

# Inserta Products, Inc.

## BALL VALVES FLANGE TYPE 3 PORT DIVERTER

**INSERTA® Flange type, 3 Port Diverter Ball Valves**, provide a simple means to install a diverter ball valve in a circuit that uses any of the offered 4-Bolt flange mounting patterns. These ball valves and other **INSERTA®** products can be installed on or between other components such as pumps, motors, actuators, filters, valves, and manifolds by simply and effectively bolting them together. These assemblies eliminate threaded pipe connections, and the adjoining components are face sealed with the preferred leak resistant O-ring.

The **INSERTA® Flange type, 3 Port Diverter Ball Valves**, have two ball seals similar to the 2 port directional control ball valves, one for each port, i.e. ports Ø and 1. The sealing characteristics of these three port valves are similar to the two port valves. The top of the stem has an "L" slot that indicates the direction of the hole that goes through the three port diverter ball valve element that is used to divert flow from port 2 to ports Ø or 1. The ball has a hole on the bottom that is not sealed that accepts flow from port 2 and communicates it with the "L" hole in the ball. When the handle is turned counter clockwise (CCW) the slot should be in line with port Ø indicating that the flow from port 2 is diverted to port Ø and as long as the pressure in ports 2 and Ø is higher than port 1, port 1 is blocked (and sealed). As the handle is turned clockwise the slot should be in line with port 1 indicating that the flow from port 2 is diverted to port 1 and as long as the pressure in ports 2 and 1 is higher than port Ø, port Ø is blocked (and sealed). As the handle is turned between its two normal 90° end positions both ports Ø and 1 have restricted inter-flow from port 2.

With a total understanding of how these diverter valves function one can consider them for use as a 3 Port Selector valve. This could be possible when selecting flow from either Ø or 1 and directing it to port 2 when the pressure is always lower on the blocked port than is on the flow ports. With this understanding one may find further use for these diverter valves in applications that currently employ 3 way valves.

An offset steel handle is standard, while offset aluminum and straight aluminum handles are available as options. An offset handle is required for use with a lockable stop plate. A universal lockable stop plate is indicated if a flange is to be mounted directly to Face 1 of the ball valve. Ball valve handles are packaged separately for mounting by customer. Standard ball valve handle mounting is with port 2 open to port Ø and port 1 closed when the handle is turned counterclockwise, and port 2 is open to port 1 with port Ø closed when the handle is turned clockwise.

The **CODE 61 4-Bolt** Valves can be mounted and retained in systems that employ **UNIFIED CODE U61 4 or 2-Bolt** Flange Ports and/or Flange Retainers. When used with 2-Bolt systems either of the 2 diagonal bolt holes can be used for mounting and retaining the valve.

These ball valves are of steel construction with a hard chrome plated ball.



Patent No. 5,139,041

### ORDERING INFORMATION

**IBF3D - A - 6116 - N - D - \* - \***

**INSERTA®**  
**BALL VALVE FLANGE TYPE**  
**3 PORT DIVERTER**

**DESIGN CODE**

**MOUNTING PATTERN**

U461 = UNIFIED CODE U61 4-BOLT  
61 = CODE 61  
62 = CODE 62

**NOMINAL SIZE**

02 = 1/8	12 = 3/4	32 = 2
04 = 1/4	16 = 1	40 = 2 1/2
06 = 3/8	20 = 1 1/4	48 = 3
08 = 1/2	24 = 1 1/2	

**HANDLE OPTION**  
OS = OFFSET STEEL HANDLE (STANDARD)  
SS = STRAIGHT STEEL HANDLE  
SA = STRAIGHT ALUMINUM HANDLE  
OA = OFFSET ALUMINUM HANDLE

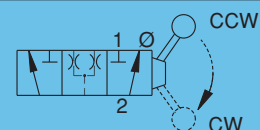
**STOP PLATE OPTION**  
\* = STANDARD STOP PLATE  
L = LOCKABLE STOP PLATE  
U = UNIVERSAL LOCKABLE STOP PLATE

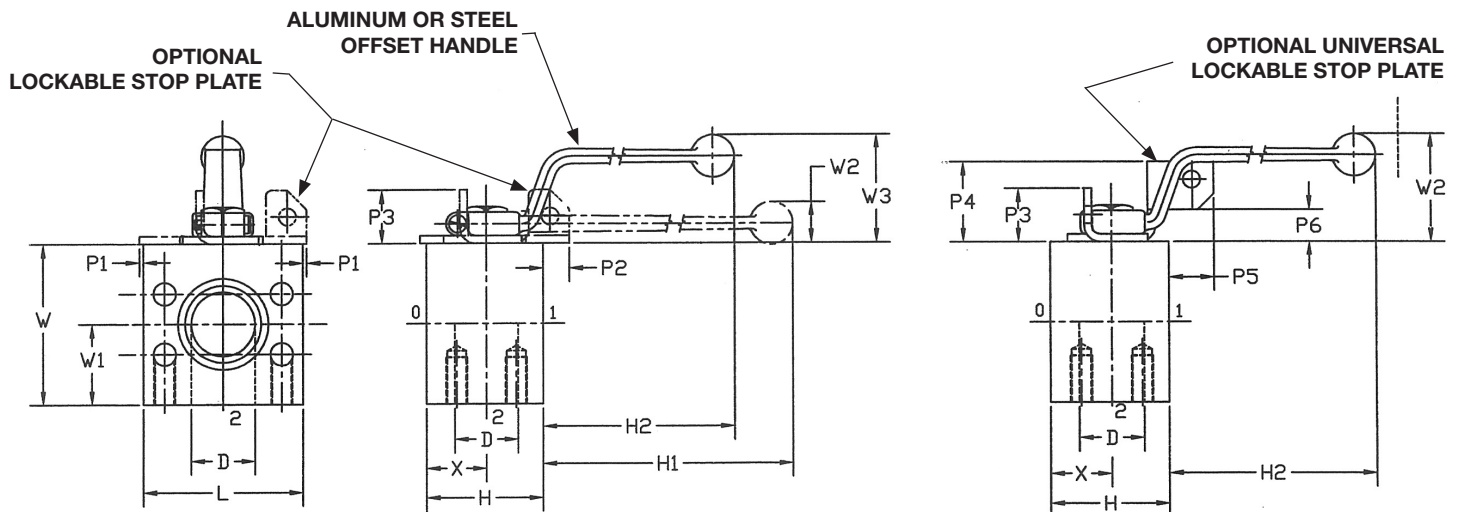
**SEAL COMPOUND (BALL)**  
D = DELRIN (STANDARD)

**SEAL COMPOUND (STEM & FACE SEAL)**  
N = BUNA N (STANDARD)  
V = VITON

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**Blue Bell, Pa. 19422**

**BALL VALVES**  
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### CODE 61 AND UNIFIED CODE U61 4-BOLT—3 PORT DIVERTER

PATTERN SIZE	NOMINAL SIZE	D	L	W	H	X	W1	H1	H2	W2	W3	P1	P2	P3	P4	P5	P6
U46102	1/8	.13	1.00	1.08	.88	.50	.56	*.88	--	*.63	--	--	--	--	--	--	--
U46104	1/4	.25	1.25	1.25	1.13	.62	.64	*.75	--	*.69	--	--	--	--	--	--	--
U46106	3/8	.38	1.50	1.59	1.25	.70	.86	*.70	--	*.69	--	--	--	--	--	--	--
6108	1/2	.50	2.12	2.25	1.50	.80	1.25	5.22	4.43	.73	1.97	.69	1.05	1.12	--	--	--
6112	3/4	.75	2.50	2.75	2.00	.94	1.50	6.83	5.77	.92	2.50	.75	.94	1.25	1.82	0.97	0.75
6116	1	1.00	2.75	2.88	2.00	1.01	1.48	6.90	5.84	.92	2.50	.63	1.01	1.25	1.82	1.04	0.75
6120	1 1/4	1.00	3.00	3.00	2.25	1.13	1.60	6.77	5.71	.92	2.50	.50	.88	1.25	1.82	0.91	0.75
6124	1 1/2	1.25	3.75	3.75	2.75	1.42	1.88	8.17	7.31	.98	2.52	.13	.67	1.25	1.88	1.06	0.75
6132	2	1.50	4.00	4.25	3.50	1.75	2.12	7.76	6.90	.98	2.52	--	.25	1.25	1.88	0.64	0.75
6140	2 1/2	2.00	4.50	4.75	4.00	2.06	2.38	7.56	6.71	.98	2.52	--	.06	1.25	1.88	0.45	0.75
6148	3	2.25	5.25	5.47	4.50	2.17	2.91	7.18	6.32	.98	2.52	--	--	1.25	1.88	0.06	0.75

\*Handle is phenolic and without ball end (see photo on Page 4). Lockable stop plate option not available in these sizes.

### CODE 62—3 PORT DIVERTER

PATTERN SIZE	NOMINAL SIZE	D	L	W	H	X	W1	H1	H2	W2	W3	P1	P2	P3	P4	P5	P6
6208	1/2	.50	2.25	2.25	1.50	.80	1.25	5.22	4.43	.73	1.97	.63	1.05	1.12	--	--	--
6212	3/4	.75	2.75	2.75	2.00	.94	1.50	6.83	5.77	.92	2.50	.63	.94	1.25	1.82	0.97	0.75
6216	1	1.00	3.00	3.00	2.00	1.03	1.60	6.90	5.84	.92	2.50	.50	1.03	1.25	1.82	1.06	0.75
6220	1 1/4	1.00	3.50	3.25	2.25	1.13	1.85	6.77	5.71	.92	2.50	.25	.88	1.25	1.82	0.91	0.75
6224	1 1/2	1.25	4.25	4.00	2.75	1.42	2.13	8.17	7.31	.98	2.52	--	.67	1.25	1.88	1.06	0.75
6232	2	1.50	5.00	4.75	3.50	1.75	2.63	7.76	6.90	.98	2.52	--	.25	1.25	1.88	0.64	0.75
6240	2 1/2	2.00	6.25	5.94	4.00	2.06	3.56	7.56	6.71	.98	2.52	--	.06	1.25	1.88	0.45	0.75
6248	3	2.25	8.00	6.88	4.50	2.17	4.31	7.18	6.32	.98	2.52	--	--	1.25	1.88	0.06	0.75

Bolt Mounting Patterns conform to the **UNIFIED CODE U61 4-Bolt** standard and/or the **SAE Code 61 and Code 62 4-Bolt** standard J518 JUN93.

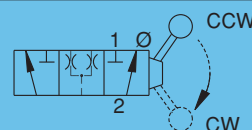
Temperature range is -22°F (-30°C) to 175°F (80°C).  
Operating medium is hydraulic fluid.

FACE Ø O-RING SIZES are:

02 = 206-006	08 = 018	20 = 125	40 = 232
04 = 011	12 = 022	24 = 131	48 = 237
06 = 014	16 = 026	32 = 228	

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