

## SECTION 1 - GENERAL OPERATING GUIDELINES

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- Never use pressurized gases with plastic piping systems.
- Ensure all testing is done using established and secure hydrostatic equipment.  
Certain liquids may be prone to vaporization [off-gassing] which might cause pressure fluctuation.  
Valves may be damaged.
- Do not apply excessive weight or mass on top of the valve.
- Avoid slurries, this might result in uneven flow.
- Avoid crystallized or gelled substrate, this might result in uneven flow.
- Always operate valves and piping systems within their designed engineering limits and recommended conditions.
- Ensure adequate space is always kept around the valve for inspections and maintenance.
- Ensure the right materials, seats and valve types are used that have adequate chemical resistance to the substrate.
- Keep valves from being exposed to direct sunlight for long periods. UV rays might affect the composition.
- Ensure routine and periodic maintenance and inspection is done to avoid costly problems.

## SECTION 2 - TRANSPORTATION AND STORAGE

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- When suspending valves use common sense, ensure adequate support and spacing is maintained.
- Thermoplastic may be damaged with impacts and sharp objects. Avoid blunt and sharp trauma.
- Ensure cartons and packages are stored appropriately, excessive cartons being stacked might collapse.
- Avoid contact with paint, tar-sand, insecticides and pesticides, and highly corrosive agents.
- During assembly and handling do not carry valves by their handles.
- Keep valves from being exposed to direct sunlight for long periods. UV rays might affect the composition.
- Prior to assembly ensure a quick and effective visual check is done to ensure items are not defective.

## SECTION 3 - INSTALLATION

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- Perform a visual check prior to installation.
- Wear adequate protective equipment when working with tools, solvents, power drills etc.
- If using U Clamps or anything similar during assembly make sure not to over-tighten.
- During installation of piping systems ensure adequate spacing and hoops are designed in the system.
- Ensure no unnecessary stresses are caused on the piping system such as tension, compression, impact etc.
- Visually check to determine the direction of flow of valves before installing.
- Before hydrostatic testing ensure that union nuts are firmly screwed into position. Take care not to over-tighten.
- If connecting to metallic systems ensure that no undue stress is caused to valves.
- Never use a pipe wrench on thermoplastic.
- For detailed solvent welding, threading and flanging connections read Hydroseal Canada's Technical Guide.

## SECTION 4 - ASSEMBLY

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- Do not exert excessive force when opening or closing valves.
- If sand or other large particles are in the piping system ensure to flush these out before operation of valves.
- Ensure that valves are opened and closed only by trained people, never use tools to open/close valves.
- If valve provided is lubricant free ensure that water is flowing before attempting to operate handles.

## KAPLAN BALL VALVES

### SECTION 5 - HANDLE POSITION

CLOCKWISE > to close  
COUNTER CLOCKWISE > to open

CLOSED > should be perpendicular to the pipe  
OPEN > should be parallel to the pipe

### SECTION 6 - DISASSEMBLY

- Perform a visual check prior to installation.
- Wear adequate protective equipment when working with tools, solvents, power drills etc.
- Do not attempt maintenance or replacement is there is still any pressure running through the piping system.
- Never use a pipe wrench on thermoplastic.
- Ensure all fluid is completely drained from the piping system.
- Loosen union nuts before extraction of valve from line.
- If replacing parts such as seals, seats, balls etc then consult the manufacturer for any specific details.

### SECTION 7 - AUTOMATION

- Refer to detailed actuator installation guide in Hydroseal Canada's Technical Guide.

### SECTION 8 - MAINTENANCE

- Perform regular and scheduled maintenance. Leakages and tightness of valves may happen due to temperature changes over prolonged periods.
- Check for cracks, deformities on the outside.
- Check for fluids on the outside.
- Check tightness of union nuts.
- Verify the handle mechanism operates smoothly.

### SECTION 9 - TROUBLESHOOTING

PROBLEM	CAUSES	SOLUTION
Leakage observed when valve is closed	Union nuts may have loosened.	Tighten the valve.
	Seats may be scratched or eroded.	Replace seat or entire valve.
	Valve may have object within the body.	Clear blockage.
	Ball mechanism may be scratched, cracked or eroded.	Replace ball or entire valve.
Leakage observed	Unions nuts may have loosened.	Tighten the valve.
	O ring(s) may be scratched or eroded.	Replace O rings or entire valve.
Handle not turning smoothly	Valve may have object within the body.	Clear blockage.
	Deformity in valve or parts of valve.	Replace valve.
Handle fails to engage	Stem may be broken or cracked.	Replace stem or entire valve.
	The mechanism between stem and ball is broken.	Replace stem and ball, or entire valve.

**KAPLAN BALL VALVES**

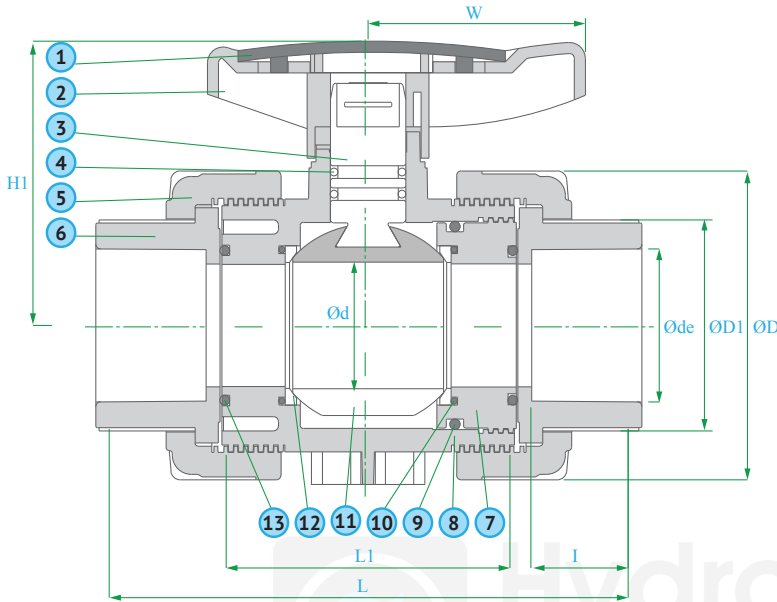
**SECTION 10 - TECHNICAL**

**JOINT END:**

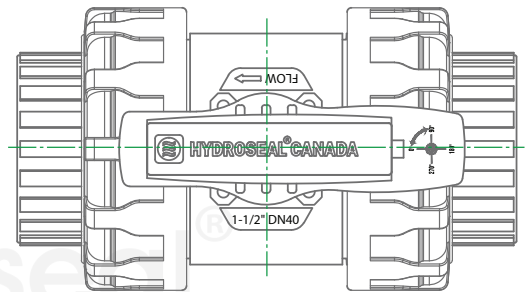
THREADED (PT.NPT.BSPF)  
SOCKET (ASTM.DIN.JIS)

**WORKING PRESSURE:**

200 PSI



CONSTRUCTION			
NO	PARTS	PCS	MATERIALS
1	HANDLE CAP	1	ABS
2	HANDLE	1	ABS
3	STEM	1	PVC, CPVC, PP
4	O-RING	2	EPDM, VITON
5	NUT	2	PVC, CPVC, PP
6	CONNECTOR	2	PVC, CPVC, PP
7	INSERT	1	PVC, CPVC, PP
8	BODY	1	PVC, CPVC, PP
9	O-RING	1	EPDM, VITON
10	O-RING	2	EPDM, VITON
11	BALL	1	PVC, CPVC, PP
12	SEAT	2	PTFE
13	O-RING	2	EPDM, VITON



PART	NOMINAL SIZE	SOCKET, THREAD TYPE	UNIT OF MEASURE: MM						ASTM	DIN	JIS	W			
			DN	D	D1	d	H1	L					L1	de	l
KPES.0050	1/2"	DN 15	46.00	32.00	13.00	49.00	116.00	62.00	21.34	22.60	20.00	17.00	22.00	22.60	45.00
KPES.0075	3/4"	DN 20	56.00	38.00	19.00	60.00	133.00	72.00	26.67	25.50	25.00	19.50	26.00	25.50	52.00
KPES.0100	1"	DN 25	66.00	45.00	25.00	69.00	150.00	80.00	33.40	28.60	32.00	23.00	32.00	28.60	58.00
KPES.0125	1 1/4"	DN 32	82.00	55.00	31.00	76.00	168.00	87.00	42.16	31.90	40.00	27.00	38.00	31.90	66.00
KPES.0150	1 1/2"	DN 40	98.00	67.00	40.00	91.00	173.00	94.00	48.26	35.10	50.00	32.00	48.00	35.10	69.00
KPES.0200	2"	DN 50	120.00	81.00	50.00	110.00	206.00	112.00	60.32	38.20	63.00	37.50	60.00	38.20	81.00
KPES.0250	2 1/2"	DN 65	120.00	89.00	50.00	110.00	211.00	112.00	73.02	41.40	75.00	41.50	76.00	41.40	81.00
KPES.0300	3"	DN 80	162.00	108.00	75.00	140.00	262.00	147.00	88.90	48.00	90.00	51.00	89.00	51.00	118.00
KPES.0400	4"	DN 100	220.00	134.00	100.00	185.00	311.00	177.00	114.30	57.50	110.00	61.00	114.00	61.00	140.00

SELECTION CHART Lever Handle Operator and Gear Box Operator				
SIZE	MATERIAL	CONNECTION	SEALS	PRESSURE RATING
1/2" ~ 4"	PVC CPVC PP	SOCKET or THREAD	EPDM or VITON	200 PSI @ 70F Non-Shock

CV FACTORS			
SIZE	FACTOR	SIZE	FACTOR
1/4"	-	1 1/2"	90
3/8"	-	2"	140
1/2"	8	2 1/2"	330
3/4"	15	3"	480
1"	29	4"	600
1 1/4"	75	6"	-

**Pressure Loss Calculation Formula**

$$\Delta P = \left[ \frac{Q}{C_v} \right]^2$$

$\Delta P$  = Pressure Drop  
 $Q$  = Flow in GPM  
 $C_v$  = Flow Coefficient

