



ORION STEEL VALVES
Axial Check Valves
API 6D

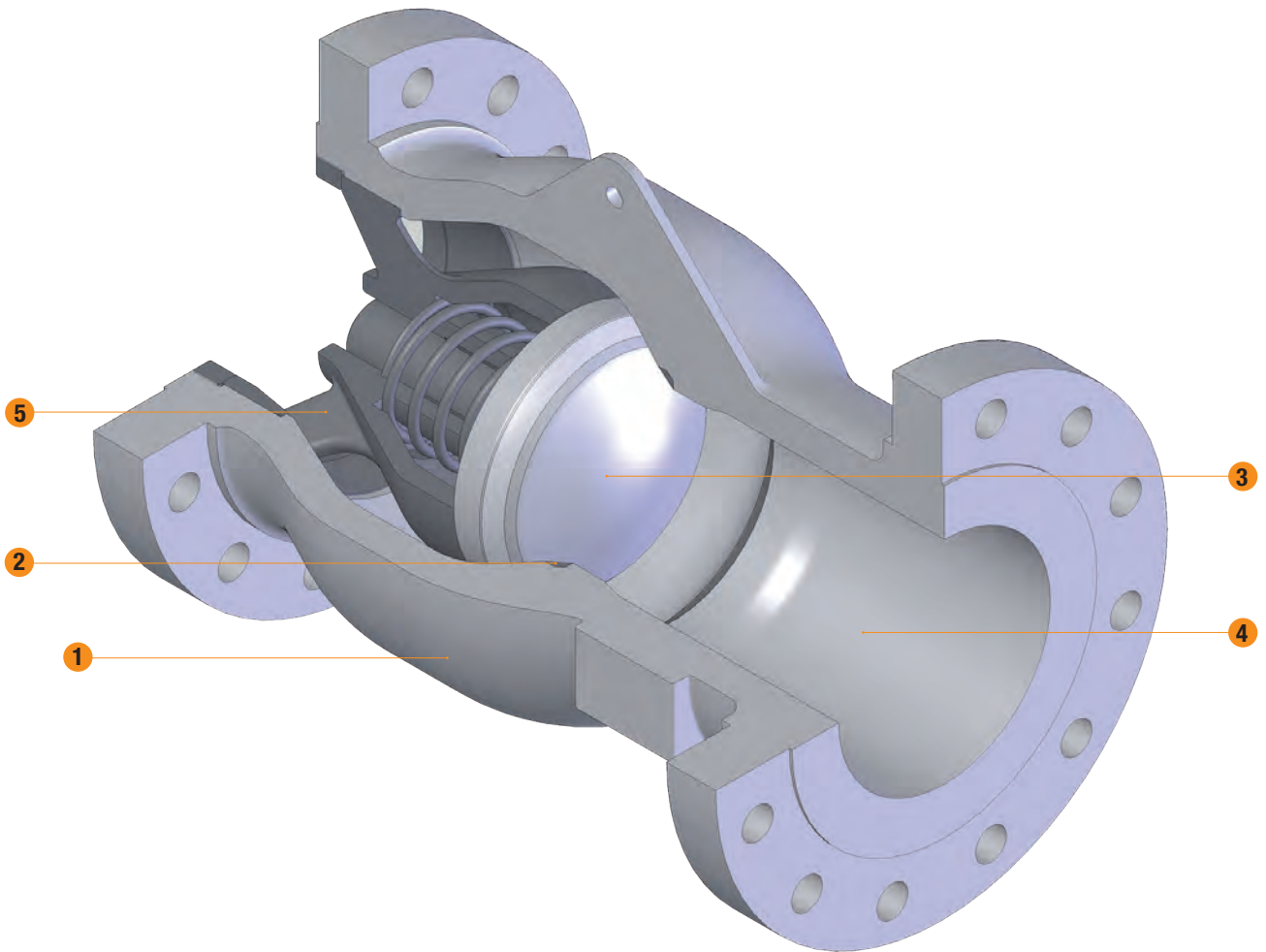


AXIAL CHECK VALVES API 6D - p. 75

Class ASME 150 (PN 20) • 300 (PN 50) • 600 (PN 100) • 900 (PN 150) • 1500 (PN 250) • 2500 (PN 420)

AXIAL CHECK VALVES OPERATING CONDITIONS - p. 81

ORION STEEL VALVES
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Note: Please fill in the attached questionnaire in order to give your valves installation details.

1 VALVE BODY

The body is cast or forged in carbon or stainless steel and is also available in many other CRA. For severe services and large valve sizes it can be internally lined or fully clad instead of having solid CRA. The internal profile is designed in order to minimize pressure losses, and basic dimensions (face to face and wall thickness) comply with API 6D and ASME B16.34 standards. Body connections can be provided as per ASME B 16.5 RF or RTJ, as well as BW end or hub connection are available.

2 SEAT

The seat ring is part of the trim. It can be integral with the body or renewable. A ground lapped surface allows the tightness.

3 VALVE DISC

The disc is the main part of the trim and allows fluid control. It comes in forged steel and in cast steel. Its shape is carefully designed in order to avoid turbulences and is assisted by a spring in closed position.

4 SPRING

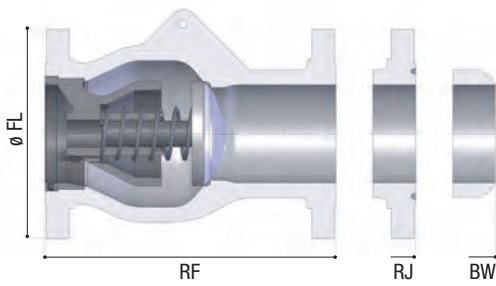
The valve will be closed quickly at fluid stop and reversal, giving its peculiar NON SLAM EFFECT, avoiding any reverse acceleration of fluid and consequent water-hammer. Selection of spring characteristics can be made upon engineering evaluation of specific applications.

5 DIFFUSER

The diffuser supports the disc and spring assembly and lets the fluid exiting from the valve with minor impact on pressure drop.

INSTALLATION REMARKS

As per ORION standard, the spring is sized for horizontal and vertical (downward-upward flow) installation, but it shall be properly sized to match specific installation, especially on larger valves where heavy discs are involved. An arrow is cast embossed on the body of the valve, indicating the fluid direction. Check anyway with ORION if the valve is suitable for the desired installed position.



Class ASME 150 (PN 20)

FIGURE NUMBERS - CLASS ASME 150 - ALL SIZES

RA 150: RF - RAISED FACE • BW - WELDING ENDS

SIZE	1"	2"	2½"	3"	4"	6"	8"	10"	12"
RF-BW	127	203	216	241	292	356	495	622	698
Ø FL	110	150	180	190	230	280	345	405	485
Approximate WEIGHT (Kg)									
FLANGED	3	9	13	18	33	56	122	188	284
BW	/	7	10	14	26	45	98	150	227

SIZE	14"	16"	18"	20"	22"	24"	26"	28"	30"
RF-BW	787	864	978	978	1.067	1.295	1.295	1.448	1.524
Ø FL	535	595	635	700	758	815	873	927	984
Approximate WEIGHT (Kg)									
FLANGED	399	543	510	979	1.270	1.560	1.851	2.141	2.432
BW	319	434	408	783	1.016	1.248	1.481	1.713	1.946

SIZE	34"	36"	42"	48"	50"	54"	60"
RF-BW	1.651	1.956	2.083	1.956	2.360	2.537	2.802
Ø FL	1.111	1.168	1.346	1.511	1.568	1.683	1.854
Approximate WEIGHT (Kg)							
FLANGED	4.050	3.303	4.175	/	/	/	/
BW	/	2.642	3.340	4.037	4.270	4.734	5.431

Class ASME 300 (PN 50)

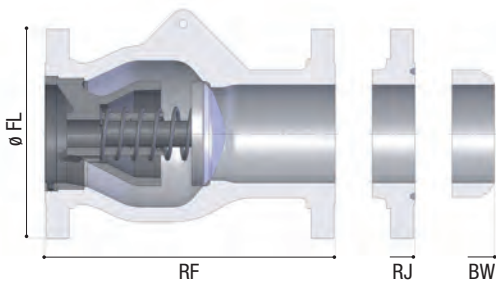
FIGURE NUMBERS - CLASS ASME 300 - ALL SIZES

RA 300: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2"	2½"	3"	4"	6"	8"	10"	12"	14"
RF-BW	267	292	318	356	444	533	622	711	838
RJ	283	308	334	372	460	549	638	727	854
Ø FL	165	190	210	255	320	380	445	520	585
Approximate WEIGHT (Kg)									
FLANGED	12	20	27	41	100	158	258	379	524
BW	10	16	22	33	80	126	206	303	419

SIZE	16"	18"	20"	22"	24"	26"	30"	36"	42"
RF-BW	864	977	1.016	1.118	1.346	1.346	1.594	2.083	2.198
RJ	880	993	1.035	1.140	1.368	/	/	/	/
Ø FL	650	710	775	838	915	972	1.092	1.270	1.289
Approximate WEIGHT (Kg)									
FLANGED	654	853	1.162	1.601	2.039	2.548	3.566	5.093	/
BW	523	682	930	1.281	1.631	2.038	2.853	4.074	5.296

SIZE	48"	50"	54"	60"
RF-BW	2.493	2.591	2.788	3.083
RJ	/	/	/	/
Ø FL	1.467	1.530	1.657	1.810
Approximate WEIGHT (Kg)				
FLANGED	/	/	/	/
BW	6.518	6.925	7.739	8.961



Class ASME 600 (PN 100)

FIGURE NUMBERS - CLASS ASME 600 - ALL SIZES

RA 600: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2"	2½"	3"	4"	5"	6"	8"	10"	12"
RF-BW	292	330	356	432	508	559	660	787	838
RJ	295	333	359	435	511	562	663	790	841
Ø FL	165	190	210	275	330	355	420	510	560
Approximate WEIGHT (Kg)									
FLANGED	14	23	31	59	95	131	237	370	502
BW	11	18	25	47	76	105	190	296	402

SIZE	14"	16"	18"	20"	24"	36"	40"	46"	50"
RF-BW	889	991	1.092	1.194	1.397	2.083	2.286	2.540	2.756
RJ	892	994	1.095	1.200	1.407	2.098	/	/	/
Ø FL	605	685	745	815	940	1.314	1.321	1.511	1.670
Approximate WEIGHT (Kg)									
FLANGED	736	969	1.203	1.607	2.575	8.872	10.971	/	/
BW	589	775	962	1.286	2.060	7.098	8.777	11.295	12.974

SIZE	54"	60"
RF-BW	2.959	3.263
RJ	/	/
Ø FL	1.778	1.994
Approximate WEIGHT (Kg)		
FLANGED	/	/
BW	14.654	17.172

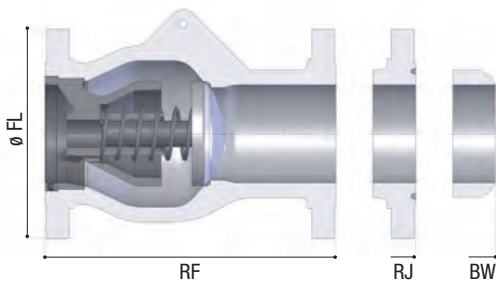
Class ASME 900 (PN 150)

FIGURE NUMBERS - CLASS ASME 600 - ALL SIZES

RA 600: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2"	2½"	3"	4"	5"	6"	8"	10"	12"
RF-BW	368	419	381	457	559	610	737	838	965
RJ	371	422	384	460	562	613	740	841	968
Ø FL	215	245	240	290	350	380	470	545	610
Approximate WEIGHT (Kg)									
FLANGED	18	30	41	68	112	155	286	482	751
BW	14	24	33	54	90	124	229	386	601

SIZE	14"	16"	18"	20"	24"
RF-BW	1.029	1.130	1.537	1.321	1.549
RJ	1.039	1.140	1.550	1.334	1.568
Ø FL	640	705	785	855	1.040
Approximate WEIGHT (Kg)					
FLANGED	1.020	1.289	1.516	2.840	5.488
BW	816	1.031	1.213	2.272	4.390



Class ASME 1500 (PN 250)

FIGURE NUMBERS - CLASS ASME 1500 - ALL SIZES

RA 1500: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2"	2½"	3"	4"	5"	6"	8"	10"	12"
RF-BW	368	419	470	546	673	705	832	991	1.130
RJ	371	422	473	549	676	711	842	1.001	1.146
Ø FL	215	245	265	310	375	395	485	585	675
Approximate WEIGHT (Kg)									
FLANGED	37	51	64	100	167	233	495	777	1.208
BW	30	41	51	80	134	186	396	622	966

SIZE	14"	16"	18"	20"	24"
RF-BW	1.257	1.384	1.537	1.664	1.943
RJ	1.276	1.406	1.559	1.686	1.971
Ø FL	750	825	915	985	1.170
Approximate WEIGHT (Kg)					
FLANGED	1.638	2.069	2.840	3.545	4.955
BW	1.310	1.655	2.272	2.836	3.964

Class ASME 2500 (PN 420)

FIGURE NUMBERS - CLASS ASME 2500 - ALL SIZES

RA 2500: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2"	2½"	3"	4"	6"	8"	10"	12"
RF-BW	451	508	578	673	914	1.022	1.270	1.422
RJ	454	514	584	683	927	1.038	1.292	1.444
Ø FL	235	265	305	355	485	550	675	760
Approximate WEIGHT (Kg)								
FLANGED	60	82	103	162	377	804	1.231	1.658
BW	48	66	82	130	302	643	985	1.326

Flanges on 26" and above are considered B16.47 type A"

For size and pressure classes non mentioned in the above tables please contact ORION.

N.B. All dimension are given in millimeters, weight are expressed in Kg.

Dimensions and weight may change from above values without notice.



ORION CAST STEEL VALVES SPA
AXIAL CHECK VALVES OPERATING CONDITIONS

Please fill in all the below required informations, in order to let ORION to evaluate the best valve design for your application

VALVE / PIPE

Line Size:

Pressure Class:

Item / Tag No :

OPERATING POSITION:

Horizontal pipeline Vertical Pipeline

Upward stream

Downward stream

PLANT LOCATION

Meters of straight pipe before/after the valve: / m Suction High Cycling Yes

Distance of the valve from a bend in Pip: m Pump Discharge No

DESIGN CONDITIONS

Operating Temperature Range (Min / Max): / °C

Pressure: bar g

OPERATING CONDITIONS AT VALVE INLET

Temperature: °C

Pressure: bar g

FLUID DETAILS AT VALVE INLET

Liquid: 2 Phase Liquid & Gas: Gas / Vapour:

Fluid Type: _____

Operating Density: _____ kg/m³

Molecular Wt. (for gas): _____ kg/kmol

Compressibility Factor: _____

ACTUAL FLOW RATES

Liquid:	Gas / Vapour:
Maximum: _____ m ³ /hr	Maximum: _____ kg/hr
Normal: _____ m ³ /hr	Normal: _____ kg/hr
Minimum: _____ m ³ /hr	Minimum: _____ kg/hr

PUMP / COMPRESSOR DETAILS:

Type of Equipment	Flow	
	Non Pulsating	Pulsating*
Pump**	<input type="text"/>	<input type="text"/>
Compressor	<input type="text"/>	<input type="text"/>

*If Pulsating, please indicate

Hz

SYSTEM DECELERATION AT CHECK VALVE

(if known): m/s²