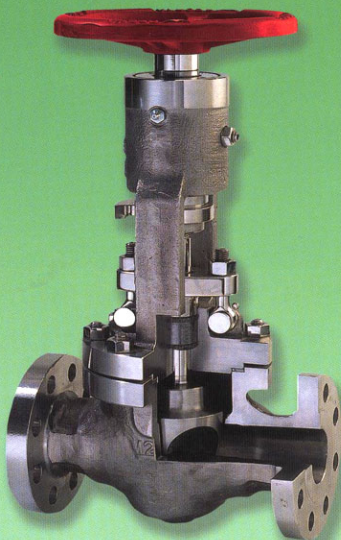




POYAM



VALVES

LIFT - PLUG

OPERATION

flushing purging handling solids in suspension

The special, screw type operator simplifies plug lift, rotation and reseating, making the valve durable, reliable, and economical. The operator automatically compensates for wear and varied operating conditions. They allow plug to be seated by torque in both open and closed position.



1 Plug is closed; seats protected.



2 Operator slightly lifts plug.



3 Operator rotates plug 90° to open position.



4 Operator reseats plug in open position; seats protected.

In a circular motion of the handwheel, worm gear, or wrench, operator lifts the tapered plug from the raised body seats, turns the plug 90° and reseats it. The operator also compensates for wear and thermal contraction and expansion in the body and the plug seats. No lubrication is required inside the body or on the plug for seat sealing, plug rotation, or to prevent sticking. Expensive lubricants are avoided. And without lubricant, there is no forcing matter in the valve to contaminate the flow material.

FLUSHING

Flushing is the supply of a clean fluid via the cavity surrounding the plug in the valve. The flushing fluid being at a higher pressure than the line media passes between the body and plug into the line during the operation of opening or closing the valve. This flushing fluid thus enters the main line during the opening and closing and, being of a clean nature ensures that the plug reseats on clean metal to metal surfaces. It also has the effect of pushing back into the line any media that may have become trapped in the bore of the plug whilst the valve is being closed. Having operated the valve, the flushing lines may be turned off.

PURGING

Purging is the supply of an inert and safe fluid into the cavity surrounding the plug in the valve. The purge is maintained at a higher pressure than the line media. The purpose is to ensure no leakage of line media takes place past the plug or past the gland packing. Should a leak develop between the plug and body seats, line media would be unable to flow into the cavity as the purge media, being at a higher pressure, would flow from the cavity into the line. When the valve is sealing no flow of purge fluid need take place.

Leakage of the valve would be detected by an increase in the flow of the purge fluid through the lines.

A result of the purge is that the gland is subjected only to the inert purge media rather than the line media. This is an important safety factor when handling toxic gases or volatile hydrocarbons.

HANDLING SOLIDS IN SUSPENSION

Problems may exist with crude feedstock subject to high temperature cracking and coke formation. Valves should be installed so that one of the tapped bosses is at the lowest point in the body. The bosses of the valve body are regularly tapped at the factory.

This permits easy installation of a bleeder and/or blow connection. If permissible to blow back into the line, any purging medium such as air, inert gas, steam, or flushing oil may be introduced through connection.

Then as the plug is lifted off its seats, any accumulation below the plug or on the seats will be blow back into the line. Conversely, by opening the bleeder, line pressure will blow out any accumulation when the plug is lifted.

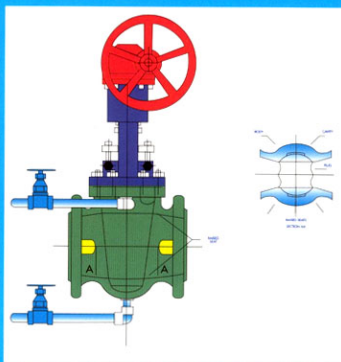
An upper barrel boss may also be tapped for a second bleeder and/or blow connection. This also permits circulation of a flushing medium around the plug.

GLAND PACKING

It will be noted that, the valve in the closed or open position, provided the plug is properly seated, the cavity surrounding the plug may be drained to atmosphere.

When this is done the gland is no longer subject to line pressure and providing the valve has been locked or isolated, and codes of practice permitting the packing may be changed.

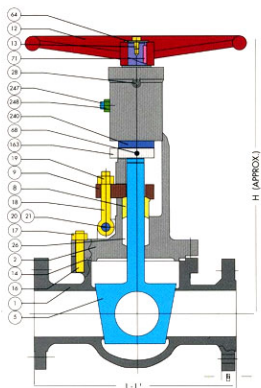
Should it be necessary to ensure the valve is double blocking, i.e. sealing on both the up and downstream seats, a drain valve can be opened.





LIFT-PLUG VALVES POYAM

non lubricated plug
100% round port opening



N°	DESCRIPTION	MATERIAL	MATERIAL
1	Body	ASTM A 216 WCB *	ASTM A 217 WC6 *
2	Bonnet	ASTM A 216 WCB	ASTM A 217 WC6
5	Plug	ASTM A 487 CA6NM *	ASTM A 487 CA6NM *
8	Gland Bushing	ASTM A 29 Gr. 1518	ASTM A 476 Gr. 410
9	Gland Flange	ASTM A 105	ASTM A 105
12	Handwheel	ASTM A 29 Gr. 1518	ASTM A 29 Gr. 1518
13	Handwheel Nut	ASTM A 29 Gr. 1518	ASTM A 29 Gr. 1518
14	Body bonnet gasket	SPRAL WOUND 316+GRAPHOL	SPRAL WOUND 316+GRAPHOL
16	Body Stud bolt	ASTM A 193 B7	ASTM A 193 B16
17	Nut	ASTM A 194 Gr. 2H	ASTM A 194 Gr. 7
18	Eyebolt	ASTM A 29 Gr. 1045	ASTM A 29 Gr. 1045
19	Nut	ASTM A 194 Gr. 2H	ASTM A 194 Gr. 2H
20	Eyebolt Stud Bolt	ASTM A 193 B7	ASTM A 193 B7
21	Nut	ASTM A 194 Gr. 2H	ASTM A 194 Gr. 2H
26	Stem Packing	GRAPHOIL	GRAPHOIL
28	Grease Nipple	COMMERCIAL	COMMERCIAL
64	Washer	ASTM A 36	ASTM A 36
Pin	ASTM A 29 Gr. 4135	ASTM A 29 Gr. 4135	
71	Key	ASTM A 29 Gr. 1045	ASTM A 29 Gr. 1045
163	Position Indicator/Stop	ASTM A 36	ASTM A 36
240	Operator	COMMERCIAL	COMMERCIAL
247	Stud Bolt	ASTM A 193 B7	ASTM A 193 B7
248	Nut	ASTM A 194 Gr. 2H	ASTM A 194 Gr. 2H

*TEFLON SEALS ARE AVAILABLE



CLASS 130

ND.	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (RF)	8,75"	10,5"	11,75"	13,5"	17"	21"	25"	31"	36"	38,5"	42"	45,5"	50"	56"
	222	267	298	343	432	533	635	787	914	978	1067	1156	1270	1422
L (RTA)	9,25"	11"	12,25"	14"	17,5"	21,5"	25,5"	31,5"	36,5"	39"	42,5"	46"	50,5"	56,5"
	235	279	311	356	445	546	648	800	927	991	1080	1168	1283	1435
H"	16,25"	17,2"	19,5"	20,3"	24,5"	28,25"	32,2"	34,8"	36,6"	40,5"	44"	46,4"	47,5"	52,6"
	413	437	497	515	620	718	818	878	930	1029	1118	1179	1208	1336

ND. 6" and larger are available with gear operated.



CLASS 300

ND.	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"
L (RF)	9,5"	11,12"	13"	15,25"	18"	22"	27"	32,5"	38"	41"	44,5"	47,5"	50,75"	59"	71,5"
	241	282	330	387	457	559	686	826	965	1041	1130	1206	1289	1499	1816
L (RTA)	10,12"	11,75"	13,62"	15,88"	18,62"	22,62"	27,62"	33,12"	38,62"	41,62"	45,12"	48,12"	51,5"	59,88"	72,5"
	257	298	346	403	473	575	702	841	981	1057	1146	1222	1308	1521	1842
H	16,75"	17,5"	19,9"	20,63"	25"	31,75"	34,4"	37,6"	40,1"	44"	47,8"	50,8"	51,85"	58,2"	65,75"
	425	445	505	524	636	806	873	955	1019	1117	1215	1291	1317	1478	1670

ND. 6" and larger are available with gear operated.

CLASS 600

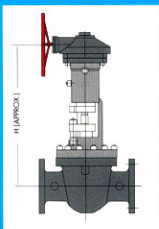
ND.	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"
L (RF)	12,5"	13"	15"	17,5"	20"	26"	31,25"	37"	42"
	241	282	330	387	457	559	686	826	965
L (RTA)	12,62"	13,12"	15,12"	17,62"	20,12"	26,12"	31,38"	37,12"	42,12"
	320,5	333	384	448	511	663	797	943	1070
H	19,2"	20"	21,75"	23,5"	28,78"	33,4"	36,1"	38,5"	40,8"
	487	510	553	598	731	849	918	978	1038

ND. 4" and larger are available with gear operated.

CLASS 900

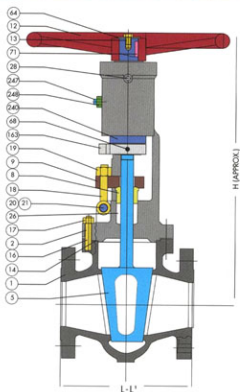
ND.	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"
L (RF)	14"	15"	17"	18,5"	22"	29"	32"	38"	44"
	356	381	432	470	559	737	813	965	1118
L (RTA)	14"	15,12"	17,12"	18,62"	22,12"	29,12"	32,12"	38,12"	44,12"
	356	384	435	473	562	740	816	968	1121
H	20,1"	21,1"	23,1"	27"	31,2"	35"	37,5"	39"	41,85"
	512	537	588	687	794	887	959	992	1063

ND. 3" and larger are available with gear operated.



LIFT-PLUG VALVES

non lubricated plug
70% port opening



Nº	DESCRIPTION	MATERIAL	MATERIAL
1	Body	ASTM A 216 WCB *	ASTM A 217 WC6 *
2	Bonnet	ASTM A 216 WCB	ASTM A 217 WC6
5	Plug	ASTM A 487 CA6NM *	ASTM A 487 CA6NM *
8	Gland Bushing	ASTM A 29 Gr. 1518	ASTM A 476 Gr. 410
9	Gland Flange	ASTM A 105	ASTM A 105
13	Handwheel	ASTM A 29 Gr. 1518	ASTM A 29 Gr. 1518
13	Handwheel Nut	ASTM A 29 Gr. 1518	ASTM A 29 Gr. 1518
14	Body bonnet gasket	SPIRAL WOUND 316-GRAPHOIL	SPIRAL WOUND 316-GRAPHOIL
16	Body Stud bolt	ASTM A 193 B7	ASTM A 193 B16
17	Nut	ASTM A 194 Gr. 2H	ASTM A 194 Gr. 7
18	Eyebolt	ASTM A 29 Gr. 1045	ASTM A 29 Gr. 1045
19	Nut	ASTM A 194 Gr. 2H	ASTM A 194 Gr. 2H
20	Eyebolt Stud Bolt	ASTM A 193 B7	ASTM A 193 B7
21	Nut	ASTM A 194 Gr. 2H	ASTM A 194 Gr. 2H
26	Stem Packing	GRAPHOIL	GRAPHOIL
28	Grease Nipple	COMMERCIAL	COMMERCIAL
34	Washer	ASTM A 36	ASTM A 36
40	Pin	ASTM A 29 Gr.4135	ASTM A 29 Gr.4135
71	Key	ASTM A 29 Gr.1045	ASTM A 29 Gr.1045
163	Position Indicator/Stop	ASTM A 36	ASTM A 36
240	Operator	COMMERCIAL	COMMERCIAL
247	Stud Bolt	ASTM A 193 B7	ASTM A 193 B7
248	Nut	ASTM A 194 Gr. 2H	ASTM A 194 Gr. 2H

* STEELS SEATS ARE AVAILABLE



CLASS 150

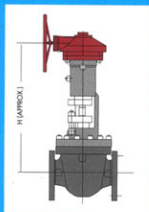
ND.	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (RF)	6,5"	7"	7,5"	8"	9"	10,5"	11,5"	13"	24"	27"	30"	34"	36"	42"
L (RT)	7"	7,5"	8"	8,5"	9,5"	11"	12"	13,5"	24,5"	27,5"	30,5"	34,5"	36,5"	42,5"
H	15,75"	17,62"	19,7"	21,3"	24,75"	26,8"	33"	34,25"	34,3"	39,9"	43,2"	46"	48"	52,75"
	400	448	500	541	629	681	838	870	922	1013	1097	1170	1220	1340

ND. 6" and larger are available with gear operated.

CLASS 300

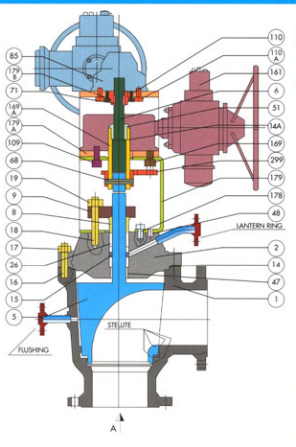
ND.	1 1/1"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"
L (RF)	7,5"	8,5"	9,5"	11,12"	12"	15,88"	16,5"	18"	19,75"	30"	33"	36"	39"	45"	55"
L (RT)	8"	9,12"	10,12"	11,75"	12,62"	16,5"	17,12"	18,62"	20,38"	30,62"	33,62"	36,62"	39,62"	45,88"	56"
H	15,75"	17,62"	19,7"	21,3"	24,75"	27"	33,25"	34,6"	37"	40,55"	43,7"	47"	49"	54"	58,66"
	400	448	500	541	629	686	845	880	940	1030	1110	1193	1247	1371	1490

ND. 6" and larger are available with gear operated.

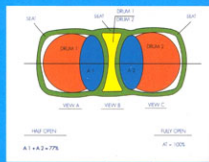
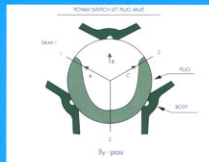
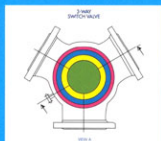
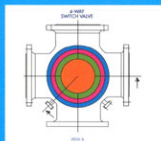


SWITCH LIFT-PLUG VALVES

non lubricated plug
3 way 100% port opening



No.	DESCRIPTION	MATERIAL-ASTM Spec.
2	BODY	ASTM A 217 C12 STELLITE 6
7	BONNET	ASTM A 182 P9
10	PLUG	ASTM A 487 CA3PM STELLITE 6
11	STEM	ASTM A 479 GR. 470
6	GLAND BUSHING	ASTM A 479 GR. 470
13	GLAND FLANGE	ASTM A 514 GR. 70
14	GASKET	SPIRAL WOUND 321 GRAPHOL
14A	GASKET	ASTM B 148 9A
15	LANTERN	ASTM A 193 GR 420
16	STUD BOLT	ASTM A 193 B16
17	NUT	ASTM A 194 GR. 4
18	STUD BOLT	ASTM A 193 B16
19	NUT	ASTM A 194 GR. 4
26	RACKING	GRAPHOL
47	BUSHING	ASTM A 479 GR. 410 STELLITE 6
48	PN	ASTM A 29 GR 4135
51	BUSHING NUT	ASTM A 479 GR 420
66	PM	ASTM A 29 GR 4135
71	KEY	ASTM A 29 GR 1045
85	ACTUATOR-GEAR	102 4NWS-70
86	SOCKET BOCK	ASTM A 29 GR. 1518
87	SOCKET BOCK	ASTM A 29 GR. 1518
110A	SOCKET BOCK	ASTM A 29 GR. 1518
161	ACTUATOR -GEAR	1012-85-6-1
162	STOP PN	ASTM A 29 GR 4135
163A	BUSHING	ASTM A 29 GR. 4135
178	STUD BOLT	ASTM A 29 GR. 1518
179	COUPLING	ASTM A 36 CD
179A	COUPLING	ASTM A 36 CD
229B	PLATE	ASTM A 36 CD
299	STOP COLLAR	ASTM A 29 GR. 1518



Low pressure drop configuration.

TAPPED HOLES FOR FLUSHING AND PURGING

non lubricated plug

POYAM



E & F opposite A & B
respectively C opposite C

POYAM VALVES are made with bosses which may be tapped for the addition of drains, bleeders, blow connections, and by passes. The following table shows the recommended maximum size of a tapped hole in a boss and in accordance with the standards set up by the Manufacturers Standardization Society Specification SP-45. When ordering a tapped hole, merely indicate the location desired by letters from the drawing on this page. Please specify the size of tapped hole required. For very small drains, bodies may be tapped without bosses. The size of the hole depends on the location and pressure rating of the valve.

Listed below are recommended sizes and numbers of tapped bosses required to effect an inlet flow area equal to the flow area around the plug in the raised position.

Also included are flushing flow area for lift-plug valves. These flow areas are approximated and may be used to calculate flushing flow requirement. It is absolutely essential that sufficient flushing flow be provided the 15-25 psi differential between the flushing line inlet to the valve and main line pressure for compressible flushes (5 to 10 psi for incompressible flushes) Differentials greater than 25 psi are not recommended due to possibility of seating surface damage due to wire drawing, etc.

VALVE SIZE		2	2 1/2	3	4	6	8	10	12	14	16	18	20	
150 pound valve	70%	Drain size (ins)	1/2	1/2	1/2	1/2	3/4	3/4	1	1				
		Number	2	2	3	3	3	3	3	3				
		Flow Area (sq ins)	.566	.566	.738	1.018	1.339	2.063	2.549	3.604				
150 pound valve	100%	Drain size (ins)	1/2	1/2	1/2	1/2	3/4	3/4	1	1	1	1		
		Number	3	3	3	3	3	3	3	3	3	3		
		Flow Area (sq ins)	.648	.782	.972	1.297	1.945	2.594	3.132	3.891	3.556	4.168		
300 pound valve	70%	Drain Size (ins)	1/2	1/2	1/2	1/2	3/4	3/4	1	1	1	1	1	
		Number	2	3	3	3	3	3	3	3	3	3	3	
		Flow Area	.566	.698	.738	1.018	1.339	2.063	2.715	3.604	3.233	3.863	4.200	4.411
300 pound valve	100%	Drain size (ins)	1/2	1/2	1/2	1/2	3/4	3/4	1	1				
		Number	2	3	2	3	3	3	3	3				
		Flow Area (sq ins)	.648	.741	.972	1.297	1.945	2.594	3.262	3.891				
600 pound valve	70%	Drain size (ins)	1/2	1/2	1/2	1/2	3/4	3/4	1	1				
		Number	3	3	2	3	3	3	3	3				
		Flow Area (sq ins)	.648	.641	.972	1.297	1.945	2.594	3.262	3.891				
900 pound valve	100%	Drain Size (ins)			1/2	1/2	3/4	3/4	1					
		Number			2	3	3	3	3					
		Flow Area (sq ins)			.972	1.297	1.945	2.594	3.262					

FLOW AREA (square ins) = Area between the raised plug and the body seats through which the flushing fluid will flow into the line. In many cases, larger tapped bosses may be furnished and the number of bosses correspondingly reduced. Multiply square inch by 6.452 to obtain square centimetres. Multiply inches by 25.4 to obtain mm. See introductory notes 6.11.1, 6.11.3, 6.11.4, ANSIB 16.5 and MSS-SP-45.

POYAM FIGURE NUMBER SYSTEM

EXAMPLE: The number **6 MA2R7** is defined as follows:

- 6** Body Material (see catalogue No. 2 page 4)
- MA** Valve type. (see legend)
- 2** Pressure Rating (see legend)
- R** End Connections (see legend)
- 7** Port opening (see legend)

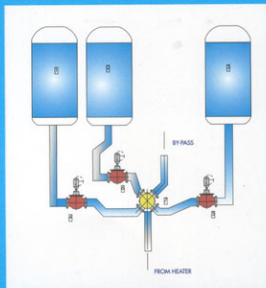
LEGEND

VALVE TYPE	PRESSURE RATING	END CONNECTIONS	PORT OPENING
MA = Non lubricated lift plug	1 = 150 2 = 300 3 = 600 4 = 900 5 = 1,500	R= Raised Face Stock Finish S= Raised Face Smooth Finish J= Ring Joint W= Butt Weld X=Other	7 = 70% 9 = 90% 10 = 100%



DESIGN FEATURES

- Body available in standard materials and special alloys, having raised seating surfaces ground to mirror like finish.
- Precision ground plug and body seats form an excellent metal-to-metal seal. Because the body seats are raised and the plug seals peripherally, they are protected from the flow material in both the open and closed position. This greatly increases the life of the valve.
- No lubrication is required inside the body or on the plug for seat sealing, plug rotation, or to prevent sticking. Expensive lubricants are avoided. And without lubricants, there is no foreign matter in the valve to contaminate the flow material.
- The ability to keep the seating surfaces clean by means of flushing ensures that erosion during the operation of the valve and closure on particles cannot take place.
- Seven tapping bosses available for purge, flush drain or by-pass. Drain connection for double block and bleed applications available with inserted soft seal design.
- Positive mechanical thrust ensures plug seals up and down stream, independent of line pressure or spring loaded seats.
- Trunnion plug is used for high pressure differentials.
- The non-galling materials and the use of the special operator ensure that the valve can be quickly operated after prolonged periods of non-use. The operator gives a vertical lift action to the plug which cracks any build-up, caking or coking that occurs.
- If the bottom boss is fitted with a bleeder connection line pressure will blow out any accumulation of line material when the plug is lifted from its seats.
- Where double block and positive isolation is required, the ability to purge the area between up and down stream seats and prevent the flow of line media down the line or through the packing is an important safety factor.
- Should it be necessary to ensure the valve is double blocking, i.e. sealing on both the up and downstream seats, a drain valve can be opened. A check to ensure that the drain is not blocked may be made by opening one of the upper most flushing lines and ensuring that flow takes place through the drain.
- And should the valve require internal maintenance, the only in-line moving parts are the plug and the stem.
- Position indicator shows valve open or closed. Micro switches can be added for remote indication.
- Where it is necessary to check the valve's sealing the ability to use a check by means of the drain between the up and downstream seat is advantageous.
- POYAM lift-plug valves are suitable for use at severe temperatures ranging from -120°C to 750°C . Plugs are available with 70% and 100% port openings.
- Large stem diameter gives maximum strength full range of alloys available.
- Self aligning gland. Minimal wear on stem due to small lift and 90° turn.
- Should temperatures rise too high and a build-up of coke develop, the low torque characteristic of the valve enables a large cracking force to be applied to unseat the valve after extended periods in the seats position. The use of flushing keeps seatings surfaces clean.
- Erosion of materials due to flow of catalyst is minimised by use of 100% port valves and/or the use of stellite welded plugs where conditions are severe.



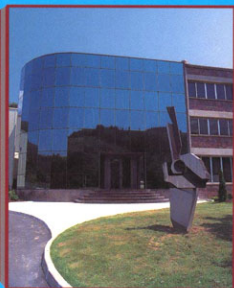
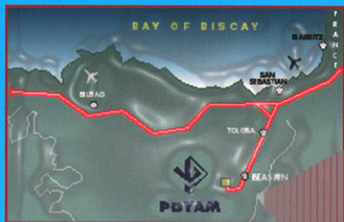
ARRANGEMENT OF VALVES FOR THREE-DRUM COKER

- 1- DRUM 1
- 2- DRUM 2
- 3- DRUM 3
- 4- LIFT PLUG VALVE (2 WAYS)
- 5- LIFT PLUG VALVE (2 WAYS)
- 6- LIFT PLUG VALVE (2 WAYS)
- 7- PURGE LINE TO HEATER INLET



6D - 0178

CERTIFICATE Nr. 926137



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AMPO
POYAM