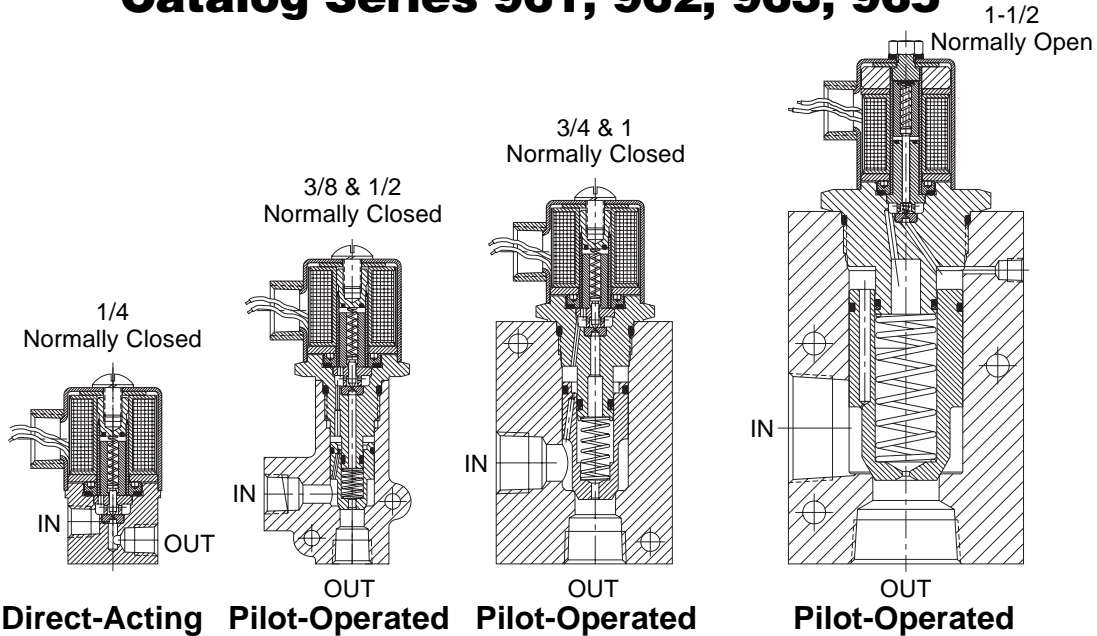


# Catalog Series 961, 962, 963, 965



Direct-Acting Pilot-Operated Pilot-Operated Pilot-Operated

## Features

- Designed for fast remote unloading and closing.
- High pressure, high flow valves for hydraulic service.
- Pilot-operated for fast, smooth, non-shock operation.

## Mounting:

Bolted - see drawing for dimensions. **Install with Solenoid Up.**

## Materials:

**Body:** 1/4, 3/8, 3/4 - aluminum alloy.  
1-1/2 - steel.

**Spring:** Stainless steel AMS5688.

**Piston:** Steel.

**Seat, Solenoid Valve:** Brass.

**Seat 1-1/2" Valve Piston:** Stainless steel.

**O-Rings:** Synthetic rubber.

## Note:

Will not operate satisfactorily with reverse flow on exhaust port.

## Electric Service:

See Electrical Data Table for other services.

**Coil Lead Length:** 24"

## Specifications

### Service Applications:

Hydraulic oil.

### Pressure Range:

**Working:** Minimum: 25 PSID  
Maximum: See availability list  
**Proof:** 1-1/2 times operating pressure

### Temperature Range:

-40° to 225° F.

**Sizes:** NPT 1/4, 3/8, 3/4, 1-1/2

**Type Ports:** NPT Pipe Threads

**Internal Leakage:** 1 cc/min.

## Electrical Data

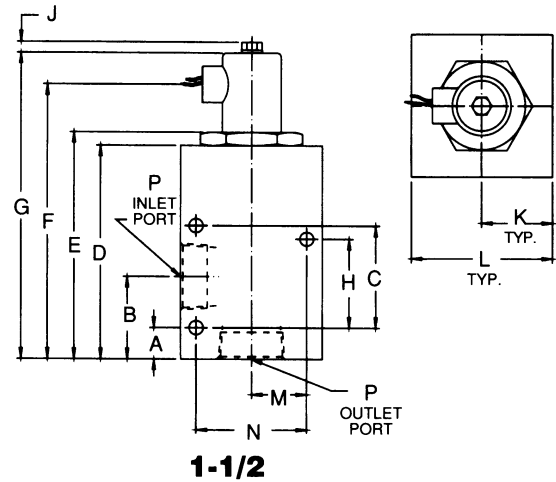
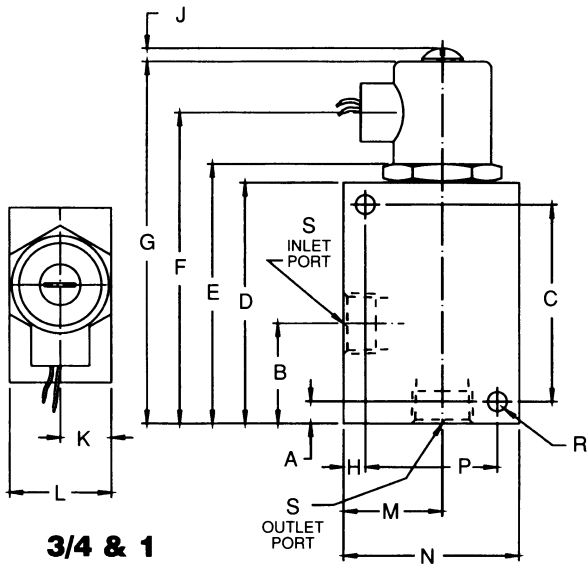
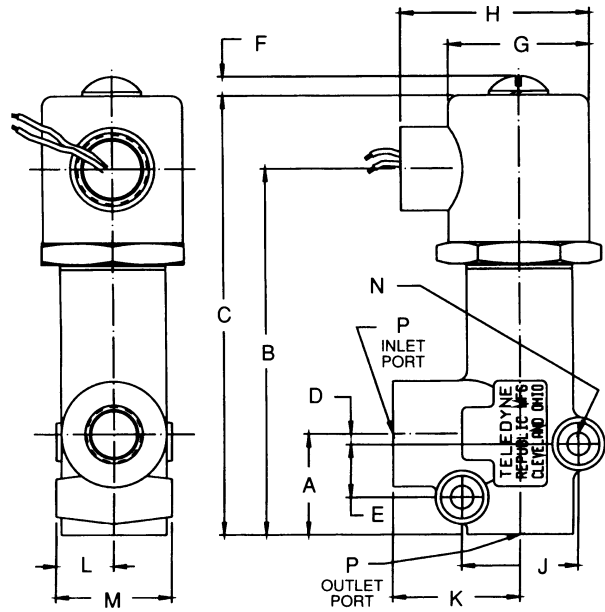
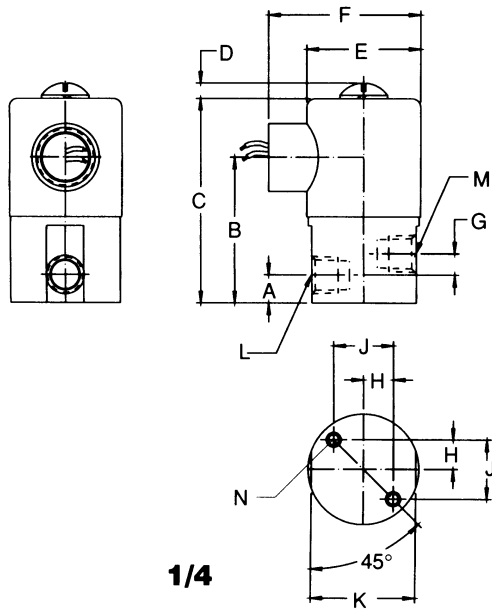
Valve Size	Valve Number	CV Factors	Orifice Size	Weight
1/4	961	.032	.040	1.2 Lbs.
	962	.022	.030	
	963	.014	.024	
	965	.013	.028	

Service Code	Service	Power Consumption Watts Maximum	Current Drain	
			Inrush Amps.	Holding Amps.
A	115V 60Cy AC	16.5	.450	.300
B	230V 60Cy AC	10.0	.130	.087
C	460V 60Cy AC	10.0	.065	.044
E	*24V DC	6.0	—	.326
G	*12V DC	6.0	—	.708
J	240V DC	6.0	—	.035
K	115V DC	6.0	—	.074

Valve Size	CV Factor	Flows GPM Rec. Max.	Operating Time at Max. Flow		Weight
			Opening	Closing	
3/8	1.9	7.5	25 Milliseconds	0.7 Sec.	1 Lbs. 8 Oz.
3/4	4.0	20.0		1.0 Sec.	3 Lbs.
1-1/2	25.0	90.0		2.0 Sec.	18 Lbs.

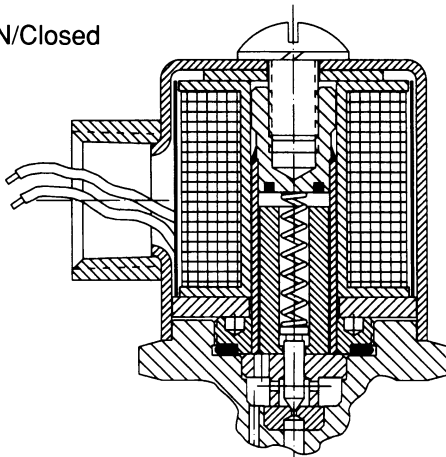
\*Not available for 5000 PSI valves.  
HEAT RISE: 80° C. Continuous Service

repcat-e.p65, dd, fn

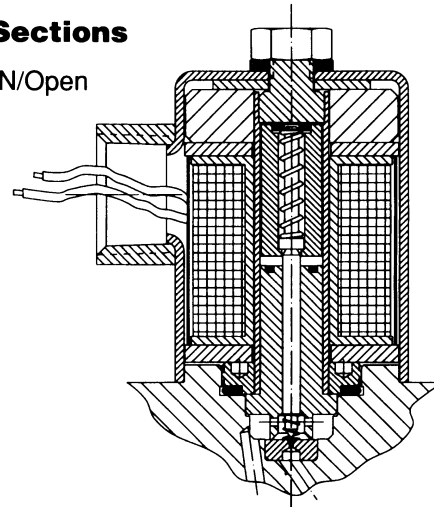


**Solenoid Cross Sections**

N/Closed

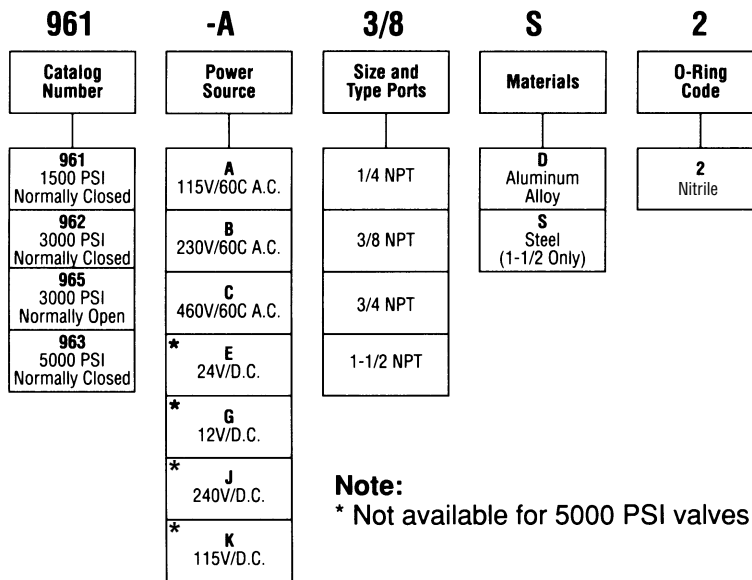


N/Open



	Valve Size	All Dimensions are in Inches															
		A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S
Normally Closed	1/4	13/32	2 1/16	3 1/8	1/4	1 5/8	2 7/32	9/32	7/16	7/8	—	1/4 NPT	1/4 NPT	10-32 Thds	—	—	—
Normally Closed	3/8	1 3/16	2 15/16	4	1/8	.625	1/4	1 21/32	2 7/32	1.375	1 1/2	11/16	1 3/8	17/64 Dia.	3/8 NPT	—	—
Normally Closed	1/2	1 3/16	2 15/16	4	1/8	.625	1/4	1 21/32	2 7/32	1.375	1 1/2	11/16	1 3/8	17/64 Dia.	1/2 NPT	—	—
Normally Closed	3/4	3/8	1 23/32	3 3/8	4 1/8	4 7/16	5 1/8	6 3/16	3/8	1/4	11/16	1 3/4	1 11/16	3	2 1/4	21/64 Dia.	3/4 NPT
Normally Closed	1	5/8	1 31/32	3 3/8	4 3/8	4 11/16	5 3/8	6 7/16	5/8	1/4	11/16	1 3/4	1 15/16	3 1/4	2 1/4	21/64 Dia.	1 NPT
Normally Closed	1 1/2	7/8	2 5/16	2 7/8	6	6 3/8	7 1/16	8 1/8	2 1/2	1/4	2	4	1 9/16	3 1/8	1 1/2 NPT	—	—

### Interpretation of Valve Number



**Note:**  
\* Not available for 5000 PSI valves.

### Reference

Aluminum Alloy				
Valve Number	Normal Position	Maximum Working Pressure	Pilot Orifice	Piston Orifice
961-A3/8D2	Closed	1500 PSI	.040	.032
961-A3/4D2	Closed	1500 PSI		
962-A3/8D2	Closed	3000 PSI	.030	.024
962-A3/4D2	Closed	3000 PSI		
963-A3/8D2	Closed	5000 PSI	.024	.020
963-A3/4D2	Closed	5000 PSI		
965-A3/8D2	Open	3000 PSI	.028	.024
965-A3/4D2	Open	3000 PSI		
Steel				
961-A11/2S2	Closed	1500 PSI	.040	.032
962-A11/2S2	Closed	3000 PSI	.030	.024
963-A11/2S2	Closed	5000 PSI	.024	.020
965-A11/2S2	Open	3000 PSI	.028	.024