FluoroSeal



HF ALKYLATION PLUG VALVES

ANSI/ASME/API
UOP LISTED

DESIGN FEATURES



FluoroSeal is committed to providing the highest quality product to our HF Alkylation end users. As a result, FluoroSeal HF Alkylation Sleeved Plug Valves are designed, manufactured, and tested in strict compliance with the requirements of the UOP HF Alkylation Process Licensor specifications.

To ensure that we provide the highest quality product possible, FluoroSeal Inc. conducts a 100% radiographic inspection of each valve body per the requirements of ASTM E446 (DIN EN 444 & DIN EN462). In addition, each machined valve body is subjected to a 450 psig helium gas shell test prior to assembly. After assembly, HF Alkylation valves receive a 1.5 times max cold working pressure kerosene shell test per ASME B16.34 (DIN EN 12266-1), a low pressure gas seat test, and high pressure kerosene seat test.

FluoroSeal® Non-Lubricated HF Sleeved Plug Valves incorporate a fully contained PTFE fluorocarbon seat which provides for a long lasting, bubble-tight in-line seal as well as excellent resistance to fugitive emissions. The valve's engineered design allows for extended periods of trouble-free operation with little or no maintenance. The FluoroSeal HF Sleeved Plug Valve design features which ensure a trouble-free extended service life include:

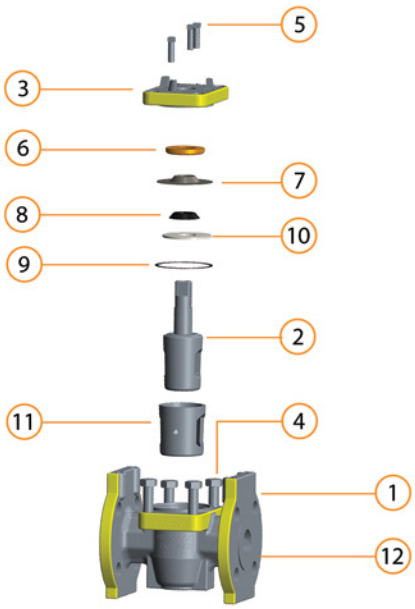
Long Lasting Bubble Tight Sealing
Engineered compression of the fully contained and locked-in PTFE seat provide for tight, robust, long lasting sealing.

Adjustable In-Line & External Sealing
Because of its tapered design a FluoroSeal HF Sleeved Plug Valve is fully adjustable to stop both in-line and external leaks should they occur allowing users to run production for longer periods.

Cavity Free
There are no cavities or pockets where process media and contaminates such as iron fluoride deposits can accumulate and affect the valve performance.

Non-Lubricated
No external lubrication is required to affect a seal or control operating torque making this virtually a maintenance free valve.

Quarter Turn Operation
Allows for quick opening and closing and provides for better emissions resistance compared to rising stem valves.



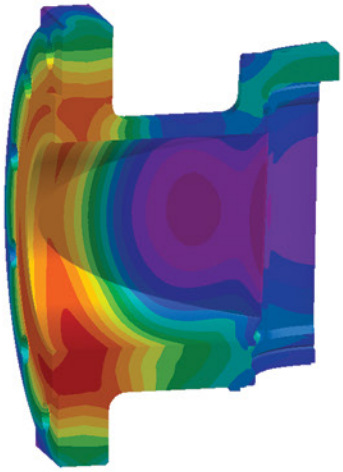
LIST OF COMPONENTS

No.	Description/Part	Material
1	Body	ASTM A494 Gr. M35-1
2	Plug	ASTM A494 Gr. M35-1
3	Cover	ASTM A216 Gr. WCB
4	Cover Bolts	ASTM A193 Gr. B7M
5	Adjusting Bolts	ASTM A193 Gr. B7M
6	Thrust Washer	ASTM A494 Gr. M35-1
7	Metal Diaphragm	MONEL® 400
8	Delta Ring	Flexible Graphite
9	Cover Seal Ring	Flexible Graphite
10	Diaphragm	PTFE Fluorocarbon
11	Sleeve	PTFE Fluorocarbon
12	Paint	Acid Detecting Paint

QUALITY ENGINEERED INTO EVERY CASTING

Through the use of solidification modeling, Nyamic criteria, and other proprietary engineering techniques a unique system of gating and risering is developed which provide for even casting cooling which greatly reduces or eliminates internal casting defects such as shrinkage and micro-porosity.

All newly designed FluoroSeal casting designs are subjected to a rigorous first article sampling procedure which includes radiography, liquid penetrant examination, and other non-destructive as well as destructive testing to verify the production techniques.



Solidification Model



Firing Shells Molds

HIGH QUALITY RAW MATERIALS ENSURE HIGH QUALITY CASTINGS

All HF Alkylation valve body and plug castings poured in FluoroSeal's in house Montreal foundry are produced using VOD ingot (vacuum oxygen decarburization). VOD ingot is a highly refined, high purity raw material that helps to minimize impurities resulting in high quality castings.

FluoroSeal never alloys A494 M35-1 to produce HF Alkylation castings at the in house Montreal foundry. In addition, each pour of A494 M35-1 in the foundry is argon blanketed to reduce oxygen contamination.

NORTH AMERICAN FOUNDRY SOURCING

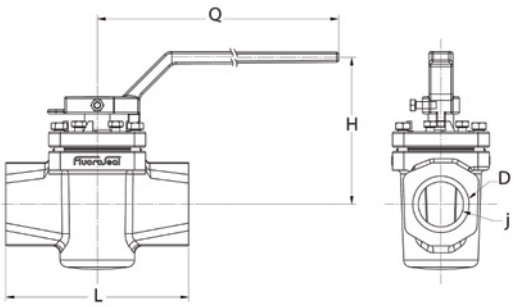
To ensure the highest quality valve is produced all body and plug castings used in the manufacture of FluoroSeal UOP listed HF Alkylation valves are produced only by North American foundry sources.

Most of the HF Alkylation valves supplied utilize body and plug castings which are produced in FluoroSeal's in-house investment cast foundry located at the Montreal, Canada manufacturing facility. All other foundry sources are located in North America; FluoroSeal doesn't procure HF Alkylation valve body or plug castings overseas from third world foundries as some manufacturers do.



Montreal Foundry

PRODUCT OVERVIEW



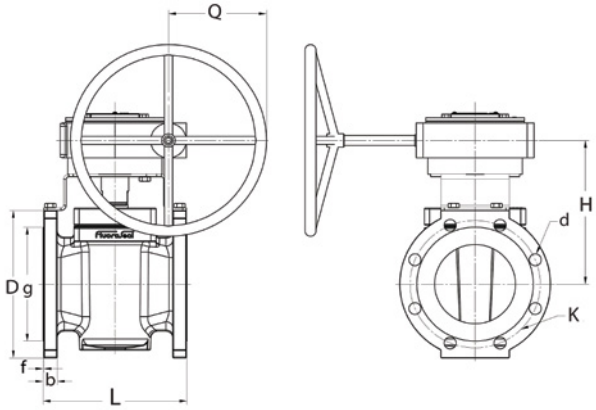
STANDARD PORT HF PLUG VALVES
2-WAY ANSI/ASME CLASS 300

SIZE 1/2" to 2"
Screwed Ends
Wrench Operated
Actuators Optional on All Sizes

Dimensions to ANSI B16.11

E= Clearance required for resleeving measured from center line

SIZE	L		H		Q		D	j		Weight		E	
	in	mm	in	mm	in	mm		in	mm	kg	lbs	in	mm
1/2"	3.93	100.00	3.38	85.90	8.00	203.00	1/2-14 NPT	0.55	14.00	2.0	4.4	6.38	162.10
3/4"	3.93	100.00	3.38	85.50	8.00	203.00	3/4-14 NPT	0.75	19.00	2.0	4.4	6.38	162.10
1"	5.50	140.00	4.50	114.00	9.00	229.00	1-11 1/2 NPT	0.98	25.00	3.0	6.6	8.50	215.90
1 1/2"	6.30	160.00	5.31	135.00	14.25	362.00	1 1/2-11 1/2 NPT	1.50	38.00	6.0	13.2	10.38	263.70
2"	7.87	200.00	6.25	159 .00	16.50	419.00	2-11 1/2 NPT	1.97	50.00	10.0	22.0	12.25	311.20



STANDARD PORT HF PLUG VALVES
2-WAY ANSI/ASME CLASS 300

SIZE 1/2" to 24"
Flanged Ends
Wrench or Gear Operated
Actuators Optional on All Sizes

Dimensions to ANSI B16.5 & B16.10

E= Clearance required for resleeving measured from center line

EG= Enclosed gear operated

N= Number of holes

[1] Two (2) top holes in flanges are tapped with UNC threads . See Hole-UNC column

[2] Four (4) top holes in flanges are tapped with UNC threads . See Hole-UNC column

* 2 ½" valves are made from 3" casting, but flanges are machined to 2 ½" dimensions

SIZE	L		H		D		K		g		b		f		d		Q		Weight		E		N	Hole-UNC
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	kg	lbs	in	mm	#	
1/2"	5.50	139.70	3.38	86.00	3.75	95.30	2.63	66.80	1.38	35.00	0.56	14.20	0.06	1.52	0.63	16.0	8.00	203.00	3.2	7.0	6.38	162.10	4	-
3/4"	6.00	152.40	3.38	86.00	4.63	117.60	3.25	82.60	1.69	42.70	0.63	16.00	0.06	1.52	0.75	19.00	8.00	203.00	4.1	9.0	6.38	162.10	4	-
1"	6.50	165.10	4.50	114.00	4.88	124.00	3.50	88.90	2.00	50.80	0.69	17.50	0.06	1.52	0.75	19.00	9.00	229.00	5.5	12.0	8.50	215.90	4	-
1 1/2"	7.50	190.50	5.31	135.00	6.13	155.70	4.50	114.30	2.88	73.20	0.81	20.60	0.06	1.52	0.88	22.40	14.25	362.00	9.5	21.0	10.38	263.70	4	-
2"	8.50	215.90	6.25	159.00	6.50	165.10	5.00	127.00	3.63	92.00	0.88	22.40	0.06	1.52	0.75	19.00	16.50	419.00	13.2	29.0	12.25	311.20	8	-
*2 1/2"	11.13	282.70	6.56	167.00	8.25	209.60	5.88	149.40	4.13	104.60	1.13	28.70	0.06	1.52	0.88	22.40	16.50	419.00	21.8	48.0	12.63	320.80	8	-
3"	11.13	282.70	6.56	167.00	8.25	209.60	6.63	168.40	5.00	127.00	1.13	28.70	0.06	1.52	0.88	22.40	16.50	419.00	21.8	48.0	13.63	346.20	8	-
4"	12.00	304.80	7.63	194.00	10.00	254.00	7.88	200.20	6.19	157.20	1.25	31.80	0.06	1.52	0.88	22.40	23.63	600.00	42.0	92.0	16.25	412.80	8	-
4" EG	12.00	304.80	9.10	231.00	10.00	254.00	7.88	200.20	6.19	157.20	1.25	31.80	0.06	1.52	0.88	22.40	7.25	184.00	54.0	119.0	17.63	447.80	8	-
6" EG	15.88	403.40	10.80	274.00	12.50	317.50	10.63	270.00	8.50	215.90	1.44	36.60	0.06	1.52	0.88	22.40	7.25	184.00	91.4	201.0	21.75	552.50	12	-
8" EG[1]	16.50	419.10	12.75	324.00	15.00	381.00	13.00	330.20	10.63	269.80	1.63	41.40	0.06	1.52	1.00	25.40	9.75	248.00	141.4	311.0	26.63	676.40	12	7/8"-7
10" EG[1]	18.00	457.20	14.68	373.00	17.50	444.50	15.25	387.40	12.75	323.90	1.88	47.80	0.06	1.52	1.13	28.70	9.75	248.00	210.9	464.0	31.25	793.80	16	1"-8
12" EG[1]	19.75	501.70	16.40	417.00	20.50	520.70	17.75	450.90	15.00	381.00	2.00	50.80	0.06	1.52	1.25	31.80	13.75	349.25	279.0	614.0	33.75	857.30	16	1 1/8"-8
14" EG	30.00	762.00	17.40	442.00	23.00	584.20	20.25	514.40	16.25	412.80	2.12	53.80	0.06	1.52	1.25	31.80	13.75	349.25	363.0	800.0	34.75	882.70	20	-
16" EG[1]	33.00	838.20	21.29	540.72	25.50	647.70	22.50	571.50	18.50	469.90	2.19	55.63	0.06	1.52	1.38	34.93	9.85	698.50	-	-	46.00	1168.40	20	1 1/4"-8
18" EG	36.00	914.40	21.29	540.84	28.00	711.20	24.75	628.65	21.00	533.40	2.31	58.67	0.06	1.52	1.38	34.93	9.85	698.50	-	-	46.00	1168.40	24	-
20" EG[2]	39.00	990.60	27.43	696.70	30.50	774.70	27.00	685.80	23.00	584.20	2.44	61.98	0.06	1.52	1.38	34.93	9.85	698.50	-	-	57.63	1463.80	24	1 1/4"-8[1]
24" EG[1]	45.00	1143.0	27.43	696.70	36.00	914.40	32.00	812.80	27.25	692.15	2.69	68.33	0.06	1.52	1.63	41.28	9.85	698.50	-	-	57.63	1463.80	24	1 1/2"-8

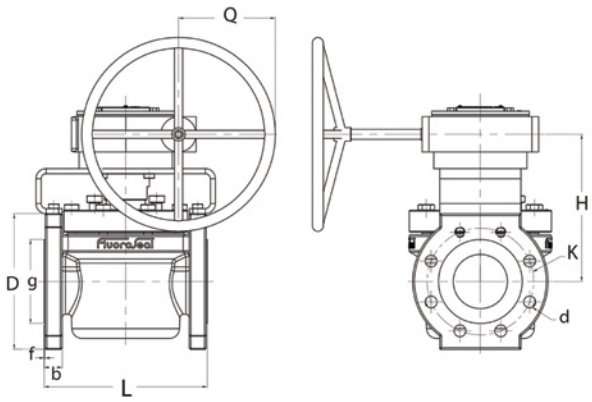
UOP APPROVED DRAWINGS

Size	Figure Number	UOP Approved Drawing	Size	Figure Number	UOP Approved Drawing	Size	Figure Number	UOP Approved Drawing	Size	Figure Number	UOP Approved Drawing
1/2"	R302SE	SU-0760	1/2"	R302F	SU-0220	4"EG	R302F	SU-0216	14"	R302F	SU-0218
3/4"	R302SE	SU-0761	3/4"	R302F	SU-0220	6"	R302F	SU-0216	16"	R302F	SU-0219
1"	R302SE	SU-0762	1"	R302F	SU-0216	8"	R302F	SU-0217	18"	R302F	SU-0219
1 1/2"	R302SE	SU-1433	1 1/2"	R302F	SU-0216	10"	R302F	SU-0218	20"	R302F	SU-0219
2"	R302SE	SU-1434	2"	R302F	SU-0216	12"	R302F	SU-0218	24"	R302F	SU-0219

FULL ROUND PORT HF PLUG VALVES

Unlike other valve designs which utilize a larger sized reduced port plug to increase flow the FluoroSeal Full Bore HF Sleeved plug valve is designed with a full, round port through the entire valve. This provides for high flow capacity with minimal pressure drop. When sizing a piping system and evaluating losses designers can consider this valve as an equivalent length of pipe. FluoroSeal Full Bore HF Sleeved plug valves are commonly used in HF Acid Rapid Evacuation systems and other applications where high flow is a great concern.





FULL ROUND PORT HF PLUG VALVES ANSI/ASME CLASS 300

SIZE 3/4" to 10"
Flanged Ends
Wrench or Gear Operated
Actuators Optional on All Sizes

E= Clearance required for resleeving measured from center line

EG= Enclosed gear operated

N= Number of holes

[1] Two (2) top holes in flanges are tapped with UNC threads . See Hole-UNC column

SIZE	L		H		D		K		g		b		f		d		Q		Weight		E		N	Hole-UNC
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	kg	lbs	in	mm	#	
3/4"	6.00	152.40	4.43	112.42	4.62	117.35	3.25	82.55	1.69	42.93	0.62	15.75	0.06	1.52	0.75	19.10	9.00	228.60	-	-	5.50	139.65	4	-
1"	6.50	165.10	5.03	127.65	4.88	123.95	3.50	88.90	2.00	50.80	0.68	17.27	0.06	1.52	0.75	19.10	14.25	361.95	-	-	6.23	158.22	4	-
1 1/2"	7.50	190.50	5.81	147.51	6.12	155.45	4.50	114.30	2.88	73.15	0.81	20.57	0.06	1.52	0.88	22.40	16.50	419.10	-	-	7.41	188.14	4	-
2"	8.50	215.90	8.87	225.27	6.50	165.10	5.00	127.00	3.62	91.95	0.87	22.10	0.06	1.52	0.75	19.10	7.25	184.15	-	-	9.62	244.35	8	-
3" EG	11.12	282.45	8.94	227.18	8.25	209.55	6.62	168.15	5.00	127.00	1.12	28.45	0.06	1.52	0.88	22.40	7.25	184.15	-	-	10.30	261.67	8	-
4" EG	12.00	304.80	11.30	287.10	10.00	254.00	7.88	200.15	6.19	157.23	1.25	31.75	0.06	1.52	0.88	22.40	9.75	247.65	-	-	14.01	355.85	8	-
6" EG	22.00	558.80	17.60	447.04	12.50	317.50	10.62	269.75	8.50	215.90	1.44	36.58	0.06	1.52	0.88	22.40	12.00	304.80	-	-	17.59	446.76	12	-
8" EG	27.00	685.80	18.80	477.42	15.00	381.00	13.00	330.20	10.62	269.75	1.62	41.15	0.06	1.52	1.00	25.40	11.80	299.72	-	-	23.08	586.16	12	7/8"-9
10" EG	32.50	825.50	23.96	608.58	17.50	444.50	15.25	387.35	12.75	323.85	1.87	47.50	0.06	1.52	1.13	28.58	12.00	304.80	-	-	27.17	690.19	16	-

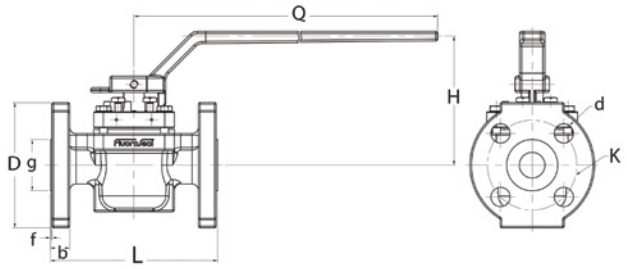
UOP APPROVED DRAWINGS

Size	Figure Number	UOP Approved Drawing	Size	Figure Number	UOP Approved Drawing
3/4"	R302F	SU-0824	4"	R302F	SU-0824
1"	R302F	SU-0824	6"	R302F	SU-0824
1 1/2"	R302F	SU-0824	8"	R302F	SU-0824
2"	R302F	SU-0824	10"	R302F	SU-0824
3"	R302F	SU-0824			

EZ SEAL HF SLEEVED PLUG VALVES

FluoroSeal's patented EZ Seal valve adjustment system provides an easily accessible, single point frontal adjustment bolt which allows users to easily make stem seal and plug adjustments and eliminates the issue of adjustment bolt accessibility even when valves are fully automated. Through the use of a proprietary cam design, the EZ-SEAL® offers 360° simultaneous and even compression of the stem packing and eliminates the possibility of side loading the plug and stem seal. Because the plug and stem packing are evenly compressed both in-line and stem seal leakage are virtually eliminated. In addition, the unique visual adjustment gauge provides local indication of remaining valve life which assists with maintenance planning.

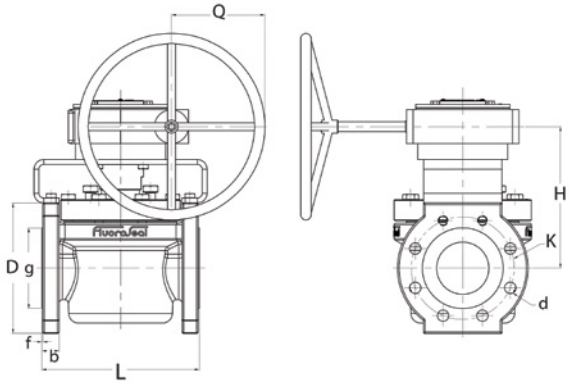




EZ SEAL HF WRENCH VALVE 2-WAY ANSI/ASME CLASS 300

SIZE 1/2" to 4"
Flanged Ends
Wrench Operated
Actuators Optional on All Sizes

SIZE		L		H		D		K		g		b		f		d		Q	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
1/2"	12.5	5.50	139.70	6.0	152.40	3.75	95.25	2.62	66.54	1.38	35.0	0.56	14.20	0.06	1.52	0.63	16.0	8.3	210.82
3/4"	18.75	6.00	152.40	6.0	152.40	4.62	117.34	3.25	82.60	1.69	42.7	0.62	15.74	0.06	1.52	0.75	19.00	8.3	210.82
1"	25	6.50	165.10	6.0	152.40	4.88	124.00	3.50	88.90	2.00	50.8	0.68	17.27	0.06	1.52	0.75	19.00	8.3	210.82
1 1/2"	37.5	7.50	190.50	7.2	182.88	6.12	155.44	4.50	114.30	2.88	73.2	0.81	20.60	0.06	1.52	0.88	22.40	10.3	261.62
2"	50	8.50	215.90	7.9	200.66	6.50	165.10	5.00	127.00	3.62	91.94	0.87	22.09	0.06	1.52	0.75	19.00	24.3	617.22
*2 1/2"	62.5	11.12	282.44	8.4	213.36	8.25	209.60	5.88	149.40	4.12	104.64	1.12	28.44	0.06	1.52	0.88	22.40	24.3	617.22
3"	80	11.12	282.44	8.4	213.36	8.25	209.60	6.62	168.14	5.00	127.0	1.12	28.44	0.06	1.52	0.88	22.40	24.3	617.22
4"	100	12.00	304.80	9.9	251.46	10.00	254.00	7.88	200.20	6.19	157.2	1.25	31.80	0.06	1.52	0.88	22.40	24.3	617.22



EZ SEAL HF GEAR VALVE 2-WAY ANSI/ASME CLASS 300

SIZE 4" to 6"
Flanged Ends
Gear Operated
Actuators Optional on All Sizes

SIZE		L		H		D		K		g		b		f		d		Q	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
4"	100	12.00	304.80	9.0	228.60	10.00	254.00	7.88	200.15	6.19	157.22	1.25	31.75	0.06	1.52	0.88	22.35	14.5	368.3
6"	150	15.88	403.35	11.3	287.02	12.50	317.50	10.62	269.74	8.50	215.90	1.44	36.57	0.06	1.52	0.88	22.35	14.5	368.3

UOP APPROVED DRAWINGS

Size	Figure Number	UOP Approved Drawing	Size	Figure Number	UOP Approved Drawing
1/2"	R302F	SU-0756	3"	R302F	SU-0756
3/4"	R302F	SU-0756	4"	R302F	SU-0756
1"	R302F	SU-0756	4"	R302F	SU-0757
1 1/2"	R302F	SU-0756	6"	R302F	SU-0757
2"	R302F	SU-0756			

NOTES:

1. The information on this catalog is provided for general informational purposes only.
2. For all technical parameters of the product please contact your local FluoroSeal sales office or authorized representative.
3. Customization for specific applications is available upon request.
4. We reserve the right to changes without prior notice.

CONTROLLING PROVISIONS

These terms and conditions shall control with respect to any purchase order or sale of FluoroSeal Inc.'s products. No waiver, alteration or modification of these terms and conditions whether on Buyer's purchase order or otherwise, shall be valid unless the waiver, alteration or modification is specifically accepted in writing and signed by an authorized representative of FluoroSeal Inc.

DELIVERY

FluoroSeal Inc. will make every effort to complete delivery of products as indicated on its acceptance of an order, but FluoroSeal Inc. assumes no responsibility or liability, and will accept no back charge, for loss or damage due to delay or inability to deliver caused by acts of God, war, labor difficulties, accident, delays of carriers, by contractors or suppliers, inability to obtain materials, shortages of fuel and energy, or any other causes of any kind whatever beyond the control of FluoroSeal Inc. FluoroSeal Inc. may terminate any contract of sale of its products without liability of any nature, by written notice to Buyer, in the event that the delay in delivery or performance resulting from any of the aforesaid causes shall continue for a period of sixty (60) days. Under no circumstances shall FluoroSeal Inc. be liable for any special or consequential damages or for loss, damage, or expense (whether or not based on negligence) directly or indirectly arising from delays or failure to give notice of delay.

WARRANTY

FluoroSeal Inc. warrants for one year from the date of shipment its manufactured products to the extent that FluoroSeal Inc. will replace those having defects in material or workmanship when used for the purpose and in the manner which FluoroSeal Inc. recommends. If FluoroSeal Inc.'s examination discloses to its satisfaction that the products are defective and an adjustment is required, the amount of such adjustment shall not exceed the net sale price of the defective product(s) - no allowance will be made for labor or expense for 3rd party repair or replacement of defective products or damage resulting from same. FluoroSeal Inc. warrants other manufacturers products which it sells to the extent of the warranties and terms & conditions of their respective makers. Where engineering design or fabrication work is supplied, Buyer's acceptance of FluoroSeal Inc.'s design or of delivery of work shall relieve FluoroSeal Inc. of all further obligation, other than expressed in FluoroSeal Inc.'s product warranty.

THIS IS FLUOROSEAL INC.'S SOLE WARRANTY. FLUOROSEAL INC. MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE AFORE STATED OBLIGATION ARE HEREBY DISCLAIMED BY FLUOROSEAL INC. AND EXCLUDED FROM THIS WARRANTY.

FluoroSeal Inc. neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of its engineering designs or products. This warranty shall not apply to any products or parts of products which (a) have been repaired or altered outside of FluoroSeal Inc.'s factory, in any manner; (b) have been subjected to misuse, negligence or accidents; (c) have been used in a manner contrary to FluoroSeal Inc.'s instructions or recommendations. FluoroSeal Inc. shall not be responsible for design errors due to inaccurate or incomplete information supplied by Buyer or its representatives.

LIABILITY

FluoroSeal Inc. will not be liable for any loss, damage, cost of repairs, incidental or consequential damages of any kind, whether based upon warranty (except for the obligation accepted by FluoroSeal Inc. under "Warranty" above), contract or negligence, arising in connection with the design, manufacture, sale, use or repair of the products or of the engineering designs supplied to Buyer. Any litigation will be interpreted in accordance with the laws of the Province of Québec, Canada and any suit, action or proceeding relating to these terms and conditions may be instituted in any competent court sitting in the district of Montréal, Québec, Canada.

RETURNS

FluoroSeal Inc. cannot accept return of any product(s) unless its written permission has been first obtained, in which case same will be credited subject to the following: (a) all material returned must, on its arrival at FluoroSeal Inc.'s plant, be found to be in first-class condition; if not, cost of putting in saleable condition will be deducted from credit memoranda; (b) a handling charge deduction will be made from all credit memoranda issued for material returned; (c) transportation charges, if not prepaid, will be deducted from credit memoranda.

SHIPMENTS

All products sent out will be carefully examined, counted and packed. The cost of any special packing or special handling caused by Buyer's requirements or requests shall be added to the amount of the order. No claim for shortages will be allowed unless made in writing within ten (10) days of receipt of a shipment. Claims for products damaged or lost in transit should be made to the carrier, as FluoroSeal Inc.'s responsibility ceases, and title passes, on delivery to the carrier.

SPECIAL PRODUCTS

Orders covering special or non-standard products are not subject to cancellation except on such terms as FluoroSeal Inc. may specify on application.

PRICES AND DESIGNS

Prices and designs are subject to change without notice. All prices are F.O.B. Point of Shipment, unless otherwise stated.

TAXES

The amount of any sales, excise or other taxes, if any, applicable to the products, shall be added to the purchase price and shall be paid by Buyer unless Buyer provides FluoroSeal Inc. with an exemption certificate acceptable to the taxing authorities.

NUCLEAR PLANTS

Where the products, engineering design or fabrication is for nuclear plant applications, Buyer agrees (a) to take all necessary steps to add FluoroSeal Inc. as an insured supplier under the American Nuclear Insurers (ANI) pool and under the Mutual Atomic Energy Reinsurance Pool (MAERP) for property damage and liability insurance and if necessary steps could have been taken, but are not taken, Buyer shall hold FluoroSeal Inc. harmless against all such losses which could have been thus covered; (b) Buyer agrees to hold FluoroSeal Inc. harmless with respect to any personal injury or death, property damage or any other loss in a nuclear incident which is caused directly or indirectly by defective design, material, or workmanship, furnished by FluoroSeal Inc. and which is covered by insurance maintained by Buyer (or which could be so covered but with respect to which Buyer has elected to self-insure), and further agrees to waive subrogation by its carriers of such insurance against FluoroSeal Inc.; (c) as to nuclear hazards for which Buyer cannot obtain insurance coverage, the liability of FluoroSeal Inc. for any personal injury or death, property damage or any other loss directly caused by defective design, material, or workmanship furnished by FluoroSeal Inc. shall not exceed the value of the material furnished by FluoroSeal Inc. at the time of the loss occurrence.

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