



## CAST STEEL PLUG VALVES





**Vahn-Tech International Inc.** (An ISO 9001-2015 Certified Company) is a customer focused organization based on “Value-add” and “Quality Service” principles. Achieving long term partnership with our customers and being their supplier of choice is our prime mission. We develop, manufacture and market VAHN-TECH (vt) branded Valves, Actuators, Automatic Control Valves and various flow control accessories. Vahn-Tech actuators are available in both quarter-turn and multi-turn configurations and are available in both pneumatic and electrical operating types. Our Product Range includes:

- ✦ Gate Valves
- ✦ Butterfly Valves
- ✦ Knife Gate Valves
- ✦ Ball Valves
- ✦ Globe Valves
- ✦ Check Valves
- ✦ Plug Valves
- ✦ Air Release Valves
- ✦ Actuators
- ✦ And a Variety of Control Valves

Our products conform to high quality standards and find extensive uses in:



Oil and Gas



Water and Sewage,  
Desalination



Chemicals



Paper and Pulp



Irrigation



Power Plants



Various  
Industrial Applications

Following material configurations are available:

Ductile Iron, Cast Iron, Carbon Steel, Stainless Steel (SS304, SS304L, SS316, SS316L, Duplex Stainless Steel), Super Duplex, Alloy, Monel and Inconel with variety of seating and stem configurations.

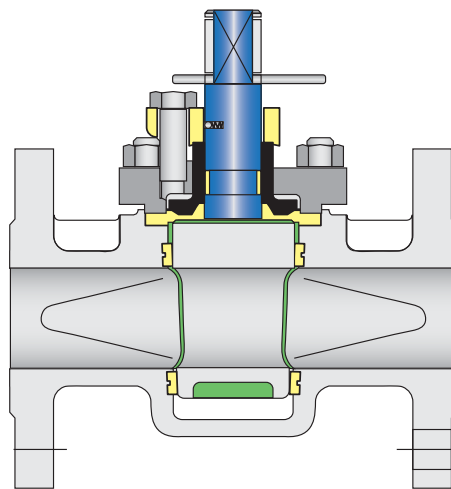
We are a flexible and agile corporation that is able to adapt to the varying customer requirements.



## Plug Valves

### Applicable Standards

- ✦ STEEL PLUG VALVES, API 599/API 6D
- ✦ STEEL VALVES, ASME B16.34
- ✦ FACE TO FACE, ASME B16.10
- ✦ END FLANGES, ASME B16.5
- ✦ BUTTWELDING ENDS, ASME B16.25
- ✦ SOCKET-WELD ENDS, ASME B16.11
- ✦ INSPECTION AND TEST, API 598/API 6D



### Design

Plug valve is a rotating valve with its closing element being a plug which turns 90°. The shape of the plug can be made as rectangular or taper. Of the rectangular plug valve, the flow bore is rectangle, while in the taper type plug valves, the flow bore is of trapezoidal. The plug valve is mostly suitable for cutting off, turning on and distributing the flow medium. Sometimes it can also be used for throttling based upon suitable medium and the abrasion resistance property of the sealing surfaces. Friction occurs only between the sealing surfaces of the plug valve, whereas friction with flow medium can be completely avoided when the valve is fully opened. Thanks to this feature, plug valves are suitable for medium with suspended solids.

One of the important characteristics of the plug valve is that it is the possibility to have multipleway structure. One single plug valve can be designed with two, three and even four different flow openings. In particular circumstances, this allows simplifying the design of the pipeline system and reducing valve and pipe fittings quantity. The plug valves are widely used in the applications of oil field exploitation, transportation, and refinery facility, as well as petrochemical, chemistry, natural gas, etc. Sleeve lined plug valves are lubricant-free and are used for applications in petrochemical and chemistry industries, for applications where lubricants are not allowed to contaminate the medium.

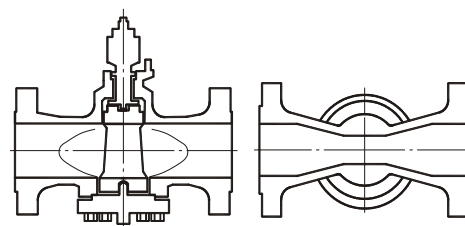
## Plug Valves

### Straight Way Flow Bore Patterns

Multiple choice of straightway flow bore pattern are available for plug valves: Venturi pattern, standard pattern with straight bore, short pattern, regular pattern and standard camber pattern with straight bore. Main difference between the patterns is the face-to-face dimensions, and the diameter and shape of the plug. All face-to-face dimensions of the valves are designed according to ANSI and BS Standard to ensure high interchangeability of the valves with other type of valves.

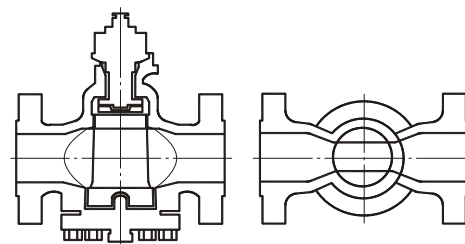
#### Venturi Pattern:

Venturi pattern plug bore are reduced bore. However, the center line position of the plug valves does not change, generating a venturi action in the valve body that increases the loss of flow velocity and thus a corresponding low pressure drop. Venturi pattern can be used in general pipelines, and are particularly suitable for large diameter pipelines to reduce application cost.



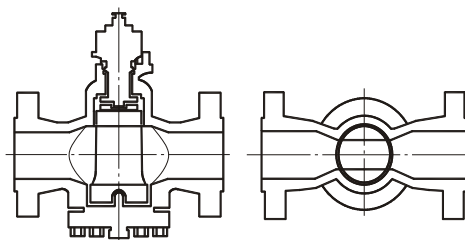
#### Plug Valves with Straight Bore:

The plug bore shape is rectangular. There is an area echoing to the valve ends, which is with lowest pressure drop. The conversion from body end to the rectangle end-face is smooth to prevent turbulent flow of the medium in the valve.



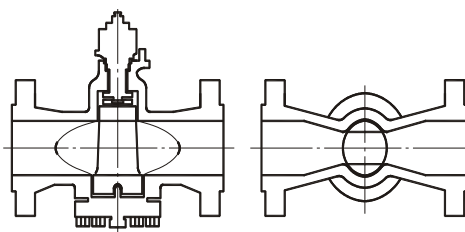
#### Short Patter:

The face-to-face dimension of these plug valves equal to that of the gate valves designed according to ASME B16.10 Class 125, 150, 250 and 300LB (NPS 1 1/2" ~ 12"). In order to obtain corresponding short face-to-face dimension, the diameter of the plug is reduced by one NPS size with a small rectangular cone.



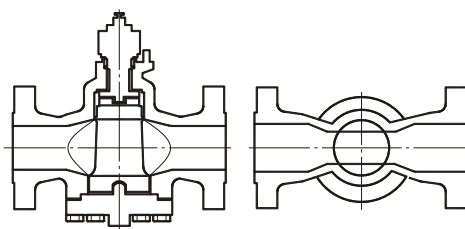
#### Regular Pattern:

Regular pattern plug valve have rectangular shape plug bore with the largest port area.



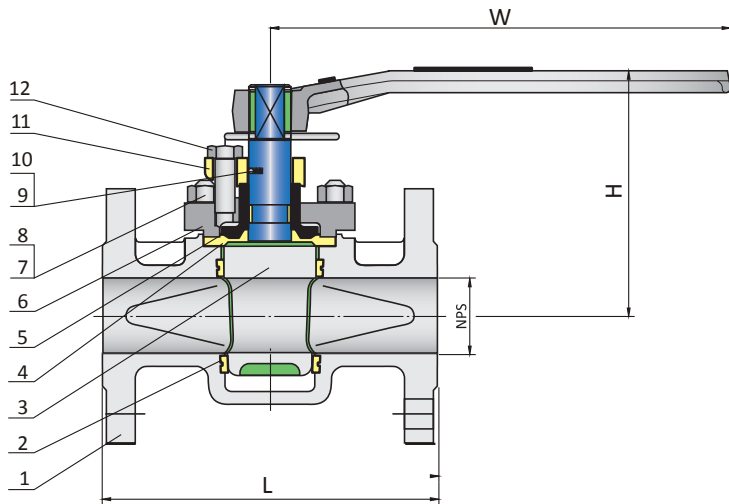
#### Camber Plug Valves with Straight Bore:

The inner diameter of these valves equals to the inside diameter of pipe. These plug valves are intended for use when it is necessary to pass a scraper or other tool through the plug valve body, or for other special applications. The face-to-face dimension are greater for the corresponding Regular Pattern plug valve, but comply with British and American Standards where applicable. These plug valves are particularly suitable for raw sludge application in sewage treatment plants, hot traps for pipe lines, etc.



# Sleeve Type Soft Sealing Plug Valve - 150lb ~ 600lb

## Flange Connection



## Parts List & Materials

No.	Parts Name	ASTM Material		
		Carbon Steel	Stainless Steel	
1	Body	A216 WCB	A351 CF8	A351 CF3M
2	Seat Ring	PTFE		
3	Plug	A216 WCB	A351 CF8	A351 CF3M
4	Adjusting Gasket	RPTFE / PFA		
5	Adjusting	A182 F6	A182 F316	A182 F316
6	Cover	A216 WCB	A351 CF8	A351 CF3M
7	Bolts	A193 B7	A193 B8M	
8	Nuts	A194 2H	A194 8	
9	Small Ball	A182 F304	A182 F316	
10	Spring	A182 F304	A182 F316	
11	Flange	A216 WCB	A351 CF8	
12	Adjusting Bolt	A194 2H	A194 8	

## Dimensional Data - Class 150lb

NPS	½"	¾"	1"	1 ¼"	1 ½"	2"	2 ½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"
DN	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450
L	108	117	127	140	165	178	190	203	229	254	267	292	330	356	86	762	864
W	120	140	140	20	250	250	300	300	350	350	200	240*	280*	320*	320*	360*	400*
H	85	95	105	115	125	140	150	185	200	215	455	495	55	605	680	715	755
f	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
wt (kg)	2	3	4.5	5.2	7.5	11	17.1	18	34	39	68	115	195	305	325	846	895

## Dimensional Data - Class 300lb

NPS	½"	¾"	1"	1 ¼"	1 ½"	2"	2 ½"	3"	4"	5"	6"	8"	10"	12"	14"
DN	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
L	140	152	165	178	190	216	241	283	305	381	403	419	457	502	762
W	160	160	200	250	250	300	300	350	350	400	200*	240*	280*	320*	360*
H	85	95	105	115	125	140	150	185	200	225	460	495	560	610	685
f	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
wt (kg)	2.5	4	5	6	8.5	13	15	24	27	40	65	145	255	325	355

## Dimensional Data - Class 600lb

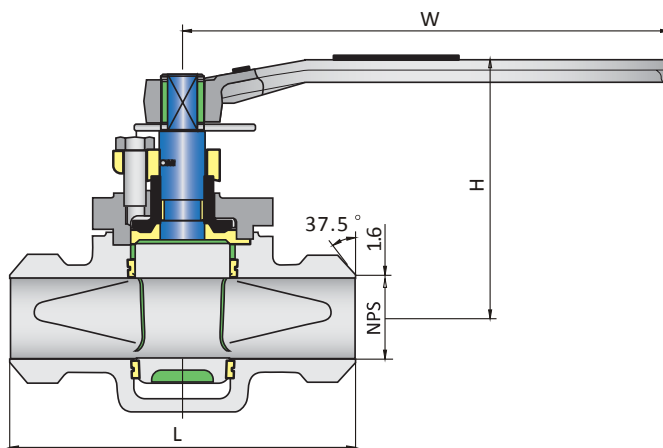
NPS	1"	1 ¼"	1 ½"	2"	2 ½"	3"	4"	6"
DN	25	32	40	50	65	80	100	150
L	216	229	241	292	330	356	432	559
W	250	250	300	350	350	400	400	280*
H	125	135	140	150	175	195	215	500
f	7	7	7	7	7	7	7	7
wt (kg)	7	8.2	10.8	12.5	15.3	25	295	70

\* Gear Operator

☛ Vahn-Tech International reserves the right to change the technical data without prior notice.

# Sleeve Type Soft Sealing Plug Valve - 150lb ~ 900lb

## Butt-welded Ends

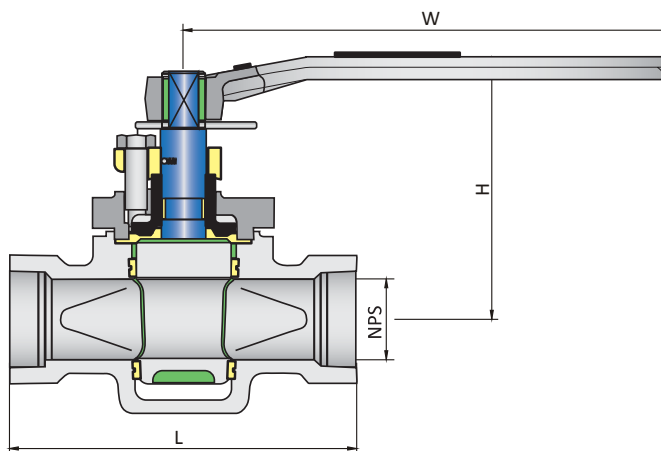


### Dimensional Data

NPS	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"
DN	15	20	25	32	40	50	65	80	100	15	20	25	32	40	50	65	80	100
	Class 150									Class 300								
L	165	190	216	229	241	267	305	330	356	165	190	216	229	241	267	305	330	356
W	160	160	190	190	240	305	305	450	600	160	190	190	240	305	305	450	500	600
H	85	85	90	100	110	120	130	135	150	85	90	100	110	120	130	135	150	160
wt (kg)	3.4	4.2	5.8	6.7	8.4	9.1	11.8	13.4	26.1	3.7	4.6	6.2	7.2	8.9	9.4	12.3	14	27.2
	Class 600									Class 900								
L	165	190	216	229	241	292	330	356	432	190	216	254	29	305	368	419	381	457
W	160	160	220	240	305	325	450	550	650	190	220	240	305	325	450	550	650	750
H	90	100	110	120	130	135	150	160	180	95	100	110	120	130	135	150	165	185
wt (kg)	4.1	4.9	6.6	7.7	8.6	10.2	13.1	15.5	28	4.7	5.3	7.4	8.6	9.6	11.3	14.1	16.7	28.7

# Sleeve Type Soft Sealing Plug Valve - 150lb ~ 900lb

Socket-weld / Screw Thread Ends



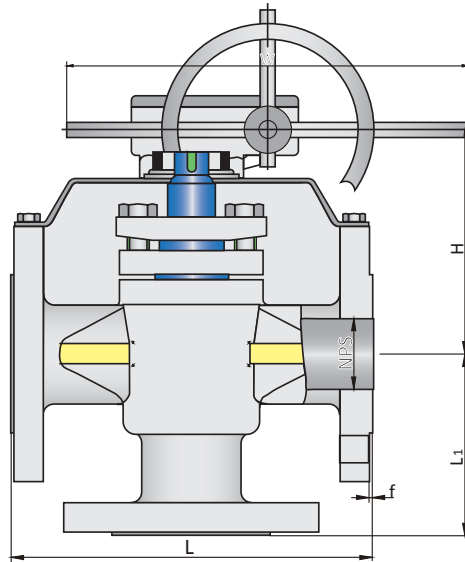
## Dimensional Data

NPS	½"	¾"	1"	1 ¼"	1 ½"	2"	2 ½"	3"	4"
DN	15	20	25	32	40	50	65	80	100
Class 150									
L	165	190	216	229	241	267	305	330	356
W	160	160	190	190	240	305	305	450	600
H	85	85	90	100	110	120	130	135	150
wt (kg)	3	3.5	5.3	6.1	7	7.3	11	13	26.1
Class 600									
L	165	190	216	229	241	292	330	356	432
W	160	160	220	240	305	325	450	550	650
H	90	100	110	120	130	135	150	160	180
wt (kg)	3.7	4.4	6.1	7.2	8.1	9.8	12.6	14.8	28

½"	¾"	1"	1 ¼"	1 ½"	2"	2 ½"	3"	4"
15	20	25	32	40	50	65	80	100
Class 300								
165	190	216	229	241	267	305	330	356
160	190	190	240	305	305	450	500	600
85	90	100	110	120	130	135	150	160
3.5	4.1	5.8	6.4	7.4	9	12	14.3	27.2
Class 900								
190	216	254	29	305	368	419	381	457
190	220	240	305	325	450	550	650	750
95	100	110	120	130	135	150	165	185
4.3	4.9	7	8.1	9	10.7	13.4	16	28.7

# Sleeve Type Soft Sealing 3-Way Plug Valve - 150lb ~ 300lb

## Flange Connections



## Dimensional Data

NPS	½"	¾"	1"	1 ¼"	1 ½"	2"	2 ½"	3"	4"	5"	6"	8"	10"
DN	15	20	25	32	40	50	65	80	100	125	150	200	250
Class 150lb													
L	108	117	127	140	165	178	190	203	229	254	267	292	330
L1	76	76	89	98	105	114	124	130	152	70	190	229	311
W	120	140	140	200	250	250	300	300	350	200*	200*	240*	280*
H	85	95	105	115	125	140	150	185	200	215	455	495	55
f	2	2	2	2	2	2	2	2	2	2	2	2	2
wt (kg)	2.8	4.2	6.3	7.3	10.5	15.4	23.9	5.2	47.6	54.6	95.2	161	273
Class 300lb													
L	140	152	165	178	190	216	241	283	305	381	403	419	457
L1	76	76	95	102	111	121	130	141	171	190	216	254	311
W	160	160	200	250	250	300	300	350	350	400	200*	240*	280*
H	85	95	105	115	125	140	150	185	200	225	460	495	560
f	2	2	2	2	2	2	2	2	2	2	2	2	2
wt (kg)	3.5	5.6	7	8.4	11.9	18.2	21	33.6	37.8	56	91	203	357

\* Lever operated for valve below NPS 6"



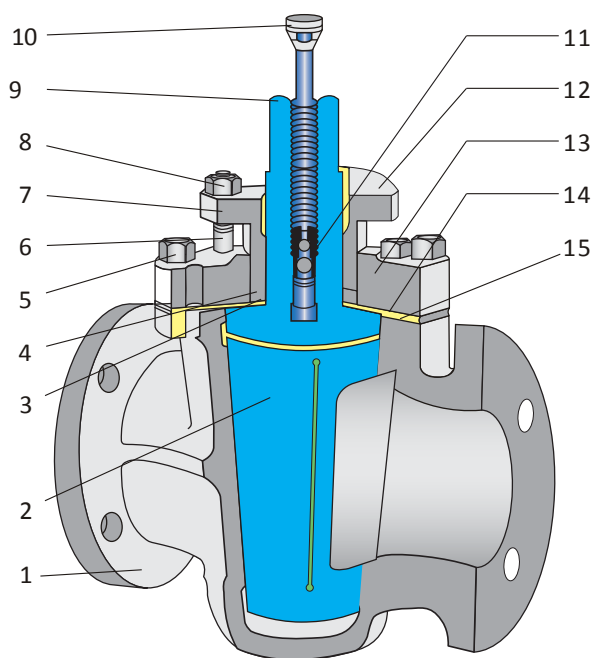
# Lubricated Taper Plug Valve

## Applicable Standards

- ✦ DESIGN & MANUFACTURE, API 599/API 6D/BS 5353
- ✦ STEEL VALVES, ASME B16.34
- ✦ FACE-TO-FACE, ASME B16.10
- ✦ END CONNECTIONS, ASME B16.5 / ASME B1.20.1
- ✦ INSPECTION & TEST: API 598 /API 6D

## Features

1. The sealing is performed by injecting lubricant from outside.
2. There is no cavity in the valve where the medium could accumulate.
3. The applicable temperature for the plug valve depends on the grease used. The selection of the grease should be managed based on the pipeline medium.
4. Flow can be bi-directional, being more convenient for installation and usage.
4. Available bore design includes regular pattern, venturi pattern, short pattern and three-way design, allowing use of lubricated plug valves for various kinds of pipelines.
5. Available bore design includes regular pattern, venturi pattern, short pattern and three-way design, allowing use of lubricated plug valves for various kinds of pipelines.

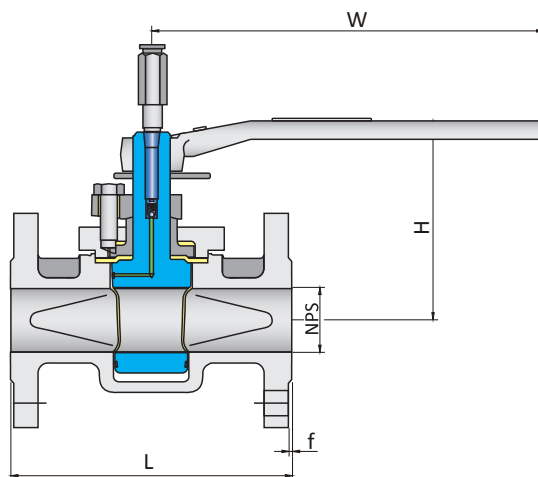


## Parts List & Materials

No.	Parts Name	ASTM Material		
		Carbon Steel	Stainless Steel	
1	Body	A216 WCB	A351 CF8	A351 CF3M
2	Plug	A216 WCB	A351 CF8	A351 CF3M
3	Packing Ring	A182 F6	A182 F316	A182 F316
4	Packing	PTFE / Graphite		
5	Cover Bolts	A193 B7	A193 B8M	
6	Bolts	A193 B7	A193 B8M	
7	Packing Gland	A216 WCB	A351 CF8	A351 CF3M
8	Nuts	A194 2H	A194 8	
9	Indicator	A216 WCB / A105		
10	Injector	A105	A182 F316	
11	Check Valves	A105	A182 F316	
12	Stop	A105		
13	Cover	A216 WCB	A351 CF8	A351 CF3M
14	Shim	Stainless Steel		
15	Gasket	A216 WCB	A351 CF8	A351 CF3M

## Lubricated Taper Plug Valve - 150lb ~ 300lb

### Straight Way



#### Dimensional Data - Regular Pattern Class 150lb

NPS	½"	¾"	1"	1 ½"	2"	2 ½"	3"	4"	6"
DN	15	20	25	40	50	65	80	100	150
L	130	130	140	165	203	222	241	305	394
W	120	140	140	250	250	30	300	350	200*
H	85	95	105	115	125	140	150	185	200
f	2	2	2	2	2	2	2	2	2
wt (kg)	3.6	3.6	6.3	10	19	25	32	54	104

#### Dimensional Data - Short Pattern Class 150lb

NPS	2"	2 ½"	3"	4"	6"	8"	10"	12"
DN	50	65	80	100	150	200	250	300
L	178	191	203	229	267	292	330	356
W	250	300	300	350	350	200*	250*	350
H	176	207	229	245	293	327*	364*	597
f	2	2	2	2	2	2	2	2
wt (kg)	13*	18*	25*	36*	86*	118*	181*	-

#### Dimensional Data - Short Pattern Class 300lb

NPS	½"	¾"	1"	1 ½"	2"	2 ½"	3"	4"
DN	15	20	25	40	50	65	80	100
L	140	140	159	191	216	241	283	305
W	160	160	200	250	300	300	350	350
H	85	95	105	125	140	150	185	200
f	2	2	2	2	2	2	2	2
wt (kg)	3.6	3.6	6.3	14	18	27	38	75

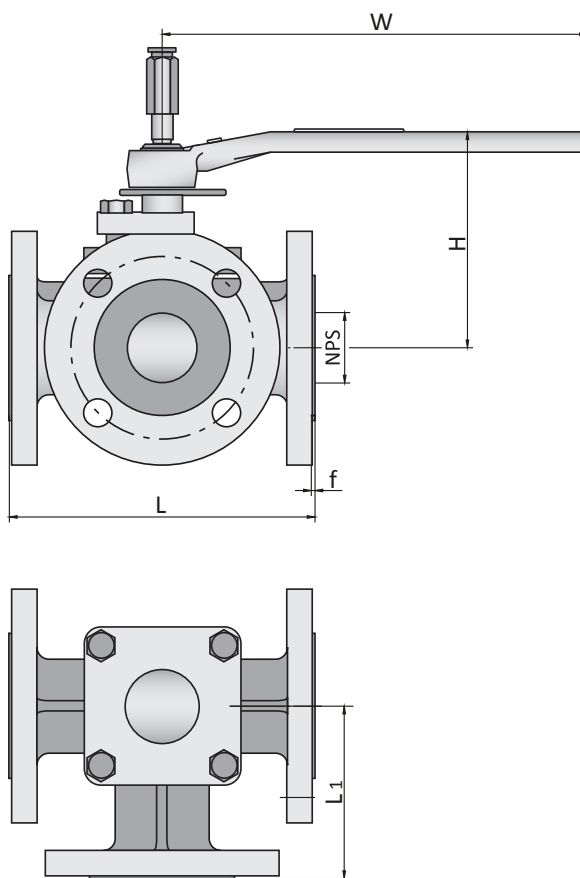
#### Dimensional Data - Venturi Pattern Class 300lb

NPS	6"	8"	10"	12"
DN	150	200	250	300
L	403	419	547	502
W	350*	450	450	450
H	403*	506	525	564
f	2	2	2	2
wt (kg)	111	-	-	-

\* Lever operated for valve below NPS 6"

# Lubricated Taper Plug Valve - 150lb / 300lb

3- Way



## Dimensional Data

NPS	1"	1 ½"	2"	3"	4"
DN	25	40	50	80	100
Regular Pattern - Class 150lb					
L	184	235	421	362	400
L1	92	118	121	131	200
W	140	250	250	300	350
H	105	125	140	185	200
f	2	2	2	2	2
Regular Pattern - Class 300lb					
L	191	241	248	375	413
L1	95	121	248	375	413
W	200	250	300	350	350
H	105	125	140	185	200
f	2	2	2	2	2



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