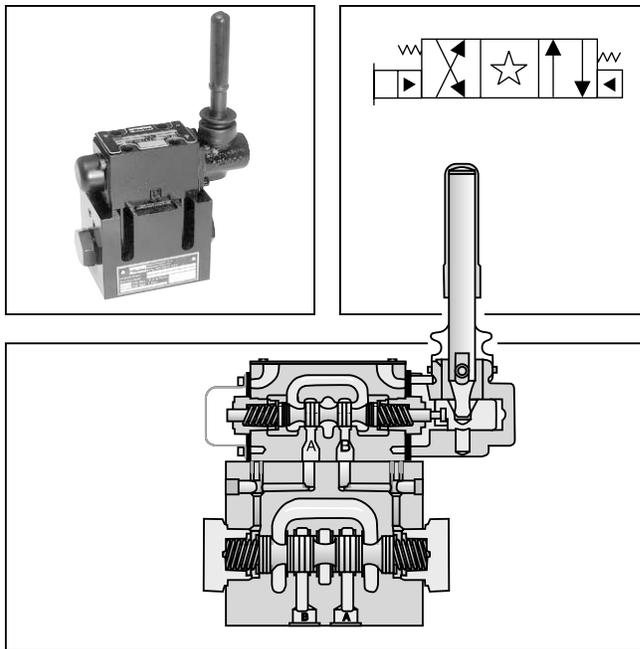


General Description

Series D31*L directional control valves are 5-chamber, pilot operated, lever controlled valves. The valves are suitable for manifold or subplate mounting.

Features

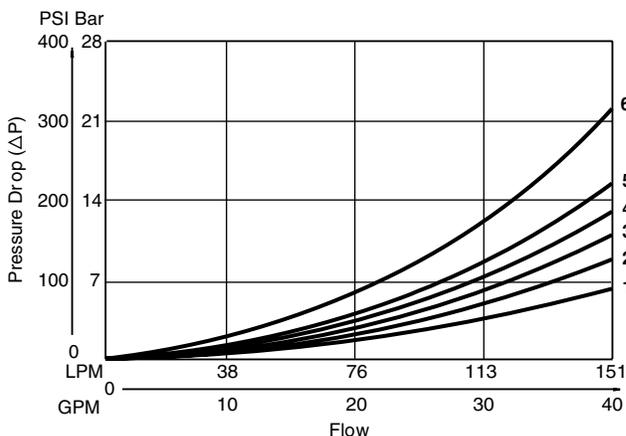
- **World design** – Available worldwide.
- **Mounting bolts below center line of spool** – Minimizes spool binding.
- **Five chamber style** – Eliminates pressure spikes in tubes, increasing valve life.
- **High pressure and flow ratings** – Increased performance options in a compact valve.



Specifications

Mounting Pattern	NFPA D05H, CETOP 5 NFPA D05HE, CETOP 5H
Maximum Operating Pressure	345 Bar (5000 PSI) "T" Port (tank): 34 Bar (500 PSI) With External Drain 207 Bar (3000 PSI)
Maximum Flow	See Switching Limits Charts
Pilot Pressure	Oil Min: 6.9 Bar (100 PSI) Oil Max: 345 Bar (5000 PSI)
Maximum Drain Pressure	34 Bar (500 PSI)
Response Time	Varies with pilot line size and length, pilot pressure, pilot valve shift time & flow capacity (GPM)

Pressure Drop Chart



VISCOSITY CORRECTION FACTOR							
Viscosity (SSU)	75	150	200	250	300	350	400
% of ΔP (Approx.)	93	111	119	126	132	137	141

Curves were generated using 100 SSU hydraulic oil. For any other viscosity, pressure drop will change as per chart.

D31VL Pressure Drop Reference Chart -- Curve Number

Spool No.	Shifted				Center Condition							
	P-A	P-B	B-T	A-T	(P-T)	(B-A)	(A-B)	(P-A)	(P-B)	(A-T)	(B-T)	
1	3	3	2	1	-	-	-	-	-	-	-	
2	3	3	1	1	3	3	3	4	4	1	1	
4	3	3	1	1	-	-	-	-	-	1	1	
9	3	3	1	1	6	-	-	-	-	-	-	
20	5	4	2	2	-	-	-	-	-	-	-	
30	4	3	1	1	-	-	-	-	-	-	-	

D31VL Pressure Drop vs. Flow

The chart to the left provides the flow vs. pressure drop curve reference for the D31VL Series valves by spool type.

Example:

Find the pressure drop at 76 LPM (20 GPM) for a D31VL with a number 1 spool. To the right of spool number 1, locate the number 3 in the P-A column, and 2 in the B-T column.

Using the top graph, locate curves 2 and 3 and read the pressure drop values. Total pressure drop through the valve is the sum of the two values.

Ordering Information

D	□	L	□	□	□	□	□	□	□
Directional Control Valve	Basic Valve	Lever Operated Pilot	Spool	Style	Pilot Supply and Drain	Seal Compound	Variations	Design Series	NOTE: Not required when ordering.

Code	Description
31D	NFPA D05HE, CETOP 5H (ISO)
31V	NFPA D05H, CETOP 5

Code	Description
1	Int. pilot/Ext. drain
2	Ext. pilot/Ext. drain
4#	Int. pilot/Int. drain
5	Ext. pilot/Int. drain

Not available with 2, 8 & 9 spools.

Code	Description
N	Nitrile
V	Fluorocarbon

Code	Description	Symbol
B†	Sgl. operator, 2 position, spring offset. P to A and B to T in offset position.	
C	DbL. operator, 3 position, spring centered.	
D†	DbL. operator, 2 position, detent.	
E	Sgl. operator, 2 position, spring centered. P to B and A to T in shifted position.	
H†	Sgl. operator, 2 position, spring offset. P to B and A to T in offset position.	
K	Sgl. operator, 2 position. Spring centered. P to A and B to T in shifted position.	

† Only spools 20 and 30.

This condition varies with spool code.

Code	Description	Symbol
7	Pilot choke – meter out	
60	Pilot choke – meter in	
8	Stroke adj. 'B'	
9	Stroke adj. 'A'	
89	Stroke adj. 'A' & 'B'	

Code	Description	Symbol
8** & 9*		
20**		
30*		

* 9 and 30 spools have open crossover.
 ** 8 and 20 spool has closed crossover.

Valve schematic symbols are per NFPA/ANSI standards, providing flow P to A when energizing operator A. Note operators reverse sides for #8 and #9 spool. See installation information for details.

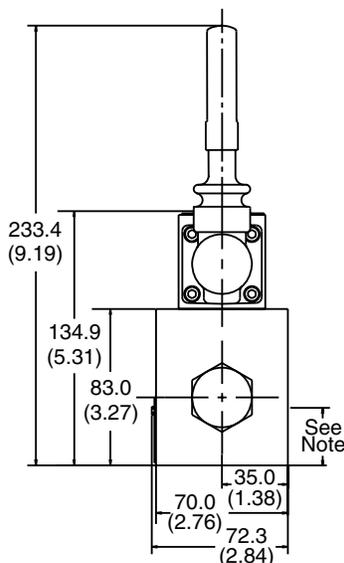
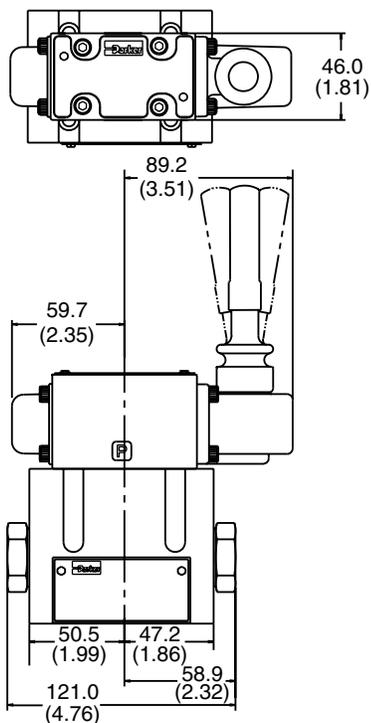
Valve Weight: 5.4 kg (12.0 lbs.)
Standard Bolt Kit: BK98
Metric Bolt Kit: BKM98

Bold: Designates Tier I products and options.

Non-Bold: Designates Tier II products and options. These products will have longer lead times.

Dimensions – Lever Operated

Inch equivalents for millimeter dimensions are shown in (**)



Note: 30.0mm (1.18") from bottom of bolt hole counterbore to bottom of valve.

