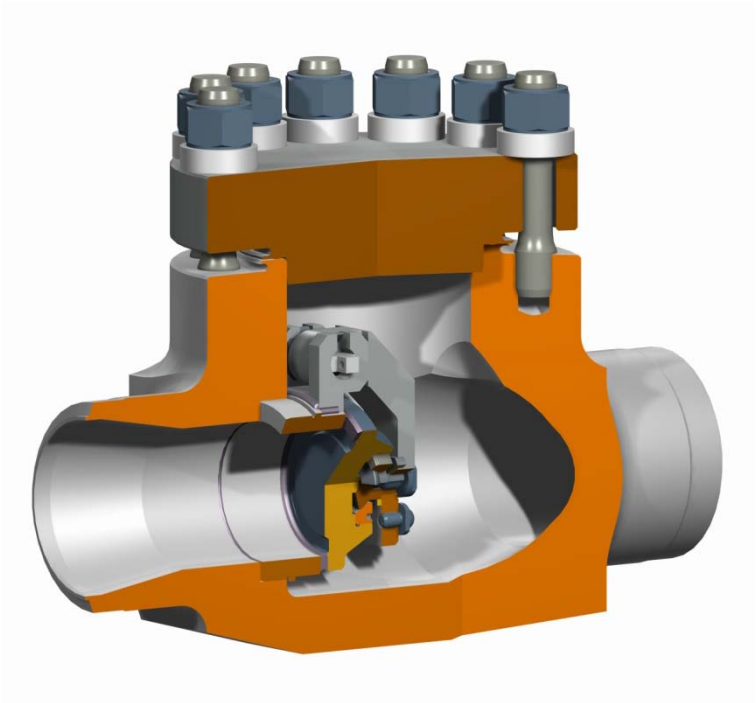

MPOWER

Type A43

DN 50 – 800
Pp to245MPa

Check Valve for Nuclear Power

Butt-Welded

Data Sheet
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Content

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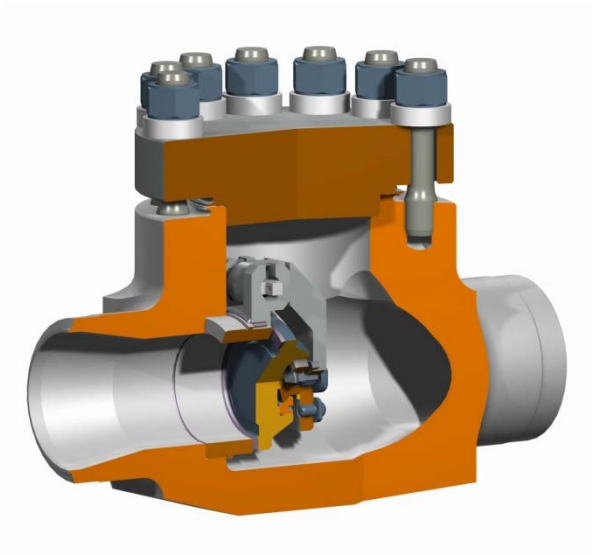
Application

- Pipe valves automatically prevent backflow of the fluid in the pipe; can be operated at full pressure drop on the cap
- **Fluids**
  According to NP-068-05, VTP-87/91
- **Industry**
  Nuclear power plants (especially with VVER and RBMK reactors) - can be installed in the NPP safety systems with location inside and outside the hermetic zone; chemical industry
- **Environments**
  Normal, seismic



Technical description

- Check valves are made of carbon and austenitic steel
- Forged body
- Seat is inserted into the body with the overlap, welded with the seal weld
- Disc is freely mounted on the arm pivoting on a pin placed at the hinge at the top of the seat
- The body is sealed by the flange joint
- Seat sealing surface and discs are welded with the hard cobalt-free alloy
- Sealing ring for sealing of the joints body - bonnet (up to 4 MPa) is made of the expanded graphite, the other without sealing, metal – metal, kammprofile gasket
- The direction of the operating fluid flow is under the disc

Operation

- Automatic

Installation

- Valves should be installed in horizontal piping with the bonnet on top, the direction of flow is under the plate

Operating conditions

- **NP-068-05** and **VTP-87** – General technical requirements for NP special valves
- **PNAE G-7-008-89** – The rules for the construction and safe operation of the NP equipment and pipelines
- **PNAE G-1-011-97 (OPB-88/97)** – General requirements for NP safef operation
- **PNAE G-7-002/86** – Standards of calculation of the the strength of the NP equipment and piping
- **PNAE G-7-009-89** – NP equipment and piping. Welded joints and weldings
- **PNAE G-7-010-89** – NP equipment and piping. Control rules
- **NP-031-01** – Standards of seismically resistant NPP designing

Connection

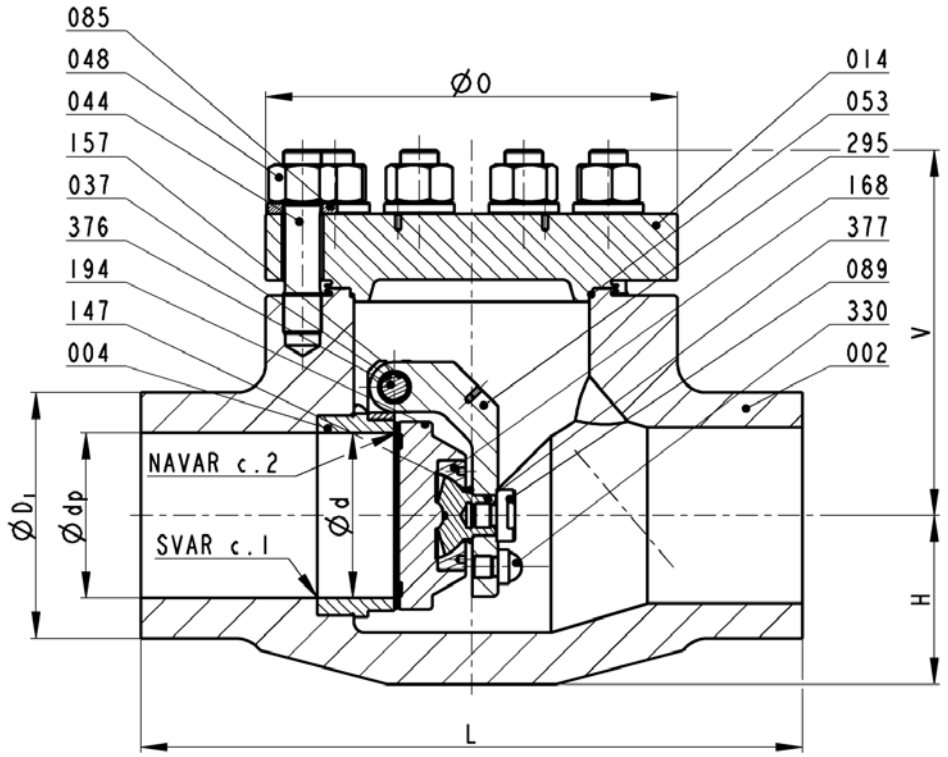
- Welding ends
- Other connection on request

Testing

- Operational capability test - mechanical, without pressure Tightness test by the operating pressure Pp
- Vacuum tightness test towards the outside environment just for the valves operating under underpressure
- Strength test:

Pp MPa	Testing fluid pressure MPa
2,5	4,5
4	7
6	10
8,6	14
9,2	15
11	18
12	20
14	22
18	29
20	32
24,5	40

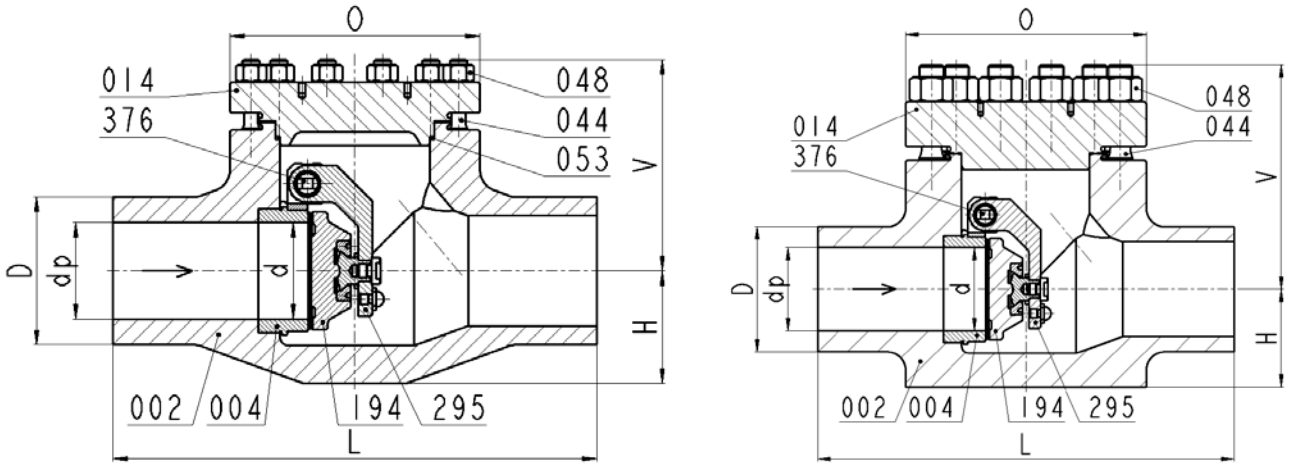
Materials of main parts



	Name	Material
002	**ody**	11416, 08X18H10T
004	**Seat**	11416, 12020, 08X18H10T
014	**Bonnet**	11416, 08X18H10T
044	**Bolt**	15320
048	**Nut**	15236
085	**Washer**	17134 - 14X17H2
194	**Disc**	11416, 08X18H10T
295	**Disc arm**	11416, 08X18H10T
376	**Pin**	17134 – 14X17H2
037	**Bushing**	17029.4
157	**Safety lock**	14041.2
377	**Pin**	17027.6
168	**Threaded connection**	15320, 14X17H2 – 17134
089	**Bolt**	15320, 08X18H10T
147	**Safety washer**	15320, 17027.6
330	**Stop**	15320, 17134 – 14X17H2

Notes: The sealing surfaces of the seat and the plug are welded with cobalt-free alloy
Recommended spare parts on order: sealing ring (053), disc (194)

Dimensions



DN / d	Pp MPa	D	dp	d	H	L	O	V	m kg
50/55	to 4	Connection dimensions according to TP		55	70	360	164	141	29
65/55				55	70	360	164	141	30
80/75				75	90	450	208	186	57
100/75				75	90	450	208	186	58
125/110				110	130	500	284	242	121
150/110				110	130	550	284	242	141
200/150				150	155	650	330	277	263
250/225				225	210	800	425	348	425
300/225				225	210	900	425	348	535

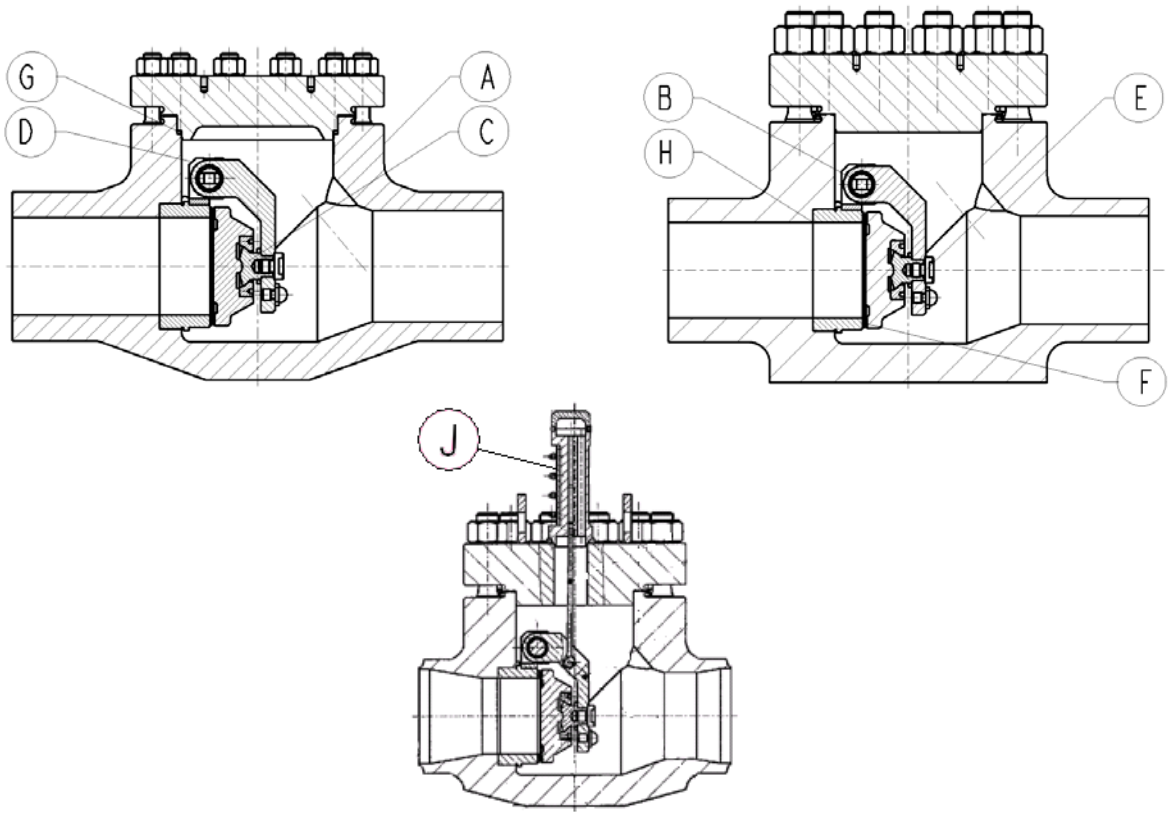
DN / d	Pp MPa	D	dp	H	L	O	V	m kg
50/55	over 4 to 14	Connection dimensions according to TP		70	360	210	161	43
65/55				70	360	210	161	44
80/75				90	450	265	224	89
100/75				90	450	265	224	93
125/110				130	500	320	298	197
150/110				130	550	320	298	204
200/150				155	650	390	325	374
250/225				230	800	560	498	999
300/225				230	900	560	498	1074
50/55	over 14 to 20			70	360			
65/55				70	360			
80/75				90	450	280	233	115
100/75				90	450	280	233	
125/110				130	500			
150/110				130	550			
200/150				155	650			
250/225				230	800	560	658	
300/225				230	900	560	658	1075
350/225				230	900	560	658	
80/75	over 14 to 24,5			90	450	280	233	
800	11			440	835	-	500	1598

Table of designed and maximum operationg parameters

Check valve		Connection ends	
Max. pressure MPa	**Max. temperature** °C	**Max. pressure** MPa	**Max. temperature** °C
Check valve DN 50-300, Pp to 4 MPa, carbon and stainless steel			
4	250	2,5	250
		4	250
Check valves DN 50-300, Pp over 4 to 12 MPa, carbon steel			
12	300	6	275
		8,6	300
		9,2	300
		11	300
		12	250
Check valves DN 50-300, Pp over 4 to 14 MPa, stainless steel			
14	335	9,2	300
		11	300
		14	335
Check valves DN 50-300, Pp over 14 to 20 MPa, stainless steel			
18	350	18	350
20	300	20	300
Check valves DN 80, Pp to 24.5 MPa, stainless steel			
24,5	150	24,5	150
Check valves DN 800, Pp do 11 MPa, carbon steel			
11	300	11	300

Note: Other parameters acc. to NP-068-05 or on reques

Advantages of construction



A	**Reduced forged body without weld joint:** It reduces weight, eliminates weld crack detection
B	**Pin of the disc arm inside the body:** Does not pass through the body, does not affect the outer tightness
C	**Arm - disc spherical joint:** Allows tilting of the disc. Tight contact of the sealing surfaces of the closure
D	**Arm hinge:** Welded to the seat, does not affect the outer tightness of the valve
E	**Disc arm - pin joint:** Simple, reliable, easy assembly and disassembly
F	**Sealing surfaces are welded with the cobalt-free alloy:** Long-term durability, wear resistance
G	**Sealing ring is made of expanded graphite** Reliable tightness, ecology
H	**Placement of the seat in the body:** Inserted into the body with the overlap, welded with the seal weld
J	**Remote position indicator (DUP):** Allows remote signaling of the end positions of the closure

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