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CONVALVE

SPECIALIST IN VALVE AUTOMATION

INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE

OUR STANDARD YOUR GUARANTEE

- ISO 9001 Quality
- ISO 14001 Environment
- OHSAS 18001 Health & Safety

INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE

DESCRIPTION

The **Inverted Pressure Balance Lubricated Plug Valve** is designed for reliable flow control in a wide range of industrial applications. Its lubricated plug structure ensures smooth operation with low operating torque and consistent sealing performance. The pressure-balanced design helps reduce wear and extends service life, even under demanding operating conditions. Thanks to its compact construction, the valve can be easily installed in limited spaces. The metal sealing system provides dependable shut-off and protects sealing surfaces from contaminants. This valve is suitable for on-off service where durability, safety, and operational stability are required.

FEATURES

Pressure-balanced inverted conical plug valves are ideal for any operating condition, including most severe operating conditions. Can be used for fast action, trouble-free and efficient sealing requirements, the design is very compact, the required installation space is small, can be installed in any location. Basic operation of the valve is quite simple, When the plug rotates 90°, the valve changes from fully open to fully closed position, or vice versa.

1. **The valve body:** Adopt plug-type structure, integral casting, high strength, good rigidity, uniform force, valve center of gravity and pipeline center basically coincide, good operation stability. The valve body seal cone is processed by high-speed fine grinding, and the surface roughness precision after grinding is higher than Ra 0.8.
2. **Plug:** Using inversion plug, the overall forging, precision machining and grinding surface roughness can reach Ra 0.4. After the surface of the plug, plating nickel phosphorus alloy infiltration or spraying hard alloy surface treatment to improve the surface hardness, such as supersonic spraying hard alloy surface hardness can reach above 65 HRC, nickel-plated phosphorus after heat treatment, the surface hardness is 58 ~ 60 HRC. Under the oil film lubrication with super wear resistance. The upper part of the tap plug is provided with a check valve to compensate the oil pressure in the upper part of the valve chamber. The lower part of the tap plug balance hole, can be introduced into the media pressure at the bottom of the plug, so that the plug pressure valve body, play a sealing role.
3. **Sealing pair:** The metal sealing structure is used for grease sealing. Due to the filling effect of the sealing grease, the solid particles in the medium will not enter the sealing surface, which has a very good protective effect on the sealing surface. Because of grease lubrication, so that the valve operating torque is small, easy to operate. Special sealing grease is injected through automatic filling of sealing grease without leakage when rotating the plug, completely ensuring long life and reliable sealing. The asymmetrical tank design results in very low grease consumption and prolongs the filling time and service life of the grease. The sealing contact area is large. Oil film lubrication, long service life.
4. **Stem and stem seal:** Stem strength and sealing performance are one of the main factors affecting stem operation and overall valve performance. Stem force is mainly due to the friction at the packing, operating torque and medium thrust. The connecting rod valve stem and plug is slip-ring type, which can reduce the concentration stress between the contact of valve stem and the cone surface of plug, and improve the stress distribution and operational performance of valve stem. The stem features a blowout-proof design, and the packing seal is replaceable under pressure (online replacement). Stem seal with fireproof packing. O-ring seal, grease seal and packing seal. After machining, the surface roughness of the stem can reach Ra 0.4, which fully meets the sealing requirements of the stem and can work reliably for a long time without fastening and maintenance. Valve stem is forged, heat conditioned treatment, high strength and good toughness. The surface of valve stem is nitrided or nickel-phosphor plated with high surface hardness and friction resistance.
5. **Bonnet and bottom construction:** The bottom bonnet is the bearing part at the bottom of the valve, as well as the fixed and installed support for the bottom sealing gasket and bottom regulating rod, ensuring high stiffness and strength. The bottom cover is sealed with a fully isolated integral gasket to ensure absolutely reliable seal when the cover bolt is tightened. The regulating rod is installed at the bottom of the bonnet is of boltless construction, and the gland is screwed with zero leakage after adjustment. The bottom adjusting rod supports the plug and leads to the static electricity generated by the plug for venting reasons.

TECHNICAL DATA AND SPECIFICATIONS

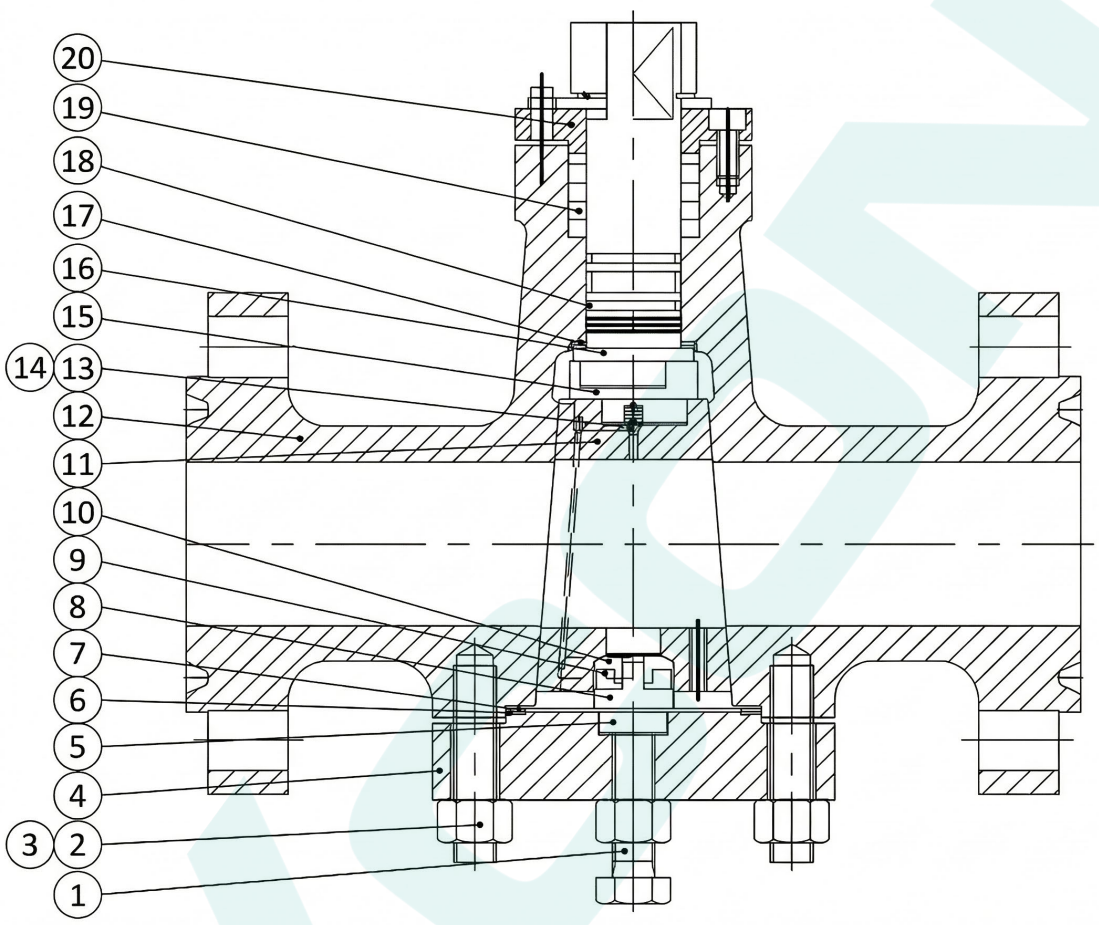
THE TECHNICAL SPECIFICATION

ITEM	SPECIFICATION
Structure form	BC
Drive mode	Manual, Electric, Pneumatic
Design criteria	API6D / API599 / BS5353 / GB / T122130
Structural length standard	API6D / ASME B16.10 / EN558
Flange connection standard	ASME B16.5 / EN1092 / HG / T20592
Welding connection standard	ASME B16.25 / BS6.10
NPT connection standard	ASME B1.20.1
Pressure temperature rating	ASME B16.34
Inspection standard	API6D / API598
Fire protection standard	API607

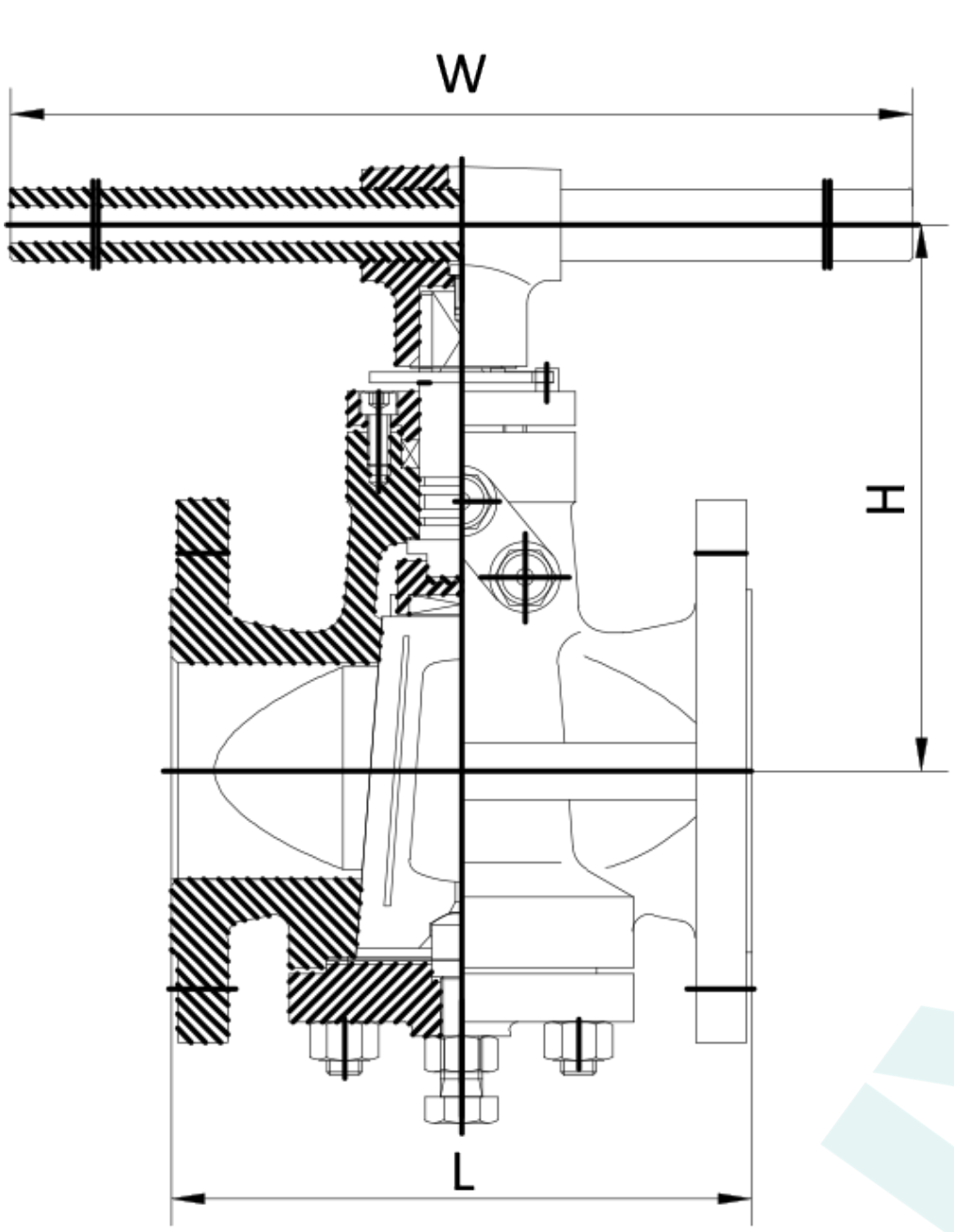
PRODUCT PERFORMANCE SPECIFICATION

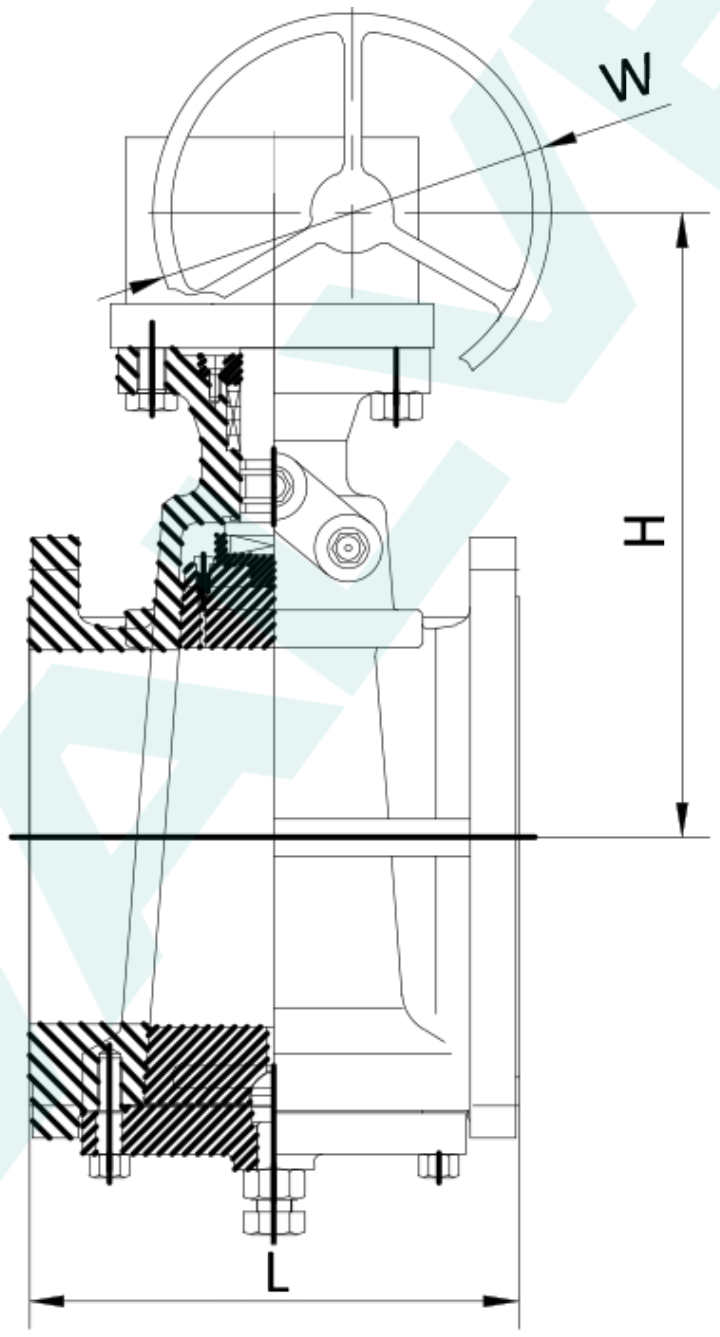
NOMINAL PRESSURE (LB)	SHELL TEST PRESSURE (MPA)	SEAL TEST PRESSURE (MPA)	SUITABLE TEMPERATURE (°C)	APPLICABLE MEDIUM
150	3.0	2.2	< 180°C	Water, Steam, Oil
300	7.5	5.5		
600	15.0	11.0		
900	22.5	16.5		

CONSTRUCTION



NO	PART NAME	MATERIAL
1	**ADJUSTING SCREW**	A193 B7/B8/B8M
2	**BOLT**	A193 B7/B8/B8M
3	**NUT**	A194 2H/8/8M
4	**BONNET**	A216 WCB/A351 CF8/CF8M/
5	**BLOCK**	SS410
6	**COMPOSITE GASKET**	SS304+Graphite
7	**FLEXIBLE METAL DISC**	SS304
8	**DISC SPRING SEAT**	SS410
9	**DISC SPRING**	65Mn
10	**THRUST PAD**	SS410
11	**PLUG**	A216 WCB/A351 CF8/CF8M
12	**BODY**	A216 WCB/A351 CF8/CF8M/
13	**BALL**	SS304
14	**SPRING**	SS304
15	**RETAINER**	A216 WCB
16	**STEM**	SS410/SS4140
17	**STEM GASKET**	PTFE
18	**O-RINGS**	Viton
19	**PACKING**	Graphite
20	**GLAND**	A216 WCB/A351 CF8/CF8M/





MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 150LB (Short Pattern)				
PRESSURE		150LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
1.5"	40	165	165	178	133	300
2"	50	178	267	191	190	400
2.5"	65	191	305	203	198	500
3"	80	203	330	216	210	600
4"	100	229	356	241	263	600
6"	150	267	457	279	285	360
8"	200	292	521	305	368	460
10"	250	330	559	343	408	600
12"	300	356	635	368	460	600

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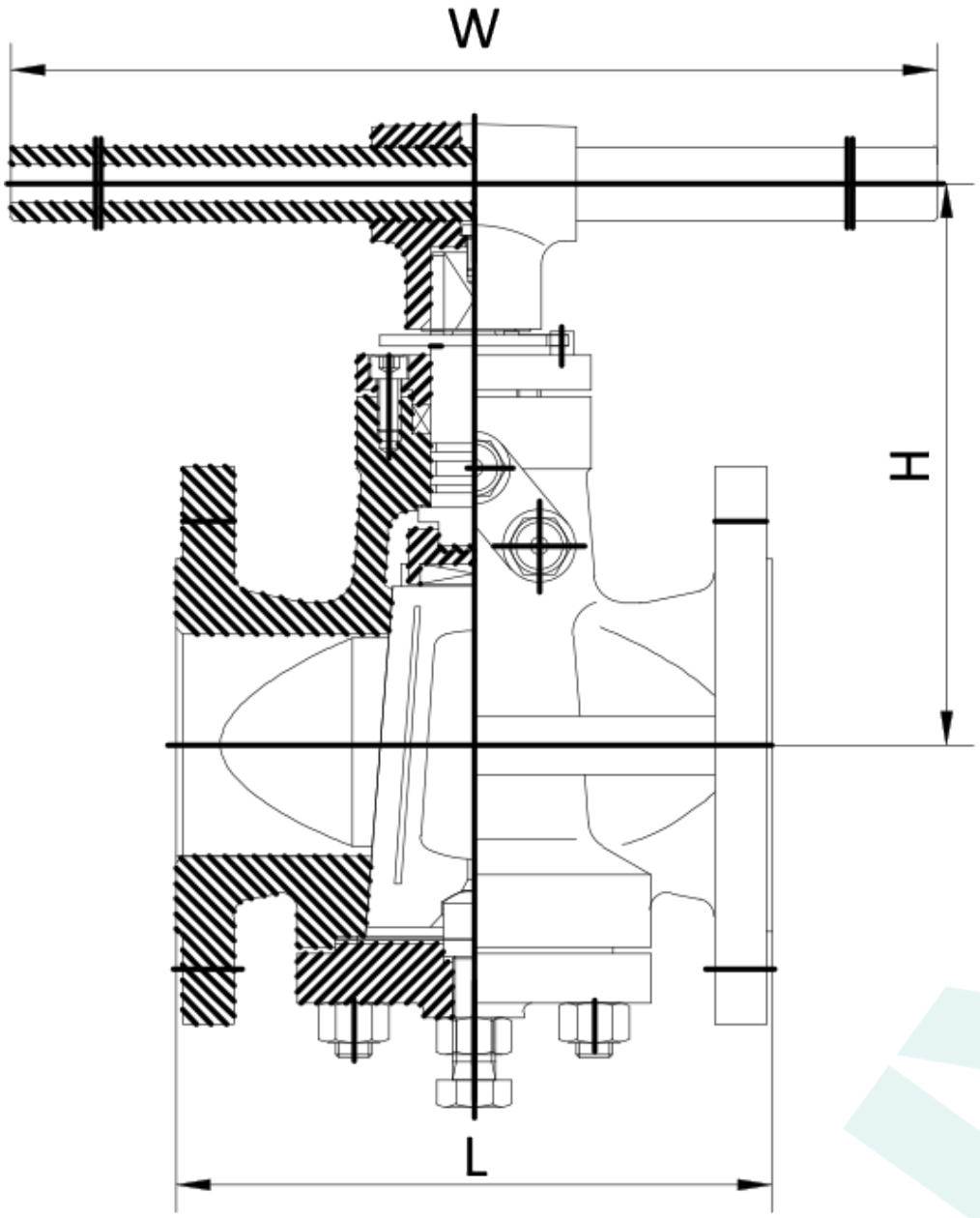

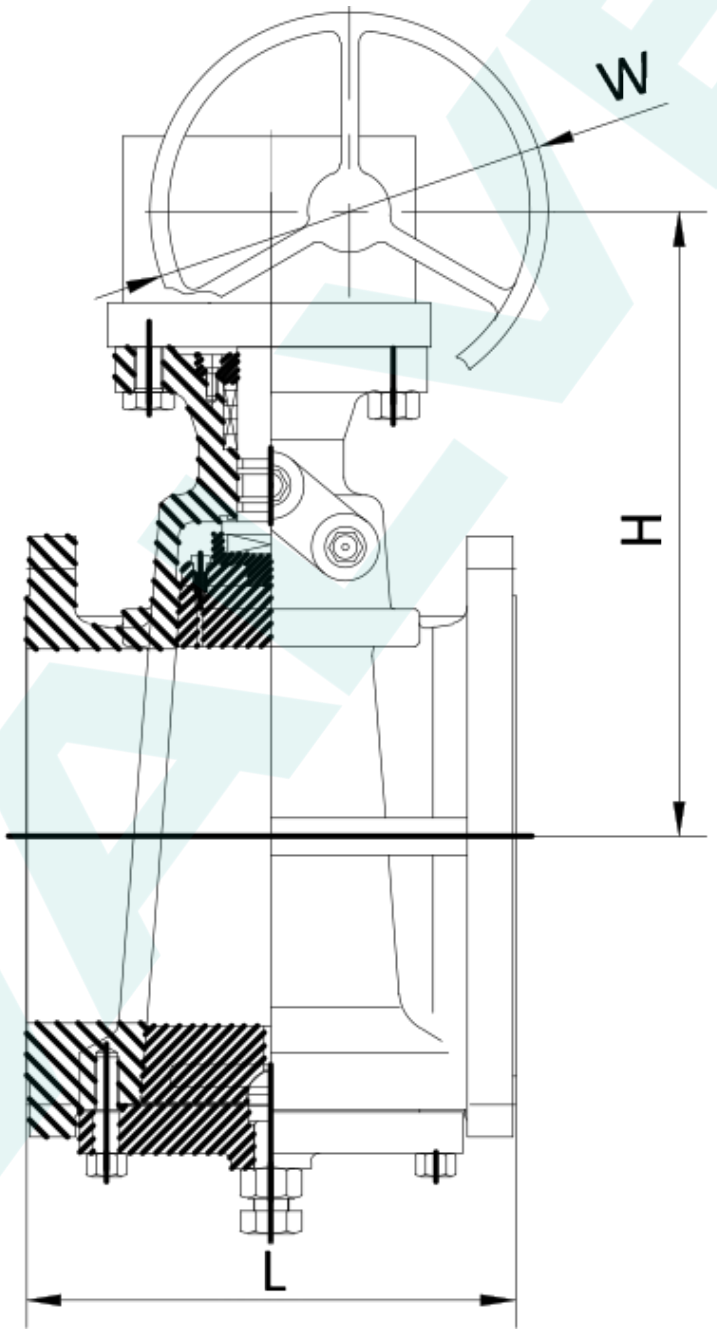

MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 150LB (Regular)				
PRESSURE		150LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
6"	150	394	-	406	285	360
8"	200	457	-	470	368	460
10"	250	533	-	546	408	600
12"	300	610	-	622	460	600

MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 150LB (Venturi)				
PRESSURE		150LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
10"	250	533	559	546	408	600
12"	300	610	635	622	460	600
14"	350	686	686	699	540	600
16"	400	762	762	775	590	600
18"	450	864	864	876	615	600
20"	500	914	914	927	705	600
24"	600	1067	1067	1080	755	600

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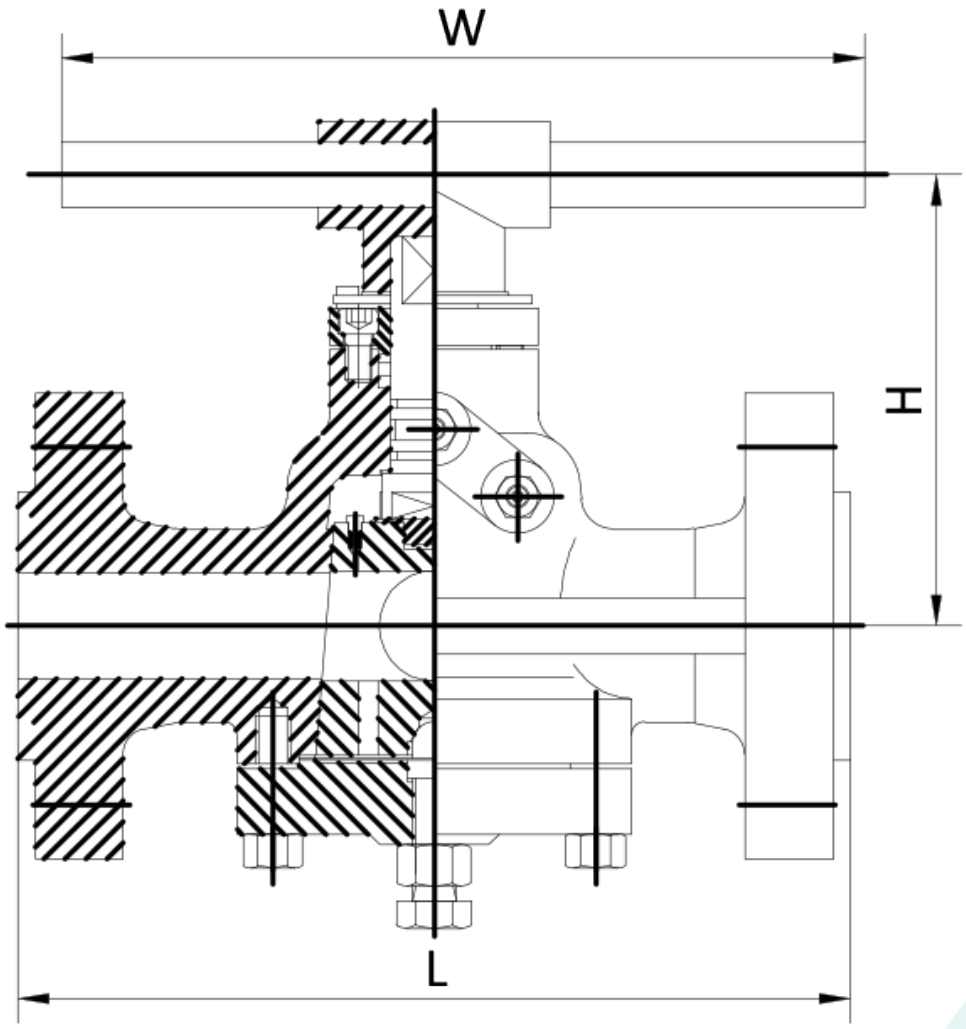

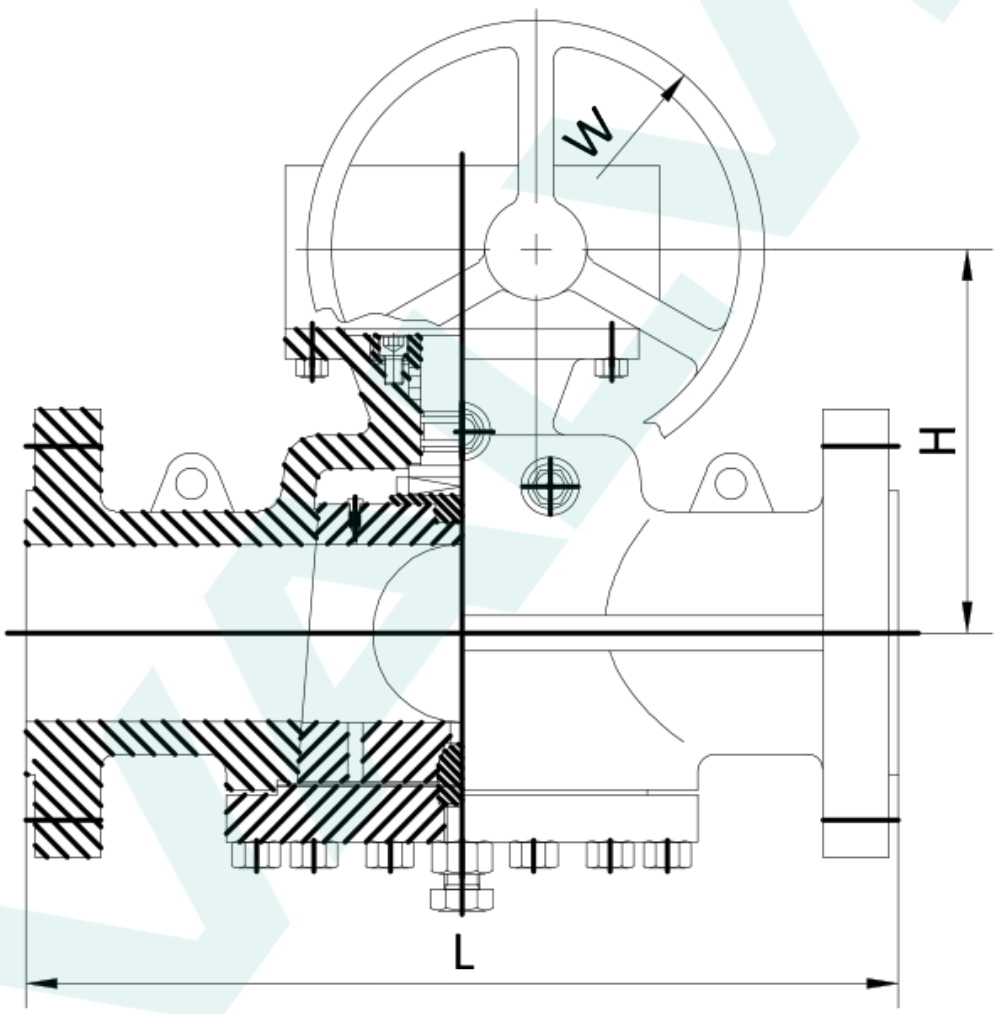

MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 150LB (Full Port)				
PRESSURE		150LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
2"	50	267	-	279	190	400
2.5"	65	298	-	311	195	500
3"	80	343	-	356	210	600
4"	100	432	-	445	263	600
6"	150	546	-	559	285	360
8"	200	622	-	635	368	460
10"	250	660	-	673	408	600
12"	300	762	-	775	460	600

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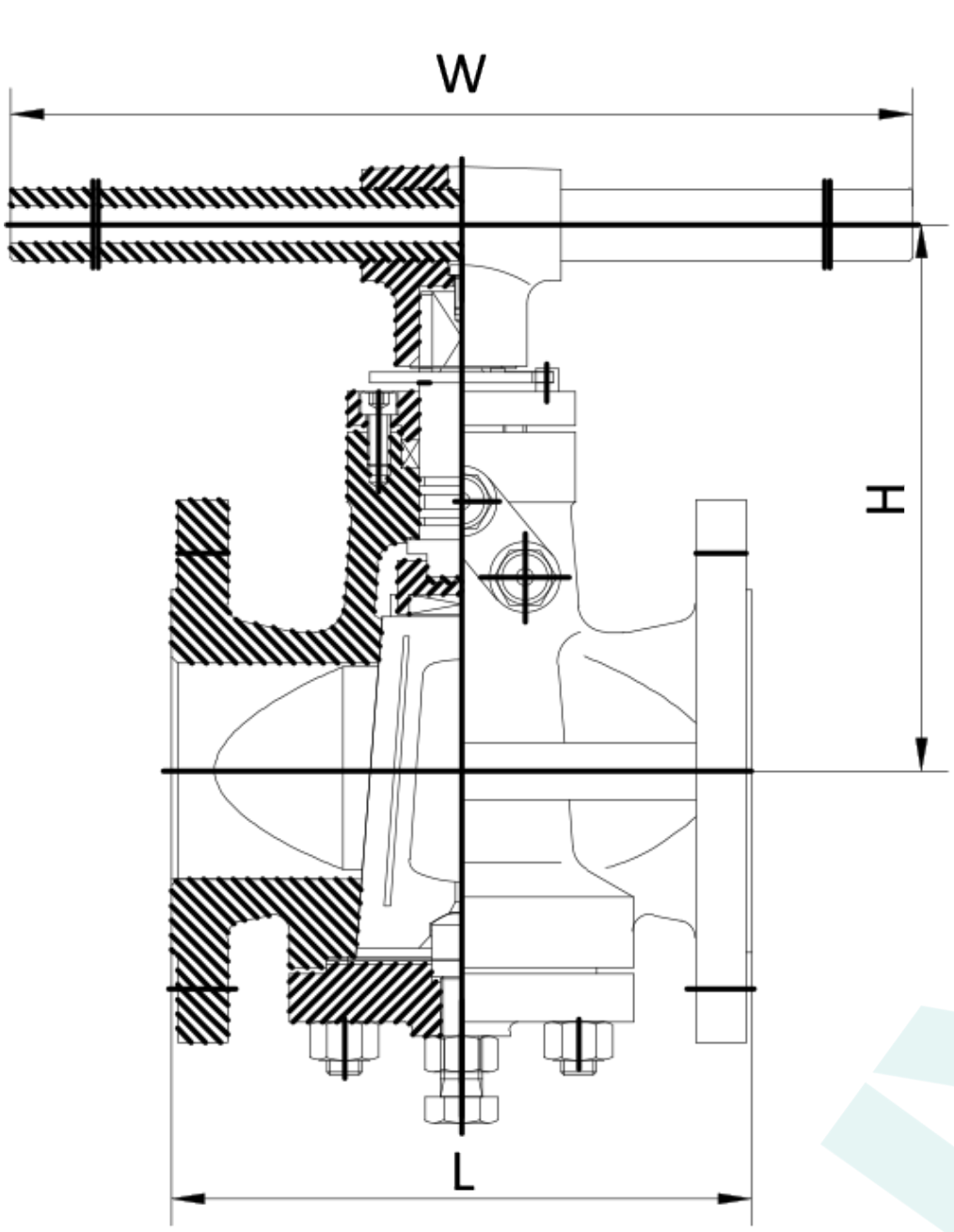
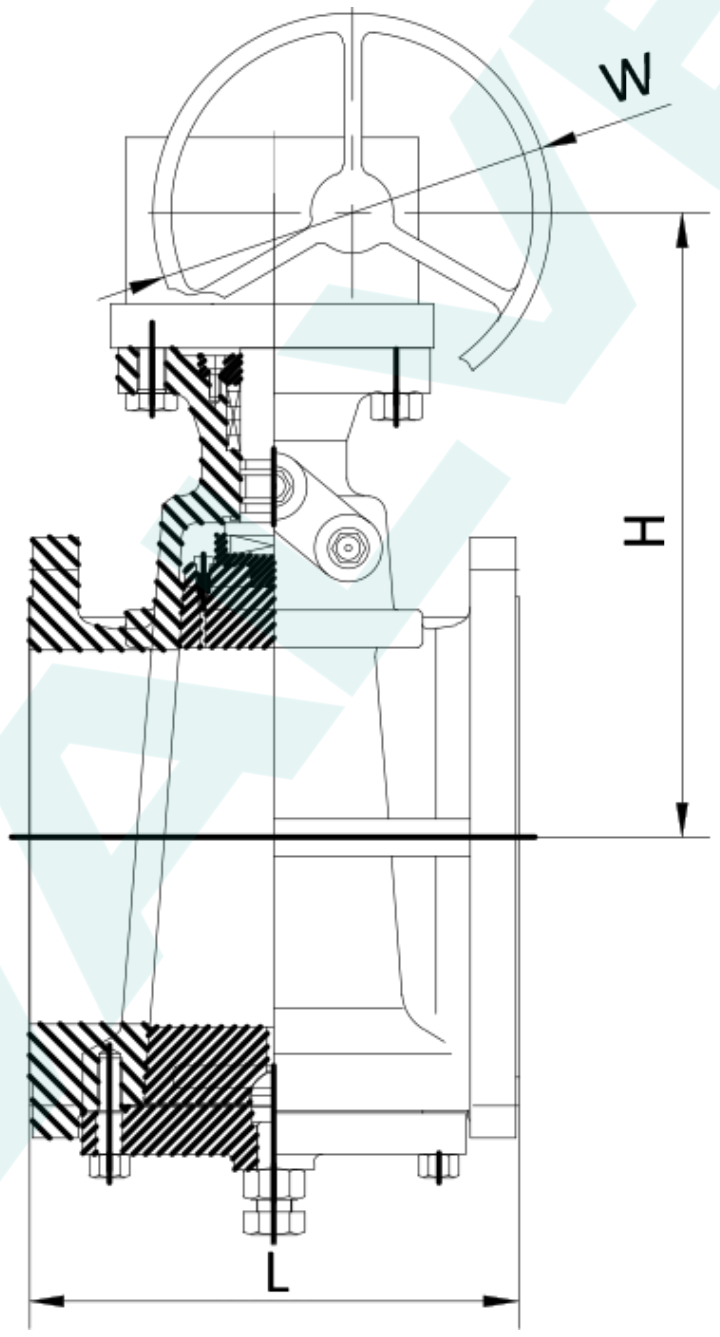
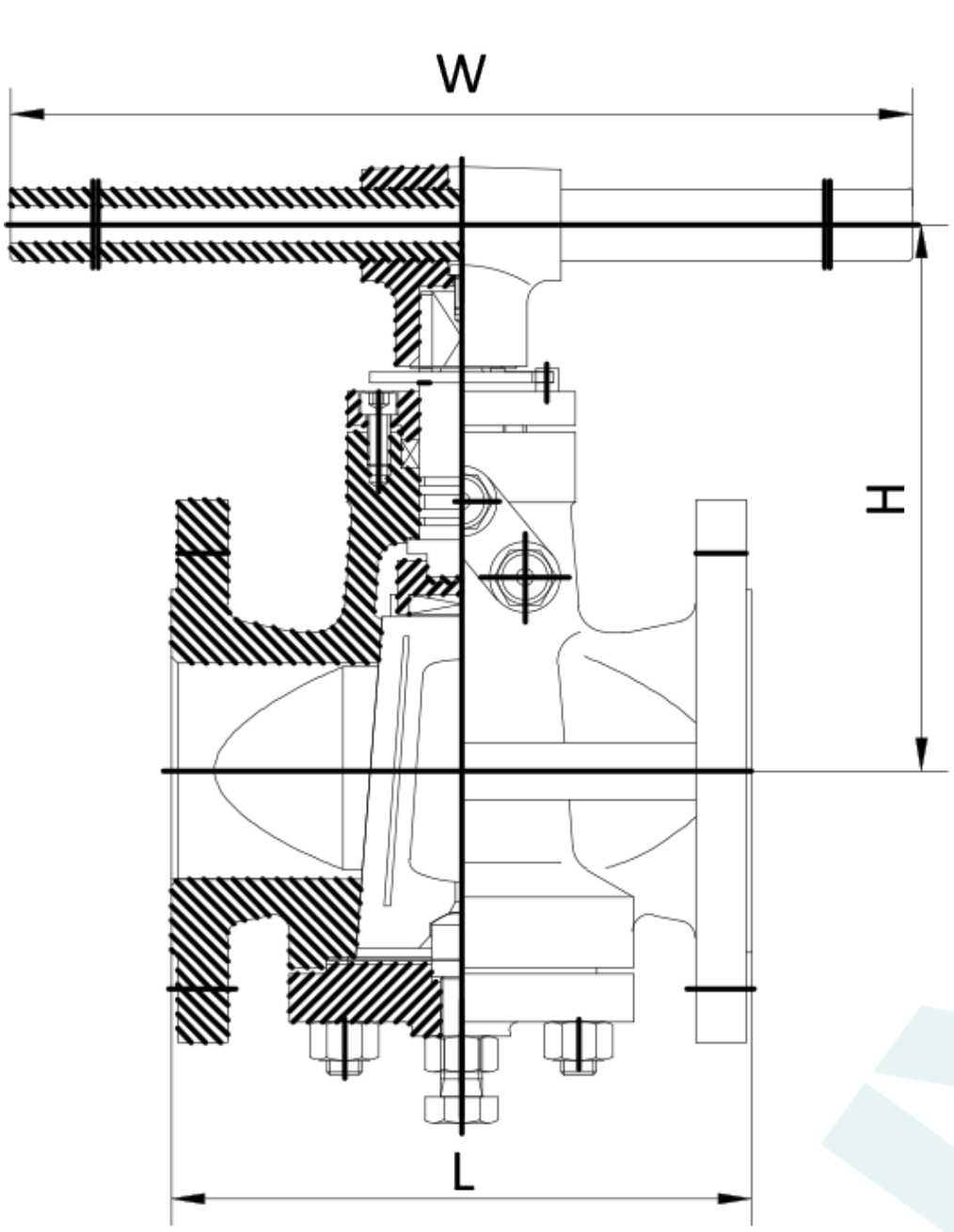
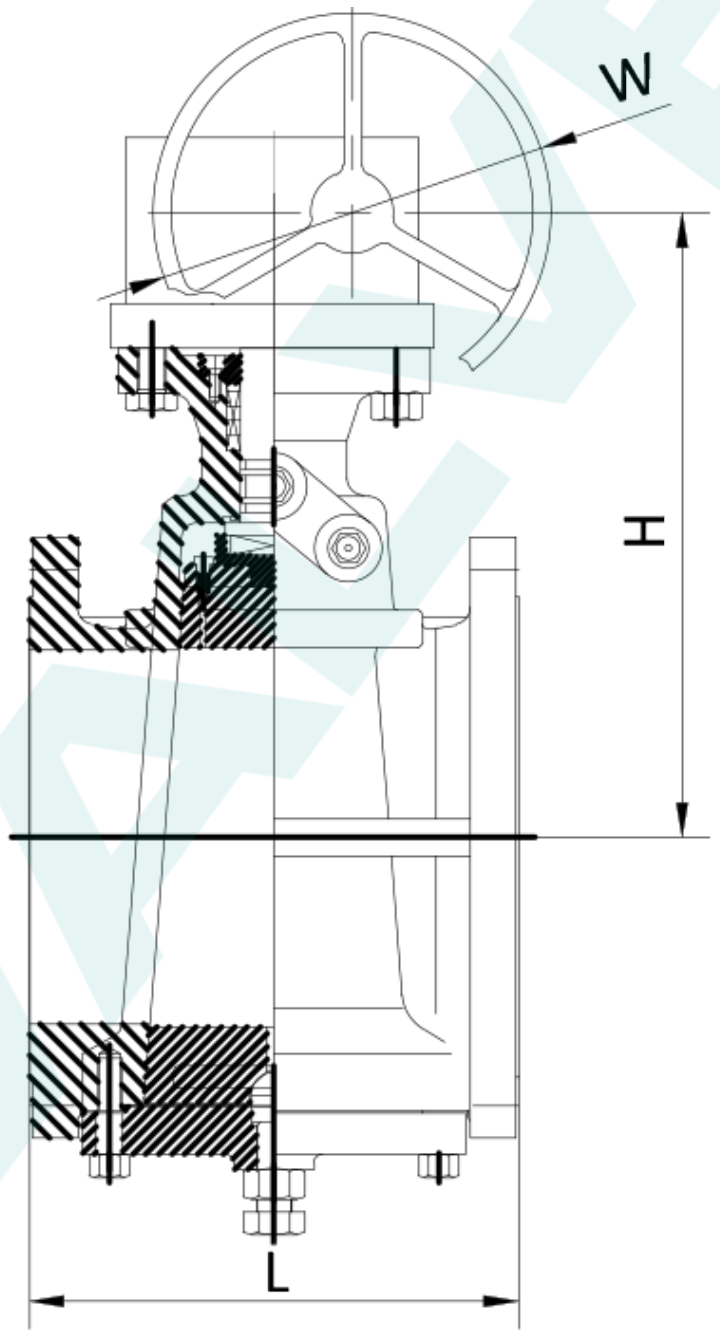




MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 300LB (Short Pattern)				
PRESSURE		300LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
1.5"	40	190	190	203	133	300
2"	50	216	267	232	190	400
2.5"	65	241	305	257	195	500
3"	80	283	330	289	210	600
4"	100	305	356	321	263	600
6"	150	403	457	419	285	360
8"	200	419	521	435	368	460
10"	250	457	559	473	408	600
12"	300	502	635	518	460	600





MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 300LB (Regular)				
PRESSURE		300LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
6"	150	403	-	419	285	360
8"	200	502	-	518	368	460
10"	250	568	-	584	408	600
12"	300	-	-	-	-	-
14"	350	-	-	-	-	-
16"	400	-	-	-	-	-
18"	450	914	-	930	615	600
20"	500	991	-	1010	705	600
24"	600	1143	-	1165	755	600

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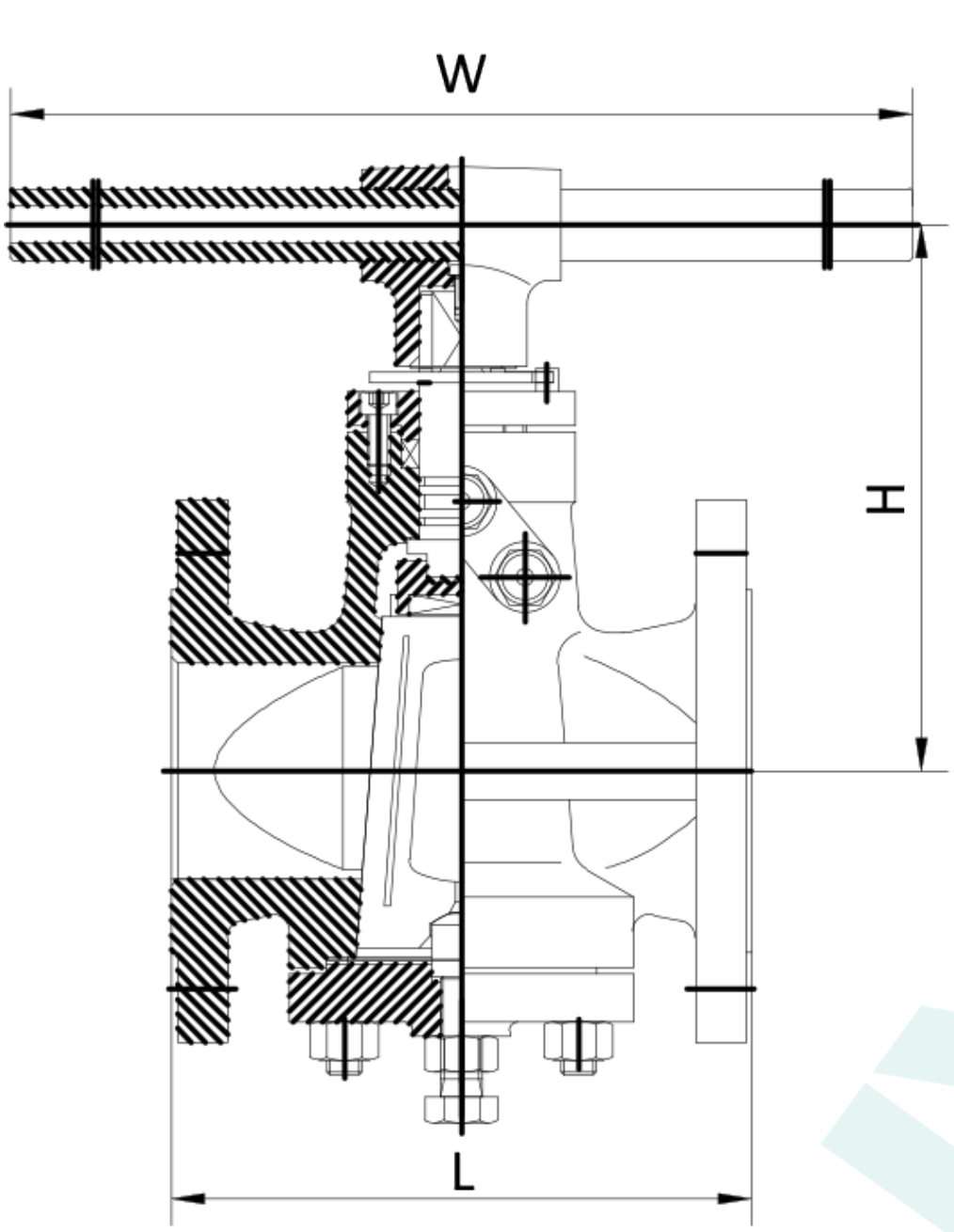

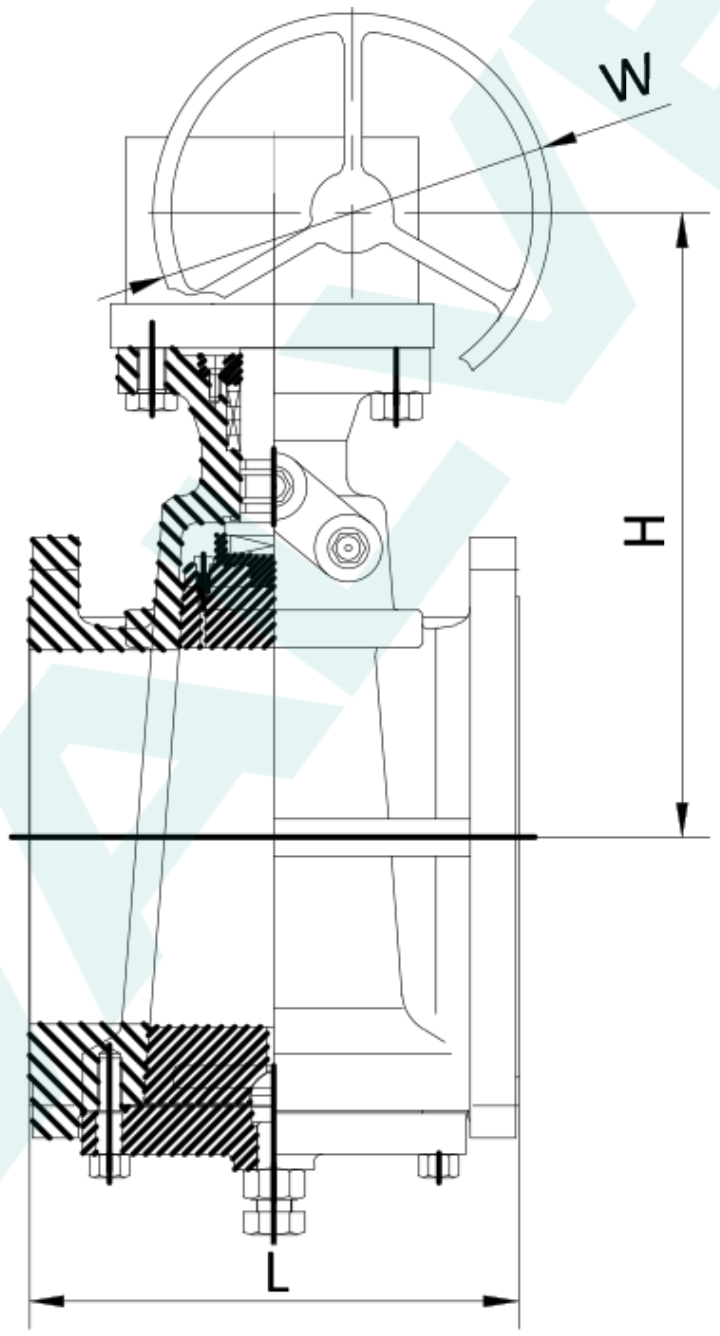

MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 300LB (Venturi)				
PRESSURE		300LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
6"	150	403	457	419	285	360
8"	200	419	521	435	368	460
10"	250	457	559	473	408	600
12"	300	502	635	518	460	600
14"	350	762	762	778	540	600
16"	400	838	838	854	590	600
18"	450	914	914	930	615	600
20"	500	991	991	1010	705	600
24"	600	1143	1143	1165	755	600

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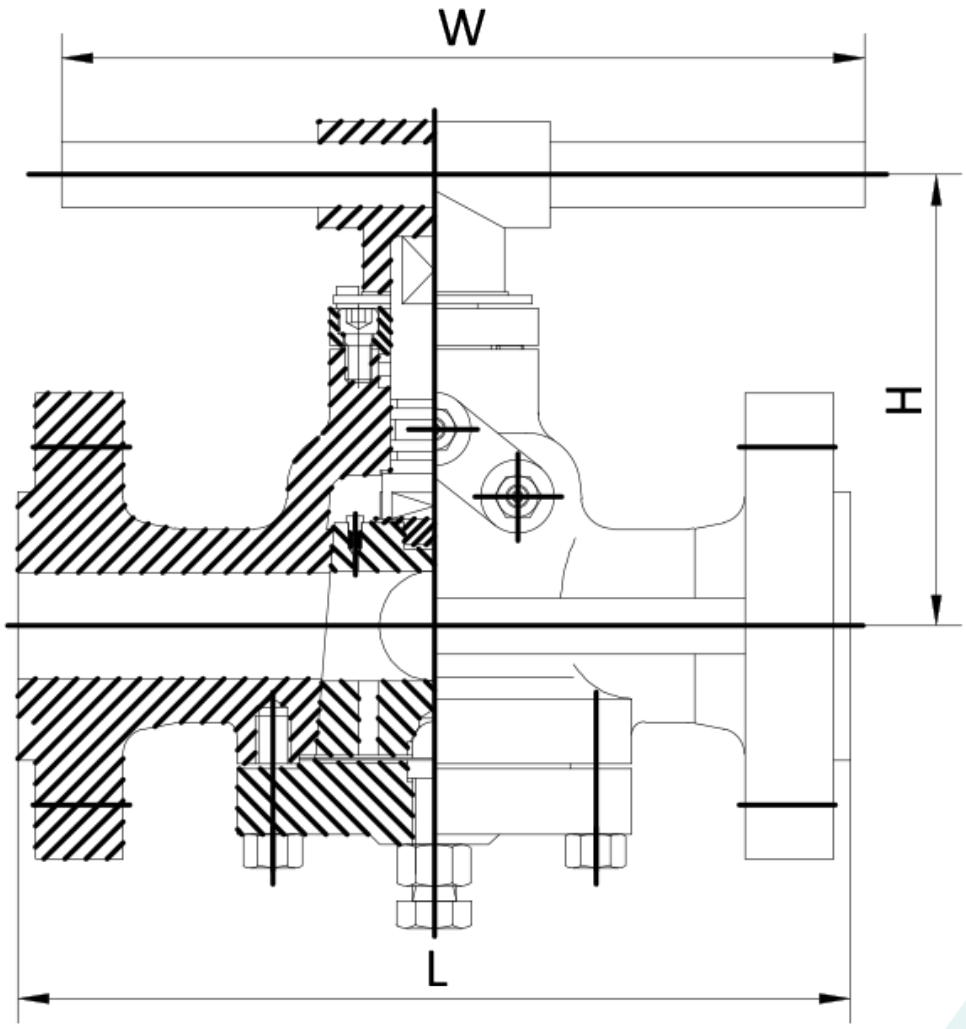
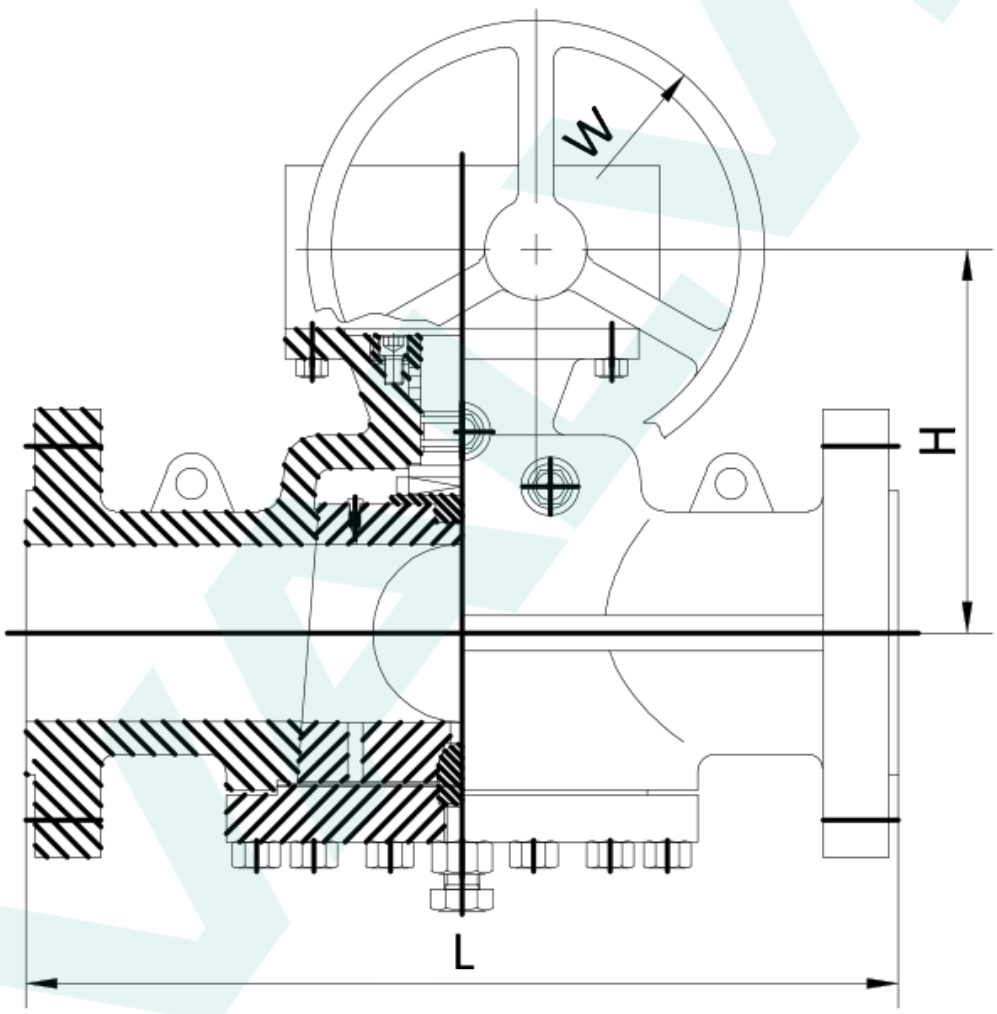
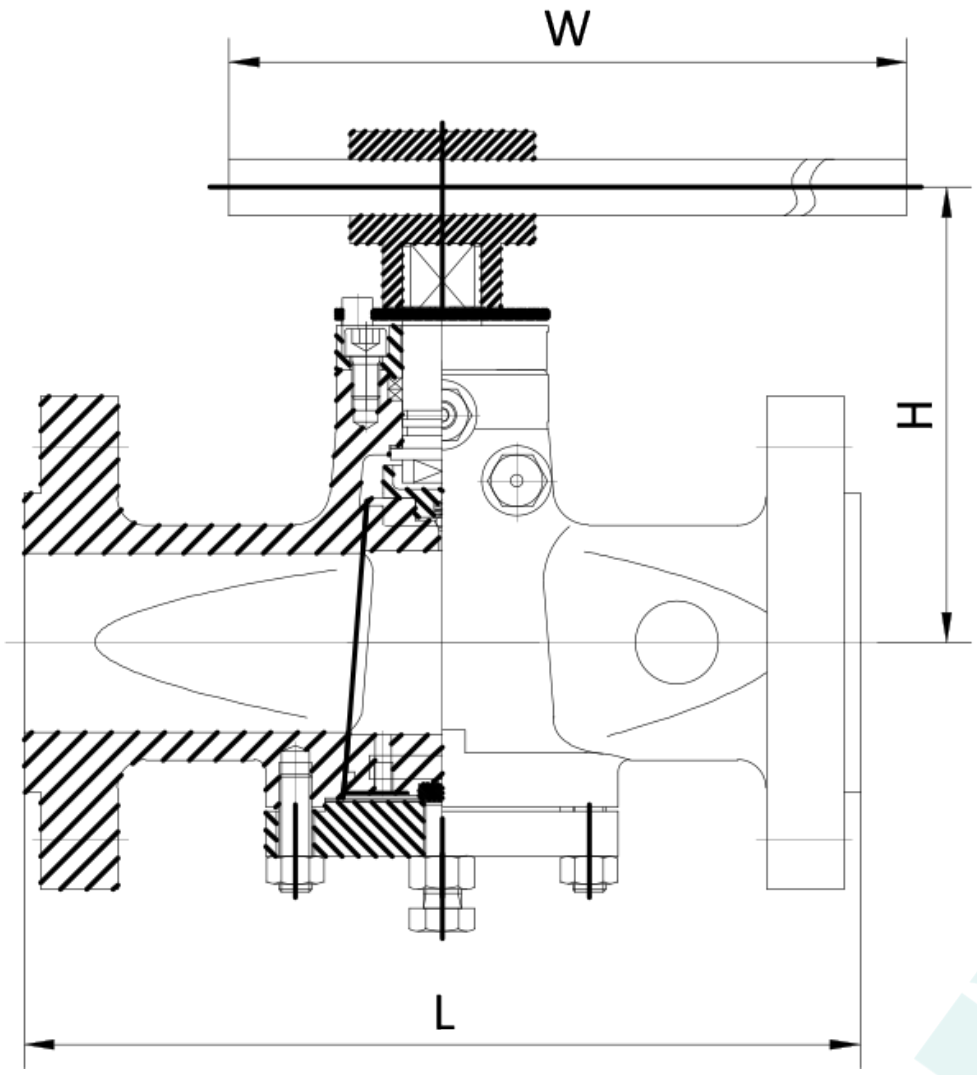
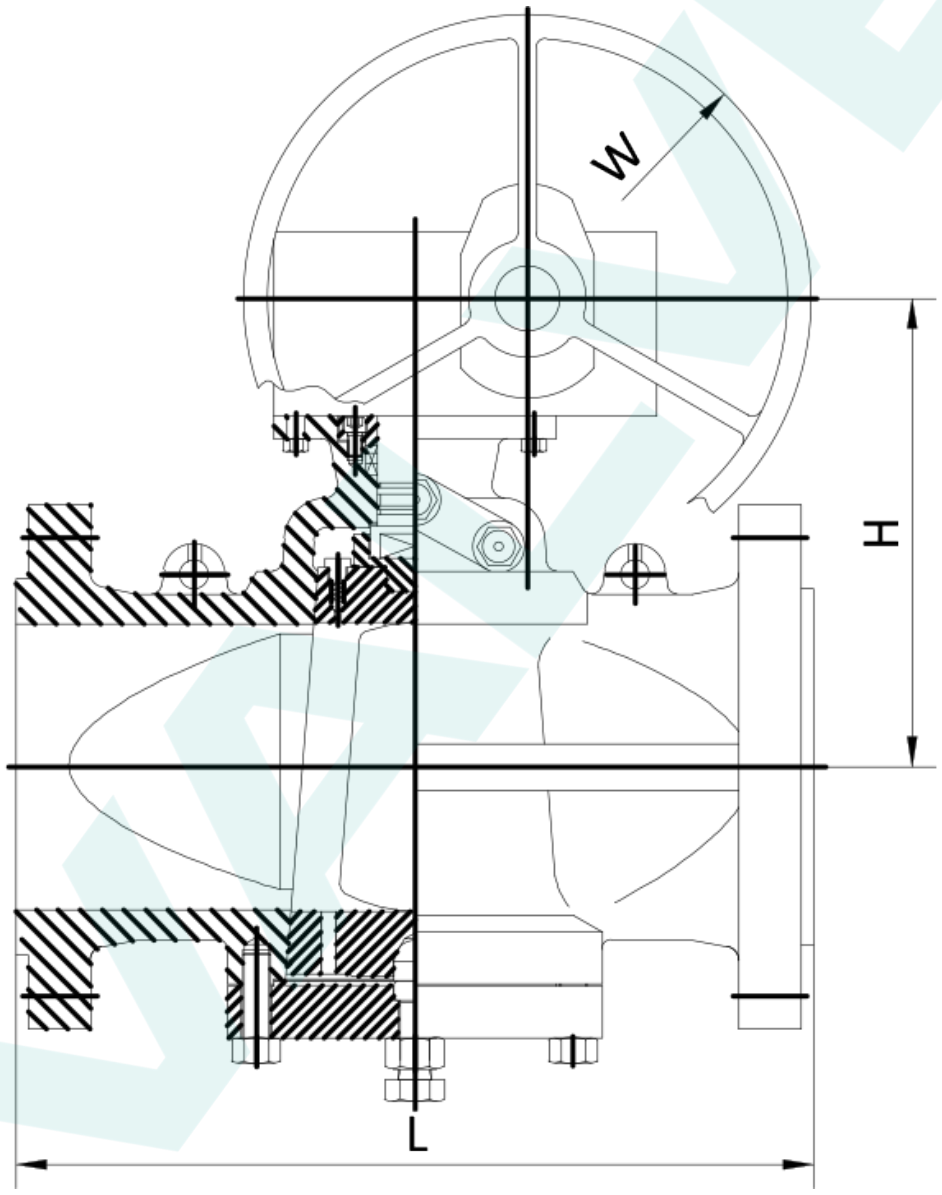


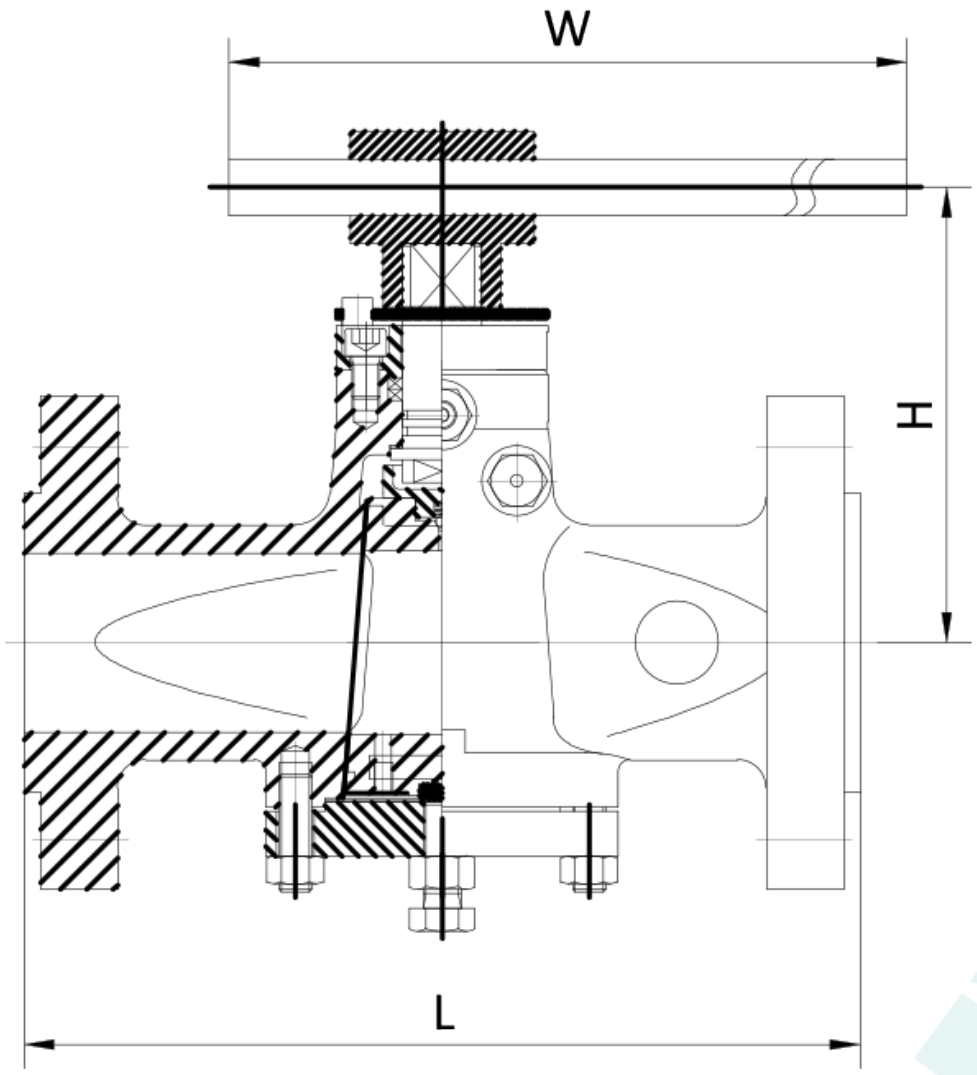


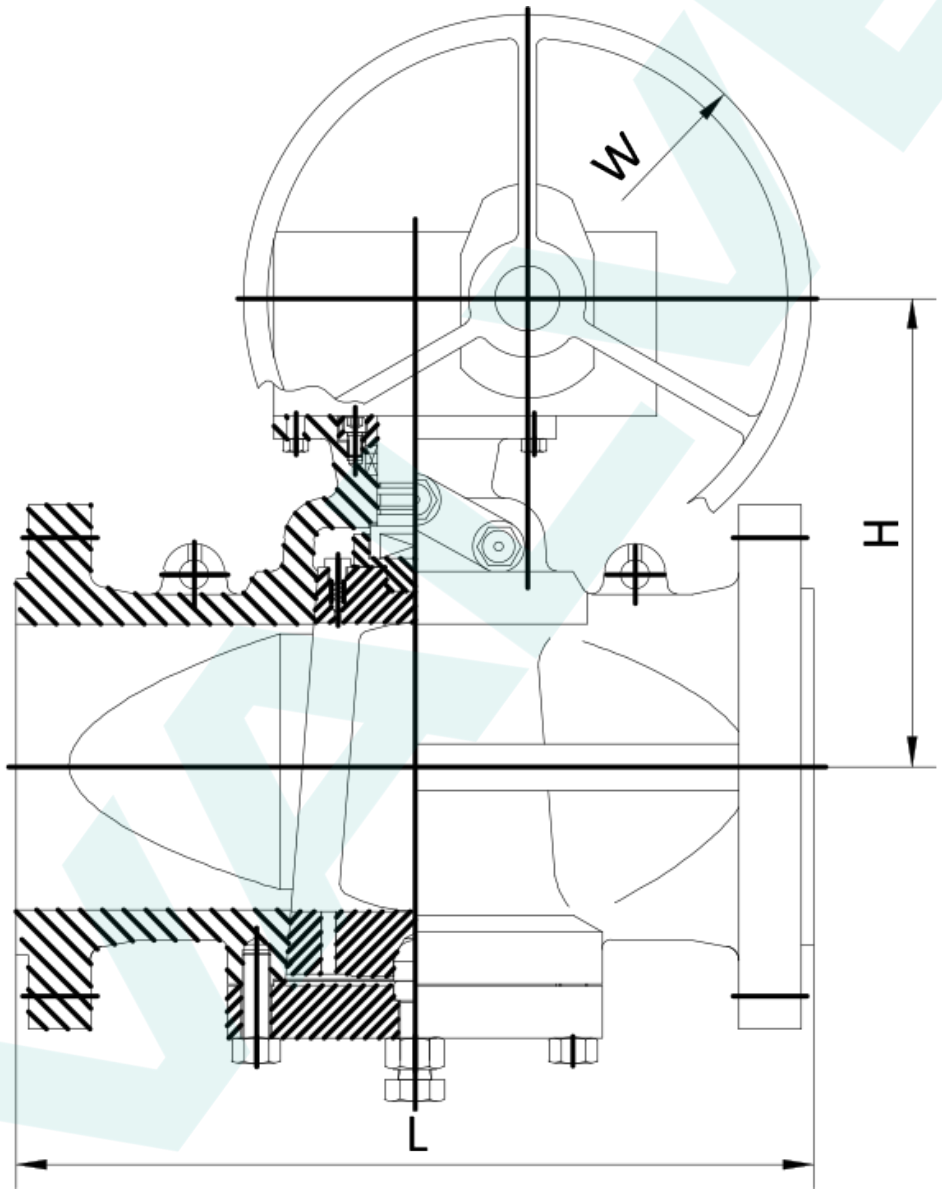
MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 300LB (Full Port)				
PRESSURE		300LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
2"	50	283	283	298	183	400
2.5"	65	330	330	346	195	500
3"	80	387	387	403	210	600
4"	100	457	457	473	263	600
6"	150	559	559	575	285	360
8"	200	686	686	702	368	460
10"	250	826	826	841	408	600
12"	300	965	965	981	460	600



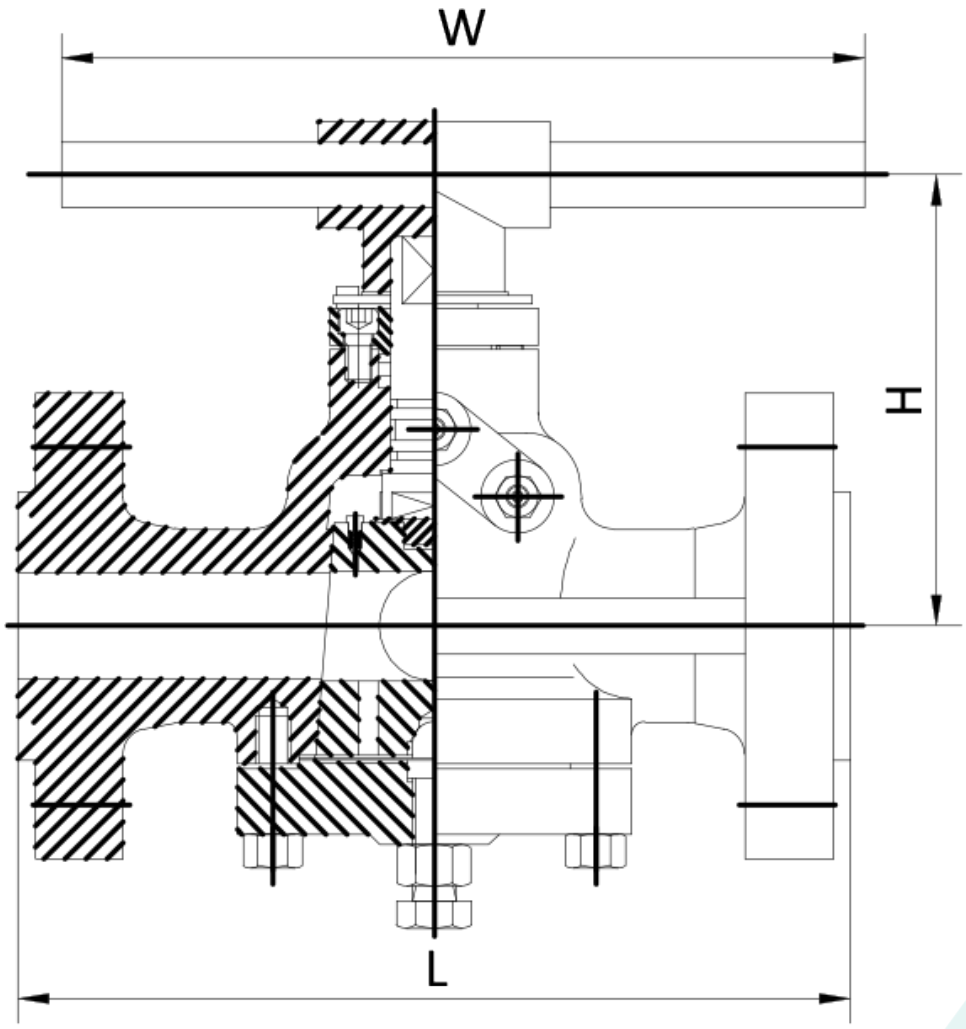


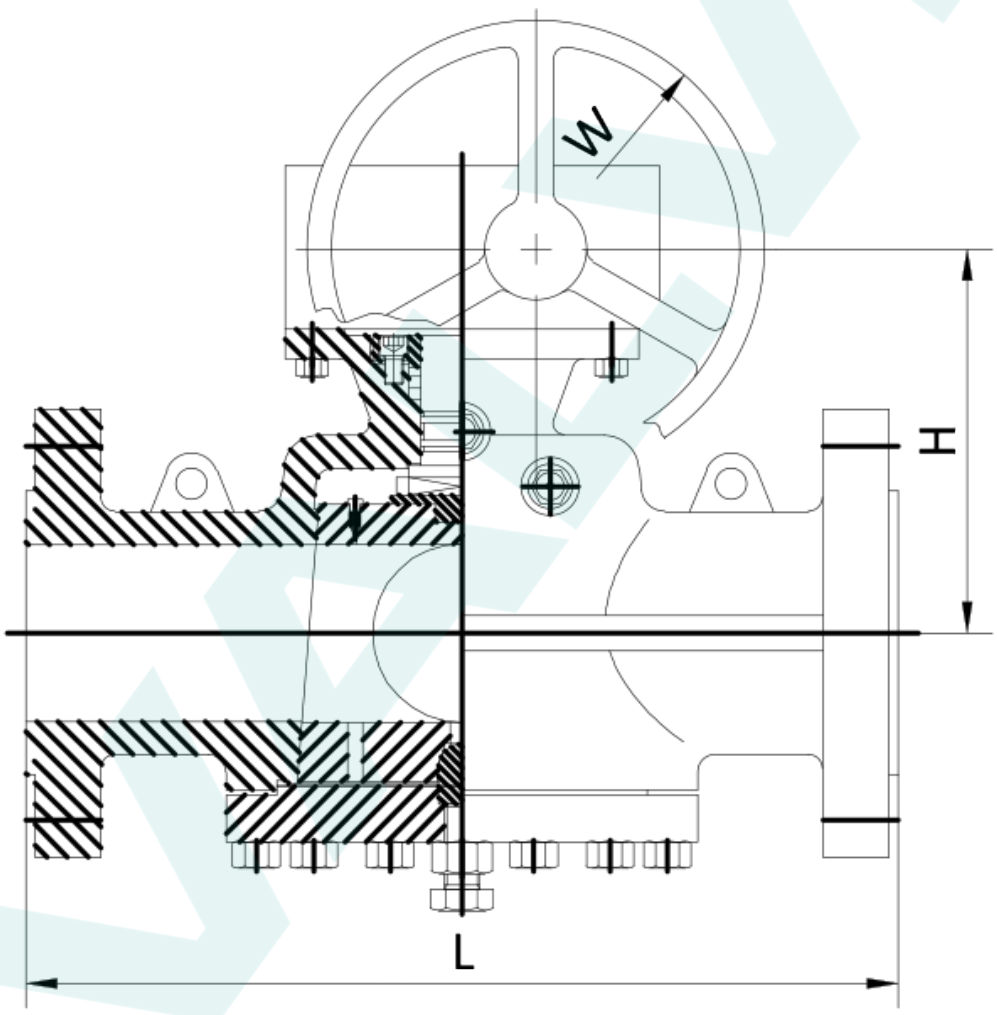
MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 600LB (Regular)				
PRESSURE		600LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
2"	50	292	292	295	183	400
2.5"	65	330	330	333	195	500
3"	80	356	356	359	210	600
4"	100	432	432	435	263	360
6"	150	559	559	562	285	360
8"	200	660	660	664	368	460
10"	250	787	787	791	408	600



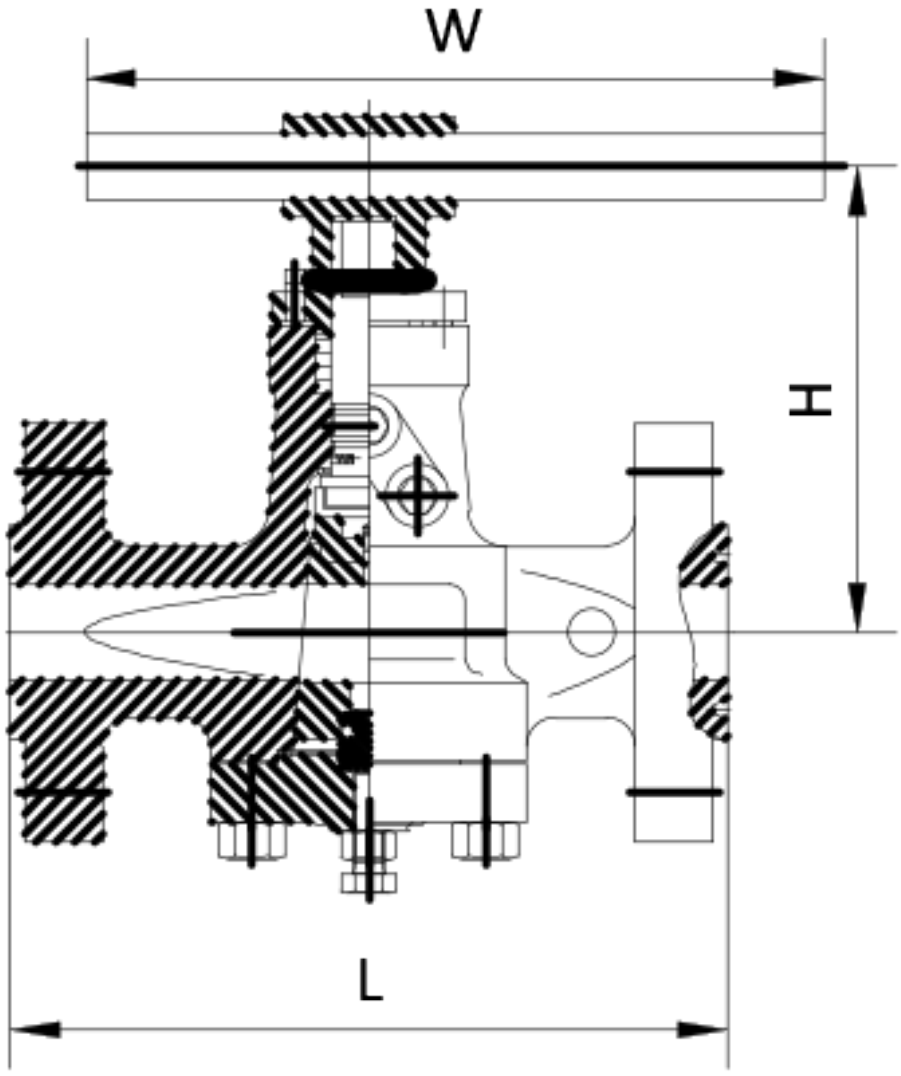


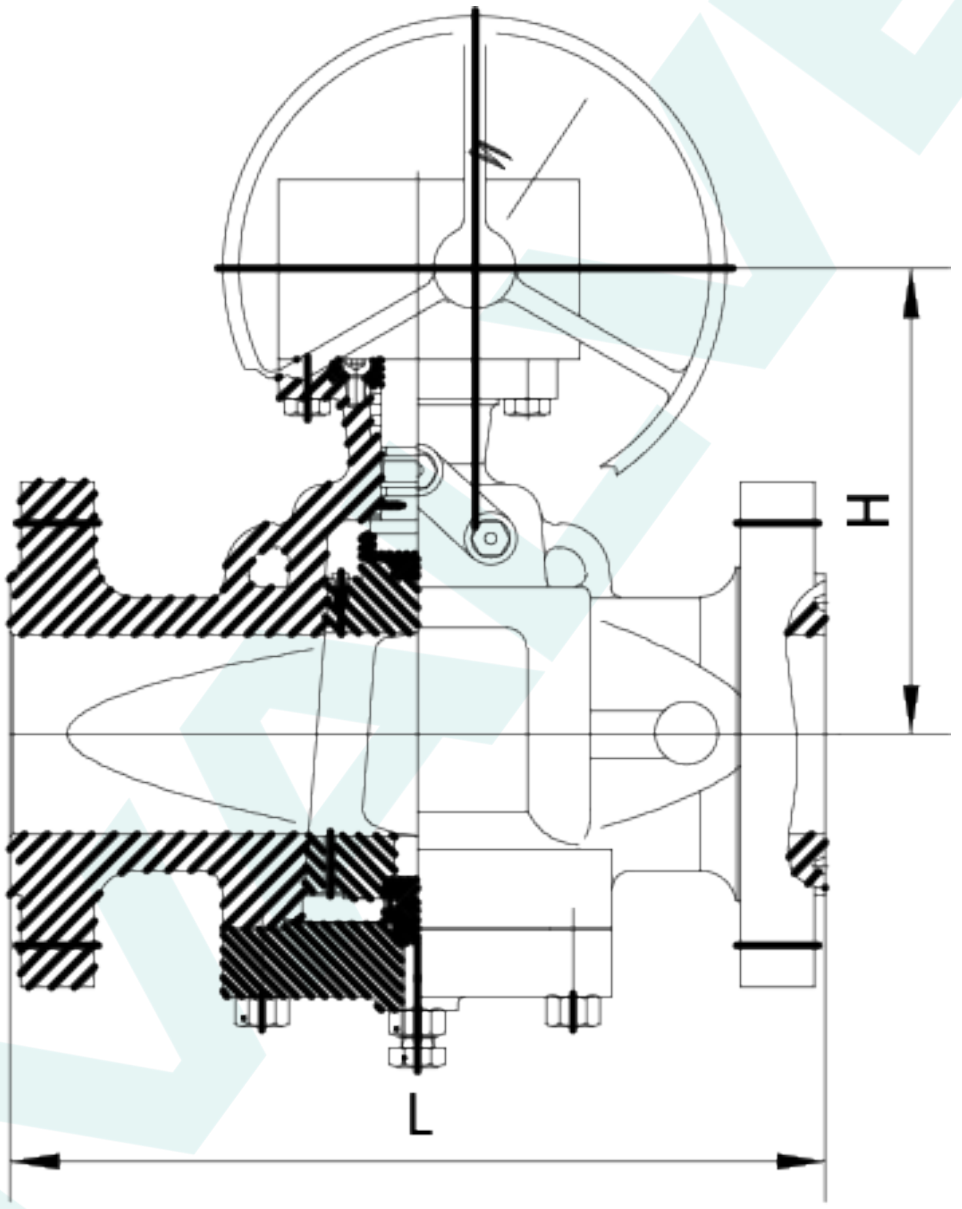
MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 600LB (Venturi)				
PRESSURE		600LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
6"	150	559	559	562	285	360
8"	200	660	660	664	368	460
10"	250	787	787	791	408	600
12"	300	838	838	841	460	600
14"	350	889	889	892	540	600
16"	400	991	991	994	590	600
18"	450	1092	1092	1095	615	600
20"	500	1194	1194	1200	705	600
24"	600	1397	1397	1407	755	600





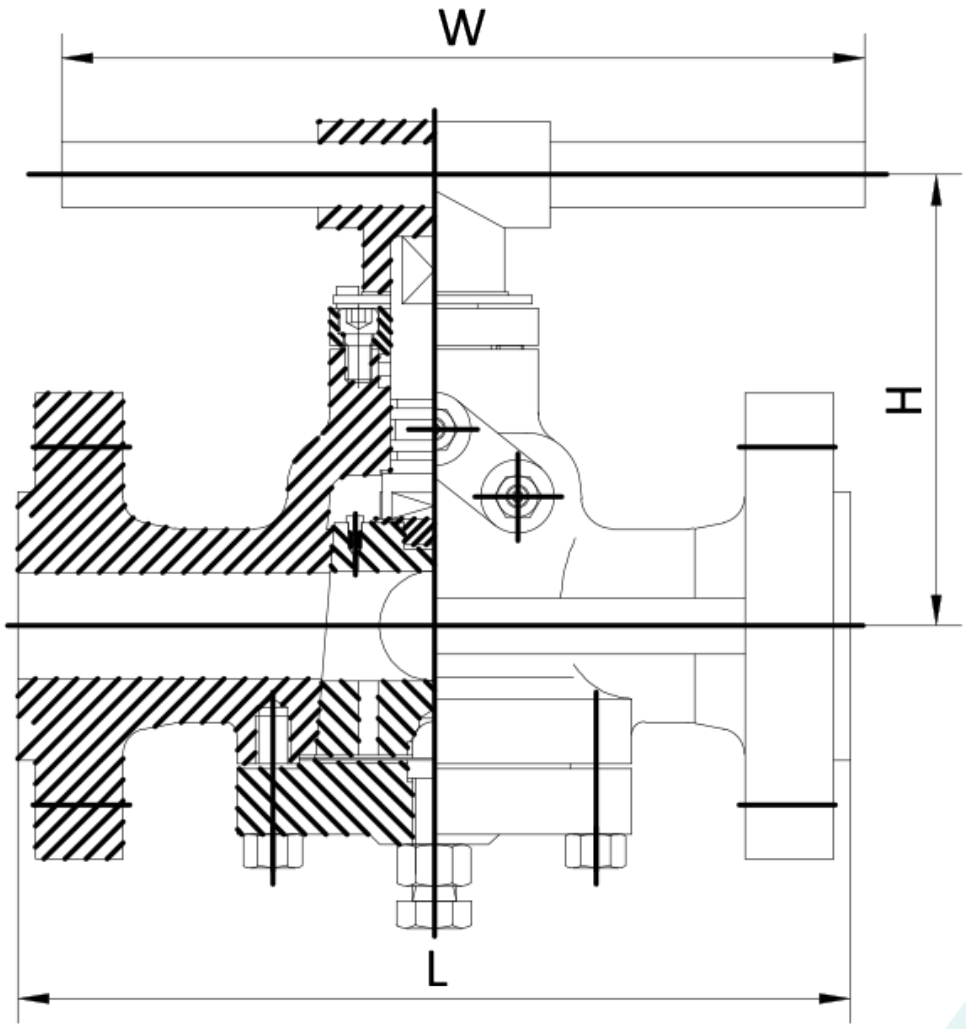
MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 600LB (Full Port)				
PRESSURE		600LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
2"	50	330	-	333	183	400
2.5"	65	381	-	384	195	500
3"	80	445	-	448	210	600
4"	100	508	559	511	263	600
6"	150	660	711	664	285	360
8"	200	794	845	797	368	460
10"	250	940	1016	943	408	600
12"	300	1067	1067	1070	460	600

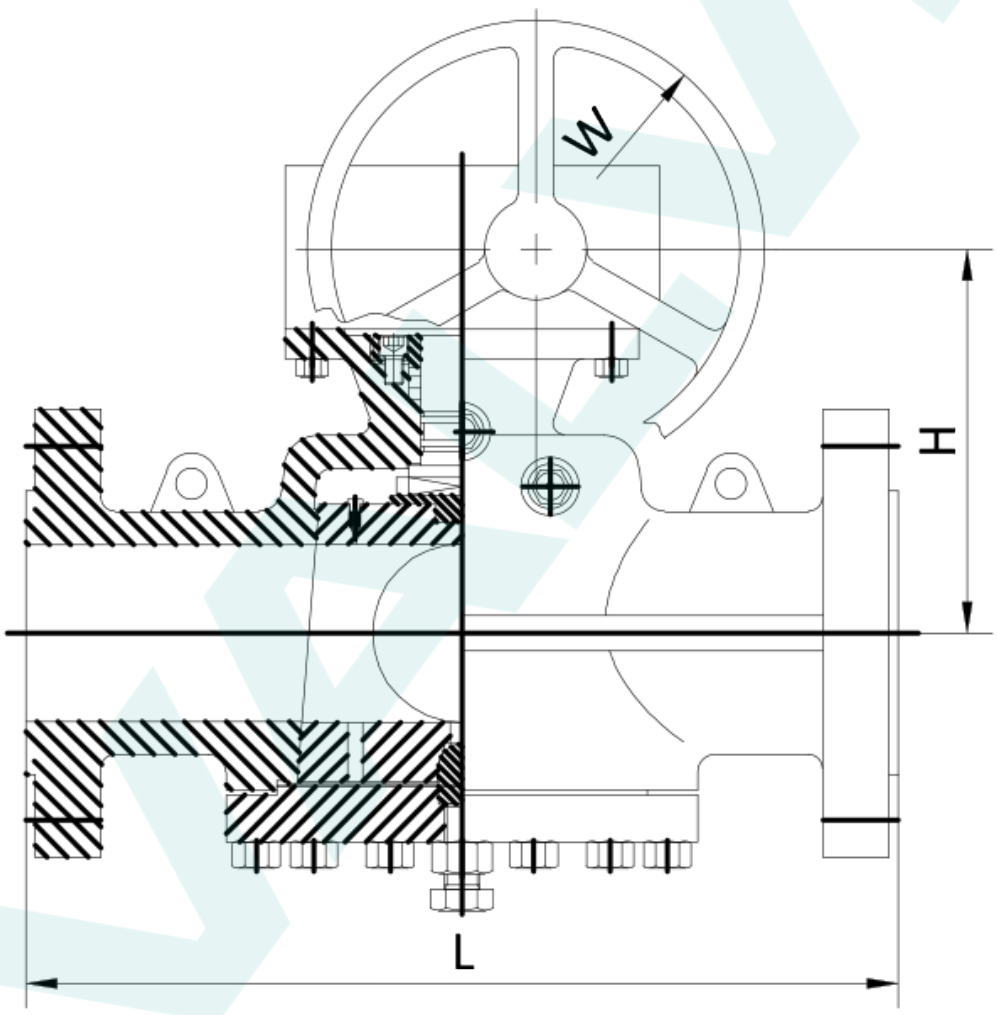




MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 900LB (Regular)				
PRESSURE		900LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
2"	50	368	-	371	213	400
2.5"	65	419	-	422	220	500
3"	80	381	381	384	232	600
4"	100	457	457	460	275	600
6"	150	610	610	613	345	360
8"	200	737	737	740	426	460
10"	250	838	838	841	495	600

MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 900LB (Venturi)				
PRESSURE		900LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
6"	150	610	610	613	345	360
8"	200	737	737	740	426	460
10"	250	838	838	841	495	600
12"	300	965	965	968	515	600
16"	400	1130	1130	1140	605	600





MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 900LB (Full Port)				
PRESSURE		900LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
2"	50	381	-	384	213	400
2.5"	65	432	-	435	220	500
3"	80	470	-	473	235	600
4"	100	559	-	562	275	600
6"	150	737	-	740	345	360
8"	200	813	-	816	426	460
10"	250	965	-	968	495	600

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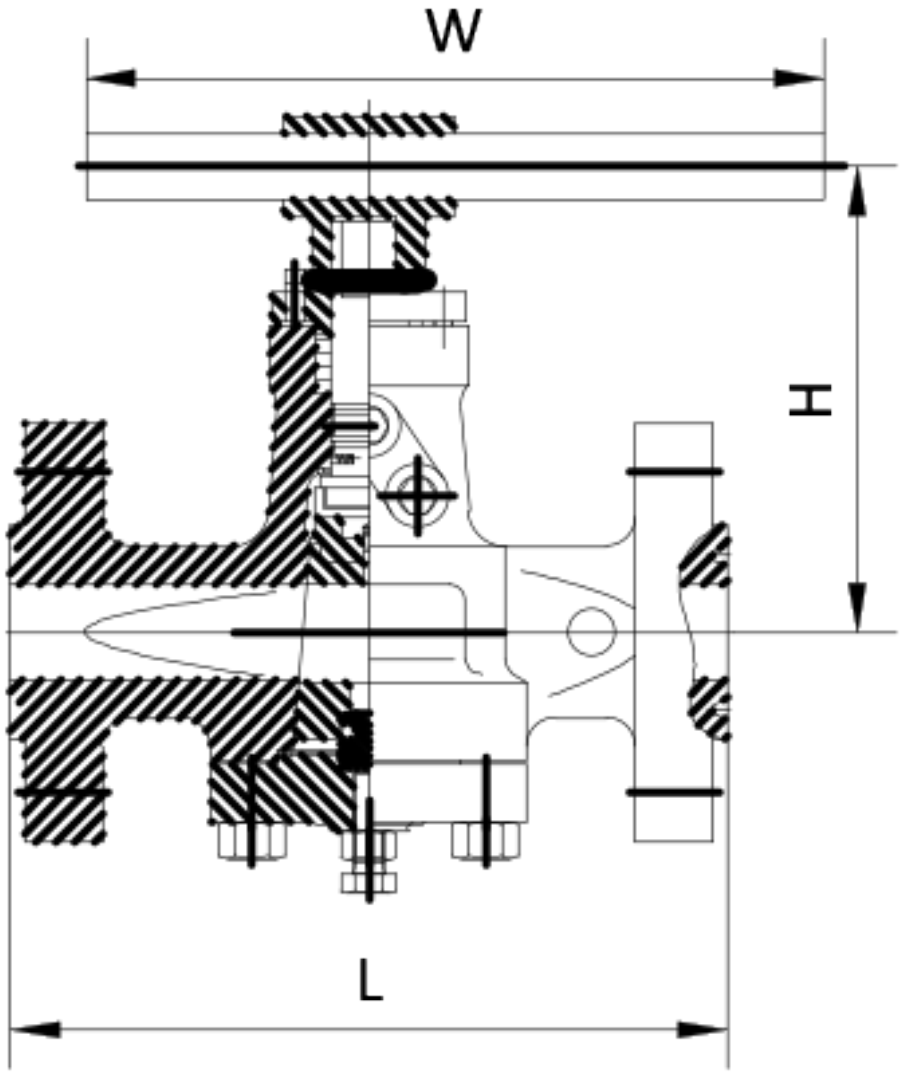
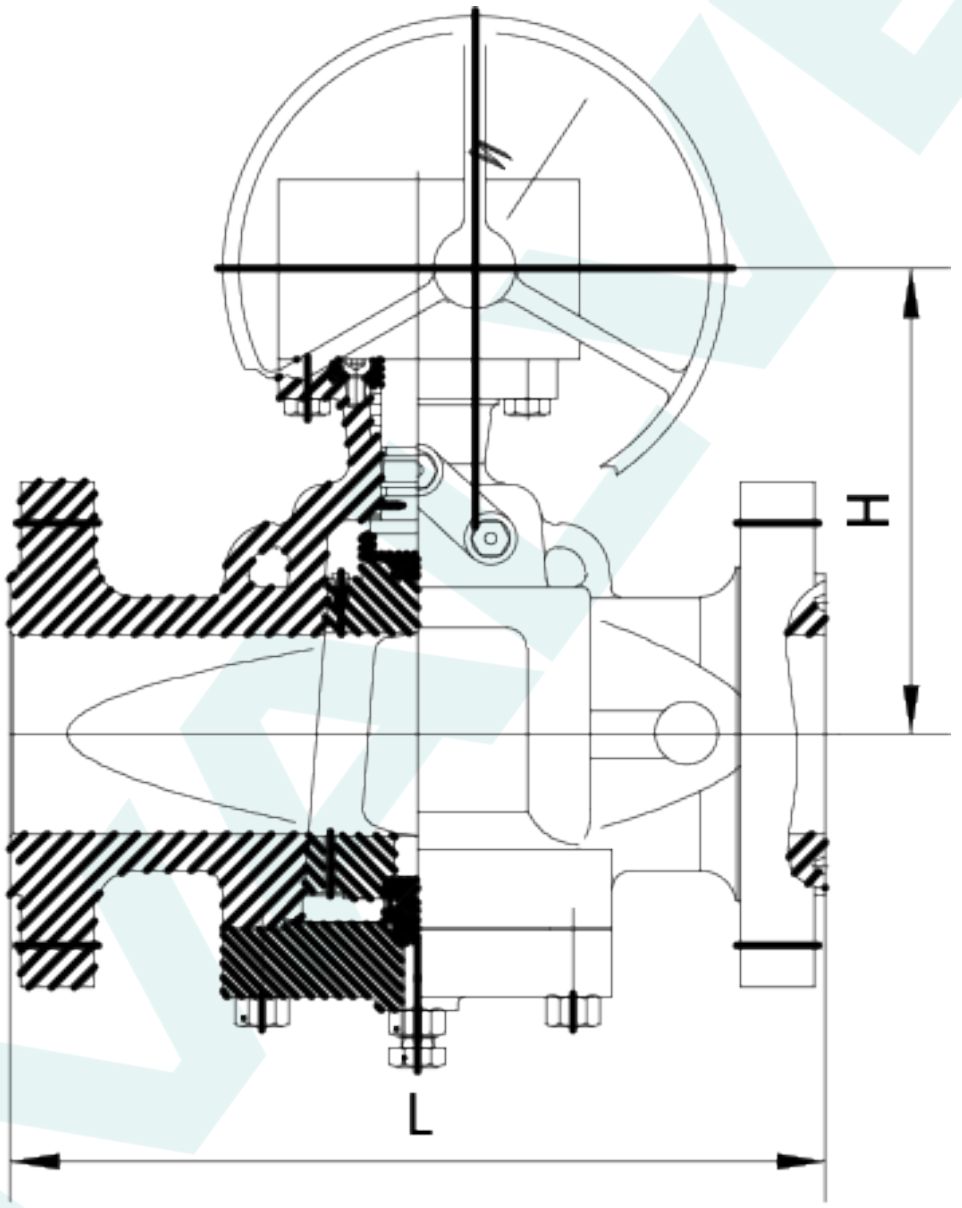
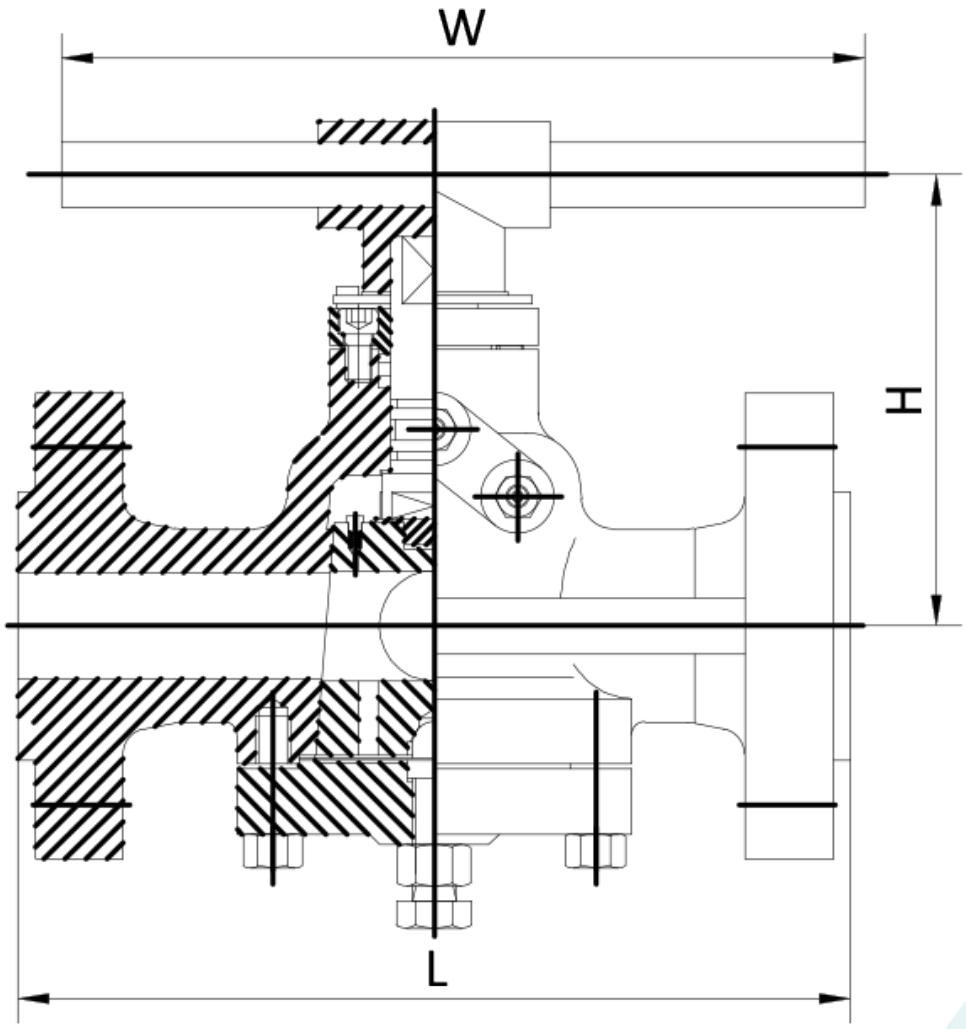
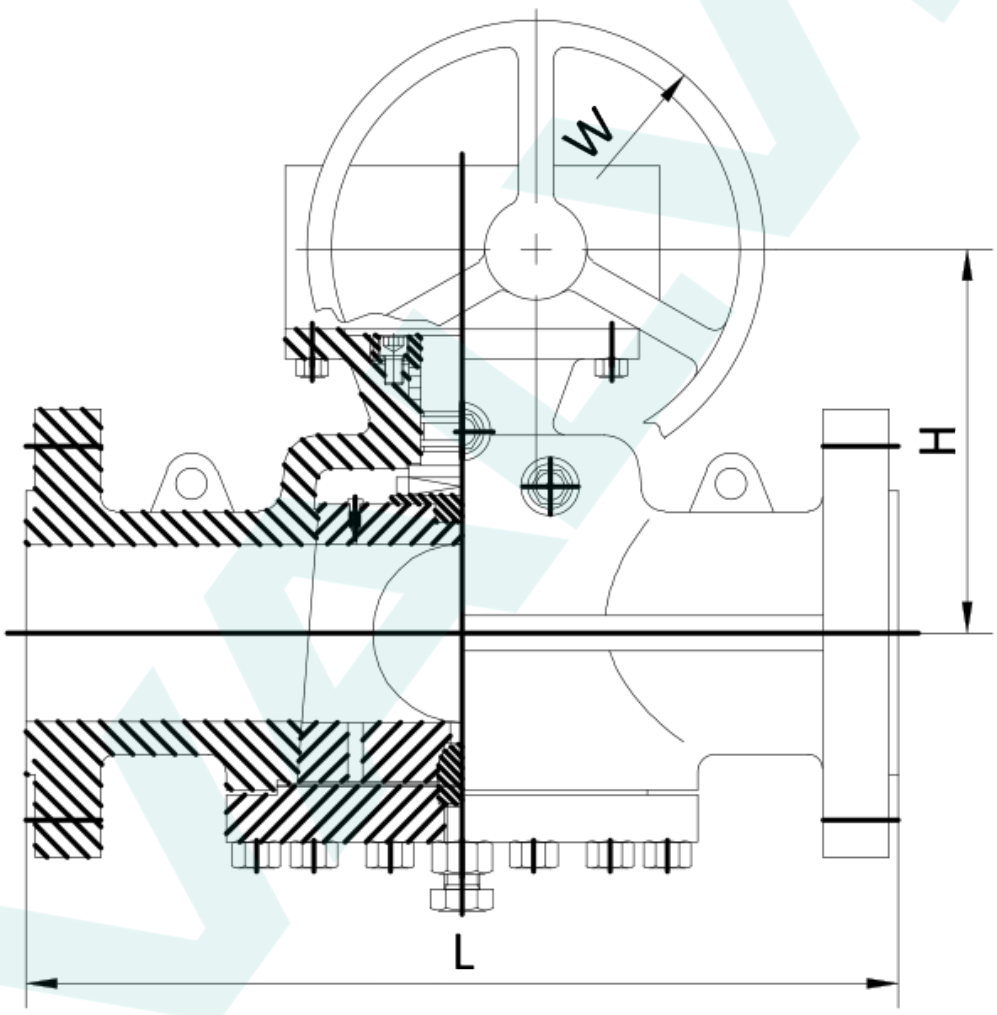




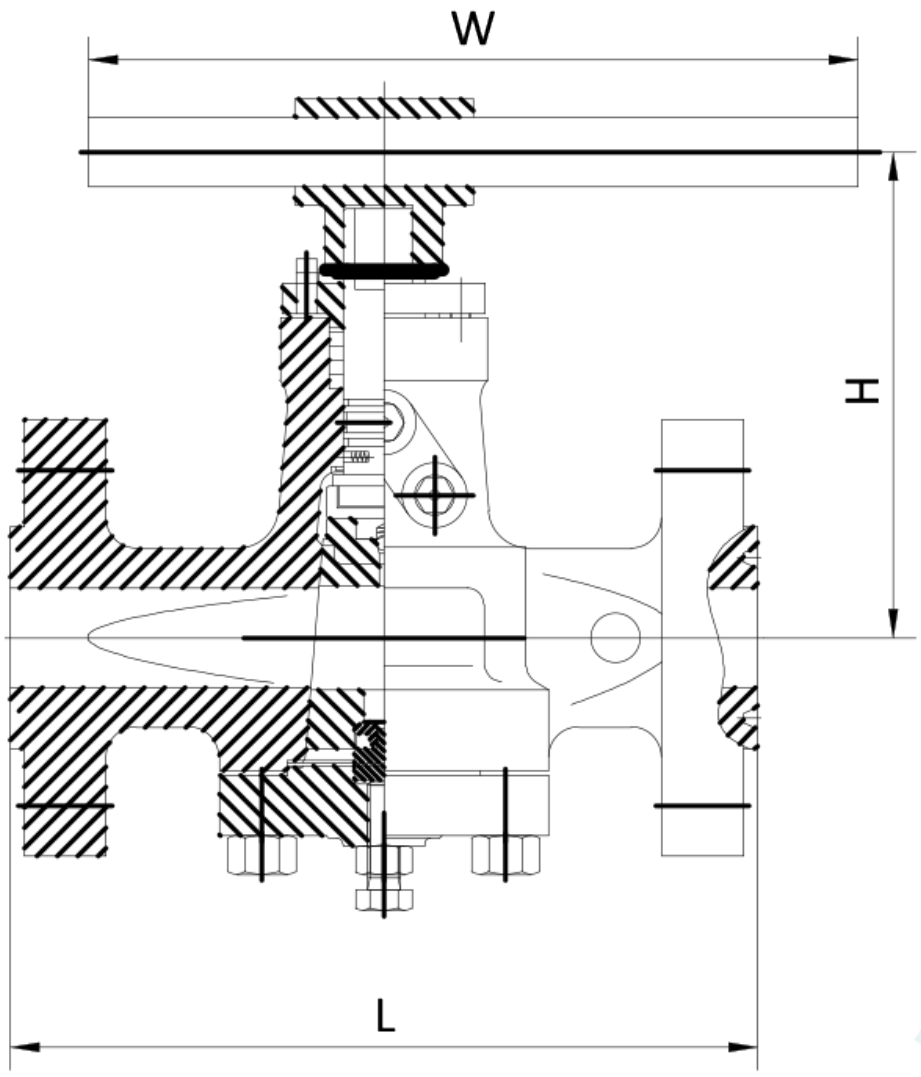
MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 1500LB (Regular)				
PRESSURE		1500LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
2"	50	368	-	371	215	400
2.5"	65	419	-	422	225	500
3"	80	470	470	473	245	600
4"	100	546	546	549	275	600
6"	150	705	705	711	245	360
8"	200	832	832	841	426	460
10"	250	991	991	1000	495	600

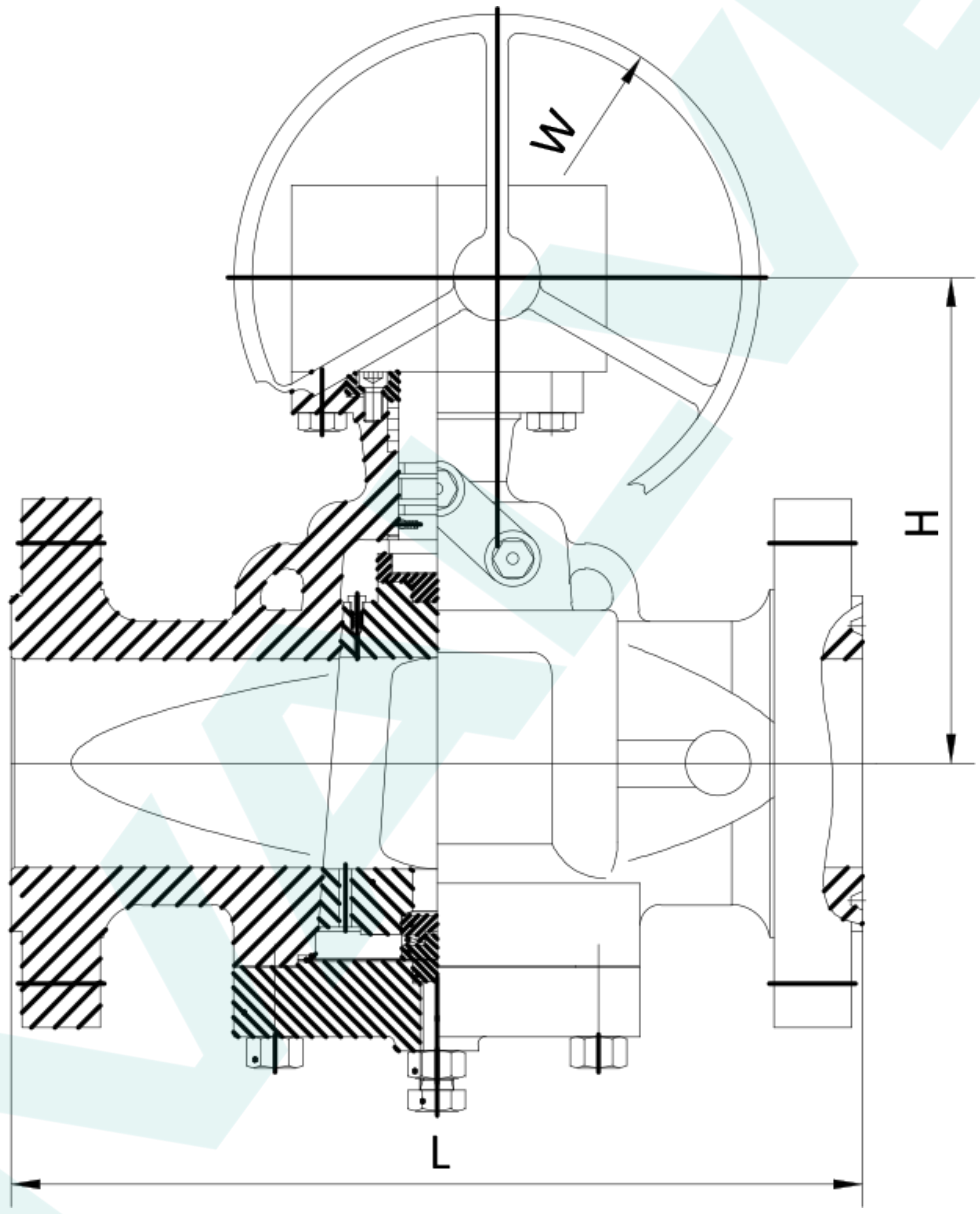
MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 1500LB (Venturi)				
PRESSURE		1500LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
6"	150	705	705	711	345	360
8"	200	832	832	841	426	460
10"	250	991	991	1000	495	600
12"	300	1130	1130	1146	515	600



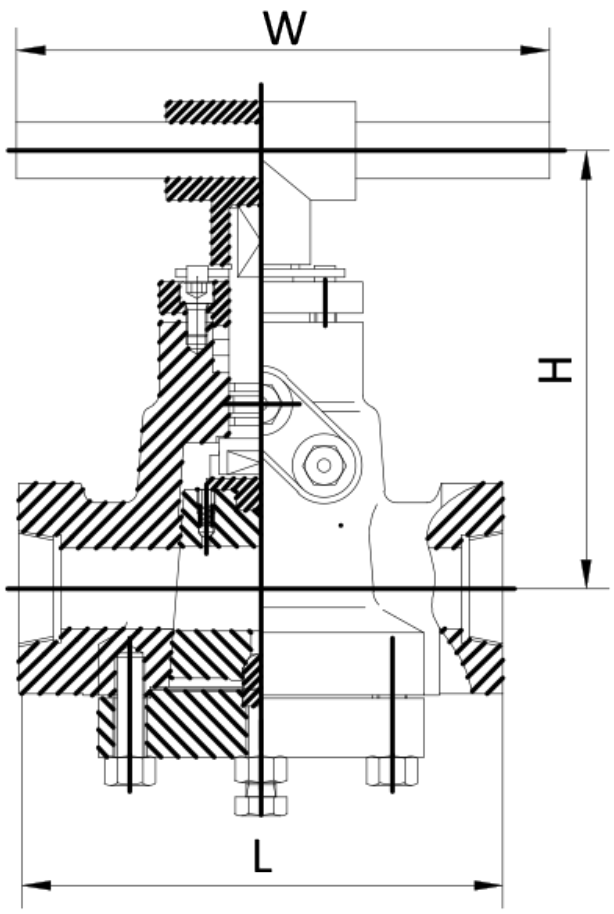


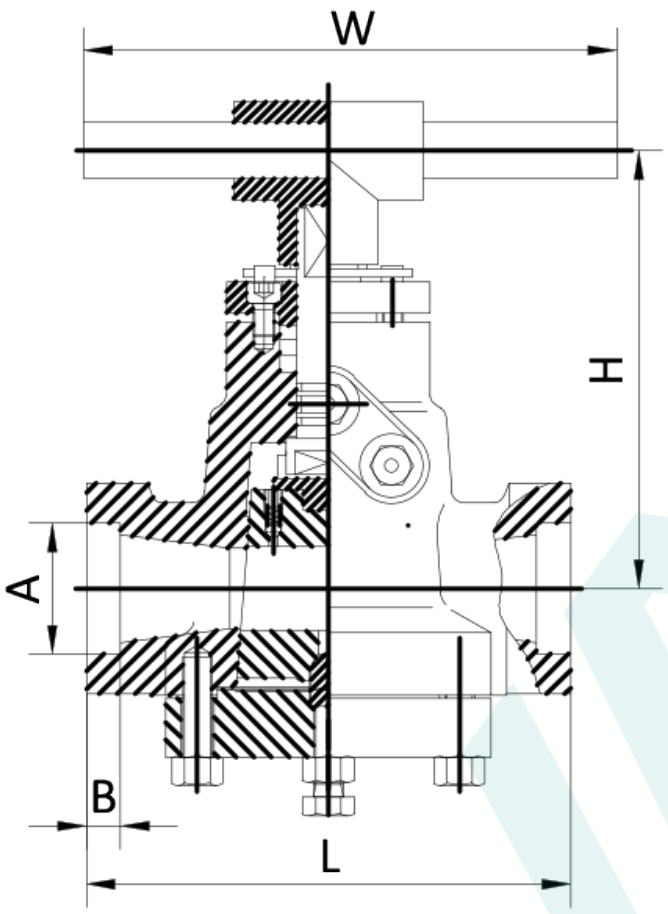
MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 1500LB (Full Port)				
PRESSURE		1500LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
2"	50	391	-	394	215	400
2.5"	65	454	-	457	225	500
3"	80	524	-	527	245	600
4"	100	625	-	629	285	600
6"	150	787	-	794	355	360
8"	200	889	-	899	435	460
10"	250	1067	-	1076	515	600

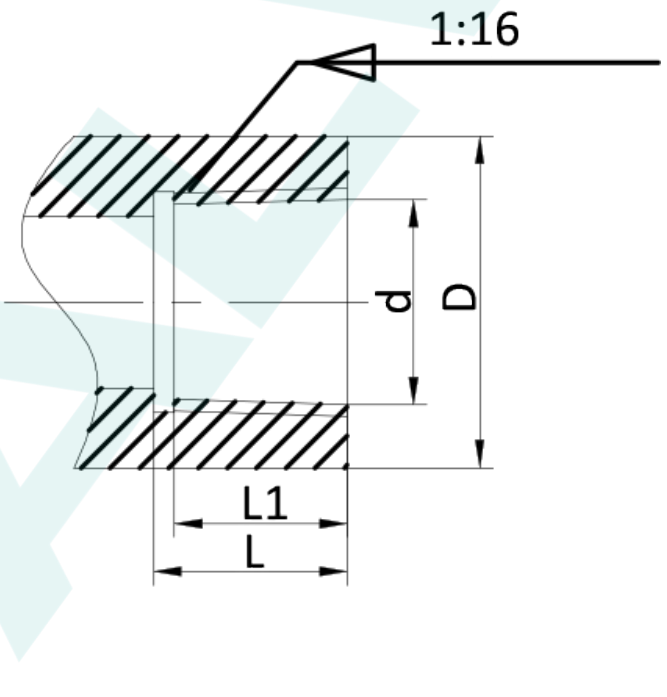




MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 2500LB (Regular)				
PRESSURE		2500LB				
SIZE		L			H	W
NPS	DN	RF	BW	RTJ		
2"	50	451	-	454	215	400
2.5"	65	508	-	514	235	500
3"	80	578	-	584	245	600
4"	100	673	-	683	295	600
6"	150	914	-	927	365	360
8"	200	1022	-	1038	435	460
10"	250	1270	-	1292	515	600







MODEL		INVERTED PRESSURE BALANCE LUBRICATED PLUG VALVE - 150-800LB				
PRESSURE		150-800 LB				
SIZE		DN 15 1/2"	DN 20 3/4"	DN 25 1"	DN 40 1 1/2"	DN 50 2"
L	SW	89	133	133	229	229
	NPT	89	133	133	229	229
	BW	89	133	133	229	229
SW	A	21.7	27.1	33.8	48.6	61.1
	B	9.6	12.7	12.7	12.7	15.8
NPT	d	18.48	23.67	29.87	44.7	56.74
	L	17	17	20	23	23
	L1	14	14	17	20	20
	Pitch	1.814	1.814	2.209	2.209	2.209
	Teeth/Inc	14	14	11.5	11.5	11.5
H		108	127	127	174	174
W		400	400	500	600	800

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