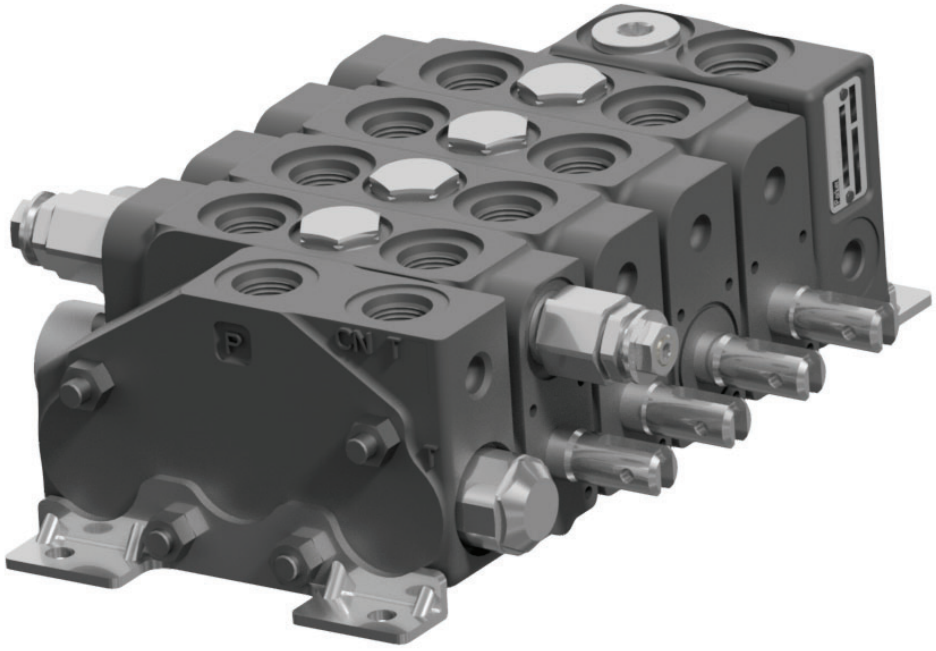

V10 SERIES
SECTIONAL VALVE

Directional Control Valve
MSG14-2701-B1/US

Parker

WARNING - USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

OFFER OF SALE

The items described in this document are hereby offered for sale by Parker-Hannifin Corporation, its subsidiaries or its authorized distributor. This offer and its acceptance are governed by the provisions stated in the detailed “Offer of Sale” Available from your local Parker representative.

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If you have questions about the products contained in this catalog, or their applications, please contact:
Hydraulic Valve Systems Division
phone: 1-440-366-5100
email: HVD.Support@support.parker.com

Technical Information
Series V10

General Description

The Parker Series V10 Sectional Directional Control Valves provide parallel or tandem circuit operation for open center and closed center systems. They offer economy and excellent performance in a compact design.

Features

- Parallel and tandem work sections with individual load (reverse flow) checks.
- Available for open center, closed center and power-beyond applications.
- Low flow and high flow spool options available offering flows to 15 GPM (56.7 LPM).
- Continous system operating pressures to 3500 PSI (241 Bar) and Work port pressures to 5000 PSI (345 Bar).
- 3-Way, 4-Way and 4-Way Float operation.
- Numerous manual spool positioner options plus remote hydraulic operation.
- Work port relief valves and anti-cavitation check valves available.
- Single handle or dual function mechanical joystick control of manual sections.
- Enclosed spool ends with handles.
- Long life - low friction spools.

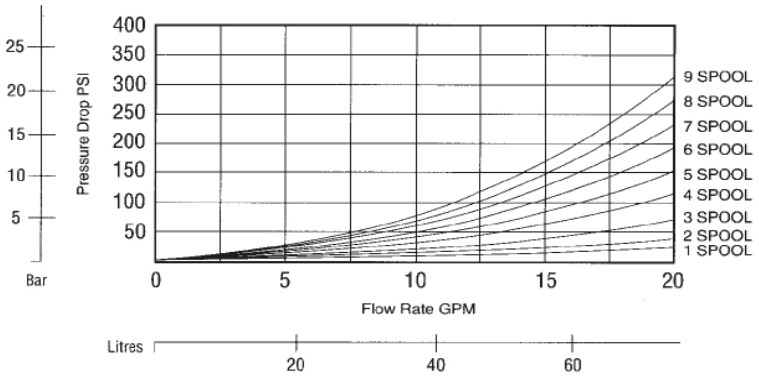
Specifications	
Nominal Flow Rating* (GPM)	15 (56.7 LPM)
Max. Operating Pressure (PSI)	
Continous Operating	3500 (241 Bar)
Work Port	5000 (345 Bar)
Exhaust Core	500 (34.5 Bar)
Operating Temperature (°F)	-40 - +200 (-40°C - +93°C)
Standard Port Sizes	
Inlet	SAE-10
Outlet	SAE-10
Power Beyond	SAE-10
Work Ports (Manual and Solenoid Work Sections)	SAE-8
Fluid Compatibility	Petroleum Based
Viscosity (SSU)	60 -1000 (10 - 216 cST)
O-Ring Seals	Buna-N (standard); Fluorocarbon optional
Spool Seals	Lip Type (Standard in 24990 Housings) O-Rings (Standard in 23592 Housings)
Filtration Required	10 micrometers (nominal)
Number of Work Sections	1 - 9
Weight (approx.) (lbs)	
No. 23613 Inlet Cover	5 (2.3 kg)
No. 23627 Outlet Cover	5 (2.3 kg)
No. 2499 Work Section (Manual)	6 (2.8 kg)
Mounting Postion	Not restricted

** The maximum flow thru a directional control valve assembly is determined by the maximum allowable pressure drop acceptable to the applicaiton.*

Performance Curves
Series V10

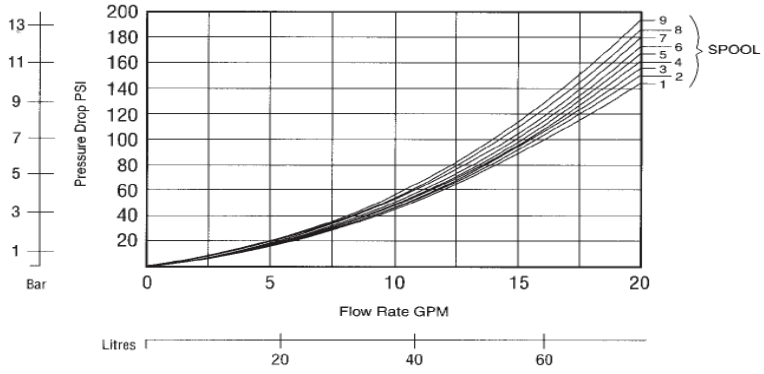
Open Center Pressure Drop

Typical pressure drip thru 1 to 9 section valve assemblies using Left (top or end) inlet to Right (top or end) outlet.



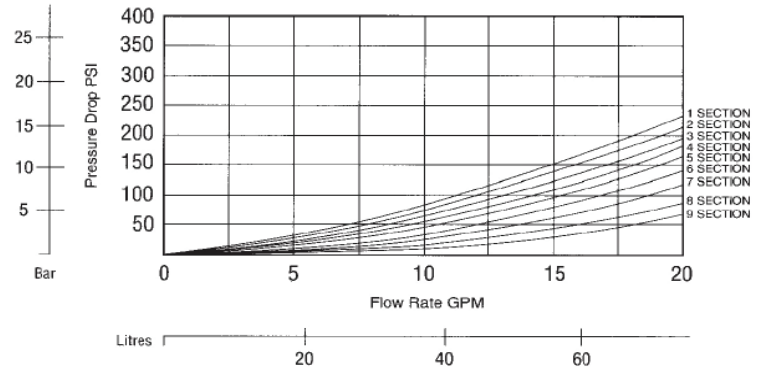
Inlet to Work Port Pressure Drop

Typical pressure drip thru 1 to 9 section valve assemblies Left (top or end) inlet to work port.



Work Port to Outlet Pressure Drop

Typical pressure drip thru 1 to 9 section valve assemblies from work port to Right (top or end) outlet.



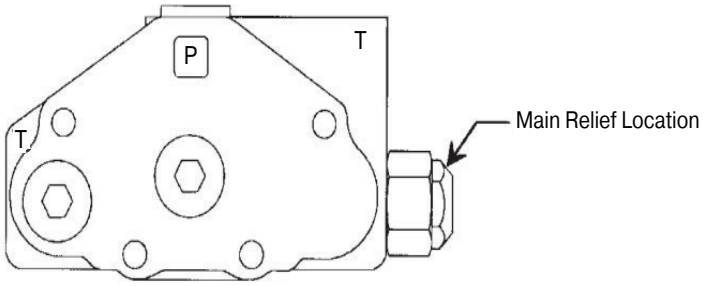
Inlet Covers
Series V10

No. 23613 Inlet Covers

No. 23613 inlet cover is used for all model V10 control valve assemblies. It offers top and end inlet and outlet ports. All unused ports must be plugged.

This inlet cover also has the provision for the main relief valve.

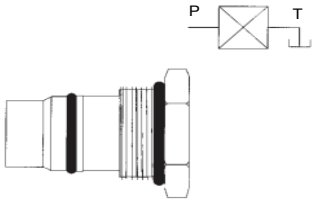
If a gauge port is required, a port plug may be drilled and tapped for 1/4" NPTF or SAE-4 and installed in the unused inlet port.



Main Relief Valves

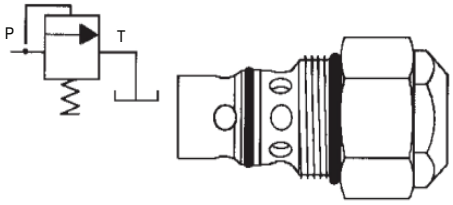
The primary function of the main relief valve is to prevent excessive pressure spikes. Main relief valve cartridges are available in externally adjustable (Model RCMA) or internal shim adjustable (Model RCM) configurations. Several relief springs are available for pressure settings within the 500 - 3500 PSI (34.5 to 241 Bar) full pressure range.

When a main relief valve is not required, the No Relief Plug must be installed in place of the relief valve.



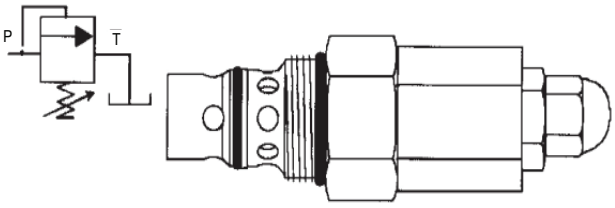
No Relief Cavity Plug

Model RCM: Differential area relief valve that is internally shim adjustable within the relief spring range. Several spring and shim options are available.



Model "RCM" Relief Valve

Model RCMA: Differential area relief valve that is externally screw adjustable within the spring range. Several spring options are available.



Model "RCMA" Relief Valve

Outlet Covers
Series V10

No. 23627 Outlet Cover

No. 23627 outlet cover is used for all model V10 control valve assemblies. It offers top and end ports.

The conversion port is located in the outlet cover.

Conversion port options include:
- Turn around (outlet located in inlet cover)
- Closed Center
- Power Beyond

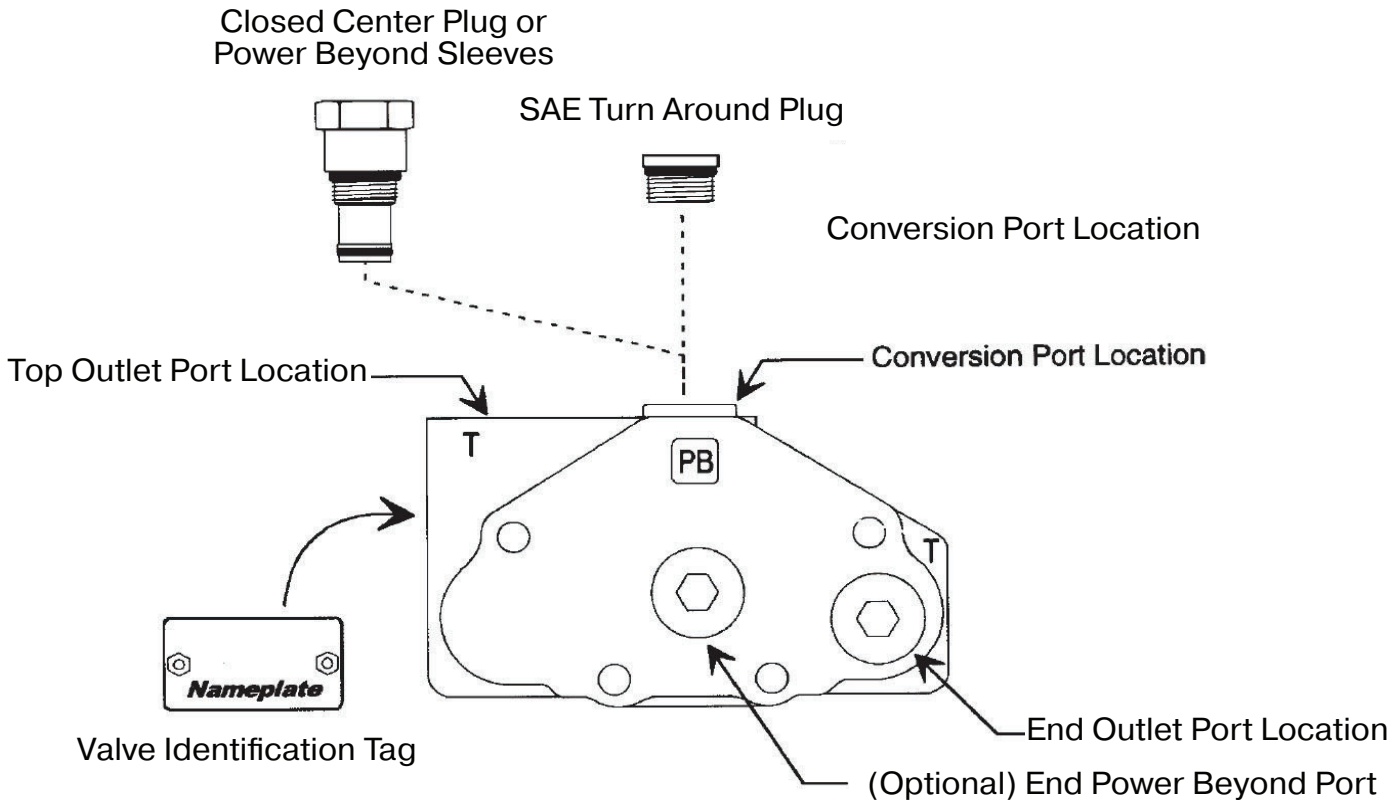
Closed Center Plug (Closed Center Systems)

Install the closed center plug into the top conversion port when using a variable displacement pump. The closed center plug will block pump flow when all valve spools are in neutral. High pressure is maintained at the control valve inlet. The maximum system pressure is set with the compensator adjustment on the pump.

Power Beyond Sleeve (High Pressure Carry Over)

By installing the power beyond sleeve into the top conversion port, hyraulic oil under pressure will be carried thru the valve, making it available to a second control valve. In a power beyond circuit, the upstream valve will always have priority. Hydraulic oil will only be available to the downstream valve when all valve spools in the upstream valve are in neutral.

Each valve may have its own main relief valve set at different pressures, but the highest pressure setting must be in the upstream valve.



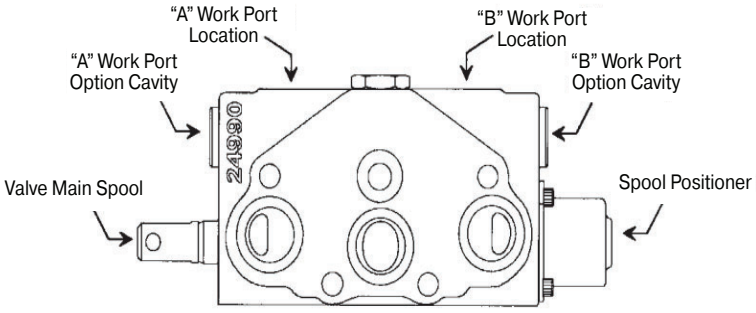
No. 23627 Housing (Prior to 1/98)

No. 24990 Housing (Introduced 1/98)

Model V10 work sections are precisely machined from high tensile gray cast iron.

Valve spools may be operated manually, mechanically or by remote hydraulic actuator.

Two basic tyypes of work sections are available:
- Parallel (open center or closed center)
- Tandem (priority circuit systems)



Model V10 Manual Work Section

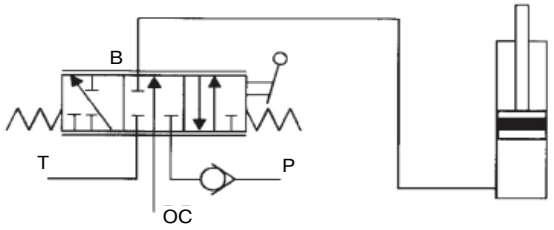
Low Flow and High Flow Valve Spools

Low flow and high flow valve spools are available for use in No. 24990 work sections. For optimum metering, select low flow spools for applications requiring 8 GPM (31 LPM) or less.

Use high flow spools for applications up to 15 GPM (57 LPM). Both low flow and high flow versions may be intermixed in the same valve assembly.

3-Way Cylinder Spool (03)

For control of single acting cylinders or uni-directional hydraulic motors where motor free-wheeling is not required. The active work port is blocked in the neutral position.

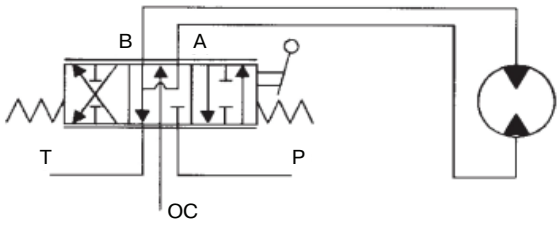


Typical 3-Way (03) Application

4-Way Free Flow Motor Spool (F4)

For control of double acting cylinders or reversible hydraulic motors. Because both work ports are open to tank in the neutral position, free flow spools will allow a motor to coast.

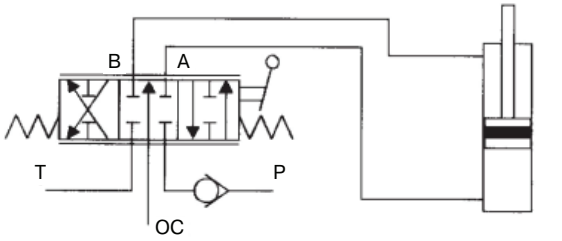
CAUTION: If using this spool configuration in cylinder lift applications, it must be used in conjunction with a load holding device to prevent the load from free falling when the spool is in the neutral position.



Typical 4-Way Free Flow (F4) Application

4-Way Cylinder Spool (04)

For control of double acting cylinders or reversible hydraulic motors where floating a cylinder or motor free-wheeling is not required. Both work ports are blocked in the neutral position.

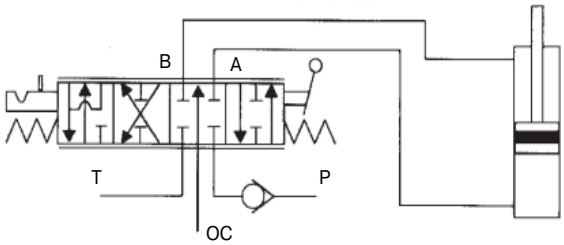


Typical 4-Way (04) Application

4-Way, 4-Position Float Spool (K4)

This spool is the same as the 4-Way Cylinder spool, with the addition of a fourth "Float" position. It is spring-centered to neutral from the "A" and "B" power positions.

The fourth position is the detented "Float" position which allows a cylinder to float or a hydraulic motor to free-wheel.

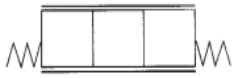


Typical 4-Way Float (K4) Application

Spool Positioners and Actuators

Spring Return Spool Positioner

The spring return spool positioner "spring returns" the valve spool to neutral from the "A" and "B" power positions when the handle is released.



Spring Return Spool Positioner

"D" Detent Spool Positioner

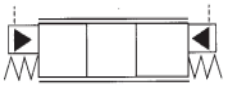
The "D" detent spool positioner "detents" the valve spool in neutral and the "A" and "B" power positions. The valve spool will remain in the position in which it was manually placed when the handle is released.

This option is NOT intended for use as a positive spool locking device against excessive external forces or machine vibration.

"D" Detent Spool Positioner

"K4" 4-Position Float Spool Positioner

The "K" float positioner spring returns the valve spool to neutral from the "A" and "B" power positions. The fourth position is the detented - float position.



"K4" 4-Postition Float Spool Positioner

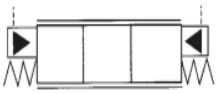
"HR" and "HRO" Remote Spool Actuators

"HR" hydraulic remote spool actuators provide for remote hydraulic operation of two and three position V10 work sections.

A customer-supplied hydraulic controller, and a 300 to 500 PSI (20 to 33 Bar) pilot source, will provide infinite spool positioning for metering work port flow

"HRO" hydraulic remote spool actuators offer an external screw type override. This override provides a means for emergency manual operation in the event of pilot pressure failure. It may also be used as a Spool Travel Limiter.

All hydraulic remote actuator pilot ports are SAE-6 straight thread. Pilot ports may be located at the top (std.), bottom, or end (end not available with external override).



"HR" and "HRO" Remote Spool Actuators

Hydraulic Remote Actuator Specifications	
Max Pressure Rating (PSI)	750 (34.5 Bar)
Pilot Press to Initiate Flow (PSI)	60 (4.2 Bar)
Pilot Pressure at Full Stroke (PSI)	220 (15.2 Bar)
Pilot Flow (GPM)	2 - 4 (7.5 - 15 LPM)

Work Port Relief Valves

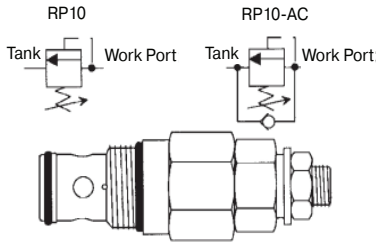
The primary function of a work port relief valve is to limit a part of a circuit to a pressure less than the main relief setting. Port relief valves will also provide spike protection while the valve is in neutral. The relief setting at "crack" or "full flow" must be specified when ordering.

Model RP10 Work Port Relief Valves

Work port relief valves are available in adjustable (RP10-A) and tamper resistant (RP10-N) configurations, offering a pressure range from 500 to 3500 PSI (34 to 241 Bar)

Adjustable and tamper resistant combination relief/anti-cavitation check cartridges (Model RP10-AAC and RP10-NAC) are also available.

The "NR" no relief cavity plug must be installed in this cavity when a work port option is not required.

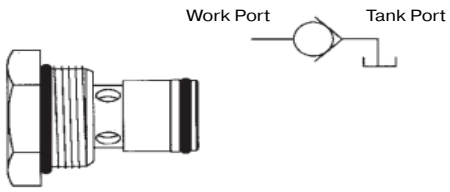


RP10-A Relief Valve Cartridge

Anti-Cavitation Checks

Anti-cavitation (also referred to as anti-void) check valves are available for use in the work port option cavity to prevent cylinder or motor cavitation. It allows the cavitating work port to refill from the exhaust core.

Anti-cavitation check valves are non-adjustable and will open whenever the work port pressure is lower than the exhaust core pressure.



Anti-Cavitation Check Valve

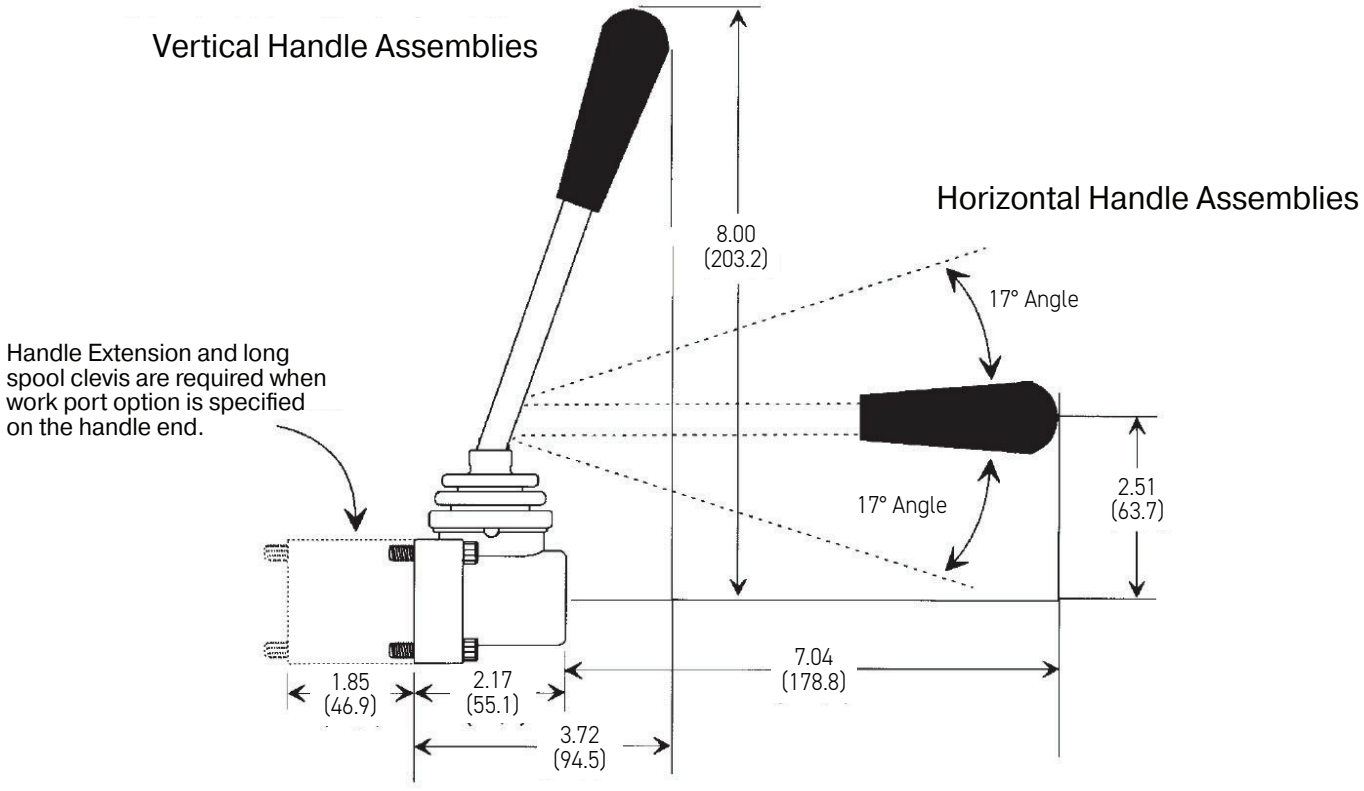
Handle End Options

The clevis (handle end) of the spool may be located at either the "A" or "B" port end of the work section. Unless otherwise specified, the handle end will be located at the "A" port end for all work sections.

V10 valve spools may be reversed in the housing to offer "B" port handle.

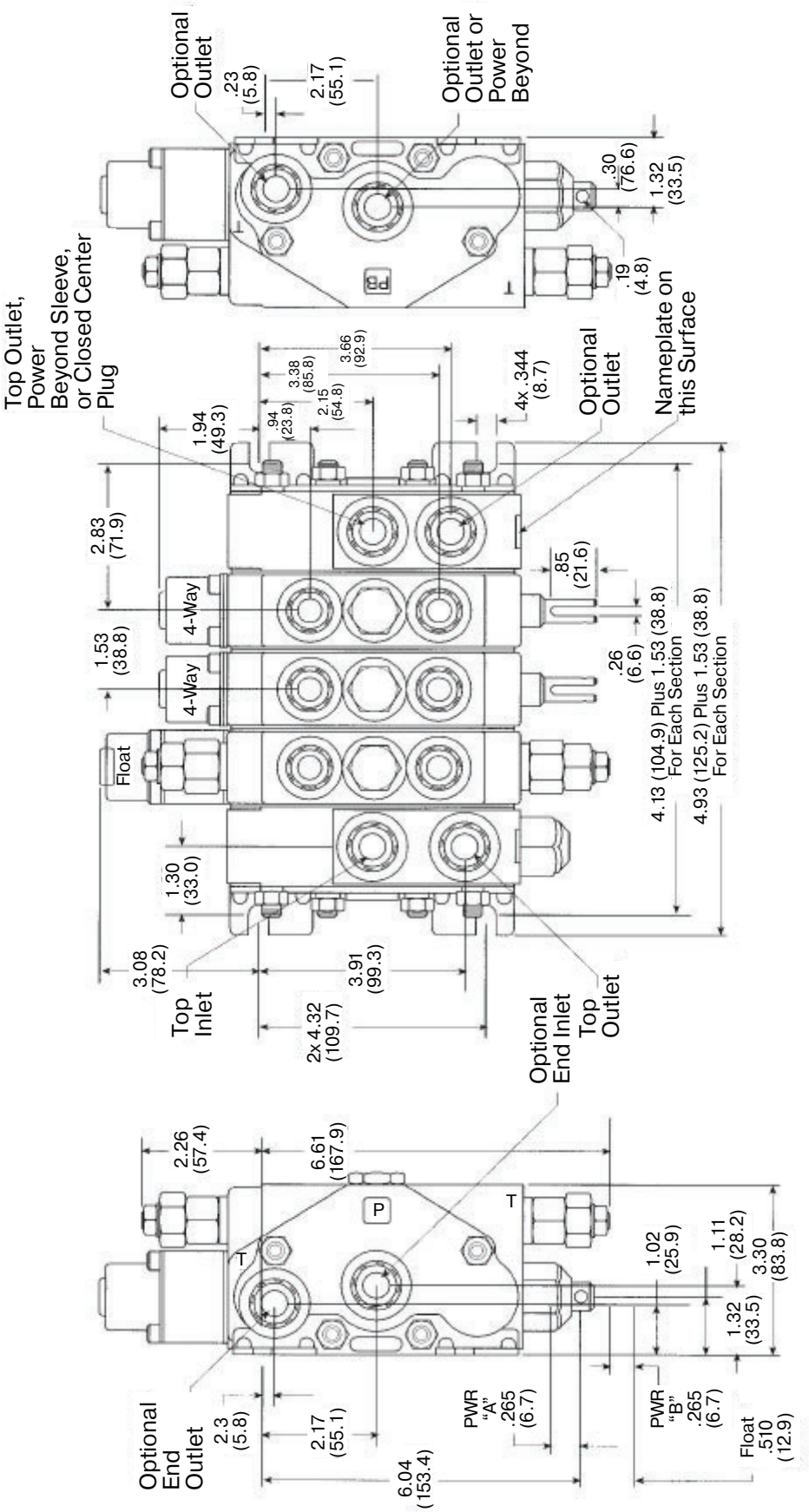
The following handle end options are available:

- CVHA (Complete Vertical Handle Assembly)
- XCVHA (Complete Extended Vertical Handle Assembly)
- CHHA (Complete Horizontal Handle Assembly)
- XCHHA (Complete Extended Horizontal Handle Assembly)
- LCHA (Less Complete Handle Assembly)



Dimensions
Series V10

Manually Operated Control Valve Assembly *(Dimensions are in inches (mm) and are for reference only)*



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