

#### DESCRIPTION

1681-2: Two-Spool  
1681-3: Three-Spool  
1681-4: Four-Spool  
1681-5: Five-Spool  
1681-6: Six-Spool

57 l/min [15 US gal/min] maximum flow. 207 bar [3000 psi] maximum pressure. Up to two add-on sections available per valve for 7 and 8 spool units or for adding on in the field.

#### TYPICAL APPLICATIONS

This valve combines the lower manufacturing costs of a monoblock with the versatility of a stack valve. The design eliminates between section leakage and spool bind. Exceptionally fine metering can be obtained in this unit. It is available from two to eight spools.

#### STANDARD FEATURES

- Cast-iron body
- Chrome plated spools select fit to body for leakage control
- Lift check for each spool to prevent load drop before raise
- Leak-free feed tubes for between section connection
- Priority circuit for #1 spool of valve, optional
- One-valve mating face versus one per section with conventional stack valves
- Paint color: black primer
- Symmetrical design allows spools to be switched to either side of body. This allows access from either end of valve

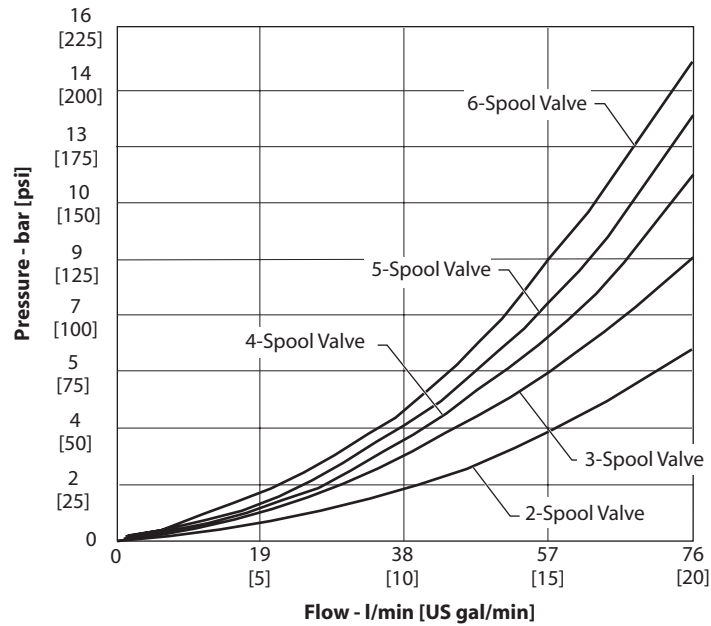


## Directional Control Valves Technical Information Model 1681

### STANDARD FEATURES AND SPECIFICATIONS

- All spool supplied with clevis ends.
- Maximum spool leakage: 16 cm<sup>3</sup>/min at 69 bar [1000 psi] and 110°F oil.
- All valves painted black and bulk-packed.
- All available ports machined and plugged with shipping plugs. Distributors should provide solid plugs for unused options. (QCC will provide any non-standard plugs such as optional power beyond ports).
- Nameplates are installed on all assembled valves and two / three spool outlet sections. No part numbers are stamped on standard valves and outlets. Nameplates contain an eight-digit manufacturing date code.
- All accessories (such as handles, spool action option kits) are sold separately as kits. With these kits distributors can customize standard valves from their inventory.
- All standard valves are shipped from QCC with 4-way, 3 position (T) spool and standard spring center mechanisms installed. Specify exceptions, such as motors spools (O), when ordering.

**PRESSURE DROP**



**PORTING**

<b>Inlet/outlet</b>	7/8-14 SAE (standard), 3/4-16 SAE
<b>Locations available</b>	Opposite end-porting standard Same end porting, left or right inlet porting, top and side locations available
<b>Work ports</b>	3/4-16 SAE (standard) top only 9/16-18 SAE, top only
<b>Power beyond</b>	7/8-14 SAE (standard), must be opposite inlet Top and side locations only

**HANDLES**

- Standard Kit, multi-position, two handle lengths. Also available with angled handles.
- Joystick, two-spool control with one handle (tang-spools must be used)
- S-hook only

**TECHNICAL DATA**

<b>Maximum pressure</b>	205 bar	[3000 psi]
<b>Maximum tank line pressure</b>	70 bar	[1000 psi]
<b>Maximum oil flow</b>	57 l/min	[15 US gal/min]
<b>Spool travel in and out from neutral</b>	5.6 mm	[0.22 in]
<b>Spool travel to float position from neutral</b>	10.6 mm	[0.42 in]
<b>Maximum port leakage at 69 bar [1000 psi]</b>	16 cm <sup>3</sup> /min	[1 in <sup>3</sup> /min]
<b>Maximum lift check leakage at 69 bar [1000 psi]</b>	82 cm <sup>3</sup> /min	[5 in <sup>3</sup> /min]
<b>Minimum oil temperature</b>	-29° C	[-20° F]
<b>Maximum oil temperature</b>	82° C	[180° F]
<b>Ambient temperature range</b>	-29° to 60° C	[-20° to 140° F]
<b>Minimum viscosity</b>	6 mm <sup>2</sup> /sec (cSt)	[45 SUS]
<b>Maximum viscosity</b>	440 mm <sup>2</sup> /sec (cSt)	[2000 SUS]
<b>Fluid cleanliness per ISO 4406</b>	19/16	
<b>Standard spool forces - dry</b>	231 N	[52 lbf]



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### OPTIONS

#### Work port orifice options

Orifice port standard: Drop in orifices can be purchased separately.

**Unidirectional:** Restricts flow in one direction and has free flow in opposite direction. With feet installed in the up position, the orifice restricts flow returning from actuator. With feet installed down, the orifice restricts flow to the actuator.

**Bidirectional:** Restricts flow both to and from actuator. This can be the same, or different size orifice for each position.

#### Spool types

- Tandem-center - 4-way, 3-position
- Motor-spool - 4-way, 3-position
- Float-spool - 4-way, 3-position
- Regenerative - 4-way, 3-position
- Single-acting A - 3-way, 3-position
- Single-acting B - 3-way, 3-position
- Closed-center - 4-way, 3-position

#### Spool action

- Spring-center
- Spring-center, detent-in
- Spring-center, detent-out
- Spring-center, detent in float
- Spring-center, detent out float (Requires additional O-ring groove machining)
- Three position detent
- Friction-detent

#### Relief valve (port options available per spool)

Pilot operate relief valve

- 1.38 bar/l [20 psi/gal] rise
- No restrictions on setting up to 207 bar [3000 psi]
- Adjustable standard, tamper-proof cap optional

**DIMENSIONS**

