2,500 PSIG (172 bar) is 10 GPM (38 LPM).* They are offered in both three-way and four-way versions, with a wide range of spool options available.

CVA designated models feature spring-centered operation, while DCVA designated models feature mechanical spool detents. The valve bodies are constructed from fine gray iron castings, and the spools are precision ground and chrome-plated steel. Pressure and return ports are 3/4 inch NPTF, and cylinder ports are either 1/2 inch or 3/4 inch NPTF. SAE o-ring boss ports are also available as an option.

Relief valve pressure ranges are 400 to 2,500 PSIG (28 to 172 bar).

If not customer specified, assemblies are automatically furnished with relief set at 2,000 PSIG (138 bar) at 10 GPM (38 LPM). *For units without a relief valve function, please consult our factory.*

Weights: CVA Series – 9 lbs. (4.1 kg)

DCVA Series – 9-1/2 lbs. (4.3 kg)

**CAUTION: Relief valve pressure adjustments should not be made while the system is under pressure.**

**WARNING: CVA & DCVA valves do not contain load checks and therefore should not be used in lifting applications unless some other means of holding the load is provided by the customer.**

## CVA SERIES SPRING RETURN VALVES

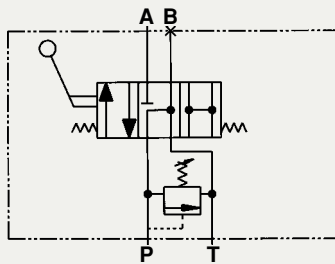
### Three-Way Tandem Center with Relief Valve

MODEL NUMBERS

20036 – 1/2" NPTF Ports

20037 – 3/4" NPTF Ports

(SAE ORB Ports also available)



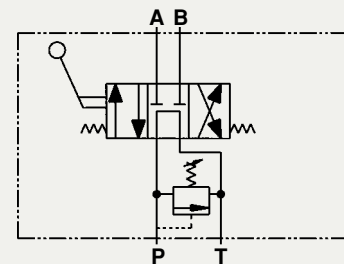
### Four-Way Tandem Center with Relief Valve

MODEL NUMBERS

20038 – 1/2" NPTF Ports

20039 – 3/4" NPTF Ports

(SAE ORB Ports also available)



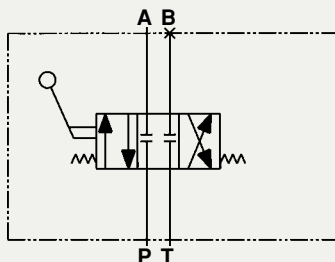
### Three-Way Closed Center No Relief Valve

MODEL NUMBERS

10205 – 1/2" NPTF Ports

10206 – 3/4" NPTF Ports

(SAE ORB Ports also available)



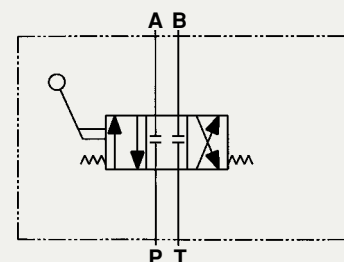
### Four-Way Closed Center No Relief Valve

MODEL NUMBERS

10207 – 1/2" NPTF Ports

10208 – 3/4" NPTF Ports

(SAE ORB Ports also available)



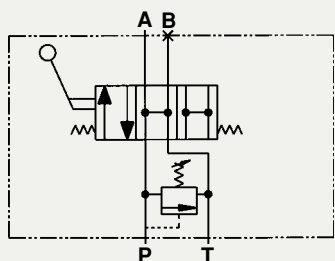
### Three-Way Open Center Spool with Relief Valve

MODEL NUMBERS

10226 – 1/2" NPTF Ports

10227 – 3/4" NPTF Ports

(SAE ORB Ports also available)



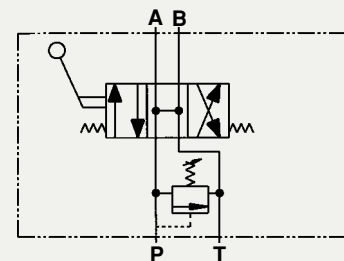
### Four-Way Open Center Spool with Relief Valve

MODEL NUMBERS

10228 – 1/2" NPTF Ports

10229 – 3/4" NPTF Ports

(SAE ORB Ports also available)

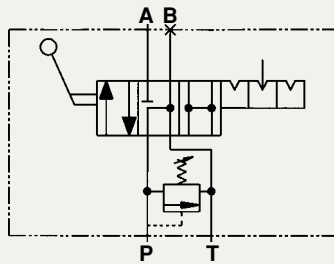


# CVA, DCVA, AND ROTARY DIRECTIONAL CONTROL VALVES; FOR FLOWS UP TO 20 GPM (76 LPM) AND WORKING PRESSURES UP TO 2,500 PSIG (172 BAR)

## DCVA SERIES DETENTED VALVES

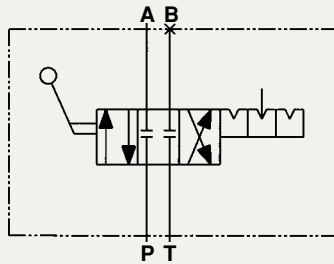
### Three-Way Tandem Center with Relief Valve

MODEL NUMBERS  
**20040** – 1/2" NPTF Ports  
**20041** – 3/4" NPTF Ports  
*(SAE ORB Ports also available)*



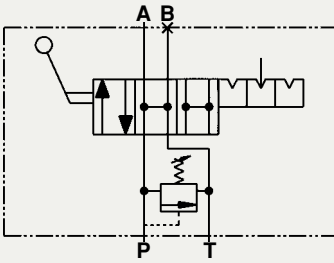
### Three-Way Closed Center No Relief Valve

MODEL NUMBERS  
**10209** – 1/2" NPTF Ports  
**10210** – 3/4" NPTF Ports  
*(SAE ORB Ports also available)*



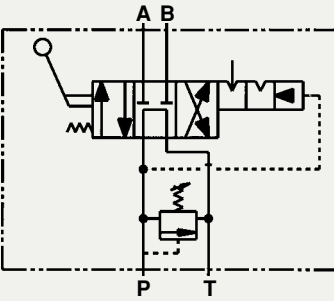
### Three-Way Open Center with Relief Valve

MODEL NUMBERS  
**10230** – 1/2" NPTF Ports  
**10231** – 3/4" NPTF Ports  
*(SAE ORB Ports also available)*



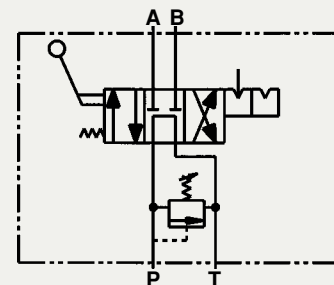
### Four-Way Tandem Center, Detent "A" With Hydraulic Kick-out, Spring Centered in Neutral From "B" with Relief Valve

MODEL NUMBER  
**C-908** – 1/2" NPTF Ports  
*(SAE ORB Ports also available)*



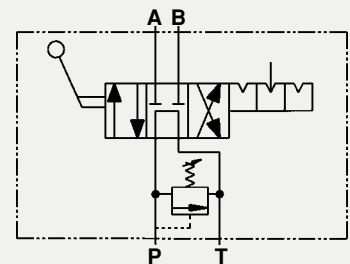
### Four-Way Tandem Center, Detent "A" With Spring Return To Neutral From "B" with Relief Valve

MODEL NUMBER  
**C-770** – 1/2" NPTF Ports  
*(SAE ORB Ports also available)*



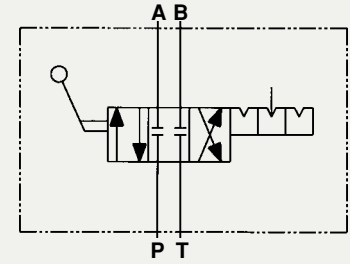
### Four-Way Tandem Center with Relief Valve

MODEL NUMBERS  
**20042** – 1/2" NPTF Ports  
**20043** – 3/4" NPTF Ports  
*(SAE ORB Ports also available)*



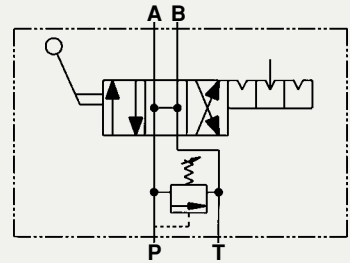
### Four-Way Closed Center No Relief Valve

MODEL NUMBERS  
**10211** – 1/2" NPTF Ports  
**10212** – 3/4" NPTF Ports  
*(SAE ORB Ports also available)*



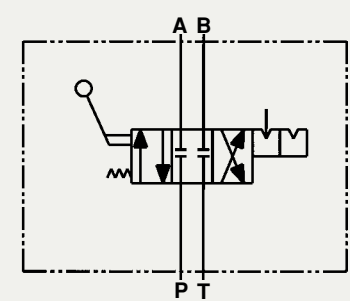
### Four-Way Open Center with Relief Valve

MODEL NUMBERS  
**10232** – 1/2" NPTF Ports  
**10233** – 3/4" NPTF Ports  
*(SAE ORB Ports also available)*



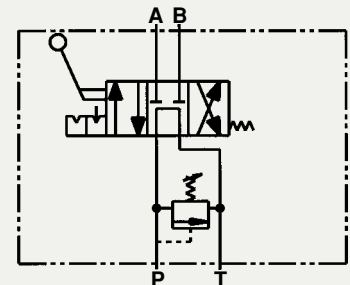
### Four-Way Closed Center, Detent "A" with Spring Return To Neutral From "B" No Relief Valve

MODEL NUMBER  
**C-909** – 1/2" NPTF Ports  
*(SAE ORB Ports also available)*



### Four-Way Tandem Center, Detent "B" with Spring Return To Neutral From "A" with Relief Valve

MODEL NUMBER  
**C-771** – 1/2" NPTF Ports  
*(SAE ORB Ports also available)*





# CVA, DCVA, AND ROTARY DIRECTIONAL CONTROL VALVES; FOR FLOWS UP TO 20 GPM (76 LPM) AND WORKING PRESSURES UP TO 2,500 PSIG (172 BAR)

## ROTARY-ACTUATED CONTROL VALVES

These valves are similar in design to those on pages two and three, but differ in that the valve handle is rotated to actuate the spool, as opposed to shifting the spool axially. This provides finer metering control. These valves incorporate a mechanical detent in the neutral position, but should be manually held in their operating positions. *NOTE: The maximum recommended flow rate for the internal relief valve at 2,500 PSIG (172 bar) is 10 GPM (38 LPM).*

**CAUTION:** Relief valve pressure adjustments should not be made while the system is under pressure.

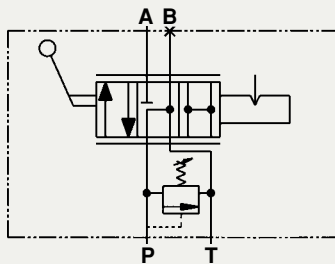
**WARNING:** These valves do not contain load checks and therefore should not be used in lifting applications unless some other means of holding the load is provided by the customer.



## ROTARY-ACTUATED SERIES VALVES

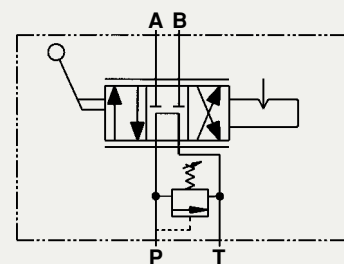
### Rotary Spool Three-Way Tandem Center with Relief Valve

MODEL NUMBERS  
20048 – 1/2" NPTF Ports  
20049 – 3/4" NPTF Ports  
(SAE ORB Ports also available)



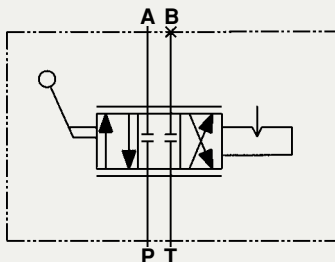
### Rotary Spool Four-Way Tandem Center with Relief Valve

MODEL NUMBERS  
20050 – 1/2" NPTF Ports  
20051 – 3/4" NPTF Ports  
(SAE ORB Ports also available)



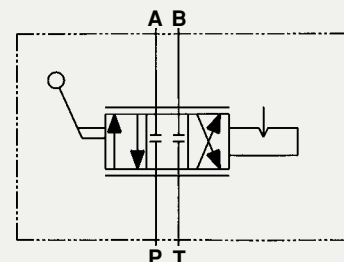
### Rotary Spool Three-Way Closed Center No Relief Valve

MODEL NUMBERS  
10217 – 1/2" NPTF Ports  
10218 – 3/4" NPTF Ports  
(SAE ORB Ports also available)



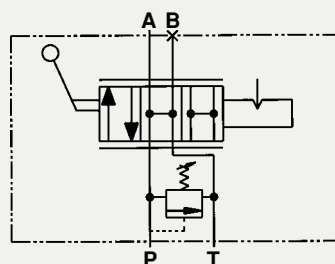
### Rotary Spool Four-Way Closed Center No Relief Valve

MODEL NUMBERS  
10219 – 1/2" NPTF Ports  
10220 – 3/4" NPTF Ports  
(SAE ORB Ports also available)



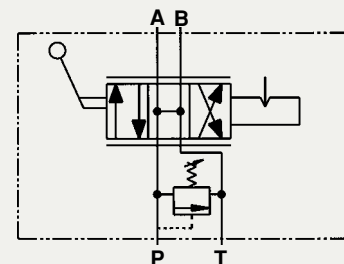
### Rotary Spool Three-Way Open Center with Relief Valve

MODEL NUMBERS  
10238 – 1/2" NPTF Ports  
10239 – 3/4" NPTF Ports  
(SAE ORB Ports also available)



### Rotary Spool Four-Way Open Center with Relief Valve

MODEL NUMBERS  
10240 – 1/2" NPTF Ports  
10241 – 3/4" NPTF Ports  
(SAE ORB Ports also available)



# TWO-POSITION, THREE-WAY SELECTOR VALVES; FOR FLOWS UP TO 30 GPM (114 LPM) AND WORKING PRESSURES UP TO 3,000 PSIG (207 BAR)

## KNOB OR HANDLE OPERATION

These three-way directional valves can be used in a wide variety of circuitry and system configurations. Flow is controlled by a simple pull or push of the control knob or handle. The spools are held in position by the frictional force of their o-rings, effectively creating a detent in either position (except for spring-return models).



## SELECTOR SERIES VALVES

### Two-Position Detented Selector with Knob

MODEL NUMBERS

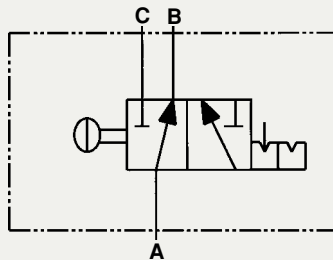
**B-1152 – 20 GPM (76 LPM)**

1/2" NPTF Ports

**B-1252 – 30 GPM (114 LPM)**

3/4" NPTF Ports

(SAE ORB Ports also available upon request)



### Two-Position Detented Selector with Handle

MODEL NUMBERS

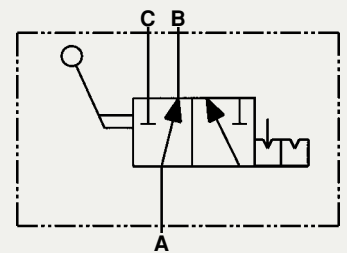
**B-1155 – 20 GPM (76 LPM)**

1/2" NPTF Ports

**B-1239 – 30 GPM (114 LPM)**

3/4" NPTF Ports

(SAE ORB Ports also available upon request)



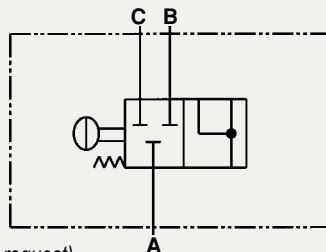
### Two-Position Float Control Selector with Knob and Spring Return

MODEL NUMBER

**B-1174 – 20 GPM (76 LPM)**

1/2" NPTF Ports

(SAE ORB Ports also available upon request)



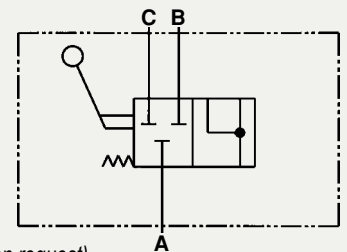
### Two-Position Float Control Selector with Handle and Spring Return

MODEL NUMBER

**B-1157 – 20 GPM (76 LPM)**

1/2" NPTF Ports

(SAE ORB Ports also available upon request)



### Two-Position Detented Float Control Selector with Knob

MODEL NUMBERS

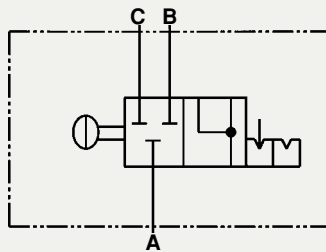
**B-1138 – 20 GPM (76 LPM)**

1/2" NPTF Ports

**B-1395 – 30 GPM (114 LPM)**

3/4" NPTF Ports

(SAE ORB Ports also available upon request)



### Two-Position Detented Float Control Selector with Handle

MODEL NUMBERS

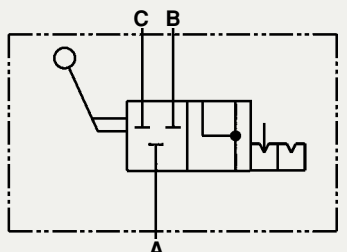
**B-1149 – 20 GPM (76 LPM)**

1/2" NPTF Ports

**B-1180 – 30 GPM (114 LPM)**

3/4" NPTF Ports

(SAE ORB Ports also available upon request)



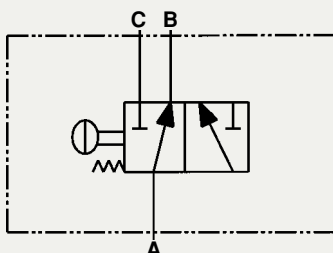
### Two-Position Selector with Knob and Spring Return

MODEL NUMBER

**B-1153 – 20 GPM (76 LPM)**

1/2" NPTF Ports

(SAE ORB Ports also available upon request)



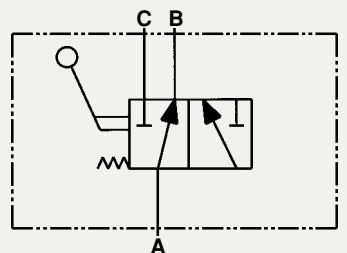
### Two-Position Selector with Handle and Spring Return

MODEL NUMBER

**B-1156 – 20 GPM (76 LPM)**

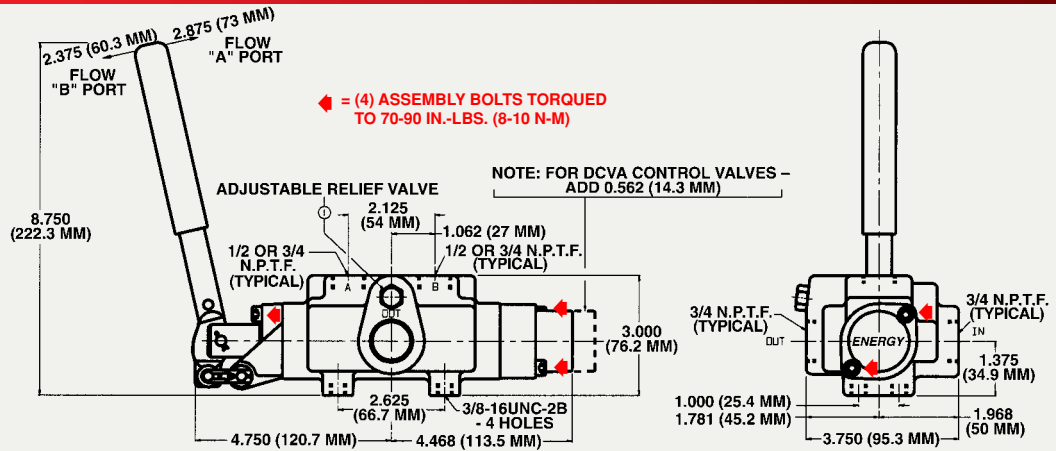
1/2" NPTF Ports

(SAE ORB Ports also available upon request)

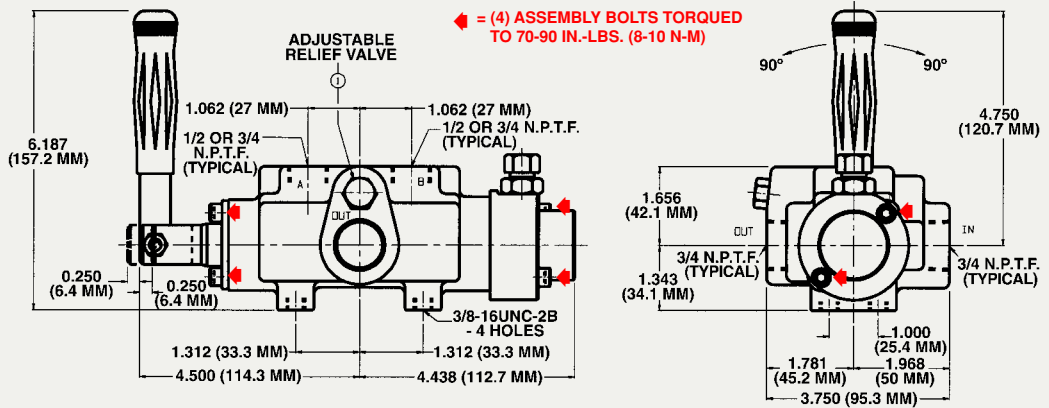


# DIMENSIONS - STANDARD UNITS

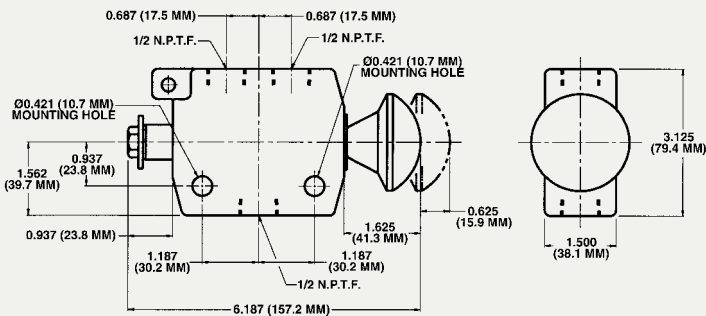
## CVA & DCVA SERIES VALVES



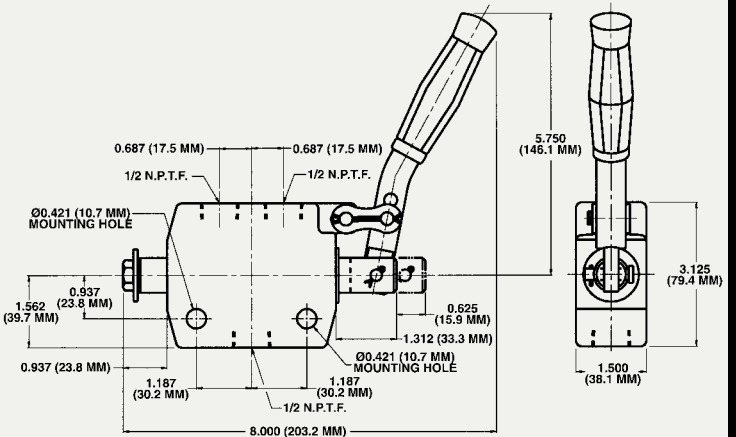
## ROTARY SERIES VALVES



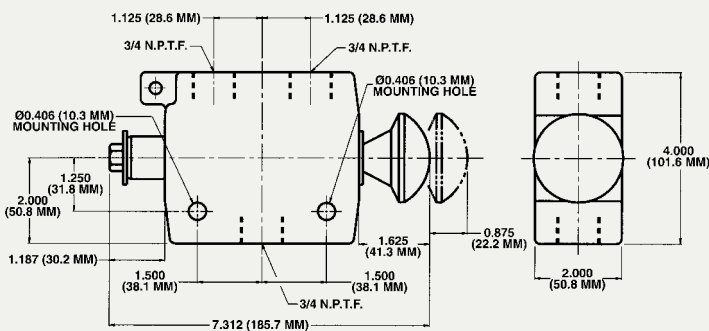
## SELECTOR SERIES VALVES



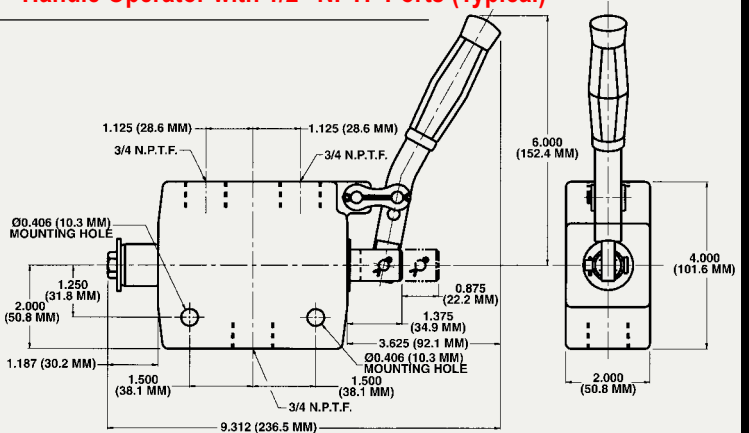
Knob Operator with 1/2" NPTF Ports (Typical)



Handle Operator with 1/2" NPTF Ports (Typical)



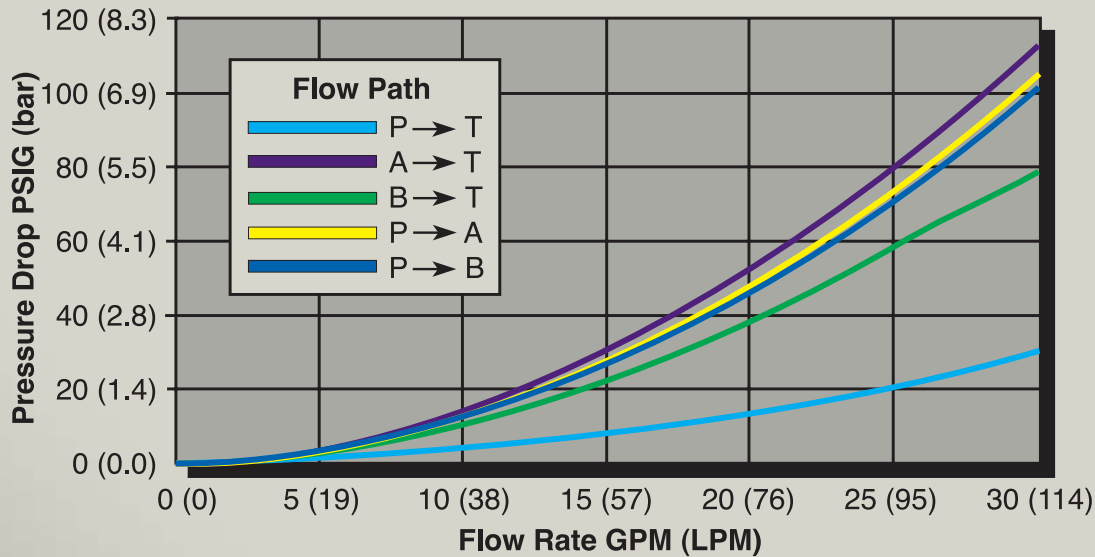
Knob Operator with 3/4" NPTF Ports (Typical)



Handle Operator with 3/4" NPTF Ports (Typical)

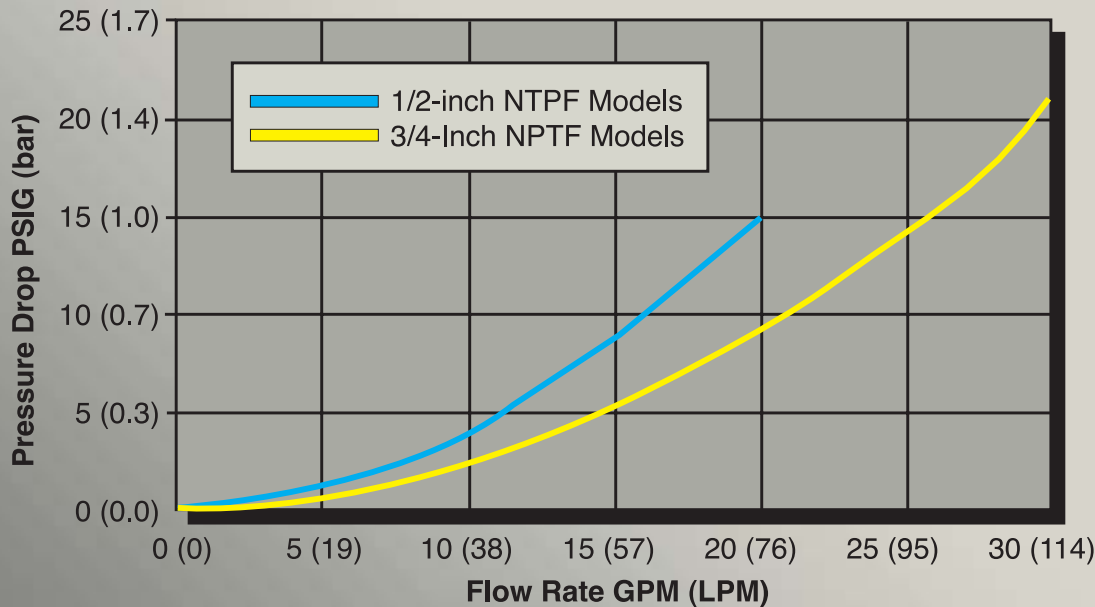
# PRESSURE DROP DATA - STANDARD UNITS

## TYPICAL INTERNAL PRESSURE DROP; CVA, DCVA, AND ROTARY SERIES VALVES



NOTE: Measurements taken with 164 SSU (35 cst). Hydraulic fluid at 100 degrees F (38 degrees C). Values are the same for both 1/2 inch NPTF and 3/4 inch NPTF workports.

## TYPICAL INTERNAL PRESSURE DROP; SELECTOR SERIES VALVES



NOTE: Measurements taken with 164 SSU (35 cst). Hydraulic fluid at 100 degrees F (38 degrees C). Values are the same for both 1/2 inch NPTF and 3/4 inch NPTF workports.

**WARNING:** Pressure at "T" port in excess of 100 psig (7 bar) may interfere with the proper operation of some valve configurations. Please consult factory when using these valves in series, or when back pressure over 100 psig (7 bar) is present.

# OTHER QUALITY PRODUCTS MANUFACTURED BY ENERGY® MANUFACTURING COMPANY

## CUSTOM AND STANDARD HYDRAULIC CYLINDERS

A wide range of welded, tie-rod, and ram-type cylinders are available to satisfy virtually any hydraulic application or need:

**Standard Cylinders** – 1.5 inch (3.81 cm) to 10 inch (25.4 cm) bores; strokes to 15 feet (4.57 m); single and double acting; up to 10,000 psig (690 bar) working pressure capability; many end mechanisms, integral valves, and other options available:

- *CHD Series Welded Cylinders* – Threaded end-cap design; 5,000 psig (345 bar) working pressure capability – special designs available for working pressures up to 10,000 psig (690 bar).
- *CSR Series Welded Cylinders* – Round retaining ring design; 3,265 psig (225 bar) working pressure capability.
- *CYR Series Welded Cylinders* – Round retaining ring design; 3,000 psig (207 bar) working pressure capability.
- *CYL Series Welded Cylinders* – Snap ring design; 2,500 psig (172 bar) working pressure capability.
- *HPTR Series Cylinders* – Tie-rod design; 3,265 psig (225 bar) working pressure capability.

**Rephasing Cylinders** – A rephasing cylinder system is two or more cylinders plumbed in series, with the bore and rod diameters sized such that all rods extend and/or retract an equal or equivalent amount when flow is applied to the first, or last, cylinder in the series. This hydraulic synchronization of rod positions typically eliminates the need for a hydraulic flow divider and/or combiner, or a mechanical connection between the cylinder rods in the application.

Please contact us for further details and information regarding these systems.



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- **NTEA** (National Truck Equipment Association)

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