

SZUSTERsystem

innovation is essential



Elbow ball check valves

PRODUCT CATALOG

ELBOW BALL CHECK VALVES

Technical data

- Range of available diameters: DN32 – DN300.
- Pressure rated to PN 1.6 MPa (all valves are tested to PN 1.0 MPa leak test / PN 1.6 MPa hydrostatic shell test).
- Medium temperature: max 40°C (temporarily to 60°C).
- Painted with a 200 µm thick coat of epoxy paint, RAL 5015 (optional: 300 µm, other colours).
- Flanges complying with EN 1092-2.
- EN 12050-4 tests and requirements.



ESK type



ESK type long version



COMBI type

Advantages for sectors

➤ For Pumps

1. Enables more compact construction of the pump canopy.
2. Low service time – our ball check valves take less than 15 minutes to service.
3. Quick replacement time – customers can quickly replace the valve balls themselves without damaging the equipment.

➤ For Pumping Stations

1. Space saving – our valves enable space saving in a pumping station therefore giving the possibility of using a much smaller tank.
2. Quick replacement time – customers can quickly replace valve balls themselves without damaging the equipment.
3. Full opening at the velocity of 0.7 m/s – the SZUSTERsystem check valves are fully opened at the velocity of 0,7 m/s, thereby enabling the efficient work of the customer's system.
4. Significant reduction of vibration – our check valves successfully reduce vibrations thereby making system work more quietly.

➤ For Waterworks

1. Full opening at the velocity of 0.7 m/s – fully open position and constant local resistance coefficient, starting from the flow rate of 0.7 m/s.
2. Easy access to valves interior and the ball which enables:
 - placing the cover in the so-called servicing position
 - inspection of the inlet pipeline (including the pump impeller) and inspection of the pressure pipeline
3. Reduction of vibrations making the system work more quietly.

➤ For Engineers

1. Combined solution – a two-in-one compact solution (elbow, check valve) or even a three-in-one compact solution (elbow, check valve, knife gate valve).
2. Fully open position and constant local resistance coefficient, starting from the flow rate of 0.7 m/s.
3. Reduction of vibrations making the system work more quietly.

ELBOW BALL CHECK VALVES

Additional options

| Type of check valve | Characteristics | Examples of applications |
|--------------------------------|---|---|
| Long version (L) | The valve in L version has a free passage for the ball with a nominal diameter of the valve. | Pumping stations with separation of solids, pneumatic pumping stations. |
| Version with floating ball (F) | The valve in F version is equipped with a ball, the so-called „floating“ ball, with a specific weight of approx 0.8 g/cm ³ . | Backwater protection. |
| Version with Quasi ball (Q) | The valve in Q version is equipped with a quasi floating ball with a specific weight of approx 1.02 g/cm ³ . | Pumping stations, pumping stations with separation of solids. |
| Version with drainage (D) | The valve in D version is equipped with drain plug for valve drainage. | Pumps, dry pumping stations, gravity instalations with antireflux valves. |

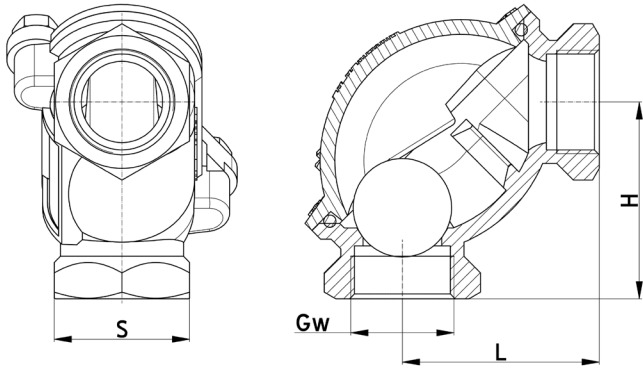
Table of options

| DN | PN 10 | PN 16 | Cast Iron | Ductile Iron | Long Version (L) | Floating Ball (F) | Quasi Ball (Q) | Drainage (D) |
|---|---------|--------|-----------|--------------|------------------|-------------------|----------------|--------------|
| ESK 01 type - threaded | | | | | | | | |
| 32 | regular | option | regular | n/a | n/a | n/a | n/a | n/a |
| 40 | regular | option | regular | n/a | n/a | n/a | n/a | n/a |
| 50 | regular | option | regular | n/a | n/a | option | n/a | n/a |
| ESK 11 type - flanged | | | | | | | | |
| 50 | regular | option | regular | n/a | n/a | option | n/a | n/a |
| 65 | regular | option | regular | n/a | n/a | option | n/a | n/a |
| 80 | regular | option | regular | n/a | option | option | option | option |
| 100 | regular | option | regular | n/a | option | option | option | option |
| 150 | regular | option | n/a | regular | n/a | option | option | option |
| 200 | regular | option | n/a | regular | option | option | option | option |
| 250 | regular | option | n/a | regular | n/a | option | n/a | option |
| 300 | regular | option | n/a | regular | n/a | option | n/a | option |
| COMBI 01 type - theaded inlet, flanged outlet | | | | | | | | |
| 50 | regular | n/a | option | n/a | n/a | option | n/a | n/a |
| COMBI 11 type - flanged | | | | | | | | |
| 50 | regular | n/a | option | n/a | n/a | option | n/a | n/a |
| 65 | regular | n/a | option | n/a | n/a | option | n/a | n/a |
| 80 | regular | n/a | option | n/a | n/a | option | option | option |
| 100 | regular | n/a | option | n/a | n/a | option | option | option |
| COMBI 11 type - flanged, oval version - O | | | | | | | | |
| 50.O | regular | n/a | option | n/a | n/a | option | n/a | n/a |

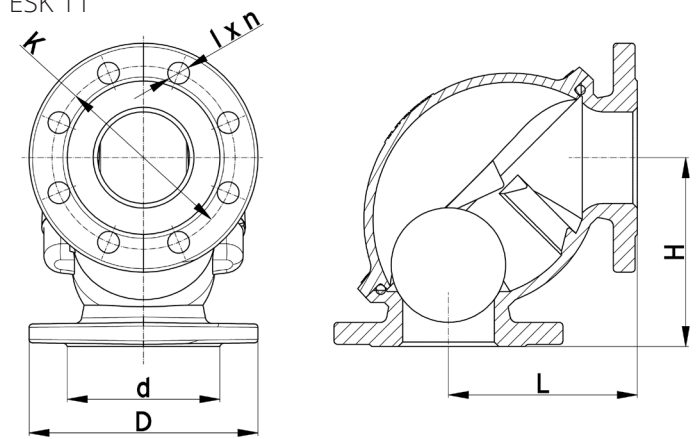
ELBOW BALL CHECK VALVES

ESK ball check valves dimensions

ESK 01



ESK 11

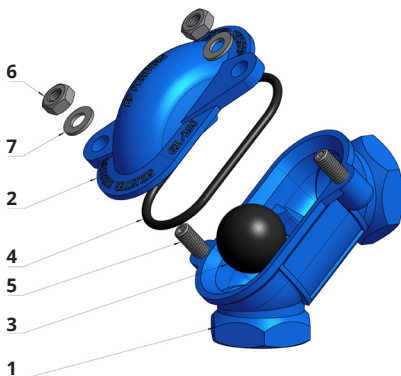


| DN | L | H | D | d | K | l x n | S | Gw | ζ^* | Weight |
|---|-----|-----|-----|-----|-----|------------------------------|----|-------|-----------|--------|
| | | | | | | | | [mm] | ["] | [kg] |
| ESK 01 type - threaded | | | | | | | | | | |
| 32 | 80 | 80 | | | | | 55 | 1 1/4 | 1.4 | 1.8 |
| 40 | 100 | 100 | | | | | 60 | 1 1/2 | 3.9 | 2.3 |
| 50 | 100 | 100 | | | | | 75 | 2 | 2.4 | 4.2 |
| ESK 11 type - flanged | | | | | | | | | | |
| 50 | 100 | 100 | 165 | 99 | 125 | $\emptyset 19 \times 4$ | | | 2.4 | 8.3 |
| 65 | 140 | 140 | 185 | 118 | 145 | $\emptyset 19 \times 4$ | | | 1.5 | 10.9 |
| 80 | 165 | 165 | 200 | 133 | 160 | $\emptyset 19 \times 8$ | | | 1.7 | 16.7 |
| 100 | 200 | 200 | 220 | 156 | 180 | $\emptyset 19 \times 8$ | | | 1.6 | 25.4 |
| 150 | 300 | 300 | 285 | 211 | 240 | $\emptyset 23 \times 8$ | | | 1.6 | 49.6 |
| 200 | 350 | 350 | 340 | 266 | 295 | $\emptyset 23 \times 8$ (12) | | | 1.6 | 83.7 |
| 250 | 425 | 425 | 400 | 319 | 350 | $\emptyset 23 \times 12$ | | | 1.5 | 131 |
| 300 | 510 | 510 | 455 | 375 | 400 | $\emptyset 23 \times 12$ | | | 1.5 | 197 |
| ESK 11 type - flanged, long version - L | | | | | | | | | | |
| 80 | 200 | 200 | 200 | 133 | 160 | $\emptyset 19 \times 8$ | | | 0.9 | 17.7 |
| 100 | 250 | 250 | 220 | 156 | 180 | $\emptyset 19 \times 8$ | | | 1.1 | 29.6 |
| 200 | 400 | 400 | 340 | 266 | 295 | $\emptyset 23 \times 8$ | | | 1.6 | 78.1 |

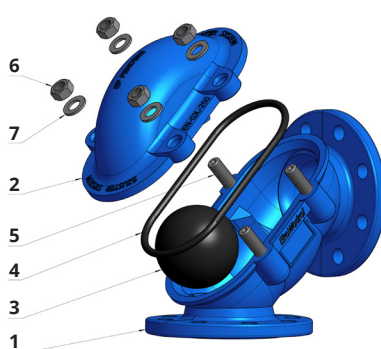
* ζ – Local resistance coefficient within the recommended range of flow velocity through the valve from 0.7 m/s to 2.5 m/s.

ESK ball check valves constructions

ESK 01



ESK 11



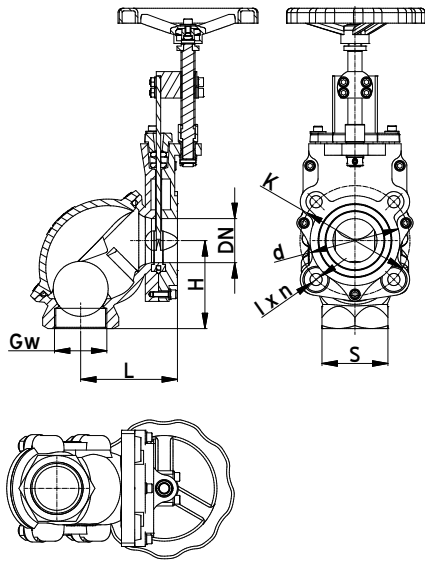
| No. | Part | Material* |
|-----|-----------|--|
| 1 | Body | Cast iron, GJL-250 (for DN32 - DN100); Ductile iron, GJS-400 (for DN150 - DN300) |
| 2 | Cover | Cast iron, GJL-250 (for DN32 - DN100); Ductile iron, GJS-400 (for DN150 - DN300) |
| 3 | Ball | Rubber NBR / EPDM |
| 4 | Gasket | Rubber NBR / EPDM |
| 5 | Screw cap | Stainless steel, 1.4301 |
| 6 | Nut | Stainless steel, 1.4401 |
| 7 | Washer | Stainless steel, 1.4301 |

*Types of materials may be subject to change.

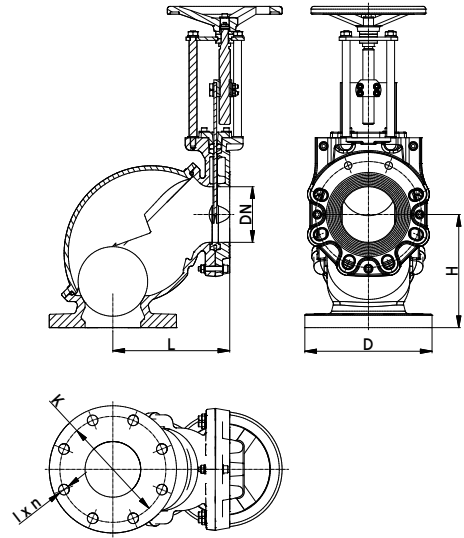
ELBOW BALL CHECK VALVES

COMBI ball check valves dimensions

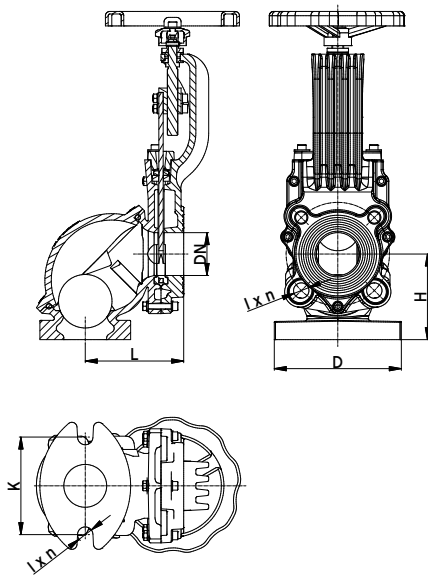
COMBI 01



COMBI 11



COMBI 11 oval



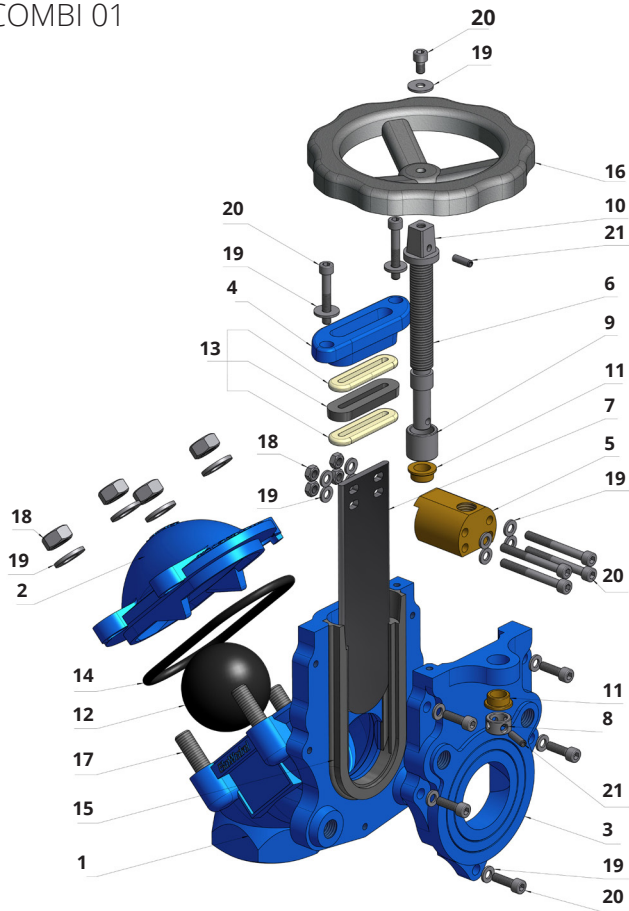
| DN | L | H | D | d | K | l x n | S | Gw | ζ^* | Weight |
|--|-----|-----|-----|------|-----|-------------------------|----|-----|-----------|--------|
| | | | | | | | | | | |
| | | | | [mm] | | | | ["] | | [kg] |
| COMBI 01 type - threaded inlet, flanged outlet | | | | | | | | | | |
| 50 | 110 | 100 | 165 | 102 | 125 | $\emptyset 19 \times 4$ | 75 | 2 | 2.6 | 8.6 |
| COMBI 11 type - flanged | | | | | | | | | | |
| 50 | 110 | 100 | 165 | 102 | 125 | $\emptyset 19 \times 4$ | 75 | | 2.6 | 12.8 |
| 65 | 155 | 140 | 180 | 122 | 145 | $\emptyset 19 \times 4$ | | | 1.5 | 16.8 |
| 80 | 165 | 165 | 200 | 138 | 160 | $\emptyset 19 \times 8$ | | | 1.8 | 24.0 |
| 100 | 200 | 200 | 220 | 160 | 180 | $\emptyset 19 \times 8$ | | | 1.7 | 32.7 |
| COMBI 11 type - flanged, oval version - O | | | | | | | | | | |
| 50.O | 115 | 100 | 148 | - | 114 | $\emptyset 18 \times 2$ | | | 2.4 | 10.6 |

* ζ - Local resistance coefficient within the recommended range of flow velocity through the valve from 0.7 m/s to 2.5 m/s.

ELBOW BALL CHECK VALVES

COMBI ball check valves construction

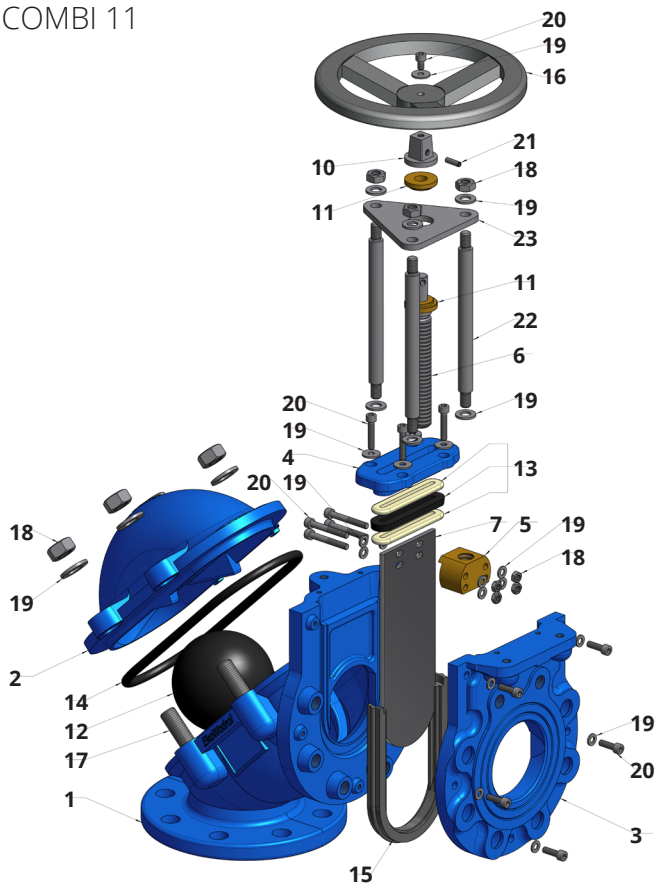
COMBI 01



| No. | Part | Material* |
|-----|------------------------|-------------------------------|
| 1 | Body | Cast iron, GJL-250 |
| 2 | Cover | Cast iron, GJL-250 |
| 3 | Plate | Cast iron, GJL-250 |
| 4 | Gland clamp | Cast iron, GJL-250 |
| 5 | Spindle nut | Brass, MO58 |
| 6 | Spindle | Stainless steel, 1.4301 |
| 7 | Knife | Stainless steel, 1.4404 |
| 8 | Fastening sleeve | Stainless steel, 1.4301 |
| 9 | Spacer sleeve | Stainless steel, 1.4301 |
| 10 | Wheel fastening sleeve | Stainless steel, 1.4301 |
| 11 | Slide sleeve | Brass, MO58 |
| 12 | Ball | Rubber NBR / EPDM |
| 13 | Gland: packing | Cord PTFE + rubber NBR / EPDM |
| 14 | Seal: O-ring | Rubber NBR / EPDM |
| 15 | Seal: U-type | Rubber NBR / EPDM |
| 16 | Wheel | Aluminium, AK11 |
| 17 | Flat set screw | Stainless steel, 1.4301 |
| 18 | Screw cap | Stainless steel, 1.4401 |
| 19 | Washer | Stainless steel, 1.4301 |
| 20 | Bolt | Stainless steel, 1.4301 |
| 21 | Spring-type pin | Stainless steel, 1.4301 |
| 22 | Post | Stainless steel, 1.4301 |
| 23 | Bracket | Stainless steel, 1.4301 |

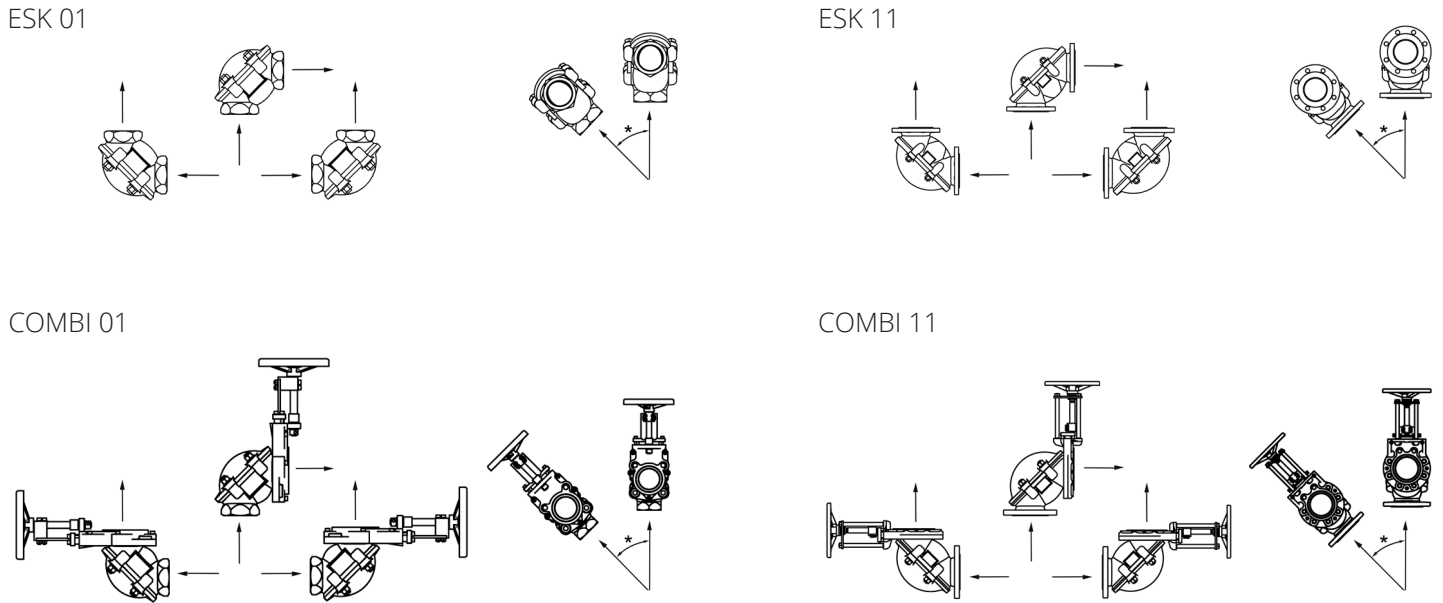
*Types of materials may be subject to change.

COMBI 11



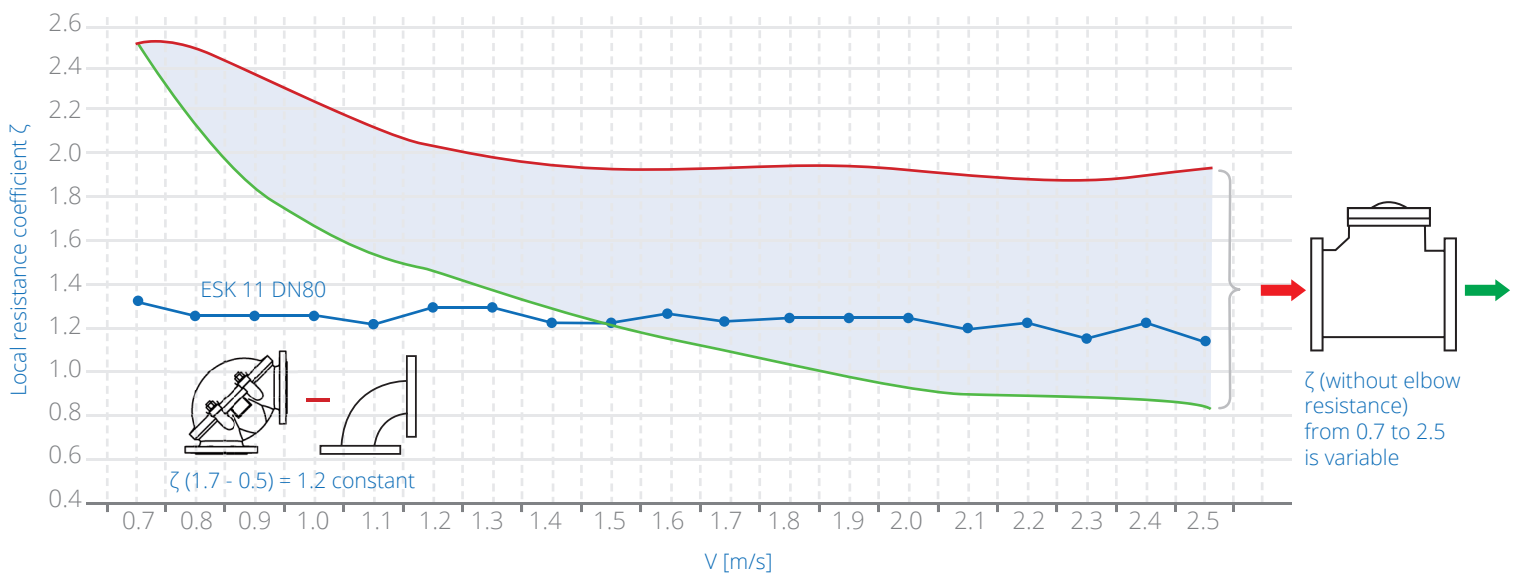
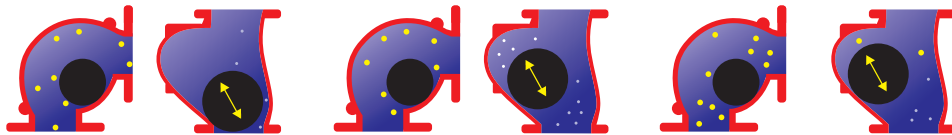
ELBOW BALL CHECK VALVES

Elbow ball check valves installation method



- * Vertical deviation in the range:
- 0 - 10° - when used with solids as gravel and sand
 - 0 - 45° - when used with drinking water

Local resistance coefficient of the SZUSTERsystem ball check valve ESK 11 DN80 in comparison to other traditional ball check valves without elbow resistance





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