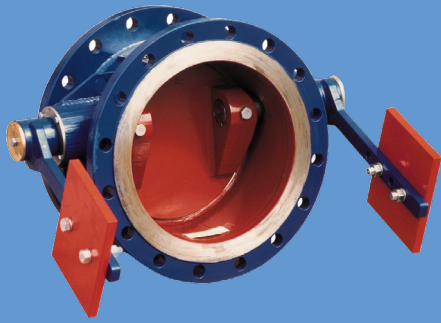


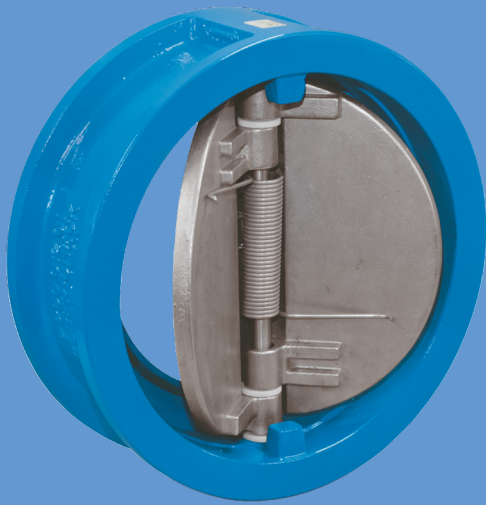
CHECK VALVES

Waterworks Product Catalog

RAPHAEL VALVES INDUSTRIES

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CSW-51 Series

DUAL PLATE CHECK VALVE

Waterworks Product Catalog

RAPHAEL VALVES INDUSTRIES

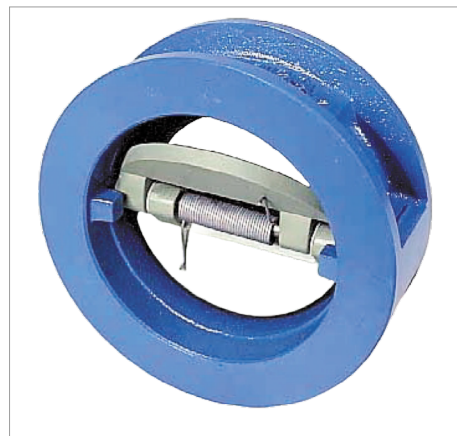
CSW-51 SERIES

CHECK VALVES

A Check Valve is designed to protect your pumps and network against flow inversion.

RAPHAEL provides a wide range of check valves to meet the many factors that determine the choice of a design.

When fluid enters the valve, the pressure causes the doors to open, stretching the spring. When the flow stops, the spring returns to its compressed state, making the plates return to the closed position, ensuring a quick closing.



FEATURES

- Wafer style check valve
- Face to face according DIN 3202, K3
- Spring operated disc action, reducing closing times and pressure surges
- O-ring type seat installed “downstream” of the flow ensuring maintenance free operation
- Internal travel stops prevent the discs from overtravelling
- Easy installation by means of lifting lugs (above DN200)
- Wide range of available seat, spring and disc materials

APPLICATIONS

- Wafer treatment
- Water distribution
- HVAC
- Gas & general industrial systems
- It's spring assisted closing actions allow successful installation where pressure surges can be expected.

PERFORMANCE

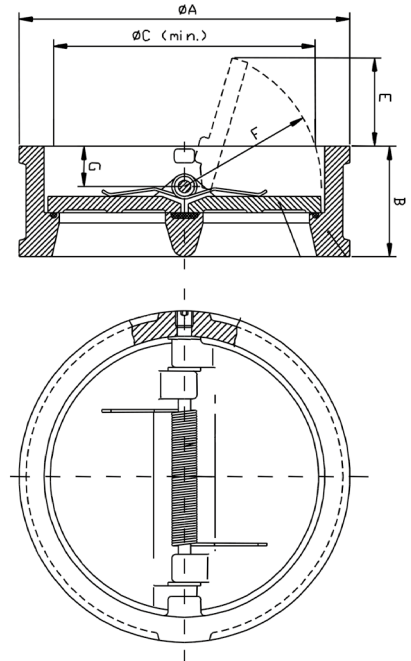


Sizes: 50-600 mm (larger sizes on request)
Face to face distance: DIN-3202 K-3
Flange accommodation: PN10/16/25 and ANSI 150
Maximum pressure : 25 bar in GGG-40 till DN-400
16 bar in GGG-40 from DN-450 till DN-1200
16 bar in GG-25 till DN-400
10 bar in GG-25 from DN-450 till DN-600
Temperature range for seats : NBR = -20°C to +90°C
EPDM = -40°C to +120°C
FPM = -20°C to +232°C
Max. temperature for springs: AISI 302 = 125°C
Other shaft, spring and seat materials are available on request



DIMENSIONS

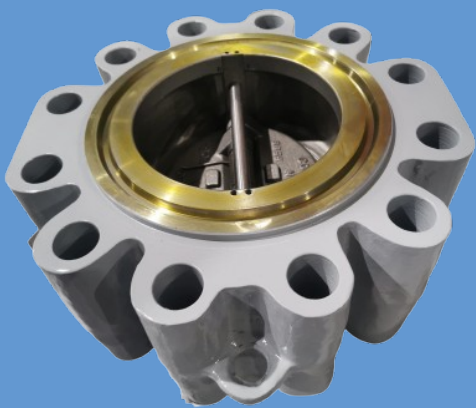
DN		A			B	C	E	F	G	Weight (kg)
mm	inch	PN 10/ PN 16	PN25	ANSI 125						
50	2	108	108	104	43	55	12	33	22	1.3
65	2½	128	128	124	46	58,5	12	33	25	2.4
80	3	143	143	136	64	71	18	41	33	3.2
100	4	163	169	169	64	96	28	52	26	4.2
125	5	194	194	194	70	125	35	70	33	7
150	6	219	224	219	76	128	33	70	35	9
200	8	275	284	275	89	192	60	104	36	15
250	10	329	338	338	114	244	81	126	48	27
300	12	380	402	408	114	295	100	153	49	34
350	14	438	458	450	127	320	108	168	54	55
400	16	490	514	514	140	380	137	195	58	70
450	18	540	556	543	152	420	152	217	65	100
500	20	595	618	605	152	480	175	247	65	120
600	24	696	735	716	178	585	222	299	77	180
700	28	807	807	830	229	690	250	352	103	260
800	32	917	912	937	241	780	290	395	107	350
900	36	1015	1009	1046	241	850	332	445	112	520
1000	40	1124	1124	1216	300	940	332	483	152	760
1200	48	1340	1340	1380	350	1150	442	601	159	1200



MATERIALS OF CONSTRUCTION

Code	Body	Plates	Shaft	TRIM		Notes
				Spring	Seat	
711	Cast Iron	Kematal	Stainless AISI 304	Stainless AISI 302	NBR	Kematal: Copolymer Acetate. Max. Working Temp. 70C
716	Cast Iron	Brass	Stainless AISI 304	Stainless AISI 302	NBR	
100	Cast Iron	Ductile GGG 40	Stainless AISI 304	Stainless AISI 302	NBR	Plates in DN50-DN100 in Brass
105	Cast Iron	Stainless AISI 316	Stainless AISI 304	Stainless AISI 302	NBR	
731	Ductile Iron	Brass	Stainless AISI 304	Stainless AISI 302	NBR	
107	Ductile Iron	Ductile GGG 40	Stainless AISI 304	Stainless AISI 302	NBR	
177	Ductile Iron	Stainless AISI 316	Stainless AISI 304	Stainless AISI 302	NBR	Plates in DN50-DN100 in Brass
133	Ductile Iron	Carbon, 216 WCB	Stainless AISI 304	Stainless AISI 302	NBR	Plates in DN50-DN100 in AISI 316
732	Cast Iron	Kematal	Stainless AISI 304	Stainless AISI 302	FPM	Kematal: Copolymer Acetate. Max. Working Temp. 70C
102	Cast Iron	Brass	Stainless AISI 304	Stainless AISI 302	FPM	
196	Cast Iron	Ductile GGG 40	Stainless AISI 304	Stainless AISI 302	FPM	Plates in DN50-DN100 in Brass
174	Cast Iron	Stainless AISI 316	Stainless AISI 304	Stainless AISI 302	FPM	
734	Ductile Iron	Brass	Stainless AISI 304	Stainless AISI 302	FPM	
721	Ductile Iron	Ductile GGG 40	Stainless AISI 304	Stainless AISI 302	FPM	
720	Ductile Iron	Stainless AISI 316	Stainless AISI 304	Stainless AISI 302	FPM	Plates in DN50-DN100 in Brass
163	Ductile Iron	Carbon, 216 WCB	Stainless AISI 304	Stainless AISI 302	FPM	Plates in DN50-DN100 in AISI 316
733	Cast Iron	Kematal	Stainless AISI 304	Stainless AISI 302	EPDM	Kematal: Copolymer Acetate. Max. Working Temp. 70C
131	Cast Iron	Brass	Stainless AISI 304	Stainless AISI 302	EPDM	
147	Cast Iron	Ductile GGG 40	Stainless AISI 304	Stainless AISI 302	EPDM	Plates in DN50-DN100 in Brass
701	Cast Iron	Stainless AISI 316	Stainless AISI 304	Stainless AISI 302	EPDM	
735	Ductile Iron	Brass	Stainless AISI 304	Stainless AISI 302	EPDM	
707	Ductile Iron	Ductile GGG 40	Stainless AISI 304	Stainless AISI 302	EPDM	
718	Ductile Iron	Stainless AISI 316	Stainless AISI 304	Stainless AISI 302	EPDM	Plates in DN50-DN100 in Brass
164	Ductile Iron	Carbon, 216 WCB	Stainless AISI 304	Stainless AISI 302	EPDM	Plates in DN50-DN100 in AISI 316





CSW-A Series

DUAL PLATE CHECK VALVE

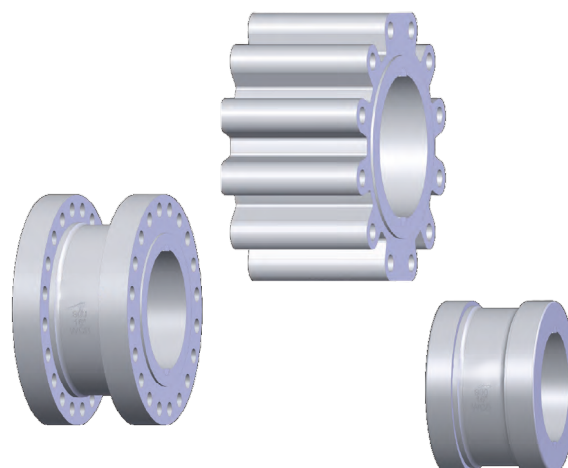
Waterworks Product Catalog

RAPHAEL VALVES INDUSTRIES

CSW-A Series

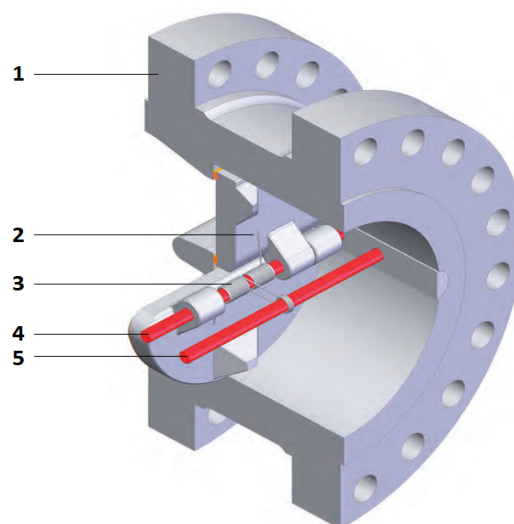
DUAL PLATE CHECK VALVES

Retainerless design according to API 594

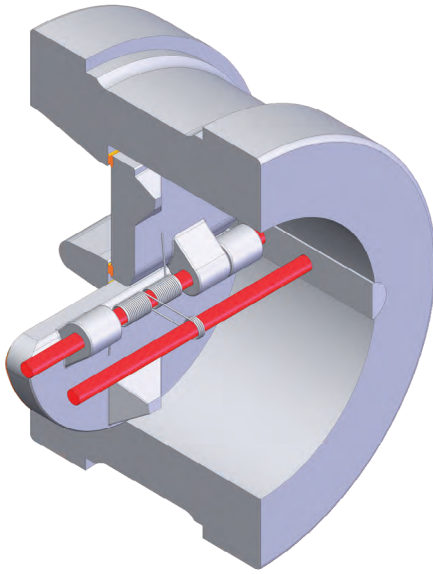


GENERAL DATA

BODY:	The body is realized in cast or forged steel, carefully designed in order to minimize the pressure drop. The basic dimensions, wall thickness, face to face and flanges, comply with the relevant API and ASME standards. Two guides are incorporated to ensure correct alignment of the hinge pin. The integral seat is part of trim. Special attention is given to the seating surface which is ground and lapped, for a perfectly tight seal. The total absence of through-body drills (retainerless design) avoids any possible accidental leakage from the system.
DISC:	The disc is in cast or forged steel. The attachment to the hinge pin allows the rotation and a small translation along the flow. The seating surface is ground and lapped. An integral over-travel stop for the discs is incorporated.
SPRING:	Torsion spring, available in various material, according to the desired service.
HINGE PIN:	The hinge pin is part of the trim, in forged stainless steel and is machined from ground bar. The hinge pin is held in position in the body with two supports. The pin can be easily removed for valve maintenance. For correct valve functioning it shall be always installed in vertical position, when used in horizontal pipeline.
STOP PIN:	The stop pin is part of the trim. It is machined from ground bar in forged stainless steel. It is held in position parallel to the hinge pin on the same support. It has a double function: it stops the disc and retains the spring's trust. The pin can be easily removed for maintenance of the valve.



WAFER TYPE



CLASS ASME 150 (PN 20)

CD_W: 150 RF - RAISED FACE • RJ - RING JOINT

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"
A	101	120	133	171	219	276	336	405	448	511	546	603	714	879	1044	1216	1381
B	60	67	73	73	98	127	146	181	184	191	203	219	222	305	368	432	524
C	60	67	90	110	160	215	270	300	330	380	435	485	575	740	887	1040	1192
Weight (kg)	3	4	5	8	17	30	50	90	110	147	169	221	307	502	817	1282	1887

CLASS ASME 300 (PN 50)

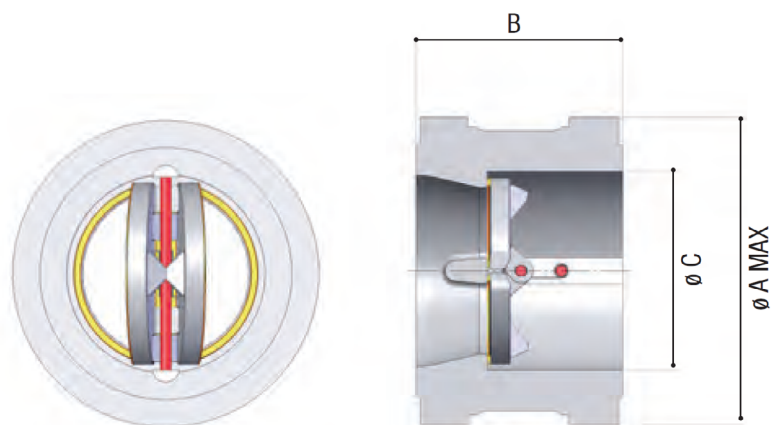
CD_W: 300 RF - RAISED FACE • RJ - RING JOINT

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"	36"	42"	48"
A	108	127	146	178	247	304	358	419	483	537	593	650	771	894	949	1114	1162	1320
B	60	67	73	73	98	127	146	181	222	232	264	292	318	368	368	483	568	629
C	60	67	90	110	160	215	270	300	330	380	435	481	580	656	740	887	1040	1192
Weight (kg)	3	6	6	9	20	39	54	100	166	203	248	324	488	746	850	1247	2268	3867

CLASS ASME 600 (PN 100)

CD_W: 600 RF - RAISED FACE • RJ - RING JOINT

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"
A	108	127	146	191	264	317	397	454	490	562	610	680	787	1096	1127	1216
B	60	67	73	79	136	165	213	227	273	305	362	368	438	505	635	701
C	60	67	90	102	155	202	235	290	315	370	427	480	580	740	887	1040
Weight (kg)	3	5	6	13	38	55	127	172	224	352	471	558	807	1687	2126	2929



CLASS ASME 900 (PN 150)

CD_W: 900 RF - RAISED FACE • RJ - RING JOINT

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
A	139	161	165	203	285	355	431	495	517	571	635	695	835
B	70	83	83	102	159	206	241	292	356	384	451	451	495
C	58	54	78	102	155	202	245	290	330	370	435	481	580
Weight (kg)	6	8	11	19	56	90	189	249	357	455	623	693	1143

CLASS ASME 1500 (PN 250)

CD_W: 1500 RF - RAISED FACE • RJ - RING JOINT

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
A	139	161	171	206	279	349	431	517	575	638	701	752	898
B	70	83	83	102	159	206	248	305	356	384	468	533	559
C	58	54	78	102	150	185	227	286	320	370	435	481	580
Weight (kg)	7	10	12	20	51	121	192	313	469	589	827	1227	2202

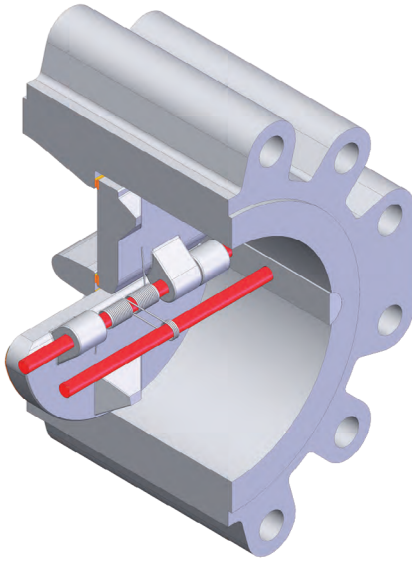
CLASS ASME 2500 (PN 420)

CD_W: 2500 RF - RAISED FACE • RJ - RING JOINT

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"
A	142	165	193	231	314	384	472	546
B	70	83	86	105	159	206	254	305
C	58	54	78	100	153	185	234	280
Weight (kg)	10	13	16	27	67	137	237	395



LUG TYPE



CLASS ASME 150 (PN 20)

CD_W: 150 RF - RAISED FACE • RJ - RING JOINT

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"
A	150	180	181.4	222.3	277	345	405	475	535	587	635	700	815	985	1170	1345	1510
B	60	67	73	73	98	127	146	181	184	191	203	219	222	305	368	432	524
C	60	67	90	110	160	200	245	300	335	380	435	481	580	740	887	1040	1192
Weight (kg)	5	7	7	13	24	32	54	128	154	190	233	301	394	786	1293	2040	3057

CLASS ASME 300 (PN 50)

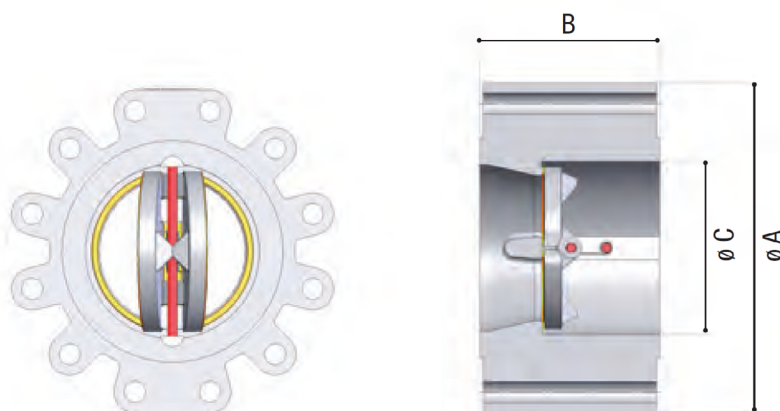
CD_W: 300 RF - RAISED FACE • RJ - RING JOINT

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"
A	156	190	200	235	306	371	433	520	585	630	710	775	915	1090	1270	1290	1465
B	60	67	73	73	98	127	146	181	222	232	264	292	318	368	483	568	629
C	60	67	90	110	160	215	270	301	335	380	435	481	580	740	887	1040	1192
Weight (kg)	5	9	10	14	31	57	82	162	257	293	442	579	856	1294	2125	2828	4631

CLASS ASME 600 (PN 100)

CD_W: 600 RF - RAISED FACE • RJ - RING JOINT

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"
A	156	190	203.3	254	335	396	494	560	587	677	745	797	940	1130	1315	1405
B	60	67	73	79	136	165	213	227	273	305	362	368	438	505	635	701
C	60	67	90	102	155	202	235	290	315	372	435	480	580	740	887	1040
Weight (kg)	5	7	9	17	38	83	185	256	325	494	721	765	1388	1687	3602	4451



CLASS ASME 900 (PN 150)

CD_W: 900 RF - RAISED FACE • RJ - RING JOINT

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
A	215	245	240	290	380	461	545	610	640	705	785	855	1040
B	70	83	83	102	159	206	241	292	356	384	451	451	495
C	58	54	78	102	155	202	245	290	330	370	435	481	580
Weight (kg)	18	22	28	45	120	150	341	394	583	766	1162	1343	2036

CLASS ASME 1500 (PN 250)

CD_W: 1500 RF - RAISED FACE • RJ - RING JOINT

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
A	201	245	247	290	395	485	572	675	750	825	915	985	1170
B	70	83	83	102	159	206	248	305	356	384	468	533	559
C	45	54	78	102	155	185	227	290	330	370	435	481	580
Weight (kg)	10	14	18	28	58	133	294	649	1119	1161	1813	2686	3331

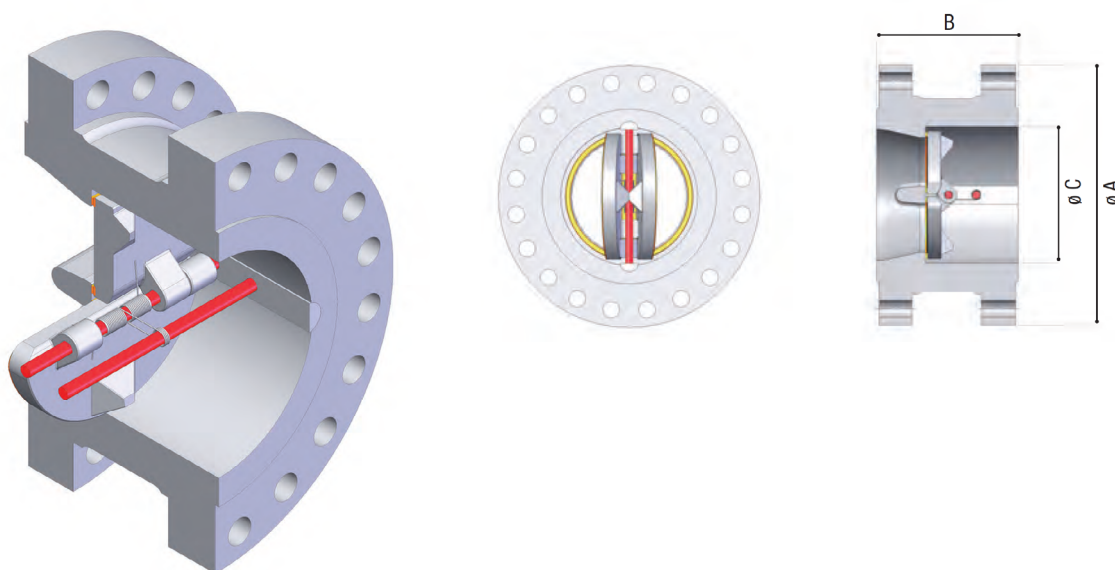
CLASS ASME 2500 (PN 420)

CD_W: 2500 RF - RAISED FACE • RJ - RING JOINT

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"
A	210	265	305	328	485	550	675	760
B	70	83	86	105	159	206	254	305
C	45	54	78	102	155	185	235	290
Weight (kg)	11	17	20	37	53	120	190	305



DOUBLE FLANGED TYPE



CLASS ASME 150 (PN 20)

CD_W: 150 RF - RAISED FACE • RJ - RING JOINT

SIZE	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"	56"	60"
A	405	485	535	595	635	700	815	985	1170	1345	1510	1745	1855
B	146	181	184	191	203	219	222	305	368	432	524	584	660
C	270	301	335	370	435	481	580	740	887	1040	1192	1375	1426
Weight (kg)	59	115	125	204	194	226	373	589	838	1471	2180	3125	3598

CLASS ASME 300 (PN 50)

CD_W: 300 RF - RAISED FACE • RJ - RING JOINT

SIZE	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"	56"	60"
A	520	585	650	710	775	915	1090	1270	1290	1465	1710	1810
B	181	222	232	264	292	318	368	483	568	629	737	826
C	301	330	370	435	481	580	740	887	1040	1192	584	660
Weight (kg)	153	222	366	367	361	468	911	1816	2235	3078	4202	4764

CLASS ASME 600 (PN 100)

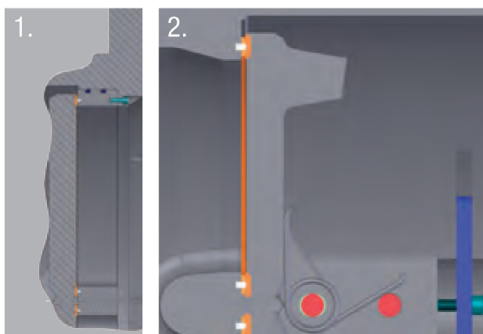
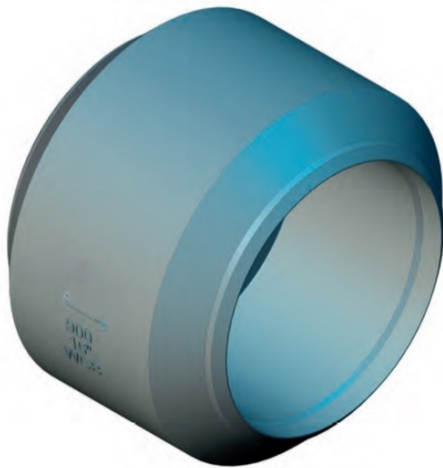
CD_W: 600 RF - RAISED FACE • RJ - RING JOINT

SIZE	12"	14"	16"	18"	20"	24"
A	610	640	705	785	855	1040
B	292	356	384	451	451	495
C	290	330	370	435	481	580
Weight (kg)	454	574	590	656	875	1289

SPECIAL FEATURES

SOFT SEATING

- This feature is applicable on all body material
- Renewable seat is an option on all designs to enhance the material selection on trim components



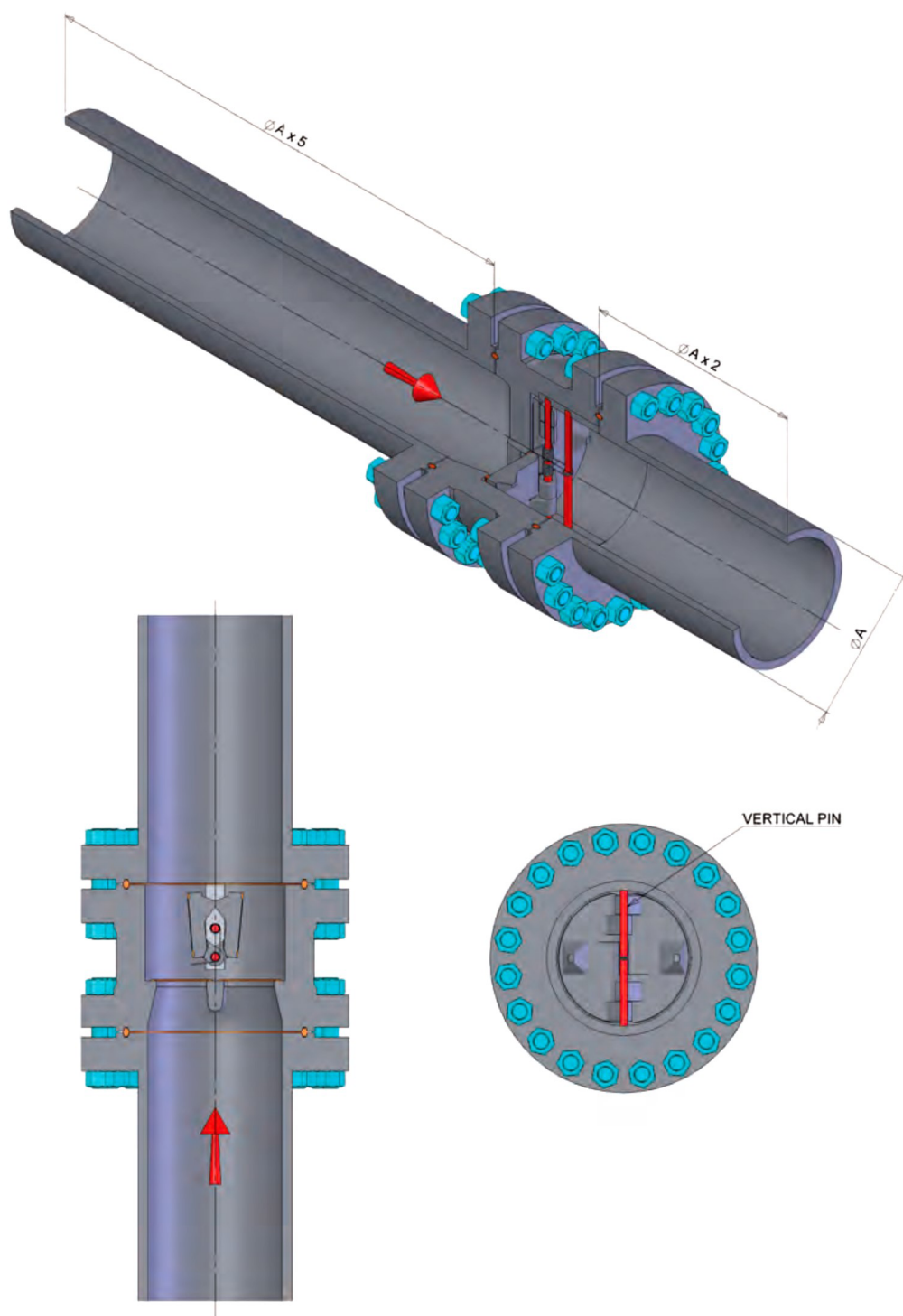
1. Optional renewable seat zero leakage
2. Standard integral seat zero leakage

* Please contact our Sales Department for technical details or other valve preparations as: butt weld ends, hub ends or compact flange connections.

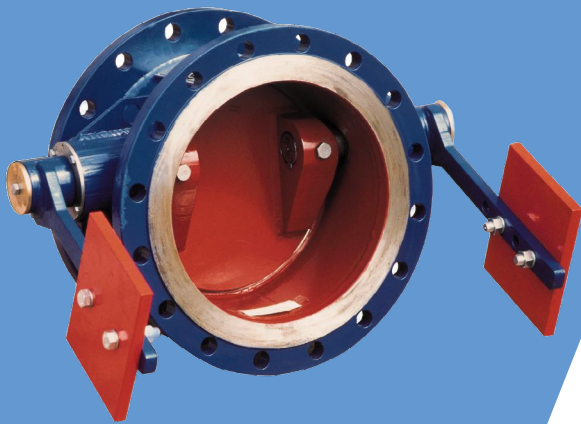
INSTALLATION RECOMMENDATIONS

- The best working position for a dual plate check valve is on horizontal pipeline, with the hinge pin installed vertically.
- The valve can be used on vertical flowlines as well, provided the flow direction is upward.
- For the vertical downward stream installation, please explicitly ask for a special spring to be installed while ordering, in order to compensate the gravity effect on the plates.

EACH RAPHAEL DUAL PLATE CHECK VALVE HAS A FLOW INDICATION ARROW EMBOSSED ON THE BODY. FOR THE CORRECT INSTALLATION OF THIS VALVE, MAKE SURE THAT IT IS MATCHING THE FLOW DIRECTION.







E51 Series

TILTING DISC CHECK VALVE

Waterworks Product Catalog

RAPHAEL VALVES INDUSTRIES

E51-09 Series

TILTING DISC CHECK VALVES

The check valve is designed for use in infrastructure and industrial water supply systems.

The design of the valve disc and its supports create a double-offset free-swinging disc to ensure a low operating torque and a low wear of the disc seal.

Eccentric design with one or two counterweights.



FEATURES

- Metal to metal sealing in bronze or stainless steel
- Double Flanged body to DIN, ANSI, JIS, AWWA
- Self lubricating shaft bearings to allow fast closing
- Robust construction with external and internal epoxy body and anticorrosion coating to high industrial standard.
- Optionally can be equipped with hydraulic dampers
- Construction is in accordance with applicable EN and DIN norms



PERFORMANCE

Sizes (mm) :

DU 200 - DU 1600

Working pressure range:

PN6 – PN40

Working Temperature:

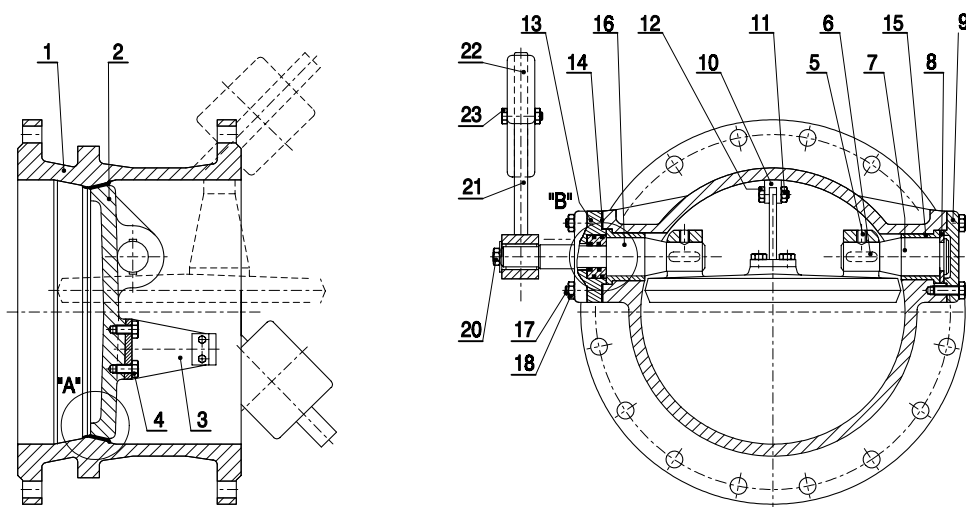
29C – 150C

Flange Drilling:
ANSI/AWWA

DIN/BS/

DESCRIPTION & TECHNICAL DATA

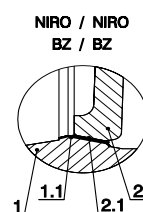
NOMINAL SIZE	PRESSURE RATING	FLANGES EN 1092-2	12266 TEST PRESSURE ACC. TO EN 12266 bar	
DN	PN bar	bar	BODY	CLOSED
200-1600	10	10	15	11
200-1600	16	16	24	17.6
200-800	25	25	37.5	27.5
200-400	40	40	60	44



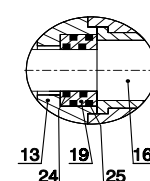
CONSTRUCTION MATERIALS

No.	MATERIAL ACC TO EN	MATERIAL ACC TO DIN	No.	MATERIAL ACC TO EN	MATERIAL ACC TO DIN
1	EN-GJS-500-7	GGG 50	12	A2	A2
1.1	Cr Ni PLASMA	Cr Ni PLASMA	13	EN-GJS-500-7	GGG 50
	–	CuAl 8	14	ARAMID	ARAMID
2	EN-GJS-500-7	GGG 50	15	CC 480 K	CuSn 10
2.1	Cr Ni PLASMA	Cr Ni PLASMA		PTFE - Compound	PTFE - Compound
	–	CuAl 8	16	X20Cr13	X20Cr13
3	S235JR	St 37-2	17	8.8 gal. Zn / A2	8.8 gal. Zn / A2
4	A2	A2	18	8 gal. Zn / A2	8 gal. Zn / A2
5	A2	A2	19	CC 480 K	CuSn 10
6	C 45 / A2	C 45 / A2	20	8.8 gal. Zn / A2	8.8 gal. Zn / A2
7	X20 Cr13	X20 Cr13	21	S235JR	St 37-2
8	CC491K	CuSn 5 ZnPb	22	EN-GJL-250	GG 25
9	EN-GJS-500-7	GGG 50	23	8.8 gal. Zn / A2	8.8 gal. Zn / A2
10	EPDM	EPDM	24	EPDM	EPDM
11	A2	A2	25	EPDM	EPDM

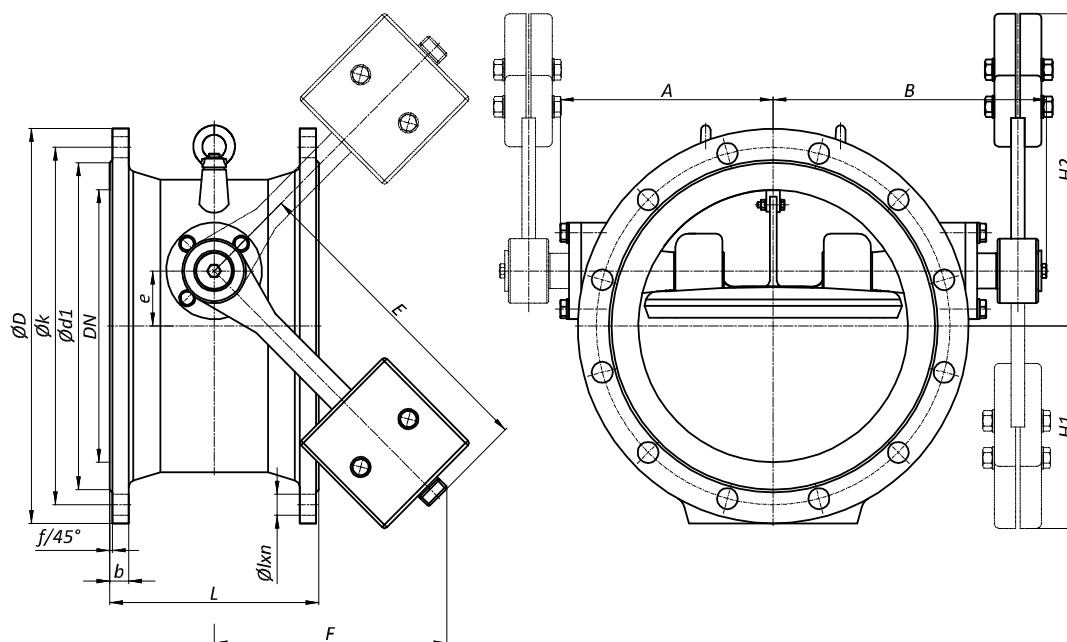
DETAIL A



DETAIL B



DESCRIPTION & TECHNICAL DATA



PN10

DN	L	D	k	d1	n	l	b	f	e	A	B	F	E	H1	H2	m (kg)
200	230	340	295	266	8	23	20	3	40	204.5	254.5	213	300	213	293	54
250	250	395	350	319	12	23	22	3	48	237	306	213	300	205	301	70
300	270	445	400	370	12	23	24.5	4	62	260	400	319	450	305	429	95
350	290	505	460	429	16	23	24.5	4	70	276	359	319	450	298	438	140
400	310	565	515	480	16	28	24.5	4	81	315	446.5	425	600	407	569	190
450	330	615	565	530	20	28	25.5	4	90	360	454.5	425	600	398	578	210
500	350	670	620	582	20	28	26.5	4	100	365	464	425	600	388	588	240
600	390	780	725	682	20	31	30	5	124	500	622	460	650	421	669	360
700	430	895	840	794	24	31	32.5	5	145	480	610	531	750	471	761	520
800	470	1015	950	901	24	34	35	5	165	550	670	601	850	521	851	650
900	510	1115	1050	1001	28	34	37.5	5	160	606	855	691	980	636	956	910
1000	550	1230	1160	1112	28	37	40	5	203	642.5	810	601	850	499	905	1200
1200	630	1455	1380	1218	32	41	45	5	300	800	940	750	1100	609	1209	2000

* other nominal sizes on request

DESCRIPTION & TECHNICAL DATA

PN16

DN	L	D	k	d1	n	l	b	f	e	A	B	F	E	H1	H2	m (kg)
200	230	340	295	266	12	23	20	3	40	204.5	254.5	213	300	213	293	54
250	250	405	355	319	12	28	22	3	48	237	306	213	300	205	301	70
300	270	460	410	370	12	28	24.5	4	62	26	0400	319	45	305	429	95
350	290	520	470	429	16	28	26.5	4	70	276	359	319	450	298	438	140
400	310	580	525	480	16	31	28	4	81	315	446.5	425	600	407	569	190
450	330	640	585	548	20	31	30	4	90	360	454.5	425	600	398	578	210
500	350	715	650	609	20	34	31.5	4	100	365	464	425	600	388	588	240
600	390	840	770	720	20	37	36	5	124	500	622	460	650	421	669	360
700	430	910	840	794	24	37	39.5	5	145	480	610	531	750	471	761	520
800	470	1025	950	901	24	41	43	5	165	550	670	601	850	521	851	650
900	510	1125	1050	1001	28	41	46.5	5	160	606	855	691	980	636	956	910
1000	550	1255	1170	1112	28	44	50	5	203	642.5	810	601	850	499	905	1200
1200	630	1485	1390	1218	32	50	57	5	300	800	940	750	1100	609	1209	2000

* other nominal sizes on request

PN25

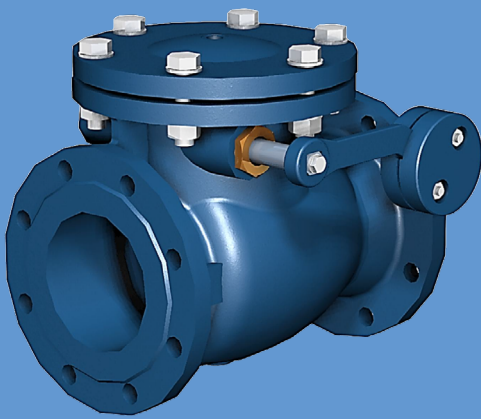
DN	L	D	k	d1	n	l	b	f	e	A	B	F	E	H1	H2	m (kg)
200	230	360	310	274	12	28	22	3	40	204.5	254.5	213	300	213	293	60
250	250	425	370	330	12	31	24.5	3	48	237	306	213	300	205	301	77
300	270	485	430	389	16	31	27.5	4	62	26	0400	319	45	305	429	105
350	290	555	490	448	16	34	30	4	70	276	359	319	450	298	438	153
400	310	620	550	503	16	38	32	4	81	315	446.5	425	600	407	569	200
500	350	730	660	609	20	38	36.5	4	100	365	464	425	600	388	588	264
600	390	845	770	720	20	41	42	5	124	500	622	460	650	421	669	396
700	430	960	875	820	24	44	46.5	5	145	480	610	531	750	471	761	572
800	470	1085	990	928	24	50	51	5	165	550	670	601	850	521	851	715

* other nominal sizes on request

PN40

DN	L	D	k	d1	n	l	b	f	e	A	B	F	E	H1	H2	m (kg)
200	230	375	320	284	12	31	30	3	40	204.5	254.5	213	300	213	293	64
250	250	450	385	345	12	34	34.5	3	48	237	306	213	300	205	301	85
300	270	515	450	409	16	34	39.5	4	62	260	400	319	450	305	429	110
350	290	580	510	465	16	38	44	4	70	276	359	319	450	298	438	158
400	310	660	585	535	16	41	48	4	81	315	446.5	425	600	407	569	210

* other nominal sizes on request



ES-51 Series

SWING CHECK VALVE

Waterworks Product Catalog

RAPHAEL VALVES INDUSTRIES

ES-51 Series

SWING CHECK VALVES

- High quality robust design with full bore and minimum pressure drops.
- Top cover design allows easy maintenance and cleaning without dismantling from the pipe line.
- Optional sealing materials include soft, bronze and stainless steel sealing alternatives
- High Quality anticorrosion coating.
- Optional counterweight for fast closing with possibility for limit switch installation.
- Installation in either horizontal or vertical position.
- Optional hydraulic damper for soft and silent closing.

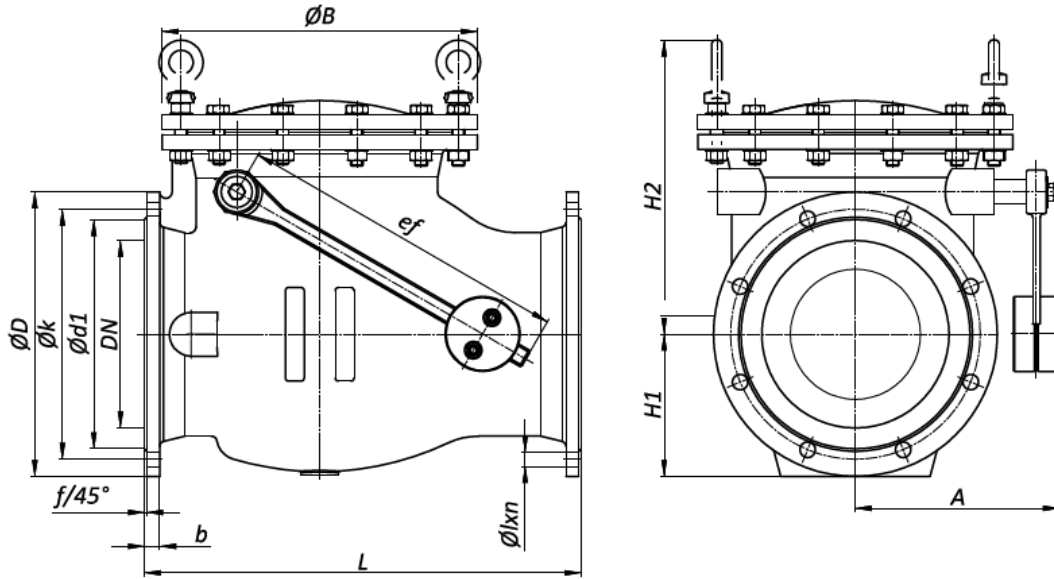


CHARACTERISTICS

Nominal Diameter:	DN50 - 1000 mm
Nominal Pressure:	PN10/16/25/40
Working Temperature:	-10°C - 120°C
Seat Test:	1.1×PN (Nominal Pressure)
Shell Test:	1.5×PN (Nominal Pressure)



DIMENSIONS

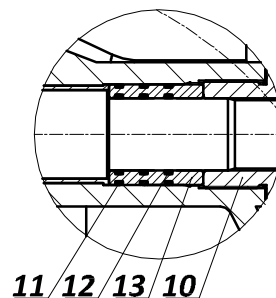
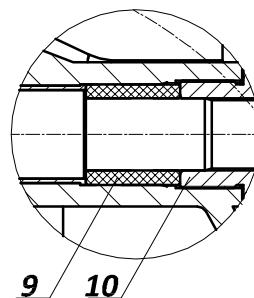
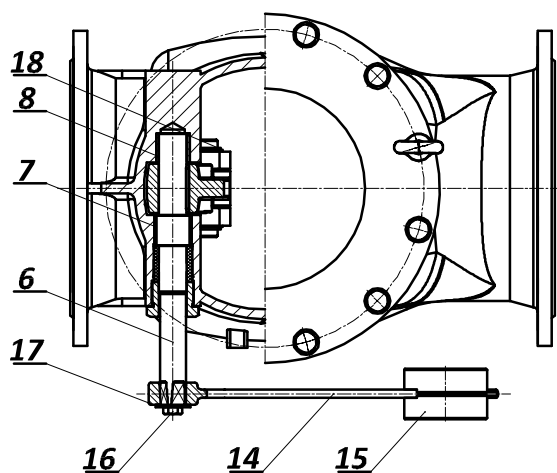
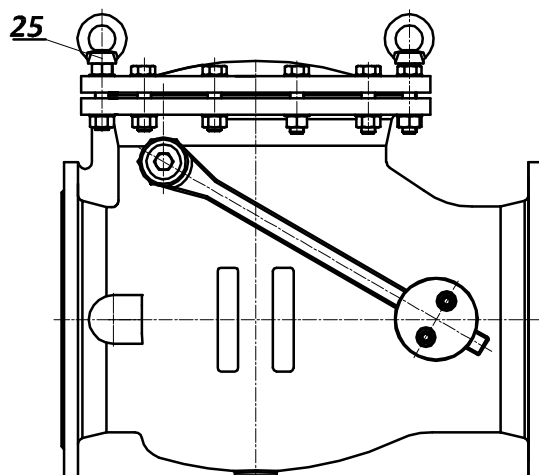
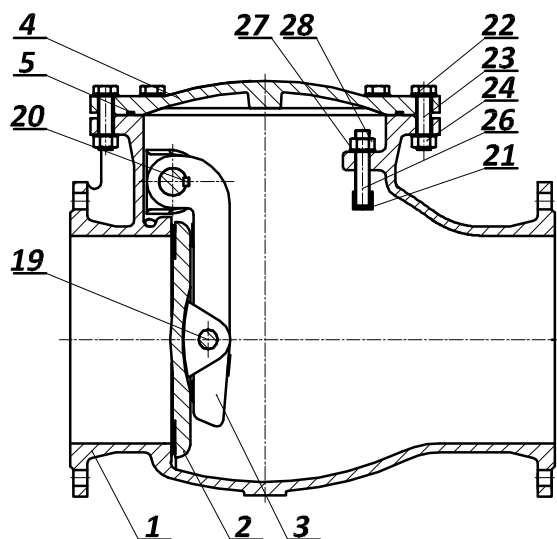


DN	L	H1		H2	ef	A	B	PN10						PN16						f	m
		PN10	PN16					D	k	d1	l	n	b	D	k	d1	l	n	b	f	kg
50	200	87.5	87.5	172	116	132	158	165	125	99	19	4	19	165	125	99	19	4	19	3	17
65	240	97.5	97.5	203	145	150	193	185	145	118	19	4/8	19	185	145	118	19	4/8	19	3	28
80	260	105	105	216	160	152	212	200	160	132	19	8	19	200	160	132	19	8	19	3	30
100	300	115	115	242	190	157	235	220	180	156	19	8	19	220	180	156	19	8	19	3	38
125	350	130	130	260	226	185	265	250	210	184	19	8	19	250	210	184	19	8	19	3	54
150	400	147.5	147.5	279	266	216	302	285	240	211	23	8	19	285	240	211	23	8	19	3	71
200	500	180	180	367	343	265	395	340	295	266	23	8	20	340	295	266	23	12	20	3	125
250	600	207.5	212.5	400	440	272	421	395	350	319	23	12	22	405	355	319	28	12	22	3	160
300	700	232	240	441	535	334	505	445	400	370	23	12	24.5	460	410	370	28	12	24.5	4	210
350	800	262.5	270	514	585	412	560	505	460	429	23	16	24.5	520	470	429	28	16	26.5	4	355
400	900	292.5	300	560	660	465	622	565	515	480	28	16	24.5	580	525	480	31	16	28	4	470
500	1100	345	367.5	675	800	485	730	670	620	582	28	20	26.5	715	650	609	34	20	31.5	4	720
600	1300	400	430	781	900	585	910	780	725	682	31	20	30	840	770	720	37	20	36	5	1000
700	1500	457.5	465	928	1000	610	1025	895	840	794	31	24	32.5	910	840	794	37	24	39.5	5	1720
800	1700	517.5	522.5	1005	1000	742	1115	1015	950	901	34	24	35	1025	950	901	41	24	43	5	2230
900	1900	567.5	572.5	1149	1000	850	1255	1115	1050	1001	34	28	37.5	1125	1050	1001	41	28	46.5	5	3130
1000	2100	625	637.5	1276	1500	869	1355	1230	1160	1112	37	28	40	1255	1170	1112	44	28	50	5	4150

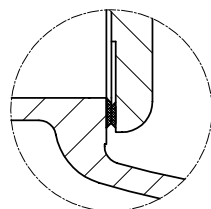
DN	L	H1		H2	ef	A	B	PN25						PN40						f	m
		PN10	PN16					D	k	d1	l	n	b	D	k	d1	l	n	b	f	kg
50	200	87.5	87.5	172	116	132	158	165	125	99	19	4	19	165	125	99	19	4	19	3	19
65	240	97.5	97.5	203	145	150	193	185	145	118	19	8	19	185	145	118	19	8	19	3	30
80	260	105	105	216	160	152	212	200	160	132	19	8	19	200	160	132	19	8	19	3	33
100	300	122.5	122.5	242	190	157	235	235	190	156	23	8	19	235	190	156	23	8	19	3	41
125	350	140	140	260	226	185	265	270	220	184	28	8	19	270	220	184	28	8	23.5	3	59
150	400	155	155	279	266	216	302	300	250	211	28	8	20	300	250	211	28	8	26	3	78
200	500	190	197.5	367	343	265	395	360	310	274	28	12	22	375	320	284	31	12	30	3	137

* other nominal sizes on request

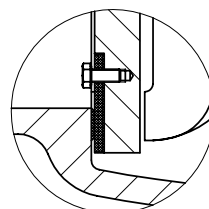
PARTS & CONSTRUCTION



SEALING



X15CrNiMn 18-8 / X15CrNiMn 18-8
CC480K / CC480K

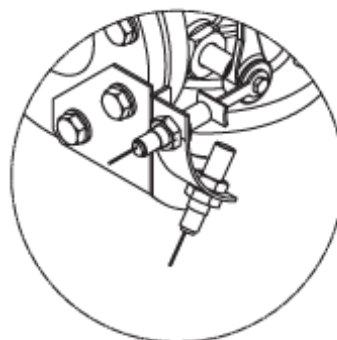


X15CrNiMn 18-8 / EPDM
X15CrNiMn 18-8 / NBR
X15CrNiMn 18-8 / VITON
CC480K / EPDM
CC480K / NBR
CC480K / VITON

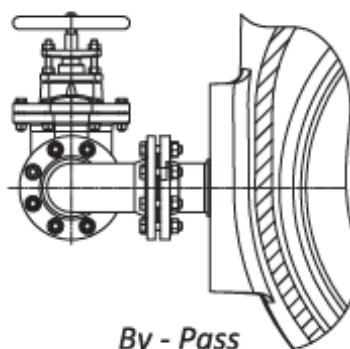


OPTIONAL FEATURES

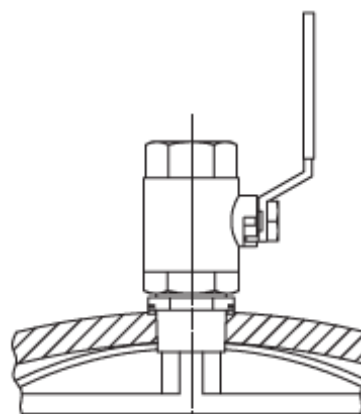
POSITION	PART	MATERIAL
1	Body	EN-GJS-400-15
2	flap	EN-GJS-400-15
3	Flap lever	EN-GJS-400-15
4	Cover	EN-GJS-400-15
5	O-ring	EPDM
6	Shaft	X20Cr13
7	Bearing Bush I	CC493K
8	Bearing Bush II	CC493K
9	Packing	PTFE
10	Cover	Ms
11	O-Ring	EPDM
12	O-Ring	EPDM
13	Sealing Bush	CC493K
14	Lever	EN-GJS-400-15
15	Weight	EN-GJS-400-15
16	Screw	8.8 galv.
17	Washer	galv.
18	Circlip	A4
19	Pin	X20Cr13
20	Parallel Key	X20Cr13
21	Rubber Bumper	EPDM
22	Washer	galv.
23	Screw	8.8 galv.
24	Nut	8 galv.
25	Lifting Eye Nut	C15
26	Threaded rod	A4
27	Washer	A4
28	Nut	A4



Limit Switches

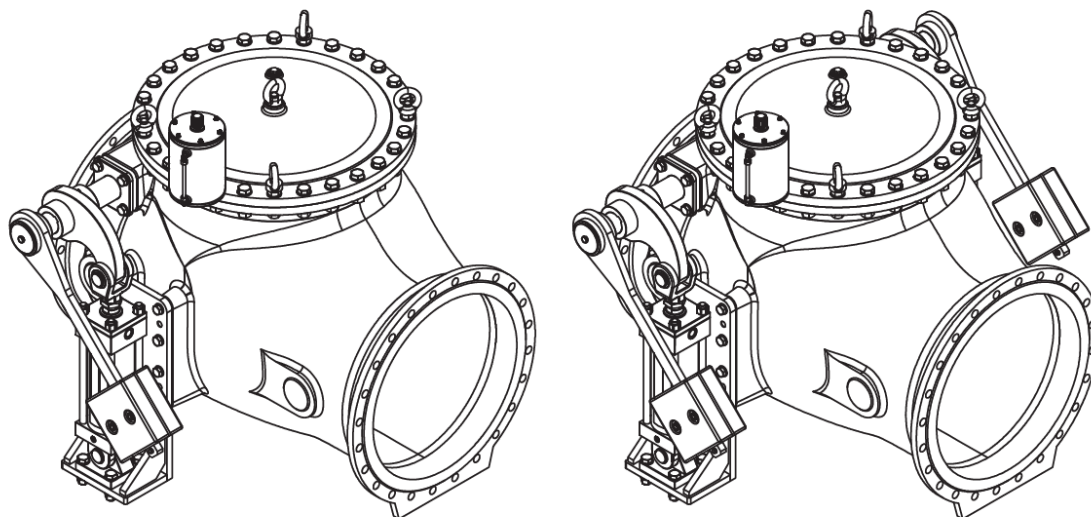


By - Pass



Ball Valve

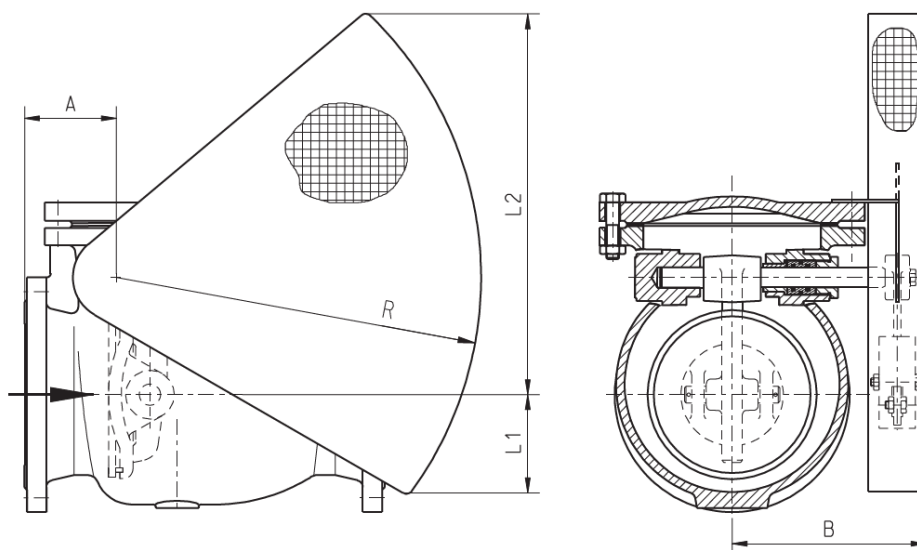
HYDRAULIC DAMPER



DN	Δ PN	DASHPOT ACTUATOR		Δ PN	A DASHPOT ACTUATOR	
		HIDA	Pieces		HIDA	Pieces
100	5.00	50	1			
125	4.50	50	1			
150	4.50	50	1			
200	4.50	50	1	8.00	50	2
250	4.00	50	1	7.50	50	2
300	3.80	50	1	7.00	50	2
350	3.00	50	1	5.50	50	2
400	3.00	80	1	5.00	80	2
500	3.00	80	1	5.00	80	2
600	2.90	80	1	5.00	80	2
700	1.30	125	1	1.5	125	2
900	1.20	125	1	1.5	125	2



HYDRAULIC DAMPER



DN	R	L1	L2	A	B
50	125	20	170	75	150
65	155	15	220	85	185
80	175	20	240	90	195
100	205	0	280	95	220
125	240	0	330	110	235
150	280	0	400	115	270
200	365	0	500	130	295
250	455	0	585	145	330
300	545	0	750	145	375
350	600	0	830	190	405
400	680	0	955	210	495
400	680	0	955	210	495
600	950	357	1231	260	620
700	1260	465	1330	365	675





S-51 Series

SWING RUBBER CHECK VALVE

Waterworks Product Catalog

RAPHAEL VALVES INDUSTRIES

S-51 Series

SWING RUBBER CHECK VALVES

The valve is designed for water and sewage applications.



FEATURES

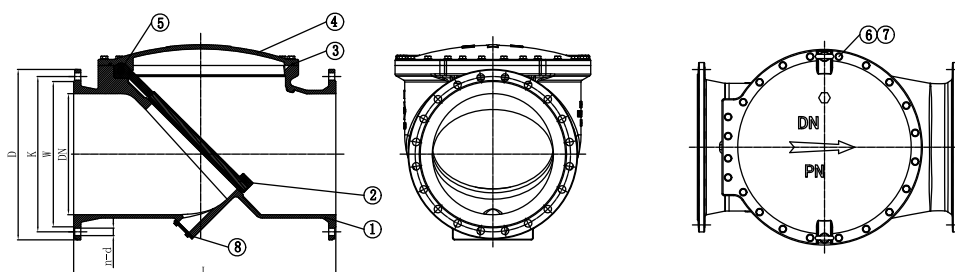
- No leakage with rubber to metal sealing.
- Full flow area design, the advantages of small friction loss, debris accumulation prevention and easy maintenance .
- It can be used for water supply and wastewater treatment system, normally assembled at output of water pump, preventing water from reverse flow and preventing water hammer from damaging the pump.
- It can also be installed at the bypass of the reservoir to assist water in reservoir to flow back to water supply system.

CHARACTERISTICS

Nominal Diameter:	DN 50 (900 mm)
Nominal Pressure:	1.0MPa and 1.6Mpa
Working Temperature:	-20oC - 100oC
Seat Test:	1.1×PN (Nominal Pressure)
Shell Test:	1.5×PN (Nominal Pressure)
Face to Face:	EN558-1 Ser 48

CONSTRUCTION OF MATERIALS

No.	PART NAME	MATERIAL	MATERIAL
1	Body	Ductile Iron	DIN1693
2	Flapper	Q235B+EPDM	ASTM A216/ISO 4633
3	Bonnet Gasket	EPDM	ISO 4633
4	Bonnet	Ductile Iron	DIN1693
5	Pin	20Cr13/420	ASTMA959
6	Bolt	304	ASTMA959
7	Washer	304	ASTMA959
8	Plug	Ductile Iron	DIN1693



OVERALL DIMENSIONS

DN		L	D	D1	n-ød
inch	mm	mm	mm	mm	Kg
2	50	200	165	125	4-19
2.5	65	240	185	145	4-19
3	80	260	200	160	8-19
4	100	300	220	180	8-19
6	150	400	285	240	8-23
8	200	500	340	295	8-23
10	250	600	395	350	12-23
12	300	700	445	400	12-23
14	350	800	505	460	16-23
16	400	900	565	515	16-28
18	450	1000	615	565	20-28
20	500	1100	670	620	20-28
24	600	1300	780	725	20-36
28	700	1500	910	840	24-36
32	800	1700	1025	950	24-39

RAPHAEL, founded in 1949, is the first Israeli manufacturer of water control valves. RAPHAEL's research department constantly strives to introduce new and innovative products and solutions for water control systems including water works, fire-protection and irrigation systems.



Waterworks



Fire Protection



Irrigation



Smart Solutions



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