The CROSS series VS hydraulic selector valves are manually operated, spool type, 3-way, 2-position valves featuring cast-in metering notches for smooth operation. They provide an economical method of diverting flow to either of two hydraulic circuits and are available with a variety of actuators.

GENERAL SPECIFICATIONS
- Maximum working pressure: *2500 psi (172 bar)
- Maximum shock and surge pressure: 3500 psi (242 bar)
- Maximum flow capacity: VS2: 20 gpm (76 l/m) VS4: 40 gpm (151 l/m)
- Mounting: 2-bolt, any position
- Shipping weight: VS2: 2.7 lbs. (1.2 Kg), VS4: 6 lbs. (2.7 Kg)

* 3000 psi with SAE straight thread ports

MATERIAL SPECIFICATIONS
- Body: High tensile strength cast-iron
- Spool: Ground, plated and polished steel
- Seals: Buna N

STANDARD FEATURES (See CROSS Full Line Catalog)
- VS 2 - 1/2" NPTF or 3/4-16 (SAE #8) ports
- VS 4 - 3/4" NPTF or 1 1/16-12 (SAE #12) ports
- Knob actuator (at port "B")
- Front inlet port position

OPTIONAL FEATURES AVAILABLE
- Actuators include spring return, detents, handles, and solenoid operators:
  (must be externally piloted and drained - see FM VSOS)

TYPICAL APPLICATIONS (Simplified circuits)
DIMENSIONAL DATA: in inches and (millimeters)

<table>
<thead>
<tr>
<th>MODEL</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
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<th>L</th>
<th>M</th>
<th>N</th>
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<tr>
<td>VS2</td>
<td>2.12</td>
<td>1.53</td>
<td>.34</td>
<td>3.25</td>
<td>1.19</td>
<td>1.62</td>
<td>2.25</td>
<td>1.00</td>
<td>.31</td>
<td>5.33</td>
<td>1.03</td>
<td>2.16</td>
<td>1.18</td>
<td>3/4-16</td>
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<td>39</td>
<td>8.6</td>
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<td>41</td>
<td>57</td>
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<td>7.9</td>
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<td>SAE #8</td>
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<tr>
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<td>155</td>
<td>25.4</td>
<td>56</td>
<td>30</td>
<td>SAE #12</td>
</tr>
</tbody>
</table>

INTERNAL CONFIGURATION

Performance Data: (Typical)

Ordering Information

Example: Model VS4BKLFL8 is a standard 40 GPM valve with a knob actuator located at the "B" port side with SAE #12 (1 1/16-12) o-rings ports.
The CROSS series SD hydraulic selector valves are spool type, manually operated, 6-way, 2-position valves featuring cast-in metering notches for smooth operation. They provide an economical method of diverting flow to two separate hydraulic circuits or providing various types of multiple system operations in combination with other valves.

**GENERAL SPECIFICATIONS**
- Maximum working pressure: 5000 * psi (345 bar)
- Maximum shock and surge pressure: 6000 * psi (414 bar)
- Maximum flow capacity: 40 gpm (151 l/m)
- Mounting: 2-bolt, any position
- Shipping weight: 9 lbs. (4 Kg)
- *SAE #12 ports and smaller, 4500 psi for SAE #16 ports, 2500 for NPTF ports.

**MATERIAL SPECIFICATIONS**
- Body: Ductile iron
- Spool: Ground, plated and polished steel
- Seals: Buna N

**STANDARD FEATURES** (See CROSS Full Line Catalog)
- 1" NPTF or 1 5/16-12, SAE #16 ports
- Handle assembly (at port "C")
- Standard selector spool

**OPTIONAL FEATURES AVAILABLE**
- Various port sizes and type
- Series/parallel spool
- Actuators include spring return, detents, handles, and solenoid operators:
  (must be externally piloted and drained - see FM VSOS)

**TYPICAL APPLICATIONS** (Simplified circuits)

- **CIRCUIT SELECTOR**
  Allows either motor to be driven uni-directionally.

- **CIRCUIT SELECTOR**
  Allows either cylinder to be operated by one directional control valve.

- **SERIES/PARALLEL**
  Allows selection of either series or parallel motor operation.
HYDRAULIC VALVES
(DIRECTIONAL CONTROL)

DIMENSIONAL DATA: in inches and (millimeters)

PERFORMANCE DATA: (Typical)

FLOW VS. PRESSURE LOSS (DTE - 24 OIL, 120 DEGR. F. 1 1/16-12 PORTS)

ORDERING DATA:

EXAMPLE: Model SD48KLAS is a typical unit with a knob actuator located at "D" port side with standard selector spool & SAE #12 o-ring ports. See Full Line catalog page 8 for standard stock units SSD4 and SSD4-ORB.

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The CROSS VS4 and SD4 selector valves with solenoid operators offer versatility for many remote applications. 12 and 24 volt DC as well as 120 and 240 volt AC options are offered.

A minimum of 100 psi pilot pressure is required for shifting the spool. With heavy duty end caps up to 3000 psi pilot pressure may be used. In some applications, pilot pressure can be supplied with a shuttle valve connected between ports “C” and “D” of the SD4 double selector.

_Pilot and drain lines must be plumbed externally_ since the solenoid operator is not direct acting. When the solenoid is energized, the small valve spool within it is shifted to direct pilot pressure to the end of the selector spool causing it to shift. When the solenoid is de-energized, the small spool in the solenoid is shifted back and the spool cavity is connected to vent. The spring return at the opposite end of the selector spool then returns it to its original position. Pilot pressure is blocked in this position.

Maximum vent or drain line pressure is _30 psi_ but higher pressures may be used if vent line pressure is supplied to the spring end using a special pilot end cap to balance the main selector spool. _Pilot pressure must be at least 100 psi over the vent line pressure in this configuration._

To order the solenoid option, specify “G” - _other_ as the actuator option and note the voltage, as well as heavy duty end caps for pilot pressure above 700 psi. “B” _spring return_ would be specified for the end cap option. A sample part number is as follows: _SD4BG - 12 volt, heavy duty end caps - BA6._

(The solenoid selector is not a field convertible option but is available within the standard short factory lead times.)
The CROSS SD5 2-wheel/4-wheel selector valve is a special version of the SD series valve with a special spool and body. It has been specifically designed for use with hydrostatic transmissions and permits selection of either 2-wheel (Transport mode) or 4-wheel (Work mode) drive positions.

**GENERAL SPECIFICATIONS**
- Maximum working pressure: 5000 psi (345 bar)
- Maximum shock and surge pressure: 6000 psi (414 bar)
- Maximum flow capacity: 50 gpm (189.3 l/m)
- Shipping weight: 10 lbs. (4.5 Kg)
- Mounting: 2-bolt, any position

**MATERIAL SPECIFICATIONS**
- Body: High tensile strength cast iron
- Spool: Ground, plated and polished steel
- Seals: Buna N

**STANDARD FEATURES**
- 1 1/16 - 12 (3/4". SAE #12) ports
- 2-wheel/4-wheel selector spool
- 12 VDC solenoid actuator
- Spring return
- 7/16-20 charge pressure port

**OPTIONAL FEATURES AVAILABLE**
- 3/4-16 (1/2", SAE #8) ports
- 3/4" NPTF ports
- Actuator at either side
- Handle actuator
- Knob
- Clevis
- Charge pressure port sizes to 1 5/16-12

**APPLICATION**

Note that when in 2-wheel drive, supercharge oil is supplied to the non-driving wheels, preventing cavitation. When operating in 2-wheel drive for long periods of time, it may be necessary to occasionally shift into 4-wheel drive in order to cool the non-driving wheel motors.
DIMENSIONAL DATA in inches and (millimeters)

PERFORMANCE DATA

ORDERING DATA

Example: SD5BSBA5 is a 2-wheel/4-wheel selector valve with 12v DC solenoid actuator at the "D" port side with spring return and 1\n\n\n
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