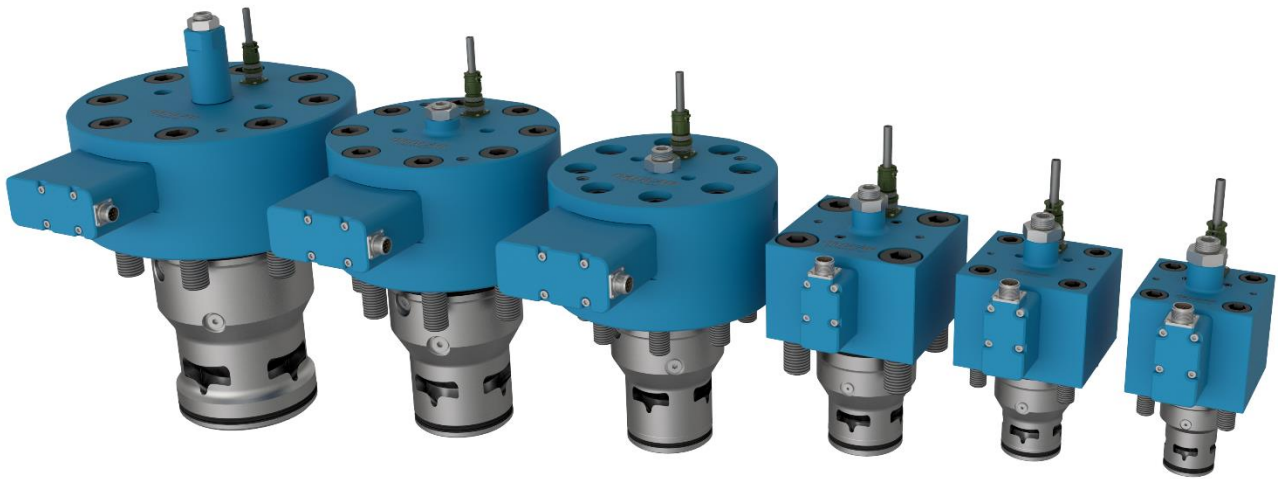


# **OILGEAR**

## **S V X SERIES**



**HIGH SPEED | FINE CONTROL | UNMATCHED DURABILITY**

**SETTING THE STANDARD FOR HYDRAULIC MOTION CONTROL**

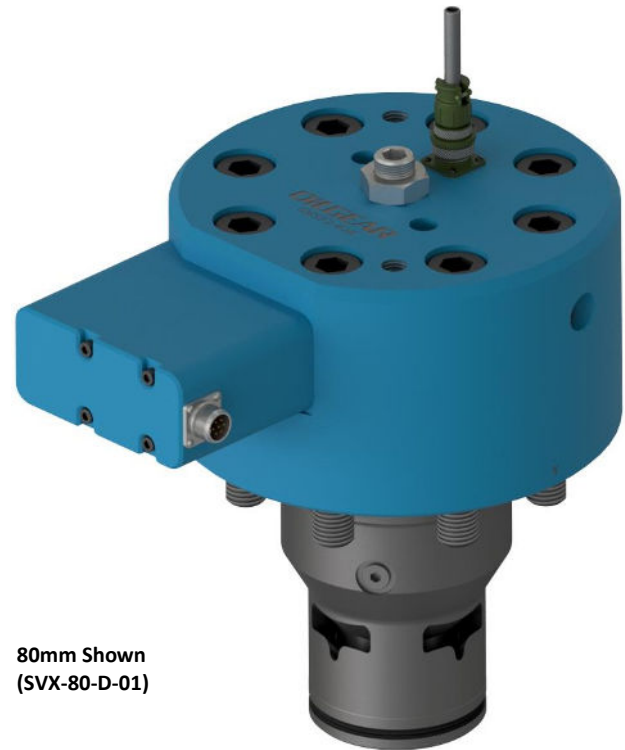
# OILGEAR SVX SERIES

TECHNICAL DATA SHEET  
2-WAY SERVO-CONTROLLED  
PROPORTIONAL THROTTLE VALVE

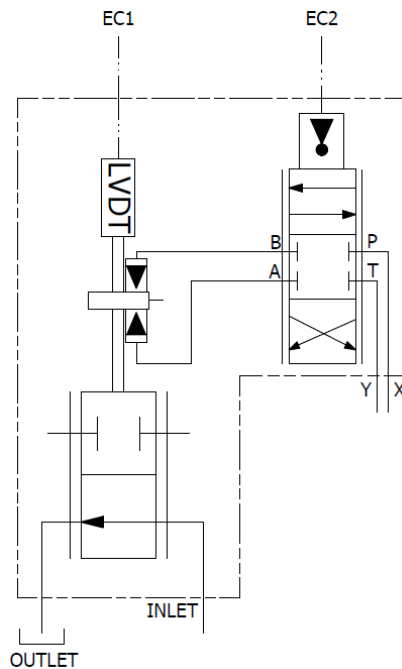
The Olmsted SVX Series of 2-way servo controlled proportional throttling valves are designed specifically for hydraulic applications where very fine flow control and rapid dynamic response are critical to system performance. The SVX series valves are perfectly suited for high-speed hydraulic applications such as die casting shot control, injection molding and more.

## KEY FEATURES:

- Standard cavity sizes NG40 through NG125  
*\*Expanded range available on request*
- High-Speed DDV servo pilot valve as standard
- Industry-leading dynamic response for fast and accurate motion control
- Unique flow window design provides superior flow control over a broad range
- Designed for long life in the most demanding high-cycle applications



80mm Shown  
(SVX-80-D-01)



## DESCRIPTION:

The SVX Series valves are a 2-stage cartridge valve design. The main stage features a unique metering sleeve, flow gate, and control spool. An internal LVDT provides position feedback of the control spool for closed-loop proportional control.

Pilot control for the main stage is provided by an NFPA servo valve. The standard offering includes a high-speed proportional servo-controlled DDV, which provides high pilot flow for excellent dynamic response.

Pressure and tank connections for the pilot valve are provided via the X and Y port locations on the valve cap or may be externally connected with pilot lines.

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Traverse City, MI 49686  
Phone: 231-929-1660

Document Number

**EB#639**

Revision

**B**

Revision Date

**10/1/2024**

ORDERING INFORMATION / PART NUMBER CONFIGURATION:



SVX Series		Nominal Size		Slip-in Cartridge		Design Series		Bolting Option		Control Option	
Code		Nominal Size		Code		Bolting Option		Code		Servo Control Valve Option	
040		40 mm		(Blank)		Unified (inch)		(Blank)		± 10 V (Standard)	
050		50 mm		M		Metric		B		± 20 mA	
063		63 mm						C		4-20 mA	
080		80 mm						0		Without Control Valve (NFPA Flange Provided)	
100		100 mm						*		Ask for additional options	
125		125 mm									
*		Ask for additional sizing options									

Sample Part Numbers:

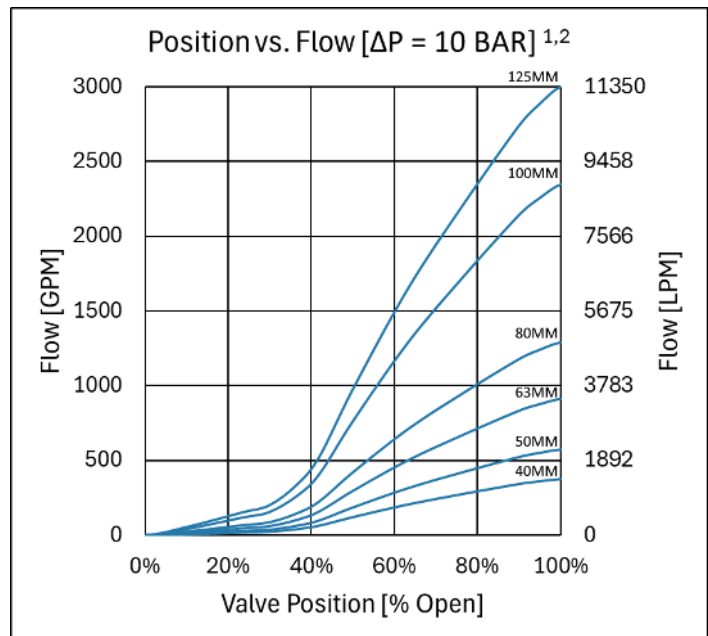
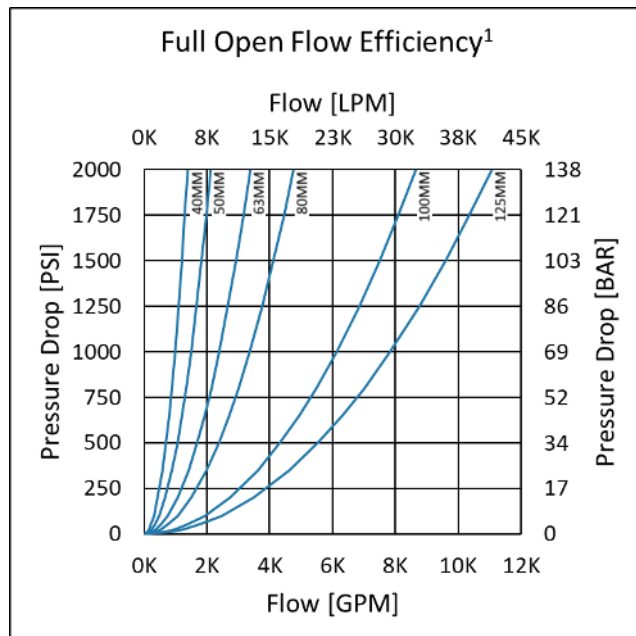
SVX-050-D-01

50mm DIN Cartridge, Unified (inch) Bolting, ±10V Control Servo

SVX-125-D-01M-0

125mm DIN Cartridge, Metric Bolting, Without Control Servo

FLOW CHARACTERISTICS:



1. Estimate Flow data provided using water-glycol type fluid (sg=1.06). Flow is shown in the recommended side-to-bottom direction.
2. Position data excludes cushions at end of stroke.

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**APPLICATION DATA:**

Basic						
Nominal Size	40 MM	50 MM	63 MM	80 MM	100 MM	125 MM
Cavity Type	ISO 7368 / DIN 24342					ISO 7368
Mounting Position	Unlimited					
Approximate Weight	38 lb. [17 kg]	52 lb. [24 kg]	88 lb. [40 kg]	192 lb. [87 kg]	276 lb. [125 kg]	479 lb. [217 kg]
Vibration Resistance (Servo Valve)	30 g, 3 axes BS EN 60068-2 (20-35hz, 16g, 15 min per axis; 35-2000hz, 35g, 15 min per axis)					
Shock Resistance (Servo Valve)	50 g BS EN 60068-2 (20 shocks in single axis)					

Hydraulic						
Recommended Fluid Type	Water-Glycol, Mineral Oil					
Max Working Pressure (Inlet, Outlet)	5000 psi [350 bar]					
Max Pilot Pressure (X/P)	5000 psi [350 bar]					
Max Tank Pressure (Y/T)	3600 psi [250 bar]					
Working Fluid Temperature	-4°F to 140°F [-20°C to 60°C]					
Recommended Viscosity	100 to 400 SUS [20 to 90 cst]					
Required Filtration	NAS 1638 Class 7 [ISO 4406 18/16/13]					
Est. Flow @ ΔP = 145 psi [10 bar]	375 gpm [1420 lpm]	574 gpm [2174 lpm]	914 gpm [3460 lpm]	1289 gpm [4880 lpm]	2344 gpm [8872 lpm]	3000 gpm [11356 lpm]
Est. Cv	32	49	78	110	200	256
Leakage @ 1000 psi [70 bar]	< 12 in <sup>3</sup> /m	< 20 in <sup>3</sup> /m	< 25 in <sup>3</sup> /m	< 40 in <sup>3</sup> /m	< 60 in <sup>3</sup> /m	< 60 in <sup>3</sup> /m
Water Glycol @ 122°F [50°C]	[200 ml/m]	[330 ml/m]	[410 ml/m]	[655 ml/m]	[985 ml/m]	[985 ml/m]
Pilot Valve Size	NG6 [S6 Pro]			NG10 [S10 Pro]		
Rated Pilot Flow @ 1000 psi [70 bar]	16 gpm [60 lpm]			66 gpm [250 lpm]		

Dynamic / Static Response <sup>1</sup>							
Nominal Size		40 MM	50 MM	63 MM	80 MM	100 MM	125 MM
Estimate	Pilot Pressure						
Step Response,	1000 psi [69 bar]	10 ms	15 ms	23 ms	15 ms	25 ms	43 ms
$t_2 = t_1\sqrt{P_1/P_2}$	2000 psi [138 bar]	8 ms	11 ms	17 ms	11 ms	18 ms	31 ms
	3000 psi [207 bar]	6 ms	9 ms	14 ms	9 ms	15 ms	25 ms
Hysteresis		< 0.2 %					

1. Dynamic/Static response is given for the standard provided servo pilot valve. Performance may vary for other pilot valve options.

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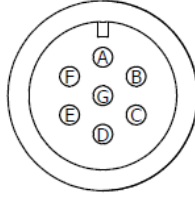
Electrical																								
Nominal Size	40 MM	50 MM	63 MM	80 MM	100 MM	125 MM																		
<b>Pilot Valve<sup>1</sup></b>																								
Type	Direct Drive Servo Valve (DDV)																							
Size	NG06			NG10																				
Supply Voltage	24 V Nominal, 22-30 V Range																							
Max Current Draw	4.5 Amps			15 Amps																				
Differential Input Signal <sup>1</sup>	<table border="0" style="width: 100%;"> <tr> <td style="width: 20%;">Standard</td> <td style="width: 20%;">± 10 V</td> <td colspan="4" style="text-align: center;">-10 V to +10 V</td> </tr> <tr> <td>Code B</td> <td>± 20 mA</td> <td colspan="4" style="text-align: center;">-20 mA to +20 mA</td> </tr> <tr> <td>Code C</td> <td>4-20 mA</td> <td colspan="4" style="text-align: center;">+4 mA to +20 mA</td> </tr> </table>						Standard	± 10 V	-10 V to +10 V				Code B	± 20 mA	-20 mA to +20 mA				Code C	4-20 mA	+4 mA to +20 mA			
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Input Impedance <sup>1</sup>	<table border="0" style="width: 100%;"> <tr> <td style="width: 20%;">Standard</td> <td style="width: 20%;">± 10 V</td> <td colspan="4" style="text-align: center;">200 kOhm min.</td> </tr> <tr> <td>Code B</td> <td>± 20 mA</td> <td style="text-align: center;">392 Ohm Typical</td> <td colspan="2"></td> <td style="text-align: center;">499 Ohm Typical</td> </tr> <tr> <td>Code C</td> <td>4-20 mA</td> <td style="text-align: center;">392 Ohm Typical</td> <td colspan="2"></td> <td style="text-align: center;">499 Ohm Typical</td> </tr> </table>						Standard	± 10 V	200 kOhm min.				Code B	± 20 mA	392 Ohm Typical			499 Ohm Typical	Code C	4-20 mA	392 Ohm Typical			499 Ohm Typical
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Output Signal <sup>1</sup>	<table border="0" style="width: 100%;"> <tr> <td style="width: 20%;">Standard</td> <td style="width: 20%;">± 10 V</td> <td colspan="4" style="text-align: center;">-10 V to +10 V</td> </tr> <tr> <td>Code B</td> <td>± 20 mA</td> <td colspan="4" style="text-align: center;">-20 mA to +20 mA</td> </tr> <tr> <td>Code C</td> <td>4-20 mA</td> <td colspan="4" style="text-align: center;">+4 mA to +20 mA</td> </tr> </table>						Standard	± 10 V	-10 V to +10 V				Code B	± 20 mA	-20 mA to +20 mA				Code C	4-20 mA	+4 mA to +20 mA			
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Code C	4-20 mA	+4 mA to +20 mA																						
Output Impedance <sup>1</sup>	<table border="0" style="width: 100%;"> <tr> <td style="width: 20%;">Standard</td> <td style="width: 20%;">± 10 V</td> <td style="text-align: center;">150 Ohm Typical</td> <td colspan="2"></td> <td style="text-align: center;">47 Ohm Typical</td> </tr> <tr> <td>Code B</td> <td>± 20 mA</td> <td colspan="2" style="text-align: center;">650 Ohm Max</td> <td colspan="2"></td> </tr> <tr> <td>Code C</td> <td>4-20 mA</td> <td colspan="2" style="text-align: center;">650 Ohm Max</td> <td colspan="2"></td> </tr> </table>						Standard	± 10 V	150 Ohm Typical			47 Ohm Typical	Code B	± 20 mA	650 Ohm Max				Code C	4-20 mA	650 Ohm Max			
Standard	± 10 V	150 Ohm Typical			47 Ohm Typical																			
Code B	± 20 mA	650 Ohm Max																						
Code C	4-20 mA	650 Ohm Max																						
Power Off Position	Center																							
Electrical Connector	6 pin + PE Circular (EN 175201-804/MIL 5015 Shell Size 14)																							
<b>LVDT</b>																								
Input Voltage	3 V RMS																							
Input Frequency (Nominal)	2.5 kHz																							
Input Frequency Range	400 Hz to 3 kHz																							
Stroke Range	± 1 in [25.4 mm]				± 2 in [50.8 mm]																			
Output at Stroke Ends	280 mV/V				320 mV/V																			
Input Impedance (Primary)	175 Ohm				243 Ohm																			
Output Impedance (Secondary)	230 Ohm				103 Ohm																			
Electrical Connector	6 pin Circular (EN 175201-804/MIL 5015 Shell Size 14)																							

2. Pilot valve electronics ratings vary based on selected command input. See configuration guide on page 2 for details on signal codes.

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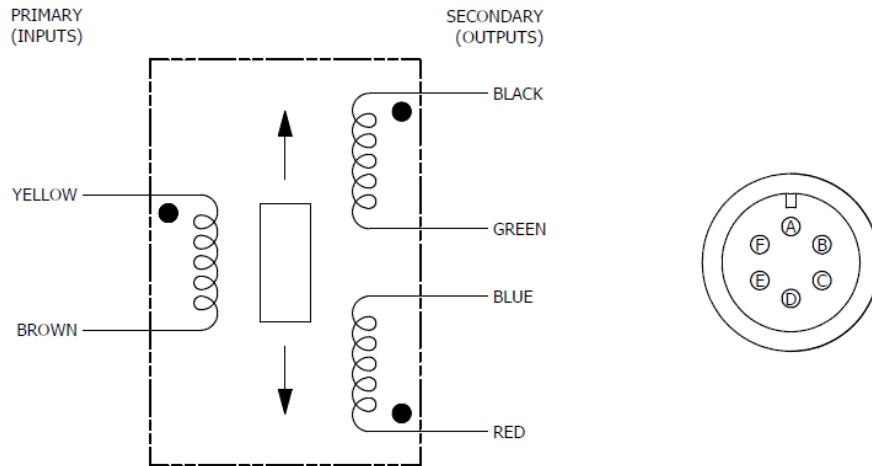
**Connectors**

**Pilot Valve**



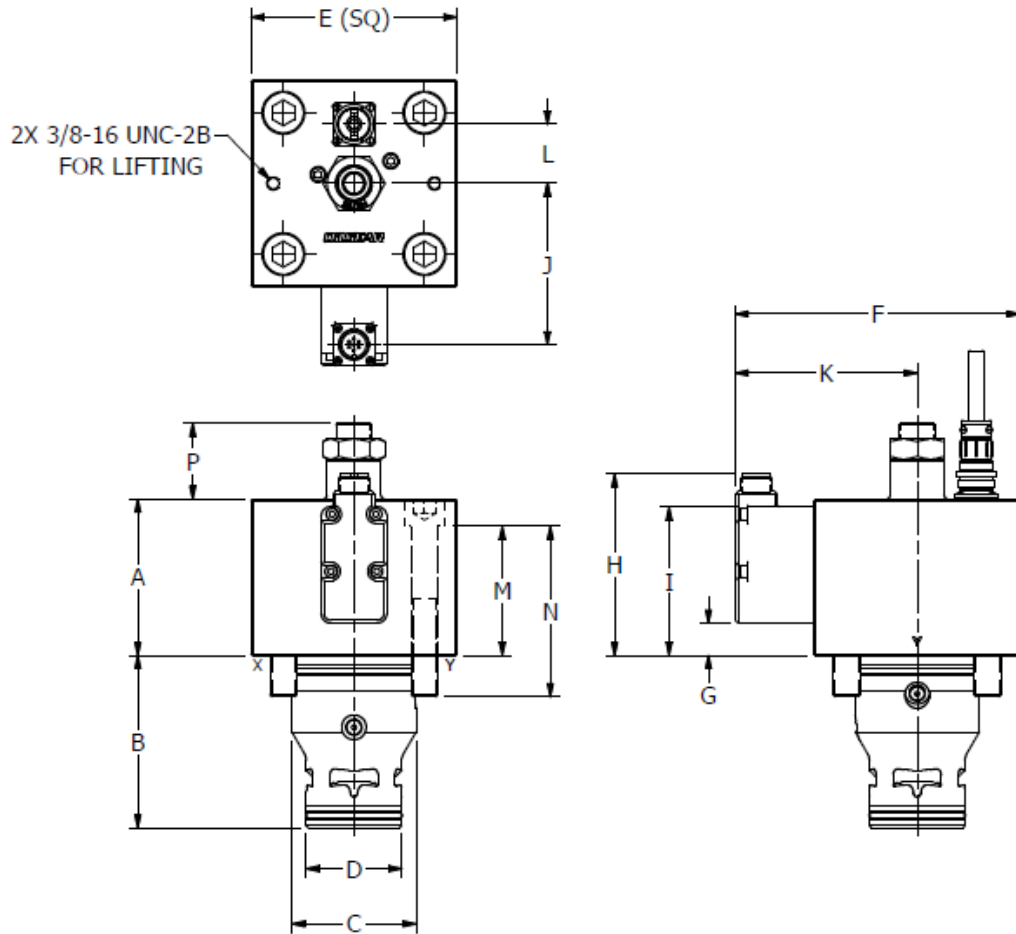
Pin	Function	Description
A	Supply +	+24 V
B	Supply 0V	0 V
C	Output -	Output 0 V Ref
D	Input +	Diff Input signal +
E	Input -	Diff Input Signal -
F	Output +	Output Signal
G	Ground	-

**LVDT**



Pin	Function	Description
A	Brown	V in -
B	Yellow	V in +
C	Red	V out +
D	Black	V out -
E	Blue/Green	V out Com
F	Not Used	-

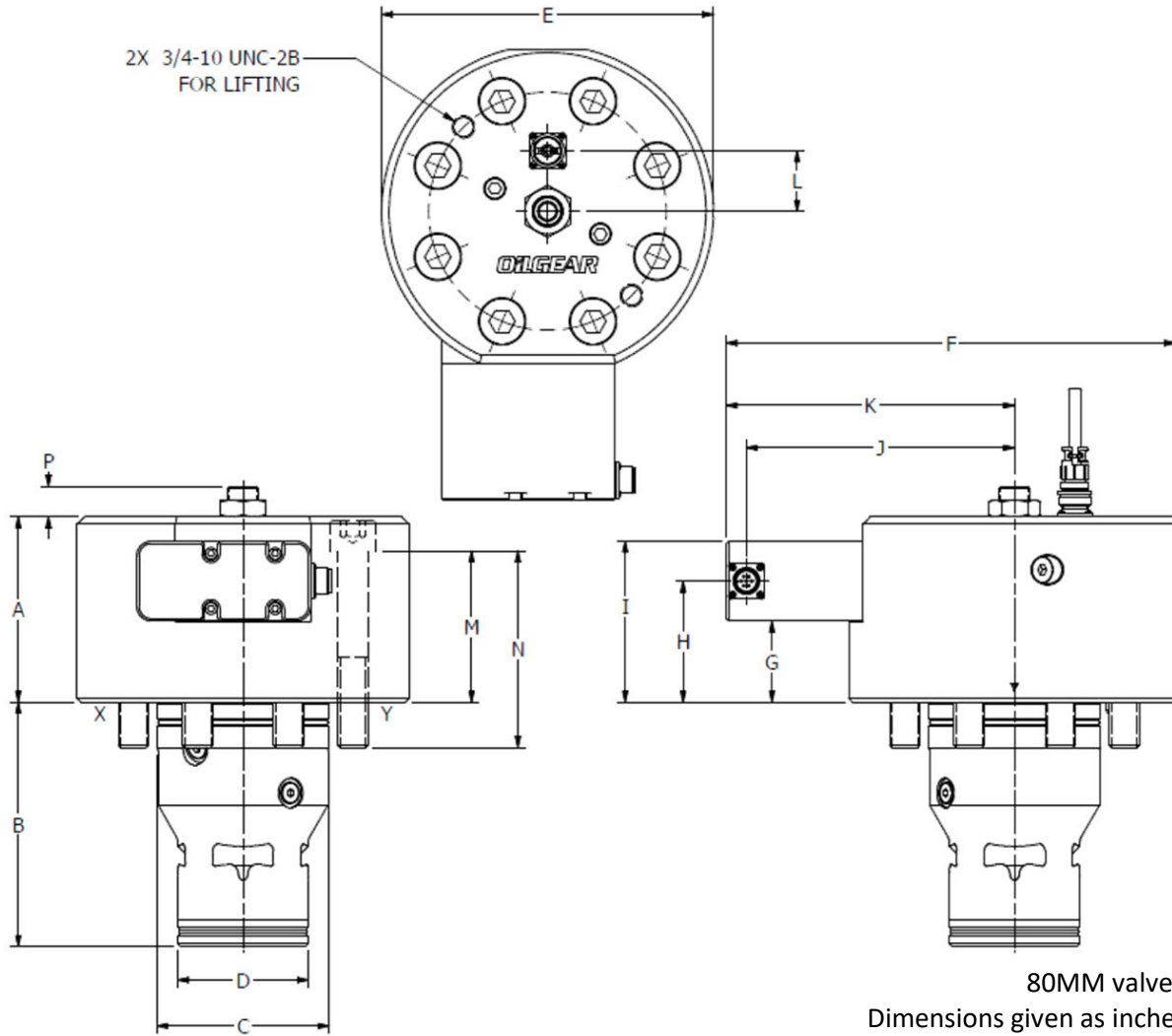
**EXTERNAL DIMENSIONS (40 – 63 MM):**



50MM valve shown  
Dimensions given as inches [mm]

Dimension	Size:	40MM	50MM	63MM
A		4.35 [110]	4.35 [110]	4.62 [117]
B		4.13 [105]	4.80 [122]	6.10 [155]
C		2.95 [75]	3.54 [90]	4.72 [120]
D		2.16 [55]	2.68 [68]	3.54 [90]
E		4.92 [125]	5.75 [146]	7.09 [180]
F		7.13 [181]	7.96 [202]	9.30 [236]
G		.90 [23]	.90 [23]	.90 [23]
H		5.05 [128]	5.05 [128]	5.05 [128]
I		4.15 [105]	4.15 [105]	4.15 [105]
J		4.07 [103]	4.49 [114]	5.16 [131]
K		4.67 [118]	5.08 [129]	5.75 [146]
L		1.65 [42]	1.65 [42]	2.25 [57]
M		3.60 [91]	3.60 [91]	3.37 [86]
N		4.75 [120]	4.75 [120]	5.25 [135]
P		2.10 [53]	2.12 [54]	2.02 [51]

**EXTERNAL DIMENSIONS (80 – 125 MM):**



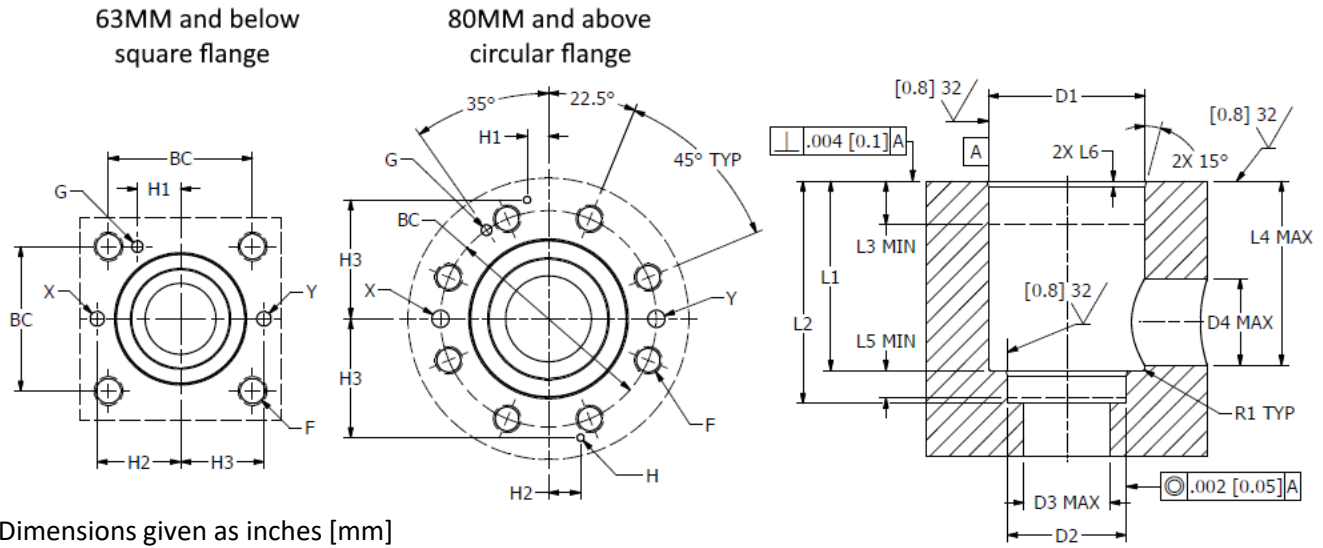
80MM valve shown  
Dimensions given as inches [mm]

Dimension	Size:	80MM	100MM	125MM
A		6.13 [156]	6.46 [164]	6.38 [162]
B		8.07 [205]	9.65 [245]	11.81 [300]
C		5.71 [145]	7.09 [180]	8.86 [225]
D		4.33 [110]	5.31 [135]	7.87 [200]
E		11.00 [280]	11.81 [300]	15.35 [390]
F		14.89 [389]	15.66 [398]	19.12 [486]
G		2.68 [68]	2.68 [68]	2.68 [68]
H		4.00 [102]	4.00 [102]	4.00 [102]
I		5.32 [135]	5.32 [135]	5.32 [135]
J		8.89 [226]	9.32 [237]	11.20 [285]
K		9.56 [243]	9.99 [254]	11.87 [302]
L		2.00 [51]	2.95 [75]	3.50 [89]
M		5.00 [127]	5.21 [132]	4.95 [126]
N		6.50 [165]	7.25 [185]	7.00 [180]
P		1.00 [25]	1.42 [36]	4.78 [121]

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**CAVITY DIMENSIONS:**



Dimensions given as inches [mm]

	ØBC	ØD1 H7	ØD2 H7	ØD3	ØD4	F	ØG H13	ØH H13	H1	H2
<b>40MM</b>	3.346 [85]	2.9528 [75]	2.1654 [55]	1.575 [40]	1.575 [40]	3/8"-10 UNC [M20]	.236 [6]	-	.906 [23]	1.969 [50]
<b>50MM</b>	3.937 [100]	3.5433 [90]	2.6772 [68]	1.969 [50]	1.969 [50]	3/8"-10 UNC [M20]	.315 [8]	-	1.181 [30]	2.283 [58]
<b>63MM</b>	4.921 [125]	4.7244 [120]	3.5433 [90]	2.480 [63]	2.480 [63]	1 1/4"-7 UNC [M30]	.315 [8]	-	1.496 [38]	2.953 [75]
<b>80MM</b>	7.874 ±.012 [200 ±.3]	5.7087 [145]	4.3307 [110]	3.150 [80]	3.150 [80]	1"-8 UNC [M24]	.394 [10]	-	-	-
<b>100MM</b>	9.645 ±.012 [245 ±.3]	7.0866 [180]	5.3150 [135]	3.937 [100]	3.937 [100]	1 1/4"-7 UNC [M30]	.394 [10]	-	-	-
<b>125MM</b>	11.811 ±.012 [300 ±.3]	8.8583 [225]	7.8740 [200]	5.905 [150]	4.921 [125]	- [M36]	-	.394 [10]	1.181 ±.008 [30 ±.2]	1.772 ±.008 [45 ±.2]
	H3	L1	L2	L3	L4	L5	L6	R1 MAX	ØX MAX	ØY MAX
<b>40MM</b>	1.969 [50]	3.425 ±.012 [87 ±.3]	4.134 +.004 [105 +.1]	1.181 [30]	3.327 [84,5]	.591 [15]	.118 [3]	.16 [4]	.394 [10]	.394 [10]
<b>50MM</b>	2.283 [58]	3.937 ±.012 [100 ±.3]	4.803 +.004 [122 +.1]	1.378 [35]	3.839 [97,5]	.669 [17]	.157 [4]	.16 [4]	.394 [10]	.394 [10]
<b>63MM</b>	2.953 [75]	5.118 ±.012 [130 ±.3]	6.102 +.004 [155 +.1]	1.575 [40]	5.000 [127]	.787 [20]	.157 [4]	.16 [4]	.472 [12]	.472 [12]
<b>80MM</b>	-	6.890 ±.016 [175 ±.4]	8.071 +.004 [205 +.1]	1.575 [40]	6.71 [170,5]	.984 [25]	.197 [5]	.16 [4]	.630 [16]	.630 [16]
<b>100MM</b>	-	8.268 ±.016 [210 ±.4]	9.645 +.004 [245 +.1]	1.969 [50]	8.09 [205,5]	1.142 [29]	.197 [5]	.16 [4]	.787 [20]	.787 [20]
<b>125MM</b>	6.496 ±.008 [165 ±.2]	10.118 ±.02 [257 ±.5]	11.811 +.006 [300 ±.15]	1.969 [50]	10.04 [255]	1.220 [31]	.216 [5,5]	.16 [4]	1.260 [32]	1.260 [32]

**CONTACT INFORMATION:**

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Global Headquarters

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