



Water Hydraulics, Inc.

High Pressure Water - *Directional Control Valves* - *V0XX Series*



Quad-S™ Cartridge
Zero Leakage
Raw Water Operation
Up to 5000 psi



Proudly Made in USA

BOC Water Hydraulics Inc.
12024 Salem Warren Road
P.O. Box 1028
Salem, Ohio 44460

Visit Us on the Web At:
www.bocwaterhydraulics.com

Overview

BOC's V0XX line of high pressure water directional control valves are designed specifically for mill duty applications. The heart of the valve line is the **Quad-S™** (**Stainless Steel, Soft Shift**), zero leakage, 2-way, poppet cartridge element shown below. The **Quad-S™** cartridge offers numerous benefits over other spool and poppet type valves. High quality materials of construction and precision machining combine to make a long lasting valve cartridge. Maintenance features are far superior to other valves. Features include such innovations as slots in the valve cap and cartridge sleeve for ease of field service.

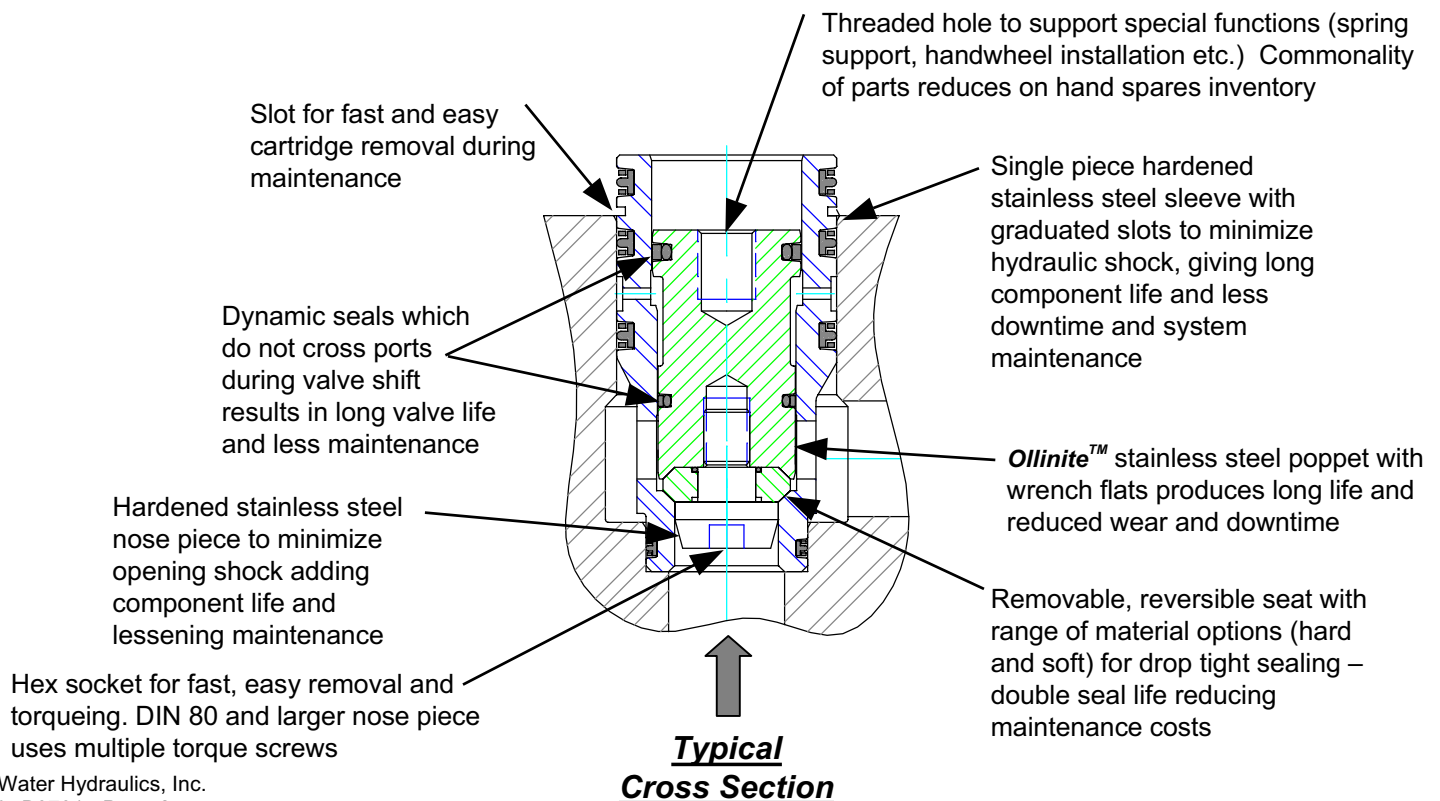
By arranging different combinations of identical **Quad-S™** cartridges into a single housing, virtually any valve action and flow pattern is achievable. Combinations up through 4-Way are standard, but many other possibilities are available to meet given design needs. (i.e. high and low speed cartridges in same valve). Since cartridges are identical for a given valve size, customers need only carry a small parts inventory to service a complete system (or systems).

Each **Quad-S™** cartridge has its own meter-in or meter-out capability. Simply by adjusting the flow adjustment screw on the top of the cartridge, a given cylinder port can be individually metered to achieve desired speed and performance. Separate metering valves for cylinder control are no longer required.

Various piloting options are available. Direct solenoid operated poppet type pilots are available for low viscosity fluids such as 95/5 up to 4600 psi. For pressures greater than 4600 psi or raw water applications, air operated or lever operated packed plunger type pilot valves are available. The unique pilot logic section enables individual 2-Way cartridges to operate in a variety of configurations from 2 Way - 2 Positions to 4-way, 16 positions and even 6 Way, 32 positions..

V0XX series valve mountings are interchangeable with Hunt Valve MSA (V034/V054 series) and Salem Valves. Other mounting patterns are available - consult factory. Standard sizes include 3/4", 1", 1 1/2", and 2". Larger sizes are available, inquire at the factory.

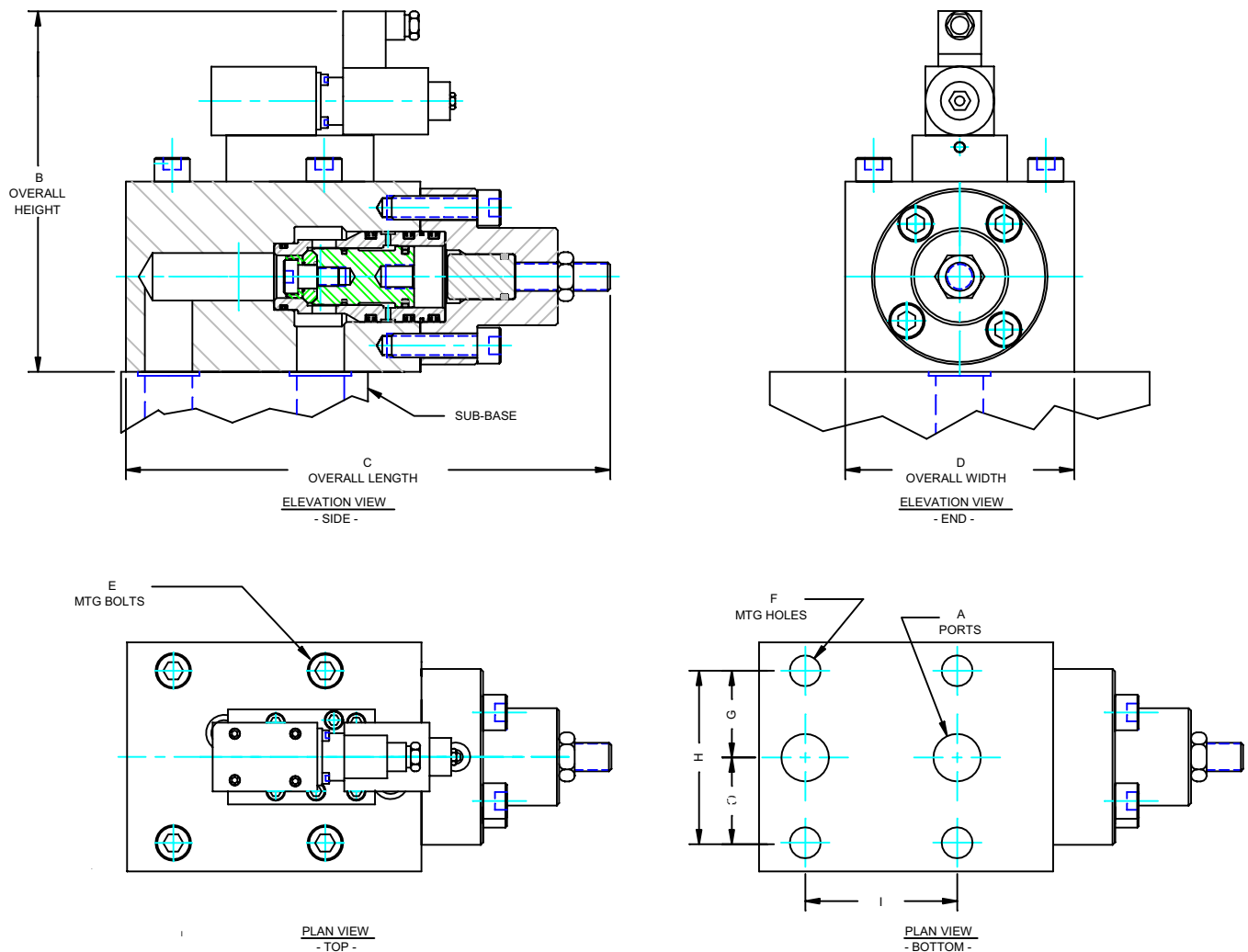
Quad-S™ Cartridge **(Stainless Steel, Soft Shift)**



2 Way Valves

Two way applications incorporate a single Quad-S Cartridge into a single housing. Flow adjustment screw is standard on all valves. Position indicator kits can be substituted in lieu of the flow adjustment screw for an incremental charge.

These valves are mounted in the horizontal position and mount directly to the Hunt MSA or Salem Valve mounting pattern as detailed below. Please consult factory for confirmation of mounting pattern. Mounting patterns may change, but all valves are rated to 6000 psi unless otherwise noted.



DIMENSIONS (inches)										
Size	A	B	C	D	E	F	G	H	I	
V016	0.69	7.50	7.00	4.00	1/2"-13 UNC	0.56	1.50	3.00	2.62	
V025	1.00	8.50	9.00	5.00	5/8"-11 UNC	0.69	1.75	3.50	3.06	
V032	1.25	9.50	13.00	6.00	3/4"-10 UNC	0.81	2.28	4.56	4.00	
V040	1.50	10.50	14.00	7.00	7/8"-9 UNC	0.91	2.63	5.25	5.00	
V050	2.00	11.50	14.50	8.00	7/8"-9 UNC	0.91	3.00	6.00	6.00	

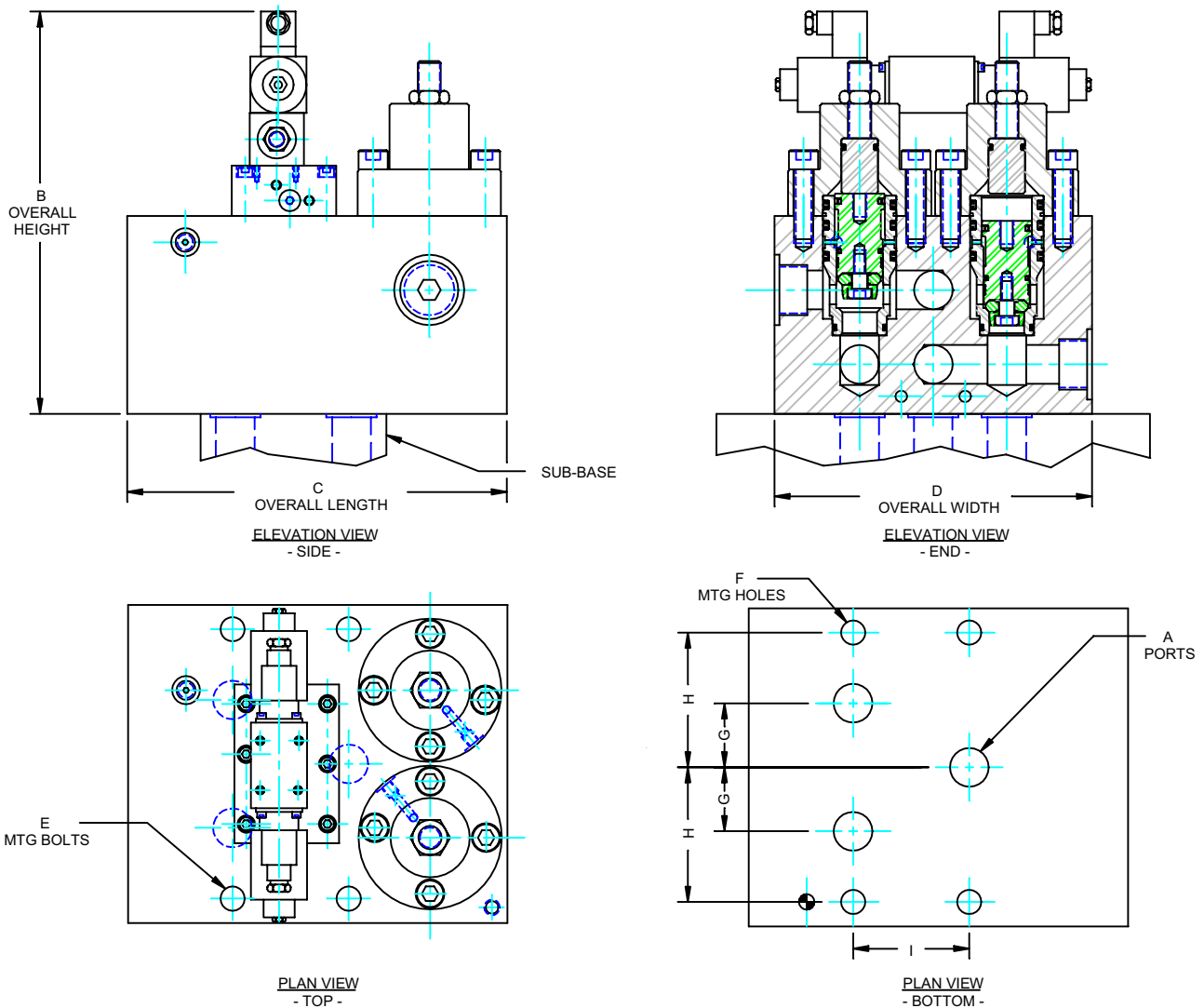
Note: For certified dimensions, please consult factory

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3 Way Valves

Three way applications incorporate two **Quad-S™** cartridges into a single housing. Flow adjustment screws are standard on both cartridges, providing meter in or meter out capability. Position indicator kits can be substituted in lieu of flow adjustment screws at an additional charge.

Valve assemblies are mounted in the vertical position with valve cap pointing upwards. Valves bolt up to Hunt MSA or Salem Valve mounting patterns as detailed below. Please consult factory for larger sizes (>2") or alternate mounting requirements.

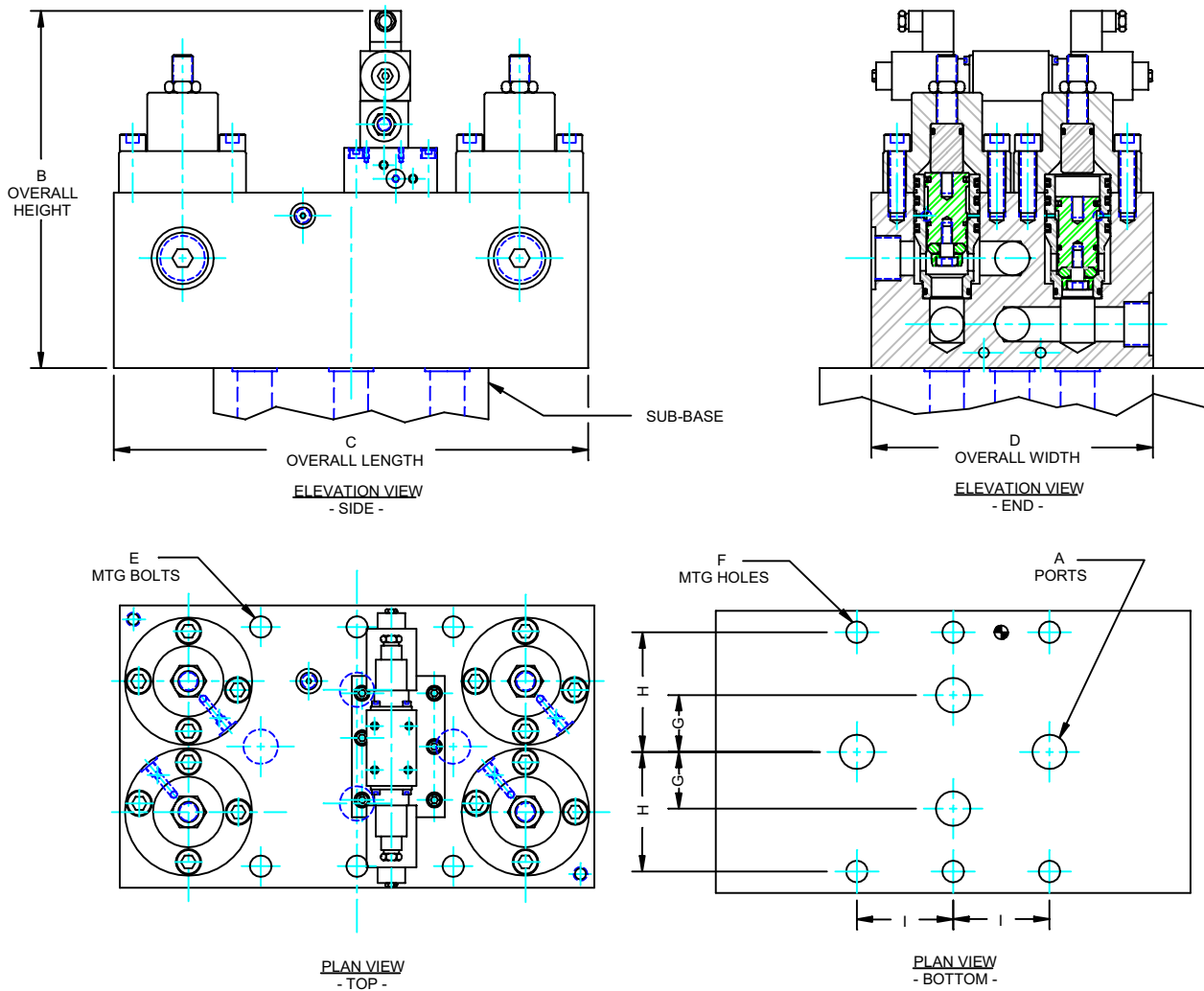


DIMENSIONS (inches)									
Size	A	B	C	D	E	F	G	H	I
V016	0.69	8.63	8.13	6.50	1/2"-13 UNC	0.56	1.25	2.75	2.38
V025	1.00	9.63	9.38	8.00	5/8"-11 UNC	0.69	1.63	3.38	2.75
V032	1.25	11.38	12.25	10.25	3/4"-10 UNC	0.81	2.06	4.34	3.75
V040	1.50	13.00	12.75	11.50	7/8"-9 UNC	0.91	2.25	4.88	5.00
V050	2.00	13.50	13.25	12.50	7/8"-9 UNC	0.91	3.13	5.50	4.38

4 Way Valves

Four way applications incorporate four **Quad-S™** cartridges into a single housing. Flow adjustment screws are standard on all four cartridges, providing meter in or meter out capability. Position indicator kits can be substituted in lieu of flow adjustment screws at an additional charge.

Valve assemblies are mounted in the vertical position with valve cap pointing upwards. Valves bolt up to Hunt MSA or Salem Valve mounting patterns as detailed below. Please consult factory for larger sizes (>2") or alternate mounting requirements.



DIMENSIONS (inches)									
Size	A	B	C	D	E	F	G	H	I
V016	0.69	8.63	116.50	6.50	1/2"-13 UNC	0.56	1.25	2.75	2.38
V025	1.00	9.00	13.00	8.00	5/8"-11 UNC	0.69	1.63	3.38	2.75
V032	1.25	13.00	17.25	10.25	3/4"-10 UNC	0.81	2.06	4.34	3.50
V040	1.50	13.00	20.50	11.50	7/8"-9 UNC	0.91	2.25	4.88	4.38
V050	2.00	13.50	21.00	12.50	7/8"-9 UNC	0.91	3.13	5.50	4.38

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Maintenance Features

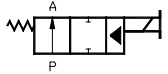
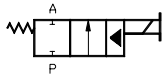
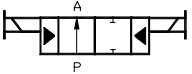
BOC valves are designed with serviceability in mind. Valve caps contain slots for fast and easy removal as shown below. Furthermore, each valve cap contains a unique bolt pattern which permits installation only one way - the correct way.

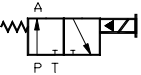
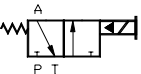
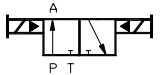
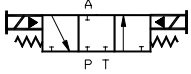

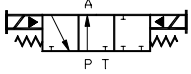
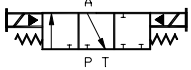



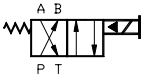
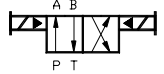
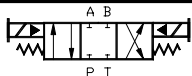
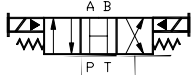
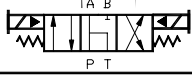
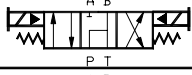
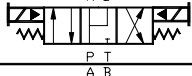
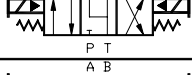
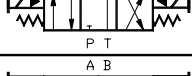

After the valve cap is removed, the **Quad-S** cartridge sleeve protrudes above the face of the housing. To remove a cartridge, simply lift the sleeve out of the housing using the slot as shown. Complete cartridge change-out takes only minutes.



Standard Flow Patterns

2 WAY VALVES		
2 Positions		
I.D. No.	Description	Simplified Schematic
F01	Normally Open	
F02	Normally Closed	
F03	Double Solenoid	

3 WAY VALVES		
2 Positions		
I.D. No.	Description	Simplified Schematic
F04	P to A, T Blocked	
F05	P Blocked, A to T	
F06	Double Solenoid	
3 Positions		
I.D. No.	Center Position	Simplified Schematic
F07	All Ports Blocked	
F08	P to T through A	
F09	P to A, T Blocked	
F10	P Blocked, A to T	

4 WAY VALVES		
2 Positions		
I.D. No.	Description	Simplified Schematic
F11	P to A, B to T	
F12	P to B, A to T	
F13	Double Solenoid	
3 Positions		
I.D. No.	Center Position	Simplified Schematic
F14	All Ports Blocked	
F15	All Ports Open	
F16	P to T thru A, B Blocked	
F17	P to T thru B, A Blocked	
F18	P to A & B, T Blocked	
F19	P Blocked, A & B to T	
F20	P & A Blk'd, B to T	
F21	P & B Blk'd, A to T	

Note: Other configurations are available, please consult factory for more detail.

Ordering Information

V 025 - F14 - 21 / 999

VALVE ASSEMBLY

DIN CARTRIDGE		
016	16 mm	3/4"
025	25 mm	1"
032	32 mm	1 1/4"
040	40 mm	1 1/2"
050	50 mm	2"

Larger sizes available, acquire at factory for more information

OPTIONAL FEATURES

999	Special Mounting/Porting
BH	Brad Harrison Connectors
V	Viton Seals
CP	Check Valve in Pilot P Port
XXX	Solenoid Voltage (Other than 120 VAC)

FLOW PATTERN

F01	2 Way, 2 Position, Normally Open
F02	2 Way, 2 Position, Normally Closed
F03	2 Way, 2 Position, Double Solenoid
F04	3 Way, 2 Position, Normally Open

And So Forth ...
 * See flow pattern table. Other flow patterns available.

PILOT CONFIGURATION

0	No Pilot Installed
1	Air Operated Pilot
2	Wet Pin Solenoid*
3	Lever Operated Pilot

* Required 95/5 HWBF or better, limited to 4600 psi

SEAT TYPE

1	Soft Seat (E-PET)
2	Hard Seat (Stainless Steel)
3	Other - Specify

Factory Assistance - Call

Phone: 330-332-4444

Fax: 330-332-1650