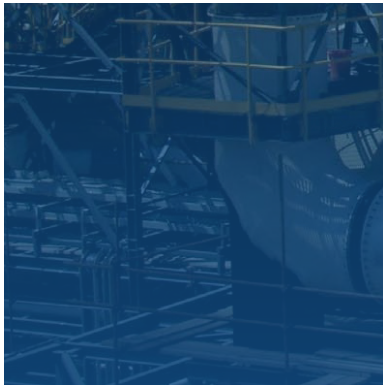




Piping Catalog

Based on Type D, B, E DIN 16965/966

2021



Since 1969, Plasticon Composites has enjoyed a worldwide reputation in the field of glass fibre reinforced pipes and fittings. Today, our piping systems are available in a variety of standard diameters, ranging from 25 to 700 mm and above. Plasticon Composites offers pipes and fittings that meet all national and international standards, depending on the region and the application. Combining the strength of FRP and the chemical compatibility of plastics provides customers with a superior alternative to costly metal alloys or rubber-



lined steel.

This engineering guide provides information on the applications in which Plasticon Composites' FRP piping materials can be used. Designing a pipeline using Plasticon Composites' products means constructing it with FRP pipes and fittings that are all

designed to meet the necessary high-performance requirements.

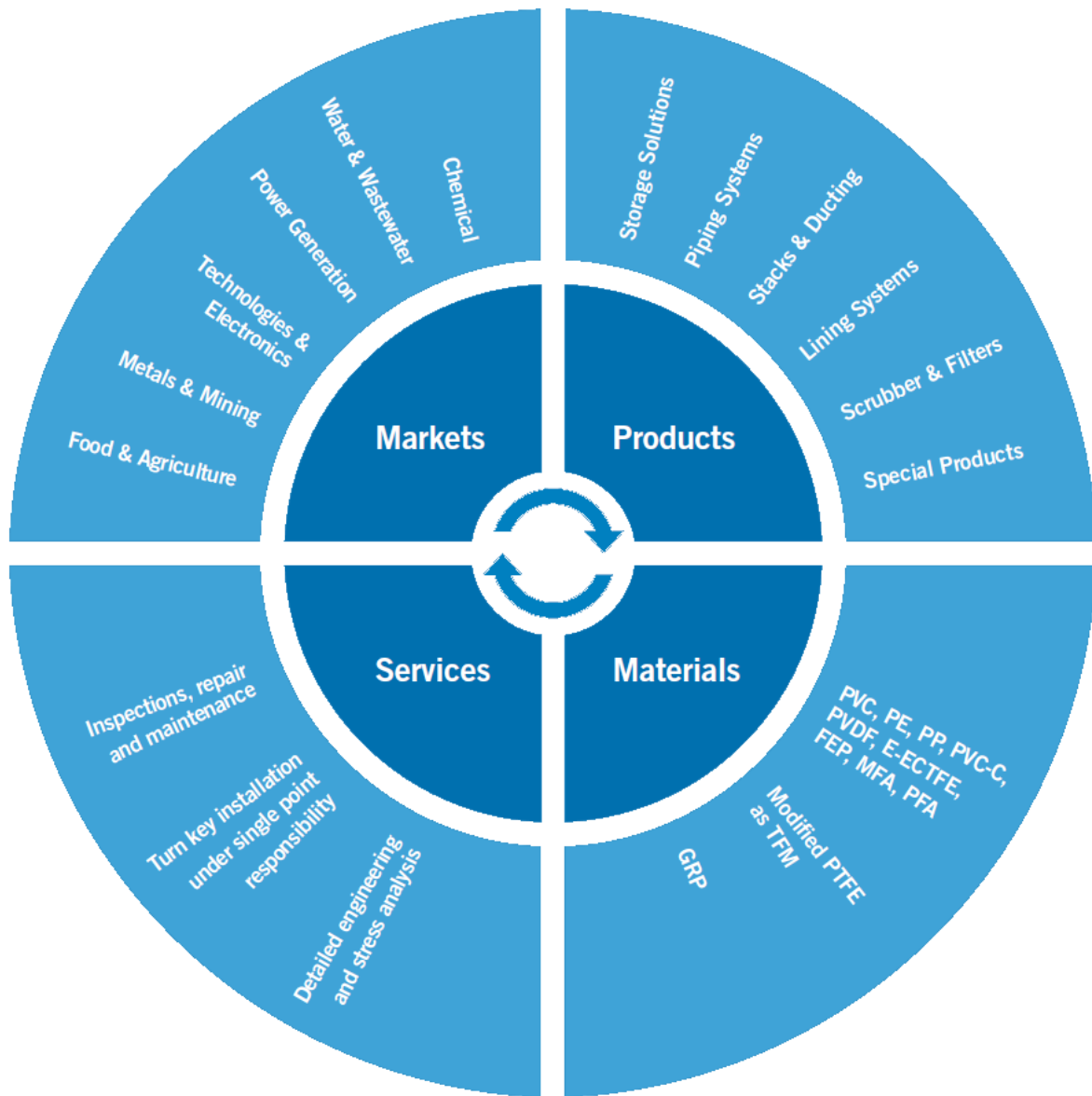
Because of the associated benefits, there is also the possibility of using prefabricated pipeline sections (pipe spools), which should



be considered in the design stage of a piping system. The advantages of using pipe spools include a reduced number of joints that have to be made in the field, smaller assembly tolerances, and a shorter installation time.

If this guide does not provide all the necessary engineering information, our engineers will be pleased to assist you and provide details about specific design possibilities and the latest improvements made to Plasticon Composites' products.





Plasticon Composites' pipe systems comply with all major quality assurance and certification standards, including DIN, ASTM, SFS, UIC, AWWA, BS and ISO. You are guaranteed high quality, low maintenance and total solutions.



Design & Quality

Plasticon Composites' dual-laminate pipe systems are designed and produced in accordance with DIN 16965 and DIN 16966 Part 2 Type B. Our welders are certified by DVS. We apply DIN or ASME pressure.

Approvals

Plasticon Composites is certified by several key testing authorities and conforms to a long list of design codes and industry standards and norms. Our production companies, products and employees are all approved according to ISO, DVS, KIWA, DET Norske Veritas and GOST standards. You are guaranteed high quality, low maintenance and total solutions.

One-Stop Responsibility

Plasticon Composites is able to provide comprehensive piping solutions for its customers' projects: from design and engineering to production, project management, installation and after-sales service.

Plasticon Composites provides the following services:

- Advice on the best liner option for each specific application
- Detailed engineering, including isometric and spool drawings
- Stress calculations
- Supply of pipe fittings and flanges
- Assembly or spool construction in one of our factories or on site
- Project and site management
- Turnkey installation and erection of pipe systems
- Inspection and maintenance



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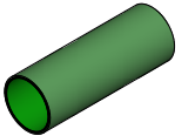



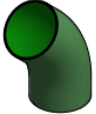


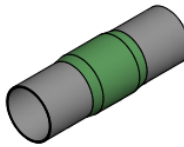

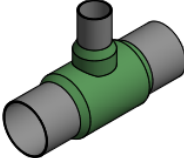
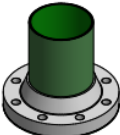
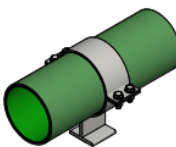
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| Pipes and fittings based on type E DIN 16965/966 | 71 |
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Pipes and fittings

Based on type D DIN 16965/966

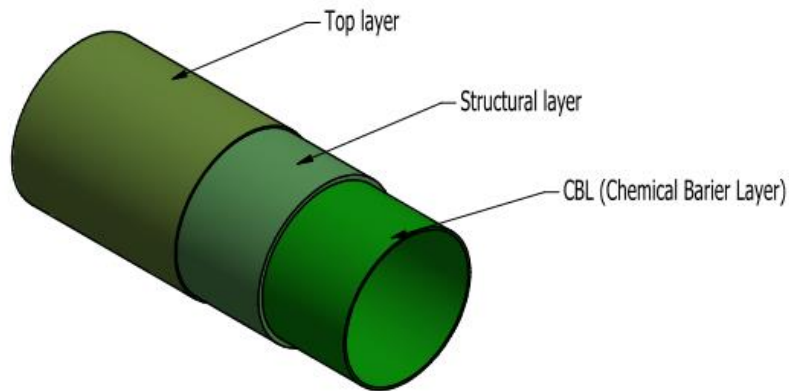


| | | |
|---|---|---|
| <p>Pipes</p>  | <p>Our pipes are manufactured in a process of hand lay-up lamination in the DN25-DN65 range and filament winding in the DN80-DN700 range, based on Type D DIN16965.</p> | <p>Stub ends</p>  <p>Our stub ends are manufactured in a process of hand lay-up lamination and pressing in the DN25-DN300 range, and only hand lay-up lamination in the DN350-DN700 range, based on Type D DIN16966.</p> |
| <p>Elbows 90°</p>  | <p>Our elbows 90° are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type D DIN16966.</p> | <p>Loose Flanges</p>  <p>Our loose flanges can be delivered in the following materials: carbon steel (hot deep galv., painted), stainless steel, and GRP. The dimensions of the flanges are based on EN1092 pressure rates.</p> |
| <p>Elbows 45°</p>  | <p>Our elbows 45° are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type D DIN16966.</p> | <p>Blind flanges</p>  <p>Our blind flanges are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type D DIN16966, drilling acc. to EN1092.</p> |
| <p>Concentric reducers</p>  | <p>Our concentric reducers are manufactured in a process of lay-up lamination in the DN25-DN700 range, based on Type D DIN16966.</p> | <p>Overlaminates</p>  <p>Our overlaminates are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type D DIN16966.</p> |
| <p>Eccentric reducers</p>  | <p>Our eccentric reducers are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type D DIN16966.</p> | <p>Branch connections</p>  <p>Our branch connections are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type D DIN16966.</p> |
| <p>Fix flanges</p>  | <p>Our fix flanges are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type D DIN16966, drilling acc. to EN1092.</p> | <p>Supports</p>  <p>Our supports are delivered acc. to clients' specifications, but Plasticon is also able to deliver its own solutions as well as modular supports that are available in the market.</p> |



Our pipes and fittings Type D acc. to DIN 16965/966 are made of a Chemical Barrier Layer (CBL) with a min. of 2,5 mm thickness and a structural layer that is filament wound from woven roving and chopped strand glass mats, roving, and unidirectional woven roving.

Type D DIN 16965/966 Laminate Structure



| Type of Layer | Description | |
|--|---|---------------|
| Chemical Barrier Layer (CBL) (Minimum CBL thickness 2,5 mm) | Resin-rich layer with a gelcoat veil and chopped strand mats | |
| | Resin content | Glass content |
| | 75 ± 5% | 25 ± 5% |
| Structural Layer | Pipes | |
| | Filament winded from roving, chopped strand mats and woven roving | |
| | Resin content | Glass content |
| | 40 ± 5% | 60 ± 5% |
| | Fittings | |
| | Laminated from chopped strand mats and woven roving | |
| | Resin content | Glass content |
| 65 - 45% | 35 - 55% | |
| Top Layer | Made of top veil Protection against all weather conditions, UV radiation and chemical reactions | |

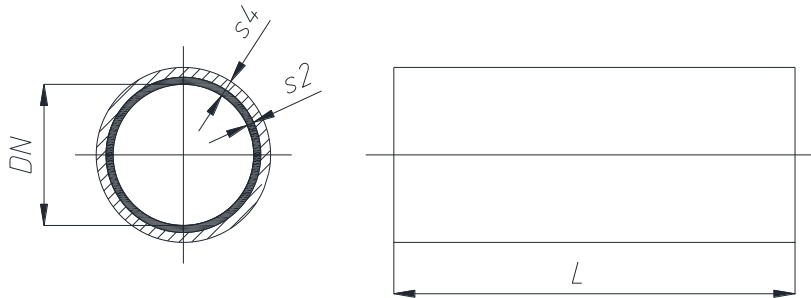
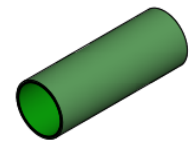


| Material Properties | Symbol | Pipe≤DN65 (Complex) | Pipe>DN65 (Filament winding) | Components (Complex) [elbows, reducers, overlaminates≤DN300] | Components (Mat+Woven roving; 450g/m ² +600g/m ²) [fix flanges, stub ends, blind flanges, branch connections, overlaminates>DN300] | Components (Mat+Woven roving; 300g/m ² +300g/m ²) [fix flanges DN25- 200, stub ends DN25-200] |
|------------------------------------|----------------|-------------------------------------|-------------------------------------|---|---|---|
| Density Pipe Material | ρ | 1600 kg/m ³ | 1750 kg/m ³ | 1600 kg/m ³ | 1550 kg/m ³ | 1550 kg/m ³ |
| Thermal Expansion-Axial | α_a | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ |
| Thermal Expansion-Hoop | α_h | 25*10 ⁻⁶ K ⁻¹ | 15*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ |
| Poisson Ratio Axial-Hoop | -- | 0,11 | 0,11 | 0,11 | 0,11 | 0,11 |
| Poisson Ratio Hoop-Axial | -- | 0,3 | 0,3 | 0,3 | 0,3 | 0,3 |
| Tensile Strength - Hoop Direction | σ_{t-h} | 140 MPa ¹⁾ | 360 MPa ²⁾ | 140 MPa ¹⁾ | 140 MPa ³⁾ | 120 MPa ³⁾ |
| Bending Strength-Hoop Direction | σ_{b-h} | 190 MPa ¹⁾ | 360 MPa ²⁾ | 190 MPa ¹⁾ | 160 MPa ³⁾ | 120 MPa ³⁾ |
| Tensile Strength - Axial Direction | σ_{t-a} | 140 MPa ¹⁾ | 180 MPa ²⁾ | 140 MPa ¹⁾ | 140 MPa ³⁾ | 120 MPa ³⁾ |
| Bending Strength-Axial Direction | σ_{b-a} | 190 MPa ¹⁾ | 180 MPa ²⁾ | 190 MPa ¹⁾ | 160 MPa ³⁾ | 120 MPa ³⁾ |
| Tensile Modulus-Hoop Direction | E_{t-h} | 10300 MPa ¹⁾ | 14000 MPa ²⁾ | 10300 MPa ¹⁾ | 9500 MPa ³⁾ | 9500 MPa ³⁾ |
| Bending Modulus-Hoop Direction | E_{b-h} | 9000 MPa ¹⁾ | 14000 MPa ²⁾ | 9000 MPa ¹⁾ | 9000 MPa ³⁾ | 9000 MPa ³⁾ |
| Tensile Modulus-Axial Direction | E_{t-a} | 10300 MPa ¹⁾ | 8000 MPa ²⁾ | 10300 MPa ¹⁾ | 9500 MPa ³⁾ | 9500 MPa ³⁾ |
| Bending Modulus-Axial Direction | E_{b-a} | 9000 MPa ¹⁾ | 8000 MPa ²⁾ | 9000 MPa ¹⁾ | 9000 MPa ³⁾ | 8000 MPa ³⁾ |
| Shear Modulus | G | 3 GPa | 3 GPa | 3 GPa | 3 GPa | 3 GPa |

Note:

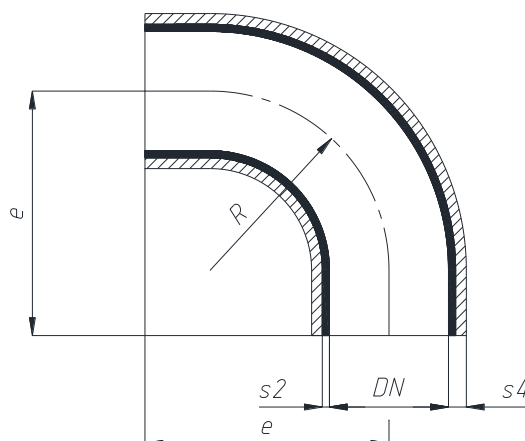
- 1) – The Mechanical Properties are confirmed with the TÜV Rheinland Industrie Service GmbH Werkstoffgutachten nr 124666135
- 2) – The Mechanical Properties are confirmed with the TÜV SÜD certificate nr: DGR-0036-QS-942-19
- 3) – The Mechanical Properties are confirmed with the TÜV Süddeutschland Einzelgutachten zu den Werkstoffen nr 343202





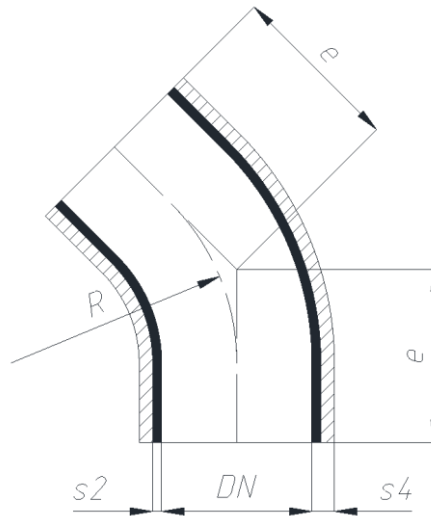
| DN | L [mm] | Thickness s4 inc. CBL s2=2,5mm | |
|-----|-----------|--------------------------------|--------------|
| | | PN16 [mm] | PN10 [mm] |
| 25 | 6000 | 4,4 | 4,4 |
| 32 | 6000 | 4,4 | 4,4 |
| 40 | 6000 | 4,4 | 4,4 |
| 50 | 6000 | 4,4 | 4,4 |
| 65 | 6000 | 4,4 | 4,4 |
| 80 | 6000 | 4,4 | 4,4 |
| 100 | 6000 | 4,4 | 4,4 |
| 125 | 6000 | 4,4 | 4,4 |
| 150 | 6000 | 4,6 | 4,4 |
| 200 | 6000 | 5,3 | 4,4 |
| 250 | 6000 | 6,0 | 4,7 |
| 300 | 6000 | 6,6 | 5,1 |
| 350 | 6000 | 7,3 | 5,5 |
| 400 | 6000 | 8,0 | 5,9 |
| 450 | 6000 | 8,6 | 6,3 |
| 500 | 6000 | 9,3 | 6,8 |
| 600 | 6000 | 10,7 | 7,6 |
| 700 | 6000 | 12,0 | 8,4 |





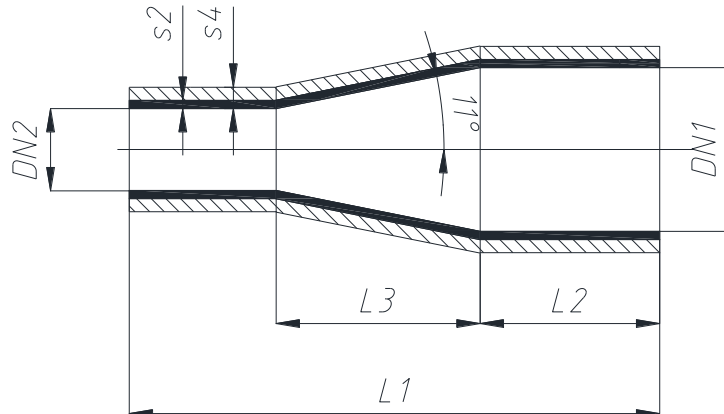
| DN | e [mm] | R [mm] | Thickness s4 inc. CBL s2=2,5mm | | | | |
|-----|--------|--------|--------------------------------|-----------|----------|----------|------------|
| | | | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 25 | 110 | 37,5 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 32 | 130 | 48 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 40 | 150 | 60 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 50 | 180 | 75 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 65 | 140 | 97,5 | 4,6 | 4,4 | 4,4 | 4,4 | 4,4 |
| 80 | 165 | 120 | 5,0 | 4,4 | 4,4 | 4,4 | 4,4 |
| 100 | 205 | 150 | 5,6 | 4,5 | 4,4 | 4,4 | 4,4 |
| 125 | 245 | 187,5 | 6,4 | 4,9 | 4,4 | 4,4 | 4,4 |
| 150 | 285 | 225 | 7,2 | 5,4 | 4,4 | 4,4 | 4,4 |
| 200 | 365 | 300 | 8,7 | 6,4 | 4,8 | 4,4 | 4,4 |
| 250 | 450 | 375 | 10,3 | 7,3 | 5,4 | 4,4 | 4,4 |
| 300 | 525 | 450 | 11,9 | 8,3 | 6,0 | 4,8 | 4,4 |
| 350 | 600 | 525 | 13,4 | 9,2 | 6,5 | 5,2 | 4,4 |
| 400 | 680 | 520 | 14,8 | 10,1 | 7,0 | 5,5 | 4,4 |
| 450 | 775 | 675 | 16,5 | 11,2 | 7,7 | 6,0 | 4,7 |
| 500 | 830 | 630 | 17,8 | 11,9 | 8,1 | 6,3 | 4,9 |
| 600 | 950 | 720 | 20,7 | 13,7 | 9,2 | 7,0 | 5,3 |
| 700 | 1100 | 840 | 23,7 | 15,6 | 10,3 | 7,7 | 5,8 |





| DN | e [mm] | R [mm] | Thickness s4 inc. CBL s2=2,5mm | | | | |
|-----|--------|--------|--------------------------------|-----------|----------|----------|------------|
| | | | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 25 | 70 | 37,5 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 32 | 80 | 48 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 40 | 90 | 60 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 50 | 105 | 75 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 65 | 85 | 97,5 | 4,6 | 4,4 | 4,4 | 4,4 | 4,4 |
| 80 | 100 | 120 | 5,0 | 4,4 | 4,4 | 4,4 | 4,4 |
| 100 | 115 | 150 | 5,6 | 4,5 | 4,4 | 4,4 | 4,4 |
| 125 | 135 | 187,5 | 6,4 | 4,9 | 4,4 | 4,4 | 4,4 |
| 150 | 150 | 225 | 7,2 | 5,4 | 4,4 | 4,4 | 4,4 |
| 200 | 190 | 300 | 8,7 | 6,4 | 4,8 | 4,4 | 4,4 |
| 250 | 225 | 375 | 10,3 | 7,3 | 5,4 | 4,4 | 4,4 |
| 300 | 260 | 450 | 11,9 | 8,3 | 6,0 | 4,8 | 4,4 |
| 350 | 290 | 525 | 13,4 | 9,2 | 6,5 | 5,2 | 4,4 |
| 400 | 325 | 430 | 14,8 | 10,1 | 7,0 | 5,5 | 4,4 |
| 450 | 380 | 675 | 16,5 | 11,2 | 7,7 | 6,0 | 4,7 |
| 500 | 390 | 470 | 17,8 | 11,9 | 8,1 | 6,3 | 4,9 |
| 600 | 430 | 900 | 20,7 | 13,7 | 9,2 | 7,0 | 5,3 |
| 700 | 490 | 1190 | 23,7 | 15,6 | 10,3 | 7,7 | 5,8 |





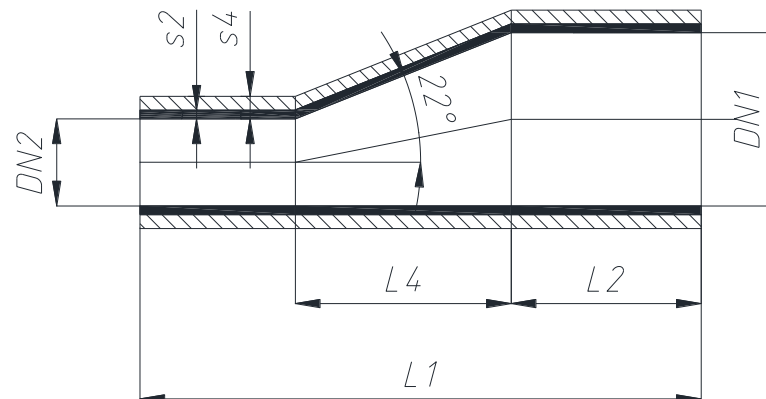
| DN1 | DN2 | L1 [mm] | L2 [mm] | L3 [mm] | Thickness s4 inc. CBL s2=2,5mm | | | | |
|-----|-----|------------|------------|------------|--------------------------------|--------------|-------------|-------------|---------------|
| | | | | | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 32 | 25 | 180 | 85 | 17,5 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 40 | 25 | 205 | 85 | 37,5 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 40 | 32 | 200 | 85 | 20 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 50 | 25 | 235 | 85 | 62,5 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 50 | 32 | 230 | 85 | 46 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 50 | 40 | 205 | 85 | 25 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 65 | 32 | 260 | 85 | 83 | 4,9 | 4,4 | 4,4 | 4,4 | 4,4 |
| 65 | 40 | 235 | 85 | 62,5 | 4,9 | 4,4 | 4,4 | 4,4 | 4,4 |
| 65 | 50 | 210 | 85 | 37,5 | 4,9 | 4,4 | 4,4 | 4,4 | 4,4 |
| 80 | 40 | 275 | 85 | 100 | 5,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 80 | 50 | 245 | 85 | 75 | 5,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 80 | 65 | 210 | 85 | 37,5 | 5,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 100 | 50 | 325 | 110 | 125 | 6,2 | 4,8 | 4,4 | 4,4 | 4,4 |
| 100 | 65 | 285 | 110 | 87,5 | 6,2 | 4,8 | 4,4 | 4,4 | 4,4 |
| 100 | 80 | 250 | 110 | 50 | 6,2 | 4,8 | 4,4 | 4,4 | 4,4 |
| 125 | 65 | 350 | 110 | 150 | 7,1 | 5,3 | 4,4 | 4,4 | 4,4 |
| 125 | 80 | 310 | 110 | 113 | 7,1 | 5,3 | 4,4 | 4,4 | 4,4 |
| 125 | 100 | 285 | 110 | 62,5 | 7,1 | 5,3 | 4,4 | 4,4 | 4,4 |
| 150 | 80 | 375 | 110 | 175 | 8,0 | 5,9 | 4,5 | 4,4 | 4,4 |
| 150 | 100 | 350 | 110 | 125 | 8,0 | 5,9 | 4,5 | 4,4 | 4,4 |
| 150 | 125 | 310 | 110 | 62,5 | 8,0 | 5,9 | 4,5 | 4,4 | 4,4 |
| 200 | 100 | 490 | 127 | 250 | 9,8 | 7,0 | 5,2 | 4,4 | 4,4 |
| 200 | 125 | 430 | 127 | 188 | 9,8 | 7,0 | 5,2 | 4,4 | 4,4 |
| 200 | 150 | 370 | 127 | 125 | 9,8 | 7,0 | 5,2 | 4,4 | 4,4 |





| DN1 | DN2 | L1 | L2 | L3 | Thickness s4 inc. CBL s2=2,5mm | | | | |
|-----|-----|------|------|-------|--------------------------------|--------------|-------------|-------------|---------------|
| | | [mm] | [mm] | [mm] | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 250 | 125 | 575 | 143 | 312,5 | 11,6 | 8,1 | 5,9 | 4,8 | 4,4 |
| 250 | 150 | 510 | 143 | 250 | 11,6 | 8,1 | 5,9 | 4,8 | 4,4 |
| 250 | 200 | 400 | 143 | 125 | 11,6 | 8,1 | 5,9 | 4,8 | 4,4 |
| 300 | 150 | 655 | 158 | 375 | 13,4 | 9,2 | 6,5 | 5,2 | 4,4 |
| 300 | 200 | 540 | 158 | 250 | 13,4 | 9,2 | 6,5 | 5,2 | 4,4 |
| 300 | 250 | 435 | 158 | 125 | 13,4 | 9,2 | 6,5 | 5,2 | 4,4 |
| 350 | 200 | 665 | 150 | 385 | 15,2 | 10,4 | 7,2 | 5,6 | 4,5 |
| 350 | 250 | 550 | 150 | 255 | 15,2 | 10,4 | 7,2 | 5,6 | 4,5 |
| 350 | 300 | 440 | 150 | 130 | 15,2 | 10,4 | 7,2 | 5,6 | 4,5 |
| 400 | 250 | 695 | 166 | 385 | 17,0 | 11,5 | 7,9 | 6,1 | 4,7 |
| 400 | 300 | 580 | 166 | 255 | 17,0 | 11,5 | 7,9 | 6,1 | 4,7 |
| 400 | 350 | 450 | 166 | 130 | 17,0 | 11,5 | 7,9 | 6,1 | 4,7 |
| 500 | 300 | 865 | 191 | 515 | 20,6 | 13,7 | 9,2 | 7,0 | 5,3 |
| 500 | 350 | 730 | 191 | 375 | 20,6 | 13,7 | 9,2 | 7,0 | 5,3 |
| 500 | 400 | 615 | 191 | 255 | 20,6 | 13,7 | 9,2 | 7,0 | 5,3 |
| 600 | 350 | 980 | 181 | 630 | 24,3 | 15,9 | 10,5 | 7,8 | 5,8 |
| 600 | 400 | 865 | 181 | 515 | 24,3 | 15,9 | 10,5 | 7,8 | 5,8 |
| 600 | 500 | 630 | 181 | 255 | 24,3 | 15,9 | 10,5 | 7,8 | 5,8 |
| 700 | 400 | 1160 | 197 | 775 | 27,9 | 18,2 | 11,8 | 8,7 | 6,4 |
| 700 | 500 | 930 | 197 | 515 | 27,9 | 18,2 | 11,8 | 8,7 | 6,4 |
| 700 | 600 | 660 | 197 | 255 | 27,9 | 18,2 | 11,8 | 8,7 | 6,4 |





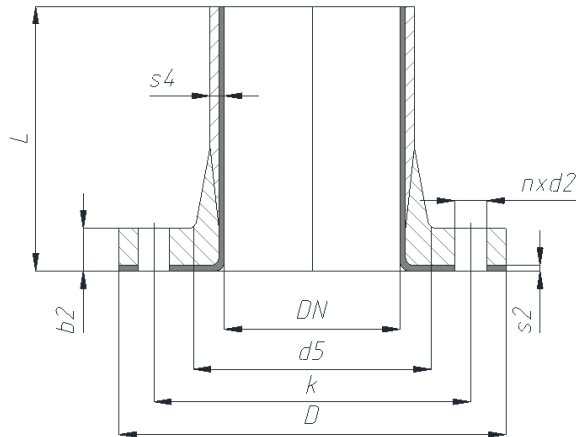
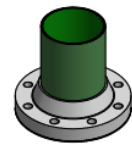
| DN1 | DN2 | L1 [mm] | L2 [mm] | L4 [mm] | Thickness s4 inc. CBL s2=2,5mm | | | | |
|-----|-----|------------|------------|------------|--------------------------------|--------------|-------------|-------------|---------------|
| | | | | | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 32 | 25 | 180 | 85 | 20 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 40 | 25 | 205 | 85 | 40 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 40 | 32 | 200 | 85 | 20 | 4,4 | 4,4 | 4,4 | 4,4 | 4,4 |
| 50 | 25 | 235 | 85 | 60 | 4,5 | 4,4 | 4,4 | 4,4 | 4,4 |
| 50 | 32 | 230 | 85 | 45 | 4,5 | 4,4 | 4,4 | 4,4 | 4,4 |
| 50 | 40 | 205 | 85 | 25 | 4,5 | 4,4 | 4,4 | 4,4 | 4,4 |
| 65 | 32 | 260 | 85 | 80 | 5,0 | 4,4 | 4,4 | 4,4 | 4,4 |
| 65 | 40 | 235 | 85 | 60 | 5,0 | 4,4 | 4,4 | 4,4 | 4,4 |
| 65 | 50 | 210 | 85 | 40 | 5,0 | 4,4 | 4,4 | 4,4 | 4,4 |
| 80 | 40 | 275 | 85 | 100 | 5,6 | 4,4 | 4,4 | 4,4 | 4,4 |
| 80 | 50 | 245 | 85 | 75 | 5,6 | 4,4 | 4,4 | 4,4 | 4,4 |
| 80 | 65 | 210 | 85 | 35 | 5,6 | 4,4 | 4,4 | 4,4 | 4,4 |
| 100 | 50 | 325 | 110 | 125 | 6,4 | 4,9 | 4,4 | 4,4 | 4,4 |
| 100 | 65 | 285 | 110 | 85 | 6,4 | 4,9 | 4,4 | 4,4 | 4,4 |
| 100 | 80 | 250 | 110 | 50 | 6,4 | 4,9 | 4,4 | 4,4 | 4,4 |
| 125 | 65 | 350 | 110 | 150 | 7,3 | 5,5 | 4,4 | 4,4 | 4,4 |
| 125 | 80 | 310 | 110 | 110 | 7,3 | 5,5 | 4,4 | 4,4 | 4,4 |
| 125 | 100 | 285 | 110 | 60 | 7,3 | 5,5 | 4,4 | 4,4 | 4,4 |
| 150 | 80 | 375 | 110 | 175 | 8,3 | 6,1 | 4,7 | 4,4 | 4,4 |
| 150 | 100 | 350 | 110 | 125 | 8,3 | 6,1 | 4,7 | 4,4 | 4,4 |
| 150 | 125 | 310 | 110 | 60 | 8,3 | 6,1 | 4,7 | 4,4 | 4,4 |
| 200 | 100 | 490 | 127 | 245 | 10,2 | 7,3 | 5,4 | 4,4 | 4,4 |
| 200 | 125 | 430 | 127 | 185 | 10,2 | 7,3 | 5,4 | 4,4 | 4,4 |
| 200 | 150 | 370 | 127 | 125 | 10,2 | 7,3 | 5,4 | 4,4 | 4,4 |





| DN1 | DN2 | L1 | L2 | L4 | Thickness s4 inc. CBL s2=2,5mm | | | | |
|-----|-----|------|------|------|--------------------------------|--------------|-------------|-------------|---------------|
| | | [mm] | [mm] | [mm] | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 250 | 125 | 575 | 143 | 310 | 12,1 | 8,5 | 6,1 | 4,9 | 4,4 |
| 250 | 150 | 510 | 143 | 245 | 12,1 | 8,5 | 6,1 | 4,9 | 4,4 |
| 250 | 200 | 400 | 143 | 125 | 12,1 | 8,5 | 6,1 | 4,9 | 4,4 |
| 300 | 150 | 655 | 158 | 370 | 14,0 | 9,6 | 6,8 | 5,3 | 4,4 |
| 300 | 200 | 540 | 158 | 245 | 14,0 | 9,6 | 6,8 | 5,3 | 4,4 |
| 300 | 250 | 435 | 158 | 125 | 14,0 | 9,6 | 6,8 | 5,3 | 4,4 |
| 350 | 200 | 665 | 150 | 370 | 16,0 | 10,8 | 7,5 | 5,8 | 4,6 |
| 350 | 250 | 550 | 150 | 245 | 16,0 | 10,8 | 7,5 | 5,8 | 4,6 |
| 350 | 300 | 440 | 150 | 125 | 16,0 | 10,8 | 7,5 | 5,8 | 4,6 |
| 400 | 250 | 695 | 166 | 370 | 17,9 | 12,0 | 8,2 | 6,3 | 4,9 |
| 400 | 300 | 580 | 166 | 245 | 17,9 | 12,0 | 8,2 | 6,3 | 4,9 |
| 400 | 350 | 450 | 166 | 125 | 17,9 | 12,0 | 8,2 | 6,3 | 4,9 |
| 500 | 300 | 865 | 191 | 495 | 21,7 | 14,4 | 9,6 | 7,2 | 5,5 |
| 500 | 350 | 730 | 191 | 370 | 21,7 | 14,4 | 9,6 | 7,2 | 5,5 |
| 500 | 400 | 615 | 191 | 245 | 21,7 | 14,4 | 9,6 | 7,2 | 5,5 |
| 600 | 350 | 980 | 181 | 620 | 25,5 | 16,7 | 11,0 | 8,1 | 6,0 |
| 600 | 400 | 865 | 181 | 495 | 25,5 | 16,7 | 11,0 | 8,1 | 6,0 |
| 600 | 500 | 630 | 181 | 245 | 25,5 | 16,7 | 11,0 | 8,1 | 6,0 |
| 700 | 400 | 1160 | 197 | 740 | 29,4 | 19,1 | 12,4 | 9,1 | 6,6 |
| 700 | 500 | 930 | 197 | 495 | 29,4 | 19,1 | 12,4 | 9,1 | 6,6 |
| 700 | 600 | 660 | 197 | 245 | 29,4 | 19,1 | 12,4 | 9,1 | 6,6 |



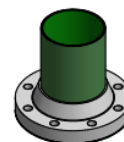


| DN | PN16 (drilling PN16) | | | | | | | |
|-----|----------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 25 | 115 | 50 | 4,4 | 14 | 85 | 4 | 14 | 250 |
| 32 | 140 | 58 | 4,4 | 15 | 100 | 4 | 18 | 250 |
| 40 | 150 | 68 | 4,4 | 16 | 110 | 4 | 18 | 250 |
| 50 | 165 | 82 | 4,4 | 18 | 125 | 4 | 18 | 250 |
| 65 | 185 | 110 | 4,4 | 25 | 145 | 8 | 18 | 250 |
| 80 | 200 | 125 | 4,4 | 28 | 160 | 8 | 18 | 250 |
| 100 | 220 | 145 | 4,4 | 38 | 180 | 8 | 18 | 250 |
| 125 | 250 | 175 | 4,4 | 35 | 210 | 8 | 18 | 250 |
| 150 | 285 | 200 | 4,6 | 40 | 240 | 8 | 22 | 250 |
| 200 | 340 | 255 | 5,3 | 50 | 295 | 12 | 22 | 250 |
| 250 | 405 | 305 | 6,0 | 60 | 355 | 12 | 26 | 250 |
| 300 | 460 | 360 | 6,6 | 70 | 410 | 12 | 26 | 300 |
| 350 | 520 | 420 | 7,3 | 80 | 470 | 16 | 26 | 350 |
| 400 | 580 | 470 | 8,0 | 90 | 525 | 16 | 30 | 400 |
| 450 | 640 | 530 | 8,6 | 95 | 585 | 20 | 30 | 450 |
| 500 | 715 | 590 | 9,3 | 100 | 650 | 20 | 33 | 500 |

Note:

*s4,*b2 – thickness incl. CBL=2,5mm





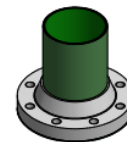
| DN | PN10 (drilling PN10) | | | | | | | |
|-----|----------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 65 | 185 | 95 | 4,4 | 20 | 145 | 4 | 18 | 250 |
| 80 | 200 | 111 | 4,4 | 22 | 160 | 8 | 18 | 250 |
| 100 | 220 | 133 | 4,4 | 24 | 180 | 8 | 18 | 250 |
| 125 | 250 | 160 | 4,4 | 27 | 210 | 8 | 18 | 250 |
| 150 | 285 | 188 | 4,4 | 30 | 240 | 8 | 22 | 250 |
| 200 | 340 | 245 | 4,4 | 35 | 295 | 8 | 22 | 250 |
| 250 | 395 | 300 | 4,7 | 40 | 350 | 12 | 22 | 250 |
| 300 | 445 | 350 | 5,1 | 50 | 400 | 12 | 22 | 250 |
| 350 | 505 | 410 | 5,5 | 60 | 460 | 16 | 22 | 250 |
| 400 | 565 | 460 | 5,9 | 70 | 515 | 16 | 26 | 300 |
| 450 | 615 | 513 | 6,3 | 75 | 565 | 20 | 26 | 350 |
| 500 | 670 | 565 | 6,8 | 80 | 620 | 20 | 26 | 350 |
| 600 | 780 | 660 | 7,6 | 90 | 725 | 20 | 30 | 400 |
| 700 | 895 | 780 | 8,4 | 100 | 840 | 24 | 30 | 450 |

| DN | PN6 (drilling PN10) | | | | | | | |
|-----|---------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 200 | 340 | 245 | 4,4 | 33 | 295 | 8 | 22 | 250 |
| 250 | 395 | 300 | 4,7 | 37 | 350 | 12 | 22 | 250 |
| 300 | 445 | 350 | 5,1 | 42 | 400 | 12 | 22 | 250 |
| 350 | 505 | 410 | 5,5 | 50 | 460 | 16 | 22 | 250 |
| 400 | 565 | 460 | 5,9 | 55 | 515 | 16 | 26 | 250 |
| 450 | 615 | 513 | 6,3 | 58 | 565 | 20 | 26 | 250 |
| 500 | 670 | 565 | 6,8 | 60 | 620 | 20 | 26 | 250 |
| 600 | 780 | 660 | 7,6 | 65 | 725 | 20 | 30 | 300 |
| 700 | 895 | 780 | 8,4 | 70 | 840 | 24 | 30 | 300 |

Note:

*s4,*b2 – thickness incl. CBL=2,5mm





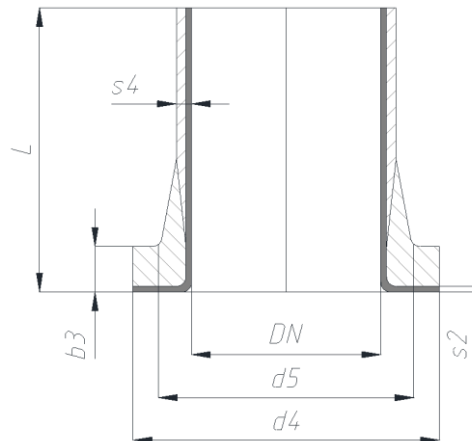
| DN | PN4 (drilling PN10) | | | | | | | |
|-----|---------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 350 | 505 | 410 | 5,5 | 40 | 460 | 16 | 22 | 250 |
| 400 | 565 | 460 | 5,9 | 44 | 515 | 16 | 26 | 250 |
| 450 | 615 | 513 | 6,3 | 47 | 565 | 20 | 26 | 250 |
| 500 | 670 | 565 | 6,8 | 49 | 620 | 20 | 26 | 250 |
| 600 | 780 | 660 | 7,6 | 55 | 725 | 20 | 30 | 300 |
| 700 | 895 | 780 | 8,4 | 60 | 840 | 24 | 30 | 300 |

| DN | PN2,5 (drilling PN10) | | | | | | | |
|-----|-----------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 600 | 780 | 660 | 7,6 | 49 | 725 | 20 | 30 | 300 |
| 700 | 895 | 780 | 8,4 | 53 | 840 | 24 | 30 | 300 |

Note:

*s4,*b2 – thickness incl. CBL=2,5mm





| DN | PN16 | | | | |
|-----|---------|---------|----------|----------|--------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 25 | 68 | 50 | 4,4 | 12 | 200 |
| 32 | 78 | 58 | 4,4 | 14 | 200 |
| 40 | 88 | 68 | 4,4 | 14 | 200 |
| 50 | 102 | 82 | 4,4 | 14 | 200 |
| 65 | 122 | 95 | 4,4 | 18 | 200 |
| 80 | 138 | 111 | 4,4 | 22 | 200 |
| 100 | 158 | 133 | 4,4 | 27 | 200 |
| 125 | 188 | 160 | 4,4 | 30 | 200 |
| 150 | 212 | 188 | 4,6 | 35 | 200 |
| 200 | 268 | 237 | 5,3 | 40 | 250 |
| 250 | 320 | 293 | 6,0 | 50 | 300 |
| 300 | 378 | 347 | 6,6 | 60 | 350 |
| 350 | 438 | 398 | 7,3 | 70 | 400 |
| 400 | 490 | 452 | 8,0 | 80 | 450 |
| 450 | 550 | 502 | 8,6 | 85 | 500 |
| 500 | 610 | 554 | 9,3 | 90 | 550 |

Note:

*s4,*b3 – thickness incl. CBL=2,5mm

Stub ends in the range of DN25–DN300 are manufactured in a process of hand lay-up lamination or pressing lamination (RAL9010)





| DN | PN10 | | | | |
|-----|------------|------------|-------------|-------------|-----------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 65 | 122 | 95 | 4,4 | 15 | 200 |
| 80 | 138 | 111 | 4,4 | 16 | 200 |
| 100 | 158 | 133 | 4,4 | 18 | 200 |
| 125 | 188 | 160 | 4,4 | 20 | 200 |
| 150 | 212 | 188 | 4,4 | 22 | 200 |
| 200 | 268 | 237 | 4,4 | 28 | 250 |
| 250 | 320 | 293 | 4,7 | 35 | 300 |
| 300 | 370 | 343 | 5,1 | 45 | 350 |
| 350 | 430 | 387 | 5,5 | 50 | 300 |
| 400 | 482 | 441 | 5,9 | 65 | 350 |
| 450 | 532 | 492 | 6,3 | 70 | 400 |
| 500 | 585 | 544 | 6,8 | 75 | 400 |
| 600 | 685 | 648 | 7,6 | 85 | 500 |
| 700 | 800 | 758 | 8,4 | 95 | 550 |

| DN | PN6 | | | | |
|-----|------------|------------|-------------|-------------|-----------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 200 | 268 | 237 | 4,4 | 25 | 250 |
| 250 | 320 | 293 | 4,7 | 28 | 300 |
| 300 | 370 | 343 | 5,1 | 30 | 350 |
| 350 | 430 | 387 | 5,5 | 40 | 250 |
| 400 | 482 | 441 | 5,9 | 45 | 250 |
| 450 | 532 | 492 | 6,3 | 48 | 300 |
| 500 | 585 | 544 | 6,8 | 50 | 300 |
| 600 | 685 | 648 | 7,6 | 55 | 350 |
| 700 | 800 | 758 | 8,4 | 70 | 400 |

Note:

*s4,*b3 – thickness incl. CBL=2,5mm

Stub ends in the range of DN25–DN300 are manufactured in a process of hand lay-up lamination or pressing lamination (RAL9010)





| DN | PN4 | | | | |
|------------|------------|------------|-------------|-------------|-----------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 350 | 430 | 387 | 5,5 | 32 | 250 |
| 400 | 482 | 441 | 5,9 | 35 | 250 |
| 450 | 532 | 492 | 6,3 | 37 | 250 |
| 500 | 585 | 544 | 6,8 | 38 | 250 |
| 600 | 685 | 648 | 7,6 | 50 | 350 |
| 700 | 800 | 758 | 8,4 | 58 | 400 |

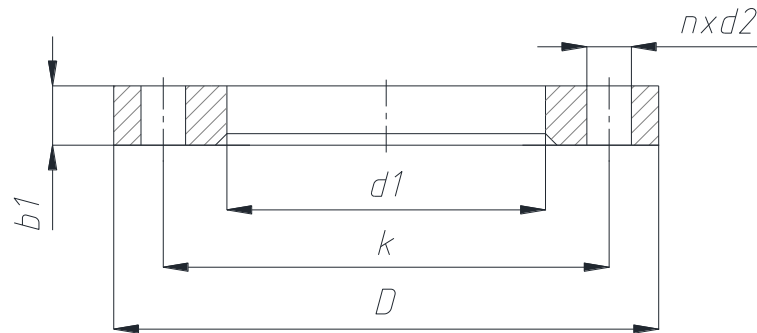
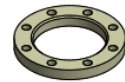
| DN | PN2,5 | | | | |
|------------|------------|------------|-------------|-------------|-----------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 600 | 685 | 648 | 7,6 | 45 | 350 |
| 700 | 800 | 758 | 8,4 | 53 | 350 |

Note:

*s4,*b3 – thickness incl. CBL=2,5mm

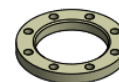
Stub ends in the range of DN25–DN300 are manufactured in a process of hand lay-up lamination or pressing lamination (RAL9010)





| DN | PN16 (drilling PN16) | | | | | | |
|-----|----------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 25 | 115 | 50,5 | 14 | 16 | 85 | 4 | 14 |
| 32 | 140 | 58,5 | 15 | 18 | 100 | 4 | 18 |
| 40 | 150 | 68,5 | 16 | 18 | 110 | 4 | 18 |
| 50 | 165 | 82,5 | 18 | 20 | 125 | 4 | 18 |
| 65 | 185 | 95,5 | - | 20 | 145 | 8 | 18 |
| 80 | 200 | 111,5 | - | 20 | 160 | 8 | 18 |
| 100 | 220 | 133,5 | - | 22 | 180 | 8 | 18 |
| 125 | 250 | 160,5 | - | 22 | 210 | 8 | 18 |
| 150 | 285 | 188,5 | - | 24 | 240 | 8 | 22 |
| 200 | 340 | 238 | - | 26 | 295 | 12 | 22 |
| 250 | 405 | 294 | - | 28 | 355 | 12 | 26 |
| 300 | 460 | 348 | - | 32 | 410 | 12 | 26 |
| 350 | 520 | 400 | - | 35 | 470 | 16 | 26 |
| 400 | 580 | 454 | - | 38 | 525 | 16 | 29,5 |
| 500 | 715 | 556 | - | 46 | 650 | 20 | 32,5 |

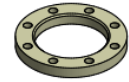




| DN | PN10 (drilling PN10) | | | | | | |
|-----|----------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 65 | 185 | 95,5 | 20 | 20 | 145 | 4 | 18 |
| 80 | 200 | 111,5 | 22 | 20 | 160 | 8 | 18 |
| 100 | 220 | 133,5 | 24 | 22 | 180 | 8 | 18 |
| 125 | 250 | 160,5 | 27 | 22 | 210 | 8 | 18 |
| 150 | 285 | 188,5 | 30 | 24 | 240 | 8 | 22 |
| 200 | 340 | 238 | - | 24 | 295 | 8 | 22 |
| 250 | 395 | 294 | - | 26 | 350 | 12 | 22 |
| 300 | 445 | 344 | - | 28 | 400 | 12 | 22 |
| 350 | 505 | 388 | - | 30 | 460 | 16 | 22 |
| 400 | 565 | 442 | - | 32 | 515 | 16 | 26 |
| 500 | 670 | 545 | - | 38 | 620 | 20 | 26 |
| 600 | 780 | 650 | - | 42 | 725 | 20 | 30 |
| 700 | 895 | 760 | - | 46 | 840 | 24 | 30 |

| DN | PN6 (drilling PN10) | | | | | | |
|-----|---------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 200 | 340 | 238 | 32 | 22 | 295 | 8 | 22 |
| 250 | 395 | 294 | 34 | 24 | 350 | 12 | 22 |
| 300 | 445 | 344 | 36 | 24 | 400 | 12 | 22 |
| 350 | 505 | 388 | - | 26 | 460 | 16 | 22 |
| 400 | 565 | 442 | - | 28 | 515 | 16 | 26 |
| 500 | 670 | 545 | - | 32 | 620 | 20 | 26 |
| 600 | 780 | 650 | - | 36 | 725 | 20 | 30 |
| 700 | 895 | 760 | - | 40 | 840 | 24 | 30 |

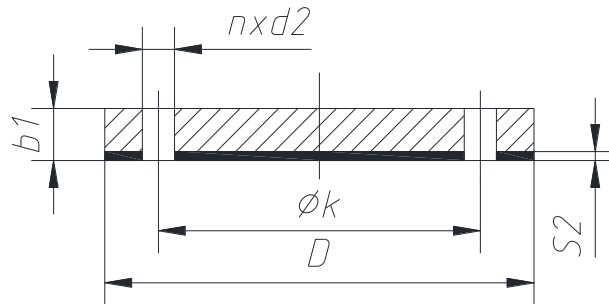
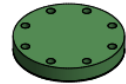




| DN | PN4 (drilling PN10) | | | | | | |
|-----|---------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 350 | 505 | 388 | 38 | 26 | 460 | 16 | 22 |
| 400 | 565 | 442 | 42 | 28 | 515 | 16 | 26 |
| 500 | 670 | 545 | 47 | 32 | 620 | 20 | 26 |

| DN | PN2,5 (drilling PN10) | | | | | | |
|-----|-----------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 600 | 780 | 650 | 51 | 36 | 725 | 20 | 30 |
| 700 | 895 | 760 | - | 36 | 840 | 24 | 30 |





| DN | PN16 (drilling PN16) | | | | |
|-----|----------------------|-------------|-----------|-----------|------------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 25 | 115 | 17 | 85 | 4 | 14 |
| 32 | 140 | 19 | 100 | 4 | 18 |
| 40 | 150 | 22 | 110 | 4 | 18 |
| 50 | 165 | 24 | 125 | 4 | 18 |
| 65 | 185 | 27 | 145 | 8 | 18 |
| 80 | 200 | 30 | 160 | 8 | 18 |
| 100 | 220 | 33 | 180 | 8 | 18 |
| 125 | 250 | 37 | 210 | 8 | 18 |
| 150 | 285 | 41 | 240 | 8 | 22 |
| 200 | 340 | 43 | 295 | 12 | 22 |
| 250 | 405 | 51 | 355 | 12 | 26 |
| 300 | 460 | 58 | 410 | 12 | 26 |
| 350 | 520 | 67 | 470 | 16 | 26 |
| 400 | 580 | 74 | 525 | 16 | 30 |
| 450 | 640 | 83 | 585 | 20 | 30 |
| 500 | 715 | 91 | 650 | 20 | 33 |

Note:

*b1 – thickness incl. CBL=2,5mm





| DN | PN10 (drilling PN10) | | | | |
|-----|----------------------|----------|--------|--------|---------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 65 | 185 | 23 | 145 | 4 | 18 |
| 80 | 200 | 26 | 160 | 8 | 18 |
| 100 | 220 | 29 | 180 | 8 | 18 |
| 125 | 250 | 31 | 210 | 8 | 18 |
| 150 | 285 | 35 | 240 | 8 | 22 |
| 200 | 340 | 36 | 295 | 8 | 22 |
| 250 | 395 | 43 | 350 | 12 | 22 |
| 300 | 445 | 48 | 400 | 12 | 22 |
| 350 | 505 | 55 | 460 | 16 | 22 |
| 400 | 565 | 61 | 515 | 16 | 26 |
| 450 | 615 | 68 | 565 | 20 | 26 |
| 500 | 670 | 74 | 620 | 20 | 26 |
| 600 | 780 | 85 | 725 | 20 | 30 |
| 700 | 895 | 95 | 840 | 24 | 30 |

| DN | PN6 (drilling PN10) | | | | |
|-----|---------------------|----------|--------|--------|---------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 200 | 340 | 28 | 295 | 8 | 22 |
| 250 | 395 | 33 | 350 | 12 | 22 |
| 300 | 445 | 37 | 400 | 12 | 22 |
| 350 | 505 | 43 | 460 | 16 | 22 |
| 400 | 565 | 47 | 515 | 16 | 26 |
| 450 | 615 | 52 | 565 | 20 | 26 |
| 500 | 670 | 57 | 620 | 20 | 26 |
| 600 | 780 | 66 | 725 | 20 | 30 |
| 700 | 895 | 76 | 840 | 24 | 30 |

Note:

*b1 – thickness incl. CBL=2,5mm





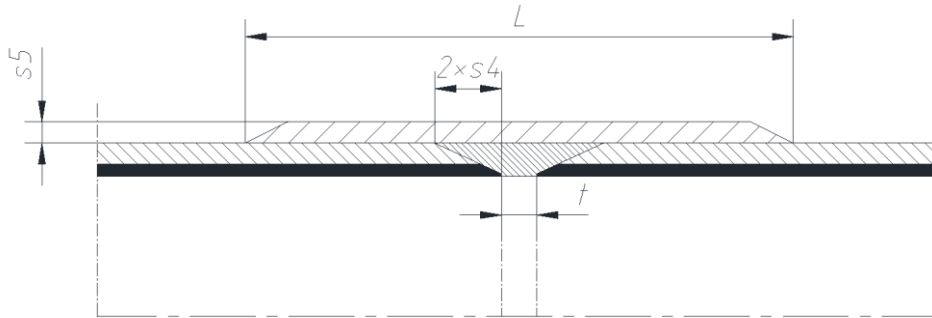
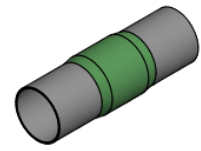
| DN | PN4 (drilling PN10) | | | | |
|------------|---------------------|----------|--------|--------|---------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 350 | 505 | 35 | 460 | 16 | 22 |
| 400 | 565 | 39 | 515 | 16 | 26 |
| 450 | 615 | 43 | 565 | 20 | 26 |
| 500 | 670 | 47 | 620 | 20 | 26 |
| 600 | 780 | 54 | 725 | 20 | 30 |
| 700 | 895 | 62 | 840 | 24 | 30 |

| DN | PN2,5 (drilling PN10) | | | | |
|------------|-----------------------|----------|--------|--------|---------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 600 | 780 | 43 | 725 | 20 | 30 |
| 700 | 895 | 49 | 840 | 24 | 30 |

Note:

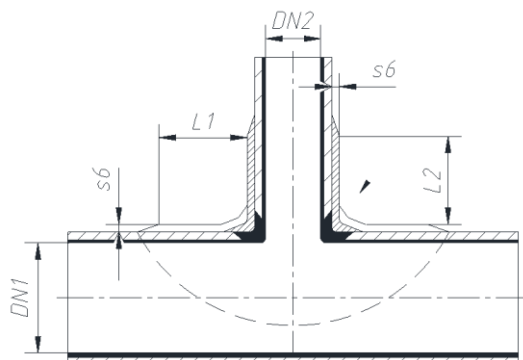
*b1 – thickness incl. CBL=2,5mm





| DN | t [mm] | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|
| | | s5 [mm] | L [mm] | s5 [mm] | L [mm] | s5 [mm] | L [mm] | s5 [mm] | L [mm] | s5 [mm] | L [mm] |
| 25 | 0,5 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 32 | 0,5 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 40 | 0,5 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 50 | 0,6 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 65 | 0,7 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 80 | 0,8 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 100 | 0,9 | 4,0 | 135 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 125 | 1,0 | 4,5 | 165 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 150 | 1,1 | 5,4 | 195 | 4,0 | 125 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 200 | 1,3 | 7,2 | 255 | 4,4 | 160 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 250 | 1,6 | 8,9 | 320 | 5,5 | 200 | 4,0 | 120 | 4,0 | 110 | 4,0 | 110 |
| 300 | 1,8 | 10,7 | 380 | 6,6 | 235 | 4,0 | 145 | 4,0 | 110 | 4,0 | 110 |
| 350 | 2,0 | 12,5 | 440 | 7,7 | 275 | 4,6 | 165 | 4,0 | 115 | 4,0 | 110 |
| 400 | 2,0 | 14,3 | 505 | 8,8 | 315 | 5,3 | 190 | 4,0 | 130 | 4,0 | 110 |
| 450 | 2,0 | 16,0 | 565 | 9,9 | 350 | 5,9 | 215 | 4,0 | 145 | 4,0 | 110 |
| 500 | 2,0 | 17,8 | 625 | 11,0 | 390 | 6,6 | 235 | 4,4 | 160 | 4,0 | 110 |
| 600 | 2,7 | 21,4 | 750 | 13,2 | 465 | 7,9 | 280 | 5,2 | 190 | 4,0 | 120 |
| 700 | 2,7 | 24,9 | 875 | 15,4 | 545 | 9,2 | 330 | 6,1 | 220 | 4,0 | 140 |

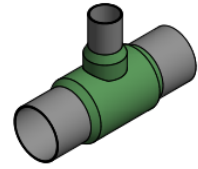




saddle DN1>2*DN2

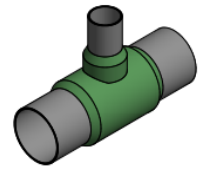
| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 65 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 32 | 5,3 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 25 | 5,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 32 | 6,3 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 32 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 40 | 5,6 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 25 | 5,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 32 | 6,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 40 | 7,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 50 | 7,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 25 | 6,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 32 | 7,3 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 40 | 8,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 50 | 8,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 65 | 9,9 | 50 / 50 | 5,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 25 | 7,6 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 32 | 8,3 | 50 / 50 | 5,5 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 40 | 9,1 | 50 / 50 | 6,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 50 | 10,0 | 52 / 50 | 6,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 65 | 11,3 | 54 / 50 | 7,6 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 80 | 12,4 | 56 / 50 | 8,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |





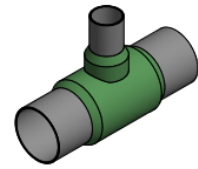
| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 250 | 25 | 8,4 | 55 / 50 | 5,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 32 | 9,3 | 58 / 50 | 6,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 40 | 10,1 | 59 / 50 | 7,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 50 | 11,1 | 61 / 50 | 7,8 | 51 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 65 | 12,5 | 64 / 50 | 8,7 | 53 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 80 | 13,7 | 67 / 50 | 9,6 | 55 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 100 | 15,3 | 70 / 50 | 10,7 | 57 / 50 | 5,5 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 25 | 9,4 | 65 / 50 | 6,4 | 52 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 32 | 10,3 | 67 / 50 | 7,1 | 54 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 40 | 11,2 | 69 / 50 | 7,7 | 56 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 50 | 12,4 | 71 / 50 | 8,5 | 58 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 65 | 13,8 | 74 / 50 | 9,6 | 61 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 80 | 15,2 | 77 / 50 | 10,5 | 63 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 100 | 16,8 | 81 / 50 | 11,7 | 66 / 50 | 5,8 | 51 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 125 | 18,7 | 84 / 55 | 13,1 | 69 / 50 | 6,8 | 54 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 350 | 25 | 10,0 | 73 / 50 | 7,0 | 60 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 350 | 32 | 11,0 | 75 / 50 | 7,7 | 62 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 350 | 40 | 12,1 | 78 / 50 | 8,4 | 64 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 350 | 50 | 13,3 | 81 / 50 | 9,2 | 66 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 350 | 65 | 14,9 | 84 / 50 | 10,3 | 69 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 350 | 80 | 16,3 | 87 / 50 | 11,4 | 72 / 50 | 5,2 | 54 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 350 | 100 | 18,1 | 91 / 50 | 12,6 | 75 / 50 | 6,0 | 57 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |





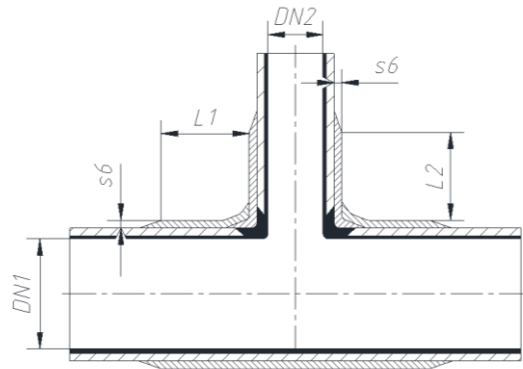
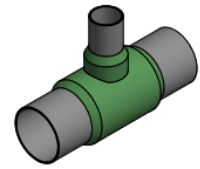
| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 350 | 125 | 20,1 | 95 / 57 | 14,1 | 78 / 50 | 7,1 | 60 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 350 | 150 | 22,0 | 98 / 65 | 15,4 | 81 / 54 | 8,1 | 63 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 400 | 25 | 10,6 | 81 / 50 | 7,5 | 67 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 |
| 400 | 32 | 11,7 | 84 / 50 | 8,2 | 69 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 |
| 400 | 40 | 12,9 | 87 / 50 | 9,0 | 71 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 |
| 400 | 50 | 14,1 | 90 / 50 | 9,9 | 74 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 |
| 400 | 65 | 15,8 | 94 / 50 | 11,1 | 77 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 |
| 400 | 80 | 17,4 | 97 / 50 | 12,2 | 80 / 50 | 5,3 | 59 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 |
| 400 | 100 | 19,2 | 101 / 51 | 13,5 | 83 / 50 | 6,3 | 63 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 |
| 400 | 125 | 21,4 | 105 / 60 | 15,0 | 87 / 50 | 7,3 | 66 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 |
| 400 | 150 | 23,3 | 109 / 67 | 16,4 | 90 / 56 | 8,4 | 69 / 50 | 5,0 | 58 / 50 | 5,0 | 58 / 50 |
| 500 | 25 | 11,9 | 98 / 50 | 8,2 | 80 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 |
| 500 | 32 | 13,1 | 101 / 50 | 9,0 | 82 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 |
| 500 | 40 | 14,4 | 104 / 50 | 9,9 | 85 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 |
| 500 | 50 | 15,9 | 108 / 50 | 10,9 | 88 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 |
| 500 | 65 | 17,8 | 113 / 50 | 12,2 | 92 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 |
| 500 | 80 | 19,5 | 116 / 50 | 13,4 | 95 / 50 | 5,4 | 70 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 |
| 500 | 100 | 21,5 | 121 / 55 | 14,9 | 99 / 50 | 6,4 | 74 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 |
| 500 | 125 | 23,9 | 126 / 64 | 16,6 | 103 / 52 | 7,6 | 78 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 |
| 500 | 150 | 26,1 | 130 / 72 | 18,1 | 107 / 59 | 8,7 | 81 / 50 | 5,0 | 69 / 50 | 5,0 | 69 / 50 |
| 500 | 200 | 30,1 | 138 / 88 | 20,9 | 113 / 72 | 10,7 | 87 / 56 | 5,3 | 70 / 50 | 5,0 | 69 / 50 |
| 600 | 25 | 12,9 | 114 / 50 | 9,0 | 93 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |





| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 600 | 32 | 14,3 | 118 / 50 | 10,0 | 96 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |
| 600 | 40 | 15,6 | 121 / 50 | 10,9 | 99 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |
| 600 | 50 | 17,2 | 125 / 50 | 12,0 | 102 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |
| 600 | 65 | 19,3 | 130 / 50 | 13,5 | 107 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |
| 600 | 80 | 21,2 | 135 / 51 | 14,8 | 110 / 50 | 5,6 | 81 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |
| 600 | 100 | 23,5 | 140 / 58 | 16,4 | 115 / 50 | 6,7 | 85 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |
| 600 | 125 | 26,0 | 145 / 67 | 18,2 | 119 / 55 | 7,9 | 89 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |
| 600 | 150 | 28,4 | 150 / 76 | 19,9 | 124 / 63 | 9,1 | 93 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |
| 600 | 200 | 32,8 | 159 / 93 | 22,9 | 131 / 76 | 11,3 | 100 / 58 | 5,2 | 79 / 50 | 5,0 | 78 / 50 |
| 600 | 250 | 36,7 | 167 / 108 | 25,7 | 137 / 89 | 13,3 | 106 / 69 | 6,8 | 85 / 55 | 5,0 | 78 / 51 |
| 700 | 25 | 13,9 | 130 / 50 | 9,8 | 106 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 |
| 700 | 32 | 15,4 | 134 / 50 | 10,8 | 109 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 |
| 700 | 40 | 16,9 | 138 / 50 | 11,9 | 113 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 |
| 700 | 50 | 18,7 | 142 / 50 | 13,0 | 116 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 |
| 700 | 65 | 20,9 | 148 / 50 | 14,6 | 121 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 |
| 700 | 80 | 23,0 | 153 / 53 | 16,0 | 125 / 50 | 5,7 | 91 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 |
| 700 | 100 | 25,4 | 159 / 61 | 17,8 | 130 / 50 | 6,9 | 95 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 |
| 700 | 125 | 28,2 | 165 / 71 | 19,7 | 135 / 58 | 8,2 | 100 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 |
| 700 | 150 | 30,8 | 170 / 80 | 21,5 | 140 / 66 | 9,5 | 105 / 50 | 5,0 | 88 / 50 | 5,0 | 88 / 50 |
| 700 | 200 | 35,4 | 180 / 97 | 24,7 | 148 / 80 | 11,8 | 112 / 60 | 5,0 | 88 / 50 | 5,0 | 88 / 50 |
| 700 | 250 | 39,6 | 188 / 113 | 27,7 | 155 / 93 | 13,9 | 119 / 71 | 6,7 | 95 / 57 | 5,0 | 88 / 53 |
| 700 | 300 | 43,4 | 195 / 128 | 30,4 | 161 / 106 | 15,9 | 125 / 82 | 8,2 | 100 / 66 | 5,0 | 88 / 58 |





bridge DN1 ≤ 2 * DN2

| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 25 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 32 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 32 | 32 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 40 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 40 | 32 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 40 | 40 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 50 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 50 | 32 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 50 | 40 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 50 | 50 | 5,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 32 | 5,3 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 40 | 5,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 50 | 6,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 65 | 7,3 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 40 | 6,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 50 | 7,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 65 | 8,3 | 50 / 50 | 5,2 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 80 | 9,1 | 50 / 50 | 5,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 50 | 6,3 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 65 | 7,3 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 80 | 8,2 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 100 | 9,4 | 50 / 50 | 5,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |





| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 125 | 65 | 8,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 80 | 9,8 | 50 / 50 | 5,5 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 100 | 11,0 | 50 / 50 | 6,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 125 | 12,5 | 50 / 50 | 7,5 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 80 | 10,9 | 50 / 50 | 6,5 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 100 | 12,2 | 50 / 50 | 7,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 125 | 13,7 | 50 / 50 | 8,6 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 150 | 15,2 | 52 / 52 | 9,7 | 50 / 50 | 5,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 100 | 13,8 | 59 / 50 | 9,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 125 | 15,5 | 62 / 50 | 10,6 | 51 / 50 | 5,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 150 | 17,0 | 64 / 56 | 11,8 | 53 / 50 | 6,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 200 | 20,0 | 69 / 69 | 13,9 | 57 / 57 | 8,3 | 50 / 50 | 5,3 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 125 | 17,0 | 73 / 52 | 12,0 | 60 / 50 | 6,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 150 | 18,7 | 76 / 59 | 13,2 | 63 / 50 | 7,3 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 200 | 21,9 | 81 / 73 | 15,5 | 67 / 60 | 9,0 | 54 / 50 | 5,6 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 250 | 24,8 | 86 / 86 | 17,7 | 71 / 71 | 10,6 | 57 / 57 | 6,9 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 150 | 20,5 | 87 / 62 | 14,3 | 72 / 51 | 7,7 | 56 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 200 | 23,8 | 93 / 76 | 16,7 | 77 / 63 | 9,5 | 61 / 50 | 5,6 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 250 | 26,9 | 98 / 90 | 19,0 | 81 / 74 | 11,1 | 65 / 59 | 7,0 | 54 / 50 | 5,0 | 50 / 50 |
| 300 | 300 | 29,9 | 103 / 103 | 21,1 | 85 / 85 | 12,8 | 69 / 69 | 8,3 | 58 / 58 | 5,0 | 50 / 50 |
| 350 | 200 | 25,5 | 105 / 79 | 17,9 | 86 / 66 | 9,9 | 68 / 51 | 5,6 | 55 / 50 | 5,0 | 53 / 50 |
| 350 | 250 | 28,7 | 110 / 93 | 20,2 | 91 / 77 | 11,6 | 72 / 61 | 7,0 | 60 / 51 | 5,0 | 53 / 50 |





| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 350 | 300 | 31,7 | 115 / 107 | 22,5 | 96 / 89 | 13,3 | 76 / 71 | 8,4 | 64 / 59 | 5,0 | 53 / 50 |
| 350 | 350 | 34,7 | 120 / 120 | 24,6 | 99 / 99 | 15,0 | 80 / 80 | 9,7 | 67 / 67 | 5,5 | 55 / 55 |
| 400 | 200 | 27,0 | 116 / 82 | 19,0 | 96 / 68 | 10,3 | 75 / 53 | 5,6 | 60 / 50 | 5,0 | 58 / 50 |
| 400 | 250 | 30,4 | 122 / 97 | 21,5 | 101 / 80 | 12,0 | 79 / 63 | 7,0 | 65 / 52 | 5,0 | 58 / 50 |
| 400 | 300 | 33,6 | 127 / 110 | 23,8 | 105 / 91 | 13,8 | 84 / 73 | 8,4 | 69 / 60 | 5,0 | 58 / 51 |
| 400 | 350 | 36,6 | 132 / 123 | 26,0 | 110 / 103 | 15,5 | 88 / 82 | 9,8 | 73 / 69 | 5,2 | 59 / 55 |
| 400 | 400 | 39,5 | 136 / 136 | 28,2 | 114 / 114 | 17,1 | 91 / 91 | 11,1 | 77 / 77 | 6,3 | 63 / 63 |
| 500 | 250 | 33,8 | 145 / 103 | 23,5 | 119 / 85 | 12,6 | 93 / 66 | 6,8 | 75 / 53 | 5,0 | 69 / 50 |
| 500 | 300 | 37,2 | 151 / 117 | 26,0 | 124 / 97 | 14,4 | 98 / 76 | 8,3 | 80 / 62 | 5,0 | 69 / 53 |
| 500 | 350 | 40,4 | 156 / 131 | 28,4 | 129 / 108 | 16,2 | 102 / 86 | 9,7 | 84 / 71 | 5,0 | 69 / 58 |
| 500 | 400 | 43,5 | 161 / 144 | 30,6 | 133 / 119 | 17,9 | 106 / 95 | 11,0 | 88 / 79 | 5,6 | 71 / 63 |
| 500 | 500 | 49,3 | 170 / 170 | 35,0 | 142 / 142 | 21,1 | 114 / 114 | 13,7 | 96 / 96 | 7,8 | 78 / 78 |
| 600 | 300 | 40,3 | 173 / 123 | 28,3 | 143 / 101 | 15,2 | 111 / 79 | 8,3 | 90 / 64 | 5,0 | 78 / 56 |
| 600 | 350 | 43,7 | 179 / 137 | 30,7 | 148 / 113 | 17,0 | 116 / 89 | 9,7 | 95 / 73 | 5,0 | 78 / 60 |
| 600 | 400 | 47,0 | 185 / 151 | 33,1 | 153 / 125 | 18,8 | 121 / 99 | 11,1 | 99 / 81 | 5,1 | 79 / 64 |
| 600 | 500 | 53,1 | 195 / 178 | 37,7 | 162 / 148 | 22,1 | 129 / 118 | 13,8 | 107 / 98 | 7,2 | 87 / 79 |
| 600 | 600 | 59,0 | 204 / 204 | 42,0 | 170 / 170 | 25,5 | 137 / 137 | 16,5 | 115 / 115 | 9,4 | 94 / 94 |
| 700 | 350 | 47,0 | 202 / 143 | 33,0 | 167 / 118 | 17,8 | 130 / 92 | 9,7 | 105 / 75 | 5,0 | 88 / 62 |
| 700 | 400 | 50,5 | 208 / 158 | 35,5 | 172 / 130 | 19,6 | 135 / 102 | 11,1 | 110 / 83 | 5,0 | 88 / 67 |
| 700 | 500 | 57,0 | 219 / 185 | 40,2 | 181 / 153 | 23,1 | 144 / 122 | 13,9 | 119 / 100 | 6,7 | 95 / 80 |
| 700 | 600 | 63,0 | 229 / 212 | 44,7 | 190 / 176 | 26,5 | 152 / 141 | 16,7 | 127 / 118 | 8,9 | 103 / 95 |
| 700 | 700 | 68,8 | 238 / 238 | 49,0 | 198 / 198 | 29,7 | 159 / 159 | 19,3 | 134 / 134 | 11,0 | 110 / 110 |



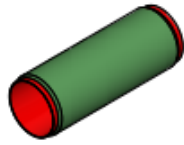


Pipes and fittings

Based on type B DIN 16965/966



Pipes



Our pipes are manufactured in a process of hand lay-up lamination in the DN25-DN65 range and filament winding in the DN80-DN700 range, based on Type B DIN16965.

Elbows 90°



Our elbows 90° are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type B DIN16966.

Elbows 45°



Our elbows 45° are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type B DIN16966.

Concentric reducers



Our concentric reducers are manufactured in a process of lay-up lamination in the DN25-DN700 range, based on Type B DIN16966.

Eccentric reducers



Our eccentric reducers are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type B DIN16966.

Fix flanges



Our fix flanges are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type B DIN16966, drilling acc. to EN1092.



Stub ends



Our stub ends are manufactured in a process of hand lay-up lamination and pressing in the DN25-DN300 range, and only hand lay-up lamination in the DN350-DN700 range, based on Type B DIN16966.

Loose Flanges



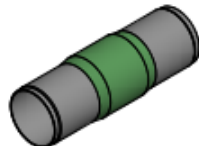
Our loose flanges can be delivered in the following materials: carbon steel (hot deep galv., painted), stainless steel, and GRP. The dimensions of the flanges are based on EN1092 pressure rates.

Blind flanges



Our blind flanges are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type B DIN16966, drilling acc. to EN1092.

Overlaminates



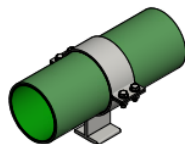
Our overlaminates are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type B DIN16966.

Branch connections



Our branch connections are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type B DIN16966.

Supports

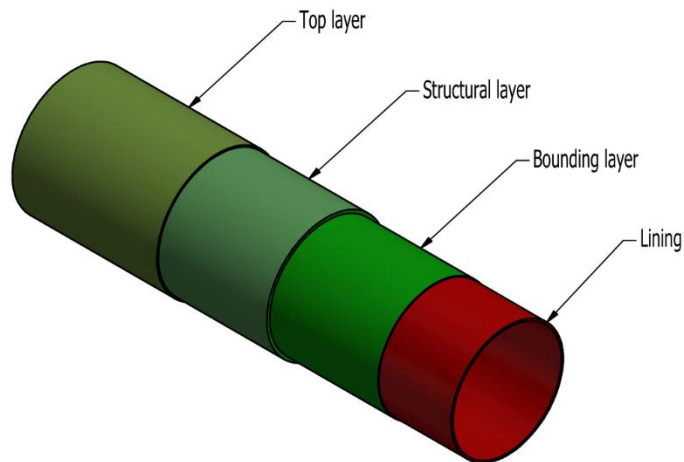


Our supports are delivered acc. to clients' specifications, but Plasticon is also able to deliver its own solutions as well as modular supports that are available in the market.



Our pipes and fittings Type B acc. to DIN 16965/966 are made of thermoplastic liner with an adhesive layer and a structural layer that is filament wound from woven roving and chopped strand glass mats, roving, and unidirectional woven roving.

Type B DIN 16965/966 Laminate Structure



| Type of Layer | Description | |
|---|---|---------------|
| Chemical Barrier Layer (CBL) - thermoplastic liner | Thermoplastic layer with bonding layer (mat + resin or backing tape) | |
| Structural Layer | Pipes | |
| | Filament winded from roving, chopped strand mats and woven roving | |
| | Resin content | Glass content |
| | 40 ± 5% | 60 ± 5% |
| | Fittings | |
| | Laminated from chopped strand mats and woven roving | |
| Resin content | Glass content | |
| 65 - 45% | 35 - 55% | |
| Top Layer | Made of top veil Protection against all weather conditions, UV radiation and chemical reactions | |

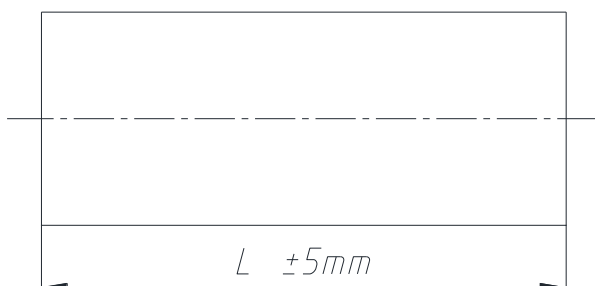
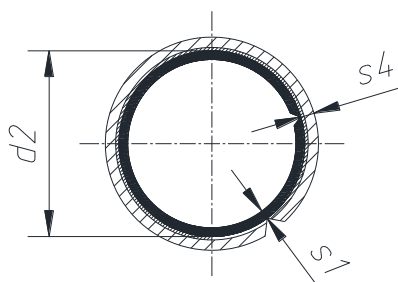
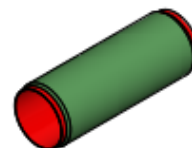


| Material Properties | Symbol | Pipe≤DN65 (Complex) | Pipe>DN65 (Filament winding) | Components (Complex) [elbows, reducers, overlaminates≤DN300] | Components (Mat+Woven roving; 450g/m ² +600g/m ²) [fix flanges, stub ends, blind flanges, branch connections, overlaminates>DN300] | Components (Mat+Woven roving; 300g/m ² +300g/m ²) [fix flanges DN25- 200, stub ends DN25-200] |
|------------------------------------|----------------|-------------------------------------|-------------------------------------|---|---|---|
| Density Pipe Material | ρ | 1600 kg/m ³ | 1750 kg/m ³ | 1600 kg/m ³ | 1550 kg/m ³ | 1550 kg/m ³ |
| Thermal Expansion-Axial | α_a | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ |
| Thermal Expansion-Hoop | α_h | 25*10 ⁻⁶ K ⁻¹ | 15*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ |
| Poisson Ratio Axial-Hoop | -- | 0,11 | 0,11 | 0,11 | 0,11 | 0,11 |
| Poisson Ratio Hoop-Axial | -- | 0,3 | 0,3 | 0,3 | 0,3 | 0,3 |
| Tensile Strength - Hoop Direction | σ_{t-h} | 140 MPa ¹⁾ | 360 MPa ²⁾ | 140 MPa ¹⁾ | 140 MPa ³⁾ | 120 MPa ³⁾ |
| Bending Strength-Hoop Direction | σ_{b-h} | 190 MPa ¹⁾ | 360 MPa ²⁾ | 190 MPa ¹⁾ | 160 MPa ³⁾ | 120 MPa ³⁾ |
| Tensile Strength - Axial Direction | σ_{t-a} | 140 MPa ¹⁾ | 180 MPa ²⁾ | 140 MPa ¹⁾ | 140 MPa ³⁾ | 120 MPa ³⁾ |
| Bending Strength-Axial Direction | σ_{b-a} | 190 MPa ¹⁾ | 180 MPa ²⁾ | 190 MPa ¹⁾ | 160 MPa ³⁾ | 120 MPa ³⁾ |
| Tensile Modulus-Hoop Direction | E_{t-h} | 10300 MPa ¹⁾ | 14000 MPa ²⁾ | 10300 MPa ¹⁾ | 9500 MPa ³⁾ | 9500 MPa ³⁾ |
| Bending Modulus-Hoop Direction | E_{b-h} | 9000 MPa ¹⁾ | 14000 MPa ²⁾ | 9000 MPa ¹⁾ | 9000 MPa ³⁾ | 9000 MPa ³⁾ |
| Tensile Modulus-Axial Direction | E_{t-a} | 10300 MPa ¹⁾ | 8000 MPa ²⁾ | 10300 MPa ¹⁾ | 9500 MPa ³⁾ | 9500 MPa ³⁾ |
| Bending Modulus-Axial Direction | E_{b-a} | 9000 MPa ¹⁾ | 8000 MPa ²⁾ | 9000 MPa ¹⁾ | 9000 MPa ³⁾ | 8000 MPa ³⁾ |
| Shear Modulus | G | 3 GPa | 3 GPa | 3 GPa | 3 GPa | 3 GPa |

Note:

- 1) – Mechanical Properties are confirmed with the TÜV Rheinland Industrie Service GmbH Werkstoffgutachten nr 124666135
- 2) – The Mechanical Properties are confirmed with the TÜV SÜD certificate nr: DGR-0036-QS-942-19
- 3) – The Mechanical Properties are confirmed with the TÜV Süddeutschland Einzelgutachten zu den Werkstoffen nr 343202





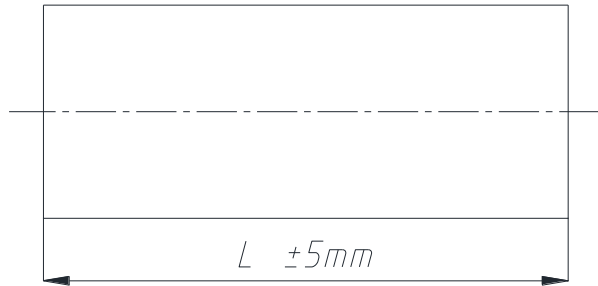
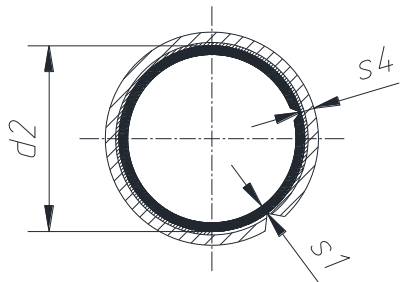
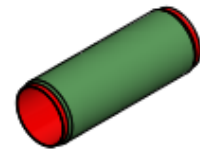
| DN | d2 | Thickness s1 of thermoplastic liner | | | | | | | | |
|-----|-----|-------------------------------------|-----------------|------------|--------------|-------------|---------|-----------|------------|----------|
| | | PVC-U red [mm] | PVC-U grey [mm] | PVC-C [mm] | PPH-100 [mm] | PP2222 [mm] | PE [mm] | PVDF [mm] | ECTFE [mm] | PFA [mm] |
| 25 | 32 | 3,6 | 3,6 | 3,6 | 2,9 | 3,5 | 2,9 | 2,4 | 2,4 | 2,3 |
| 32 | 40 | 4,5 | 4,5 | 4,5 | 3,7 | 3,7 | 3,7 | 2,4 | 2,4 | N/A |
| 40 | 50 | 3,7 | 3,7 | 3,7 | 4,6 | 4,6 | 4,6 | 3,0 | 3,0 | 2,3 |
| 50 | 63 | 4,7 | 4,7 | 4,7 | 5,8 | 5,8 | 5,8 | 3,0 | 3,0 | 2,3 |
| 65 | 75 | 3,6 | 3,6 | 3,6 | 4,3 | N/A | 4,3 | 3,0 | 3,0 | N/A |
| 80 | 90 | 4,3 | 4,3 | 4,3 | 5,1 | 5,1 | 5,1 | 3,0 | 3,0 | 2,3 |
| 100 | 110 | 5,3 | 5,3 | 5,3 | 6,3 | 6,3 | 6,3 | 3,0 | 3,0 | 2,3 |
| 125 | 125 | 3,7 | 3,7 | N/A | 4,8 | N/A | 4,8 | 3,0 | N/A | N/A |
| 150 | 160 | 4,7 | 4,7 | 4,7 | 6,2 | 4,9 | 6,2 | 3,0 | 3,0 | * 2,3 |
| 200 | 200 | 4,0 | 4,0 | 4,0 | 4,9 | 4,9 | 4,9 | 3,0 | * 2,3 | * 2,3 |
| 250 | 250 | 4,9 | 4,9 | 4,9 | 6,2 | 6,2 | 6,2 | 3,0 | * 2,3 | * 2,3 |
| 300 | 315 | 6,2 | 6,2 | 4,5 | 7,7 | 7,7 | 7,7 | 4,0 | * 2,3 | * 2,3 |
| 350 | 355 | 4,5 | 4,5 | 4,5 | 8,7 | 5,0 | 8,7 | 4,0 | * 2,3 | * 2,3 |
| 400 | 400 | 5,0 | 5,0 | 5,0 | 6,0 | 6,0 | 6,0 | 5,0 | * 2,3 | * 2,3 |
| 450 | 450 | * 4,0 | * 4,0 | * 4,0 | * 4,0 | * 4,0 | * 4,0 | * 4,0 | * 2,3 | * 2,3 |
| 500 | 500 | 5,0 | 4,0 | 5,0 | 8,0 | 8,0 | 8,0 | * 4,0 | * 2,3 | * 2,3 |
| 600 | 600 | 5,0 | 5,0 | 5,0 | 8,0 | 8,0 | * 4,0 | * 4,0 | * 2,3 | * 2,3 |
| 700 | 710 | * 4,0 | * 4,0 | * 4,0 | * 4,0 | * 4,0 | * 4,0 | * 4,0 | * 2,3 | * 2,3 |

Note:

N/A – not available,

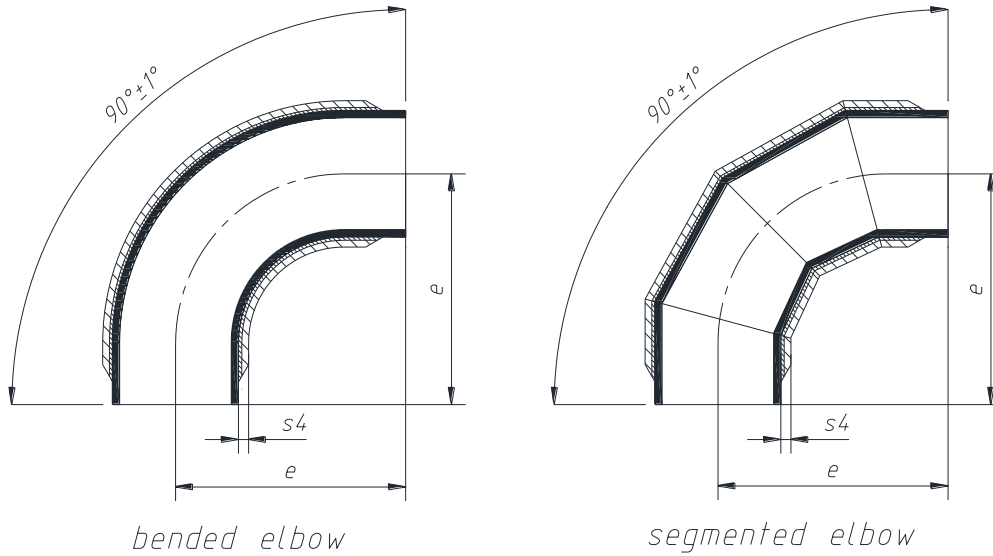
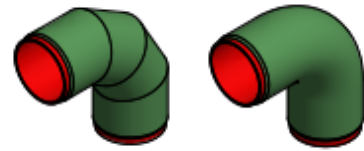
* – welded from plate, therm. thickness face flange #2,3 for ECTFE or #4 for others





| DN | d2 | Thickness s4 with adhesive layer without liner | | |
|-----|-----|--|--------------|-------------|
| | | PN16 [mm] | PN10 [mm] | PN6 [mm] |
| 25 | 32 | 2,9 | 2,9 | 2,9 |
| 32 | 40 | 2,9 | 2,9 | 2,9 |
| 40 | 50 | 2,9 | 2,9 | 2,9 |
| 50 | 63 | 2,9 | 2,9 | 2,9 |
| 65 | 75 | 2,9 | 2,9 | 2,9 |
| 80 | 90 | 2,9 | 2,9 | 2,9 |
| 100 | 110 | 2,9 | 2,9 | 2,9 |
| 125 | 125 | 2,9 | 2,9 | 2,9 |
| 150 | 160 | 3,2 | 2,9 | 2,9 |
| 200 | 200 | 3,7 | 2,9 | 2,9 |
| 250 | 250 | 4,4 | 3,1 | 2,9 |
| 300 | 315 | 5,3 | 3,7 | 2,9 |
| 350 | 355 | 5,8 | 4,0 | 2,9 |
| 400 | 400 | 6,4 | 4,4 | 3,1 |
| 450 | 450 | 7,1 | 4,8 | 3,3 |
| 500 | 500 | 7,8 | 5,2 | 3,6 |
| 600 | 600 | 9,1 | 6,1 | 4,1 |
| 700 | 710 | 10,6 | 7,0 | 4,6 |





| DN | e [mm] | Thickness s4 with adhesive layer without liner | | | | |
|-----|--------|--|-----------|----------|----------|------------|
| | | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 25 | 110 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 32 | 130 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 40 | 150 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 50 | 180 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 65 | 140 | 3,3 | 2,9 | 2,9 | 2,9 | 2,9 |
| 80 | 165 | 3,8 | 2,9 | 2,9 | 2,9 | 2,9 |
| 100 | 205 | 4,4 | 3,1 | 2,9 | 2,9 | 2,9 |
| 125 | 245 | 4,9 | 3,4 | 2,9 | 2,9 | 2,9 |
| 150 | 285 | 5,9 | 4,1 | 2,9 | 2,9 | 2,9 |
| 200 | 365 | 7,2 | 4,8 | 3,3 | 2,9 | 2,9 |
| 250 | 450 | 8,7 | 5,8 | 3,9 | 2,9 | 2,9 |
| 300 | 525 | 10,6 | 7,0 | 4,6 | 3,4 | 2,9 |
| 350 | 600 | 11,9 | 7,7 | 5,0 | 3,7 | 2,9 |
| 400 | 680 | 13,3 | 8,6 | 5,5 | 4,0 | 2,9 |
| 450 | 775 | 14,7 | 9,5 | 6,1 | 4,4 | 3,1 |
| 500 | 830 | 16,2 | 10,4 | 6,6 | 4,7 | 3,3 |
| 600 | 950 | 19,2 | 12,3 | 7,7 | 5,5 | 3,8 |
| 700 | 1100 | 22,5 | 14,3 | 8,9 | 6,3 | 4,3 |

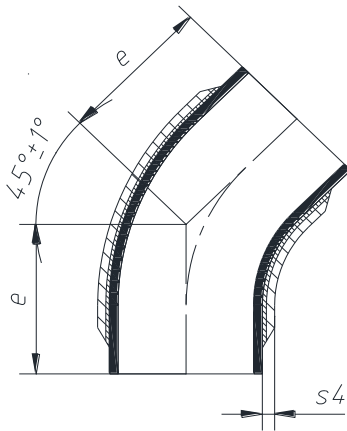
Note:

Bended elbow – PVC DN25-50, PP and PE DN25-300, PVDF DN25-50

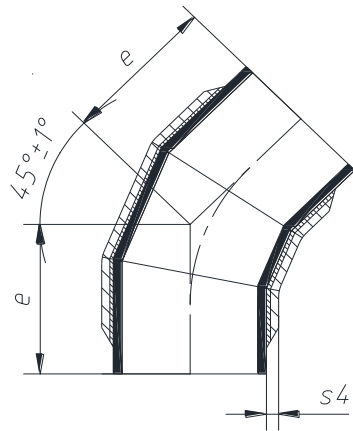
Segmented elbow – PVC DN65-700, PP and PE DN350-700, PVDF DN65-700, ECTFE and PFA DN25-700

R – depends on the liner material and the production method





banded elbow



segmented elbow

| DN | e [mm] | Thickness s4 with adhesive layer without liner | | | | |
|-----|--------|--|-----------|----------|----------|------------|
| | | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 25 | 70 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 32 | 80 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 40 | 90 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 50 | 105 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 65 | 85 | 3,3 | 2,9 | 2,9 | 2,9 | 2,9 |
| 80 | 100 | 3,8 | 2,9 | 2,9 | 2,9 | 2,9 |
| 100 | 115 | 4,4 | 3,1 | 2,9 | 2,9 | 2,9 |
| 125 | 135 | 4,9 | 3,4 | 2,9 | 2,9 | 2,9 |
| 150 | 150 | 5,9 | 4,1 | 2,9 | 2,9 | 2,9 |
| 200 | 190 | 7,2 | 4,8 | 3,3 | 2,9 | 2,9 |
| 250 | 225 | 8,7 | 5,8 | 3,9 | 2,9 | 2,9 |
| 300 | 260 | 10,6 | 7,0 | 4,6 | 3,4 | 2,9 |
| 350 | 290 | 11,9 | 7,7 | 5,0 | 3,7 | 2,9 |
| 400 | 325 | 13,3 | 8,6 | 5,5 | 4,0 | 2,9 |
| 450 | 380 | 14,7 | 9,5 | 6,1 | 4,4 | 3,1 |
| 500 | 390 | 16,2 | 10,4 | 6,6 | 4,7 | 3,3 |
| 600 | 430 | 19,2 | 12,3 | 7,7 | 5,5 | 3,8 |
| 700 | 490 | 22,5 | 14,3 | 8,9 | 6,3 | 4,3 |

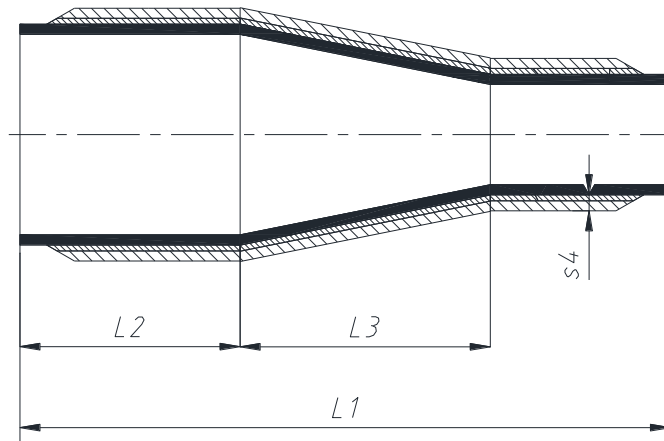
Note:

Banded elbow – PVC DN25-50, PP and PE DN25-300, PVDF DN25-50

Segmented elbow – PVC DN65-700, PP and PE DN350-700, PVDF DN65-700, ECTFE and PFA DN25-700

R – depends on the liner material and the production method





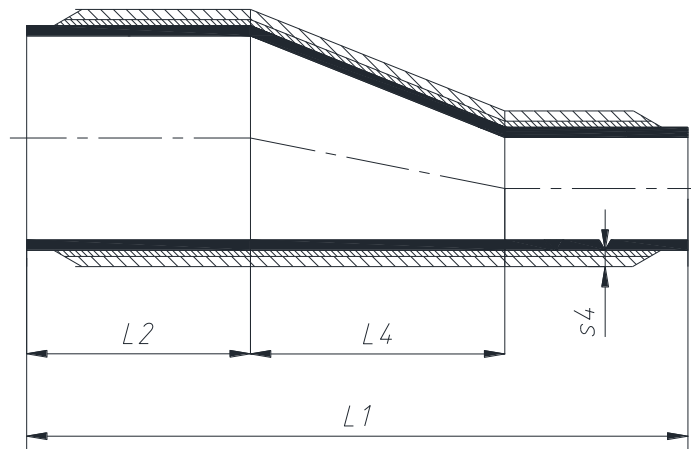
| DN1 | DN2 | L1 [mm] | L2 [mm] | L3 [mm] | Thickness s4 with adhesive layer without liner | | | | |
|-----|-----|------------|------------|------------|--|--------------|-------------|-------------|---------------|
| | | | | | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 32 | 25 | 180 | 85 | 20 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 40 | 25 | 205 | 85 | 45 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 40 | 32 | 200 | 85 | 25 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 50 | 25 | 235 | 85 | 80 | 3,3 | 2,9 | 2,9 | 2,9 | 2,9 |
| 50 | 32 | 230 | 85 | 60 | 3,3 | 2,9 | 2,9 | 2,9 | 2,9 |
| 50 | 40 | 205 | 85 | 35 | 3,3 | 2,9 | 2,9 | 2,9 | 2,9 |
| 65 | 32 | 260 | 85 | 90 | 3,8 | 2,9 | 2,9 | 2,9 | 2,9 |
| 65 | 40 | 235 | 85 | 65 | 3,8 | 2,9 | 2,9 | 2,9 | 2,9 |
| 65 | 50 | 210 | 85 | 30 | 3,8 | 2,9 | 2,9 | 2,9 | 2,9 |
| 80 | 40 | 275 | 85 | 105 | 4,3 | 3,1 | 2,9 | 2,9 | 2,9 |
| 80 | 50 | 245 | 85 | 70 | 4,3 | 3,1 | 2,9 | 2,9 | 2,9 |
| 80 | 65 | 210 | 85 | 40 | 4,3 | 3,1 | 2,9 | 2,9 | 2,9 |
| 100 | 50 | 325 | 110 | 95 | 5,0 | 3,5 | 2,9 | 2,9 | 2,9 |
| 100 | 65 | 285 | 110 | 90 | 5,0 | 3,5 | 2,9 | 2,9 | 2,9 |
| 100 | 80 | 250 | 110 | 50 | 5,0 | 3,5 | 2,9 | 2,9 | 2,9 |
| 125 | 65 | 350 | 110 | 130 | 5,6 | 3,8 | 2,9 | 2,9 | 2,9 |
| 125 | 80 | 310 | 110 | 90 | 5,6 | 3,8 | 2,9 | 2,9 | 2,9 |
| 125 | 100 | 285 | 110 | 40 | 5,6 | 3,8 | 2,9 | 2,9 | 2,9 |
| 150 | 80 | 375 | 110 | 180 | 6,8 | 4,6 | 3,2 | 2,9 | 2,9 |
| 150 | 100 | 350 | 110 | 130 | 6,8 | 4,6 | 3,2 | 2,9 | 2,9 |
| 150 | 125 | 310 | 110 | 90 | 6,8 | 4,6 | 3,2 | 2,9 | 2,9 |
| 200 | 100 | 495 | 127 | 230 | 8,3 | 5,5 | 3,7 | 2,9 | 2,9 |
| 200 | 125 | 430 | 127 | 195 | 8,3 | 5,5 | 3,7 | 2,9 | 2,9 |
| 200 | 150 | 370 | 127 | 105 | 8,3 | 5,5 | 3,7 | 2,9 | 2,9 |





| DN1 | DN2 | L1 | L2 | L3 | Thickness s4 with adhesive layer without liner | | | | |
|-----|-----|------|------|------|--|--------------|-------------|-------------|---------------|
| | | [mm] | [mm] | [mm] | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 250 | 125 | 575 | 143 | 320 | 10,1 | 6,6 | 4,4 | 3,3 | 2,9 |
| 250 | 150 | 510 | 143 | 230 | 10,1 | 6,6 | 4,4 | 3,3 | 2,9 |
| 250 | 200 | 400 | 143 | 130 | 10,1 | 6,6 | 4,4 | 3,3 | 2,9 |
| 300 | 150 | 655 | 158 | 360 | 12,4 | 8,1 | 5,2 | 3,8 | 2,9 |
| 300 | 200 | 540 | 158 | 255 | 12,4 | 8,1 | 5,2 | 3,8 | 2,9 |
| 300 | 250 | 435 | 158 | 130 | 12,4 | 8,1 | 5,2 | 3,8 | 2,9 |
| 350 | 200 | 665 | 150 | 400 | 13,9 | 9,0 | 5,8 | 4,2 | 3,0 |
| 350 | 250 | 550 | 150 | 270 | 13,9 | 9,0 | 5,8 | 4,2 | 3,0 |
| 350 | 300 | 440 | 150 | 140 | 13,9 | 9,0 | 5,8 | 4,2 | 3,0 |
| 400 | 250 | 695 | 166 | 385 | 15,5 | 10,0 | 6,4 | 4,6 | 3,2 |
| 400 | 300 | 580 | 166 | 255 | 15,5 | 10,0 | 6,4 | 4,6 | 3,2 |
| 400 | 350 | 450 | 166 | 115 | 15,5 | 10,0 | 6,4 | 4,6 | 3,2 |
| 500 | 300 | 865 | 191 | 515 | 19,1 | 12,2 | 7,7 | 5,5 | 3,8 |
| 500 | 350 | 730 | 191 | 375 | 19,1 | 12,2 | 7,7 | 5,5 | 3,8 |
| 500 | 400 | 615 | 191 | 255 | 19,1 | 12,2 | 7,7 | 5,5 | 3,8 |
| 600 | 350 | 980 | 181 | 630 | 22,8 | 14,4 | 9,0 | 6,3 | 4,3 |
| 600 | 400 | 865 | 181 | 515 | 22,8 | 14,4 | 9,0 | 6,3 | 4,3 |
| 600 | 500 | 630 | 181 | 260 | 22,8 | 14,4 | 9,0 | 6,3 | 4,3 |
| 700 | 400 | 1160 | 197 | 795 | 26,7 | 16,9 | 10,5 | 7,3 | 4,9 |
| 700 | 500 | 930 | 197 | 540 | 26,7 | 16,9 | 10,5 | 7,3 | 4,9 |
| 700 | 600 | 660 | 197 | 280 | 26,7 | 16,9 | 10,5 | 7,3 | 4,9 |





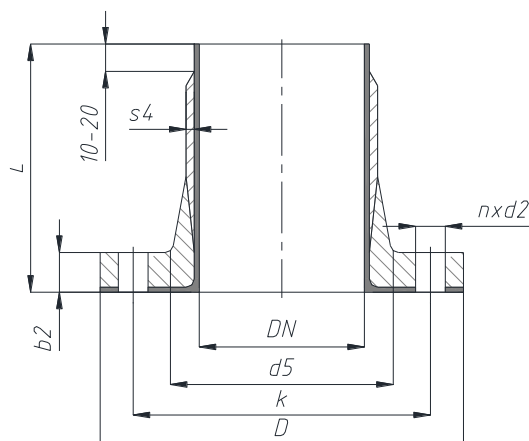
| DN1 | DN2 | L1 [mm] | L2 [mm] | L4 [mm] | Thickness s4 with adhesive layer without liner | | | | |
|-----|-----|------------|------------|------------|--|--------------|-------------|-------------|---------------|
| | | | | | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 32 | 25 | 180 | 85 | 20 | 2,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 40 | 25 | 205 | 85 | 45 | 3,0 | 2,9 | 2,9 | 2,9 | 2,9 |
| 40 | 32 | 200 | 85 | 25 | 3,0 | 2,9 | 2,9 | 2,9 | 2,9 |
| 50 | 25 | 235 | 85 | 80 | 3,5 | 2,9 | 2,9 | 2,9 | 2,9 |
| 50 | 32 | 230 | 85 | 60 | 3,5 | 2,9 | 2,9 | 2,9 | 2,9 |
| 50 | 40 | 205 | 85 | 35 | 3,5 | 2,9 | 2,9 | 2,9 | 2,9 |
| 65 | 32 | 260 | 85 | 90 | 3,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 65 | 40 | 235 | 85 | 60 | 3,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 65 | 50 | 210 | 85 | 30 | 3,9 | 2,9 | 2,9 | 2,9 | 2,9 |
| 80 | 40 | 275 | 85 | 100 | 4,5 | 3,2 | 2,9 | 2,9 | 2,9 |
| 80 | 50 | 245 | 85 | 65 | 4,5 | 3,2 | 2,9 | 2,9 | 2,9 |
| 80 | 65 | 210 | 85 | 40 | 4,5 | 3,2 | 2,9 | 2,9 | 2,9 |
| 100 | 50 | 325 | 110 | 90 | 5,3 | 3,6 | 2,9 | 2,9 | 2,9 |
| 100 | 65 | 285 | 110 | 85 | 5,3 | 3,6 | 2,9 | 2,9 | 2,9 |
| 100 | 80 | 250 | 110 | 50 | 5,3 | 3,6 | 2,9 | 2,9 | 2,9 |
| 125 | 65 | 350 | 110 | 125 | 5,8 | 4,0 | 2,9 | 2,9 | 2,9 |
| 125 | 80 | 310 | 110 | 85 | 5,8 | 4,0 | 2,9 | 2,9 | 2,9 |
| 125 | 100 | 285 | 110 | 40 | 5,8 | 4,0 | 2,9 | 2,9 | 2,9 |
| 150 | 80 | 375 | 110 | 175 | 7,2 | 4,8 | 3,3 | 2,9 | 2,9 |
| 150 | 100 | 350 | 110 | 125 | 7,2 | 4,8 | 3,3 | 2,9 | 2,9 |
| 150 | 125 | 310 | 110 | 85 | 7,2 | 4,8 | 3,3 | 2,9 | 2,9 |
| 200 | 100 | 495 | 127 | 225 | 8,7 | 5,8 | 3,9 | 2,9 | 2,9 |
| 200 | 125 | 430 | 127 | 185 | 8,7 | 5,8 | 3,9 | 2,9 | 2,9 |
| 200 | 150 | 370 | 127 | 100 | 8,7 | 5,8 | 3,9 | 2,9 | 2,9 |





| DN1 | DN2 | L1 | L2 | L4 | Thickness s4 with adhesive layer without liner | | | | |
|-----|-----|------|------|------|--|--------------|-------------|-------------|---------------|
| | | [mm] | [mm] | [mm] | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 250 | 125 | 575 | 143 | 310 | 10,6 | 7,0 | 4,6 | 3,4 | 2,9 |
| 250 | 150 | 510 | 143 | 225 | 10,6 | 7,0 | 4,6 | 3,4 | 2,9 |
| 250 | 200 | 400 | 143 | 130 | 10,6 | 7,0 | 4,6 | 3,4 | 2,9 |
| 300 | 150 | 655 | 158 | 345 | 13,1 | 8,5 | 5,5 | 4,0 | 2,9 |
| 300 | 200 | 540 | 158 | 245 | 13,1 | 8,5 | 5,5 | 4,0 | 2,9 |
| 300 | 250 | 435 | 158 | 125 | 13,1 | 8,5 | 5,5 | 4,0 | 2,9 |
| 350 | 200 | 665 | 150 | 385 | 14,6 | 9,4 | 6,0 | 4,4 | 3,1 |
| 350 | 250 | 550 | 150 | 260 | 14,6 | 9,4 | 6,0 | 4,4 | 3,1 |
| 350 | 300 | 440 | 150 | 135 | 14,6 | 9,4 | 6,0 | 4,4 | 3,1 |
| 400 | 250 | 695 | 166 | 370 | 16,4 | 10,5 | 6,7 | 4,8 | 3,4 |
| 400 | 300 | 580 | 166 | 245 | 16,4 | 10,5 | 6,7 | 4,8 | 3,4 |
| 400 | 350 | 450 | 166 | 110 | 16,4 | 10,5 | 6,7 | 4,8 | 3,4 |
| 500 | 300 | 865 | 191 | 495 | 20,2 | 12,9 | 8,1 | 5,7 | 4,0 |
| 500 | 350 | 730 | 191 | 360 | 20,2 | 12,9 | 8,1 | 5,7 | 4,0 |
| 500 | 400 | 615 | 191 | 245 | 20,2 | 12,9 | 8,1 | 5,7 | 4,0 |
| 600 | 350 | 980 | 181 | 630 | 24,0 | 15,2 | 9,5 | 6,6 | 4,5 |
| 600 | 400 | 865 | 181 | 515 | 24,0 | 15,2 | 9,5 | 6,6 | 4,5 |
| 600 | 500 | 630 | 181 | 255 | 24,0 | 15,2 | 9,5 | 6,6 | 4,5 |
| 700 | 400 | 1160 | 197 | 765 | 28,2 | 17,8 | 11,0 | 7,7 | 5,2 |
| 700 | 500 | 930 | 197 | 520 | 28,2 | 17,8 | 11,0 | 7,7 | 5,2 |
| 700 | 600 | 660 | 197 | 270 | 28,2 | 17,8 | 11,0 | 7,7 | 5,2 |





| DN | PN16 (drilling PN16) | | | | | | | |
|-----|----------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 25 | 115 | 50 | 2,9 | 18 | 85 | 4 | 14 | 250 |
| 32 | 140 | 58 | 2,9 | 19 | 100 | 4 | 18 | 250 |
| 40 | 150 | 68 | 2,9 | 20 | 110 | 4 | 18 | 250 |
| 50 | 165 | 82 | 2,9 | 22 | 125 | 4 | 18 | 250 |
| 65 | 185 | 110 | 2,9 | 29 | 145 | 8 | 18 | 250 |
| 80 | 200 | 125 | 2,9 | 32 | 160 | 8 | 18 | 250 |
| 100 | 220 | 145 | 2,9 | 42 | 180 | 8 | 18 | 250 |
| 125 | 250 | 175 | 2,9 | 39 | 210 | 8 | 18 | 250 |
| 150 | 285 | 200 | 3,2 | 44 | 240 | 8 | 22 | 250 |
| 200 | 340 | 255 | 3,7 | 54 | 295 | 12 | 22 | 250 |
| 250 | 405 | 305 | 4,4 | 64 | 355 | 12 | 26 | 250 |
| 300 | 460 | 360 | 5,3 | 74 | 410 | 12 | 26 | 300 |
| 350 | 520 | 420 | 5,8 | 84 | 470 | 16 | 26 | 350 |
| 400 | 580 | 470 | 6,4 | 94 | 525 | 16 | 30 | 400 |
| 450 | 640 | 530 | 7,1 | 99 | 585 | 20 | 30 | 450 |
| 500 | 715 | 590 | 7,8 | 104 | 650 | 20 | 33 | 500 |

Note:

*s4 – thickness with adhesive layer without liner, *b2 – thickness incl. liner





| DN | PN10 (drilling PN10) | | | | | | | |
|-----|----------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 65 | 185 | 95 | 2,9 | 24 | 145 | 4 | 18 | 250 |
| 80 | 200 | 111 | 2,9 | 26 | 160 | 8 | 18 | 250 |
| 100 | 220 | 133 | 2,9 | 28 | 180 | 8 | 18 | 250 |
| 125 | 250 | 160 | 2,9 | 31 | 210 | 8 | 18 | 250 |
| 150 | 285 | 188 | 2,9 | 34 | 240 | 8 | 22 | 250 |
| 200 | 340 | 245 | 2,9 | 39 | 295 | 8 | 22 | 250 |
| 250 | 395 | 300 | 3,1 | 44 | 350 | 12 | 22 | 250 |
| 300 | 445 | 350 | 3,7 | 54 | 400 | 12 | 22 | 250 |
| 350 | 505 | 410 | 4,0 | 64 | 460 | 16 | 22 | 250 |
| 400 | 565 | 460 | 4,4 | 74 | 515 | 16 | 26 | 300 |
| 450 | 615 | 513 | 4,8 | 79 | 565 | 20 | 26 | 350 |
| 500 | 670 | 565 | 5,2 | 84 | 620 | 20 | 26 | 350 |
| 600 | 780 | 660 | 6,1 | 94 | 725 | 20 | 30 | 400 |
| 700 | 895 | 780 | 7,0 | 104 | 840 | 24 | 30 | 450 |

| DN | PN6 (drilling PN10) | | | | | | | |
|-----|---------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 200 | 340 | 245 | 2,9 | 37 | 295 | 8 | 22 | 250 |
| 250 | 395 | 300 | 2,9 | 41 | 350 | 12 | 22 | 250 |
| 300 | 445 | 350 | 2,9 | 46 | 400 | 12 | 22 | 250 |
| 350 | 505 | 410 | 2,9 | 54 | 460 | 16 | 22 | 250 |
| 400 | 565 | 460 | 3,1 | 59 | 515 | 16 | 26 | 250 |
| 450 | 615 | 513 | 3,3 | 62 | 565 | 20 | 26 | 250 |
| 500 | 670 | 565 | 3,6 | 64 | 620 | 20 | 26 | 250 |
| 600 | 780 | 660 | 4,1 | 69 | 725 | 20 | 30 | 300 |
| 700 | 895 | 780 | 4,6 | 74 | 840 | 24 | 30 | 300 |

Note:

*s4 – thickness with adhesive layer without liner, *b2 – thickness incl. liner





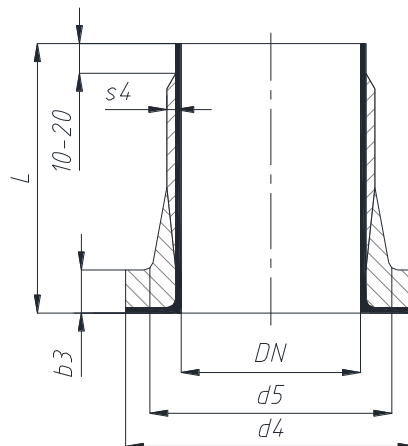
| DN | PN4 (drilling PN10) | | | | | | | |
|-----|---------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 350 | 505 | 410 | 2,9 | 44 | 460 | 16 | 22 | 250 |
| 400 | 565 | 460 | 3,1 | 48 | 515 | 16 | 26 | 250 |
| 450 | 615 | 513 | 3,3 | 51 | 565 | 20 | 26 | 250 |
| 500 | 670 | 565 | 3,6 | 53 | 620 | 20 | 26 | 250 |
| 600 | 780 | 660 | 4,1 | 59 | 725 | 20 | 30 | 300 |
| 700 | 895 | 780 | 4,6 | 64 | 840 | 24 | 30 | 300 |

| DN | PN2,5 (drilling PN10) | | | | | | | |
|-----|-----------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 600 | 780 | 660 | 4,1 | 53 | 725 | 20 | 30 | 300 |
| 700 | 895 | 780 | 4,6 | 57 | 840 | 24 | 30 | 300 |

Note:

*s4 – thickness with adhesive layer without liner, *b2 – thickness incl. liner





| DN | PN16 | | | | |
|-----|---------|---------|----------|----------|--------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 25 | 68 | 50 | 2,9 | 16 | 200 |
| 32 | 78 | 58 | 2,9 | 18 | 200 |
| 40 | 88 | 68 | 2,9 | 18 | 200 |
| 50 | 102 | 82 | 2,9 | 18 | 200 |
| 65 | 122 | 95 | 2,9 | 22 | 200 |
| 80 | 138 | 111 | 2,9 | 26 | 200 |
| 100 | 158 | 133 | 2,9 | 31 | 200 |
| 125 | 188 | 160 | 2,9 | 34 | 200 |
| 150 | 212 | 188 | 3,2 | 39 | 200 |
| 200 | 268 | 237 | 3,7 | 44 | 250 |
| 250 | 320 | 293 | 4,4 | 54 | 300 |
| 300 | 378 | 347 | 5,3 | 64 | 350 |
| 350 | 438 | 398 | 5,8 | 74 | 400 |
| 400 | 490 | 452 | 6,4 | 84 | 450 |
| 450 | 550 | 502 | 7,1 | 89 | 500 |
| 500 | 610 | 554 | 7,8 | 94 | 550 |

Note:

*s4 – thickness with adhesive layer without liner, *b3 – thickness incl. liner

Stub ends are manufactured with welded flange faces in a process of hand lay-up lamination. In the range DN25–DN300 for PVC and PP liner, there is the additional possibility of flaring the flange face using the pressing lamination process (RAL9010)





| DN | PN10 | | | | |
|-----|------------|------------|-------------|-------------|-----------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 65 | 122 | 95 | 2,9 | 19 | 200 |
| 80 | 138 | 111 | 2,9 | 20 | 200 |
| 100 | 158 | 133 | 2,9 | 22 | 200 |
| 125 | 188 | 160 | 2,9 | 24 | 200 |
| 150 | 212 | 188 | 2,9 | 26 | 200 |
| 200 | 268 | 237 | 2,9 | 32 | 250 |
| 250 | 320 | 293 | 3,1 | 39 | 300 |
| 300 | 370 | 343 | 3,7 | 49 | 350 |
| 350 | 430 | 387 | 4,0 | 54 | 300 |
| 400 | 482 | 441 | 4,4 | 69 | 350 |
| 450 | 532 | 492 | 4,8 | 74 | 400 |
| 500 | 585 | 544 | 5,2 | 79 | 400 |
| 600 | 685 | 648 | 6,1 | 89 | 500 |
| 700 | 800 | 758 | 7,0 | 99 | 550 |

| DN | PN6 | | | | |
|-----|------------|------------|-------------|-------------|-----------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 200 | 268 | 237 | 2,9 | 29 | 250 |
| 250 | 320 | 293 | 2,9 | 32 | 300 |
| 300 | 370 | 343 | 2,9 | 34 | 350 |
| 350 | 430 | 387 | 2,9 | 44 | 250 |
| 400 | 482 | 441 | 3,1 | 49 | 250 |
| 450 | 532 | 492 | 3,3 | 52 | 300 |
| 500 | 585 | 544 | 3,6 | 54 | 300 |
| 600 | 685 | 648 | 4,1 | 59 | 350 |
| 700 | 800 | 758 | 4,6 | 74 | 400 |

Note:

*s4 – thickness with adhesive layer without liner, *b3 – thickness incl. liner

Stub ends are manufactured with welded flange faces in a process of hand lay-up lamination. In the range DN25–DN300 for PVC and PP liner, there is the additional possibility of flaring the flange face using the pressing lamination process (RAL9010)





| DN | PN4 | | | | |
|------------|------------|------------|-------------|-------------|-----------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 350 | 430 | 387 | 2,9 | 36 | 250 |
| 400 | 482 | 441 | 3,1 | 39 | 250 |
| 450 | 532 | 492 | 3,3 | 41 | 250 |
| 500 | 585 | 544 | 3,6 | 42 | 250 |
| 600 | 685 | 648 | 4,1 | 54 | 350 |
| 700 | 800 | 758 | 4,6 | 62 | 400 |

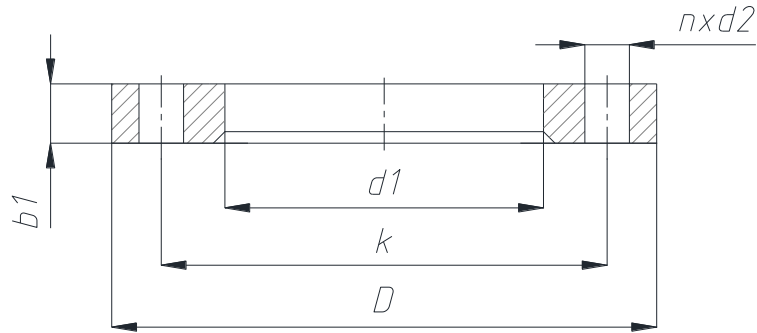
| DN | PN2,5 | | | | |
|------------|------------|------------|-------------|-------------|-----------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 600 | 685 | 648 | 4,1 | 49 | 350 |
| 700 | 800 | 758 | 4,6 | 57 | 350 |

Note:

*s4 – thickness with adhesive layer without liner, *b3 – thickness incl. liner

Stub ends are manufactured with welded flange faces in a process of hand lay-up lamination. In the range DN25–DN300 for PVC and PP liner, there is the additional possibility of flaring the flange face using the pressing lamination process (RAL9010)





| DN | PN16 (drilling PN16) | | | | | | |
|-----|----------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 25 | 115 | 50,5 | 14 | 16 | 85 | 4 | 14 |
| 32 | 140 | 58,5 | 15 | 18 | 100 | 4 | 18 |
| 40 | 150 | 68,5 | 16 | 18 | 110 | 4 | 18 |
| 50 | 165 | 82,5 | 18 | 20 | 125 | 4 | 18 |
| 65 | 185 | 95,5 | - | 20 | 145 | 8 | 18 |
| 80 | 200 | 111,5 | - | 20 | 160 | 8 | 18 |
| 100 | 220 | 133,5 | - | 22 | 180 | 8 | 18 |
| 125 | 250 | 160,5 | - | 22 | 210 | 8 | 18 |
| 150 | 285 | 188,5 | - | 24 | 240 | 8 | 22 |
| 200 | 340 | 238 | - | 26 | 295 | 12 | 22 |
| 250 | 405 | 294 | - | 28 | 355 | 12 | 26 |
| 300 | 460 | 348 | - | 32 | 410 | 12 | 26 |
| 350 | 520 | 400 | - | 35 | 470 | 16 | 26 |
| 400 | 580 | 454 | - | 38 | 525 | 16 | 29,5 |
| 500 | 715 | 556 | - | 46 | 650 | 20 | 32,5 |





| DN | PN10 (drilling PN10) | | | | | | |
|-----|----------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 65 | 185 | 95,5 | 20 | 20 | 145 | 4 | 18 |
| 80 | 200 | 111,5 | 22 | 20 | 160 | 8 | 18 |
| 100 | 220 | 133,5 | 24 | 22 | 180 | 8 | 18 |
| 125 | 250 | 160,5 | 27 | 22 | 210 | 8 | 18 |
| 150 | 285 | 188,5 | 30 | 24 | 240 | 8 | 22 |
| 200 | 340 | 238 | - | 24 | 295 | 8 | 22 |
| 250 | 395 | 294 | - | 26 | 350 | 12 | 22 |
| 300 | 445 | 344 | - | 28 | 400 | 12 | 22 |
| 350 | 505 | 388 | - | 30 | 460 | 16 | 22 |
| 400 | 565 | 442 | - | 32 | 515 | 16 | 26 |
| 500 | 670 | 545 | - | 38 | 620 | 20 | 26 |
| 600 | 780 | 650 | - | 42 | 725 | 20 | 30 |
| 700 | 895 | 760 | - | 46 | 840 | 24 | 30 |

| DN | PN6 (drilling PN10) | | | | | | |
|-----|---------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 200 | 340 | 238 | 32 | 22 | 295 | 8 | 22 |
| 250 | 395 | 294 | 34 | 24 | 350 | 12 | 22 |
| 300 | 445 | 344 | 36 | 24 | 400 | 12 | 22 |
| 350 | 505 | 388 | - | 26 | 460 | 16 | 22 |
| 400 | 565 | 442 | - | 28 | 515 | 16 | 26 |
| 500 | 670 | 545 | - | 32 | 620 | 20 | 26 |
| 600 | 780 | 650 | - | 36 | 725 | 20 | 30 |
| 700 | 895 | 760 | - | 40 | 840 | 24 | 30 |





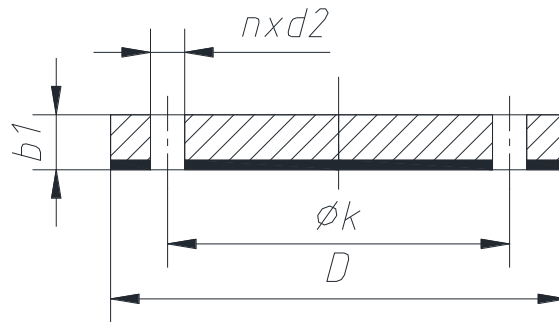
| DN | PN4 (drilling PN10) | | | | | | |
|-----|---------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 350 | 505 | 388 | 38 | 26 | 460 | 16 | 22 |
| 400 | 565 | 442 | 42 | 28 | 515 | 16 | 26 |
| 500 | 670 | 545 | 47 | 32 | 620 | 20 | 26 |

| DN | PN2,5 (drilling PN10) | | | | | | |
|-----|-----------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 600 | 780 | 650 | 51 | 36 | 725 | 20 | 30 |
| 700 | 895 | 760 | - | 36 | 840 | 24 | 30 |



Blind flange

based on Type B DIN16966 and EN1092



| DN | PN16 (drilling PN16) | | | | |
|-----|----------------------|----------|--------|--------|---------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 25 | 115 | 19 | 85 | 4 | 14 |
| 32 | 140 | 21 | 100 | 4 | 18 |
| 40 | 150 | 24 | 110 | 4 | 18 |
| 50 | 165 | 26 | 125 | 4 | 18 |
| 65 | 185 | 29 | 145 | 8 | 18 |
| 80 | 200 | 32 | 160 | 8 | 18 |
| 100 | 220 | 35 | 180 | 8 | 18 |
| 125 | 250 | 39 | 210 | 8 | 18 |
| 150 | 285 | 43 | 240 | 8 | 22 |
| 200 | 340 | 45 | 295 | 12 | 22 |
| 250 | 405 | 53 | 355 | 12 | 26 |
| 300 | 460 | 60 | 410 | 12 | 26 |
| 350 | 520 | 69 | 470 | 16 | 26 |
| 400 | 580 | 76 | 525 | 16 | 30 |
| 450 | 640 | 85 | 585 | 20 | 30 |
| 500 | 715 | 93 | 650 | 20 | 33 |

Note:

*s4 – thickness with adhesive layer without liner, *b2 – thickness incl. liner





| DN | PN10 (drilling PN10) | | | | |
|-----|----------------------|----------|--------|--------|---------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 65 | 185 | 25 | 145 | 4 | 18 |
| 80 | 200 | 28 | 160 | 8 | 18 |
| 100 | 220 | 31 | 180 | 8 | 18 |
| 125 | 250 | 33 | 210 | 8 | 18 |
| 150 | 285 | 37 | 240 | 8 | 22 |
| 200 | 340 | 38 | 295 | 8 | 22 |
| 250 | 395 | 45 | 350 | 12 | 22 |
| 300 | 445 | 50 | 400 | 12 | 22 |
| 350 | 505 | 57 | 460 | 16 | 22 |
| 400 | 565 | 63 | 515 | 16 | 26 |
| 450 | 615 | 70 | 565 | 20 | 26 |
| 500 | 670 | 76 | 620 | 20 | 26 |
| 600 | 780 | 87 | 725 | 20 | 30 |
| 700 | 895 | 97 | 840 | 24 | 30 |

| DN | PN6 (drilling PN10) | | | | |
|-----|---------------------|----------|--------|--------|---------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 200 | 340 | 30 | 295 | 8 | 22 |
| 250 | 395 | 35 | 350 | 12 | 22 |
| 300 | 445 | 39 | 400 | 12 | 22 |
| 350 | 505 | 45 | 460 | 16 | 22 |
| 400 | 565 | 49 | 515 | 16 | 26 |
| 450 | 615 | 54 | 565 | 20 | 26 |
| 500 | 670 | 59 | 620 | 20 | 26 |
| 600 | 780 | 68 | 725 | 20 | 30 |
| 700 | 895 | 78 | 840 | 24 | 30 |

Note:

*s4 – thickness with adhesive layer without liner, *b2 – thickness incl. liner





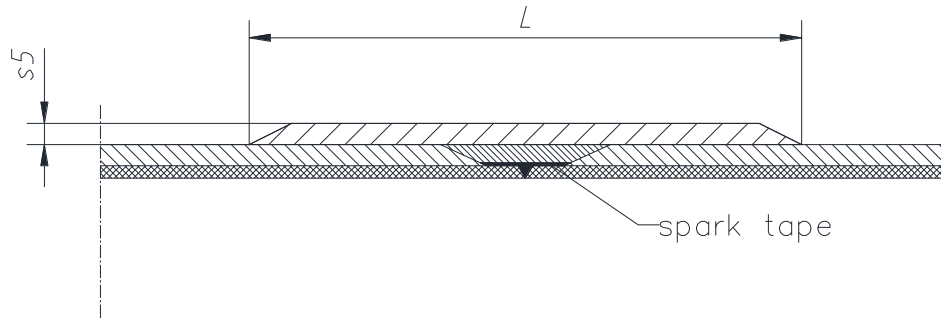
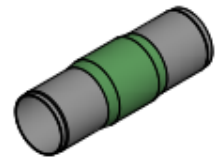
| DN | PN4 (drilling PN10) | | | | |
|------------|---------------------|----------|--------|--------|---------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 350 | 505 | 37 | 460 | 16 | 22 |
| 400 | 565 | 41 | 515 | 16 | 26 |
| 450 | 615 | 45 | 565 | 20 | 26 |
| 500 | 670 | 49 | 620 | 20 | 26 |
| 600 | 780 | 56 | 725 | 20 | 30 |
| 700 | 895 | 64 | 840 | 24 | 30 |

| DN | PN2,5 (drilling PN10) | | | | |
|------------|-----------------------|----------|--------|--------|---------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 600 | 780 | 45 | 725 | 20 | 30 |
| 700 | 895 | 51 | 840 | 24 | 30 |

Note:

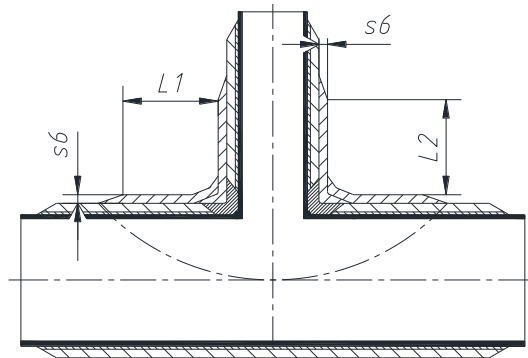
*s4 – thickness with adhesive layer without liner, *b2 – thickness incl. liner





| DN | t [mm] | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|
| | | s5 [mm] | L [mm] | s5 [mm] | L [mm] | s5 [mm] | L [mm] | s5 [mm] | L [mm] | s5 [mm] | L [mm] |
| 25 | 10-20 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 32 | 10-20 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 40 | 10-20 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 50 | 10-20 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 65 | 10-20 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 80 | 10-20 | 4,0 | 115 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 100 | 10-20 | 4,0 | 140 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 125 | 10-20 | 4,5 | 160 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 150 | 10-20 | 5,7 | 200 | 4,0 | 125 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 200 | 10-20 | 7,2 | 250 | 4,4 | 155 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 250 | 10-20 | 8,9 | 315 | 5,5 | 195 | 4,0 | 120 | 4,0 | 110 | 4,0 | 110 |
| 300 | 10-20 | 11,2 | 395 | 6,9 | 245 | 4,2 | 145 | 4,0 | 110 | 4,0 | 110 |
| 350 | 10-20 | 12,7 | 440 | 7,8 | 275 | 4,7 | 165 | 4,0 | 110 | 4,0 | 110 |
| 400 | 10-20 | 14,3 | 500 | 8,8 | 310 | 5,3 | 185 | 4,0 | 125 | 4,0 | 110 |
| 450 | 10-20 | 16,0 | 560 | 9,9 | 345 | 5,9 | 210 | 4,0 | 140 | 4,0 | 110 |
| 500 | 10-20 | 17,8 | 620 | 11,0 | 385 | 6,6 | 230 | 4,4 | 155 | 4,0 | 110 |
| 600 | 10-20 | 21,4 | 745 | 13,2 | 460 | 7,9 | 275 | 5,2 | 185 | 4,0 | 115 |
| 700 | 10-20 | 25,3 | 880 | 15,6 | 545 | 9,3 | 325 | 6,2 | 220 | 4,0 | 135 |





saddle DN1>2*DN2

| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 65 | 25 | 5,6 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 32 | 6,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 25 | 6,5 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 32 | 7,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 25 | 5,2 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 32 | 5,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 40 | 6,6 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 25 | 6,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 32 | 6,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 40 | 7,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 50 | 8,3 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 25 | 7,2 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 32 | 7,9 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 40 | 8,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 50 | 9,8 | 50 / 50 | 5,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 65 | 10,6 | 50 / 50 | 6,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 25 | 7,9 | 50 / 50 | 5,2 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 32 | 8,7 | 50 / 50 | 5,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 40 | 9,6 | 50 / 50 | 6,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 50 | 10,7 | 53 / 50 | 7,2 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 65 | 11,7 | 54 / 50 | 7,9 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 80 | 12,7 | 56 / 50 | 8,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |





| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 250 | 25 | 9,0 | 56 / 50 | 6,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 32 | 9,9 | 58 / 50 | 6,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 40 | 10,9 | 60 / 50 | 7,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 50 | 12,1 | 63 / 50 | 8,3 | 51 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 65 | 13,1 | 65 / 50 | 9,0 | 53 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 80 | 14,3 | 67 / 50 | 9,9 | 55 / 50 | 5,6 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 100 | 15,8 | 70 / 50 | 11,0 | 58 / 50 | 6,3 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 25 | 10,0 | 68 / 50 | 6,9 | 55 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 32 | 11,0 | 70 / 50 | 7,6 | 57 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 40 | 12,2 | 73 / 50 | 8,4 | 59 / 50 | 5,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 50 | 13,5 | 76 / 50 | 9,4 | 62 / 50 | 5,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 65 | 14,7 | 78 / 50 | 10,2 | 64 / 50 | 6,4 | 51 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 80 | 16,0 | 81 / 50 | 11,1 | 66 / 50 | 7,0 | 53 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 100 | 17,6 | 84 / 50 | 12,3 | 69 / 50 | 7,8 | 55 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 125 | 18,8 | 86 / 55 | 13,1 | 71 / 50 | 8,4 | 57 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 350 | 25 | 10,7 | 75 / 50 | 7,4 | 61 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 350 | 32 | 11,8 | 78 / 50 | 8,2 | 63 / 50 | 5,3 | 51 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 350 | 40 | 13,0 | 80 / 50 | 9,0 | 66 / 50 | 5,9 | 53 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 350 | 50 | 14,4 | 83 / 50 | 10,0 | 68 / 50 | 6,6 | 55 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 350 | 65 | 15,6 | 86 / 50 | 10,9 | 71 / 50 | 7,2 | 57 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 350 | 80 | 17,0 | 89 / 50 | 11,9 | 73 / 50 | 7,9 | 59 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 350 | 100 | 18,8 | 93 / 52 | 13,1 | 76 / 50 | 8,7 | 61 / 50 | 5,2 | 50 / 50 | 5,0 | 50 / 50 |





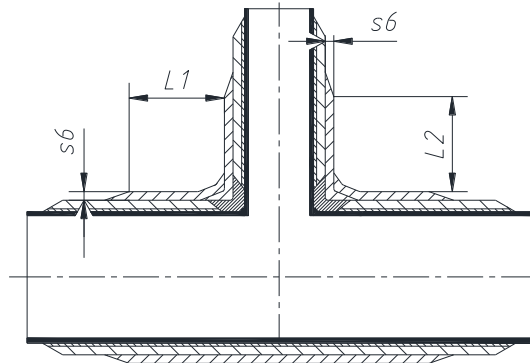
| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 350 | 125 | 20,0 | 95 / 57 | 14,0 | 78 / 50 | 9,4 | 63 / 50 | 5,6 | 52 / 50 | 5,0 | 50 / 50 |
| 350 | 150 | 22,6 | 100 / 67 | 15,8 | 82 / 55 | 10,7 | 67 / 50 | 6,7 | 55 / 50 | 5,0 | 50 / 50 |
| 400 | 25 | 11,1 | 82 / 50 | 7,8 | 67 / 50 | 5,2 | 54 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 400 | 32 | 12,3 | 85 / 50 | 8,6 | 70 / 50 | 5,7 | 56 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 400 | 40 | 13,6 | 88 / 50 | 9,5 | 72 / 50 | 6,3 | 58 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 400 | 50 | 15,1 | 92 / 50 | 10,6 | 75 / 50 | 7,1 | 61 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 400 | 65 | 16,4 | 95 / 50 | 11,5 | 78 / 50 | 7,7 | 63 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 400 | 80 | 17,9 | 98 / 50 | 12,5 | 80 / 50 | 8,4 | 65 / 50 | 5,0 | 53 / 50 | 5,0 | 53 / 50 |
| 400 | 100 | 19,7 | 102 / 54 | 13,8 | 83 / 50 | 9,3 | 68 / 50 | 5,4 | 55 / 50 | 5,0 | 53 / 50 |
| 400 | 125 | 20,9 | 104 / 58 | 14,7 | 86 / 50 | 9,9 | 69 / 50 | 5,9 | 57 / 50 | 5,0 | 53 / 50 |
| 400 | 150 | 23,7 | 109 / 69 | 16,7 | 90 / 57 | 11,3 | 73 / 50 | 7,0 | 60 / 50 | 5,0 | 53 / 50 |
| 500 | 25 | 12,5 | 99 / 50 | 8,6 | 81 / 50 | 5,8 | 65 / 50 | 5,0 | 62 / 50 | 5,0 | 62 / 50 |
| 500 | 32 | 13,9 | 103 / 50 | 9,5 | 84 / 50 | 6,4 | 67 / 50 | 5,0 | 62 / 50 | 5,0 | 62 / 50 |
| 500 | 40 | 15,3 | 106 / 50 | 10,5 | 87 / 50 | 7,1 | 70 / 50 | 5,0 | 62 / 50 | 5,0 | 62 / 50 |
| 500 | 50 | 17,0 | 110 / 50 | 11,7 | 90 / 50 | 7,9 | 73 / 50 | 5,0 | 62 / 50 | 5,0 | 62 / 50 |
| 500 | 65 | 18,4 | 114 / 50 | 12,7 | 93 / 50 | 8,6 | 75 / 50 | 5,0 | 62 / 50 | 5,0 | 62 / 50 |
| 500 | 80 | 20,1 | 117 / 50 | 13,9 | 96 / 50 | 9,4 | 78 / 50 | 5,1 | 62 / 50 | 5,0 | 62 / 50 |
| 500 | 100 | 22,1 | 122 / 57 | 15,3 | 100 / 50 | 10,4 | 81 / 50 | 5,8 | 65 / 50 | 5,0 | 62 / 50 |
| 500 | 125 | 23,5 | 125 / 63 | 16,3 | 102 / 52 | 11,1 | 83 / 50 | 6,3 | 67 / 50 | 5,0 | 62 / 50 |
| 500 | 150 | 26,5 | 131 / 74 | 18,4 | 107 / 61 | 12,6 | 87 / 50 | 7,5 | 71 / 50 | 5,0 | 62 / 50 |
| 500 | 200 | 29,7 | 137 / 87 | 20,7 | 113 / 71 | 14,1 | 92 / 58 | 8,7 | 75 / 50 | 5,0 | 62 / 50 |
| 600 | 25 | 13,5 | 115 / 50 | 9,5 | 94 / 50 | 6,4 | 76 / 50 | 5,0 | 70 / 50 | 5,0 | 70 / 50 |





| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 600 | 32 | 15,0 | 119 / 50 | 10,5 | 97 / 50 | 7,0 | 78 / 50 | 5,0 | 70 / 50 | 5,0 | 70 / 50 |
| 600 | 40 | 16,6 | 123 / 50 | 11,6 | 101 / 50 | 7,8 | 81 / 50 | 5,0 | 70 / 50 | 5,0 | 70 / 50 |
| 600 | 50 | 18,5 | 128 / 50 | 12,9 | 105 / 50 | 8,7 | 84 / 50 | 5,0 | 70 / 50 | 5,0 | 70 / 50 |
| 600 | 65 | 20,0 | 132 / 50 | 14,0 | 108 / 50 | 9,4 | 87 / 50 | 5,0 | 70 / 50 | 5,0 | 70 / 50 |
| 600 | 80 | 21,9 | 136 / 53 | 15,3 | 111 / 50 | 10,3 | 90 / 50 | 5,3 | 71 / 50 | 5,0 | 70 / 50 |
| 600 | 100 | 24,0 | 141 / 61 | 16,8 | 115 / 50 | 11,3 | 93 / 50 | 6,1 | 74 / 50 | 5,0 | 70 / 50 |
| 600 | 125 | 25,6 | 144 / 66 | 17,9 | 118 / 54 | 12,1 | 96 / 50 | 6,7 | 77 / 50 | 5,0 | 70 / 50 |
| 600 | 150 | 28,9 | 151 / 78 | 20,2 | 124 / 64 | 13,7 | 101 / 52 | 7,9 | 81 / 50 | 5,0 | 70 / 50 |
| 600 | 200 | 32,4 | 158 / 91 | 22,6 | 130 / 75 | 15,4 | 106 / 61 | 9,2 | 86 / 50 | 5,0 | 70 / 50 |
| 600 | 250 | 36,3 | 165 / 107 | 25,4 | 136 / 88 | 17,3 | 111 / 72 | 10,7 | 91 / 59 | 5,5 | 72 / 50 |
| 700 | 25 | 14,8 | 133 / 50 | 10,3 | 108 / 50 | 7,0 | 87 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |
| 700 | 32 | 16,4 | 137 / 50 | 11,4 | 112 / 50 | 7,8 | 90 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |
| 700 | 40 | 18,3 | 142 / 50 | 12,6 | 116 / 50 | 8,6 | 93 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |
| 700 | 50 | 20,3 | 147 / 50 | 14,1 | 120 / 50 | 9,5 | 97 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |
| 700 | 65 | 22,0 | 152 / 50 | 15,3 | 124 / 50 | 10,4 | 100 / 50 | 5,0 | 78 / 50 | 5,0 | 78 / 50 |
| 700 | 80 | 24,0 | 156 / 56 | 16,7 | 128 / 50 | 11,3 | 103 / 50 | 5,7 | 81 / 50 | 5,0 | 78 / 50 |
| 700 | 100 | 26,4 | 162 / 64 | 18,3 | 132 / 53 | 12,4 | 107 / 50 | 6,5 | 85 / 50 | 5,0 | 78 / 50 |
| 700 | 125 | 28,0 | 165 / 70 | 19,5 | 135 / 57 | 13,2 | 110 / 50 | 7,1 | 87 / 50 | 5,0 | 78 / 50 |
| 700 | 150 | 31,6 | 173 / 82 | 22,0 | 142 / 68 | 14,9 | 115 / 55 | 8,5 | 93 / 50 | 5,0 | 78 / 50 |
| 700 | 200 | 35,3 | 181 / 96 | 24,5 | 148 / 79 | 16,7 | 120 / 64 | 9,8 | 98 / 52 | 5,0 | 78 / 50 |
| 700 | 250 | 39,5 | 189 / 112 | 27,5 | 155 / 92 | 18,8 | 127 / 75 | 11,4 | 103 / 62 | 5,6 | 81 / 50 |
| 700 | 300 | 44,5 | 198 / 132 | 31,1 | 163 / 109 | 21,3 | 133 / 89 | 13,4 | 110 / 73 | 7,1 | 87 / 58 |





bridge $DN1 \leq 2 * DN2$

| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 25 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 32 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 32 | 32 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 40 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 40 | 32 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 40 | 40 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 50 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 50 | 32 | 5,3 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 50 | 40 | 5,9 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 50 | 50 | 6,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 32 | 6,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 40 | 6,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 50 | 7,5 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 65 | 8,1 | 50 / 50 | 5,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 40 | 7,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 50 | 8,5 | 50 / 50 | 5,2 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 65 | 9,2 | 50 / 50 | 5,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 80 | 10,0 | 50 / 50 | 6,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 50 | 7,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 65 | 8,2 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 80 | 9,1 | 50 / 50 | 5,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 100 | 10,2 | 50 / 50 | 6,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |





| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 125 | 65 | 9,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 80 | 10,1 | 50 / 50 | 5,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 100 | 11,2 | 50 / 50 | 6,6 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 125 | 12,1 | 50 / 50 | 7,3 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 80 | 11,6 | 50 / 50 | 7,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 100 | 12,9 | 50 / 50 | 8,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 125 | 13,8 | 51 / 50 | 8,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 150 | 15,8 | 54 / 54 | 10,3 | 50 / 50 | 5,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 100 | 14,1 | 59 / 50 | 9,7 | 50 / 50 | 5,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 125 | 15,1 | 61 / 50 | 10,4 | 50 / 50 | 5,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 150 | 17,3 | 64 / 57 | 12,0 | 53 / 50 | 6,8 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 200 | 19,6 | 68 / 68 | 13,7 | 56 / 56 | 8,1 | 50 / 50 | 5,2 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 125 | 16,9 | 72 / 51 | 11,7 | 59 / 50 | 6,9 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 150 | 19,2 | 76 / 61 | 13,4 | 63 / 50 | 8,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 200 | 21,7 | 80 / 72 | 15,2 | 66 / 59 | 9,4 | 53 / 50 | 6,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 250 | 24,6 | 85 / 85 | 17,4 | 70 / 70 | 11,1 | 57 / 57 | 7,3 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 150 | 21,3 | 91 / 65 | 14,9 | 75 / 54 | 9,7 | 61 / 50 | 6,0 | 50 / 50 | 5,0 | 50 / 50 |
| 300 | 200 | 24,0 | 96 / 76 | 16,9 | 79 / 63 | 11,1 | 64 / 51 | 7,1 | 53 / 50 | 5,0 | 50 / 50 |
| 300 | 250 | 27,1 | 101 / 90 | 19,2 | 84 / 75 | 12,8 | 68 / 61 | 8,5 | 57 / 51 | 5,0 | 50 / 50 |
| 300 | 300 | 31,0 | 107 / 107 | 22,0 | 89 / 89 | 14,9 | 73 / 73 | 10,2 | 62 / 62 | 6,3 | 51 / 51 |
| 350 | 200 | 25,4 | 105 / 79 | 17,8 | 86 / 65 | 12,1 | 71 / 53 | 7,8 | 59 / 50 | 5,0 | 50 / 50 |
| 350 | 250 | 28,6 | 110 / 93 | 20,2 | 91 / 77 | 13,8 | 75 / 63 | 9,2 | 63 / 53 | 5,4 | 51 / 50 |





| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 350 | 300 | 32,6 | 117 / 110 | 23,1 | 97 / 91 | 15,9 | 80 / 75 | 10,9 | 68 / 64 | 6,8 | 56 / 52 |
| 350 | 350 | 34,9 | 120 / 120 | 24,8 | 100 / 100 | 17,2 | 83 / 83 | 11,9 | 70 / 70 | 7,6 | 58 / 58 |
| 400 | 200 | 26,7 | 115 / 81 | 18,8 | 95 / 67 | 12,8 | 77 / 55 | 8,1 | 64 / 50 | 5,0 | 53 / 50 |
| 400 | 250 | 30,0 | 121 / 95 | 21,2 | 100 / 79 | 14,6 | 82 / 65 | 9,5 | 68 / 54 | 5,5 | 55 / 50 |
| 400 | 300 | 34,1 | 127 / 113 | 24,2 | 106 / 94 | 16,7 | 87 / 77 | 11,2 | 73 / 65 | 6,8 | 60 / 53 |
| 400 | 350 | 36,5 | 131 / 124 | 26,0 | 109 / 103 | 18,0 | 90 / 85 | 12,3 | 76 / 72 | 7,7 | 63 / 59 |
| 400 | 400 | 39,1 | 135 / 135 | 27,9 | 113 / 113 | 19,5 | 93 / 93 | 13,5 | 79 / 79 | 8,6 | 66 / 66 |
| 500 | 250 | 33,4 | 144 / 102 | 23,3 | 118 / 84 | 16,0 | 97 / 69 | 10,2 | 80 / 57 | 5,5 | 64 / 50 |
| 500 | 300 | 37,8 | 151 / 120 | 26,5 | 125 / 99 | 18,3 | 103 / 81 | 12,0 | 86 / 68 | 6,9 | 69 / 55 |
| 500 | 350 | 40,3 | 155 / 131 | 28,3 | 129 / 108 | 19,6 | 106 / 89 | 13,0 | 89 / 75 | 7,8 | 72 / 61 |
| 500 | 400 | 43,1 | 160 / 143 | 30,4 | 133 / 119 | 21,1 | 109 / 98 | 14,2 | 92 / 82 | 8,7 | 75 / 67 |
| 500 | 500 | 49,0 | 169 / 169 | 34,8 | 141 / 141 | 24,3 | 116 / 116 | 16,9 | 99 / 99 | 10,8 | 82 / 82 |
| 600 | 300 | 41,0 | 174 / 126 | 28,8 | 144 / 104 | 19,7 | 117 / 85 | 12,6 | 97 / 71 | 7,0 | 78 / 57 |
| 600 | 350 | 43,7 | 179 / 138 | 30,7 | 148 / 114 | 21,1 | 121 / 93 | 13,7 | 101 / 77 | 7,8 | 81 / 62 |
| 600 | 400 | 46,6 | 184 / 150 | 32,9 | 152 / 124 | 22,6 | 125 / 102 | 15,0 | 105 / 85 | 8,8 | 85 / 69 |
| 600 | 500 | 52,8 | 194 / 177 | 37,4 | 161 / 147 | 26,0 | 133 / 121 | 17,6 | 112 / 102 | 10,9 | 92 / 84 |
| 600 | 600 | 58,7 | 203 / 203 | 41,8 | 169 / 169 | 29,2 | 140 / 140 | 20,2 | 119 / 119 | 13,0 | 99 / 99 |
| 700 | 350 | 47,4 | 204 / 144 | 33,2 | 168 / 119 | 22,8 | 137 / 97 | 14,5 | 114 / 80 | 8,0 | 91 / 64 |
| 700 | 400 | 50,5 | 209 / 157 | 35,4 | 173 / 130 | 24,4 | 142 / 106 | 15,8 | 118 / 88 | 8,9 | 94 / 71 |
| 700 | 500 | 57,0 | 220 / 185 | 40,2 | 182 / 153 | 27,8 | 150 / 126 | 18,5 | 126 / 105 | 11,1 | 102 / 86 |
| 700 | 600 | 63,1 | 230 / 212 | 44,7 | 191 / 176 | 31,1 | 158 / 145 | 21,2 | 133 / 122 | 13,2 | 110 / 101 |
| 700 | 700 | 69,6 | 240 / 240 | 49,5 | 200 / 200 | 34,7 | 166 / 166 | 24,0 | 140 / 140 | 15,5 | 117 / 117 |

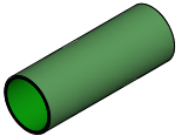



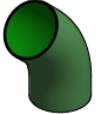


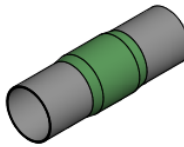

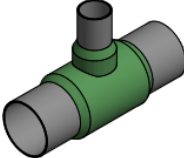
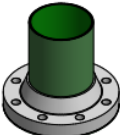
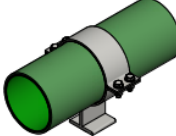




Pipes and fittings

Based on type E DIN 16965/966

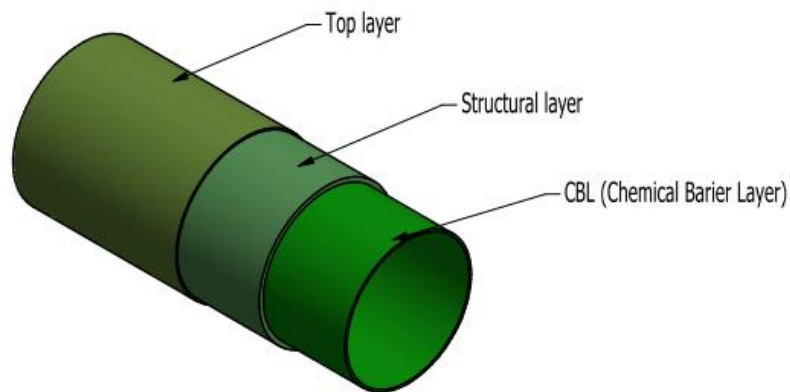


| | | |
|---|--|---|
| <p>Pipes</p>  | <p>Our pipes are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type E DIN16965.</p> | <p>Stub ends</p>  <p>Stub ends are manufactured in a process of hand lay-up lamination and pressing in the DN25-DN300 range, and only hand lay-up lamination in the DN350-DN700 range, based on Type E DIN16966.</p> |
| <p>Elbows 90°</p>  | <p>Our elbows 90° are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type E DIN16966.</p> | <p>Loose Flanges</p>  <p>Our loose flanges can be delivered in the following materials: carbon steel (hot deep galv., painted), stainless steel, and GRP. The dimensions of the flanges are based on EN1092 pressure rates.</p> |
| <p>Elbows 45°</p>  | <p>Our elbows 45° are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type E DIN16966.</p> | <p>Blind flanges</p>  <p>Our blind flanges are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type E DIN16966, drilling acc. to EN1092.</p> |
| <p>Concentric reducers</p>  | <p>Our concentric reducers are manufactured in a process of lay-up lamination in the DN25-DN700 range, based on Type E DIN16966.</p> | <p>Overlaminates</p>  <p>Our overlaminates are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type E DIN16966.</p> |
| <p>Eccentric reducers</p>  | <p>Our eccentric reducers are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type E DIN16966.</p> | <p>Branch connections</p>  <p>Our branch connections are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type E DIN16966.</p> |
| <p>Fix flanges</p>  | <p>Our fix flanges are manufactured in a process of hand lay-up lamination in the DN25-DN700 range, based on Type E DIN16966, drilling acc. to EN1092.</p> | <p>Supports</p>  <p>Our supports are delivered acc. to clients' specifications, but Plasticon is also able to deliver its own solutions as well as modular supports that are available in the market.</p> |



Our pipes and fittings Type E acc. to DIN 16965/966 are made of a Chemical Barrier Layer (CBL) with a min. of 2,5 mm thickness and a structural layer made in a process of hand lay-up lamination (made from woven roving and chopped strand glass mats).

Type E DIN 16965/966 Laminate Structure



| Type of Layer | Description | |
|--|--|---------------|
| Chemical Barrier Layer (CBL) (Minimum CBL thickness 2,5 mm) | Resin-rich layer with a gelcoat veil and chopped strand mats | |
| | Resin content | Glass content |
| | 70 ± 5% | 30 ± 5% |
| Structural Layer | Components up to 6,5mm thick laminated using only chopped strand mats; above the thickness of 6,5mm, laminated using chopped strand mats and woven roving. | |
| | Resin content | Glass content |
| | 65 - 45% | 35 - 55% |
| Top Layer | Made of top veil Protection against all weather conditions, UV radiation and chemical reactions | |

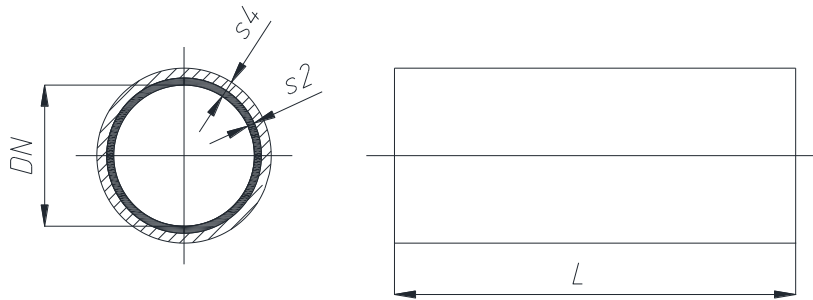
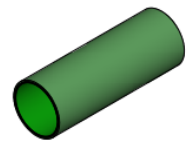


| Material Properties | Symbol | Pipe (Mat+Complex) | Components (Mat+Complex) [elbows, reducers] | Components (Complex) [overlaminates≤DN300] | Components (Mat+Woven roving; 450g/m ² +600g/m ²) [fix flanges, stub ends, blind flanges, branch connections, overlaminates>DN300] | Components (Mat+Woven roving; 300g/m ² +300g/m ²) [fix flanges DN25-200, stub ends DN25-200] |
|------------------------------------|----------------|-------------------------------------|---|--|---|---|
| Density Pipe Material | ρ | 1550 kg/m ³ | 1550 kg/m ³ | 1550 kg/m ³ | 1550 kg/m ³ | 1550 kg/m ³ |
| Thermal Expansion-Axial | α_a | 30*10 ⁻⁶ K ⁻¹ | 30*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ |
| Thermal Expansion-Hoop | α_h | 30*10 ⁻⁶ K ⁻¹ | 30*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ | 25*10 ⁻⁶ K ⁻¹ |
| Poisson Ratio Axial-Hoop | -- | 0,11 | 0,11 | 0,11 | 0,11 | 0,11 |
| Poisson Ratio Hoop-Axial | -- | 0,3 | 0,3 | 0,3 | 0,3 | 0,3 |
| Tensile Strength - Hoop Direction | σ_{t-h} | 80 MPa ¹⁾ | 80 MPa ¹⁾ | 140 MPa ¹⁾ | 140 MPa ³⁾ | 120 MPa ³⁾ |
| Bending Strength-Hoop Direction | σ_{b-h} | 80 MPa ¹⁾ | 80 MPa ¹⁾ | 190 MPa ¹⁾ | 160 MPa ³⁾ | 120 MPa ³⁾ |
| Tensile Strength - Axial Direction | σ_{t-a} | 80 MPa ¹⁾ | 80 MPa ¹⁾ | 140 MPa ¹⁾ | 140 MPa ³⁾ | 120 MPa ³⁾ |
| Bending Strength-Axial Direction | σ_{b-a} | 80 MPa ¹⁾ | 80 MPa ¹⁾ | 190 MPa ¹⁾ | 160 MPa ³⁾ | 120 MPa ³⁾ |
| Tensile Modulus-Hoop Direction | E_{t-h} | 8000 MPa ¹⁾ | 8000 MPa ¹⁾ | 10300 MPa ¹⁾ | 9500 MPa ³⁾ | 9500 MPa ³⁾ |
| Bending Modulus-Hoop Direction | E_{b-h} | 8000 MPa ¹⁾ | 8000 MPa ¹⁾ | 9000 MPa ¹⁾ | 9000 MPa ³⁾ | 9000 MPa ³⁾ |
| Tensile Modulus-Axial Direction | E_{t-a} | 8000 MPa ¹⁾ | 8000 MPa ¹⁾ | 10300 MPa ¹⁾ | 9500 MPa ³⁾ | 9500 MPa ³⁾ |
| Bending Modulus-Axial Direction | E_{b-a} | 8000 MPa ¹⁾ | 8000 MPa ¹⁾ | 9000 MPa ¹⁾ | 9000 MPa ³⁾ | 8000 MPa ³⁾ |
| Shear Modulus | G | 3 GPa | 3 GPa | 3 GPa | 3 GPa | 3 GPa |

Note:

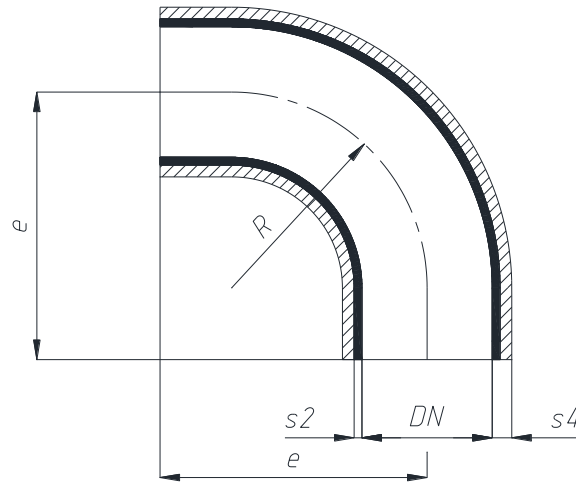
- 1) – The Mechanical Properties are confirmed with the TÜV Rheinland Industrie Service GmbH Werkstoffgutachten nr 124666135
- 2) – The Mechanical Properties are confirmed with the TÜV SÜD certificate nr: DGR-0036-QS-942-19
- 3) – The Mechanical Properties are confirmed with the TÜV Süddeutschland Einzelgutachten zu den Werkstoffen nr 343202





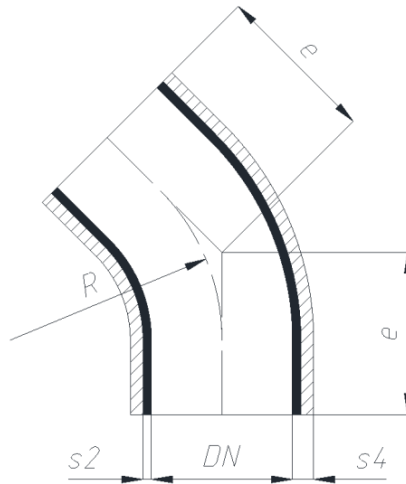
| DN | L [mm] | Thickness s4 inc. CBL s2=2,5mm | | | | |
|-----|--------|--------------------------------|-----------|----------|----------|------------|
| | | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 25 | 6000 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 32 | 6000 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 40 | 6000 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 50 | 6000 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 65 | 6000 | 5,1 | 5,0 | 5,0 | 5,0 | 5,0 |
| 80 | 6000 | 6,1 | 5,0 | 5,0 | 5,0 | 5,0 |
| 100 | 6000 | 7,3 | 5,0 | 5,0 | 5,0 | 5,0 |
| 125 | 6000 | 8,9 | 5,9 | 5,0 | 5,0 | 5,0 |
| 150 | 6000 | 10,5 | 6,8 | 5,0 | 5,0 | 5,0 |
| 200 | 6000 | 13,6 | 8,7 | 5,6 | 5,6 | 5,6 |
| 250 | 6000 | 16,8 | 10,7 | 6,7 | 5,0 | 5,0 |
| 300 | 6000 | 19,9 | 12,6 | 7,9 | 5,5 | 5,0 |
| 350 | 6000 | 23,1 | 14,5 | 9,0 | 6,3 | 5,0 |
| 400 | 6000 | 26,2 | 16,4 | 10,1 | 7,1 | 5,0 |
| 450 | 6000 | 32,5 | 20,3 | 12,4 | 8,6 | 5,7 |
| 500 | 6000 | 32,5 | 20,3 | 12,4 | 8,6 | 5,7 |
| 600 | 6000 | - | 24,1 | 14,7 | 10,1 | 6,6 |
| 700 | 6000 | - | 28,0 | 17,0 | 11,6 | 7,6 |





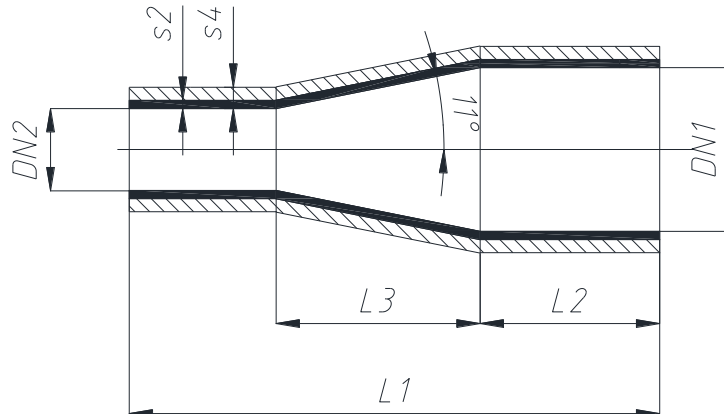
| DN | e [mm] | R [mm] | Thickness s4 inc. CBL s2=2,5mm | | | | |
|-----|--------|--------|--------------------------------|-----------|----------|----------|------------|
| | | | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 25 | 110 | 37,5 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 32 | 130 | 48 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 40 | 150 | 60 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 50 | 180 | 75 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 65 | 140 | 97,5 | 5,1 | 5,0 | 5,0 | 5,0 | 5,0 |
| 80 | 165 | 120 | 6,1 | 5,0 | 5,0 | 5,0 | 5,0 |
| 100 | 205 | 150 | 7,3 | 5,0 | 5,0 | 5,0 | 5,0 |
| 125 | 245 | 187,5 | 8,9 | 5,9 | 5,9 | 5,9 | 5,9 |
| 150 | 285 | 225 | 10,5 | 6,8 | 6,8 | 6,8 | 6,8 |
| 200 | 365 | 300 | 13,6 | 8,7 | 5,6 | 5,6 | 5,6 |
| 250 | 450 | 375 | 16,8 | 10,7 | 6,7 | 6,7 | 6,7 |
| 300 | 525 | 450 | 19,9 | 12,6 | 7,9 | 7,9 | 7,9 |
| 350 | 600 | 525 | 23,1 | 14,5 | 9,0 | 6,3 | 6,3 |
| 400 | 680 | 520 | 26,2 | 16,4 | 10,1 | 7,1 | 7,1 |
| 450 | 775 | 675 | 32,5 | 20,3 | 12,4 | 8,6 | 8,6 |
| 500 | 830 | 630 | 32,5 | 20,3 | 12,4 | 8,6 | 8,6 |
| 600 | 950 | 720 | - | 24,1 | 14,7 | 10,1 | 6,6 |
| 700 | 1100 | 840 | - | 28,0 | 17,0 | 11,6 | 7,6 |





| DN | e [mm] | R [mm] | Thickness s4 inc. CBL s2=2,5mm | | | | |
|-----|--------|--------|--------------------------------|-----------|----------|----------|------------|
| | | | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 25 | 70 | 37,5 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 32 | 80 | 48 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 40 | 90 | 60 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 50 | 105 | 75 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 65 | 85 | 97,5 | 5,1 | 5,0 | 5,0 | 5,0 | 5,0 |
| 80 | 100 | 120 | 6,1 | 5,0 | 5,0 | 5,0 | 5,0 |
| 100 | 115 | 150 | 7,3 | 5,0 | 5,0 | 5,0 | 5,0 |
| 125 | 135 | 187,5 | 8,9 | 5,9 | 5,9 | 5,9 | 5,9 |
| 150 | 150 | 225 | 10,5 | 6,8 | 6,8 | 6,8 | 6,8 |
| 200 | 190 | 300 | 13,6 | 8,7 | 5,6 | 5,6 | 5,6 |
| 250 | 225 | 375 | 16,8 | 10,7 | 6,7 | 6,7 | 6,7 |
| 300 | 260 | 450 | 19,9 | 12,6 | 7,9 | 7,9 | 7,9 |
| 350 | 290 | 525 | 23,1 | 14,5 | 9,0 | 6,3 | 6,3 |
| 400 | 325 | 430 | 26,2 | 16,4 | 10,1 | 7,1 | 7,1 |
| 450 | 380 | 675 | 32,5 | 20,3 | 12,4 | 8,6 | 8,6 |
| 500 | 390 | 470 | 32,5 | 20,3 | 12,4 | 8,6 | 8,6 |
| 600 | 430 | 900 | - | 24,1 | 14,7 | 10,1 | 6,6 |
| 700 | 490 | 1190 | - | 28,0 | 17,0 | 11,6 | 7,6 |





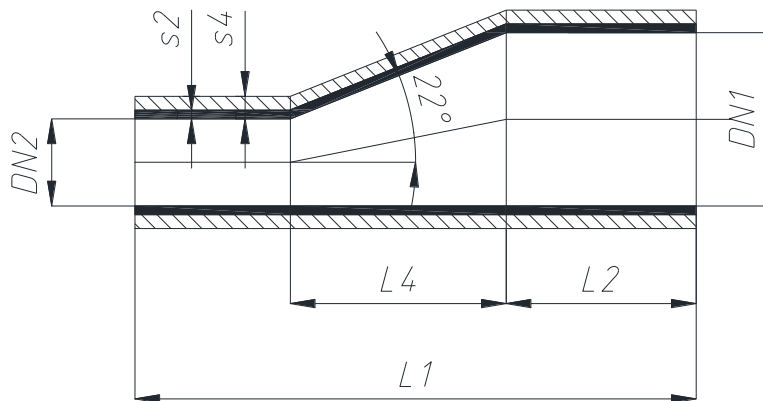
| DN1 | DN2 | L1 [mm] | L2 [mm] | L3 [mm] | Thickness s4 inc. CBL s2=2,5mm | | | | |
|-----|-----|------------|------------|------------|--------------------------------|--------------|-------------|-------------|---------------|
| | | | | | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 32 | 25 | 180 | 85 | 17,5 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 40 | 25 | 205 | 85 | 37,5 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 40 | 32 | 200 | 85 | 20,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 50 | 25 | 235 | 85 | 62,5 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 50 | 32 | 230 | 85 | 46,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 50 | 40 | 205 | 85 | 25,0 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 65 | 32 | 260 | 85 | 83,0 | 5,2 | 5,0 | 5,0 | 5,0 | 5,0 |
| 65 | 40 | 235 | 85 | 62,5 | 5,2 | 5,0 | 5,0 | 5,0 | 5,0 |
| 65 | 50 | 210 | 85 | 37,5 | 5,2 | 5,0 | 5,0 | 5,0 | 5,0 |
| 80 | 40 | 275 | 85 | 100,0 | 6,2 | 5,0 | 5,0 | 5,0 | 5,0 |
| 80 | 50 | 245 | 85 | 75,0 | 6,2 | 5,0 | 5,0 | 5,0 | 5,0 |
| 80 | 65 | 210 | 85 | 37,5 | 6,2 | 5,0 | 5,0 | 5,0 | 5,0 |
| 100 | 50 | 325 | 110 | 125,0 | 7,5 | 5,0 | 5,0 | 5,0 | 5,0 |
| 100 | 65 | 285 | 110 | 87,5 | 7,5 | 5,0 | 5,0 | 5,0 | 5,0 |
| 100 | 80 | 250 | 110 | 50,0 | 7,5 | 5,0 | 5,0 | 5,0 | 5,0 |
| 125 | 65 | 350 | 110 | 150,0 | 9,1 | 5,9 | 5,9 | 5,9 | 5,9 |
| 125 | 80 | 310 | 110 | 113,0 | 9,1 | 5,9 | 5,9 | 5,9 | 5,9 |
| 125 | 100 | 285 | 110 | 62,5 | 9,1 | 5,9 | 5,9 | 5,9 | 5,9 |
| 150 | 80 | 375 | 110 | 175,0 | 10,7 | 6,9 | 6,9 | 6,9 | 6,9 |
| 150 | 100 | 350 | 110 | 125,0 | 10,7 | 6,9 | 6,9 | 6,9 | 6,9 |
| 150 | 125 | 310 | 110 | 62,5 | 10,7 | 6,9 | 6,9 | 6,9 | 6,9 |
| 200 | 100 | 490 | 127 | 250,0 | 13,9 | 8,9 | 5,7 | 5,7 | 5,7 |
| 200 | 125 | 430 | 127 | 188,0 | 13,9 | 8,9 | 5,7 | 5,7 | 5,7 |
| 200 | 150 | 370 | 127 | 125,0 | 13,9 | 8,9 | 5,7 | 5,7 | 5,7 |





| DN1 | DN2 | L1 | L2 | L3 | Thickness s4 inc. CBL s2=2,5mm | | | | |
|-----|-----|------|------|-------|--------------------------------|--------------|-------------|-------------|---------------|
| | | [mm] | [mm] | [mm] | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 250 | 125 | 575 | 143 | 312,5 | 17,1 | 10,8 | 6,8 | 6,8 | 6,8 |
| 250 | 150 | 510 | 143 | 250 | 17,1 | 10,8 | 6,8 | 6,8 | 6,8 |
| 250 | 200 | 400 | 143 | 125 | 17,1 | 10,8 | 6,8 | 6,8 | 6,8 |
| 300 | 150 | 655 | 158 | 375 | 20,3 | 12,8 | 8,0 | 8,0 | 8,0 |
| 300 | 200 | 540 | 158 | 250 | 20,3 | 12,8 | 8,0 | 8,0 | 8,0 |
| 300 | 250 | 435 | 158 | 125 | 20,3 | 12,8 | 8,0 | 8,0 | 8,0 |
| 350 | 200 | 665 | 150 | 385 | 23,5 | 14,8 | 9,2 | 6,4 | 6,4 |
| 350 | 250 | 550 | 150 | 255 | 23,5 | 14,8 | 9,2 | 6,4 | 6,4 |
| 350 | 300 | 440 | 150 | 130 | 23,5 | 14,8 | 9,2 | 6,4 | 6,4 |
| 400 | 250 | 695 | 166 | 385 | 26,7 | 16,7 | 10,3 | 7,2 | 7,2 |
| 400 | 300 | 580 | 166 | 255 | 26,7 | 16,7 | 10,3 | 7,2 | 7,2 |
| 400 | 350 | 450 | 166 | 130 | 26,7 | 16,7 | 10,3 | 7,2 | 7,2 |
| 500 | 300 | 865 | 191 | 515 | 33,1 | 20,6 | 12,6 | 8,7 | 8,7 |
| 500 | 350 | 730 | 191 | 375 | 33,1 | 20,6 | 12,6 | 8,7 | 8,7 |
| 500 | 400 | 615 | 191 | 255 | 33,1 | 20,6 | 12,6 | 8,7 | 8,7 |
| 600 | 350 | 980 | 181 | 630,0 | - | 24,6 | 14,9 | 10,2 | 6,8 |
| 600 | 400 | 865 | 181 | 515 | - | 24,6 | 14,9 | 10,2 | 6,8 |
| 600 | 500 | 630 | 181 | 255 | - | 24,6 | 14,9 | 10,2 | 6,8 |
| 700 | 400 | 1160 | 197 | 775 | - | 28,5 | 17,3 | 11,8 | 7,7 |
| 700 | 500 | 930 | 197 | 515 | - | 28,5 | 17,3 | 11,8 | 7,7 |
| 700 | 600 | 660 | 197 | 255 | - | 28,5 | 17,3 | 11,8 | 7,7 |





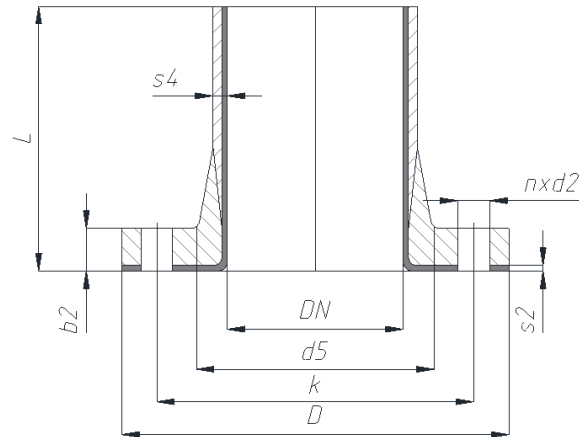
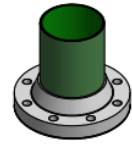
| DN1 | DN2 | L1 [mm] | L2 [mm] | L4 [mm] | Thickness s4 inc. CBL s2=2,5mm | | | | |
|-----|-----|------------|------------|------------|--------------------------------|--------------|-------------|-------------|---------------|
| | | | | | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 32 | 25 | 180 | 85 | 20 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 40 | 25 | 205 | 85 | 40 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 40 | 32 | 200 | 85 | 20 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 50 | 25 | 235 | 85 | 60 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 50 | 32 | 230 | 85 | 45 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 50 | 40 | 205 | 85 | 25 | 5,0 | 5,0 | 5,0 | 5,0 | 5,0 |
| 65 | 32 | 260 | 85 | 80 | 5,2 | 5,0 | 5,0 | 5,0 | 5,0 |
| 65 | 40 | 235 | 85 | 60 | 5,2 | 5,0 | 5,0 | 5,0 | 5,0 |
| 65 | 50 | 210 | 85 | 40 | 5,2 | 5,0 | 5,0 | 5,0 | 5,0 |
| 80 | 40 | 275 | 85 | 100 | 6,2 | 5,0 | 5,0 | 5,0 | 5,0 |
| 80 | 50 | 245 | 85 | 75 | 6,2 | 5,0 | 5,0 | 5,0 | 5,0 |
| 80 | 65 | 210 | 85 | 35 | 6,2 | 5,0 | 5,0 | 5,0 | 5,0 |
| 100 | 50 | 325 | 110 | 125 | 7,5 | 5,0 | 5,0 | 5,0 | 5,0 |
| 100 | 65 | 285 | 110 | 85 | 7,5 | 5,0 | 5,0 | 5,0 | 5,0 |
| 100 | 80 | 250 | 110 | 50 | 7,5 | 5,0 | 5,0 | 5,0 | 5,0 |
| 125 | 65 | 350 | 110 | 150 | 9,1 | 5,9 | 5,9 | 5,9 | 5,9 |
| 125 | 80 | 310 | 110 | 110 | 9,1 | 5,9 | 5,9 | 5,9 | 5,9 |
| 125 | 100 | 285 | 110 | 60 | 9,1 | 5,9 | 5,9 | 5,9 | 5,9 |
| 150 | 80 | 375 | 110 | 175 | 10,7 | 6,9 | 6,9 | 6,9 | 6,9 |
| 150 | 100 | 350 | 110 | 125 | 10,7 | 6,9 | 6,9 | 6,9 | 6,9 |
| 150 | 125 | 310 | 110 | 60 | 10,7 | 6,9 | 6,9 | 6,9 | 6,9 |
| 200 | 100 | 490 | 127 | 245 | 13,9 | 8,9 | 5,7 | 5,7 | 5,7 |
| 200 | 125 | 430 | 127 | 185 | 13,9 | 8,9 | 5,7 | 5,7 | 5,7 |
| 200 | 150 | 370 | 127 | 125 | 13,9 | 8,9 | 5,7 | 5,7 | 5,7 |





| DN1 | DN2 | L1 | L2 | L4 | Thickness s4 inc. CBL s2=2,5mm | | | | |
|-----|-----|------|------|------|--------------------------------|--------------|-------------|-------------|---------------|
| | | [mm] | [mm] | [mm] | PN16 [mm] | PN10 [mm] | PN6 [mm] | PN4 [mm] | PN2,5 [mm] |
| 250 | 125 | 575 | 143 | 310 | 17,1 | 10,8 | 6,8 | 6,8 | 6,8 |
| 250 | 150 | 510 | 143 | 245 | 17,1 | 10,8 | 6,8 | 6,8 | 6,8 |
| 250 | 200 | 400 | 143 | 125 | 17,1 | 10,8 | 6,8 | 6,8 | 6,8 |
| 300 | 150 | 655 | 158 | 370 | 20,3 | 12,8 | 8,0 | 8,0 | 8,0 |
| 300 | 200 | 540 | 158 | 245 | 20,3 | 12,8 | 8,0 | 8,0 | 8,0 |
| 300 | 250 | 435 | 158 | 125 | 20,3 | 12,8 | 8,0 | 8,0 | 8,0 |
| 350 | 200 | 665 | 150 | 370 | 23,5 | 14,8 | 9,2 | 6,4 | 6,4 |
| 350 | 250 | 550 | 150 | 245 | 23,5 | 14,8 | 9,2 | 6,4 | 6,4 |
| 350 | 300 | 440 | 150 | 125 | 23,5 | 14,8 | 9,2 | 6,4 | 6,4 |
| 400 | 250 | 695 | 166 | 370 | 26,7 | 16,7 | 10,3 | 7,2 | 7,2 |
| 400 | 300 | 580 | 166 | 245 | 26,7 | 16,7 | 10,3 | 7,2 | 7,2 |
| 400 | 350 | 450 | 166 | 125 | 26,7 | 16,7 | 10,3 | 7,2 | 7,2 |
| 500 | 300 | 865 | 191 | 495 | 33,1 | 20,6 | 12,6 | 8,7 | 8,7 |
| 500 | 350 | 730 | 191 | 370 | 33,1 | 20,6 | 12,6 | 8,7 | 8,7 |
| 500 | 400 | 615 | 191 | 245 | 33,1 | 20,6 | 12,6 | 8,7 | 8,7 |
| 600 | 350 | 980 | 181 | 620 | - | 24,6 | 14,9 | 10,2 | 6,8 |
| 600 | 400 | 865 | 181 | 495 | - | 24,6 | 14,9 | 10,2 | 6,8 |
| 600 | 500 | 630 | 181 | 245 | - | 24,6 | 14,9 | 10,2 | 6,8 |
| 700 | 400 | 1160 | 197 | 740 | - | 28,5 | 17,3 | 11,8 | 7,7 |
| 700 | 500 | 930 | 197 | 495 | - | 28,5 | 17,3 | 11,8 | 7,7 |
| 700 | 600 | 660 | 197 | 245 | - | 28,5 | 17,3 | 11,8 | 7,7 |



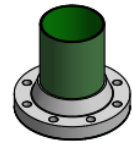


| DN | PN16 (drilling PN16) | | | | | | | |
|-----|----------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 25 | 115 | 50 | 5,0 | 14 | 85 | 4 | 14 | 250 |
| 32 | 140 | 58 | 5,0 | 15 | 100 | 4 | 18 | 250 |
| 40 | 150 | 68 | 5,0 | 16 | 110 | 4 | 18 | 250 |
| 50 | 165 | 82 | 5,0 | 18 | 125 | 4 | 18 | 250 |
| 65 | 185 | 110 | 5,1 | 25 | 145 | 8 | 18 | 250 |
| 80 | 200 | 125 | 6,1 | 28 | 160 | 8 | 18 | 250 |
| 100 | 220 | 145 | 7,3 | 38 | 180 | 8 | 18 | 250 |
| 125 | 250 | 175 | 8,9 | 35 | 210 | 8 | 18 | 250 |
| 150 | 285 | 200 | 10,5 | 40 | 240 | 8 | 22 | 250 |
| 200 | 340 | 255 | 13,6 | 50 | 295 | 12 | 22 | 250 |
| 250 | 405 | 305 | 16,8 | 60 | 355 | 12 | 26 | 250 |
| 300 | 460 | 360 | 19,9 | 70 | 410 | 12 | 26 | 300 |
| 350 | 520 | 420 | 23,1 | 80 | 470 | 16 | 26 | 350 |
| 400 | 580 | 470 | 26,2 | 90 | 525 | 16 | 30 | 400 |
| 450 | 640 | 530 | 32,5 | 95 | 585 | 20 | 30 | 450 |
| 500 | 715 | 590 | 32,5 | 100 | 650 | 20 | 33 | 500 |

Note:

*s4,*b2 – thickness incl. CBL=2,5mm





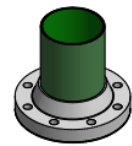
| DN | PN10 (drilling PN10) | | | | | | | |
|-----|----------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 65 | 185 | 95 | 5,0 | 20 | 145 | 4 | 18 | 250 |
| 80 | 200 | 111 | 5,0 | 22 | 160 | 8 | 18 | 250 |
| 100 | 220 | 133 | 5,0 | 24 | 180 | 8 | 18 | 250 |
| 125 | 250 | 160 | 5,9 | 27 | 210 | 8 | 18 | 250 |
| 150 | 285 | 188 | 6,8 | 30 | 240 | 8 | 22 | 250 |
| 200 | 340 | 245 | 8,7 | 35 | 295 | 8 | 22 | 250 |
| 250 | 395 | 300 | 10,7 | 40 | 350 | 12 | 22 | 250 |
| 300 | 445 | 350 | 12,6 | 50 | 400 | 12 | 22 | 250 |
| 350 | 505 | 410 | 14,5 | 60 | 460 | 16 | 22 | 250 |
| 400 | 565 | 460 | 16,4 | 70 | 515 | 16 | 26 | 300 |
| 450 | 615 | 513 | 20,3 | 75 | 565 | 20 | 26 | 350 |
| 500 | 670 | 565 | 20,3 | 80 | 620 | 20 | 26 | 350 |
| 600 | 780 | 660 | 24,1 | 90,0 | 725 | 20 | 30 | 400 |
| 700 | 895 | 780 | 28,0 | 100,0 | 840 | 24 | 30 | 450 |

| DN | PN6 (drilling PN10) | | | | | | | |
|-----|---------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 200 | 340 | 245 | 5,6 | 33 | 295 | 8 | 22 | 250 |
| 250 | 395 | 300 | 6,7 | 37 | 350 | 12 | 22 | 250 |
| 300 | 445 | 350 | 7,9 | 42 | 400 | 12 | 22 | 250 |
| 350 | 505 | 410 | 9,0 | 50 | 460 | 16 | 22 | 250 |
| 400 | 565 | 460 | 10,1 | 55 | 515 | 16 | 26 | 250 |
| 450 | 615 | 513 | 12,4 | 58 | 565 | 20 | 26 | 250 |
| 500 | 670 | 565 | 12,4 | 60 | 620 | 20 | 26 | 250 |
| 600 | 780 | 660 | 14,7 | 65,0 | 725 | 20 | 30 | 300 |
| 700 | 895 | 780 | 17,0 | 70,0 | 840 | 24 | 30 | 300 |

Note:

*s4,*b2 – thickness incl. CBL=2,5mm





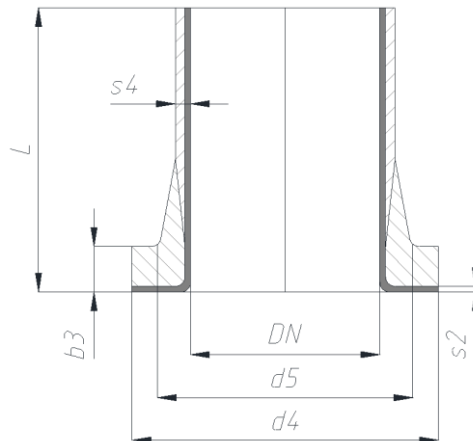
| DN | PN4 (drilling PN10) | | | | | | | |
|-----|---------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 350 | 505 | 410 | 6,3 | 40 | 460 | 16 | 22 | 250 |
| 400 | 565 | 460 | 7,1 | 44 | 515 | 16 | 26 | 250 |
| 450 | 615 | 513 | 8,6 | 47 | 565 | 20 | 26 | 250 |
| 500 | 670 | 565 | 8,6 | 49 | 620 | 20 | 26 | 250 |
| 600 | 780 | 660 | 10,1 | 55,0 | 725 | 20 | 30 | 300 |
| 700 | 895 | 780 | 11,6 | 60,0 | 840 | 24 | 30 | 300 |

| DN | PN2,5 (drilling PN10) | | | | | | | |
|-----|-----------------------|---------|----------|----------|--------|--------|---------|--------|
| | D [mm] | d5 [mm] | *s4 [mm] | *b2 [mm] | k [mm] | n [mm] | d2 [mm] | L [mm] |
| 600 | 780 | 660 | 6,6 | 49,0 | 725 | 20 | 30 | 300 |
| 700 | 895 | 780 | 7,6 | 53,0 | 840 | 24 | 30 | 300 |

Note:

*s4,*b2 – thickness incl. CBL=2,5mm





| DN | PN16 | | | | |
|-----|---------|---------|----------|----------|--------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 25 | 68 | 50 | 5,0 | 12 | 200 |
| 32 | 78 | 58 | 5,0 | 14 | 200 |
| 40 | 88 | 68 | 5,0 | 14 | 200 |
| 50 | 102 | 82 | 5,0 | 14 | 200 |
| 65 | 122 | 95 | 5,1 | 18 | 200 |
| 80 | 138 | 111 | 6,1 | 22 | 200 |
| 100 | 158 | 133 | 7,3 | 27 | 200 |
| 125 | 188 | 160 | 8,9 | 30 | 200 |
| 150 | 212 | 188 | 10,5 | 35 | 200 |
| 200 | 268 | 237 | 13,6 | 40 | 250 |
| 250 | 320 | 293 | 16,8 | 50 | 300 |
| 300 | 378 | 347 | 19,9 | 60 | 350 |
| 350 | 438 | 398 | 23,1 | 70 | 400 |
| 400 | 490 | 452 | 26,2 | 80 | 450 |
| 450 | 550 | 502 | 32,5 | 85 | 500 |
| 500 | 610 | 554 | 32,5 | 90 | 550 |

Note:

*s4,*b3 – thickness incl. CBL=2,5mm

Stub ends in the range of DN25–DN300 are manufactured in a process of hand lay-up lamination or pressing lamination (RAL9010)





| DN | PN10 | | | | |
|-----|------------|------------|-------------|-------------|-----------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 65 | 122 | 95 | 5,0 | 15 | 200 |
| 80 | 138 | 111 | 5,0 | 16 | 200 |
| 100 | 158 | 133 | 5,0 | 18 | 200 |
| 125 | 188 | 160 | 5,9 | 20 | 200 |
| 150 | 212 | 188 | 6,8 | 22 | 200 |
| 200 | 268 | 237 | 8,7 | 28 | 250 |
| 250 | 320 | 293 | 10,7 | 35 | 300 |
| 300 | 370 | 343 | 12,6 | 45 | 350 |
| 350 | 430 | 387 | 14,5 | 50 | 300 |
| 400 | 482 | 441 | 16,4 | 65 | 350 |
| 450 | 532 | 492 | 20,3 | 70 | 400 |
| 500 | 585 | 544 | 20,3 | 75 | 400 |
| 600 | 685 | 648 | 24,1 | 85 | 500 |
| 700 | 800 | 758 | 28,0 | 95 | 550 |

| DN | PN6 | | | | |
|-----|------------|------------|-------------|-------------|-----------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 200 | 268 | 237 | 5,6 | 25 | 250 |
| 250 | 320 | 293 | 6,7 | 28 | 300 |
| 300 | 370 | 343 | 7,9 | 30 | 350 |
| 350 | 430 | 387 | 9,0 | 40 | 250 |
| 400 | 482 | 441 | 10,1 | 45 | 250 |
| 450 | 532 | 492 | 12,4 | 48 | 300 |
| 500 | 585 | 544 | 12,4 | 50 | 300 |
| 600 | 685 | 648 | 14,7 | 55 | 350 |
| 700 | 800 | 758 | 17,0 | 70 | 400 |

Note:

*s4,*b3 – thickness incl. CBL=2,5mm

Stub ends in the range of DN25–DN300 are manufactured in a process of hand lay-up lamination or pressing lamination (RAL9010)





| DN | PN4 | | | | |
|------------|------------|------------|-------------|-------------|-----------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 350 | 430 | 387 | 6,3 | 32 | 250 |
| 400 | 482 | 441 | 7,1 | 35 | 250 |
| 450 | 532 | 492 | 8,6 | 37 | 250 |
| 500 | 585 | 544 | 8,6 | 38 | 250 |
| 600 | 685 | 648 | 10,1 | 50 | 350 |
| 700 | 800 | 758 | 11,6 | 58 | 400 |

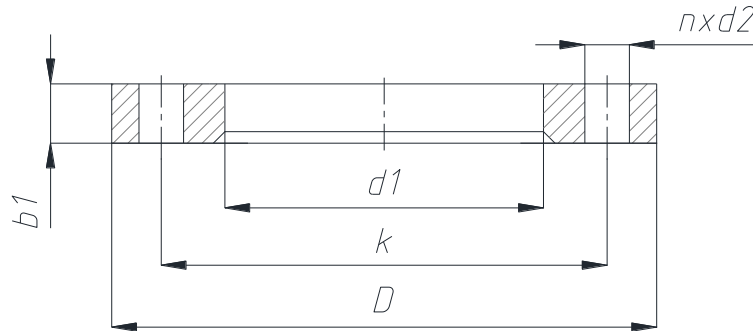
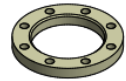
| DN | PN2,5 | | | | |
|------------|------------|------------|-------------|-------------|-----------|
| | d4 [mm] | d5 [mm] | *s4 [mm] | *b3 [mm] | L [mm] |
| 600 | 685 | 648 | 6,6 | 45 | 350 |
| 700 | 800 | 758 | 7,6 | 53 | 350 |

Note:

*s4,*b3 – thickness incl. CBL=2,5mm

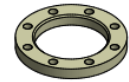
Stub ends in the range of DN25–DN300 are manufactured in a process of hand lay-up lamination or pressing lamination (RAL9010)





| DN | PN16 (drilling PN16) | | | | | | |
|-----|----------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 25 | 115 | 50,5 | 14 | 16 | 85 | 4 | 14 |
| 32 | 140 | 58,5 | 15 | 18 | 100 | 4 | 18 |
| 40 | 150 | 68,5 | 16 | 18 | 110 | 4 | 18 |
| 50 | 165 | 82,5 | 18 | 20 | 125 | 4 | 18 |
| 65 | 185 | 95,5 | - | 20 | 145 | 8 | 18 |
| 80 | 200 | 111,5 | - | 20 | 160 | 8 | 18 |
| 100 | 220 | 133,5 | - | 22 | 180 | 8 | 18 |
| 125 | 250 | 160,5 | - | 22 | 210 | 8 | 18 |
| 150 | 285 | 188,5 | - | 24 | 240 | 8 | 22 |
| 200 | 340 | 238 | - | 26 | 295 | 12 | 22 |
| 250 | 405 | 294 | - | 28 | 355 | 12 | 26 |
| 300 | 460 | 348 | - | 32 | 410 | 12 | 26 |
| 350 | 520 | 400 | - | 35 | 470 | 16 | 26 |
| 400 | 580 | 454 | - | 38 | 525 | 16 | 29,5 |
| 500 | 715 | 556 | - | 46 | 650 | 20 | 32,5 |





| DN | PN10 (drilling PN10) | | | | | | |
|-----|----------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 65 | 185 | 95,5 | 20 | 20 | 145 | 4 | 18 |
| 80 | 200 | 111,5 | 22 | 20 | 160 | 8 | 18 |
| 100 | 220 | 133,5 | 24 | 22 | 180 | 8 | 18 |
| 125 | 250 | 160,5 | 27 | 22 | 210 | 8 | 18 |
| 150 | 285 | 188,5 | 30 | 24 | 240 | 8 | 22 |
| 200 | 340 | 238 | - | 24 | 295 | 8 | 22 |
| 250 | 395 | 294 | - | 26 | 350 | 12 | 22 |
| 300 | 445 | 344 | - | 28 | 400 | 12 | 22 |
| 350 | 505 | 388 | - | 30 | 460 | 16 | 22 |
| 400 | 565 | 442 | - | 32 | 515 | 16 | 26 |
| 500 | 670 | 545 | - | 38 | 620 | 20 | 26 |
| 600 | 780 | 650 | - | 42 | 725 | 20 | 30 |
| 700 | 895 | 760 | - | 46 | 840 | 24 | 30 |

| DN | PN6 (drilling PN10) | | | | | | |
|-----|---------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 200 | 340 | 238 | 32 | 22 | 295 | 8 | 22 |
| 250 | 395 | 294 | 34 | 24 | 350 | 12 | 22 |
| 300 | 445 | 344 | 36 | 24 | 400 | 12 | 22 |
| 350 | 505 | 388 | - | 26 | 460 | 16 | 22 |
| 400 | 565 | 442 | - | 28 | 515 | 16 | 26 |
| 500 | 670 | 545 | - | 32 | 620 | 20 | 26 |
| 600 | 780 | 650 | - | 36 | 725 | 20 | 30 |
| 700 | 895 | 760 | - | 40 | 840 | 24 | 30 |

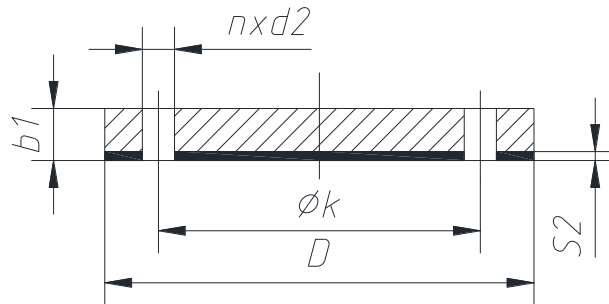
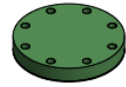




| DN | PN4 (drilling PN10) | | | | | | |
|-----|---------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 350 | 505 | 388 | 38 | 26 | 460 | 16 | 22 |
| 400 | 565 | 442 | 42 | 28 | 515 | 16 | 26 |
| 500 | 670 | 545 | 47 | 32 | 620 | 20 | 26 |

| DN | PN2,5 (drilling PN10) | | | | | | |
|-----|-----------------------|---------|-------------|---------------|--------|--------|---------|
| | D [mm] | d1 [mm] | b1 GRP [mm] | b1 steel [mm] | k [mm] | n [mm] | d2 [mm] |
| 600 | 780 | 650 | 51 | 36 | 725 | 20 | 30 |
| 700 | 895 | 760 | - | 36 | 840 | 24 | 30 |





| DN | PN16 | | | | |
|-----|-----------|-------------|-----------|-----------|------------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 25 | 115 | 17,0 | 85 | 4 | 14 |
| 32 | 140 | 19,0 | 100 | 4 | 18 |
| 40 | 150 | 22,0 | 110 | 4 | 18 |
| 50 | 165 | 24,0 | 125 | 4 | 18 |
| 65 | 185 | 27,0 | 145 | 8 | 18 |
| 80 | 200 | 30,0 | 160 | 8 | 18 |
| 100 | 220 | 33,0 | 180 | 8 | 18 |
| 125 | 250 | 37,0 | 210 | 8 | 18 |
| 150 | 285 | 41,0 | 240 | 8 | 22 |
| 200 | 340 | 43,0 | 295 | 12 | 22 |
| 250 | 405 | 51,0 | 355 | 12 | 26 |
| 300 | 460 | 58,0 | 410 | 12 | 26 |
| 350 | 520 | 67,0 | 470 | 16 | 26 |
| 400 | 580 | 74,0 | 525 | 16 | 30 |
| 450 | 640 | 91,0 | 585 | 20 | 30 |
| 500 | 715 | 91,0 | 650 | 20 | 33 |

Note:

*b1 – thickness incl. CBL=2,5mm





| DN | PN10 | | | | |
|-----|--------|----------|--------|--------|---------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 65 | 185 | 23,0 | 145 | 4 | 18 |
| 80 | 200 | 26,0 | 160 | 8 | 18 |
| 100 | 220 | 29,0 | 180 | 8 | 18 |
| 125 | 250 | 31,0 | 210 | 8 | 18 |
| 150 | 285 | 35,0 | 240 | 8 | 22 |
| 200 | 340 | 36,0 | 295 | 8 | 22 |
| 250 | 395 | 43,0 | 350 | 12 | 22 |
| 300 | 445 | 48,0 | 400 | 12 | 22 |
| 350 | 505 | 55,0 | 460 | 16 | 22 |
| 400 | 565 | 61,0 | 515 | 16 | 26 |
| 450 | 615 | 74,0 | 565 | 20 | 26 |
| 500 | 670 | 74,0 | 620 | 20 | 26 |
| 600 | 780 | 85,0 | 725 | 20 | 30 |
| 700 | 895 | 95,0 | 840 | 24 | 30 |

| DN | PN6 (drilling PN10) | | | | |
|-----|---------------------|----------|--------|--------|---------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 200 | 340 | 28,0 | 295 | 8 | 22 |
| 250 | 395 | 33,0 | 350 | 12 | 22 |
| 300 | 445 | 37,0 | 400 | 12 | 22 |
| 350 | 505 | 43,0 | 460 | 16 | 22 |
| 400 | 565 | 47,0 | 515 | 16 | 26 |
| 450 | 615 | 57,0 | 565 | 20 | 26 |
| 500 | 670 | 57,0 | 620 | 20 | 26 |
| 600 | 780 | 66,0 | 725 | 20 | 30 |
| 700 | 895 | 76,0 | 840 | 24 | 30 |

Note:

*b1 – thickness incl. CBL=2,5mm





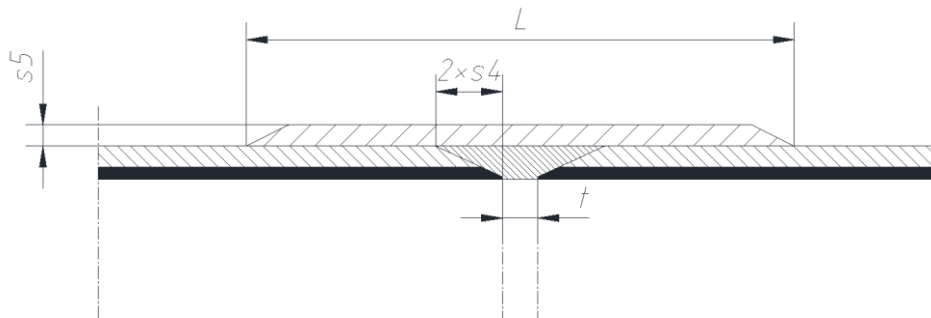
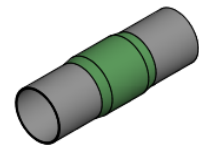
| DN | PN4 (drilling PN10) | | | | |
|------------|---------------------|----------|--------|--------|---------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 350 | 505 | 35,0 | 460 | 16 | 22 |
| 400 | 565 | 39,0 | 515 | 16 | 26 |
| 450 | 615 | 47,0 | 565 | 20 | 26 |
| 500 | 670 | 47,0 | 620 | 20 | 26 |
| 600 | 780 | 54,0 | 725 | 20 | 30 |
| 700 | 895 | 62,0 | 840 | 24 | 30 |

| DN | PN2,5 (drilling PN10) | | | | |
|------------|-----------------------|----------|--------|--------|---------|
| | D [mm] | *b1 [mm] | k [mm] | n [mm] | d2 [mm] |
| 600 | 780 | 43,0 | 725 | 20 | 30 |
| 700 | 895 | 49,0 | 840 | 24 | 30 |

Note:

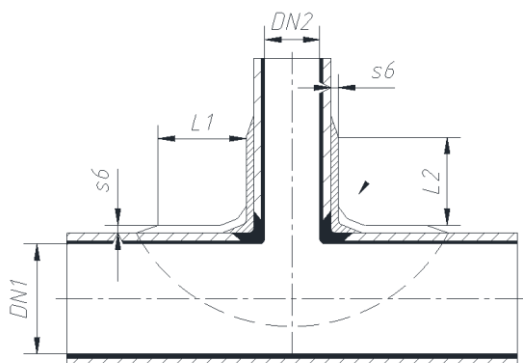
*b1 – thickness incl. CBL=2,5mm





| DN | t [mm] | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|
| | | s5 [mm] | L [mm] | s5 [mm] | L [mm] | s5 [mm] | L [mm] | s5 [mm] | L [mm] | s5 [mm] | L [mm] |
| 25 | 0,5 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 32 | 0,5 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 40 | 0,5 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 50 | 0,6 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 65 | 0,7 | 4,5 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 80 | 0,8 | 5,0 | 120 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 100 | 0,9 | 6,5 | 140 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 125 | 1,0 | 8,0 | 175 | 5,0 | 110 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 150 | 1,1 | 9,5 | 210 | 6,0 | 130 | 4,0 | 110 | 4,0 | 110 | 4,0 | 110 |
| 200 | 1,3 | 13,0 | 280 | 8,0 | 165 | 4,5 | 110 | 4,5 | 110 | 4,5 | 110 |
| 250 | 1,6 | 16,0 | 345 | 10,0 | 205 | 6,0 | 125 | 4,0 | 110 | 4,0 | 110 |
| 300 | 1,8 | 19,0 | 415 | 11,5 | 250 | 7,0 | 150 | 4,5 | 110 | 4,0 | 110 |
| 350 | 2,0 | 22,0 | 460 | 13,5 | 290 | 8,0 | 170 | 5,5 | 115 | 4,0 | 110 |
| 400 | 2,0 | 25,0 | 550 | 15,5 | 330 | 9,0 | 200 | 6,0 | 130 | 4,0 | 110 |
| 450 | 2,0 | 31,5 | 685 | 19,5 | 410 | 11,5 | 240 | 7,5 | 160 | 5,0 | 110 |
| 500 | 2,0 | 31,5 | 685 | 19,5 | 410 | 11,5 | 240 | 7,5 | 160 | 5,0 | 110 |
| 600 | 2,7 | - | - | 23,0 | 480 | 14,0 | 290 | 9,0 | 190 | 6,0 | 120 |
| 700 | 2,7 | - | - | 27,0 | 560 | 16,0 | 335 | 10,5 | 220 | 6,5 | 140 |





saddle DN1>2*DN2

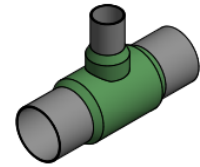
| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 65 | 25 | 6,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 32 | 6,5 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 25 | 6,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 32 | 7,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 100 | 25 | 7,0 | 50 / 50 | 5,1 | 50 / 50 | 5,1 | 50 / 50 | 5,1 | 50 / 50 | 5,1 | 50 / 50 |
| 100 | 32 | 7,6 | 50 / 50 | 5,5 | 50 / 50 | 5,5 | 50 / 50 | 5,5 | 50 / 50 | 5,5 | 50 / 50 |
| 100 | 40 | 8,2 | 50 / 50 | 5,9 | 50 / 50 | 5,9 | 50 / 50 | 5,9 | 50 / 50 | 5,9 | 50 / 50 |
| 125 | 25 | 7,6 | 65 / 50 | 5,5 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 32 | 8,3 | 65 / 50 | 6,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 40 | 9,0 | 65 / 50 | 6,5 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 125 | 50 | 9,8 | 65 / 50 | 7,1 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 25 | 8,2 | 85 / 50 | 5,9 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 32 | 8,9 | 85 / 50 | 6,4 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 40 | 9,7 | 85 / 50 | 7,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 150 | 50 | 10,6 | 85 / 50 | 7,6 | 50 / 50 | 5,1 | 50 / 50 | 5,1 | 50 / 50 | 5,1 | 50 / 50 |
| 150 | 65 | 11,8 | 85 / 50 | 8,4 | 50 / 50 | 5,7 | 50 / 50 | 5,7 | 50 / 50 | 5,7 | 50 / 50 |
| 200 | 25 | 9,2 | 115 / 50 | 6,6 | 65 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 200 | 32 | 10,1 | 115 / 50 | 7,2 | 65 / 50 | 5,2 | 50 / 50 | 5,2 | 50 / 50 | 5,2 | 50 / 50 |
| 200 | 40 | 10,9 | 115 / 50 | 7,8 | 65 / 50 | 5,6 | 50 / 50 | 5,6 | 50 / 50 | 5,6 | 50 / 50 |
| 200 | 50 | 11,9 | 115 / 50 | 8,5 | 65 / 50 | 6,0 | 50 / 50 | 6,0 | 50 / 50 | 6,0 | 50 / 50 |
| 200 | 65 | 13,3 | 115 / 50 | 9,4 | 65 / 50 | 6,7 | 50 / 50 | 6,7 | 50 / 50 | 6,7 | 50 / 50 |
| 200 | 80 | 14,7 | 115 / 50 | 10,3 | 65 / 50 | 7,3 | 50 / 50 | 7,3 | 50 / 50 | 7,3 | 50 / 50 |





| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 250 | 25 | 10,1 | 145 / 50 | 7,2 | 85 / 50 | 5,2 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 32 | 11,0 | 145 / 50 | 7,8 | 85 / 50 | 5,6 | 55 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 40 | 12,0 | 145 / 50 | 8,5 | 85 / 50 | 6,0 | 55 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 50 | 13,1 | 145 / 50 | 9,2 | 85 / 50 | 6,6 | 55 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 250 | 65 | 14,6 | 145 / 50 | 10,3 | 85 / 50 | 7,3 | 60 / 50 | 5,5 | 50 / 50 | 5,5 | 50 / 50 |
| 250 | 80 | 16,1 | 145 / 55 | 11,2 | 85 / 50 | 7,9 | 60 / 50 | 6,0 | 50 / 50 | 6,0 | 50 / 50 |
| 250 | 100 | 18,0 | 145 / 65 | 12,4 | 85 / 50 | 8,8 | 60 / 50 | 6,7 | 50 / 50 | 6,7 | 50 / 50 |
| 300 | 25 | 10,9 | 180 / 50 | 7,7 | 105 / 50 | 5,5 | 60 / 50 | 5,0 | 55 / 50 | 5,0 | 50 / 50 |
| 300 | 32 | 11,9 | 180 / 50 | 8,4 | 105 / 50 | 6,0 | 60 / 50 | 5,0 | 55 / 50 | 5,0 | 50 / 50 |
| 300 | 40 | 13,0 | 180 / 50 | 9,1 | 105 / 50 | 6,5 | 65 / 50 | 5,0 | 55 / 50 | 5,0 | 50 / 50 |
| 300 | 50 | 14,2 | 180 / 50 | 10,0 | 105 / 50 | 7,0 | 65 / 50 | 5,5 | 55 / 50 | 5,0 | 50 / 50 |
| 300 | 65 | 15,8 | 180 / 55 | 11,1 | 105 / 50 | 7,8 | 65 / 50 | 6,0 | 55 / 50 | 5,0 | 50 / 50 |
| 300 | 80 | 17,5 | 180 / 60 | 12,1 | 105 / 50 | 8,5 | 70 / 50 | 6,6 | 55 / 50 | 5,0 | 50 / 50 |
| 300 | 100 | 19,5 | 180 / 70 | 13,4 | 105 / 55 | 9,4 | 70 / 50 | 7,2 | 60 / 50 | 5,0 | 50 / 50 |
| 300 | 125 | 21,7 | 180 / 80 | 14,9 | 105 / 60 | 10,4 | 75 / 50 | 8,0 | 60 / 50 | 5,0 | 50 / 50 |
| 350 | 25 | 11,6 | 210 / 50 | 8,2 | 125 / 50 | 5,8 | 70 / 50 | 5,0 | 60 / 50 | 5,0 | 55 / 50 |
| 350 | 32 | 12,7 | 210 / 50 | 8,9 | 125 / 50 | 6,3 | 70 / 50 | 5,0 | 60 / 50 | 5,0 | 55 / 50 |
| 350 | 40 | 13,8 | 210 / 50 | 9,7 | 125 / 50 | 6,9 | 75 / 50 | 5,3 | 60 / 50 | 5,0 | 55 / 50 |
| 350 | 50 | 15,1 | 210 / 50 | 10,6 | 125 / 50 | 7,5 | 75 / 50 | 5,8 | 60 / 50 | 5,0 | 55 / 50 |
| 350 | 65 | 16,9 | 210 / 55 | 11,8 | 125 / 50 | 8,3 | 75 / 50 | 6,4 | 65 / 50 | 5,0 | 55 / 50 |
| 350 | 80 | 18,7 | 210 / 65 | 12,9 | 125 / 50 | 9,0 | 80 / 50 | 6,9 | 65 / 50 | 5,0 | 55 / 50 |
| 350 | 100 | 20,8 | 210 / 70 | 14,3 | 125 / 55 | 10,0 | 80 / 50 | 7,6 | 65 / 50 | 5,0 | 55 / 50 |





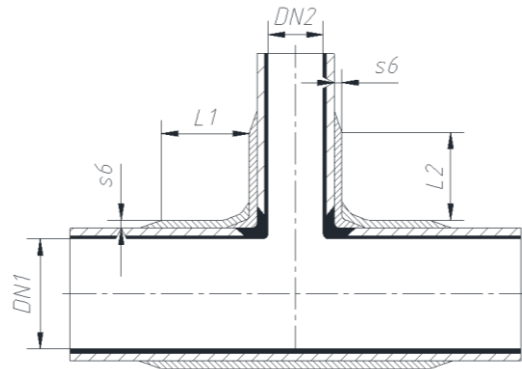
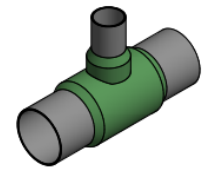
| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 350 | 125 | 23,3 | 210 / 80 | 15,9 | 125 / 65 | 11,0 | 85 / 50 | 8,5 | 70 / 50 | 5,0 | 55 / 50 |
| 350 | 150 | 25,5 | 210 / 90 | 17,4 | 125 / 70 | 12,0 | 85 / 55 | 9,2 | 70 / 50 | 5,0 | 55 / 50 |
| 400 | 25 | 12,2 | 245 / 50 | 8,6 | 145 / 50 | 6,1 | 80 / 50 | 5,0 | 65 / 50 | 5,0 | 60 / 50 |
| 400 | 32 | 13,4 | 245 / 50 | 9,4 | 145 / 50 | 6,7 | 80 / 50 | 5,2 | 65 / 50 | 5,0 | 60 / 50 |
| 400 | 40 | 14,6 | 245 / 50 | 10,3 | 145 / 50 | 7,2 | 80 / 50 | 5,6 | 65 / 50 | 5,0 | 60 / 50 |
| 400 | 50 | 16,0 | 245 / 50 | 11,2 | 145 / 50 | 7,8 | 85 / 50 | 6,0 | 70 / 50 | 5,0 | 60 / 50 |
| 400 | 65 | 17,9 | 245 / 60 | 12,5 | 145 / 50 | 8,7 | 85 / 50 | 6,7 | 70 / 50 | 5,0 | 60 / 50 |
| 400 | 80 | 19,9 | 245 / 65 | 13,7 | 145 / 50 | 9,5 | 90 / 50 | 7,3 | 75 / 50 | 5,0 | 60 / 50 |
| 400 | 100 | 22,1 | 245 / 75 | 15,1 | 145 / 60 | 10,5 | 90 / 50 | 8,0 | 75 / 50 | 5,0 | 60 / 50 |
| 400 | 125 | 24,7 | 245 / 85 | 16,8 | 145 / 70 | 11,6 | 95 / 55 | 8,9 | 75 / 50 | 5,0 | 60 / 50 |
| 400 | 150 | 27,0 | 245 / 95 | 18,4 | 145 / 75 | 12,7 | 95 / 60 | 9,7 | 80 / 50 | 5,0 | 60 / 50 |
| 500 | 25 | 13,3 | 305 / 50 | 9,4 | 180 / 50 | 6,6 | 105 / 50 | 5,2 | 80 / 50 | 5,0 | 65 / 50 |
| 500 | 32 | 14,7 | 305 / 50 | 10,3 | 180 / 50 | 7,2 | 105 / 50 | 5,6 | 80 / 50 | 5,0 | 65 / 50 |
| 500 | 40 | 16,1 | 305 / 50 | 11,2 | 180 / 50 | 7,9 | 105 / 50 | 6,0 | 80 / 50 | 5,0 | 65 / 50 |
| 500 | 50 | 17,6 | 305 / 55 | 12,3 | 180 / 50 | 8,6 | 105 / 50 | 6,6 | 85 / 50 | 5,0 | 65 / 50 |
| 500 | 65 | 19,8 | 305 / 65 | 13,7 | 180 / 50 | 9,5 | 105 / 50 | 7,3 | 85 / 50 | 5,5 | 70 / 50 |
| 500 | 80 | 21,9 | 305 / 70 | 15,0 | 180 / 55 | 10,4 | 105 / 50 | 7,9 | 90 / 50 | 5,9 | 70 / 50 |
| 500 | 100 | 24,4 | 305 / 80 | 16,6 | 180 / 65 | 11,5 | 110 / 50 | 8,7 | 90 / 50 | 6,5 | 75 / 50 |
| 500 | 125 | 27,3 | 305 / 95 | 18,5 | 180 / 75 | 12,7 | 110 / 60 | 9,7 | 95 / 50 | 7,2 | 75 / 50 |
| 500 | 150 | 29,9 | 305 / 105 | 20,3 | 180 / 80 | 13,9 | 115 / 65 | 10,5 | 95 / 55 | 7,8 | 80 / 50 |
| 500 | 200 | 34,6 | 305 / 125 | 23,5 | 180 / 100 | 16,0 | 120 / 75 | 12,2 | 100 / 65 | 9,0 | 80 / 55 |
| 600 | 25 | - | - | 10,0 | 220 / 50 | 7,1 | 125 / 50 | 5,5 | 95 / 50 | 5,0 | 80 / 50 |





| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 600 | 32 | - | - | 11,0 | 220 / 50 | 7,7 | 125 / 50 | 6,0 | 95 / 50 | 5,0 | 80 / 50 |
| 600 | 40 | - | - | 12,1 | 220 / 50 | 8,4 | 125 / 50 | 6,5 | 95 / 50 | 5,0 | 80 / 50 |
| 600 | 50 | - | - | 13,2 | 220 / 50 | 9,2 | 125 / 50 | 7,0 | 100 / 50 | 5,3 | 80 / 50 |
| 600 | 65 | - | - | 14,8 | 220 / 55 | 10,3 | 125 / 50 | 7,8 | 100 / 50 | 5,8 | 80 / 50 |
| 600 | 80 | - | - | 16,2 | 220 / 60 | 11,2 | 125 / 50 | 8,5 | 105 / 50 | 6,3 | 85 / 50 |
| 600 | 100 | - | - | 18,0 | 220 / 70 | 12,4 | 125 / 55 | 9,4 | 105 / 50 | 6,9 | 85 / 50 |
| 600 | 125 | - | - | 20,0 | 220 / 80 | 13,7 | 130 / 60 | 10,4 | 110 / 50 | 7,7 | 90 / 50 |
| 600 | 150 | - | - | 21,9 | 220 / 85 | 14,9 | 135 / 70 | 11,3 | 110 / 60 | 8,3 | 90 / 50 |
| 600 | 200 | - | - | 25,4 | 220 / 105 | 17,2 | 140 / 80 | 13,0 | 115 / 70 | 9,6 | 95 / 55 |
| 600 | 250 | - | - | 28,6 | 220 / 120 | 19,4 | 145 / 95 | 14,6 | 120 / 80 | 10,8 | 100 / 65 |
| 700 | 25 | - | - | 10,6 | 260 / 50 | 7,5 | 150 / 50 | 5,8 | 105 / 50 | 5,0 | 90 / 50 |
| 700 | 32 | - | - | 11,7 | 260 / 50 | 8,2 | 150 / 50 | 6,3 | 110 / 50 | 5,0 | 90 / 50 |
| 700 | 40 | - | - | 12,8 | 260 / 50 | 8,9 | 150 / 50 | 6,8 | 110 / 50 | 5,1 | 90 / 50 |
| 700 | 50 | - | - | 14,1 | 260 / 50 | 9,8 | 150 / 50 | 7,5 | 110 / 50 | 5,6 | 90 / 50 |
| 700 | 65 | - | - | 15,8 | 260 / 60 | 10,9 | 150 / 50 | 8,3 | 115 / 50 | 6,2 | 90 / 50 |
| 700 | 80 | - | - | 17,3 | 260 / 65 | 12,0 | 150 / 50 | 9,1 | 115 / 50 | 6,7 | 95 / 50 |
| 700 | 100 | - | - | 19,2 | 260 / 75 | 13,2 | 150 / 60 | 10,0 | 120 / 50 | 7,4 | 95 / 50 |
| 700 | 125 | - | - | 21,4 | 260 / 85 | 14,6 | 150 / 65 | 11,0 | 125 / 55 | 8,1 | 100 / 50 |
| 700 | 150 | - | - | 23,5 | 260 / 90 | 15,9 | 150 / 70 | 12,0 | 125 / 60 | 8,8 | 100 / 50 |
| 700 | 200 | - | - | 27,2 | 260 / 110 | 18,4 | 160 / 85 | 13,9 | 130 / 70 | 10,2 | 105 / 60 |
| 700 | 250 | - | - | 30,5 | 260 / 125 | 20,7 | 165 / 100 | 15,5 | 135 / 85 | 11,3 | 110 / 70 |
| 700 | 300 | - | - | 33,6 | 260 / 140 | 22,8 | 170 / 110 | 17,1 | 140 / 95 | 12,5 | 115 / 75 |

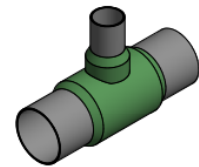




bridge $DN1 \leq 2 * DN2$

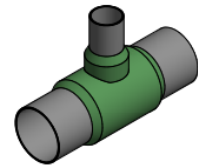
| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 25 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 32 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 32 | 32 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 40 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 40 | 32 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 40 | 40 | 5,2 | 50 / 50 | 5,2 | 50 / 50 | 5,2 | 50 / 50 | 5,2 | 50 / 50 | 5,2 | 50 / 50 |
| 50 | 25 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 50 | 32 | 5,5 | 50 / 50 | 5,5 | 50 / 50 | 5,5 | 50 / 50 | 5,5 | 50 / 50 | 5,5 | 50 / 50 |
| 50 | 40 | 6,0 | 50 / 50 | 6,0 | 50 / 50 | 6,0 | 50 / 50 | 6,0 | 50 / 50 | 6,0 | 50 / 50 |
| 50 | 50 | 6,6 | 50 / 50 | 6,6 | 50 / 50 | 6,6 | 50 / 50 | 6,6 | 50 / 50 | 6,6 | 50 / 50 |
| 65 | 32 | 6,5 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 40 | 7,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 50 | 7,7 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 65 | 65 | 8,6 | 50 / 50 | 5,4 | 50 / 50 | 5,4 | 50 / 50 | 5,4 | 50 / 50 | 5,4 | 50 / 50 |
| 80 | 40 | 7,6 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 | 5,0 | 50 / 50 |
| 80 | 50 | 8,3 | 50 / 50 | 5,5 | 50 / 50 | 5,5 | 50 / 50 | 5,5 | 50 / 50 | 5,5 | 50 / 50 |
| 80 | 65 | 9,2 | 50 / 50 | 6,2 | 50 / 50 | 6,2 | 50 / 50 | 6,2 | 50 / 50 | 6,2 | 50 / 50 |
| 80 | 80 | 10,3 | 50 / 50 | 6,9 | 50 / 50 | 6,9 | 50 / 50 | 6,9 | 50 / 50 | 6,9 | 50 / 50 |
| 100 | 50 | 9,0 | 50 / 50 | 6,5 | 50 / 50 | 6,5 | 50 / 50 | 6,5 | 50 / 50 | 6,5 | 50 / 50 |
| 100 | 65 | 10,0 | 50 / 50 | 7,2 | 50 / 50 | 7,2 | 50 / 50 | 7,2 | 50 / 50 | 7,2 | 50 / 50 |
| 100 | 80 | 11,1 | 50 / 50 | 7,9 | 50 / 50 | 7,9 | 50 / 50 | 7,9 | 50 / 50 | 7,9 | 50 / 50 |
| 100 | 100 | 12,5 | 50 / 50 | 8,8 | 50 / 50 | 8,8 | 50 / 50 | 8,8 | 50 / 50 | 8,8 | 50 / 50 |





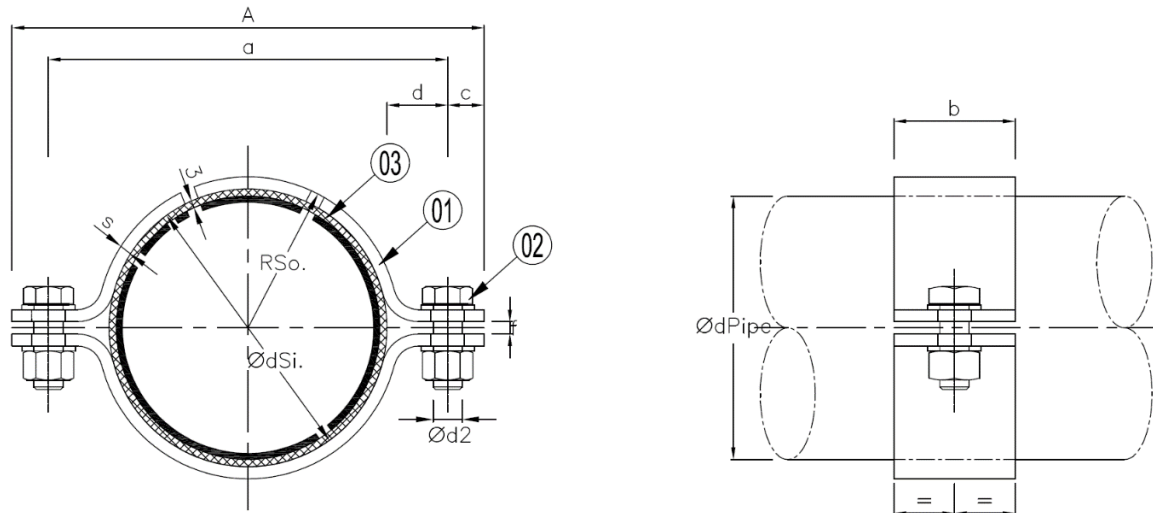
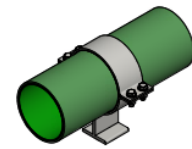
| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 125 | 65 | 10,9 | 65 / 50 | 7,9 | 50 / 50 | 7,9 | 50 / 50 | 7,9 | 50 / 50 | 7,9 | 50 / 50 |
| 125 | 80 | 12,1 | 65 / 50 | 8,6 | 50 / 50 | 8,6 | 50 / 50 | 8,6 | 50 / 50 | 8,6 | 50 / 50 |
| 125 | 100 | 13,5 | 65 / 50 | 9,6 | 50 / 50 | 9,6 | 50 / 50 | 9,6 | 50 / 50 | 9,6 | 50 / 50 |
| 125 | 125 | 15,3 | 65 / 60 | 10,8 | 50 / 50 | 10,8 | 50 / 50 | 10,8 | 50 / 50 | 10,8 | 50 / 50 |
| 150 | 80 | 13,0 | 85 / 50 | 9,2 | 50 / 50 | 9,2 | 50 / 50 | 9,2 | 50 / 50 | 9,2 | 50 / 50 |
| 150 | 100 | 14,5 | 85 / 55 | 10,2 | 50 / 50 | 10,2 | 50 / 50 | 10,2 | 50 / 50 | 10,2 | 50 / 50 |
| 150 | 125 | 16,3 | 85 / 60 | 11,5 | 55 / 50 | 11,5 | 55 / 50 | 11,5 | 55 / 50 | 11,5 | 55 / 50 |
| 150 | 150 | 18,0 | 85 / 70 | 12,7 | 55 / 55 | 12,7 | 55 / 55 | 12,7 | 55 / 55 | 12,7 | 55 / 55 |
| 200 | 100 | 16,3 | 115 / 60 | 11,4 | 65 / 50 | 8,1 | 50 / 50 | 8,1 | 50 / 50 | 8,1 | 50 / 50 |
| 200 | 125 | 18,3 | 115 / 70 | 12,7 | 65 / 55 | 9,0 | 55 / 50 | 9,0 | 55 / 50 | 9,0 | 55 / 50 |
| 200 | 150 | 20,1 | 115 / 75 | 14,0 | 70 / 60 | 9,9 | 55 / 50 | 9,9 | 55 / 50 | 9,9 | 55 / 50 |
| 200 | 200 | 23,6 | 115 / 90 | 16,5 | 75 / 75 | 11,6 | 60 / 60 | 11,6 | 60 / 60 | 11,6 | 60 / 60 |
| 250 | 125 | 20,1 | 145 / 75 | 13,9 | 85 / 60 | 9,7 | 65 / 50 | 9,7 | 65 / 50 | 9,7 | 65 / 50 |
| 250 | 150 | 22,1 | 145 / 80 | 15,2 | 85 / 65 | 10,7 | 65 / 50 | 10,7 | 65 / 50 | 10,7 | 65 / 50 |
| 250 | 200 | 25,7 | 145 / 100 | 17,8 | 85 / 80 | 12,5 | 70 / 60 | 12,5 | 70 / 60 | 12,5 | 70 / 60 |
| 250 | 250 | 29,1 | 145 / 115 | 20,3 | 90 / 90 | 14,2 | 70 / 70 | 14,2 | 70 / 70 | 14,2 | 70 / 70 |
| 300 | 150 | 23,8 | 180 / 85 | 16,4 | 105 / 70 | 11,4 | 75 / 55 | 11,4 | 75 / 55 | 11,4 | 75 / 55 |
| 300 | 200 | 27,7 | 180 / 105 | 19,1 | 105 / 80 | 13,2 | 80 / 65 | 13,2 | 80 / 65 | 13,2 | 80 / 65 |
| 300 | 250 | 31,3 | 180 / 120 | 21,6 | 105 / 95 | 15,1 | 85 / 75 | 15,1 | 85 / 75 | 15,1 | 85 / 75 |
| 300 | 300 | 34,7 | 180 / 135 | 24,1 | 110 / 110 | 16,8 | 85 / 85 | 16,8 | 85 / 85 | 16,8 | 85 / 85 |
| 350 | 200 | 29,6 | 210 / 110 | 20,3 | 125 / 85 | 14,0 | 90 / 70 | 10,7 | 75 / 60 | 10,7 | 75 / 60 |
| 350 | 250 | 33,3 | 210 / 125 | 22,9 | 125 / 100 | 15,9 | 95 / 80 | 12,1 | 80 / 65 | 12,1 | 80 / 65 |





| DN1 | DN2 | PN16 | | PN10 | | PN6 | | PN4 | | PN2,5 | |
|-----|-----|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] | s6 [mm] | L1 / L2 [mm] |
| 350 | 300 | 36,8 | 210 / 145 | 25,4 | 125 / 115 | 17,6 | 95 / 90 | 13,5 | 80 / 75 | 13,5 | 80 / 75 |
| 350 | 350 | 40,2 | 210 / 160 | 27,9 | 125 / 125 | 19,4 | 100 / 100 | 14,9 | 85 / 85 | 14,9 | 85 / 85 |
| 400 | 200 | 31,3 | 245 / 115 | 21,4 | 145 / 90 | 14,7 | 100 / 70 | 11,2 | 85 / 60 | 11,2 | 85 / 60 |
| 400 | 250 | 35,2 | 245 / 130 | 24,2 | 145 / 105 | 16,6 | 105 / 85 | 12,6 | 85 / 70 | 12,6 | 85 / 70 |
| 400 | 300 | 38,9 | 245 / 150 | 26,7 | 145 / 120 | 18,5 | 105 / 95 | 14,1 | 90 / 80 | 14,1 | 90 / 80 |
| 400 | 350 | 42,4 | 245 / 165 | 29,2 | 145 / 130 | 20,2 | 110 / 105 | 15,5 | 95 / 90 | 15,5 | 95 / 90 |
| 400 | 400 | 45,7 | 245 / 180 | 31,6 | 145 / 145 | 22,0 | 115 / 115 | 16,8 | 95 / 95 | 16,8 | 95 / 95 |
| 500 | 250 | 38,8 | 305 / 145 | 26,4 | 180 / 110 | 18,1 | 125 / 90 | 13,7 | 105 / 75 | 13,7 | 105 / 75 |
| 500 | 300 | 42,7 | 305 / 160 | 29,2 | 180 / 125 | 20,0 | 130 / 100 | 15,1 | 105 / 85 | 15,1 | 105 / 85 |
| 500 | 350 | 46,5 | 305 / 175 | 31,8 | 180 / 140 | 21,9 | 130 / 110 | 16,6 | 110 / 95 | 16,6 | 110 / 95 |
| 500 | 400 | 50,0 | 305 / 195 | 34,4 | 180 / 155 | 23,7 | 135 / 120 | 18,0 | 115 / 100 | 18,0 | 115 / 100 |
| 500 | 500 | 56,8 | 305 / 225 | 39,2 | 180 / 180 | 27,2 | 140 / 140 | 20,7 | 120 / 120 | 20,7 | 120 / 120 |
| 600 | 300 | - | - | 31,5 | 220 / 135 | 21,4 | 150 / 105 | 16,1 | 125 / 90 | 11,9 | 100 / 75 |
| 600 | 350 | - | - | 34,2 | 220 / 150 | 23,4 | 150 / 115 | 17,6 | 130 / 100 | 13,0 | 105 / 80 |
| 600 | 400 | - | - | 36,9 | 220 / 160 | 25,2 | 155 / 130 | 19,1 | 130 / 110 | 14,1 | 110 / 90 |
| 600 | 500 | - | - | 42,0 | 220 / 190 | 28,9 | 165 / 150 | 21,9 | 140 / 125 | 16,2 | 115 / 105 |
| 600 | 600 | - | - | 46,8 | 220 / 215 | 32,4 | 170 / 170 | 24,6 | 145 / 145 | 18,3 | 120 / 120 |
| 700 | 350 | - | - | 36,5 | 260 / 155 | 24,8 | 175 / 125 | 18,6 | 145 / 105 | 13,6 | 120 / 85 |
| 700 | 400 | - | - | 39,3 | 260 / 170 | 26,7 | 175 / 135 | 20,1 | 150 / 115 | 14,7 | 120 / 95 |
| 700 | 500 | - | - | 44,6 | 260 / 200 | 30,5 | 185 / 155 | 23,0 | 155 / 130 | 16,9 | 130 / 110 |
| 700 | 600 | - | - | 49,6 | 260 / 225 | 34,0 | 190 / 180 | 25,8 | 160 / 150 | 19,1 | 135 / 125 |
| 700 | 700 | - | - | 54,4 | 260 / 250 | 37,5 | 200 / 200 | 28,6 | 170 / 170 | 21,2 | 140 / 140 |





Note:

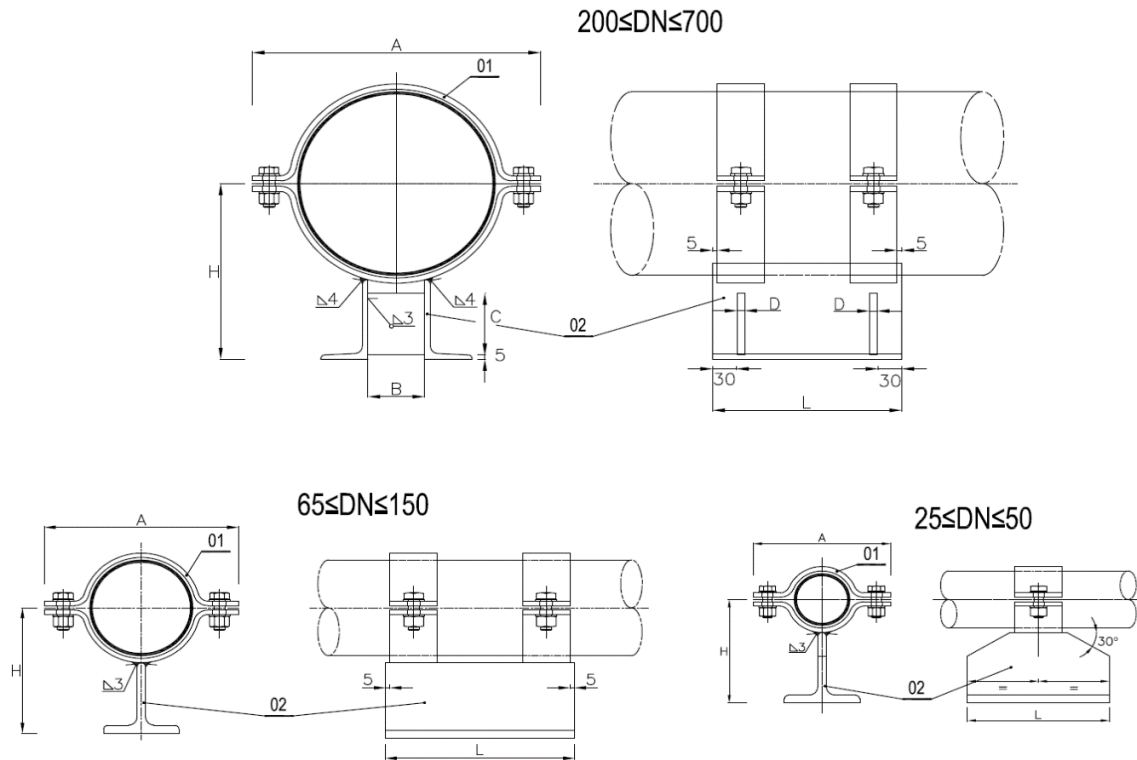
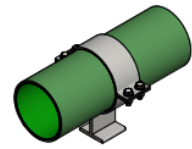
- 1 – steel clamp
- 2 – fasteners
- 3 – rubber lining

| DN | A [mm] | a [mm] | b [mm] | c [mm] | d [mm] | s [mm] | f [mm] | d2 [mm] | bolts | weight |
|-----|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|
| 25 | 110 | 80 | 30 | 15 | 20 | 5 | 5 | 11.5 | M10x30 | 0.4 |
| 32 | 117 | 87 | 30 | 15 | 20 | 5 | 5 | 11.5 | M10x30 | 0.5 |
| 40 | 135 | 105 | 30 | 15 | 25 | 5 | 5 | 11.5 | M10x30 | 0.5 |
| 50 | 145 | 115 | 40 | 15 | 25 | 5 | 5 | 11.5 | M10x30 | 0.7 |
| 65 | 168 | 132 | 40 | 18 | 26 | 5 | 5 | 14 | M12x35 | 0.8 |
| 80 | 183 | 147 | 40 | 18 | 26 | 5 | 5 | 14 | M12x35 | 1.0 |
| 100 | 203 | 167 | 50 | 18 | 26 | 5 | 5 | 14 | M12x35 | 1.3 |
| 125 | 228 | 192 | 50 | 18 | 26 | 5 | 6 | 14 | M12x35 | 1.4 |
| 150 | 255 | 219 | 50 | 18 | 27 | 6 | 6 | 14 | M12x35 | 2.0 |
| 200 | 305 | 269 | 50 | 18 | 27 | 6 | 6 | 14 | M12x35 | 2.2 |
| 250 | 376 | 326 | 50 | 25 | 30 | 6 | 6 | 18 | M16x50 | 2.9 |
| 300 | 427 | 377 | 50 | 25 | 30 | 6 | 6 | 18 | M16x50 | 3.3 |
| 350 | 482 | 432 | 50 | 25 | 33 | 6 | 6 | 18 | M16x50 | 3.6 |
| 400 | 534 | 484 | 50 | 25 | 33 | 6 | 8 | 18 | M16x50 | 4.0 |
| 500 | 636 | 586 | 50 | 25 | 33 | 6 | 8 | 18 | M16x50 | 4.7 |
| 600 | 738 | 688 | 50 | 25 | 33 | 6 | 8 | 18 | M16x50 | 5.5 |
| 700 | 840 | 790 | 50 | 25 | 33 | 6 | 8 | 18 | M16x50 | 6.4 |

Note:

The dimensions of $\varnothing d_{Pipe}$, $\varnothing d_{Si}$, and RS_{o} must be adjusted to the specified selected pipe type.





Note:

- 1 – clamp
- 2 – T-shoe

| DN | A [mm] | H [mm] | T/L shape | BxCxD [mm] | L [mm] | weight |
|-----|--------|--------|------------|------------|--------|--------|
| 25 | 110 | 85 | T60 | - | 150 | 1.4 |
| 32 | 117 | 89 | T60 | - | 150 | 1.5 |
| 40 | 135 | 93 | T60 | - | 150 | 1.5 |
| 50 | 145 | 98 | T60 | - | 150 | 1.7 |
| 65 | 168 | 125 | T80 | - | 200 | 4.1 |
| 80 | 183 | 134 | T80 | - | 200 | 4.3 |
| 100 | 203 | 143 | T80 | - | 200 | 4.9 |
| 125 | 228 | 155 | T80 | - | 200 | 5.2 |
| 150 | 255 | 169 | T80 | - | 200 | 6.1 |
| 200 | 305 | 202 | L100x50x8 | 100x40x8 | 200 | 8.7 |
| 250 | 376 | 230 | L100x50x8 | 100x50x10 | 200 | 10.6 |
| 300 | 427 | 257 | L100x50x8 | 100x50x10 | 250 | 12.4 |
| 350 | 482 | 283 | L100x75x8 | 100x50x10 | 250 | 14.0 |
| 400 | 534 | 324 | L120x80x10 | 140x60x10 | 250 | 17.6 |
| 500 | 636 | 377 | L120x80x10 | 140x60x10 | 250 | 19.0 |
| 600 | 738 | 430 | L120x80x10 | 140x60x10 | 350 | 23.6 |
| 700 | 840 | 483 | L120x80x10 | 140x60x10 | 350 | 26.0 |





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