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## High-Speed Solenoid Valves for Hydraulic Applications

Part Number 614280

control-flow or pressure with pulse-width modulation



### Features

<b>Type</b>	<ul style="list-style-type: none"> <li>• 2- or 3-way</li> <li>• Normally open or normally closed ball poppet</li> </ul>
<b>Material</b>	Stainless Steel
<b>Pressure ratings (psi)</b>	100, 200, 300, 700, 1000, 1500, 3000
<b>Mounting</b>	<ul style="list-style-type: none"> <li>• Screw-in cartridge 9/16 - 18SAE               <ul style="list-style-type: none"> <li>- straight thread</li> <li>- O-ring sealing</li> </ul> </li> <li>• Drop-in cartridge</li> </ul>
<b>Temperature range</b>	-40 to +300°F
<b>Weight</b>	4.6 to 5.5 oz. depending on model
<b>Speed</b>	Max. operating frequency exceeds 200Hz (full open)
<b>Timing precision</b>	± 25 microseconds



Electrical Coil Options		
Resistance (Ohms)	Voltage (DC)	Application
1.6	12	Pulse-width modulated
9.0	12	Continuous duty
9.0	24	Pulse-width modulated
30	24	Continuous duty

Accessories	
<b>Driver module</b>	Electronic current limiter permitting use of low voltage digital input
<b>Porting tools</b>	Special plunge forming tools for machining ports
<b>Valve blocks</b>	Drilled manifold blocks accept tubing connections

Response Time (Typical)		
Pulse-Width Modulation Coil	Milliseconds	
	Open	Close
<b>Normally closed</b>	3.0	2.0
<b>Normally open</b>	2.0	3.0
Continuous Duty Coil		
<b>3-way Normally Closed</b>	5.0	3.0
<b>2-way &amp; 3-way normally open</b>	3.0	5.0
<b>2-way Normally Closed</b>	15.0	7.0

$$Q = C_v \sqrt{\frac{\Delta P}{S.G.}}$$

Q = Rate of flow- GPM

Cv = Valve Flow Factor

S.G. = Specific Gravity related to water

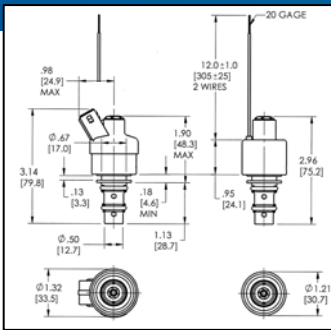
ΔP = Pressure drop across valve, psi



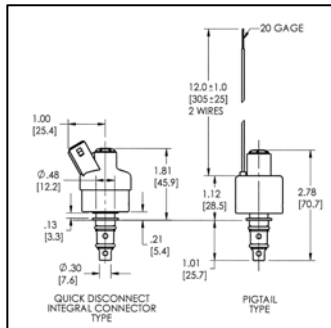
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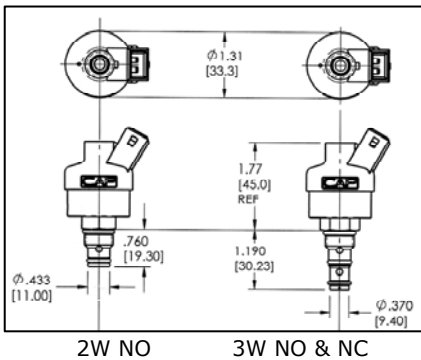
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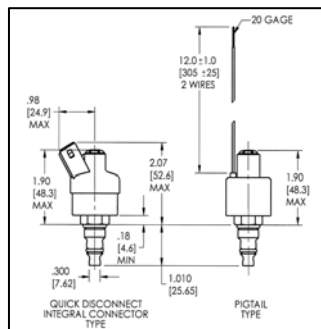
2W NC DI  
(100 psi)



2W NC DI  
(200, 300 psi)



2W NO      3W NO & NC



2W NC SI  
(200, 300, 700 psi)

## Performance

### Flow Factor (Cv) and Valve Mounting Options

Valve Type/ Function	Rated Pressure (psi)						
	100	200	300	700	1000	1500	3000
2W NC Valves*	0.214 (DI)	0.118 (DI, SI)	0.097 (DI, SI)	0.059 (SI)	-	-	-
2W NO Valves	-	-	0.11 (SI)	0.083 (SI)	0.064 (SI)	0.036 (SI)	0.016 (SI)
3W NC Valves	-	-	0.092 (SI)	0.069 (SI)	0.053 (SI)	0.03 (SI)	0.013 (SI)
3W NO Valves	-	-	0.11 (SI)	0.083 (SI)	0.064 (SI)	0.036 (SI)	0.016 (SI)

2W = Two-way valve    NO = Normally open valve    DI = Drop-in cartridge  
3W = Three-way valve    NC = Normally closed valve    SI = Screw-in cartridge

\* 2W NC valves are available only for continuous duty applications

## Ordering Information

Example: Model #

3W - NO - 1500 - SI - PT - 9.0 - N - 70

Type	Function	Max Pressure Differential (psi/bar)	Mounting	Coil Type	Coil Resistance (ohm)	O-Ring Material	O-Ring Durometer
2W (2-way)	NO (normally open)	100/6.9	DI (drop-in)	QD (quick disconnect)	1.6	N (Nitrile)	70
		200/13.8			9		90
3W (3-way)	NC (normally closed)	300/20.7	SI (screw-in)	PT (pigtail)	30.0	V (Viton) S*	
		700/48.3					
		1000/68.9					
		1500/103.4					
		3000/206.8					

\* Special O-ring materials are available upon request

