

## SEMPELL

**Sempell controlled and uncontrolled Non-Return or Swing Check Valves prevent unallowable pressure built up in the turbine coming due to back-flowing steam.**

### Features and Benefits

- low maintenance gland can be retightened
- hardfaced sealing faces at disc and body seat
- low friction by burnished shaft
- surfaces treated bearing faces on each part with relative motion
- easy to disassemble bodies
- mechanical taking of control angle directly at disc lever
- mounting of pneumatic or hydraulic actuators
- actuator mounting right or left possible seen from steam flow direction
- universal connections by various design of welding ends and flanges as standard
- deviating designs of welding ends in regard of dimension and material as well as other actuators, limit switches and special designs according to customers' request can be supplied.

### Use and application of swing check valves

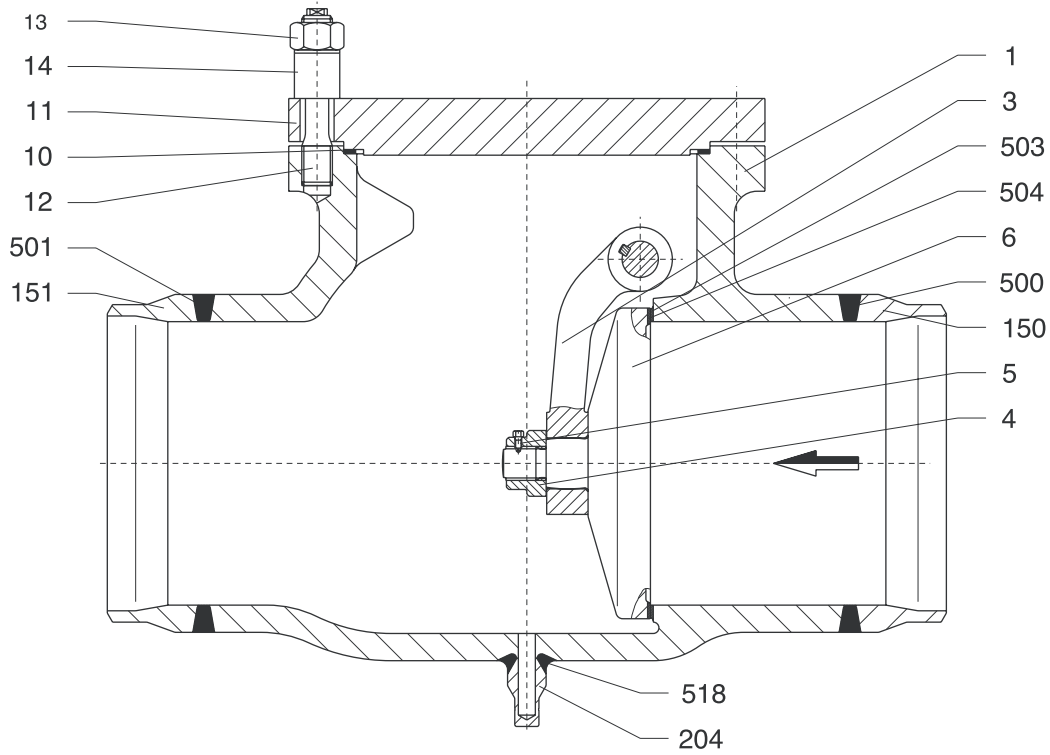
Type 803 is a free-swinging swing check valve. It will be partly or completely opened depending on the difference pressure. In case of decrease or reversal of the difference pressure, the valve will be closed by its own weight to prevent a damage of the turbine by backflowing medium. Mounting an pneumatic or hydraulic actuator supports this quick-closing function. Mounting an inductive remote transmitter shows the opening angle of the sealing plate. The valve is designed for a pressure range from PN 25 to 63. The cast steel body will be inserted into the line by welding ends, flanges or by direct welding-in.



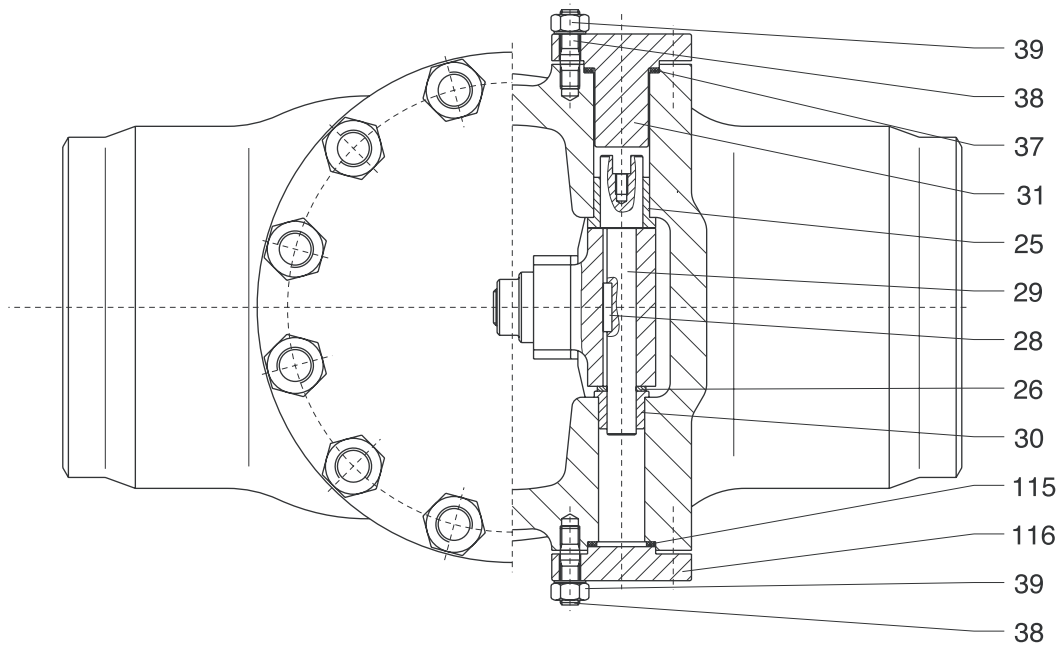
### Technical data

Size	: DN 80- DN 800
Pressure class	: PN 25 - 63
Connections	: Flanges acc. to DIN, welding ends acc. to DIN
Body material	: GS-C25 (1.0619), GS-17CrMo55 (1.7357)
Materials internals	: shaft 1.4122 nitriding disc lever = body material hardfacings 1.4115 bearing sleeve 1.8550 nitriding
Body sealing	: cover screwing with serrated gasket
Shaft sealing	: molded graphite packing rings
Shaft design	: free swinging, burnished, resting into two bushes
Closing time	: < 2 sec.
Sealing body/disc	: metallic
Leakage class	: leakage rate 2 acc. to DIN 3230 part 3 or IEC 534 part 4, Class IV, test course 2, medium L
Possible flow medium	: water, steam, gas, oil

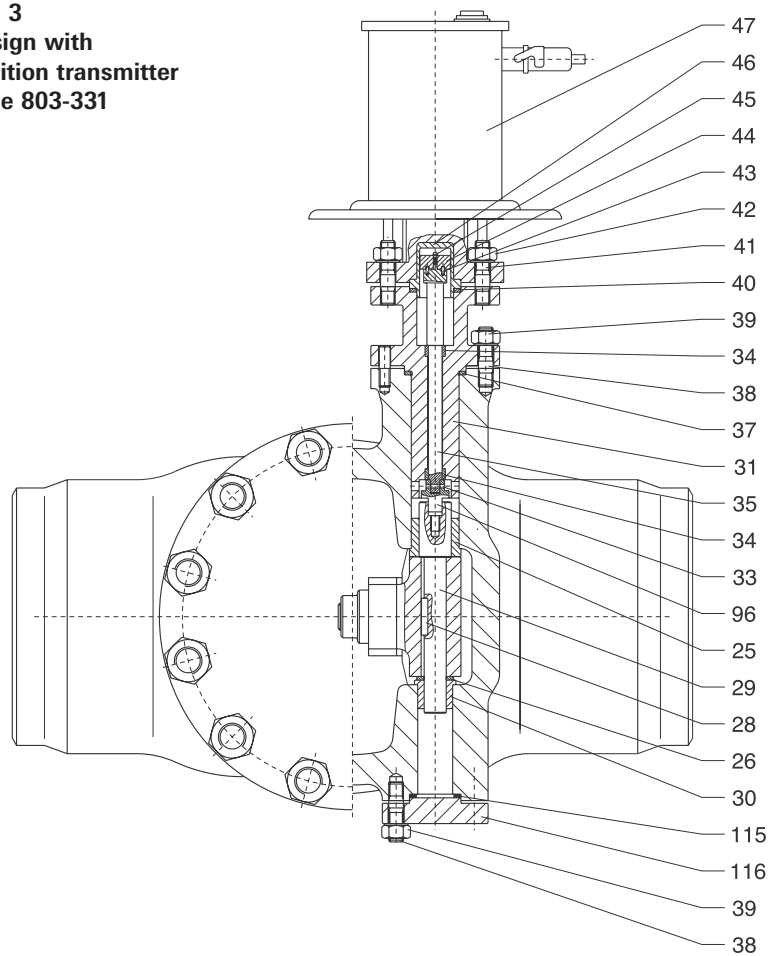
**Fig. 1 - Design swing check valve**



**Fig. 2 - Design without additional mounting Type 803-330**



**Fig. 3**  
**Design with**  
**position transmitter**  
**Type 803-331**



**Fig. 4**  
**Design with actuator Type 803-332**

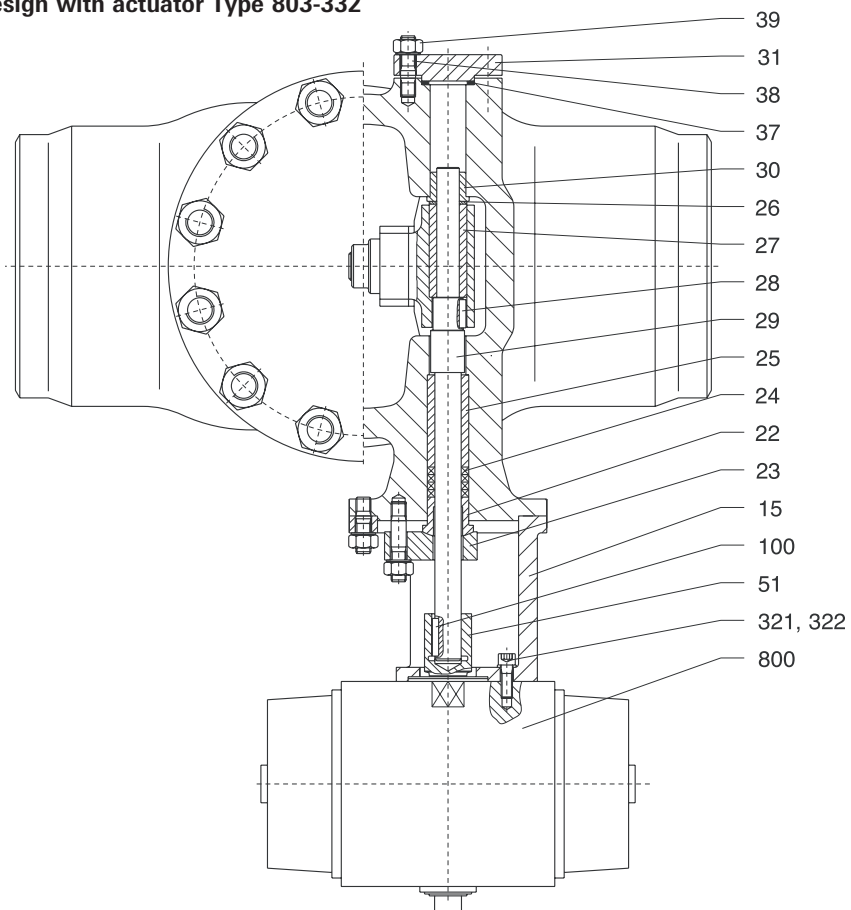
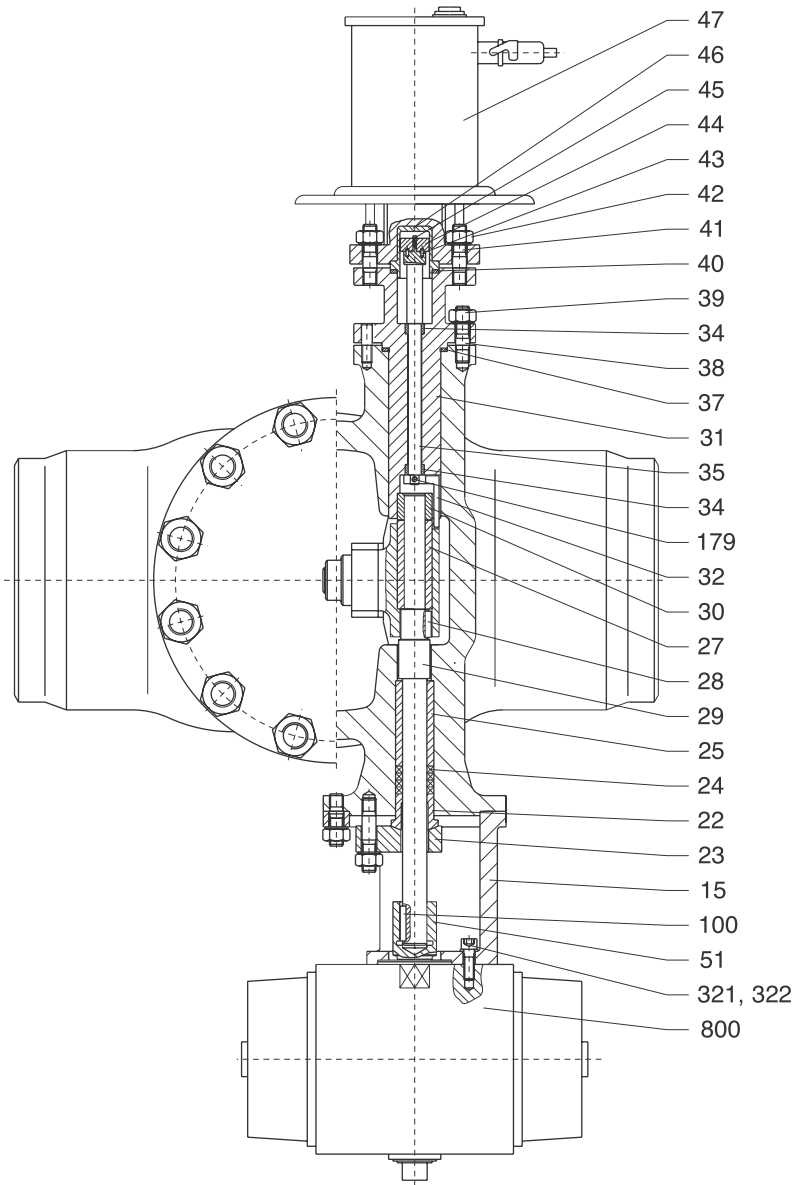


Fig. 5 - Design with actuator and position transmitter Type 803-333



## Notes

- Recommended spare parts
- 1) With pneumatic or hydraulic actuator

**Table 1 - Materials, material specification**

Pos.	Name	DIN-Material	
		01	10 *
<b>Design without additional mounting type 803- 330</b>			
1	Body	1.0619	1.7357
3	Disc lever	1.0619	1.7357
4	Cover nut	1.5415	
5	Threaded pin	45H	
6	Disc	1.5415	1.7335
10 •	Gasket	1.4541 / Graphite	
11	Cover	1.7335	
12	Stud	1.7709	
13	Hexagonal nut	1.7258	
14	Expansion sleeve	1.7709	
25 •	Bearing sleeve	1.8550	
26	Distance ring	1.4057	
28 •	Parallel key	1.4122	
29 •	Shaft	1.4122	
30 •	Bearing sleeve	1.8550	
31	Connecting piece	1.0460	1.7335
37 •	Gasket	1.4541 / Graphite	
38	Stud screw	1.7709	
39	Hexagonal nut	1.7258	
115 •	Gasket	1.4541 / Graphite	
116	Cover	1.0460	1.7335
150	Pipe connection	1.0460 / 1.5415	1.7335
151	Pipe connection	1.0460 / 1.5415	1.7335
204	Drainage nozzle	1.0460 / 1.5415	1.7335
<b>Design with position transmitter Type 803-331</b>			
33	Cylindrical pin	Steel	
34 •	Bearing sleeve	1.4057	
35 •	Shaft	1.4550	
40 •	Gasket	1.4541 / Graphite	
41	Stud screw	1.7709	
42	Hexagonal nut	1.7258	
43 •	Cylindrical pin	Steel	
44 •	Magnet	Div.	
45 •	Retaining ring	PBZ	
46	Pressure jack	1.4922	
47 •	Position transmitter	Div.	
96	Coupling	1.0460	1.7335
<b>Design with actuator Type 803-332</b>			
15	Connecting piece	1.0619	
22	Gland	1.8550	
23	Gland flange	1.7335	
24 •	Packing ring	Graphite	
27 •	Bearing sleeve	1.8550	
51	Distance piece	1.4122	
100	Parallel key	1.4122	
321	Lock washer	Steel	
322	Allan bolt	8.8	
800	Actuator 1)	Div.	
<b>Design with actuator+position transmitter Type 803-333</b>			
32	Driver	1.7335	
179	Threaded pin	45 H	

## Main dimensions and characteristic data of Swing Check valves

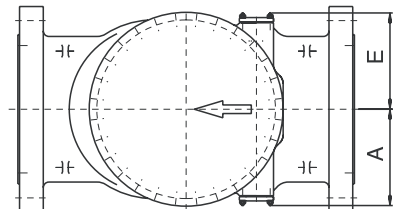
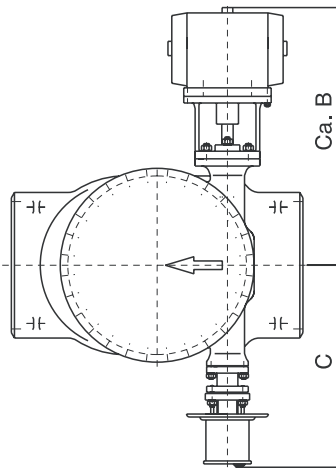
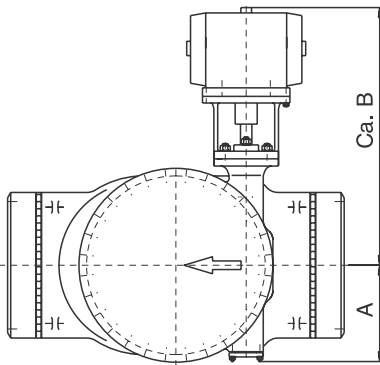
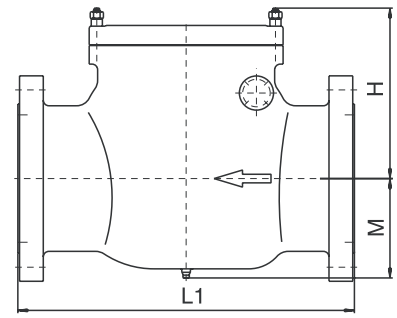
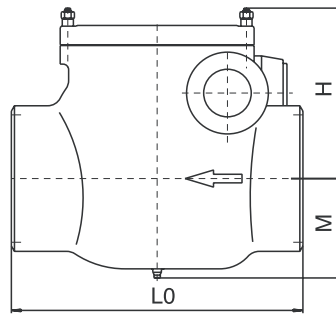
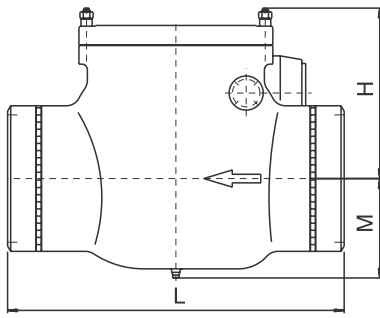


Fig. 6 - Drawing with welding ends and pneumatic/hydraulic actuator

Fig. 7 - Drawing without welding ends, with actuator and position transmitter

Fig. 8 - Drawing with flanges, without additional mountings

Table 2 - Dimensions and weights

Dimensions [mm]			Weight without actuator (kg)										
PN	DN	Seat Ø	L	L0	L1	M	A, E	B <sup>1)</sup>	C	H	without	welding	flange
					on request						on request	on request	on request
63	80	80	350	220		170	115	495	390	190	105	128	
	100	80	400	220		170	115	495	390	190	105	218	
	100	100	450	300		180	115	515	410	210	135	153	
	150	100	500	300		180	115	515	410	210	135	233	
	150	150	550	400		210	165	595	490	260	231	256	
	200	150	600	400		210	165	595	490	260	231	326	
	200	200	650	440		250	215	740	615	340	331	356	
	250	200	700	440		250	215	740	615	340	331	438	
	250	250	750	570		280	275	790	665	410	457	488	
	300	250	800	570		280	275	790	665	410	457	548	
300	300	850	680		315	295	970	715	490	739	785		
350	300	900	680		315	295	970	715	490	739	815		
40	350	350	950	750		355	355	1030	785	500	829	885	
	400	350	1000	750		355	355	1030	785	500	829	1115	
	400	400	1050	850		380	375	1160	815	560	1051	1120	
	450	400	1100	850		380	375	1160	815	560	1051	1190	
	450	450	1150	950		410	405	1210	860	640	1196	1290	
	500	450	1250	950		410	405	1210	860	640	1196	1390	
	500	500	1250	1050		445	445	1270	910	700	1763	1840	
	600	500	1300	1050		445	445	1270	910	700	1763	2190	
25	600	600	1400	1150		505	475	1300	930	770	2234	2380	
	700	600	1500	1150		505	475	1300	930	770	2234	2490	
	700	700	1600	1300		575	535	1350	990	890	2759	3090	
	800	700	1750	1300		575	535	1350	990	890	2759	3390	
	800	800	1900	1500		645	610	1615	1050	1050	3680	4039	

## Dimensions of feasible welding ends

Table 3 - Straight nominal sizes

DN	seat	OD	6,3	7,1	8,0	8,8	10,0	11,0	12,5	14,2
80	80	88,9								
100	100	114,3								
150	150	168,3								
200	200	219,1	•	•	•	•	•			
250	250	273,0	•	•	•	•	•	•		
300	300	323,9		•	•	•	•	•	•	
350	350	355,6			•	•	•	•	•	•
400	400	406,4			•	•	•	•	•	•
450	450	457,0		•	•	•	•	•	•	
500	500	508,0	•	•	•	•	•	•		
600	600	610,0	•	•	•	•	•	•		
700	700	711,0	•	•	•	•	•	•		
800	800	813,0								

Table 4 - Extended pipe connections

DN	seat	OD	6,3	7,1	8,0	8,8	10,0	11,0	12,5	14,2
100	80	114,3								
150	100	168,3								
200	150	219,1								
250	200	273,0	•	•	•	•	•	•		
300	250	323,9		•	•	•	•	•	•	
350	300	355,6			•	•	•	•	•	•
400	350	406,4			•	•	•	•	•	•
450	400	457,0		•	•	•	•	•	•	
500	450	508,0	•	•	•	•	•	•		
600	500	610,0	•	•	•	•	•	•		
700	600	711,0	•	•	•	•	•	•		
800	700	813,0								

### Application limits subject to pressure and temperature

- For material GS-C25 (1.0619) and body design with pipe connections in connection with inspection 3.1A, 3.1B or 3.1C according to EN 10204 (DIN 50059) the application limits can be increased according to table 5.
- For material GS-17CrMo55 (1.7357) the application limits can be increased analogue according to table 6.

Table 5 - Application limits

Seat Ø	DN	Temperature in °C - Excess pressure in bar						
		150°C	200°C	250°C	300°C	350°C	400°C	420°C
80	80/100							
100	100/150							
150	150/200							
200	200/250	88,2	79,3	72,5	65,7	61,2	58,9	57,1
250	250/300	78,9	70,7	64,9	58,8	54,7	52,6	51,1
300	300/350	78,8	70,6	64,8	58,7	54,6	52,5	51,0
350	350/400	54,2	48,7	44,6	40,4	37,6	36,2	35,1
400	400/450	57,3	51,6	47,1	42,7	39,8	38,3	37,1
450	450/500	54,3	48,8	44,7	40,5	37,3	36,3	35,2
500	500/600	49,7	44,7	40,9	37,1	34,5	33,2	32,2
600	600/700	40,0	36,0	32,9	29,8	27,7	26,7	25,9
700	700/800	38,0	34,2	31,3	28,4	26,4	25,4	24,6
800	800							

Admissible operating pressure for valves (body 1.0619) with welding ends, inspection: EN10204-3.1A, 3.1B, 3.1C

Table 6 - Application limits

Seat Ø	DN	Temperature in °C - Excess pressure in bar						
		300°C	350°C	400°C	450°C	500°C	520°C	540°C
80	80/100							
100	100/150							
150	150/200							
200	200/250	104,2	97,4	92,9	86,1	53,0	37,6	27,6
250	250/300	93,2	87,2	83,1	77,0	47,4	33,6	24,7
300	300/350	93,1	87,1	83,0	76,9	47,3	33,5	24,6
350	350/400	64,1	59,9	57,1	52,9	32,6	23,1	17,0
400	400/450	67,8	63,4	60,4	56,0	34,5	24,4	17,9
450	450/500	64,2	60,0	57,2	53,0	32,7	23,2	17,1
500	500/600	58,8	55,0	52,7	48,6	29,9	21,2	15,6
600	600/700	47,3	44,2	42,1	39,0	24,0	17,1	12,5
700	700/800	45,0	42,1	40,1	37,2	22,9	16,2	11,9
800	800							

Admissible operating pressure for valves (body 1.7357) with welding ends, inspection: EN10204-3.1A, 3.1B, 3.1C

803 - 330 - 01 - 0200 - 0200 - 0200 - S - XXX

## Valve type

803 Swing check valve

## Valve Code

330 without additional mounting  
 331L with position transmitter left  
 331R with position transmitter right  
 332L with actuator left  
 332R with actuator right  
 333LR actuator left, transmitter right  
 333RL actuator right, transmitter left

## Material Specification

01 body 1.0619  
 10 body 1.7357

## Inlet nominal size

80 = DN 80  
 100 = DN 100  
 150 = DN 150  
 200 = DN 200  
 250 = DN 250  
 300 = DN 300  
 350 = DN 350  
 400 = DN 400  
 450 = DN 450  
 500 = DN 500  
 600 = DN 600  
 700 = DN 700  
 800 = DN 800

## Accessories

see TO.130.80.xxxx DE

## Pipe Connection

S Welding end acc. to DIN  
 F Flange acc. to DIN  
 U Plain ends

## Outlet nominal size

80 = DN 80  
 100 = DN 100  
 150 = DN 150  
 200 = DN 200  
 250 = DN 250  
 300 = DN 300  
 350 = DN 350  
 400 = DN 400  
 450 = DN 450  
 500 = DN 500  
 600 = DN 600  
 700 = DN 700  
 800 = DN 800

## Seat diameter

80 = Ø 80  
 100 = Ø 100  
 150 = Ø 150  
 200 = Ø 200  
 250 = Ø 250  
 300 = Ø 300  
 350 = Ø 350  
 400 = Ø 400  
 450 = Ø 450  
 500 = Ø 500  
 600 = Ø 600  
 700 = Ø 700  
 800 = Ø 800