SWING CHECK VALVES

Rev.1

TYPE C09 4

Range NPS: ¼“ ~ 40“

Range Class: 150 ~ 2500

PED 97/23/EC
PED 2014/68/EU

TR TS 10/11, 12/11, 32/11

CERTIFICATE EN 12 569

Operating temperature: **-196 °C ~ 550 °C**

Connection into piping: **Flanged, welded ends, threaded ends, combined execution**

DESCRIPTION

C09 4 swing check valves are automatic check valves. They automatically prevent the reverse flow of the medium. The medium can flow in one direction only. These swing check valves are designed and manufactured to ensure maximum service life and reliability.

MATERIAL SPECIFICATION

C09 4 steel swing check valves are made from carbon, alloyed and stainless steels. The material type can be adjusted according to the customer´s request to optimally suit the operating conditions.

APPLICATION

C09 4 steel swing check valves are mainly suitable for various chemicals and petrochemicals, liquids, gases and steam.

BASIC STANDARDS FOR DESIGN

Basic design
API 602, API 6D

Face-to-face dimensions
ANSI B16.10

Flange dimensions
ANSI B 16.5

Pressure-temperature rating
ASME B16.34

Dimensions of the welded ends
ANSI B16.25

Special
NACE MR-0175

Testing
API 598, EN 12 266 - 1, 2

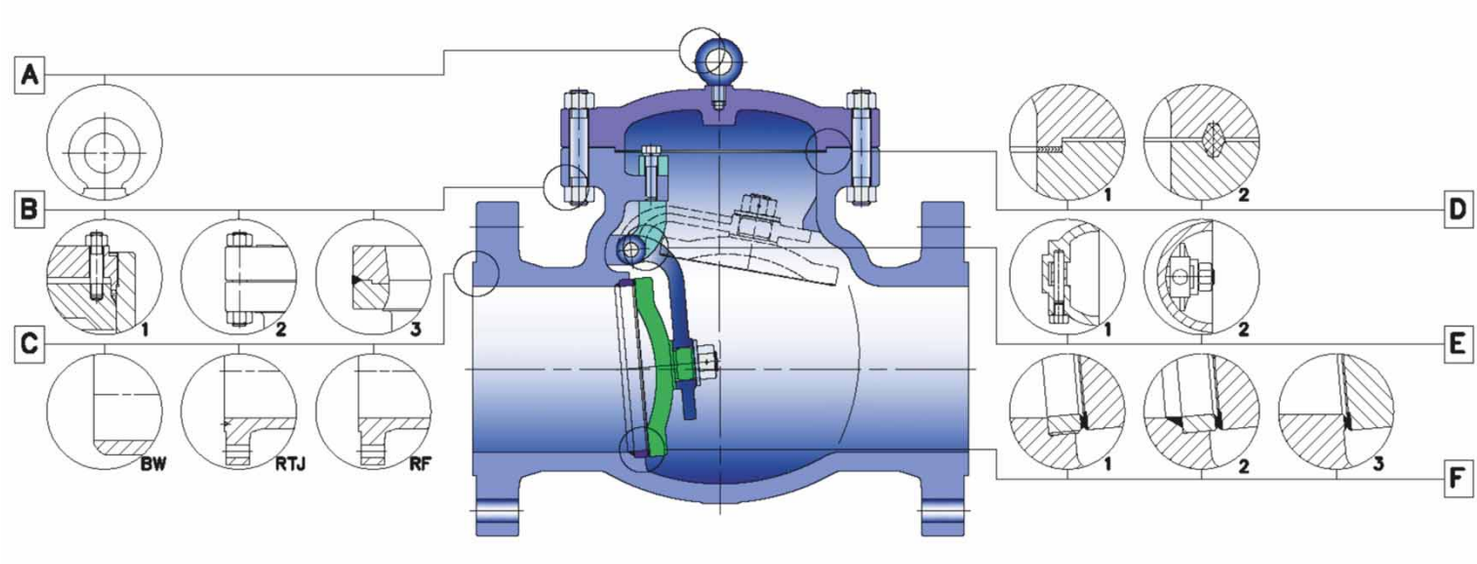
Top Flange dimensions
None

I.B.C. Praha spol. s r.o., Karlštejnská 9, 252 25 Jinočany, Czech Republic
Tel.: +420 251 006 112 | FAX: +420 251 006 222 | ibcpraha@ibcpraha.cz | www.ibcpraha.cz

SWING CHECK VALVES

TYPE C09 4

STRUCTURAL DESIGN



A - The handling eye bolt

- Class150 and 300 from NPS 8”
- Class600 from NPS 6”
- Class900 from NPS 4”
- Class1500,2500 by pressure seal bonnet

B – Bonnet execution

- the bonnet bolted to the body
- the bonnet welded to the body
- pressure seal bonnet is used for high pressures, temperatures and operation with cyclic changes of pressure

C – Connection to piping

- flanged
- welded
- threaded
- socket welding
- welded ends according to customer’s requirements

D - Bonnet sealing

- Class150,300 - by gasket for male / female
- Class600,900 -by RTJ ring
- Class1500,2500 - by pressure seal bonnet

E – Pin placing

- the pin can be embedded in the special yoke, which is inserted into the body and fixed by bolt
- the pin can be inserted directly into the body. This option allows for lever connection with counter weight or damper

F- Seat execution

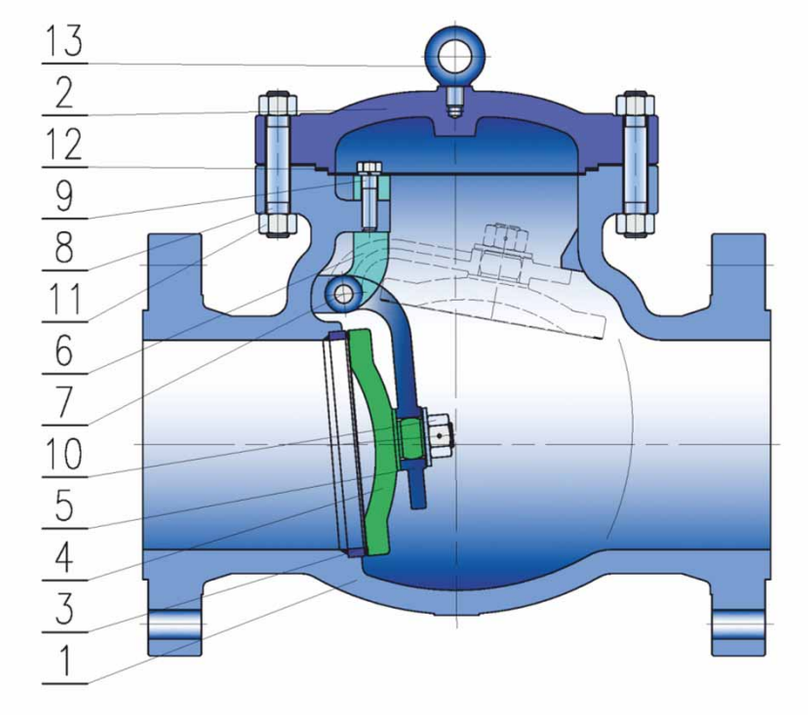
- the seat is screwed in the body
- the seat is inserted into the body and welded on
- the seat consists of a weld deposit on the body

I.B.C. Praha spol. s r.o., Karlštejnská 9, 252 25 Jinočany, Czech Republic
Tel.: +420 251 006 112 | FAX: +420 251 006 222 | ibcpraha@ibcpraha.cz | www.ibcpraha.cz

SWING CHECK VALVES

TYPE C09 4

MATERIAL SPECIFICATION - CAST



Pos.	Designation	WCB	LCC	LCB	WC6	WC9	C5	C12	CF8	CF8M
1	Body	A216 WCB	A352 LCC	A352 LCB	A217 WC6	A217 WC9	A217 C5	A217 C12	A351 CF8	A351 CF8M
2	Bonnet	A216 WCB	A352 LCC	A352 LCB	A217 WC6	A217 WC9	A217 C5	A217 C12	A351 CF8	A351 CF8M
3	Seat	A105 + overlay	A350 LF2 + overlay	A350 LF2 + overlay	A182 F5 + overlay	A182 F5 + overlay	A182 F5 + overlay	A182 F5 + overlay	A182 F304 + overlay	A182 F316 + overlay
4	Disc	A216 WCB + overlay	A352 LCC + overlay	A352 LCB + overlay	A217 WC6 + overlay	A217 WC9 + overlay	A217 C5 + overlay	A217 C12 + overlay	A351 CF8 + overlay	A351 CF8M + overlay
5	Hinge	A216 WCB	A352 LCC	A352 LCB	A217 WC6	A217 WC9	A217 C5	A217 C12	A351 CF8	A351 CF8M
6	Yoke	A216 WCB	A352 LCC	A352 LCB	A217 WC6	A217 WC9	A217 C5	A217 C12	A351 CF8	A351 CF8M
7	Pin	A182 F6a	A182 F6a	A182 F6a	A182 F6a	A182 F6a	A182 F6a	A182 F6a	A182 F304	A182 F316
8	Bolt	A193 B7	A320 L7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M
9	Bolt	A193 B7	A320 L7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M
10	Nut	A194 2H	A194 4	A194 4	A194 B8M	A194 B8M	A194 B8M	A194 B8M	A194 8	A194 8M
11	Nut	A194 2H	A194 4	A194 4	A194 B8M	A194 B8M	A194 B8M	A194 B8M	A194 8	A194 8M
12	Gasket	304 + graphite	304 + graphite	304 + graphite	304 + graphite	304 + graphite	304 + graphite	304 + graphite	304 + graphite	316 + graphite
13	Eye Bolt	A181	A181	A181	A181	A181	A181	A181	A181	A181

I.B.C. Praha spol. s r.o., Karlštejnská 9, 252 25 Jinočany, Czech Republic
Tel.: +420 251 006 112 | FAX: +420 251 006 222 | ibcpraha@ibcpraha.cz | www.ibcpraha.cz

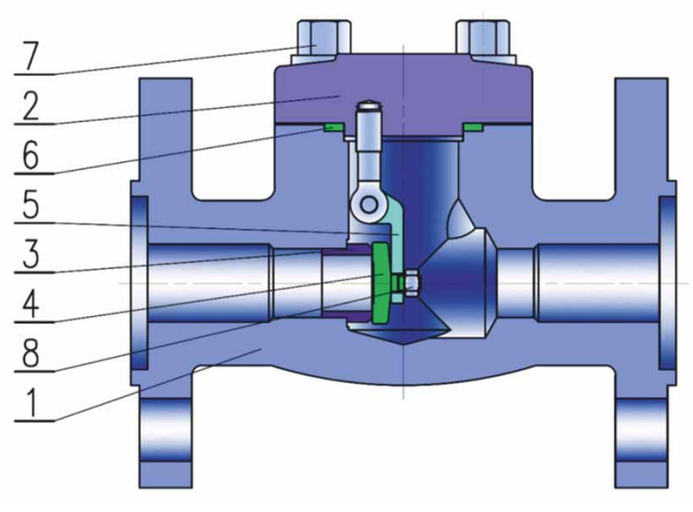
SWING CHECK VALVES

TYPE C09 4

TRIM SPECIFICATION

TRIM No.	Disc material	Seat material	Pin material
1	overlay 13Cr	overlay 13Cr	A 182 F6a
5	overlay Stellit 6	overlay Stellit	A 182 F6a
8	overlay 13Cr	overlay Stellit	A 182 F6a
9	overlay Monel	overlay Stellit	Monel
10	overlay 316	overlay 316	A 182 F316

MATERIAL SPECIFICATION - FORGED



Pos.	Designation	A350 LF2	A105	A182 F5	A182 F9	A182 F304	A182 F316
1	Body	A350 LF2	A105	A182 F5	A182 F9	A182 F304	A182 F316
2	Bonnet	A350 LF2	A105	A182 F5	A182 F9	A182 F304	A182 F316
3	Seat	A350 LF2 + overlay	A105 + overlay	A182 F5 + overlay	A182 F9 + overlay	A182 F304 + overlay	A182 F316 + overlay
4	Disc	A350 LF2 + overlay	A105 + overlay	A182 F5 + overlay	A182 F9 + overlay	A182 F304 + overlay	A182 F316 + overlay
5	Yoke	A350 LF2	A105	A182 F5	A182 F9	A182 F304	A182 F316
6	Gasket	graphite, 304 + graphite, 316 + graphite					
7	Bolt	A320 L7	A193 B7	A193 B16	A193 B16	A193 B8	A193 B8M
8	Nut	A194 4	A194 2H	A194 2H	A194 2H	A194 8	A194 8M

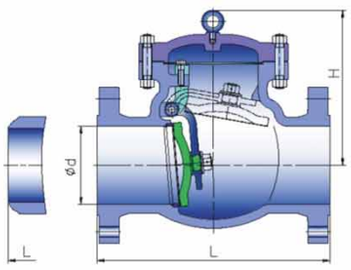
I.B.C. Praha spol. s r.o., Karlštejnská 9, 252 25 Jinočany, Czech Republic
Tel.: +420 251 006 112 | FAX: +420 251 006 222 | ibcpraha@ibcpraha.cz | www.ibcpraha.cz

SWING CHECK VALVES

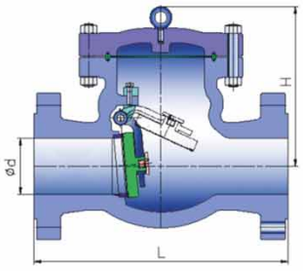
TYPE C09 4

DIMENSIONS - CAST

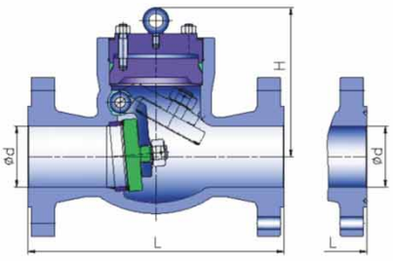
CLASS 150 - 300



CLASS 600 - 900



CLASS 1500 - 2500



Diameter		CLASS 150						CLASS 300						CLASS 600						CLASS 900					
		Dimension (MM)						Dimension (MM)						Dimension (MM)						Dimension (MM)					
NPS	DN	L			d	H	(KG)	L			d	H	(KG)	L			h	H	(KG)	L			h	H	(KG)
		1/RF	1/RTJ	2				1/RF	1/RTJ	2				1/RF	1/RTJ	2				1/RF	1/RTJ	2			
2	50	203	216	203	51	132	16	267	283	267	51	144	21	292	295	292	51	170	28	368	371	368	51	200	48
2 1/2	65	216	229	216	64	147	21	292	308	292	64	169	36	330	333	330	64	178	40	381	384	381	64	220	75
3	80	241	254	241	76	176	28	318	334	318	76	210	41	356	359	356	76	246	68	419	422	419	76	280	95
4	100	292	305	292	102	198	46	356	372	356	102	260	62	432	435	432	102	290	117	457	460	457	102	320	135
5	125	330	343	330	127	255	59	400	416	400	127	295	81	508	511	508	127	320	155	559	562	559	127	360	200
6	150	356	368	356	152	320	69	445	461	445	152	326	131	559	562	559	152	360	192	610	613	610	152	400	264
8	200	495	508	495	203	380	132	533	549	533	203	380	191	660	663	660	203	430	340	737	740	737	203	480	424
10	250	622	635	622	254	440	219	622	638	622	254	440	298	787	790	787	254	502	515	838	841	838	254	560	730
12	300	698	711	698	305	480	323	711	727	711	305	520	452	838	841	838	305	554	750	965	968	965	305	632	1070
14	350	787	800	787	337	530	382	838	854	838	337	540	642	889	892	889	337	595	890	1029	1039	1029	322	680	1180
16	400	864	876	864	387	580	562	864	880	864	387	588	852	991	994	991	387	680	1303	1130	1140	1130	373	780	1790
18	450	978	991	978	438	618	632	978	994	978	438	670	1032	1092	1095	1092	438	778	1800	1219	1232	1219	423	880	2500
20	500	978	991	978	489	657	772	1016	1032	1016	489	720	1332	1194	1200	1194	489	970	2150	1321	1334	1321	471	1050	3080
24	600	1295	1308	1295	591	760	962	1346	1358	1346	591	850	1952	1397	1407	1397	591	1100	3200	1549	1568	1549	522	1200	4600
26	650	1295	-	1295	633	840	1252	1356	1381	1356	633	920	2302	-	-	-	-	-	-	-	-	-	-	-	-
28	700	1448	-	1448	684	920	1580	1499	1524	1499	684	1150	2600	1600	1613	1600	684	982	3100	-	-	-	-	-	-
30	750	1524	-	1524	735	980	1952	1594	1619	1594	735	1260	3202	-	-	-	-	-	-	-	-	-	-	-	-
32	800	1676	-	1676	779	760	1965	1778	1806	1778	779	1200	3500	1778	1794	1778	779	1189	4200	-	-	-	-	-	-
36	900	1956	-	1956	876	805	2300	2083	2109	2083	876	1388	3689	2083	2099	2083	876	1260	5200	-	-	-	-	-	-
40	1000	2150	-	2150	976	870	2700	2250	-	2250	976	1400	4100	2250	-	2250	976	1360	6300	-	-	-	-	-	-

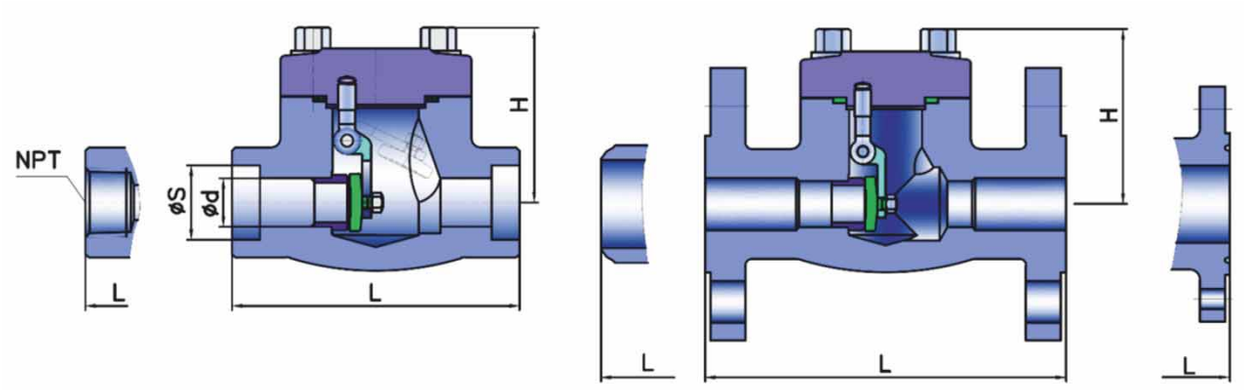
Diameter		CLASS 1500						CLASS 2500					
		Dimension(MM)						Dimension(MM)					
NPS	DN	L			D	H	(KG)	L			D	H	(KG)
		1/RF	1/RTJ	2				1/RF	1/RTJ	2			
2	50	368	371	368	51	210	48	451	454	451	42	230	68
2 1/2	65	419	422	419	64	240	75	508	511	508	52	260	100
3	80	470	473	470	76	303	120	578	584	578	62	330	165
4	100	546	549	546	102	340	180	673	683	673	87	370	260
5	125	673	676	673	127	380	294	794	807	794	96	410	440
6	150	705	711	705	144	430	385	914	927	914	131	460	580
8	200	832	842	832	192	500	634	1022	1038	1022	179	530	970
10	250	991	1001	991	239	590	1140	1270	1292	1270	223	620	1700
12	300	1130	1146	1130	287	660	1650	1422	1444	1422	265	690	2600
14	350	1257	1276	1257	315	710	2000	-	-	-	-	-	-
16	400	1384	1406	1384	360	820	2700	-	-	-	-	-	-

I.B.C. Praha spol. s r.o., Karlštejnská 9, 252 25 Jinočany, Czech Republic
Tel.: +420 251 006 112 | FAX: +420 251 006 222 | ibcpraha@ibcpraha.cz | www.ibcpraha.cz

SWING CHECK VALVES

TYPE C09 4

DIMENSIONS - FORGED



Diameter		CLASS 900,1500									CLASS 2500								
NPS	DN	L					d	S	H	(KG)	L					d	S	H	(KG)
		1/RF	1/RTJ	2	3	4					1/RF	1/RTJ	2	3	4				
1/4	6	216	-	216	79	79	3,2	14,2	166	2,5	264	-	264	79	79	3,2	14,2	166	3
3/8	10	216	-	216	79	79	5,9	17,6	166	3	264	-	264	79	79	5,9	17,6	166	3
1/2	15	216	216	216	79	79	9,5	21,8	166	4	264	263	264	79	79	9,5	21,8	166	5
3/4	20	229	229	229	92	92	12,7	27,1	169	5	273	273	273	92	92	12,7	27,1	169	6
1	25	254	254	254	111	111	17,5	33,8	193	9	308	304	308	111	111	17,5	33,8	193	11
1 1/2	40	305	305	305	152	152	28,6	48,7	246	13	384	384	384	152	152	28,6	48,7	246	15
2	50	368	371	368	172	172	36,5	61,1	283	16	451	454	451	172	172	36,5	61,1	283	18

Diameter		CLASS 600									CLASS 800								
NPS	DN	L					d	S	H	(KG)	L					d	S	H	(KG)
		1/RF	1/RTJ	2	3	4					1/RF	1/RTJ	2	3	4				
1/4	6	165	-	165	79	79	3,2	14,2	61	2,5	-	-	-	79	79	3,2	14,2	166	2
3/8	10	165	-	165	79	79	5,9	17,6	61	3	-	-	-	79	79	5,9	17,6	166	2,5
1/2	15	165	165	165	79	79	9,5	21,8	61	4	-	-	-	79	79	9,5	21,8	166	3,5
3/4	20	190	190	190	92	92	12,7	27,1	78	6	-	-	-	92	92	12,7	27,1	169	4,5
1	25	216	216	216	111	111	17,5	33,8	84	10	-	-	-	111	111	17,5	33,8	193	8
1 1/2	40	241	241	241	152	152	28,6	48,7	118	16	-	-	-	152	152	28,6	48,7	246	12
2	50	292	295	292	172	172	36,5	61,1	132	25	-	-	-	172	172	36,5	61,1	283	14,5

I.B.C. Praha spol. s r.o., Karlštejnská 9, 252 25 Jinočany, Czech Republic
Tel.: +420 251 006 112 | FAX: +420 251 006 222 | ibcpraha@ibcpraha.cz | www.ibcpraha.cz

SWING CHECK VALVES

TYPE C09 4

TYPE DESIGNATION

C09 4 C/D E M_1 Class/S

C — CONNECTION INTO PIPE

1	Flanged
2	Welded ends
3	Threaded
4	Socket welding
8	Combined

M_1 — BODY MATERIAL

0	Stainless steel
2	Cast alloy steel
3	Forged alloy steel
4	Forged carbon steel
5	Cast carbon steel
L	Carbon steel for low
T	temperatures

D — FLANGE FACING

ANSI B 16.5

PFF	Flat sealing face
RF	Raised face
LTF	Large tongue
STF	Small tongue
LGF	Large groove
SGF	Small groove
LMF	Large male
SMF	Small male
LFF	Large female
SFF	Small female
RTJ	Ring joint

E — CONTROL

7	Automatic

S — SPECIAL EXECUTION

L	With lever and counter
B	Bypass
As	Antistatic execution

I.B.C. Praha spol. s r.o., Karlštejnská 9, 252 25 Jinočany, Czech Republic
Tel.: +420 251 006 112 | FAX: +420 251 006 222 | ibcpraha@ibcpraha.cz | www.ibcpraha.cz