

TECHNICAL SPECIFICATIONS

NEFIT Industrial b.v. based in Deventer, has been producing castings made from black malleable iron for almost 50 years. Right from the beginning the production of malleable iron fittings has been an important part of the total production. NEFIT has one of the best equipped foundaries in Europe. The high quality of castings is guaranteed due to :

- * Computer controlled supervision of the entire casting process.
- * Continuous checking of the composition of the moulding sand
- * Computer controlled annealing furnace
- * Extensive statistical process and quality control.
- * Sound and reliable castings have been accurately machined, individually tested, cleaned and finished.

The high quality of the castings and the precision finish of the products ensure NEFIT fittings fully comply with ISO and EN (European Norms) and BS standards for Malleable pipe fittings.

NEFIT *N* BLACK HEART (BLACK / GALVANIZED) MALLEABLE IRON THREADED PIPE FITTINGS COMPLY WITH THE FOLLOWING REQUIREMENTS.

Design :

NEFIT malleable iron fittings have a full bore banded reinforcement (for female outlets) and conform to BS 143 & BS 1256:1986 which is equivalent to ISO 49 and DIN 2950. Nefit fittings have internal and external jointing threads conforming to BS 21 (ISO R7 /1). The internal thread is cylindrical (parallel) and the external thread is conical , in ratio of 1:16. Nefit fittings have a full clear bore and a high factor of safety over stated working pressures.

ISO 49:1983 is the international standard for "Malleable Cast Iron fittings threaded to ISO 7/1".

Dimensions :

Dimensions for face-to-face, face-to-centre, centre-to-centre, are shown for all fittings and comply with BS143 & BS 1256 and ISO 49. Dimensions are given in millimeters and are subject to the tolerances stated in BS 143 / BS 1256 & ISO 49 and EN 10242 as shown in table below. NEFIT fittings are according to DIN EN 10242 which is equivalent to ANSI B 16.3.

| Dimensions (mm) from to | Tolerance (mm) |
|----------------------------|----------------|
| upto 30 | ± 1.5 |
| 30 - 50 | ± 2.0 |
| 50 - 75 | ± 2.5 |
| 75 - 100 | ± 3.0 |
| 100 - 150 | ± 3.5 |
| 150 - 200 | ± 4.0 |
| 200 and above | ± 5.0 |

Table: 1

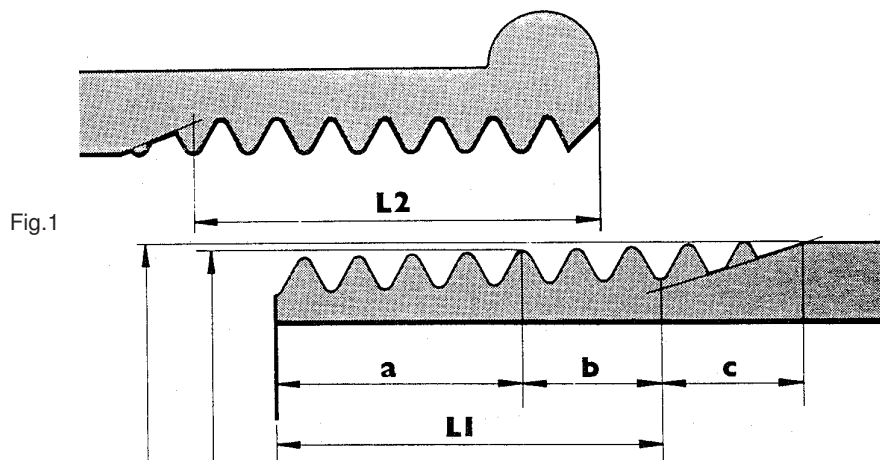
Threads :

Nefit fittings have internal and external jointing threads conforming to BS 21 (ISO R7 /1). The internal thread is cylindrical (parallel) and the external thread is conical, in ratio of 1:16.

The **cylindrical inner thread** of the fittings has a length sufficient to enable screwing in the external, conical thread far enough to ensure that a good sealing is obtained.

The **conical external thread** has conicity of 1:16. The total thread lengths of the external thread consists of 3 parts: The total length is divided into in 3 portions: (refer Fig.1)

- The distance “a” of the gauge plane (Fig.1) is laid out with tolerances in such a way that the external thread can be easily screwed in, even into the smallest internal thread and that the sparingly applied sealing material will be correctly drawn into the joint.
- The dimension “b” is the thread portion where the sealing is made. This thread portion behind the gauge plane has fully formed roots, and its length was chosen in order to provide a sufficient tightening path for the tool, even at maximum allowable internal thread diameter assuring a strong compression between parallel internal and taper external threads.
- The “washout threads”, that means the last 1 or 2 threads with partially formed and uncomplete roots, remain usually visible. In case of screwing the external thread too far by engaging the washout threads, there is danger of leakage of cracking



| Thread (mm) | DN (mm) | Gauge length a (mm) | Gauge diameter (mm) | Pitch | Number of turns per inch | Average length a + b (mm) |
|----------------|------------|------------------------------|---------------------------|-------|--------------------------------|------------------------------------|
| 1/8 | 6 | 4.0 ± 0.9 | 9.728 | 0.907 | 28 | 7 |
| 1/4 | 8 | 6.0 ± 1.3 | 13.157 | 1.337 | 19 | 10 |
| 3/8 | 10 | 6.4 ± 1.3 | 16.662 | 1.337 | 19 | 10 |
| 1/2 | 15 | 8.2 ± 1.8 | 20.955 | 1.814 | 14 | 13 |
| 3/4 | 20 | 9.5 ± 1.8 | 26.441 | 1.814 | 14 | 15 |
| 1 | 25 | 10.4 ± 2.3 | 33.246 | 2.309 | 11 | 17 |
| 1 1/4 | 32 | 12.7 ± 2.3 | 41.910 | 2.309 | 11 | 19 |
| 1 1/2 | 40 | 12.7 ± 2.3 | 47.803 | 2.309 | 11 | 19 |
| 2 | 50 | 15.9 ± 2.3 | 56.614 | 2.309 | 11 | 24 |
| 2 1/2 | 65 | 17.5 ± 3.5 | 75.184 | 2.309 | 11 | 27 |
| 3 | 80 | 20.6 ± 3.5 | 87.884 | 2.309 | 11 | 30 |
| 4 | 100 | 25.4 ± 3.5 | 113.030 | 2.309 | 11 | 36 |

Table: 2

Sealing :

Sealing the connection has to come about through contact between the metals of the parts being connected. The sealing material therefore should only fill the deviations from the theoretical thread profile.

In order to make a good connection, the following points should be considered:

1. The thread cutting machine must be set up in such a way that the fittings can be screwed in by hand across the length given in table below.
2. Screw the external thread no deeper into the internal thread than length **a + b** (refer Fig.1) otherwise sealing cannot occur at the lead-out end of the thread.
3. Use the appropriate sealing material and use it sparingly.

Sealing materials for threaded joints:

It is important to adapt the sealing materials to the working conditions. If no other experience is available, the following material can be recommended.

| Fluid | Sealing material | Hemp and Paraliq PN 35 sealing paste | Paraliq PM 35-fleece thread sealing strip | Hemp and Synthesol UG1 sealing paste | Synthesol-fleece thread sealing strip | PTFE sealing strips approx. up to 1/4 and max. 250°C | Hemp and special sealing paste, eg. such containing lead powder | Copper wadding and heat resistant oil up to 1 1/4 |
|---|------------------|--------------------------------------|---|--------------------------------------|---------------------------------------|--|---|---|
| Portable water up to 95°C | | (r) | (r) | | | * | | |
| Hot water up to 130°C | | (r) | (r) | | | * | * | |
| Natural gas, city gas, liquefied gases ¹ | | (r) | (r) | * | * | * | * | |
| Pressurized air | | (r) | (r) | * | * | * | * | |
| Industrial gases | | | | | | | | |
| O ₂ excepted | | | | | | (r) | (r) | |
| O ₂ included | | | | | | (r) | | |
| Steam | | | | | | | | |
| up to 150°C | | | | | | (r) | (r) | |
| up to 300°C | | | | | | | | (r) |
| Fuel oil, Diesel oil, petrol, max. 80°C | | | | (r) | (r) | * | * | |
| Oils up to 200°C | | | | | | (r) | (r) | |

(r) = recommended sealing material
 * = also applicable
¹ not in liquid condition

Table: 3

Paraliq PM35 sealing paste and Paraliq fleece were tested to DIN 30660 (June 1982) and approved by DVGW/SVGW for standard gas installations (up to 4 resp. 5 bar/80°C), drinking water installations (up to 16 bar/95°C) and water heating installation (up to 6 bar/130°C) in domestic applications.

For other applications consider the appropriate prescriptions on threaded joints.

Taper seat unions (metal sealed)

The metal on metal sealed union depend on especially careful and precise machining of the sealing surfaces. It is recommended to slightly lubricate them before assembly as far as it is compatible with the conveyed fluid. If machinery oil is not appropriate, e.g. for hygienic consideration, also a thread sealing paste may be used.

After sustained stocking and in case of dirt the sealing surfaces must be cleaned.

Fastening Thread:

Where fastening thread is used it is as per ISO 228/1. The fastening thread as per ISO 228/1 is used only in few cases ex : on nuts and long screws. The main difference is that the ISO 7/1 thread becomes pressure tight in the thread by mating of the threads themselves and by using hemp with sealing paste, sealing strips or other materials, whereas the ISO 228/1 thread is purely a mechanical fastening thread.

Working Pressure:

NEFIT malleable iron threaded fittings are designed to be used for working pressures of 25 bar (between -20°C to +120°C). The fittings are tested to pressures above 200 bar. The graph below gives details of maximum operating pressure and temperature for the malleable iron fittings. For normal applications the minimum temperatures used for malleable pipe fittings is -20°C and maximum of 300°C.

Our fittings are separately tested on tightness by internal pressure. The test pressures lie over the values fixed in the standard. Therefore the fittings can be generally applied for the following working pressures

| Fluid | Fitting size | Nominal pressure PN | Working pressure WP at temperature | |
|---|--------------|---------------------|------------------------------------|-----------------|
| | | | up to 120°C bar | up to 300°C bar |
| Liquids | 1/8 - 4 | 25 | 25 | 20 |
| | 5 - 6 | 16 | 16 | 13 |
| Pressurized air, gases, combustible gases | 1/8 - 4 | 16 | 16 | 13 |
| | 5 - 6 | 10 | 10 | 8 |

Table: 4

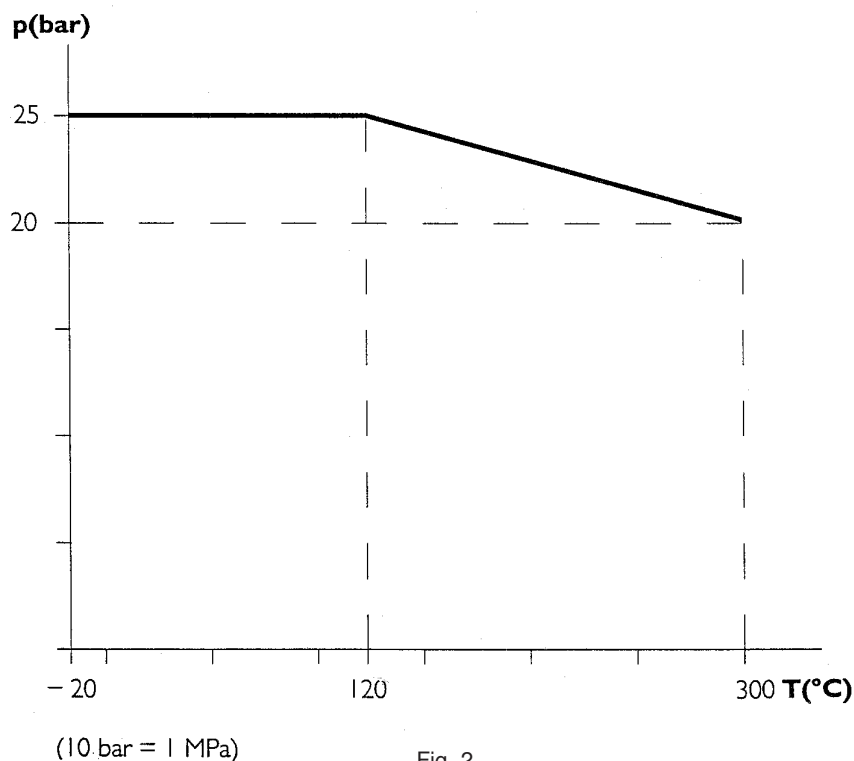
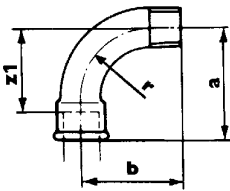
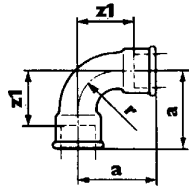
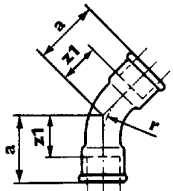
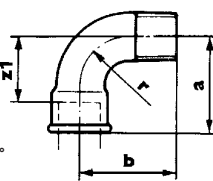
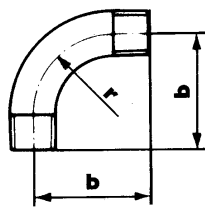
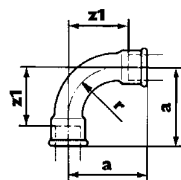
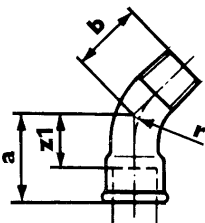
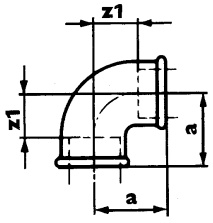
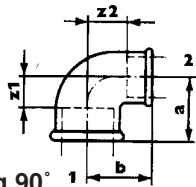


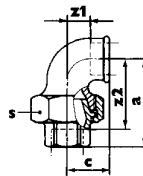
Fig. 2

| | | | | | | | | | | | | | | | | | | | | |
|--|----------------|----------------|-----------------|-----------------|--|------------------|--|----------------|----------------|-----------------|-----------------|------------------|------------------|---|----------------|-----------------|-----------------|------------------|------|------------------|
| <p>1 ISO G4 Bend 90°</p>  | | | | | | | <p>2a ISO D1 Short Bend 90°</p>  | | | | | | | <p>41 ISO G1/45 Bend 45°</p>  | | | | | | |
| DN | a mm | b mm | r mm | z1 mm | | G gram | DN | a mm | r mm | z1 mm | | G gram | DN | a mm | r mm | z1 mm | | G gram | | |
| 1/8 | 35 | 32 | 22 | 28 | | 33 | 1/4 | 30 | | 20 | | 71 | 3/8 | 30 | 28 | 20 | | 78 | | |
| 1/4 | 40 | 36 | 25 | 30 | | 52 | 3/8 | 36 | | 26 | | 95 | 1/2 | 36 | 32 | 23 | | 115 | | |
| 3/8 | 48 | 42 | 28 | 38 | | 88 | 1/2 | 45 | 25 | 32 | | 125 | 3/4 | 43 | 42 | 28 | | 213 | | |
| 1/2 | 55 | 48 | 32 | 42 | | 127 | 3/4 | 50 | 28 | 35 | | 193 | 1 | 51 | 52 | 34 | | 326 | | |
| 3/4 | 69 | 60 | 42 | 54 | | 196 | 1 | 63 | 35 | 46 | | 298 | 1 1/4 | 64 | 70 | 45 | | 560 | | |
| 1 | 85 | 75 | 52 | 68 | | 325 | 1 1/4 | 76 | 45 | 57 | | 490 | 1 1/2 | 68 | 80 | 49 | | 759 | | |
| 1 1/4 | 105 | 95 | 70 | 86 | | 620 | 1 1/2 | 85 | 55 | 66 | | 662 | 2 | 81 | 100 | 57 | | 1244 | | |
| 1 1/2 | 116 | 105 | 80 | 97 | | 762 | 2 | 102 | 68 | 78 | | 1110 | 2 1/2 | 99 | 130 | 72 | | 1605 | | |
| 2 | 140 | 130 | 100 | 116 | | 1265 | | | | | | | 3 | 113 | 155 | 83 | | 2340 | | |
| 2 1/2 | 176 | 165 | 130 | 149 | | 2174 | | | | | | | | | | | | | | |
| 3 | 205 | 190 | 155 | 175 | | 3500 | | | | | | | | | | | | | | |
| 4 | 260 | 245 | 205 | 224 | | 5400 | | | | | | | | | | | | | | |
| <p>1a ISO D4 Short Bend 90°</p>  | | | | | | | <p>3 ISO G8 Bend 90°</p>  | | | | | | | | | | | | | |
| DN | a mm | b mm | r mm | z1 mm | | G gram | DN | b mm | r mm | | | G gram | | | | | | | | |
| 1/4 | 30 | 30 | | 20 | | 39 | 3/8 | 42 | 28 | | | 61 | | | | | | | | |
| 3/8 | 36 | 36 | | 26 | | 61 | 1/2 | 48 | 32 | | | 107 | | | | | | | | |
| 1/2 | 45 | 45 | 25 | 32 | | 114 | 3/4 | 60 | 42 | | | 218 | | | | | | | | |
| 3/4 | 50 | 50 | 28 | 35 | | 170 | 1 | 75 | 52 | | | 373 | | | | | | | | |
| 1 | 63 | 63 | 35 | 46 | | 282 | 1 1/4 | 95 | 70 | | | 641 | | | | | | | | |
| 1 1/4 | 76 | 76 | 45 | 57 | | 452 | 1 1/2 | 105 | 80 | | | 763 | | | | | | | | |
| 1 1/2 | 85 | 85 | 55 | 66 | | 600 | 2 | 130 | 100 | | | 1184 | | | | | | | | |
| 2 | 102 | 102 | 68 | 78 | | 1090 | 2 1/2 | 160 | 130 | | | 1931 | | | | | | | | |
| 2 1/2 | 119 | 110 | | 92 | | 1660 | | | | | | | | | | | | | | |
| 3 | 141 | 130 | | 111 | | 1967 | | | | | | | | | | | | | | |
| <p>2 ISO G1 Bend 90°</p>  | | | | | | | <p>40 ISO G4/45 Bend 45°</p>  | | | | | | | <p>90 ISO A1 Elbow Equal</p>  | | | | | | |
| DN | a mm | r mm | z1 mm | | | G gram | DN | a mm | b mm | r mm | z1 mm | | G gram | DN | a mm | | z1 mm | z2 mm | | G gram |
| 1/4 | 40 | 25 | 30 | | | 63 | 1/4 | 26 | 21 | | 16 | | 35 | 1/8 | 19 | | 12 | | | 29 |
| 3/8 | 48 | 28 | 38 | | | 108 | 3/8 | 30 | 24 | 28 | 20 | | 58 | 1/4 | 21 | | 11 | | | 45 |
| 1/2 | 55 | 32 | 42 | | | 145 | 1/2 | 36 | 30 | 32 | 23 | | 110 | 3/8 | 25 | | 15 | | | 62 |
| 3/4 | 69 | 42 | 54 | | | 253 | 3/4 | 43 | 36 | 42 | 28 | | 175 | 1/2 | 28 | | 15 | | | 97 |
| 1 | 85 | 52 | 68 | | | 433 | 1 | 51 | 42 | 52 | 34 | | 267 | 3/4 | 33 | | 18 | | | 126 |
| 1 1/4 | 105 | 70 | 86 | | | 700 | 1 1/4 | 64 | 54 | 70 | 45 | | 470 | 1 | 38 | | 21 | | | 180 |
| 1 1/2 | 116 | 80 | 97 | | | 870 | 1 1/2 | 68 | 58 | 80 | 49 | | 678 | 1 1/4 | 45 | | 26 | | | 300 |
| 2 | 140 | 100 | 116 | | | 1412 | 2 | 81 | 70 | 100 | 57 | | 1026 | 1 1/2 | 50 | | 31 | | | 420 |
| 2 1/2 | 176 | 130 | 149 | | | 2819 | 2 1/2 | 99 | 86 | 130 | 72 | | 1429 | 2 | 58 | | 34 | | | 701 |
| 3 | 205 | 155 | 175 | | | 3867 | 3 | 113 | 100 | 155 | 83 | | 2410 | 2 1/2 | 69 | | 42 | | | 1128 |
| 4 | 260 | 205 | 224 | | | 6700 | | | | | | | 3 | 78 | | 48 | | | 1384 | |
| | | | | | | | | | | | | | 4 | 96 | | 60 | | | 2556 | |

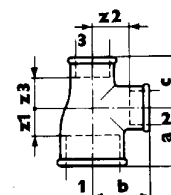
90
ISO A1
Elbow Reducing 90°



96
ISO UA11
Union Elbow with Conical Seat



130
ISO B1
Tee Reducing

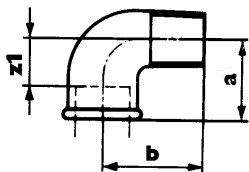


| DN | a mm | b mm | z1 mm | z2 mm | G gram |
|---------------|------|------|-------|-------|--------|
| 3/8 x 1/4 | 23 | 23 | 13 | 13 | 56 |
| 1/2 x 3/8 | 26 | 26 | 13 | 16 | 66 |
| 3/4 x 3/8 | 28 | 28 | 13 | 18 | 101 |
| 3/4 x 1/2 | 30 | 31 | 15 | 18 | 135 |
| 1 x 1/2 | 32 | 34 | 15 | 21 | 176 |
| 1 x 3/4 | 35 | 36 | 18 | 21 | 191 |
| 1 1/4 x 3/4 | 36 | 41 | 17 | 26 | 231 |
| 1 1/4 x 1 | 40 | 42 | 21 | 25 | 262 |
| 1 1/2 x 1 | 42 | 46 | 23 | 29 | 355 |
| 1 1/2 x 1 1/4 | 46 | 48 | 27 | 29 | 388 |
| 2 x 1 | 44 | 52 | 20 | 35 | 378 |
| 2 x 1 1/2 | 52 | 56 | 28 | 36 | 634 |
| 2 1/2 x 2 | 61 | 66 | 34 | 42 | 984 |

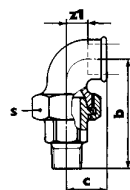
| DN | a mm | c mm | z1 mm | z2 mm | s mm | G gram |
|-------|------|------|-------|-------|------|--------|
| 1/4 | 48 | 21 | 10 | 38 | 30 | 107 |
| 3/8 | 52 | 25 | 15 | 42 | 36 | 220 |
| 1/2 | 58 | 28 | 15 | 45 | 46 | 223 |
| 3/4 | 62 | 33 | 18 | 47 | 50 | 338 |
| 1 | 72 | 38 | 21 | 55 | 55 | 451 |
| 1 1/4 | 82 | 45 | 26 | 63 | 70 | 791 |
| 1 1/2 | 90 | 50 | 31 | 71 | 75 | 953 |
| 2 | 100 | 58 | 34 | 76 | 90 | 1435 |
| 2 1/2 | 119 | 70 | 43 | 85 | 110 | 2453 |

| DN | a mm | b mm | c mm | z1 mm | z2 mm | z3 mm | G gram |
|-------------------|------|------|------|-------|-------|-------|--------|
| 1/2x3/8x3/8 | 26 | 26 | 25 | 13 | 16 | 15 | 111 |
| 1/2x3/8x1/2 | 28 | 28 | 26 | 15 | 15 | 16 | 115 |
| 1/2x1/2x3/8 | 28 | 28 | 26 | 15 | 15 | 16 | 118 |
| 3/4x3/8x1/2 | 28 | 28 | 26 | 13 | 18 | 13 | 152 |
| 3/4x3/8x3/4 | 33 | 33 | 28 | 18 | 18 | 18 | 152 |
| 3/4x3/4x3/8 | 33 | 33 | 28 | 18 | 18 | 18 | 170 |
| 3/4x1/2x3/8 | 30 | 31 | 26 | 15 | 18 | 16 | 145 |
| 3/4x1/2x1/2 | 30 | 31 | 28 | 15 | 18 | 15 | 145 |
| 3/4x1/2x3/4 | 33 | 33 | 31 | 18 | 18 | 18 | 166 |
| 3/4x3/4x1/2 | 33 | 33 | 31 | 18 | 18 | 18 | 175 |
| 1x3/8x1 | 38 | 38 | 32 | 21 | 21 | 22 | 175 |
| 1x1/2x1/2 | 32 | 34 | 28 | 15 | 21 | 15 | 161 |
| 1x1/2x3/4 | 32 | 34 | 30 | 15 | 21 | 15 | 230 |
| 1x1/2x1 | 38 | 38 | 34 | 21 | 21 | 21 | 216 |
| 1x3/4x1/2 | 32 | 34 | 30 | 15 | 21 | 15 | 234 |
| 1x3/4x3/4 | 35 | 36 | 33 | 18 | 21 | 18 | 255 |
| 1x3/4x1 | 38 | 38 | 36 | 21 | 21 | 21 | 260 |
| 1x1x3/8 | 38 | 38 | 32 | 2 | 21 | 22 | 270 |
| 1x1x1/2 | 38 | 38 | 34 | 21 | 21 | 21 | 287 |
| 1x1x3/4 | 38 | 38 | 36 | 21 | 21 | 21 | 270 |
| 1.1/4x1/2x1 | 34 | 38 | 32 | 15 | 25 | 15 | 287 |
| 1.1/4x1/2x1.1/4 | 45 | 45 | 38 | 26 | 26 | 25 | 287 |
| 1.1/4x3/4x3/4 | 36 | 41 | 33 | 17 | 26 | 18 | 290 |
| 1.1/4x3/4x1 | 36 | 41 | 35 | 17 | 26 | 18 | 297 |
| 1.1/4x3/4x1.1/4 | 45 | 45 | 41 | 26 | 26 | 26 | 309 |
| 1.1/4x1x1/2 | 34 | 28 | 32 | 15 | 25 | 15 | 342 |
| 1.1/4x1x3/4 | 36 | 41 | 35 | 17 | 26 | 18 | 355 |
| 1.1/4x1x1 | 40 | 42 | 36 | 21 | 25 | 21 | 370 |
| 1.1/4x1x1.1/4 | 45 | 45 | 42 | 26 | 26 | 25 | 345 |
| 1.1/2x1/2x1.1/4 | 36 | 42 | 34 | 17 | 29 | 15 | 345 |
| 1.1/2x3/4x1.1/4 | 38 | 44 | 36 | 19 | 29 | 17 | 340 |
| 1.1/2x1x1 | 42 | 46 | 38 | 23 | 29 | 21 | 380 |
| 1.1/2x1x1.1/4 | 42 | 46 | 40 | 23 | 29 | 21 | 395 |
| 1.1/2x3/4x1.1/2 | 50 | 50 | 44 | 31 | 31 | 29 | 350 |
| 1.1/2x1x1.1/2 | 50 | 50 | 46 | 31 | 31 | 29 | 422 |
| 1.1/2x1.1/4x1/2 | 36 | 42 | 34 | 17 | 29 | 15 | 410 |
| 1.1/2x1.1/4x3/4 | 38 | 44 | 36 | 19 | 29 | 17 | 422 |
| 1.1/2x1.1/4x1 | 42 | 46 | 40 | 23 | 29 | 21 | 430 |
| 1.1/2x1.1/4x1.1/2 | 50 | 50 | 48 | 31 | 31 | 29 | 504 |
| 1.1/2x1.1/2x1/2 | 50 | 50 | 42 | 31 | 31 | 29 | 515 |
| 1.1/2X1.1/2X3/4 | 50 | 50 | 44 | 31 | 31 | 29 | 530 |
| 1.1/2X1.1/2X1 | 50 | 50 | 46 | 31 | 31 | 29 | 530 |
| 1.1/2x1.1/2x1.1/4 | 50 | 50 | 48 | 31 | 31 | 29 | 544 |
| 2X3/4X1.1/2 | 40 | 50 | 38 | 16 | 35 | 19 | 515 |
| 2X3/4X2 | 58 | 58 | 50 | 34 | 34 | 35 | 515 |
| 2X1X1.1/2 | 44 | 52 | 42 | 20 | 35 | 23 | 523 |
| 2X1X2 | 58 | 58 | 52 | 374 | 34 | 35 | 602 |
| 2X1.1/4X1.1/4 | 48 | 54 | 45 | 24 | 35 | 26 | 633 |
| 2X1.1/4X1.1/2 | 48 | 54 | 46 | 24 | 35 | 27 | 640 |
| 2X1.1/4X2 | 58 | 58 | 54 | 34 | 34 | 35 | 619 |
| 2X1.1/2X3/4 | 40 | 50 | 38 | 16 | 35 | 19 | 638 |
| 2X1.1/2X1 | 44 | 52 | 42 | 20 | 35 | 23 | 640 |

92
ISO A4
Elbow Equal 90°



98
ISO UA12
Union Elbow with Conical Seat

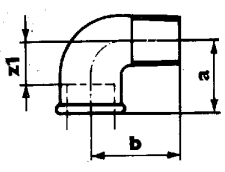


| DN | a mm | b mm | z1 mm | z2 mm | G gram |
|-------|------|------|-------|-------|--------|
| 1/8 | 19 | 25 | 12 | | 25 |
| 1/4 | 21 | 28 | 11 | | 39 |
| 3/8 | 25 | 32 | 15 | | 65 |
| 1/2 | 28 | 37 | 15 | | 99 |
| 3/4 | 33 | 43 | 18 | | 145 |
| 1 | 38 | 52 | 21 | | 238 |
| 1 1/4 | 45 | 60 | 26 | | 360 |
| 1 1/2 | 50 | 65 | 31 | | 445 |
| 2 | 58 | 74 | 34 | | 740 |
| 2 1/2 | 69 | 88 | 42 | | 1109 |
| 3 | 78 | 98 | 48 | | 1814 |
| 4 | 96 | 118 | 60 | | 2550 |

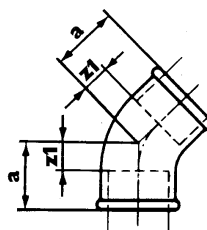
| DN | b mm | c mm | z1 mm | s mm | G gram |
|-------|------|------|-------|------|--------|
| 1/4 | 61 | 21 | 11 | 29 | 154 |
| 3/8 | 65 | 25 | 15 | 36 | 245 |
| 1/2 | 76 | 28 | 15 | 46 | 382 |
| 3/4 | 82 | 33 | 18 | 50 | 519 |
| 1 | 94 | 38 | 21 | 55 | 871 |
| 1 1/4 | 107 | 45 | 26 | 70 | 1055 |
| 1 1/2 | 115 | 50 | 31 | 75 | 1581 |
| 2 | 128 | 58 | 34 | 90 | 3163 |
| 2 1/2 | 152 | 70 | 43 | 110 | 3938 |
| 3 | 168 | 78 | 48 | 130 | |

| DN | a mm | b mm | c mm | z1 mm | z2 mm | z3 mm | G gram |
|-------------------|------|------|------|-------|-------|-------|--------|
| 1.1/4x1/2x1 | 34 | 38 | 32 | 15 | 25 | 15 | 287 |
| 1.1/4x1/2x1.1/4 | 45 | 45 | 38 | 26 | 26 | 25 | 287 |
| 1.1/4x3/4x3/4 | 36 | 41 | 33 | 17 | 26 | 18 | 290 |
| 1.1/4x3/4x1 | 36 | 41 | 35 | 17 | 26 | 18 | 297 |
| 1.1/4x3/4x1.1/4 | 45 | 45 | 41 | 26 | 26 | 26 | 309 |
| 1.1/4x1x1/2 | 34 | 28 | 32 | 15 | 25 | 15 | 342 |
| 1.1/4x1x3/4 | 36 | 41 | 35 | 17 | 26 | 18 | 355 |
| 1.1/4x1x1 | 40 | 42 | 36 | 21 | 25 | 21 | 370 |
| 1.1/4x1x1.1/4 | 45 | 45 | 42 | 26 | 26 | 25 | 345 |
| 1.1/2x1/2x1.1/4 | 36 | 42 | 34 | 17 | 29 | 15 | 345 |
| 1.1/2x3/4x1.1/4 | 38 | 44 | 36 | 19 | 29 | 17 | 340 |
| 1.1/2x1x1 | 42 | 46 | 38 | 23 | 29 | 21 | 380 |
| 1.1/2x1x1.1/4 | 42 | 46 | 40 | 23 | 29 | 21 | 395 |
| 1.1/2x3/4x1.1/2 | 50 | 50 | 44 | 31 | 31 | 29 | 350 |
| 1.1/2x1x1.1/2 | 50 | 50 | 46 | 31 | 31 | 29 | 422 |
| 1.1/2x1.1/4x1/2 | 36 | 42 | 34 | 17 | 29 | 15 | 410 |
| 1.1/2x1.1/4x3/4 | 38 | 44 | 36 | 19 | 29 | 17 | 422 |
| 1.1/2x1.1/4x1 | 42 | 46 | 40 | 23 | 29 | 21 | 430 |
| 1.1/2x1.1/4x1.1/2 | 50 | 50 | 48 | 31 | 31 | 29 | 504 |
| 1.1/2x1.1/2x1/2 | 50 | 50 | 42 | 31 | 31 | 29 | 515 |
| 1.1/2X1.1/2X3/4 | 50 | 50 | 44 | 31 | 31 | 29 | 530 |
| 1.1/2X1.1/2X1 | 50 | 50 | 46 | 31 | 31 | 29 | 530 |
| 1.1/2x1.1/2x1.1/4 | 50 | 50 | 48 | 31 | 31 | 29 | 544 |
| 2X3/4X1.1/2 | 40 | 50 | 38 | 16 | 35 | 19 | 515 |
| 2X3/4X2 | 58 | 58 | 50 | 34 | 34 | 35 | 515 |
| 2X1X1.1/2 | 44 | 52 | 42 | 20 | 35 | 23 | 523 |
| 2X1X2 | 58 | 58 | 52 | 374 | 34 | 35 | 602 |
| 2X1.1/4X1.1/4 | 48 | 54 | 45 | 24 | 35 | 26 | 633 |
| 2X1.1/4X1.1/2 | 48 | 54 | 46 | 24 | 35 | 27 | 640 |
| 2X1.1/4X2 | 58 | 58 | 54 | 34 | 34 | 35 | 619 |
| 2X1.1/2X3/4 | 40 | 50 | 38 | 16 | 35 | 19 | 638 |
| 2X1.1/2X1 | 44 | 52 | 42 | 20 | 35 | 23 | 640 |

92
ISO A4
Elbow Reducing 90°



120
ISO A1/45
Elbow 45°



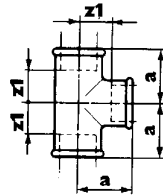
| DN | a mm | b mm | z1 mm | z2 mm | G mm |
|-----------|------|------|-------|-------|------|
| 1/2 x 3/8 | 26 | 33 | 13 | | 78 |
| 3/4 x 1/2 | 30 | 40 | 15 | | 111 |
| 1 x 3/4 | 35 | 46 | 18 | | 208 |
| 1 1/4 x 1 | 40 | 56 | 21 | | 262 |

| DN | a mm | z1 mm | G gram |
|-------|------|-------|--------|
| 3/8 | 20 | 10 | 45 |
| 1/2 | 22 | 9 | 68 |
| 3/4 | 25 | 10 | 102 |
| 1 | 28 | 11 | 161 |
| 1 1/4 | 33 | 14 | 250 |
| 1 1/2 | 36 | 17 | 343 |
| 2 | 43 | 19 | 496 |

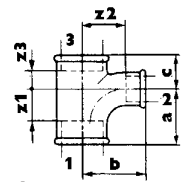
| DN | a mm | b mm | c mm | z1 mm | z2 mm | z3 mm | G gram |
|-------------------|------|------|------|-------|-------|-------|--------|
| 1.1/2x1.1/2x1.1/4 | 50 | 50 | 48 | 31 | 31 | 29 | 544 |
| 2X3/4X1.1/2 | 40 | 50 | 38 | 16 | 35 | 19 | 515 |
| 2X3/4X2 | 58 | 58 | 50 | 34 | 34 | 35 | 515 |
| 2X1X1.1/2 | 44 | 52 | 42 | 20 | 35 | 23 | 523 |
| 2X1X2 | 58 | 58 | 52 | 374 | 34 | 35 | 602 |
| 2X1.1/4X1.1/4 | 48 | 54 | 45 | 24 | 35 | 26 | 633 |
| 2X1.1/4X1.1/2 | 48 | 54 | 46 | 24 | 35 | 27 | 640 |
| 2X1.1/4X2 | 58 | 58 | 54 | 34 | 34 | 35 | 619 |
| 2X1.1/2X3/4 | 40 | 50 | 38 | 16 | 35 | 19 | 638 |
| 2X1.1/2X1 | 44 | 52 | 42 | 20 | 35 | 23 | 640 |

| | | | | | | | |
|---------------|----|----|----|----|----|----|-----|
| 2x1.1/2x1.1/4 | 48 | 54 | 46 | 24 | 35 | 27 | 652 |
| 2x1.1/2x1.1/2 | 52 | 55 | 50 | 28 | 36 | 31 | 662 |
| 2x1.1/2x2 | 58 | 58 | 55 | 34 | 34 | 36 | 680 |
| 2x2x3/4 | 58 | 58 | 50 | 34 | 34 | 35 | 710 |
| 2x2x1 | 58 | 58 | 52 | 34 | 34 | 35 | 714 |
| 2x2x1.1/4 | 58 | 58 | 54 | 34 | 34 | 35 | 722 |

130
ISO B1
Equal Tee



131
ISO E1
Pitcher Tee, Reducing

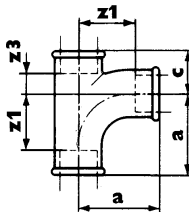


130
ISO B1
Reducing Tee

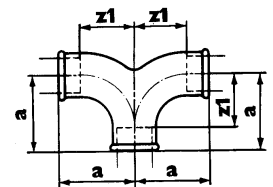
| DN | a mm | | | z1 mm | | G gram | DN | a mm | b mm | c mm | z1 mm | z2 mm | z3 mm | G gram |
|-------|------|--|--|-------|--|--------|-------------|------|------|------|-------|-------|-------|--------|
| 1/8 | 19 | | | 12 | | 35 | 1/2x3/8 | 45 | 45 | 24 | 32 | 32 | 11 | 149 |
| 1/4 | 21 | | | 11 | | 71 | 3/4x1/2 | 47 | 48 | 28 | 32 | 35 | 10 | 221 |
| 3/8 | 25 | | | 15 | | 87 | 3/4x3/4x1/2 | 50 | 50 | 27 | 35 | 35 | 14 | 231 |
| 1/2 | 28 | | | 15 | | 127 | 1 x 1 x 3/4 | 63 | 63 | 31 | 46 | 46 | 16 | 433 |
| 3/4 | 33 | | | 18 | | 192 | | | | | | | | |
| 1 | 38 | | | 21 | | 260 | | | | | | | | |
| 1 1/4 | 45 | | | 26 | | 491 | | | | | | | | |
| 1 1/2 | 50 | | | 31 | | 534 | | | | | | | | |
| 2 | 58 | | | 34 | | 939 | | | | | | | | |
| 2 1/2 | 69 | | | 42 | | 1559 | | | | | | | | |
| 3 | 78 | | | 48 | | 1962 | | | | | | | | |
| 4 | 96 | | | 60 | | 3360 | | | | | | | | |

| DN | a mm | b mm | z1 mm | z2 mm | z3 mm | G gram |
|-------------|------|------|-------|-------|-------|--------|
| 3/8x1/4 | 23 | 23 | 13 | 13 | | 67 |
| 3/8x1/2 | 26 | 26 | 16 | 13 | | 70 |
| 1/2x1/4 | 24 | 24 | 11 | 14 | | 85 |
| 1/2x3/8 | 26 | 26 | 13 | 16 | | 115 |
| 1/2x3/4 | 31 | 30 | 18 | 15 | | 122 |
| 3/4x1/4 | 26 | 27 | 11 | 17 | | 125 |
| 3/4x3/8 | 28 | 28 | 13 | 18 | | 152 |
| 3/4x1/2 | 30 | 31 | 15 | 18 | | 166 |
| 3/4x1 | 36 | 35 | 21 | 18 | | 238 |
| 1x1/4 | 28 | 31 | 11 | 21 | | 182 |
| 1x3/8 | 30 | 32 | 13 | 22 | | 193 |
| 1x1/2 | 32 | 34 | 15 | 21 | | 216 |
| 1x3/4 | 35 | 36 | 18 | 21 | | 278 |
| 1x1.1/4 | 42 | 40 | 25 | 21 | | 337 |
| 1x1.1/2 | 46 | 42 | 29 | 23 | | 400 |
| 1.1/4x3/8 | 32 | 36 | 13 | 26 | | 338 |
| 1.1/4x1/2 | 34 | 38 | 15 | 25 | | 271 |
| 1.1/4x3/4 | 36 | 41 | 17 | 26 | | 309 |
| 1.1/4x1 | 40 | 42 | 21 | 25 | | 345 |
| 1.1/4x1.1/2 | 48 | 46 | 29 | 27 | | 426 |
| 1.1/4x2 | 54 | 48 | 35 | 24 | | 480 |
| 1.1/2x1/2 | 36 | 42 | 17 | 29 | | 349 |
| 1.1/2x3/4 | 38 | 44 | 19 | 29 | | 350 |
| 1.1/2x1 | 42 | 46 | 23 | 29 | | 422 |
| 1.1/2x1.1/4 | 46 | 48 | 27 | 29 | | 504 |
| 1.1/2x2 | 55 | 52 | 36 | 28 | | 724 |
| 2x1/2 | 38 | 48 | 14 | 35 | | 492 |
| 2x3/4 | 40 | 50 | 16 | 35 | | 515 |
| 2x1 | 44 | 52 | 20 | 35 | | 602 |
| 2x1.1/4 | 48 | 54 | 24 | 35 | | 619 |
| 2x1.1/2 | 52 | 55 | 28 | 36 | | 759 |
| 2.1/2x1 | 47 | 60 | 20 | 43 | | 876 |
| 2.1/2x1.1/4 | 52 | 62 | 25 | 43 | | 1131 |
| 2.1/2x1.1/2 | 55 | 63 | 28 | 44 | | 1200 |
| 2.1/2x2 | 61 | 66 | 34 | 42 | | 1419 |
| 3x1 | 51 | 67 | 21 | 50 | | 1200 |
| 3x1.1/4 | 55 | 70 | 25 | 51 | | 1319 |
| 3x1.1/2 | 58 | 71 | 28 | 52 | | 1370 |
| 3x2 | 64 | 73 | 34 | 49 | | 1625 |
| 3x2.1/2 | 72 | 76 | 42 | 49 | | 1775 |
| 4x2 | 70 | 86 | 34 | 62 | | 2197 |
| 4x3 | 84 | 92 | 48 | 62 | | 3221 |

131
ISO E1
Pitcher Tee, Equal

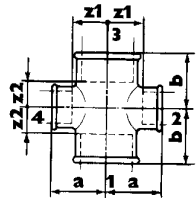


132
ISO E2
Twin Elbow

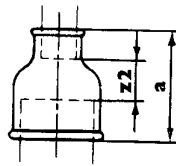


| DN | a mm | c mm | z1 mm | z3 mm | G gram | DN | a mm | z1 mm | G gram |
|-------|------|------|-------|-------|--------|-------|------|-------|--------|
| 1/2 | 45 | 24 | 32 | 11 | 161 | 1/2 | 45 | 32 | 182 |
| 3/4 | 50 | 28 | 35 | 13 | 233 | 3/4 | 50 | 35 | 278 |
| 1 | 63 | | 46 | 16 | 465 | 1 | 63 | 46 | 536 |
| 1 1/4 | 76 | 40 | 57 | 21 | 664 | 1 1/4 | 76 | 57 | 837 |
| 1 1/2 | 85 | 43 | 66 | 24 | 773 | 1 1/2 | 85 | 66 | 1118 |
| 2 | 102 | 53 | 78 | 29 | 1356 | 2 | 102 | 78 | 1641 |

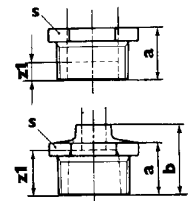
180
ISO C1
Cross Reducing



240
ISO M2
Socket, Reducing



241
ISO N4
Reducing Bush

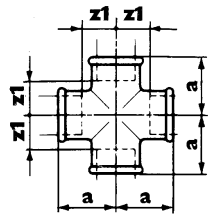


| DN | a mm | b mm | z2 mm | z1 mm | G gram |
|-----------|------|------|-------|-------|--------|
| 1/2x3/8 | 26 | 26 | 13 | 16 | 145 |
| 3/4x1/2 | 30 | 31 | 15 | 18 | 207 |
| 1x1/2 | 32 | 34 | 18 | 21 | 295 |
| 1x3/4 | 35 | 36 | 18 | 21 | 310 |
| 1.1/4x3/4 | 36 | 41 | 17 | 26 | 422 |
| 1.1/4x1 | 40 | 42 | 21 | 25 | 470 |
| 1.1/2x1 | 42 | 46 | 23 | 29 | 574 |

| DN | a mm | z2 mm | G gram |
|---------|------|-------|--------|
| 1/4x1/8 | 27 | 10 | 30 |
| 3/8x1/8 | 30 | 13 | 32 |
| 3/8x1/4 | 30 | 10 | 34 |
| 1/2x1/4 | 36 | 13 | 54 |
| 1/2x3/8 | 36 | 13 | 60 |
| 3/4x1/4 | 39 | 14 | 33 |
| 3/4x3/8 | 39 | 14 | 88 |
| 3/4x1/2 | 39 | 11 | 89 |
| 1x3/8 | 45 | 18 | 120 |
| 1x1/2 | 45 | 15 | 124 |
| 1x3/4 | 45 | 13 | 120 |

| DN | a mm | z1 mm | s mm | G gram |
|-------------|------|-------|------|--------|
| 1/4x1/8 | 20 | 13 | 17 | 10 |
| 3/8x1/8 | 20 | 13 | 19 | 13 |
| 3/8x1/4 | 20 | 10 | 19 | 10 |
| 1/2x1.1/8 | 24 | 10 | 22 | 13 |
| 1/2x1/4 | 24 | 14 | 22 | 13 |
| 3/4x3/8 | 26 | 14 | 22 | 14 |
| 3/4x1/2 | 26 | 16 | 30 | 14 |
| 1x3/8 | 29 | 16 | 30 | 11 |
| 1x3/4 | 29 | 13 | 30 | 18 |
| 1.1/4x3/8 | 29 | 19 | 36 | 15 |
| 1.1/4x1/2 | 31 | 16 | 36 | 13 |
| 1.1/4x3/4 | 31 | 14 | 36 | 18 |
| 1.1/4x1 | 31 | 21 | 46 | 16 |
| 1.1/2x1/2 | 31 | 18 | 46 | 14 |
| 1.1/2x3/4 | 31 | 16 | 46 | 23 |
| 1.1/2x1 | 31 | 14 | 46 | 21 |
| 1.1/2x1.1/4 | 31 | 18 | 50 | 19 |
| 2x1/2 | 35 | 16 | 50 | 17 |
| 2x3/4 | 35 | 14 | 50 | 28 |
| 2x1 | 35 | 12 | 50 | 26 |
| 2x1.1/4 | 35 | 35 | 64 | 24 |
| 2x1.1/2 | 35 | 13 | 64 | 22 |
| 2.1/2x1 | 44 | 20 | 94 | 26 |
| 2.1/2x1.1/4 | 44 | 17 | 94 | 23 |
| 2.1/2x1.1/2 | 40 | 18 | 64 | 22 |
| 2.1/2x2 | 40 | 16 | 64 | 28 |
| 3x2 | 44 | 16 | 65 | 28 |
| 3x1.1/4 | 51 | 21 | 120 | 34 |
| 3x2.1/2 | 44 | 21 | 79 | 23 |
| 4x3 | 40 | 16 | 79 | 31 |

180
ISO C1
Cross Equal

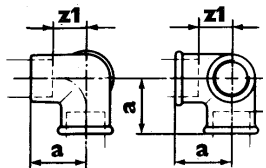


| DN | a mm | z1 mm | G gram |
|-------|------|-------|--------|
| 1/4 | 21 | 11 | 74 |
| 3/8 | 25 | 15 | 93 |
| 1/2 | 28 | 15 | 156 |
| 3/4 | 33 | 18 | 230 |
| 1 | 38 | 21 | 329 |
| 1 1/4 | 45 | 26 | 517 |
| 1 1/2 | 50 | 31 | 602 |
| 2 | 58 | 34 | 1144 |
| 3 | 78 | 48 | 2190 |

| | | | |
|-------------|----|----|------|
| 2x1/2 | 65 | 28 | 290 |
| 2x3/4 | 65 | 26 | 300 |
| 2x1 | 65 | 24 | 330 |
| 2x1.1/4 | 65 | 22 | 368 |
| 2x1.1/2 | 65 | 22 | 384 |
| 2.1/2x1.1/4 | 74 | 28 | 616 |
| 2.1/2x1.1/2 | 74 | 28 | 590 |
| 2.1/2x2 | 74 | 23 | 565 |
| 3x1.1/2 | 80 | 31 | 763 |
| 3x2 | 80 | 26 | 866 |
| 3x2.1/2 | 80 | 23 | 888 |
| 4x2 | 94 | 34 | 1474 |
| 4x2.1/2 | 94 | 31 | 1495 |
| 4x3 | 94 | 28 | 1615 |

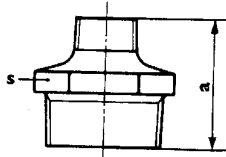
| | | | | | |
|-------------|----|----|-----|----|------|
| 2x1/2 | 35 | 16 | 50 | 17 | 254 |
| 2x3/4 | 35 | 14 | 50 | 28 | 223 |
| 2x1 | 35 | 12 | 50 | 26 | 146 |
| 2x1.1/4 | 35 | 35 | 64 | 24 | 374 |
| 2x1.1/2 | 35 | 13 | 64 | 22 | 384 |
| 2.1/2x1 | 44 | 20 | 94 | 26 | 627 |
| 2.1/2x1.1/4 | 44 | 17 | 94 | 23 | 648 |
| 2.1/2x1.1/2 | 40 | 18 | 64 | 22 | 627 |
| 2.1/2x2 | 40 | 16 | 64 | 28 | 613 |
| 3x2 | 44 | 16 | 65 | 28 | 648 |
| 3x1.1/4 | 51 | 21 | 120 | 34 | 920 |
| 3x2.1/2 | 44 | 21 | 79 | 23 | 920 |
| 4x3 | 40 | 16 | 79 | 31 | 1409 |

221
ISO Za1
Side Outlet Elbow

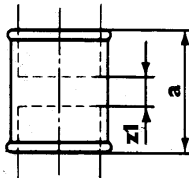


| DN | a mm | z1 mm | G gram |
|-----|------|-------|--------|
| 1/2 | 28 | 15 | 117 |
| 3/4 | 33 | 18 | 160 |
| 1 | 38 | 21 | 282 |
| 3/8 | 25 | 15 | 90 |

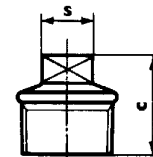
245
ISO N8
Double Nipple, Reducing



270
ISO M2
Socket, Equal



290
ISO T9
Plug, Square Head, Beaded

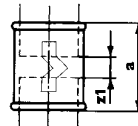


| DN | a mm | s mm | G gram |
|-------------|------|------|--------|
| 3/8x1/4 | 38 | 19 | 41 |
| 1/2x1/4 | 44 | 22 | 50 |
| 1/2x3/8 | 44 | 27 | 68 |
| 3/4x3/8 | 47 | 32 | 79 |
| 3/4x1/2 | 47 | 32 | 93 |
| 1x1/2 | 53 | 41 | 134 |
| 1x3/4 | 35 | 41 | 133 |
| 1.1/4x1/2 | 57 | 50 | 185 |
| 1.1/4x3/4 | 57 | 50 | 188 |
| 1.1/4x1 | 57 | 50 | 241 |
| 1.1/2x3/4 | 59 | 55 | 209 |
| 1.1/2x1 | 59 | 55 | 292 |
| 1.1/2x1.1/4 | 59 | 55 | 292 |
| 2x1 | 68 | 69 | 365 |
| 2x1.1/4 | 68 | 64 | 476 |
| 2x1.1/2 | 68 | 69 | 543 |
| 2.1/2x2 | 75 | 79 | 659 |
| 3x2 | 83 | 95 | 926 |
| 3x2.1/2 | 83 | 95 | 1077 |

| DN | a mm | z1 mm | G gram |
|-------|------|-------|--------|
| 1/8 | 25 | 11 | 15 |
| 1/4 | 27 | 7 | 26 |
| 3/8 | 30 | 10 | 45 |
| 1/2 | 36 | 10 | 64 |
| 3/4 | 39 | 9 | 98 |
| 1 | 45 | 11 | 136 |
| 1 1/4 | 50 | 12 | 204 |
| 1 1/2 | 55 | 17 | 245 |
| 2 | 65 | 17 | 455 |
| 2 1/2 | 74 | 20 | 740 |
| 3 | 80 | 20 | 969 |
| 4 | 94 | 22 | 1654 |
| 5 | 109 | 29 | 2945 |
| 6 | 120 | 40 | 4215 |

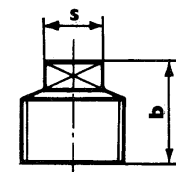
| DN | c mm | s mm | G gram |
|-------|------|------|--------|
| 1/8 | 20 | 8 | 12 |
| 1/4 | 22 | 9 | 23 |
| 3/8 | 24 | 10 | 43 |
| 1/2 | 26 | 11 | 50 |
| 3/4 | 32 | 17 | 88 |
| 1 | 36 | 19 | 150 |
| 1 1/4 | 39 | 22 | 223 |
| 1 1/2 | 41 | 22 | 286 |
| 2 | 48 | 27 | 439 |
| 2 1/2 | 54 | 32 | 647 |
| 3 | 60 | 36 | 914 |
| 4 | 70 | 41 | 1880 |

271
ISO M2-R-L
Socket, Right and
Left Hand Thread Equal



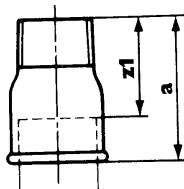
| DN | a mm | z1 mm | G gram |
|-------|------|-------|--------|
| 3/8 | 30 | 10 | 44 |
| 1/2 | 36 | 10 | 68 |
| 3/4 | 39 | 9 | 101 |
| 1 | 45 | 11 | 159 |
| 1 1/4 | 50 | 12 | 234 |
| 1 1/2 | 55 | 17 | 342 |
| 2 | 65 | 17 | 515 |

291
ISO T8
Plug, Square Head



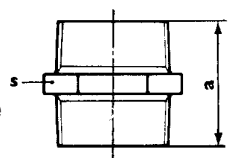
| DN | b mm | s mm | G gram |
|-------|------|------|--------|
| 1/8 | 16 | 8 | 8 |
| 1/4 | 21 | 10 | 13 |
| 3/8 | 19 | 10 | 23 |
| 1/2 | 23 | 11 | 39 |
| 3/4 | 27 | 17 | 61 |
| 1 | 32 | 19 | 98 |
| 1 1/4 | 35 | 22 | 142 |
| 1 1/2 | 36 | 22 | 153 |
| 2 | 43 | 27 | 302 |
| 2 1/2 | 50 | 32 | 553 |
| 3 | 57 | 36 | 791 |
| 4 | 67 | 41 | 1676 |

246
ISO M4
Socket, Reducing



| DN | a mm | z1 mm | G gram |
|-------------|------|-------|--------|
| 3/8x1/4 | 35 | 25 | 37 |
| 1/2x1/4 | 43 | 30 | 56 |
| 1/2x3/8 | 43 | 30 | 54 |
| 3/4x1/2 | 48 | 33 | 105 |
| 1x1/2 | 55 | 38 | 147 |
| 1x3/4 | 55 | 38 | 151 |
| 1.1/4x3/4 | 60 | 41 | 212 |
| 1.1/4x1 | 60 | 41 | 227 |
| 1.1/2x1 | 63 | 44 | 282 |
| 1.1/2x1.1/4 | 63 | 44 | 284 |
| 2x1.1/2 | 70 | 46 | 417 |

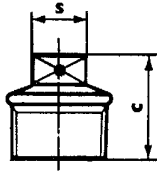
280
ISO N8
Double Nipple
Equal



| DN | a mm | s mm | G gram |
|-------|------|------|--------|
| 1/8 | 29 | 17 | 19 |
| 1/4 | 36 | 19 | 31 |
| 3/8 | 38 | 22 | 41 |
| 1/2 | 44 | 27 | 69 |
| 3/4 | 47 | 30 | 97 |
| 1 | 53 | 41 | 162 |
| 1 1/4 | 57 | 50 | 251 |
| 1 1/2 | 59 | 55 | 285 |
| 2 | 68 | 70 | 467 |
| 2 1/2 | 75 | 84 | 688 |
| 3 | 83 | 100 | 1050 |
| 4 | 95 | 150 | 1891 |

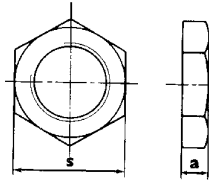
294

ISO T9
Plug, Square Head
Drillend, beaded



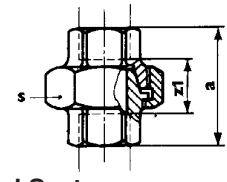
310

ISO P4
Backnut, Hexagon



340

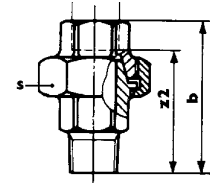
ISO U11
Union, Conical Seat



| DN | c mm | s mm | G gram | DN | a mm | s mm | G gram | DN | a mm | z1 mm | s mm | G gram |
|-------|------|------|--------|-------|------|------|--------|-------|------|-------|------|--------|
| 1/8 | 20 | 8 | 12 | 1/4 | 6 | 22 | 12 | 1/8 | 38 | 24 | 26 | 76 |
| 1/4 | 22 | 9 | 22 | 3/8 | 7 | 27 | 21 | 1/4 | 42 | 22 | 32 | 102 |
| 3/8 | 24 | 10 | 41 | 1/2 | 8 | 32 | 32 | 3/8 | 45 | 25 | 36 | 100 |
| 1/2 | 26 | 11 | 50 | 3/4 | 9 | 36 | 39 | 1/2 | 48 | 22 | 46 | 173 |
| 3/4 | 32 | 17 | 106 | 1 | 10 | 46 | 74 | 3/4 | 52 | 22 | 50 | 253 |
| 1 | 36 | 19 | 142 | 1 1/4 | 11 | 55 | 120 | 1 | 58 | 24 | 55 | 331 |
| 1 1/4 | 39 | 22 | 217 | 1 1/2 | 12 | 60 | 138 | 1 1/4 | 65 | 27 | 70 | 608 |
| 1 1/2 | 41 | 22 | 282 | 2 | 13 | 75 | 254 | 1 1/2 | 70 | 32 | 75 | 703 |
| 2 | 48 | 27 | 439 | 2 1/2 | 16 | 108 | 300 | 2 | 78 | 30 | 90 | 1080 |
| 2 1/2 | 54 | 35 | 652 | 3 | 19 | 135 | 404 | 2 1/2 | 85 | 31 | 110 | 1743 |
| 3 | 60 | 37 | 905 | | | | | 3 | 95 | 35 | 130 | 2421 |
| 4 | 70 | 44 | 2010 | | | | | 4 | 110 | 38 | 163 | 3496 |

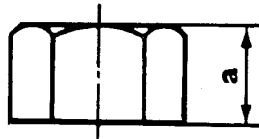
341

ISO U12
Union, Conical Seat



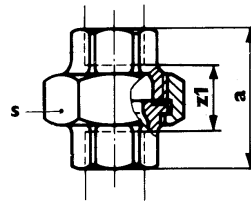
300

ISO T1
Cap, Hexagon



330

ISO U1
Union, Flat Seat

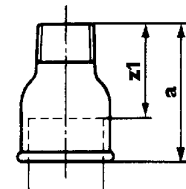


| DN | b mm | z2 mm | s mm | G gram |
|-------|------|-------|------|--------|
| 1/4 | 55 | 45 | 32 | 73 |
| 3/8 | 58 | 48 | 36 | 106 |
| 1/2 | 66 | 53 | 46 | 201 |
| 3/4 | 72 | 57 | 50 | 331 |
| 1 | 80 | 63 | 55 | 410 |
| 1 1/4 | 90 | 71 | 70 | 708 |
| 1 1/2 | 95 | 76 | 75 | 829 |
| 2 | 106 | 82 | 90 | 1310 |
| 2 1/2 | 118 | 91 | 110 | 2018 |
| 3 | 130 | 100 | 130 | 2950 |

| DN | a mm | s mm | G gram | DN | a mm | z1 mm | s mm | G gram |
|-------|------|------|--------|-------|------|-------|------|--------|
| 1/4 | 15 | 17 | 30 | 1/4 | 42 | 22 | 32 | 63 |
| 3/8 | 17 | 22 | 35 | 3/8 | 45 | 25 | 36 | 90 |
| 1/2 | 23 | 27 | 63 | 1/2 | 48 | 22 | 44 | 163 |
| 3/4 | 26 | 32 | 72 | 3/4 | 52 | 22 | 48 | 270 |
| 1 | 30 | 41 | 112 | 1 | 58 | 24 | 55 | 356 |
| 1 1/4 | 30 | 50 | 210 | 1 1/4 | 65 | 27 | 70 | 579 |
| 1 1/2 | 30 | 55 | 256 | 1 1/2 | 70 | 32 | 75 | 713 |
| 2 | 37 | 70 | 434 | 2 | 78 | 30 | 90 | 1063 |
| 2 1/2 | 41 | 85 | 744 | 2 1/2 | 85 | 31 | 110 | 1730 |
| 3 | 43 | 100 | 960 | 3 | 95 | 35 | 130 | 2590 |
| 4 | 50 | 127 | 1430 | 4 | 110 | 38 | 164 | 3307 |

529a

ISO M4
Extension Socket, beaded



| DN | a mm | z1 mm | G gram |
|-------|------|-------|--------|
| 3/8 | 35 | 25 | 38 |
| 1/2 | 43 | 30 | 65 |
| 3/4 | 48 | 33 | 107 |
| 1 | 55 | 38 | 147 |
| 1 1/4 | 60 | 41 | 236 |