

COPMETAL

COPPER NICKEL PIPES AND PIPE FITTINGS



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PIPES

PIPES



PIPES - EUROPEAN STANDARDS

Material: CuNi 90/10

Dimension: DIN/EEMUA



| Outside diameter of pipe OD | | | 10 bar | | 14 bar | | 16 bar | | 20 bar | | | | |
|--------------------------------|-----|--------|-------------------|-----------------------|-------------------|-----------------------|-------------------|-----------------------|-------------------|-----------------------|-------|-----|--------|
| nominal | | actual | Wall thickness | Theoretical weight | Wall thickness | Theoretical weight | Wall thickness | Theoretical weight | Wall thickness | Theoretical weight | | | |
| inch | ND | mm | actual mm | Kg/m | actual mm | Kg/m | actual mm | Kg/m | actual mm | Kg/m | | | |
| SEAMLESS | | | | | | | | | | | | | |
| 1/8 | | 10 | 1,0 | 0,26 | 1,0 | 0,26 | 1,0 | 0,26 | 1,0 | 0,26 | | | |
| 1/4 | | 12 | | 0,31 | | 0,31 | | 0,31 | | | | | |
| 3/8 | 10 | 16 | | 0,42 | | 0,42 | | 0,79 | | | | | |
| 1/2 | 15 | 20 | | 0,53 | | 0,53 | | 1,01 | | | | | |
| 3/4 | 20 | 25 | 1,5 | 0,99 | 1,5 | 0,99 | 2,0 | 1,30 | 2,0 | 1,30 | | | |
| 1 | 25 | 30 | | 1,20 | | 1,20 | | 1,93 | | | | | |
| 1 1/4 | 32 | 38 | | 1,54 | | 1,54 | | 2,50 | | | | | |
| 1 1/2 | 40 | 44,5 | | 1,81 | | 1,81 | | 2,95 | | | | | |
| 2 | 50 | 57 | 2,0 | 2,34 | 2,0 | 2,34 | 2,5 | 3,83 | 2,5 | 3,83 | | | |
| 2 1/2 | 65 | 76,1 | | 4,16 | | 4,16 | | 5,17 | | | | | |
| 3 | 80 | 88,9 | | 4,88 | | 6,07 | | 6,07 | | | | | |
| 4 | 100 | 108 | | 7,41 | | 2,5 | | 7,41 | | 8,85 | | | |
| 5 | 125 | 133 | 2,5 | 9,16 | 3,0 | 10,95 | 3,0 | 10,95 | 3,0 | 10,95 | | | |
| 6 | 150 | 159 | | 10,99 | | 3,0 | | 13,14 | | 3,5 | 15,29 | | |
| 7 | 175 | 193,7 | | 13,43 | | 3,5 | | 18,70 | | N.A | 16,07 | N.A | 18,70 |
| 8 | 200 | 219,1 | | 18,21 | | 4,0 | | 21,19 | | 4,0 | 24,17 | 4,5 | 27,12 |
| 10 | 250 | 267 | 3,0 | 22,24 | 4,0 | 29,55 | 4,5 | 33,18 | 5,5 | 40,39 | | | |
| 12 | 300 | 323,9 | | 35,94 | | 5,0 | | 44,78 | | 5,5 | 49,18 | 7,0 | 62,30 |
| 14 | 350 | 368 | | 40,89 | | 5,5 | | 56,00 | | 6,5 | 65,99 | 8,0 | 80,89 |
| 16 | 400 | 419,1 | | 46,62 | | 6,0 | | 69,60 | | 7,0 | 81,00 | 9,0 | 103,64 |
| SEAMLESS or SEAM WELDED | | | | | | | | | | | | | |
| 18 | 450 | 457,2 | 4,0 | 50,91 | 6,0 | 76,03 | 8,0 | 100,93 | 9,5 | 119,45 | | | |
| 20 | 500 | 508 | 4,5 | 63,63 | 6,5 | 91,55 | 8,5 | 119,24 | 11 | 153,54 | | | |
| SEAM WELDED | | | | | | | | | | | | | |
| 24 | 600 | 610 | 5,0 | 84,96 | 8,0 | 135,26 | 10,5 | 176,79 | 13,0 | 217,97 | | | |
| 28 | 700 | 711 | 6,0 | 118,80 | 9,0 | 177,45 | 12,0 | 235,58 | 15,0 | 293,22 | | | |
| 32 | 800 | 813 | | 135,99 | 10,0 | 225,53 | 13,5 | 303,14 | 17,0 | 380,06 | | | |
| 36 | 900 | 914 | 8,0 | 203,57 | 11,0 | 278,98 | 15,5 | 391,14 | 19,0 | 477,60 | | | |

- Other wall thicknesses are also available upon request.



PIPES - U.S. STANDARDS

Material: CuNi 90/10

Dimension: ANSI / ASME B36.19M



| Outside diameter of pipe OD | | | Schedule 40S | | | | Schedule 80S | | | |
|--------------------------------|--------|--------|--------------|------|--------------------|-------|--------------|-------|--------------------|--------|
| nominal inch | actual | | actual | | Theoretical weight | | actual | | Theoretical weight | |
| | inch | mm | inch | mm | Lb/Ft | Kg/m | inch | mm | Lb/Ft | Kg/m |
| SEAMLESS | | | | | | | | | | |
| 1/8 | 0,405 | 10,29 | 0,068 | 1,73 | 0,24 | 0,37 | 0,095 | 2,41 | 0,31 | 0,47 |
| 1/4 | 0,540 | 13,72 | 0,088 | 2,24 | 0,42 | 0,63 | 0,119 | 3,02 | 0,54 | 0,80 |
| 3/8 | 0,675 | 17,15 | 0,091 | 2,31 | 0,57 | 0,84 | 0,126 | 3,20 | 0,74 | 1,10 |
| 1/2 | 0,840 | 21,34 | 0,109 | 2,77 | 0,85 | 1,27 | 0,147 | 3,73 | 1,09 | 1,62 |
| 3/4 | 1,050 | 26,67 | 0,113 | 2,87 | 1,13 | 1,69 | 0,154 | 3,91 | 1,47 | 2,20 |
| 1 | 1,315 | 33,40 | 0,133 | 3,38 | 1,68 | 2,50 | 0,179 | 4,55 | 2,17 | 3,24 |
| 1 1/4 | 1,660 | 42,16 | 0,140 | 3,56 | 2,27 | 3,39 | 0,191 | 4,85 | 3,00 | 4,47 |
| 1 1/2 | 1,900 | 48,27 | 0,145 | 3,68 | 2,72 | 4,05 | 0,200 | 5,08 | 3,63 | 5,41 |
| 2 | 2,375 | 60,32 | 0,154 | 3,91 | 3,65 | 5,44 | 0,218 | 5,54 | 5,02 | 7,48 |
| 2 1/2 | 2,875 | 73,03 | 0,203 | 5,16 | 5,79 | 8,63 | 0,276 | 7,01 | 7,66 | 11,41 |
| 3 | 3,500 | 88,90 | 0,216 | 5,49 | 7,58 | 11,29 | 0,300 | 7,62 | 10,25 | 15,27 |
| 3 1/2 | 4,000 | 101,60 | 0,226 | 5,74 | 9,11 | 13,57 | 0,318 | 8,08 | 12,51 | 18,63 |
| 4 | 4,500 | 114,30 | 0,237 | 6,02 | 10,79 | 16,07 | 0,337 | 8,56 | 14,98 | 22,32 |
| 5 | 5,563 | 141,30 | 0,258 | 6,55 | 14,62 | 21,77 | 0,375 | 9,53 | 20,78 | 30,97 |
| 6 | 6,625 | 168,30 | 0,280 | 7,11 | 18,97 | 28,26 | 0,432 | 10,97 | 28,57 | 42,56 |
| 8 | 8,625 | 219,10 | 0,322 | 8,18 | 28,55 | 42,55 | 0,500 | 12,70 | 43,39 | 64,64 |
| 10 | 10,750 | 273,05 | 0,365 | 9,27 | 40,48 | 60,31 | 0,500 | 12,70 | 54,74 | 96,01 |
| 12 | 12,750 | 323,90 | 0,375 | 9,53 | 49,56 | 73,88 | 0,500 | 12,70 | 65,42 | 132,08 |

- Other dimensions, wall thicknesses and outside diameters as well as all relevant flanges, butt weld and machined fittings are also available upon request.



BARS & PLATES



Bar & Plates

ROUND BAR

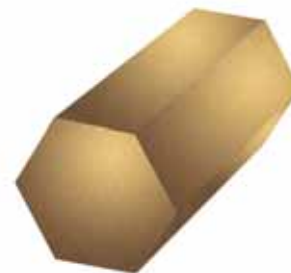
Material: CuNi 90/10
Dimension: DIN 1756 / DIN 1782



| Dimension mm | Weight kg / m | Dimension mm | Weight kg / m |
|--------------|---------------|--------------|---------------|
| 12 | 1,01 | 65 | 29,52 |
| 15 | 1,57 | 70 | 34,24 |
| 18 | 2,26 | 75 | 39,32 |
| 20 | 2,79 | 80 | 44,72 |
| 25 | 4,37 | 90 | 56,60 |
| 30 | 6,29 | 100 | 69,90 |
| 35 | 8,55 | 110 | 84,58 |
| 40 | 11,18 | 130 | 118,13 |
| 45 | 14,15 | 175 | 214,00 |
| 50 | 17,47 | 234 | 382,55 |
| 55 | 21,14 | 300 | 628,78 |
| 60 | 25,15 | | |

HEXAGON BAR

Material: CuNi 90/10
Dimension: DIN 1763



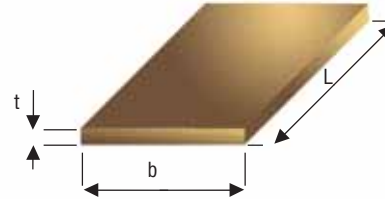
| Dimension mm | Weight kg / m | Dimension mm | Weight kg / m |
|--------------|---------------|--------------|---------------|
| 17 | 2,23 | 36 | 9,96 |
| 19 | 2,78 | 41 | 13,00 |
| 22 | 3,70 | 46 | 16,30 |
| 24 | 4,44 | 50 | 19,30 |
| 27 | 5,62 | 55 | 23,31 |
| 30 | 6,94 | 60 | 27,74 |
| 32 | 7,89 | 65 | 32,56 |



PLATES

Material: CuNi 90/10

Dimension: EN 1652 / EN 1653
ASTM B171



| Dimension mm | | | Weight kg / m ² |
|-------------------|-------------------------------------|-------------------------------------|-------------------------------|
| Thickness t mm | Dimension (b x L) mm | | |
| | 1000 x 2000 Weight in kg / plate | 1250 x 2500 Weight in kg / plate | |
| 2,0 | 35,6 | | 17,80 |
| 2,5 | 44,5 | | 22,25 |
| 3,0 | 53,4 | | 26,70 |
| 4,0 | | 111,250 | 35,60 |
| 4,5 | | 125,156 | 40,05 |
| 5,0 | | 139,062 | 44,50 |
| 6,0 | 106,8 | | 53,40 |
| 8,0 | 142,4 | | 71,20 |
| 10,0 | 178,0 | | 89,00 |
| 12,0 | 213,6 | | 106,8 |
| 15,0 | 267,0 | | 133,5 |
| 20,0 | 356,0 | | 178,0 |















BUTT WELD FITTINGS



Butt Welding Fitting

BUTT WELD FITTINGS

| | | |
|---|---|--|
| <p>Elbows R~1D-45° Seamless, seam welded</p> | <p>Elbows R~1D-90° Seamless, seam welded</p> | <p>Elbows R~1,5D-45° Seamless, seam welded</p> |
|  <p>Page: 09</p> |  <p>Page: 10</p> |  <p>Page: 11, 12, 13</p> |
| <p>Elbows R~1,5D-90° Seamless, seam welded</p> | <p>Concentric Reducers Seamless</p> | <p>Concentric Reducers Seamless, seam welded</p> |
|  <p>Page: 14, 15, 16</p> |  <p>Page: 17, 18, 19, 20, 22, 23, 24, 25</p> |  <p>Page: 20, 21, 23, 25</p> |
| <p>Eccentric Reducers Seamless</p> | <p>Eccentric Reducers Seam welded</p> | <p>Equal Tees Seamless, seam welded</p> |
|  <p>Page: 26, 27, 30, 32</p> |  <p>Page: 28, 29, 31, 33</p> |  <p>Page: 34, 35, 36</p> |
| <p>Reducing Tees Seamless, seam welded</p> | <p>Saddles Seamless, seam welded</p> | <p>Caps Seamless</p> |
|  <p>Page: 37, 38, 39, 40, 41, 42, 43, 44</p> |  <p>Page: 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56</p> |  <p>Page: 57, 58, 59</p> |



ELBOWS SHORT RADIUS

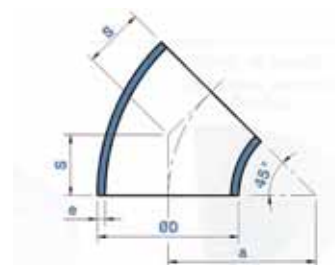
R~1D-45°

10 BAR

■ and 14 Bar

Material: CuNi 90/10

Dimension: Extrapolated from DIN 86090



| Outside diameter of pipe OD | | Wall thickness e mm | Radius | | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|---------|---------|-----------------------------------|
| nominal inch | actual mm | | a mm | s mm | |
| SEAMLESS | | | | | |
| 1 | 30 | 1,5 | 30 | 12 | 0,02 |
| 1 1/4 | 38 | | 32,5 | 14 | 0,04 |
| 1 1/2 | 44,5 | | 40 | 17 | 0,06 |
| 2 | 57 | | 52,5 | 22 | 0,10 |
| 2 1/2 | 76,1 | 2 | 70 | 29 | 0,22 |
| 3 | 88,9 | | 82,5 | 34 | 0,32 |
| 4 | 108 | ■ 2,5 | 100 | 41 | 0,40 |
| | | 2,5 | | | 0,58 |
| 5 | 133 | ■ 3 | 125 | 52 | 0,90 |
| | | 2,5 | | | 1,30 |
| 6 | 159 | ■ 3 | 150 | 62 | 1,56 |
| | | 3 | | | 1,90 |
| 7 | 193,7 | ■ 3,5 | 180 | 75 | 2,66 |
| | | 3 | | | 3,00 |
| 8 | 219,1 | ■ 3,5 | 210 | 87 | 3,50 |
| | | | | | |
| SEAMLESS or SEAM WELDED | | | | | |
| 10 | 267 | 3 | 255 | 106 | 4,40 |
| | | ■ 4 | | | 5,87 |
| 12 | 323,9 | 4 | 305 | 126 | 8,60 |
| | | ■ 5 | | | 10,75 |
| 14 | 368 | 4 | 352,5 | 146 | 11,30 |
| | | ■ 5,5 | | | 15,54 |
| SEAM WELDED | | | | | |
| 16 | 419,1 | 4 | 400 | 166 | 16,40 |
| | | ■ 6 | | | 21,87 |
| 18 | 457,2 | 4 | 455 | 188 | 20,40 |
| | | ■ 6 | | | 30,60 |
| 20 | 508 | 4,5 | 505 | 209 | 28,10 |
| | | ■ 6,5 | | | 42,15 |
| 24 | 610 | 5 | 610 | 253 | 40,90 |
| | | ■ 8 | | | 65,45 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



ELBOWS SHORT RADIUS

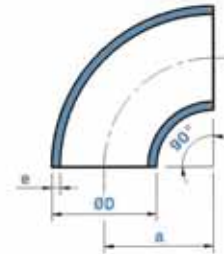
R~1D-90°

10 BAR

■ and 14 Bar

Material: CuNi 90/10

Dimension: Extrapolated from DIN 86090



| Outside diameter of pipe OD | | Wall thickness e mm | Radius a mm | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|-------------------|-----------------------------------|
| nominal inch | actual mm | | | |
| SEAMLESS | | | | |
| 1 | 30 | 1,5 | 30 | 0,04 |
| 1 1/4 | 38 | | 32,5 | 0,08 |
| 1 1/2 | 44,5 | | 40 | 0,12 |
| 2 | 57 | | 52,5 | 0,20 |
| 2 1/2 | 76,1 | 2 | 70 | 0,44 |
| 3 | 88,9 | | 82,5 | 0,64 |
| 4 | 108 | 2,5 | 100 | 0,80 |
| | | | 125 | 1,16 |
| 5 | 133 | 3 | 150 | 1,80 |
| | | | 180 | 2,16 |
| 6 | 159 | 2,5 | 210 | 2,60 |
| | | | 255 | 3,12 |
| 7 | 193,7 | 3 | 305 | 3,80 |
| | | | 352,5 | 5,32 |
| 8 | 219,1 | 3 | 400 | 6,00 |
| | | | 455 | 7,00 |
| SEAMLESS or SEAM WELDED | | | | |
| 10 | 267 | 3 | 255 | 8,80 |
| | | 4 | | 11,74 |
| 12 | 323,9 | 4 | 305 | 17,20 |
| | | 5 | | 21,50 |
| 14 | 368 | 4 | 352,5 | 22,60 |
| | | 5,5 | | 31,08 |
| SEAM WELDED | | | | |
| 16 | 419,1 | 4 | 400 | 32,80 |
| | | 6 | | 43,74 |
| 18 | 457,2 | 4 | 455 | 40,80 |
| | | 6 | | 61,20 |
| 20 | 508 | 4,5 | 505 | 56,20 |
| | | 6,5 | | 84,30 |
| 24 | 610 | 5 | 610 | 81,80 |
| | | 8 | | 130,90 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



ELBOWS LONG RADIUS

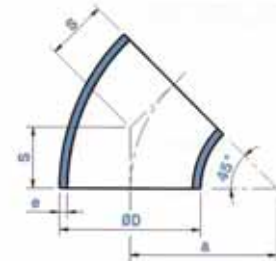
R~1,5D-45°

10 BAR

■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86090



| Outside diameter of pipe OD | | Wall thickness e mm | Radius | | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|---------|---------|-----------------------------------|
| nominal inch | actual mm | | a mm | s mm | |
| SEAMLESS | | | | | |
| 1/2 | 20 | 1 | 25 | 10,4 | 0,01 |
| 3/4 | 25 | 1,5 | 27,5 | 11,4 | 0,02 |
| 1 | 30 | | 33,5 | 14 | 0,03 |
| 1 1/4 | 38 | | 45 | 19 | 0,05 |
| 1 1/2 | 44,5 | | 51 | 21 | 0,07 |
| 2 | 57 | | 72 | 30 | 0,13 |
| 2 1/2 | 76,1 | 2 | 95 | 39 | 0,30 |
| 3 | 88,9 | 114,5 | 47 | 0,43 | |
| | | ■ 2,5 | 142,5 | 59 | 0,54 |
| 4 | 108 | 2,5 | 181 | 75 | 0,82 |
| 5 | 133 | ■ 3 | 216 | 89 | 1,29 |
| | | 2,5 | | | 1,55 |
| 6 | 159 | ■ 3 | 270 | 112 | 1,85 |
| | | 3 | | | 2,22 |
| 7 | 193,7 | ■ 3,5 | 305 | 126 | 2,82 |
| | | 3 | | | 3,94 |
| 8 | 219,1 | ■ 3,5 | 378 | 157 | 4,33 |
| | | 3 | | | 5,04 |
| SEAMLESS or SEAM WELDED | | | | | |
| 10 | 267 | 3 | 457 | 189 | 6,55 |
| | | ■ 4 | | | 8,73 |
| 12 | 323,9 | 4 | 533,5 | 221 | 12,80 |
| | | ■ 5 | | | 16,00 |
| 14 | 368 | 4 | 609,5 | 252 | 17,00 |
| | | ■ 5,5 | | | 23,37 |
| 16 | 419,1 | 4 | 686 | 284 | 29,90 |
| | | ■ 6 | | | 33,20 |
| SEAM WELDED | | | | | |
| 18 | 457,2 | 4 | 762 | 316 | 30,70 |
| | | ■ 6 | | | 46,05 |
| 20 | 508 | 4,5 | 915 | 379 | 41,90 |
| | | ■ 6,5 | | | 62,85 |
| 24 | 610 | 5 | | | 60,62 |
| | | ■ 8 | | | 97,00 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



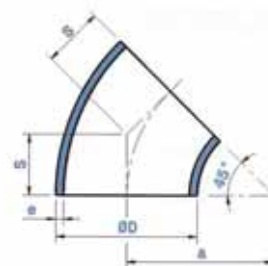
ELBOWS LONG RADIUS

R~1,5D-45°

16 BAR

Material: CuNi 90/10

Dimension: EEMUA Pub. N° 146



| Outside diameter of pipe OD | | Wall thickness e mm | Radius | | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|---------|---------|-----------------------------------|
| nominal inch | actual mm | | a mm | s mm | |
| SEAMLESS | | | | | |
| 1 | 30 | 2,5 | 38 | 22 | 0,06 |
| 1 1/4 | 38 | | 48 | 25 | 0,09 |
| 1 1/2 | 44,5 | | 57 | 29 | 0,13 |
| 2 | 57 | | 76 | 35 | 0,23 |
| 2 1/2 | 76,1 | | 95 | 44 | 0,38 |
| 3 | 88,9 | | 114 | 51 | 0,54 |
| 4 | 108 | 3 | 152 | 64 | 1,05 |
| 6 | 159 | | 229 | 95 | 2,35 |
| SEAMLESS or SEAM WELDED | | | | | |
| 8 | 219,1 | 4 | 305 | 127 | 5,75 |
| 10 | 267 | 4,5 | 381 | 159 | 9,85 |
| 12 | 323,9 | 5,5 | 457 | 190 | 17,53 |
| SEAM WELDED | | | | | |
| 14 | 368 | 6,5 | 533 | 222 | 27,46 |
| 16 | 419,1 | 7 | 610 | 254 | 38,50 |
| 18 | 457,2 | 8 | 686 | 286 | 54,10 |
| 20 | 508 | 8,5 | 762 | 318 | 70,93 |
| 24 | 610 | 10,5 | 914 | 381 | 126,42 |
| 28 | 711 | 12 | 1067 | 438 | 196,30 |
| 32 | 813 | 13,5 | 1219 | 502 | 288,00 |
| 36 | 914 | 15,5 | 1372 | 565 | 418,60 |



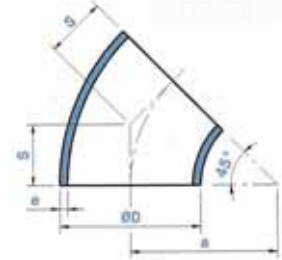
ELBOWS LONG RADIUS

R~1,5D-45°

20 BAR

Material: CuNi 90/10

Dimension: EEMUA Pub. N° 146



| Outside diameter of pipe OD | | Wall thickness e mm | Radius | | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|---------|---------|-----------------------------------|
| nominal inch | actual mm | | a mm | s mm | |
| SEAMLESS | | | | | |
| 1 | 30 | 2,5 | 38 | 22 | 0,06 |
| 1 1/4 | 38 | | 48 | 25 | 0,09 |
| 1 1/2 | 44,5 | | 57 | 29 | 0,13 |
| 2 | 57 | | 76 | 35 | 0,23 |
| 2 1/2 | 76,1 | | 95 | 44 | 0,38 |
| 3 | 88,9 | 3 | 114 | 51 | 0,54 |
| 4 | 108 | | 152 | 64 | 1,05 |
| 6 | 159 | | 229 | 95 | 2,74 |
| SEAMLESS or SEAM WELDED | | | | | |
| 8 | 219,1 | 4,5 | 305 | 127 | 6,47 |
| 10 | 267 | 5,5 | 381 | 159 | 12,04 |
| 12 | 323,9 | 7 | 457 | 190 | 22,30 |
| SEAM WELDED | | | | | |
| 14 | 368 | 8 | 533 | 222 | 33,80 |
| 16 | 419,1 | 9 | 610 | 254 | 49,50 |
| 18 | 457,2 | 9,5 | 686 | 286 | 64,25 |
| 20 | 508 | 11 | 762 | 318 | 91,80 |
| 24 | 610 | 13 | 914 | 381 | 156,60 |
| 28 | 711 | 15 | 1067 | 438 | 245,40 |
| 32 | 813 | 17 | 1219 | 502 | 363,85 |
| 36 | 914 | 19 | 1372 | 565 | 513,13 |



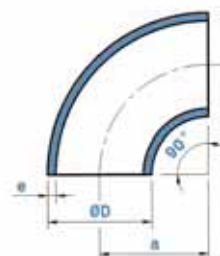
ELBOWS LONG RADIUS

R~1,5D-90°

10 BAR
■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86090



| Outside diameter of pipe OD | | Wall thickness e mm | Radius a mm | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|-------------------|-----------------------------------|
| nominal inch | actual mm | | | |
| SEAMLESS | | | | |
| 1/2 | 20 | 1,5 | 25 | 0,02 |
| 3/4 | 25 | | 27,5 | 0,04 |
| 1 | 30 | | 33,5 | 0,06 |
| 1 1/4 | 38 | | 45 | 0,10 |
| 1 1/2 | 44,5 | | 51 | 0,14 |
| 2 | 57 | | 72 | 0,26 |
| 2 1/2 | 76,1 | | 95 | 0,61 |
| 3 | 88,9 | 2 | 114,5 | 0,87 |
| | | ■ 2,5 | | 1,08 |
| 4 | 108 | 2,5 | 142,5 | 1,64 |
| | | ■ 3 | | 2,58 |
| 5 | 133 | 2,5 | 181 | 3,10 |
| | | ■ 3 | | 3,70 |
| 6 | 159 | 3 | 216 | 4,44 |
| | | ■ 3,5 | | 5,65 |
| 7 | 193,7 | 3 | 270 | 7,88 |
| | | ■ 3,5 | | 8,66 |
| 8 | 219,1 | 3 | 305 | 10,08 |
| | | ■ 3,5 | | |
| SEAMLESS or SEAM WELDED | | | | |
| 10 | 267 | 3 | 378 | 13,10 |
| | | ■ 4 | | 17,46 |
| 12 | 323,9 | 4 | 457 | 25,61 |
| | | ■ 5 | | 32,00 |
| 14 | 368 | 4 | 533,5 | 34,00 |
| | | ■ 5,5 | | 46,74 |
| SEAM WELDED | | | | |
| 16 | 419,1 | 4 | 609,5 | 39,40 |
| | | ■ 6 | | 66,40 |
| 18 | 457,2 | 4 | 686 | 48,40 |
| | | ■ 6 | | 72,63 |
| 20 | 508 | 4,5 | 762 | 75,62 |
| | | ■ 6,5 | | 125,70 |
| 24 | 610 | 5 | 915 | 121,24 |
| | | ■ 8 | | 194,00 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



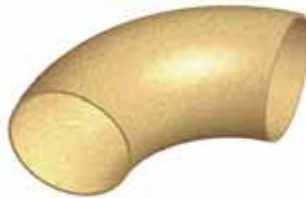
ELBOWS LONG RADIUS

R~1,5D-90°

16 BAR

Material: CuNi 90/10

Dimension: EEMUA Pub. N° 146



| Outside diameter of pipe OD | | Wall thickness e mm | Radius a mm | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|-------------------|-----------------------------------|
| nominal inch | actual mm | | | |
| SEAMLESS | | | | |
| 1 | 30 | 2,5 | 38 | 0,12 |
| 1 1/4 | 38 | | 48 | 0,18 |
| 1 1/2 | 44,5 | | 57 | 0,26 |
| 2 | 57 | | 76 | 0,46 |
| 2 1/2 | 76,1 | | 95 | 0,76 |
| 3 | 88,9 | | 114 | 1,08 |
| 4 | 108 | 3 | 152 | 2,10 |
| 6 | 159 | | 229 | 4,70 |
| SEAMLESS or SEAM WELDED | | | | |
| 8 | 219,1 | 4 | 305 | 11,50 |
| 10 | 267 | 4,5 | 381 | 19,70 |
| 12 | 323,9 | 5,5 | 457 | 35,06 |
| SEAM WELDED | | | | |
| 14 | 368 | 6,5 | 533 | 54,92 |
| 16 | 419,1 | 7 | 610 | 77,00 |
| 18 | 457,2 | 8 | 686 | 108,20 |
| 20 | 508 | 8,5 | 762 | 141,86 |
| 24 | 610 | 10,5 | 914 | 252,94 |
| 28 | 711 | 12 | 1067 | 392,60 |
| 32 | 813 | 13,5 | 1219 | 577,90 |
| 36 | 914 | 15,5 | 1372 | 837,20 |



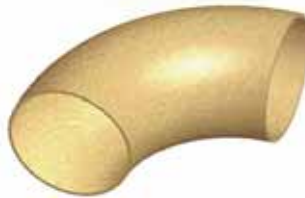
ELBOWS LONG RADIUS

R~1,5D-90°

20 BAR

Material: CuNi 90/10

Dimension: EEMUA Pub. N° 146



| Outside diameter of pipe OD | | Wall thickness e mm | Radius a mm | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|-------------------|-----------------------------------|
| nominal inch | actual mm | | | |
| SEAMLESS | | | | |
| 1 | 30 | 2,5 | 38 | 0,12 |
| 1 1/4 | 38 | | 48 | 0,18 |
| 1 1/2 | 44,5 | | 57 | 0,26 |
| 2 | 57 | | 76 | 0,46 |
| 2 1/2 | 76,1 | | 95 | 0,76 |
| 3 | 88,9 | | 114 | 1,08 |
| 4 | 108 | 3 | 152 | 2,10 |
| 6 | 159 | 3,5 | 229 | 5,48 |
| SEAMLESS or SEAM WELDED | | | | |
| 8 | 219,1 | 4,5 | 305 | 12,94 |
| 10 | 267 | 5,5 | 381 | 24,08 |
| 12 | 323,9 | 7 | 457 | 44,60 |
| SEAM WELDED | | | | |
| 14 | 368 | 8 | 533 | 67,60 |
| 16 | 419,1 | 9 | 610 | 99,00 |
| 18 | 457,2 | 9,5 | 686 | 128,50 |
| 20 | 508 | 11 | 762 | 183,60 |
| 24 | 610 | 13 | 914 | 313,30 |
| 28 | 711 | 15 | 1067 | 490,80 |
| 32 | 813 | 17 | 1219 | 727,70 |
| 36 | 914 | 19 | 1372 | 1026,26 |

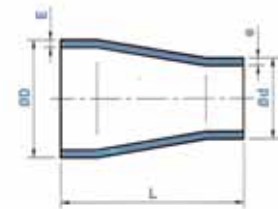


CONCENTRIC REDUCERS

10 BAR
 ■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86089



| OD x Od | | Outside diameter | | Wall thickness | | Length L mm | Theoretical weight Kg/piece | | |
|----------|---|------------------|--------------|----------------|---------|-------------------|--------------------------------|-----|-------|
| | | nominal inch | actual mm | E mm | e mm | | | | |
| SEAMLESS | | | | | | | | | |
| 1/2 | x | 3/8 | 20 | x | 16 | 1 | 1 | 30 | 0,01 |
| 3/4 | x | 3/8 | 25 | x | 16 | 1,5 | 1 | 30 | 0,02 |
| | x | 1/2 | | x | 20 | | | | 0,03 |
| 1 | x | 3/8 | 30 | x | 16 | 1,5 | 1 | 35 | 0,03 |
| | x | 1/2 | | x | 20 | | | | 0,04 |
| | x | 3/4 | | x | 25 | | | | 0,05 |
| 1 1/4 | x | 3/8 | 38 | x | 16 | 1,5 | 1 | 50 | 0,05 |
| | x | 1/2 | | x | 20 | | | | 0,06 |
| | x | 3/4 | | x | 25 | | | | 0,07 |
| | x | 1 | | x | 30 | | | | 0,08 |
| 1 1/2 | x | 1/2 | 44,5 | x | 20 | 1,5 | 1 | 80 | 0,09 |
| | x | 3/4 | | x | 25 | | | | 0,11 |
| | x | 1 | | x | 30 | | | | 0,12 |
| | x | 1 1/4 | | x | 38 | | | | 0,13 |
| 2 | x | 3/4 | 57 | x | 25 | 1,5 | 1,5 | 80 | 0,13 |
| | x | 1 | | x | 30 | | | | 0,14 |
| | x | 1 1/4 | | x | 38 | | | | 0,15 |
| | x | 1 1/2 | | x | 44,5 | | | | 0,16 |
| 2 1/2 | x | 1 | 76,1 | x | 30 | 2 | 1,5 | 90 | 0,24 |
| | x | 1 1/4 | | x | 38 | | | | 0,25 |
| | x | 1 1/2 | | x | 44,5 | | | | 0,26 |
| | x | 2 | | x | 57 | | | | 0,29 |
| 3 | x | 1 1/4 | 88,9 | x | 38 | 2 | 1,5 | 90 | 0,29 |
| | x | 1 1/2 | | x | 44,5 | | | | 0,30 |
| | x | 2 | | x | 57 | | | | 0,32 |
| | x | 2 1/2 | | x | 76,1 | | | | 0,40 |
| 3 | x | 1 1/4 | 88,9 | x | 38 | ■ 2,5 | 1,5 | 90 | 0,33 |
| | x | 1 1/2 | | x | 44,5 | | | | 0,35 |
| | x | 2 | | x | 57 | | | | 0,38 |
| | x | 2 1/2 | | x | 76,1 | | | | 0,48 |
| 4 | x | 1 1/2 | 108 | x | 44,5 | 2,5 | 1,5 | 100 | 0,46 |
| | x | 2 | | x | 57 | | | | 0,48 |
| | x | 2 1/2 | | x | 76,1 | | | | 0,57 |
| | x | 3 | | x | 88,9 | | | | 0,61 |
| | x | 3 | | x | 88,9 | | | | ■ 2,5 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

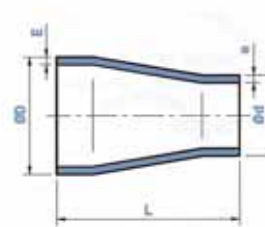


CONCENTRIC REDUCERS

10 BAR ■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86089



| OD x Od | | Outside diameter | | Wall thickness | | Length L mm | Theoretical weight Kg/piece |
|-----------------|---------|------------------|--------------|----------------|---------|-------------------|--------------------------------|
| | | nominal inch | actual mm | E mm | e mm | | |
| SEAMLESS | | | | | | | |
| 5 | x 2 | 133 | x 57 | 2,5 | 1,5 | 140 | 0,80 |
| | x 2 1/2 | | x 76,1 | | 2 | | 0,93 |
| | x 3 | | x 88,9 | | 2 | | 0,98 |
| | x 4 | | x 108 | | 2,5 | | 1,16 |
| 5 | x 2 | 133 | x 57 | ■ 3 | 1,5 | 140 | 0,86 |
| | x 2 1/2 | | x 76,1 | | ■ 2,5 | | 1,06 |
| | x 3 | | x 88,9 | | 2,5 | | 1,13 |
| | x 4 | | x 108 | | 2,5 | | 1,34 |
| 6 | x 2 1/2 | 159 | x 76,1 | 2,5 | 2 | 150 | 1,13 |
| | x 3 | | x 88,9 | | 2 | | 1,19 |
| | x 4 | | x 108 | | 2,5 | | 1,38 |
| | x 5 | | x 133 | | 2,5 | | 1,51 |
| 6 | x 2 1/2 | 159 | x 76,1 | ■ 3 | 2 | 150 | 1,35 |
| | x 3 | | x 88,9 | | ■ 2,5 | | 1,42 |
| | x 4 | | x 108 | | 2,5 | | 1,65 |
| | x 5 | | x 133 | | ■ 3 | | 1,81 |
| 7 | x 3 | 193,7 | x 88,9 | 3 | 2 | 155 | 1,39 |
| | x 4 | | x 108 | | 2,5 | | 1,58 |
| | x 5 | | x 133 | | 2,5 | | 1,71 |
| | x 6 | | x 159 | | 2,5 | | 1,86 |
| 7 | x 3 | 193,7 | x 88,9 | ■ 3,5 | ■ 2,5 | 155 | 1,94 |
| | x 4 | | x 108 | | 2,5 | | 2,21 |
| | x 5 | | x 133 | | ■ 3 | | 2,39 |
| | x 6 | | x 159 | | ■ 3 | | 2,60 |
| 8 | x 4 | 219,1 | x 108 | 3 | 2,5 | 155 | 2,47 |
| | x 5 | | x 133 | | 2,5 | | 2,60 |
| | x 6 | | x 159 | | 2,5 | | 2,74 |
| | x 7 | | x 193,7 | | 3 | | 2,93 |
| 8 | x 4 | 219,1 | x 108 | ■ 3,5 | 2,5 | 155 | 2,88 |
| | x 5 | | x 133 | | ■ 3 | | 3,03 |
| | x 6 | | x 159 | | ■ 3 | | 3,20 |
| | x 7 | | x 193,7 | | ■ 3,5 | | 3,42 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

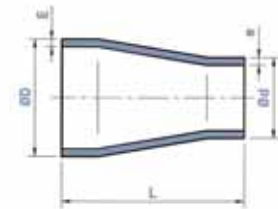


CONCENTRIC REDUCERS

10 BAR
■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86089



| OD x Od | | Outside diameter | | Wall thickness | | Length L mm | Theoretical weight Kg/piece |
|----------|------|------------------|--------------|----------------|---------|-------------------|--------------------------------|
| | | nominal inch | actual mm | E mm | e mm | | |
| SEAMLESS | | | | | | | |
| 10 | x 5 | 267 | x 133 | 3 | 2,5 | 210 | 3,30 |
| | x 6 | | x 159 | | 2,5 | | 3,49 |
| | x 7 | | x 193,7 | | 3 | | 3,75 |
| | x 8 | | x 219,1 | | 3 | | 4,25 |
| 10 | x 5 | 267 | x 133 | ■ 4 | ■ 3 | 210 | 4,40 |
| | x 6 | | x 159 | | ■ 3 | | 4,65 |
| | x 7 | | x 193,7 | | ■ 3,5 | | 5,00 |
| | x 8 | | x 219,1 | | ■ 3,5 | | 5,65 |
| 12 | x 7 | 323,9 | x 193,7 | 4 | 3 | 210 | 6,02 |
| | x 8 | | x 219,1 | | 3 | | 6,30 |
| | x 10 | | x 267 | | 3 | | 6,88 |
| 14 | x 8 | 368 | x 219,1 | 4 | 3 | 300 | 9,76 |
| | x 10 | | x 267 | | 3 | | 10,57 |
| | x 12 | | x 323,9 | | 4 | | 11,53 |
| 16 | x 10 | 419,1 | x 267 | 4 | 3 | 300 | 12,38 |
| | x 12 | | x 323,9 | | 4 | | 13,42 |
| | x 14 | | x 368 | | 4 | | 14,22 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

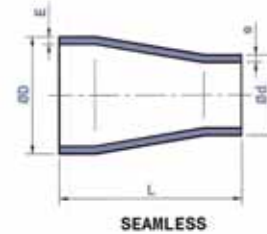


CONCENTRIC REDUCERS

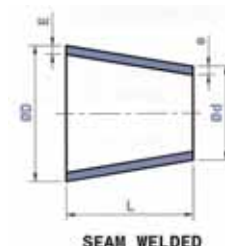
10 BAR
 ■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86089



SEAMLESS



SEAM WELDED

| OD x Od | Outside diameter | | Wall thickness | | Length | Theoretical weight |
|-------------------------|------------------|-----------|----------------|-------|--------|--------------------|
| | nominal inch | actual mm | E mm | e mm | | |
| SEAMLESS or SEAM WELDED | | | | | | |
| 12 | x 5 | 323,9 | 4 | 2,5 | 210 | 5,30 |
| | x 6 | | | 2,5 | | 5,60 |
| 12 | x 5 | 323,9 | ■ 5 | ■ 3 | 210 | 6,62 |
| | x 6 | | | ■ 3 | | 7,00 |
| | x 7 | | | ■ 3,5 | | 7,52 |
| | x 8 | | | ■ 3,5 | | 7,90 |
| 14 | x 6 | 368 | 4 | 2,5 | 300 | 8,75 |
| | x 7 | | | 2,5 | | 9,34 |
| 14 | x 6 | 368 | ■ 5,5 | ■ 3 | 300 | 12,03 |
| | x 7 | | | ■ 3 | | 12,84 |
| | x 8 | | | ■ 3,5 | | 13,42 |
| | x 10 | | | ■ 4 | | 14,53 |
| 16 | x 7 | 419,1 | 4 | 2,5 | 325 | 11,04 |
| | x 8 | | | 3 | | 11,50 |
| 16 | x 7 | 419,1 | ■ 6 | ■ 3,5 | 325 | 16,56 |
| | x 8 | | | ■ 3,5 | | 17,25 |
| | x 10 | | | ■ 4 | | 18,57 |
| | x 12 | | | ■ 5 | | 20,13 |
| | x 14 | | | ■ 5,5 | | 21,33 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

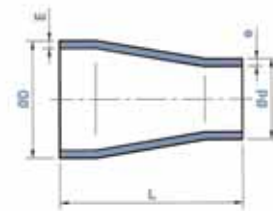


CONCENTRIC REDUCERS

16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter | | | | Wall thickness | | Length L mm | Theoretical weight Kg/piece |
|----------------------------|---------|-------------------------|--------|----------------|---------|-------------------|--------------------------------|
| ØD x Ød nominal inch | | ØD x Ød actual mm | | E mm | e mm | | |
| SEAMLESS | | | | | | | |
| 1 | x 3/4 | 30 | x 25 | 2,5 | 2 | 51 | 0,09 |
| 1 1/4 | x 3/4 | 38 | x 25 | 2,5 | 2 | 51 | 0,10 |
| | x 1 | | x 30 | | 2,5 | | 0,11 |
| 1 1/2 | x 3/4 | 44,5 | x 25 | 2,5 | 2 | 64 | 0,14 |
| | x 1 | | x 30 | | 2,5 | | 0,15 |
| | x 1 1/4 | | x 38 | | 2,5 | | 0,17 |
| 2 | x 1 | 57 | x 30 | 2,5 | 2,5 | 76 | 0,21 |
| | x 1 1/4 | | x 38 | | 2,5 | | 0,23 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 0,25 |
| 2 1/2 | x 1 1/4 | 76,1 | x 38 | 2,5 | 2,5 | 89 | 0,34 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 0,36 |
| | x 2 | | x 57 | | 2,5 | | 0,40 |
| 3 | x 1 1/2 | 88,9 | x 44,5 | 2,5 | 2,5 | 89 | 0,40 |
| | x 2 | | x 57 | | 2,5 | | 0,44 |
| | x 2 1/2 | | x 76,1 | | 2,5 | | 0,50 |
| 4 | x 2 | 108 | x 57 | 3 | 2,5 | 102 | 0,68 |
| | x 2 1/2 | | x 76,1 | | 2,5 | | 0,76 |
| | x 3 | | x 88,9 | | 2,5 | | 0,82 |
| 6 | x 2 | 159 | x 57 | 3 | 2,5 | 140 | 1,30 |
| | x 2 1/2 | | x 76,1 | | 2,5 | | 1,35 |
| | x 3 | | x 88,9 | | 2,5 | | 1,42 |
| | x 4 | | x 108 | | 3 | | 1,54 |

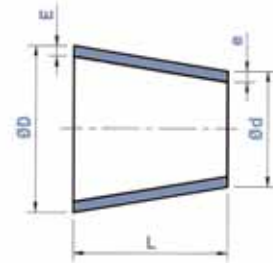


CONCENTRIC REDUCERS

10 BAR
 ■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86090



| OD x Od | | Outside diameter | | Wall thickness | | Length L mm | Theoretical weight Kg/piece |
|--------------------|------|------------------|--------------|----------------|---------|-------------------|--------------------------------|
| | | nominal inch | actual mm | E mm | e mm | | |
| SEAM WELDED | | | | | | | |
| 18 | x 8 | 457,2 | x 219,1 | 4 | 3 | 350 | 13,14 |
| | x 10 | | x 267 | | 3 | | 14,08 |
| | x 12 | | x 323,9 | | 4 | | 15,20 |
| | x 14 | | x 368 | | 4 | | 16,06 |
| | x 16 | | x 419,1 | | 4 | | 17,07 |
| 18 | x 8 | 457,2 | x 219,1 | ■ 6 | ■ 3,5 | 350 | 19,70 |
| | x 10 | | x 267 | | ■ 4 | | 21,10 |
| | x 12 | | x 323,9 | | ■ 5 | | 22,80 |
| | x 14 | | x 368 | | ■ 5,5 | | 24,10 |
| | x 16 | | x 419,1 | | ■ 6 | | 25,80 |
| 20 | x 10 | 508 | x 267 | 4,5 | 3 | 375 | 18,07 |
| | x 12 | | x 323,9 | | 4 | | 19,42 |
| | x 14 | | x 368 | | 4 | | 20,47 |
| | x 16 | | x 419,1 | | 4 | | 21,68 |
| | x 18 | | x 457,2 | | 4 | | 22,57 |
| 20 | x 10 | 508 | x 267 | ■ 6,5 | ■ 4 | 375 | 26,10 |
| | x 12 | | x 323,9 | | ■ 5 | | 28,05 |
| | x 14 | | x 368 | | ■ 5,5 | | 29,60 |
| | x 16 | | x 419,1 | | ■ 6 | | 31,30 |
| | x 18 | | x 457,2 | | ■ 6 | | 32,60 |
| 24 | x 14 | 610 | x 368 | 5 | 4 | 400 | 27,19 |
| | x 16 | | x 419,1 | | 4 | | 28,62 |
| | x 18 | | x 457,2 | | 4 | | 29,69 |
| | x 20 | | x 508 | | 4,5 | | 31,12 |
| 24 | x 14 | 610 | x 368 | ■ 8 | ■ 5,5 | 400 | 43,50 |
| | x 16 | | x 419,1 | | ■ 6 | | 45,80 |
| | x 18 | | x 457,2 | | ■ 6 | | 47,50 |
| | x 20 | | x 508 | | ■ 6,5 | | 49,80 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

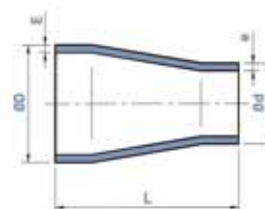


CONCENTRIC REDUCERS

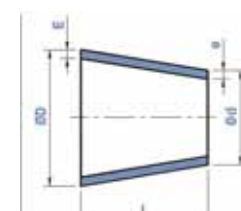
16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



SEAMLESS



SEAM WELDED

| Outside diameter | | Wall thickness | | Length L mm | Theoretical weight Kg/piece |
|----------------------------|-------------------------|----------------|---------|-------------------|--------------------------------|
| OD x Od nominal inch | OD x Od actual mm | E mm | e mm | | |
| SEAMLESS or SEAM WELDED | | | | | |
| 8 | x 2 1/2 | 219,1 | 4 | 152 | 2,5 |
| | x 3 | | | | 2,5 |
| | x 4 | | | | 3 |
| | x 6 | | | | 3 |
| 10 | x 4 | 267 | 4,5 | 178 | 3 |
| | x 6 | | | | 4 |
| | x 8 | | | | 3 |
| 12 | x 6 | 323,9 | 5,5 | 203 | 3 |
| | x 8 | | | | 4 |
| | x 10 | | | | 4,5 |
| 14 | x 8 | 368 | 6,5 | 330 | 4 |
| | x 10 | | | | 4,5 |
| | x 12 | | | | 5,5 |
| 16 | x 10 | 419,1 | 7 | 356 | 4,5 |
| | x 12 | | | | 5,5 |
| | x 14 | | | | 6,5 |
| SEAM WELDED | | | | | |
| 18 | x 12 | 457,2 | 8 | 381 | 5,5 |
| | x 14 | | | | 6,5 |
| | x 16 | | | | 7 |
| 20 | x 14 | 508 | 8,5 | 508 | 6,5 |
| | x 16 | | | | 7 |
| | x 18 | | | | 8 |
| 24 | x 16 | 610 | 10,5 | 508 | 7 |
| | x 18 | | | | 8 |
| | x 20 | | | | 8,5 |
| 28 | x 18 | 711 | 12 | 610 | 8 |
| | x 20 | | | | 8,5 |
| | x 24 | | | | 10,5 |
| 32 | x 24 | 813 | 13,5 | 610 | 10,5 |
| | x 28 | | | | 12 |
| 36 | x 24 | 914 | 15,5 | 610 | 10,5 |
| | x 28 | | | | 12 |
| | x 32 | | | | 13,5 |

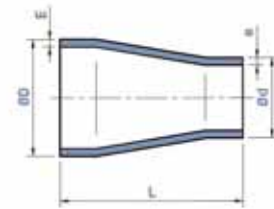


CONCENTRIC REDUCERS

20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter | | | | Wall thickness | | Length L mm | Theoretical weight Kg/piece | | |
|----------------------------|---|-------------------------|------|----------------|---------|-------------------|--------------------------------|-----|------|
| OD x Od nominal inch | | OD x Od actual mm | | E mm | e mm | | | | |
| SEAMLESS | | | | | | | | | |
| 1 | x | 3/4 | 30 | x | 25 | 2,5 | 2 | 51 | 0,09 |
| 1 1/4 | x | 3/4 | 38 | x | 25 | 2,5 | 2 | 51 | 0,10 |
| | x | 1 | | x | 30 | | 2,5 | | 0,11 |
| 1 1/2 | x | 3/4 | 44,5 | x | 25 | 2,5 | 2 | 64 | 0,14 |
| | x | 1 | | x | 30 | | 2,5 | | 0,15 |
| | x | 1 1/4 | | x | 38 | | 2,5 | | 0,17 |
| 2 | x | 1 | 57 | x | 30 | 2,5 | 2,5 | 76 | 0,21 |
| | x | 1 1/4 | | x | 38 | | 2,5 | | 0,23 |
| | x | 1 1/2 | | x | 44,5 | | 2,5 | | 0,25 |
| 2 1/2 | x | 1 1/4 | 76,1 | x | 38 | 2,5 | 2,5 | 89 | 0,34 |
| | x | 1 1/2 | | x | 44,5 | | 2,5 | | 0,36 |
| | x | 2 | | x | 57 | | 2,5 | | 0,40 |
| 3 | x | 1 1/2 | 88,9 | x | 44,5 | 2,5 | 2,5 | 89 | 0,40 |
| | x | 2 | | x | 57 | | 2,5 | | 0,44 |
| | x | 2 1/2 | | x | 76,1 | | 2,5 | | 0,50 |
| 4 | x | 2 | 108 | x | 57 | 3 | 2,5 | 102 | 0,68 |
| | x | 2 1/2 | | x | 76,1 | | 2,5 | | 0,76 |
| | x | 3 | | x | 88,9 | | 2,5 | | 0,82 |
| 6 | x | 2 | 159 | x | 57 | 3,5 | 2,5 | 140 | 1,50 |
| | x | 2 1/2 | | x | 76,1 | | 2,5 | | 1,56 |
| | x | 3 | | x | 88,9 | | 2,5 | | 1,65 |
| | x | 4 | | x | 108 | | 3 | | 1,78 |

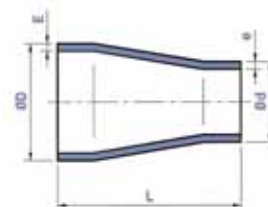


CONCENTRIC REDUCERS

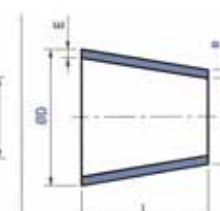
20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



SEAMLESS



SEAM WELDED

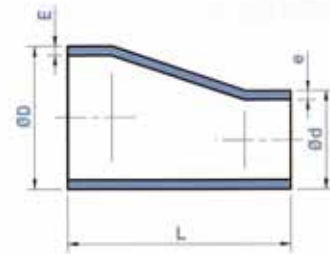
| Outside diameter | | Outside diameter | | Wall thickness | | Length | Theoretical weight |
|--------------------------------|---------|------------------|---------|----------------|-----|--------|--------------------|
| | | | | E | e | | |
| OD x Od | nominal | OD x Od | actual | mm | mm | L | Kg/piece |
| inch | | mm | mm | | | mm | |
| SEAMLESS or SEAM WELDED | | | | | | | |
| 8 | x 2 1/2 | 219,1 | x 76,1 | 4,5 | 2,5 | 152 | 2,74 |
| | x 3 | | x 88,9 | | 2,5 | | 2,87 |
| | x 4 | | x 108 | | 3 | | 3,05 |
| | x 6 | | x 159 | | 3,5 | | 3,54 |
| 10 | x 4 | 267 | x 108 | 5,5 | 3 | 178 | 5,00 |
| | x 6 | | x 159 | | 3,5 | | 5,70 |
| | x 8 | | x 219,1 | | 4,5 | | 6,53 |
| 12 | x 6 | 323,9 | x 159 | 7 | 3,5 | 203 | 9,35 |
| | x 8 | | x 219,1 | | 4,5 | | 10,55 |
| | x 10 | | x 267 | | 5,5 | | 11,52 |
| 14 | x 8 | 368 | x 219,1 | 8 | 4,5 | 330 | 21,16 |
| | x 10 | | x 267 | | 5,5 | | 22,95 |
| | x 12 | | x 323,9 | | 7 | | 25,06 |
| 16 | x 10 | 419,1 | x 267 | 9 | 5,5 | 356 | 30,05 |
| | x 12 | | x 323,9 | | 7 | | 32,62 |
| | x 14 | | x 368 | | 8 | | 34,60 |
| SEAM WELDED | | | | | | | |
| 18 | x 12 | 457,2 | x 323,9 | 9,5 | 7 | 381 | 38,85 |
| | x 14 | | x 368 | | 8 | | 41,10 |
| | x 16 | | x 419,1 | | 9 | | 43,70 |
| 20 | x 14 | 508 | x 368 | 11 | 8 | 508 | 67,38 |
| | x 16 | | x 419,1 | | 9 | | 71,39 |
| | x 18 | | x 457,2 | | 9,5 | | 74,38 |
| 24 | x 16 | 610 | x 419,1 | 13 | 9 | 508 | 93,46 |
| | x 18 | | x 457,2 | | 9,5 | | 96,99 |
| | x 20 | | x 508 | | 11 | | 101,70 |
| 28 | x 18 | 711 | x 457,2 | 15 | 9,5 | 610 | 146,97 |
| | x 20 | | x 508 | | 11 | | 153,52 |
| | x 24 | | x 610 | | 13 | | 166,62 |
| 32 | x 24 | 813 | x 610 | 17 | 13 | 610 | 203,26 |
| | x 28 | | x 711 | | 15 | | 217,96 |
| | x 24 | | x 610 | | 13 | | 336,45 |
| 36 | x 28 | 914 | x 711 | 19 | 15 | 610 | 352,89 |
| | x 32 | | x 813 | | 17 | | 369,49 |



ECCENTRIC REDUCERS

10 BAR
 ■ and 14 Bar

Material: CuNi 90/10



| OD x Od | | Outside diameter | | OD x Od | | Wall thickness | | Length L mm | Theoretical weight Kg/piece |
|-----------------|---|------------------|--------------|---------|------|----------------|---------|-------------------|--------------------------------|
| | | nominal inch | actual mm | | | E mm | e mm | | |
| SEAMLESS | | | | | | | | | |
| 1/2 | x | 3/8 | 20 | x | 16 | 1 | 1 | 30 | 0,01 |
| 3/4 | x | 3/8 | 25 | x | 16 | 1,5 | 1 | 30 | 0,02 |
| | x | 1/2 | | x | 20 | | 1 | | 0,03 |
| 1 | x | 3/8 | 30 | x | 16 | 1,5 | 1 | 35 | 0,03 |
| | x | 1/2 | | x | 20 | | 1 | | 0,04 |
| | x | 3/4 | | x | 25 | | 1,5 | | 0,05 |
| 1 1/4 | x | 3/8 | 38 | x | 16 | 1,5 | 1 | 50 | 0,05 |
| | x | 1/2 | | x | 20 | | 1 | | 0,06 |
| | x | 3/4 | | x | 25 | | 1,5 | | 0,07 |
| | x | 1 | | x | 30 | | 1,5 | | 0,08 |
| 1 1/2 | x | 1/2 | 44,5 | x | 20 | 1,5 | 1 | 80 | 0,09 |
| | x | 3/4 | | x | 25 | | 1,5 | | 0,11 |
| | x | 1 | | x | 30 | | 1,5 | | 0,12 |
| | x | 1 1/4 | | x | 38 | | 1,5 | | 0,13 |
| 2 | x | 3/4 | 57 | x | 25 | 1,5 | 1,5 | 80 | 0,13 |
| | x | 1 | | x | 30 | | 1,5 | | 0,14 |
| | x | 1 1/4 | | x | 38 | | 1,5 | | 0,15 |
| | x | 1 1/2 | | x | 44,5 | | 1,5 | | 0,16 |
| 2 1/2 | x | 1 | 76,1 | x | 30 | 2 | 1,5 | 90 | 0,24 |
| | x | 1 1/4 | | x | 38 | | 1,5 | | 0,25 |
| | x | 1 1/2 | | x | 44,5 | | 1,5 | | 0,26 |
| | x | 2 | | x | 57 | | 1,5 | | 0,29 |
| 3 | x | 1 1/4 | 88,9 | x | 38 | 2 | 1,5 | 90 | 0,29 |
| | x | 1 1/2 | | x | 44,5 | | 1,5 | | 0,30 |
| | x | 2 | | x | 57 | | 1,5 | | 0,32 |
| | x | 2 1/2 | | x | 76 | | 2 | | 0,40 |
| 3 | x | 1 1/4 | 88,9 | x | 38 | ■ 2,5 | 1,5 | 90 | 0,29 |
| | x | 1 1/2 | | x | 44,5 | | 1,5 | | 0,30 |
| | x | 2 | | x | 57 | | 1,5 | | 0,32 |
| | x | 2 1/2 | | x | 76,1 | | 2 | | 0,40 |
| 4 | x | 1 1/2 | 108 | x | 44,5 | 2,5 | 1,5 | 100 | 0,46 |
| | x | 2 | | x | 57 | | 1,5 | | 0,48 |
| | x | 2 1/2 | | x | 76,1 | | 2 | | 0,57 |
| | x | 3 | | x | 88,9 | | 2 | | 0,61 |
| | x | 3 | | x | 88,9 | | ■ 2,5 | | 0,61 |

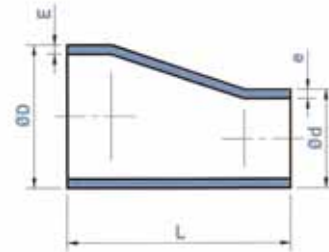
• Other dimensions, wall thicknesses and outside diameters are also available upon request.



ECCENTRIC REDUCERS

10 BAR
 ■ and 14 Bar

Material: CuNi 90/10



| OD x Od | | Outside diameter | | Wall thickness | | Length L mm | Theoretical weight Kg/piece |
|----------|---------|------------------|--------------|----------------|---------|-------------------|--------------------------------|
| | | nominal inch | actual mm | E mm | e mm | | |
| SEAMLESS | | | | | | | |
| 5 | x 2 | 133 | x 57 | 2,5 | 1,5 | 140 | 0,80 |
| | x 2 1/2 | | x 76,1 | | 2 | | 0,93 |
| | x 3 | | x 88,9 | | 2 | | 0,98 |
| | x 4 | | x 108 | | 2,5 | | 1,16 |
| 5 | x 2 | 133 | x 57 | ■ 3 | 1,5 | 140 | 0,86 |
| | x 2 1/2 | | x 76,1 | | ■ 2,5 | | 1,06 |
| | x 3 | | x 88,9 | | 2,5 | | 1,13 |
| | x 4 | | x 108 | | 2,5 | | 1,34 |
| 6 | x 2 1/2 | 159 | x 76,1 | 2,5 | 2 | 150 | 1,13 |
| | x 3 | | x 88,9 | | 2 | | 1,19 |
| | x 4 | | x 108 | | 2,5 | | 1,38 |
| | x 5 | | x 133 | | 2,5 | | 1,51 |
| 6 | x 2 1/2 | 159 | x 76,1 | ■ 3 | 2 | 150 | 1,35 |
| | x 3 | | x 88,9 | | ■ 2,5 | | 1,42 |
| | x 4 | | x 108 | | 2,5 | | 1,65 |
| | x 5 | | x 133 | | ■ 3 | | 1,81 |
| 7 | x 3 | 193,7 | x 88,9 | 3 | 2 | 155 | 1,39 |
| | x 4 | | x 108 | | 2,5 | | 1,58 |
| | x 5 | | x 133 | | 2,5 | | 1,71 |
| | x 6 | | x 159 | | 2,5 | | 1,85 |
| 7 | x 3 | 193,7 | x 88,9 | ■ 3,5 | ■ 2,5 | 155 | 1,94 |
| | x 4 | | x 108 | | 2,5 | | 2,21 |
| | x 5 | | x 133 | | ■ 3 | | 2,39 |
| | x 6 | | x 159 | | ■ 3 | | 2,60 |
| 8 | x 4 | 219,1 | x 108 | 3 | 2,5 | 155 | 2,47 |
| | x 5 | | x 133 | | 2,5 | | 2,60 |
| | x 6 | | x 159 | | 2,5 | | 2,74 |
| | x 7 | | x 193,7 | | 3 | | 2,93 |
| 8 | x 4 | 219,1 | x 108 | ■ 3,5 | 2 | 155 | 2,88 |
| | x 5 | | x 133 | | ■ 3 | | 3,03 |
| | x 6 | | x 159 | | ■ 3 | | 3,20 |
| | x 7 | | x 193,7 | | ■ 3,5 | | 3,42 |

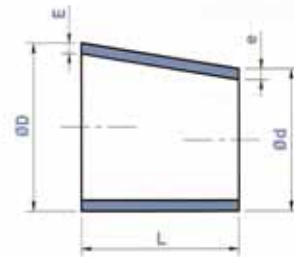
• Other dimensions, wall thicknesses and outside diameters are also available upon request.



ECCENTRIC REDUCERS

10 BAR
 ■ and 14 Bar

Material: CuNi 90/10



| ØD x Ød | | Outside diameter | | Wall thickness | | Length L mm | Theoretical weight Kg/piece |
|--------------------|------|------------------|--------------|----------------|---------|-------------------|--------------------------------|
| | | nominal inch | actual mm | E mm | e mm | | |
| SEAM WELDED | | | | | | | |
| 10 | x 5 | 267 | x 133 | 3 | 2,5 | 210 | 3,30 |
| | x 6 | | x 159 | | 2,5 | | 3,49 |
| | x 7 | | x 193,7 | | 3 | | 3,75 |
| | x 8 | | x 219,1 | | 3 | | 4,25 |
| 10 | x 5 | 267 | x 133 | ■ 4 | ■ 3 | 210 | 4,40 |
| | x 6 | | x 159 | | ■ 3 | | 4,65 |
| | x 7 | | x 193,7 | | ■ 3,5 | | 5,00 |
| | x 8 | | x 219,1 | | ■ 3,5 | | 5,65 |
| 12 | x 5 | 323,9 | x 133 | 4 | 2,5 | 210 | 5,30 |
| | x 6 | | x 159 | | 2,5 | | 5,60 |
| | x 7 | | x 193,7 | | 3 | | 6,02 |
| | x 8 | | x 219,1 | | 3 | | 6,30 |
| | x 10 | | x 267 | | 3 | | 6,88 |
| 12 | x 5 | 323,9 | x 133 | ■ 5 | ■ 3 | 210 | 6,62 |
| | x 6 | | x 159 | | ■ 3 | | 7,00 |
| | x 7 | | x 193,7 | | ■ 3,5 | | 7,52 |
| | x 8 | | x 219,1 | | ■ 3,5 | | 7,90 |
| | x 10 | | x 267 | | ■ 4 | | 8,60 |
| 14 | x 6 | 368 | x 159 | 4 | 2,5 | 300 | 8,75 |
| | x 7 | | x 193,7 | | 3 | | 9,34 |
| | x 8 | | x 219,1 | | 3 | | 9,76 |
| | x 10 | | x 267 | | 3 | | 10,57 |
| | x 12 | | x 323,3 | | 4 | | 11,53 |
| 14 | x 6 | 368 | x 159 | ■ 5,5 | ■ 3 | 300 | 12,03 |
| | x 7 | | x 193,7 | | ■ 3,5 | | 12,84 |
| | x 8 | | x 219,1 | | ■ 3,5 | | 13,42 |
| | x 10 | | x 267 | | ■ 4 | | 14,53 |
| | x 12 | | x 323,3 | | ■ 5 | | 15,85 |
| 16 | x 7 | 419,1 | x 193,7 | 4 | 3 | 325 | 11,04 |
| | x 8 | | x 219,1 | | 3 | | 11,50 |
| | x 10 | | x 267 | | 3 | | 12,38 |
| | x 12 | | x 323,9 | | 4 | | 13,42 |
| | x 14 | | x 368 | | 4 | | 14,22 |

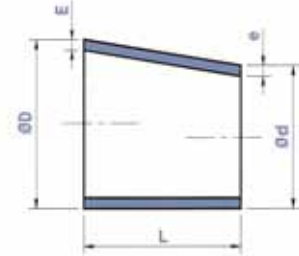
• Other dimensions, wall thicknesses and outside diameters are also available upon request.



ECCENTRIC REDUCERS

10 BAR
■ and 14 Bar

Material: CuNi 90/10



| Outside diameter | | Wall thickness | | Length | Theoretical weight | | |
|--------------------|------|----------------|---------|--------|--------------------|---------|---------|
| | | | | | | OD x Od | OD x Od |
| nominal | inch | actual | mm | mm | | | |
| SEAM WELDED | | | | | | | |
| 16 | x 7 | 419,1 | x 193,7 | ■ 6 | ■ 3,5 | 325 | 16,56 |
| | x 8 | | x 219,1 | | ■ 3,5 | | 17,25 |
| | x 10 | | x 267 | | ■ 4 | | 18,57 |
| | x 12 | | x 323,9 | | ■ 5 | | 20,13 |
| | x 14 | | x 368 | | ■ 5,5 | | 21,33 |
| 18 | x 8 | 457,2 | x 219,1 | 4 | 3 | 350 | 13,14 |
| | x 10 | | x 267 | | 3 | | 14,08 |
| | x 12 | | x 323,9 | | 4 | | 15,20 |
| | x 14 | | x 368 | | 4 | | 16,06 |
| | x 16 | | x 419,1 | | 4 | | 17,07 |
| 18 | x 8 | 457,2 | x 219,1 | ■ 6 | ■ 3,5 | 350 | 19,70 |
| | x 10 | | x 267 | | ■ 4 | | 21,10 |
| | x 12 | | x 323,9 | | ■ 5 | | 22,80 |
| | x 14 | | x 368 | | ■ 5,5 | | 24,10 |
| | x 16 | | x 419,1 | | ■ 6 | | 25,60 |
| 20 | x 10 | 508 | x 267 | 4,5 | 3 | 375 | 18,07 |
| | x 12 | | x 323,9 | | 4 | | 19,42 |
| | x 14 | | x 368 | | 4 | | 20,47 |
| | x 16 | | x 419,1 | | 4 | | 21,68 |
| | x 18 | | x 457,2 | | 4 | | 22,57 |
| 20 | x 10 | 508 | x 267 | ■ 6,5 | ■ 4 | 375 | 26,10 |
| | x 12 | | x 323,9 | | ■ 5 | | 28,05 |
| | x 14 | | x 368 | | ■ 5,5 | | 29,60 |
| | x 16 | | x 419,1 | | ■ 6 | | 31,30 |
| | x 18 | | x 457,2 | | ■ 6 | | 32,60 |
| 24 | x 14 | 610 | x 368 | 5 | 4 | 400 | 27,19 |
| | x 16 | | x 419,1 | | 4 | | 28,62 |
| | x 18 | | x 457,2 | | 4 | | 29,69 |
| | x 20 | | x 508 | | 4,5 | | 31,12 |
| 24 | x 14 | 610 | x 368 | ■ 8 | ■ 5,5 | 400 | 43,50 |
| | x 16 | | x 419,1 | | ■ 6 | | 45,80 |
| | x 18 | | x 457,2 | | ■ 6 | | 47,50 |
| | x 20 | | x 508 | | ■ 6,5 | | 49,80 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

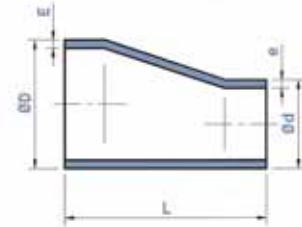


ECCENTRIC REDUCERS

16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| ØD x Ød | | Outside diameter | | Wall thickness | | Length | Theoretical weight |
|----------|---------|------------------|-----------|----------------|-----|--------|--------------------|
| | | nominal inch | actual mm | | | | |
| SEAMLESS | | | | | | | |
| 1 | x 3/4 | 30 | x 25 | 2,5 | 2 | 51 | 0,09 |
| 1 1/4 | x 3/4 | 38 | x 25 | 2,5 | 2 | 51 | 0,10 |
| | x 1 | | x 30 | | 2,5 | | 0,11 |
| 1 1/2 | x 3/4 | 44,5 | x 25 | 2,5 | 2 | 64 | 0,14 |
| | x 1 | | x 30 | | 2,5 | | 0,15 |
| | x 1 1/4 | | x 38 | | 2,5 | | 0,17 |
| 2 | x 1 | 57 | x 30 | 2,5 | 2,5 | 76 | 0,21 |
| | x 1 1/4 | | x 38 | | 2,5 | | 0,23 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 0,25 |
| 2 1/2 | x 1 1/4 | 76,1 | x 38 | 2,5 | 2,5 | 89 | 0,34 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 0,36 |
| | x 2 | | x 57 | | 2,5 | | 0,40 |
| 3 | x 1 1/2 | 88,9 | x 44,5 | 2,5 | 2,5 | 89 | 0,40 |
| | x 2 | | x 57 | | 2,5 | | 0,44 |
| | x 2 1/2 | | x 76,1 | | 2,5 | | 0,50 |
| 4 | x 2 | 108 | x 57 | 3 | 2,5 | 102 | 0,68 |
| | x 2 1/2 | | x 76,1 | | 2,5 | | 0,76 |
| | x 3 | | x 88,9 | | 2,5 | | 0,82 |
| 6 | x 2 | 159 | x 57 | 3 | 2,5 | 140 | 1,30 |
| | x 2 1/2 | | x 76,1 | | 2,5 | | 1,35 |
| | x 3 | | x 88,9 | | 2,5 | | 1,42 |
| | x 4 | | x 108 | | 3 | | 1,54 |

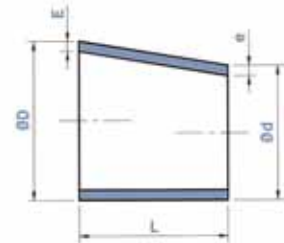


ECCENTRIC REDUCERS

16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| OD x Od | | Outside diameter | | Wall thickness | | Length L mm | Theoretical weight Kg/piece |
|--------------------|---|------------------|--------------|----------------|---------|-------------------|--------------------------------|
| | | nominal inch | actual mm | E mm | e mm | | |
| SEAM WELDED | | | | | | | |
| 8 | x | 2 1/2 | 219,1 | 4 | 2,5 | 152 | 2,45 |
| | x | 3 | | | 2,5 | | 2,55 |
| | x | 4 | | | 3 | | 2,72 |
| | x | 6 | | | 3 | | 3,16 |
| 10 | x | 4 | 267 | 4,5 | 3 | 178 | 4,11 |
| | x | 6 | | | 3 | | 4,69 |
| | x | 8 | | | 4 | | 5,36 |
| 12 | x | 6 | 323,9 | 5,5 | 3 | 203 | 7,39 |
| | x | 8 | | | 4 | | 8,33 |
| | x | 10 | | | 4,5 | | 9,09 |
| 14 | x | 8 | 368 | 6,5 | 4 | 330 | 17,28 |
| | x | 10 | | | 4,5 | | 18,73 |
| | x | 12 | | | 5,5 | | 20,44 |
| 16 | x | 10 | 419,1 | 7 | 4,5 | 356 | 23,51 |
| | x | 12 | | | 5,5 | | 25,51 |
| | x | 14 | | | 6,5 | | 27,04 |
| 18 | x | 12 | 457,2 | 8 | 5,5 | 381 | 32,72 |
| | x | 14 | | | 6,5 | | 34,61 |
| | x | 16 | | | 7 | | 36,80 |
| 20 | x | 14 | 508 | 8,5 | 6,5 | 508 | 52,07 |
| | x | 16 | | | 7 | | 55,17 |
| | x | 18 | | | 8 | | 57,48 |
| 24 | x | 16 | 610 | 10,5 | 7 | 508 | 75,49 |
| | x | 18 | | | 8 | | 78,34 |
| | x | 20 | | | 8,5 | | 82,15 |
| 28 | x | 18 | 711 | 12 | 8 | 610 | 117,58 |
| | x | 20 | | | 8,5 | | 122,82 |
| | x | 24 | | | 10,5 | | 133,30 |
| 32 | x | 24 | 813 | 13,5 | 10,5 | 610 | 161,42 |
| | x | 28 | | | 12 | | 173,09 |
| 36 | x | 24 | 914 | 15,5 | 10,5 | 610 | 274,48 |
| | x | 28 | | | 12 | | 287,89 |
| | x | 32 | | | 13,5 | | 301,43 |

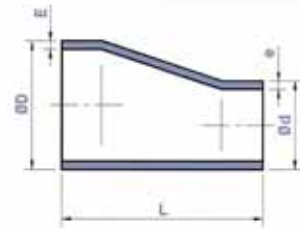


ECCENTRIC REDUCERS

20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter | | OD x Od | | Wall thickness | | Length | Theoretical weight |
|------------------|---------|---------|--------|----------------|-----|----------|--------------------|
| | | | | E | e | | |
| nominal | inch | actual | mm | mm | mm | Kg/piece | |
| SEAMLESS | | | | | | | |
| 1 | x 3/4 | 30 | x 25 | 2,5 | 2 | 51 | 0,09 |
| 1 1/4 | x 3/4 | 38 | x 25 | 2,5 | 2 | 51 | 0,10 |
| | x 1 | | x 30 | | 2,5 | | 0,11 |
| 1 1/2 | x 3/4 | 44,5 | x 25 | 2,5 | 2 | 64 | 0,14 |
| | x 1 | | x 30 | | 2,5 | | 0,15 |
| | x 1 1/4 | | x 38 | | 2,5 | | 0,17 |
| 2 | x 1 | 57 | x 30 | 2,5 | 2,5 | 76 | 0,21 |
| | x 1 1/4 | | x 38 | | 2,5 | | 0,23 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 0,25 |
| 2 1/2 | x 1 1/4 | 76,1 | x 38 | 2,5 | 2,5 | 89 | 0,34 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 0,36 |
| | x 2 | | x 57 | | 2,5 | | 0,40 |
| 3 | x 1 1/2 | 88,9 | x 44,5 | 2,5 | 2,5 | 89 | 0,40 |
| | x 2 | | x 57 | | 2,5 | | 0,44 |
| | x 2 1/2 | | x 76,1 | | 2,5 | | 0,50 |
| 4 | x 2 | 108 | x 57 | 3 | 2,5 | 102 | 0,68 |
| | x 2 1/2 | | x 76,1 | | 2,5 | | 0,76 |
| | x 3 | | x 88,9 | | 2,5 | | 0,82 |
| 6 | x 2 | 159 | x 57 | 3,5 | 2,5 | 140 | 1,50 |
| | x 2 1/2 | | x 76,1 | | 2,5 | | 1,56 |
| | x 3 | | x 88,9 | | 2,5 | | 1,65 |
| | x 4 | | x 108 | | 3 | | 1,78 |

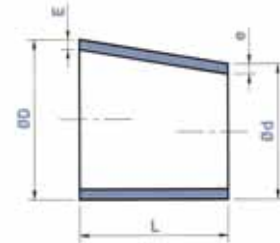


ECCENTRIC REDUCERS

20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter | | OD x Od | | Wall thickness | | Length | Theoretical weight |
|--------------------|---------|---------|---------|----------------|-----|----------|--------------------|
| | | | | E | e | | |
| nominal | inch | actual | mm | mm | mm | Kg/piece | |
| SEAM WELDED | | | | | | | |
| 8 | x 2 1/2 | 219,1 | x 76,1 | 4,5 | 2,5 | 152 | 2,74 |
| | x 3 | | x 88,9 | | 2,5 | | 2,87 |
| | x 4 | | x 108 | | 3 | | 3,05 |
| | x 6 | | x 159 | | 3,5 | | 3,54 |
| 10 | x 4 | 267 | x 108 | 5,5 | 3 | 178 | 5,00 |
| | x 6 | | x 159 | | 3,5 | | 5,70 |
| | x 8 | | x 219,1 | | 4,5 | | 6,53 |
| 12 | x 6 | 323,9 | x 159 | 7 | 3,5 | 203 | 9,35 |
| | x 8 | | x 219,1 | | 4,5 | | 10,55 |
| | x 10 | | x 267 | | 5,5 | | 11,52 |
| 14 | x 8 | 368 | x 219,1 | 8 | 4,5 | 330 | 21,16 |
| | x 10 | | x 267 | | 5,5 | | 22,95 |
| | x 12 | | x 323,9 | | 7 | | 25,06 |
| 16 | x 10 | 419,1 | x 267 | 9 | 5,5 | 356 | 30,05 |
| | x 12 | | x 323,9 | | 7 | | 32,62 |
| | x 14 | | x 368 | | 8 | | 35,60 |
| 18 | x 12 | 457,2 | x 323,9 | 9,5 | 7 | 381 | 38,85 |
| | x 14 | | x 368 | | 8 | | 41,10 |
| | x 16 | | x 419,1 | | 9 | | 43,70 |
| 20 | x 14 | 508 | x 368 | 11 | 8 | 508 | 67,38 |
| | x 16 | | x 419,1 | | 9 | | 71,39 |
| | x 18 | | x 457,2 | | 9,5 | | 74,38 |
| 24 | x 16 | 610 | x 419,1 | 13 | 9 | 508 | 93,46 |
| | x 18 | | x 457,2 | | 9,5 | | 96,99 |
| | x 20 | | x 508 | | 11 | | 101,70 |
| 28 | x 18 | 711 | x 457,2 | 15 | 9,5 | 610 | 146,97 |
| | x 20 | | x 508 | | 11 | | 153,52 |
| | x 24 | | x 610 | | 13 | | 166,62 |
| 32 | x 24 | 813 | x 610 | 17 | 13 | 610 | 203,26 |
| | x 28 | | x 711 | | 15 | | 217,96 |
| 36 | x 24 | 914 | x 610 | 19 | 13 | 610 | 336,45 |
| | x 28 | | x 711 | | 15 | | 352,89 |
| | x 32 | | x 813 | | 17 | | 369,49 |

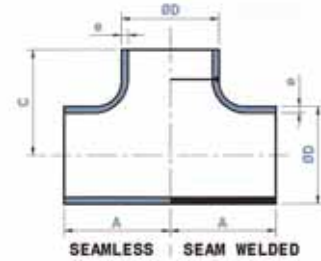


EQUAL TEES

10 BAR ■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86088



| Outside diameter of pipe OD | | Wall thickness e mm | A mm | C mm | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|---------|---------|-----------------------------------|
| nominal inch | actual mm | | | | |
| SEAMLESS | | | | | |
| 1/2 | 20 | 1 | 25 | 25 | 0,05 |
| 3/4 | 25 | 1,5 | 29 | 29 | 0,07 |
| 1 | 30 | 1,5 | 38 | 38 | 0,10 |
| 1 1/4 | 38 | 1,5 | 48 | 48 | 0,13 |
| 1 1/2 | 44,5 | 1,5 | 57 | 57 | 0,19 |
| 2 | 57 | 1,5 | 64 | 64 | 0,29 |
| 2 1/2 | 76,1 | 2 | 76 | 76 | 0,65 |
| 3 | 88,9 | 2 | 86 | 86 | 0,82 |
| | | ■ 2,5 | 86 | 86 | 1,03 |
| 4 | 108 | 2,5 | 105 | 105 | 1,60 |
| | | ■ 2,5 | 124 | 124 | 2,80 |
| 5 | 133 | ■ 3 | 124 | 124 | 3,36 |
| | | 2,5 | 143 | 143 | 4,40 |
| 6 | 159 | ■ 3 | 143 | 143 | 5,28 |
| | | 3 | 157 | 157 | 4,70 |
| 7 | 193,7 | ■ 3,5 | 157 | 157 | 6,60 |
| | | 3 | 178 | 178 | 12,80 |
| 8 | 219,1 | ■ 3,5 | 178 | 178 | 14,95 |
| | | SEAM WELDED | | | |
| 10 | 267 | 3 | 216 | 216 | 16,60 |
| | | ■ 4 | 216 | 216 | 22,10 |
| 12 | 323,9 | 4 | 254 | 254 | 31,50 |
| | | ■ 5 | 254 | 254 | 39,40 |
| 14 | 368 | 4 | 279 | 279 | 39,40 |
| | | ■ 5,5 | 279 | 279 | 54,20 |
| 16 | 419,1 | 4 | 305 | 305 | 55,10 |
| | | ■ 6 | 305 | 305 | 82,65 |
| 18 | 457,2 | 4 | 343 | 343 | 67,65 |
| | | ■ 6 | 343 | 343 | 101,50 |
| 20 | 508 | 4,5 | 381 | 381 | 92,80 |
| | | ■ 6,5 | 381 | 381 | 134,10 |
| 24 | 610 | 5 | 432 | 432 | 126,60 |
| | | ■ 8 | 432 | 432 | 202,60 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

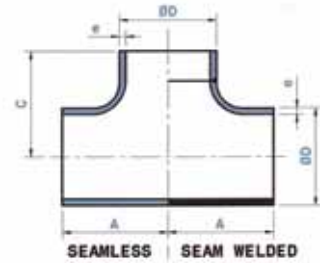


EQUAL TEES

16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe OD | | Wall thickness e mm | A mm | C mm | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|---------|---------|-----------------------------------|
| nominal inch | actual mm | | | | |
| SEAMLESS | | | | | |
| 1 | 30 | 2,5 | 38 | 38 | 0,18 |
| 1 1/4 | 38 | | 48 | 48 | 0,29 |
| 1 1/2 | 44,5 | | 57 | 57 | 0,43 |
| 2 | 57 | | 64 | 64 | 0,57 |
| 2 1/2 | 76,1 | | 76 | 76 | 0,88 |
| 3 | 88,9 | 3 | 86 | 86 | 1,16 |
| 4 | 108 | | 105 | 105 | 2,09 |
| 6 | 159 | | 143 | 143 | 4,07 |
| 8 | 219,1 | 4 | 178 | 178 | 17,00 |
| WELDED | | | | | |
| 10 | 267 | 4,5 | 216 | 216 | 24,90 |
| 12 | 323,9 | 5,5 | 254 | 254 | 43,30 |
| 14 | 368 | 6,5 | 279 | 279 | 64,05 |
| 16 | 419,1 | 7 | 305 | 305 | 96,40 |
| 18 | 457,2 | 8 | 343 | 343 | 135,30 |
| 20 | 508 | 8,5 | 381 | 381 | 175,30 |
| 24 | 610 | 10,5 | 432 | 432 | 265,90 |
| 28 | 711 | 12,0 | 521 | 521 | 427,00 |
| 32 | 813 | 13,5 | 597 | 597 | 546,10 |
| 36 | 914 | 15,5 | 673 | 673 | 794,10 |

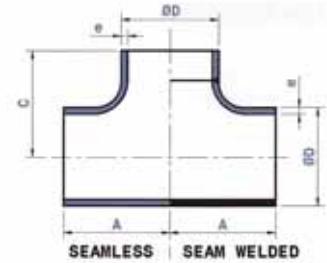


EQUAL TEES

20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe OD | | Wall thickness e mm | A mm | C mm | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|---------|---------|-----------------------------------|
| nominal inch | actual mm | | | | |
| SEAMLESS | | | | | |
| 1 | 30 | 2,5 | 38 | 38 | 0,18 |
| 1 1/4 | 38 | | 48 | 48 | 0,29 |
| 1 1/2 | 44,5 | | 57 | 57 | 0,43 |
| 2 | 57 | | 64 | 64 | 0,57 |
| 2 1/2 | 76 | | 76 | 76 | 0,88 |
| 3 | 89 | 3 | 86 | 86 | 1,16 |
| 4 | 108 | | 105 | 105 | 2,09 |
| 6 | 159 | | 143 | 143 | 4,74 |
| 8 | 219 | 4,5 | 178 | 178 | 19,10 |
| SEAM WELDED | | | | | |
| 10 | 267 | 5,5 | 216 | 216 | 30,40 |
| 12 | 324 | 7 | 254 | 254 | 55,10 |
| 14 | 368 | 8 | 279 | 279 | 78,80 |
| 16 | 419 | 9 | 305 | 305 | 124,00 |
| 18 | 457 | 9,5 | 343 | 343 | 160,65 |
| 20 | 508 | 11 | 381 | 381 | 226,90 |
| 24 | 610 | 13 | 432 | 432 | 329,20 |
| 28 | 711 | 15 | 521 | 521 | 533,75 |
| 32 | 813 | 17 | 597 | 597 | 687,70 |
| 36 | 914 | 19 | 673 | 673 | 973,40 |



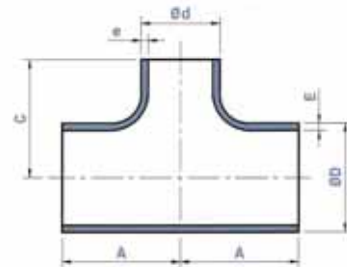
REDUCING TEES

10 BAR

■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86088



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight |
|--------------------------|---------|-----------|--------|----------------|-------|----------------|-----|--------------------|
| ØD x Ød | | ØD x Ød | | E | e | A | C | |
| nominal inch | | actual mm | | mm | mm | mm | mm | Kg/piece |
| SEAMLESS | | | | | | | | |
| 1 1/4 | x 1 | 38 | x 30 | 1,5 | 1,5 | 48 | 42 | 0,10 |
| 1 1/2 | x 1 | 44,5 | x 30 | 1,5 | 1,5 | 57 | 45 | 0,21 |
| | x 1 1/4 | | x 38 | | 1,5 | | 51 | 0,21 |
| 2 | x 1 | 57 | x 30 | 1,5 | 1,5 | 64 | 51 | 0,32 |
| | x 1 1/4 | | x 38 | | 1,5 | | 57 | 0,32 |
| | x 1 1/2 | | x 44,5 | | 1,5 | | 63 | 0,32 |
| 2 1/2 | x 1 | 76,1 | x 30 | 2 | 1,5 | 76 | 56 | 0,65 |
| | x 1 1/4 | | x 38 | | 1,5 | | 62 | 0,65 |
| | x 1 1/2 | | x 44,5 | | 1,5 | | 71 | 0,67 |
| | x 2 | | x 57 | | 1,5 | | 73 | 0,67 |
| 3 | x 1 1/4 | 88,9 | x 38 | 2 | 1,5 | 86 | 73 | 0,87 |
| | x 1 1/2 | | x 44,5 | | 1,5 | | 76 | 0,87 |
| | x 2 | | x 57 | | 1,5 | | 80 | 0,89 |
| | x 2 1/2 | | x 76,1 | | 2 | | 83 | 0,92 |
| 3 | x 1 1/4 | 88,9 | x 38 | ■ 2,5 | 1,5 | 86 | 73 | 1,08 |
| | x 1 1/2 | | x 44,5 | | 1,5 | | 76 | 1,08 |
| | x 2 | | x 57 | | 1,5 | | 80 | 1,10 |
| | x 2 1/2 | | x 76,1 | | 2 | | 83 | 1,15 |
| 4 | x 1 1/2 | 108 | x 44,5 | 2,5 | 1,5 | 105 | 89 | 1,60 |
| | x 2 | | x 57 | | 1,5 | | 90 | 1,60 |
| | x 2 1/2 | | x 76,1 | | 2 | | 92 | 1,65 |
| | x 3 | | x 88,9 | | 2 | | 96 | 1,65 |
| | x 3 | | x 88,9 | | ■ 2,5 | | 96 | 1,65 |
| 5 | x 2 | 133 | x 57 | 2,5 | 1,5 | 124 | 98 | 3,00 |
| | x 2 1/2 | | x 76,1 | | 2 | | 105 | 3,10 |
| | x 3 | | x 88,9 | | 2 | | 108 | 3,25 |
| | x 4 | | x 108 | | 2,5 | | 117 | 3,30 |
| 5 | x 2 | 133 | x 57 | ■ 3 | 1,5 | 124 | 98 | 3,60 |
| | x 2 1/2 | | x 76,1 | | 2 | | 105 | 3,70 |
| | x 3 | | x 88,9 | | ■ 2,5 | | 108 | 3,90 |
| | x 4 | | x 108 | | 2,5 | | 117 | 3,95 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

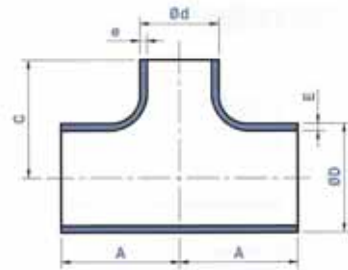


REDUCING TEES

10 BAR
 ■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86088



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece |
|--------------------------|---------|--------------|--------|----------------|-------|----------------|-----|--------------------------------|
| OD x Ød | | OD x Ød | | E | e | A | C | |
| nominal inch | | actual mm | | mm | mm | mm | mm | |
| SEAMLESS | | | | | | | | |
| 6 | x 2 1/2 | 159 | x 76,1 | 2,5 | 2 | 143 | 118 | 4,40 |
| | x 3 | | x 88,9 | | 2 | | 121 | 4,50 |
| | x 4 | | x 108 | | 2,5 | | 130 | 4,60 |
| | x 5 | | x 133 | | 2,5 | | 136 | 4,60 |
| 6 | x 2 1/2 | 159 | x 76,1 | ■ 3 | 2 | 143 | 118 | 5,25 |
| | x 3 | | x 88,9 | | ■ 2,5 | | 121 | 5,40 |
| | x 4 | | x 108 | | 2,5 | | 130 | 5,50 |
| | x 5 | | x 133 | | ■ 3 | | 136 | 5,50 |
| 8 | x 4 | 219,1 | x 108 | 3 | 2,5 | 178 | 156 | 12,60 |
| | x 5 | | x 133 | | 2,5 | | 162 | 12,70 |
| | x 6 | | x 159 | | 2,5 | | 168 | 12,80 |
| 8 | x 4 | 219,1 | x 108 | ■ 3,5 | 2,5 | 178 | 156 | 14,75 |
| | x 5 | | x 133 | | ■ 3 | | 162 | 14,85 |
| | x 6 | | x 159 | | ■ 3 | | 168 | 14,95 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



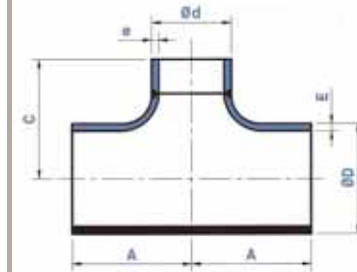
REDUCING TEES

10 BAR

■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86088



| Outside diameter of pipe | | Wall thickness | | Centre to face | | Theoretical weight | | |
|--------------------------|------|----------------|---------|----------------|-------|--------------------|---------|--------|
| | | | | | | | ØD x Ød | actual |
| nominal | inch | mm | mm | mm | mm | mm | mm | mm |
| SEAM WELDED | | | | | | | | |
| 10 | x 4 | 267 | x 108 | 3 | 2,5 | 194 | 209 | 12,50 |
| | x 5 | | x 133 | | 2,5 | 217 | 219 | 13,50 |
| | x 6 | | x 159 | | 2,5 | 240 | 229 | 14,80 |
| | x 7 | | x 193,7 | | 3 | 267 | 243 | 15,20 |
| | x 8 | | x 219,1 | | 3 | 290 | 259 | 16,60 |
| 10 | x 4 | 267 | x 108 | ■ 4 | 2,5 | 194 | 209 | 16,70 |
| | x 5 | | x 133 | | ■ 3 | 217 | 219 | 18,00 |
| | x 6 | | x 159 | | ■ 3 | 240 | 229 | 19,75 |
| | x 7 | | x 193,7 | | ■ 3,5 | 267 | 243 | 20,25 |
| | x 8 | | x 219,1 | | ■ 3,5 | 290 | 259 | 22,10 |
| 12 | x 5 | 323,9 | x 133 | 4 | 2,5 | 217 | 247 | 28,60 |
| | x 6 | | x 159 | | 2,5 | 240 | 257 | 30,45 |
| | x 7 | | x 193,7 | | 3 | 267 | 272 | 32,60 |
| | x 8 | | x 219,1 | | 3 | 290 | 287 | 34,60 |
| | x 10 | | x 267 | | 3 | 324 | 317 | 37,80 |
| 12 | x 5 | 323,9 | x 133 | ■ 5 | ■ 3 | 217 | 247 | 35,75 |
| | x 6 | | x 159 | | ■ 3 | 240 | 257 | 38,00 |
| | x 7 | | x 193,7 | | ■ 3,5 | 267 | 272 | 40,75 |
| | x 8 | | x 219,1 | | ■ 3,5 | 290 | 287 | 43,25 |
| | x 10 | | x 267 | | ■ 4 | 324 | 317 | 47,25 |
| 14 | x 6 | 368 | x 159 | 4 | 2,5 | 240 | 279 | 37,40 |
| | x 7 | | x 193,7 | | 3 | 267 | 294 | 39,85 |
| | x 8 | | x 219,1 | | 3 | 290 | 309 | 42,10 |
| | x 10 | | x 267 | | 3 | 324 | 339 | 45,55 |
| | x 12 | | x 323,9 | | 4 | 380 | 369 | 52,00 |
| 14 | x 6 | 368 | x 159 | ■ 5,5 | ■ 3 | 240 | 279 | 51,40 |
| | x 7 | | x 193,7 | | ■ 3,5 | 267 | 294 | 54,20 |
| | x 8 | | x 219,1 | | ■ 3,5 | 290 | 309 | 57,90 |
| | x 10 | | x 267 | | ■ 4 | 324 | 339 | 62,65 |
| | x 12 | | x 323,9 | | ■ 5 | 380 | 369 | 71,50 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



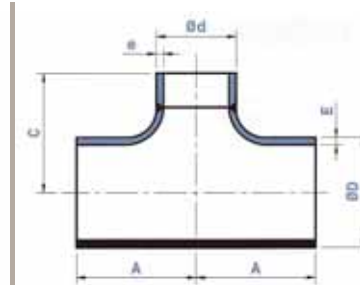
REDUCING TEES

10 BAR

■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86088



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece |
|--------------------------|------|--------------|---------|----------------|-------|----------------|-----|--------------------------------|
| OD x Od | | OD x Ød | | E | e | A | C | |
| nominal inch | | actual mm | | mm | mm | mm | mm | |
| SEAM WELDED | | | | | | | | |
| 16 | x 7 | 419,1 | x 193,7 | 4 | 3 | 267 | 319 | 49,10 |
| | x 8 | | x 219,1 | | 3 | 290 | 335 | 52,10 |
| | x 10 | | x 267 | | 3 | 324 | 365 | 56,40 |
| | x 12 | | x 323,9 | | 4 | 380 | 395 | 64,80 |
| | x 14 | | x 368 | | 4 | 407 | 410 | 68,90 |
| 16 | x 7 | 419,1 | x 193,7 | ■ 6 | ■ 3,5 | 267 | 319 | 73,65 |
| | x 8 | | x 219,1 | | ■ 3,5 | 290 | 335 | 78,15 |
| | x 10 | | x 267 | | ■ 4 | 324 | 365 | 84,60 |
| | x 12 | | x 323,9 | | ■ 5 | 380 | 395 | 97,20 |
| | x 14 | | x 368 | | ■ 5,5 | 407 | 410 | 103,35 |
| 18 | x 10 | 457,2 | x 267 | 4 | 3 | 324 | 383 | 55,70 |
| | x 12 | | x 323,9 | | 4 | 380 | 413 | 64,60 |
| | x 14 | | x 368 | | 4 | 407 | 428 | 68,90 |
| | x 16 | | x 419,1 | | 4 | 440 | 453 | 74,60 |
| 18 | x 10 | 457,2 | x 267 | ■ 6 | ■ 4 | 324 | 383 | 83,55 |
| | x 12 | | x 323,9 | | ■ 5 | 380 | 413 | 96,90 |
| | x 14 | | x 368 | | ■ 5,5 | 407 | 428 | 103,35 |
| | x 16 | | x 419,1 | | ■ 6 | 440 | 453 | 111,90 |
| 20 | x 12 | 508 | x 323,9 | 4,5 | 4 | 380 | 439 | 72,50 |
| | x 14 | | x 368 | | 4 | 407 | 454 | 77,40 |
| | x 16 | | x 419,1 | | 4 | 440 | 479 | 83,90 |
| | x 18 | | x 457,2 | | 4 | 500 | 509 | 94,10 |
| 20 | x 12 | 508 | x 323,9 | ■ 6,5 | ■ 5 | 380 | 439 | 104,70 |
| | x 14 | | x 368 | | ■ 5,5 | 407 | 454 | 111,80 |
| | x 16 | | x 419,1 | | ■ 6 | 440 | 479 | 121,20 |
| | x 18 | | x 457,2 | | ■ 6 | 500 | 509 | 135,90 |
| 24 | x 14 | 610 | x 368 | 5 | 4 | 407 | 505 | 109,95 |
| | x 16 | | x 419,1 | | 4 | 440 | 530 | 117,85 |
| | x 18 | | x 457,2 | | 4 | 500 | 555 | 130,35 |
| | x 20 | | x 508 | | 4,5 | 540 | 580 | 141,85 |
| 24 | x 14 | 610 | x 368 | ■ 8 | ■ 5,5 | 407 | 505 | 175,90 |
| | x 16 | | x 419,1 | | ■ 6 | 440 | 530 | 188,55 |
| | x 18 | | x 457,2 | | ■ 6 | 500 | 555 | 208,60 |
| | x 20 | | x 508 | | ■ 6,5 | 540 | 580 | 226,95 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

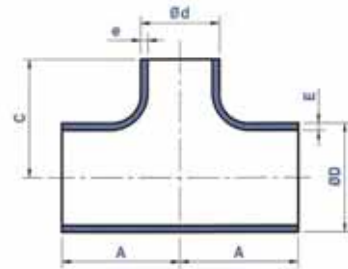


REDUCING TEES

16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe | | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece | |
|----------------------------|---|-------------------------|-------|---|----------------|---------|----------------|---------|--------------------------------|-------|
| ØD x Ød nominal inch | | ØD x Ød actual mm | | | E mm | e mm | A mm | C mm | | |
| SEAMLESS | | | | | | | | | | |
| 1 | x | 3/4 | 30 | x | 25 | 2,5 | 2 | 38 | 38 | 0,17 |
| 1 1/4 | x | 3/4 | 38 | x | 25 | 2,5 | 2 | 48 | 48 | 0,28 |
| | x | 1 | | x | 30 | | 2,5 | | | 0,28 |
| 1 1/2 | x | 3/4 | 44,5 | x | 25 | 2,5 | 2 | 57 | 57 | 0,37 |
| | x | 1 | | x | 30 | | 2,5 | | | 0,40 |
| | x | 1 1/4 | | x | 38 | | 2,5 | | | 0,41 |
| 2 | x | 1 | 57 | x | 30 | 2,5 | 2,5 | 64 | 51 | 0,51 |
| | x | 1 1/4 | | x | 38 | | 2,5 | | 57 | 0,54 |
| | x | 1 1/2 | | x | 44,5 | | 2,5 | | 60 | 0,55 |
| 2 1/2 | x | 1 1/4 | 76,1 | x | 38 | 2,5 | 2,5 | 76 | 64 | 0,83 |
| | x | 1 1/2 | | x | 44,5 | | 2,5 | | 67 | 0,84 |
| | x | 2 | | x | 57 | | 2,5 | | 70 | 0,85 |
| 3 | x | 1 1/2 | 88,9 | x | 44,5 | 2,5 | 2,5 | 86 | 73 | 1,10 |
| | x | 2 | | x | 57 | | 2,5 | | 76 | 1,12 |
| | x | 2 1/2 | | x | 76,1 | | 2,5 | | 83 | 1,15 |
| 4 | x | 2 | 108 | x | 57 | 3 | 2,5 | 105 | 89 | 1,90 |
| | x | 2 1/2 | | x | 76,1 | | 2,5 | | 95 | 1,92 |
| | x | 3 | | x | 88,9 | | 2,5 | | 98 | 1,95 |
| 6 | x | 2 1/2 | 159 | x | 76,1 | 3 | 2,5 | 143 | 121 | 3,95 |
| | x | 3 | | x | 88,9 | | 2,5 | | 124 | 4,00 |
| | x | 4 | | x | 108 | | 3 | | 130 | 4,05 |
| 8 | x | 3 | 219,1 | x | 88,9 | 4 | 2,5 | 178 | 152 | 16,60 |
| | x | 4 | | x | 108 | | 3 | | 156 | 16,90 |
| | x | 6 | | x | 159 | | 3 | | 168 | 17,00 |

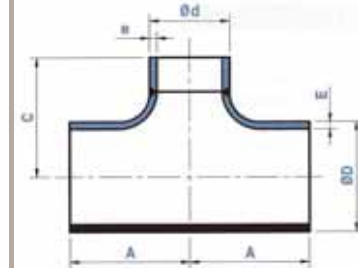


REDUCING TEES

16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece | | |
|--------------------------|---|--------------|-------|----------------|-------|----------------|-----|--------------------------------|-----|--------|
| OD x Ød | | OD x Ød | | E | e | A | C | | | |
| nominal Inch | | actual mm | | mm | mm | mm | mm | | | |
| SEAM WELDED | | | | | | | | | | |
| 10 | x | 4 | 267 | x | 108 | 4,5 | 216 | 3 | 184 | 21,60 |
| | x | 6 | | x | 159 | | | 3 | 194 | 21,75 |
| | x | 8 | | x | 219,1 | | | 4 | 203 | 21,90 |
| 12 | x | 6 | 323,9 | x | 159 | 5,5 | 254 | 3 | 219 | 38,50 |
| | x | 8 | | x | 219,1 | | | 4 | 229 | 39,60 |
| | x | 10 | | x | 267 | | | 4,5 | 241 | 40,70 |
| 14 | x | 8 | 368 | x | 219,1 | 6,5 | 279 | 4 | 248 | 58,80 |
| | x | 10 | | x | 267 | | | 4,5 | 257 | 59,70 |
| | x | 12 | | x | 323,9 | | | 5,5 | 270 | 61,50 |
| 16 | x | 10 | 419,1 | x | 267 | 7 | 305 | 4,5 | 283 | 89,60 |
| | x | 12 | | x | 323,9 | | | 5,5 | 295 | 91,40 |
| | x | 14 | | x | 368 | | | 6,5 | 305 | 93,50 |
| 18 | x | 12 | 457,2 | x | 323,9 | 8 | 343 | 5,5 | 321 | 126,30 |
| | x | 14 | | x | 368 | | | 6,5 | 330 | 128,30 |
| | x | 16 | | x | 419,1 | | | 7 | 330 | 129,90 |
| 20 | x | 14 | 508 | x | 368 | 8,5 | 381 | 6,5 | 356 | 162,00 |
| | x | 16 | | x | 419,1 | | | 7 | 356 | 164,20 |
| | x | 18 | | x | 457,2 | | | 8 | 368 | 168,30 |
| 24 | x | 8 | 610 | x | 419,1 | 10,5 | 432 | 7 | 406 | 248,30 |
| | x | 10 | | x | 457,2 | | | 8 | 419 | 251,70 |
| | x | 12 | | x | 508 | | | 8,5 | 432 | 255,30 |
| 29 | x | 10 | 711 | x | 457,2 | 12 | 521 | 8 | 470 | 394,60 |
| | x | 12 | | x | 508 | | | 8,5 | 483 | 398,20 |
| | x | 14 | | x | 610 | | | 10,5 | 508 | 409,90 |
| 32 | x | 8 | 813 | x | 508 | 13,5 | 597 | 8,5 | 533 | 495,00 |
| | x | 10 | | x | 610 | | | 10,5 | 559 | 506,80 |
| | x | 12 | | x | 711 | | | 12 | 572 | 518,80 |
| 36 | x | 10 | 914 | x | 610 | 15,5 | 673 | 10,5 | 610 | 723,60 |
| | x | 12 | | x | 711 | | | 12 | 622 | 735,40 |
| | x | 14 | | x | 813 | | | 13,5 | 648 | 754,40 |

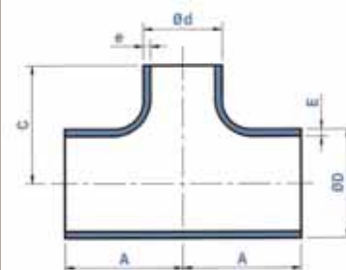


REDUCING TEES

20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece |
|----------------------------|---------|-------------------------|--------|----------------|---------|----------------|---------|--------------------------------|
| ØD x Ød nominal inch | | ØD x Ød actual mm | | E mm | e mm | A mm | C mm | |
| SEAMLESS | | | | | | | | |
| 1 | x 3/4 | 30 | x 25 | 2,5 | 2 | 38 | 38 | 0,17 |
| 1 1/4 | x 3/4 | 38 | x 25 | 2,5 | 2 | 48 | 48 | 0,28 |
| | x 1 | | x 30 | | 2,5 | | | 0,28 |
| 1 1/2 | x 3/4 | 44,5 | x 25 | 2,5 | 2 | 57 | 57 | 0,37 |
| | x 1 | | x 30 | | 2,5 | | | 0,40 |
| | x 1 1/4 | | x 38 | | 2,5 | | | 0,41 |
| 2 | x 1 | 57 | x 30 | 2,5 | 2,5 | 64 | 51 | 0,51 |
| | x 1 1/4 | | x 38 | | 2,5 | | 57 | 0,54 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 60 | 0,55 |
| 2 1/2 | x 1 1/4 | 76,1 | x 38 | 2,5 | 2,5 | 76 | 64 | 0,83 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 70 | 0,85 |
| | x 2 | | x 57 | | 2,5 | | 73 | 1,10 |
| 3 | x 1 1/2 | 88,9 | x 44,5 | 2,5 | 2,5 | 86 | 76 | 1,12 |
| | x 2 | | x 57 | | 2,5 | | 83 | 1,15 |
| | x 2 1/2 | | x 76,1 | | 2,5 | | 89 | 1,90 |
| 4 | x 2 | 108 | x 57 | 3 | 2,5 | 105 | 89 | 1,90 |
| | x 2 1/2 | | x 76,1 | | 2,5 | | 95 | 1,92 |
| | x 3 | | x 88,9 | | 2,5 | | 98 | 1,95 |
| 6 | x 2 1/2 | 159 | x 76,1 | 3,5 | 2,5 | 143 | 121 | 4,60 |
| | x 3 | | x 88,9 | | 2,5 | | 124 | 4,65 |
| | x 4 | | x 108 | | 3 | | 130 | 4,72 |
| 8 | x 3 | 219,1 | x 88,9 | 4,5 | 2,5 | 178 | 152 | 18,70 |
| | x 4 | | x 108 | | 3 | | 156 | 19,00 |
| | x 6 | | x 159 | | 3,5 | | 168 | 19,10 |

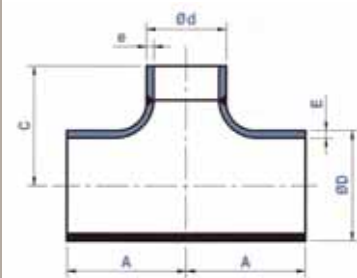


REDUCING TEES

20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece | | |
|--------------------------|---|--------|-------|----------------|-------|----------------|-----|--------------------------------|--------|--------|
| ØD x Ød | | actual | | E | e | A | C | | | |
| nominal inch | | mm | | mm | mm | mm | mm | | | |
| SEAM WELDED | | | | | | | | | | |
| 10 | x | 4 | 267 | x | 108 | 5,5 | 216 | 184 | 26,40 | |
| | x | 6 | | x | 159 | | | 3,5 | 194 | 26,60 |
| | x | 8 | | x | 219,1 | | | 4,5 | 203 | 26,75 |
| 12 | x | 6 | 323,9 | x | 159 | 7 | 254 | 219 | 49,00 | |
| | x | 8 | | x | 219,1 | | | 4,5 | 229 | 50,40 |
| | x | 10 | | x | 267 | | | 5,5 | 241 | 51,80 |
| 14 | x | 8 | 368 | x | 219,1 | 8 | 279 | 248 | 72,35 | |
| | x | 10 | | x | 267 | | | 5,5 | 257 | 73,50 |
| | x | 12 | | x | 323,9 | | | 7 | 270 | 75,70 |
| 16 | x | 10 | 419,1 | x | 267 | 9 | 305 | 283 | 115,20 | |
| | x | 12 | | x | 323,9 | | | 5,5 | 295 | 117,50 |
| | x | 14 | | x | 368 | | | 7 | 305 | 120,20 |
| 18 | x | 12 | 457,2 | x | 323,9 | 9,5 | 343 | 321 | 150,00 | |
| | x | 14 | | x | 368 | | | 7 | 330 | 152,35 |
| | x | 16 | | x | 419,1 | | | 8 | 330 | 154,25 |
| 20 | x | 14 | 508 | x | 368 | 11 | 381 | 356 | 209,65 | |
| | x | 16 | | x | 419,1 | | | 8 | 356 | 212,50 |
| | x | 18 | | x | 457,2 | | | 9,5 | 368 | 217,80 |
| 24 | x | 8 | 610 | x | 419,1 | 13 | 432 | 406 | 307,40 | |
| | x | 10 | | x | 457,2 | | | 9 | 419 | 311,60 |
| | x | 12 | | x | 508 | | | 9,5 | 432 | 310,10 |
| 28 | x | 10 | 711 | x | 457,2 | 15 | 521 | 470 | 493,25 | |
| | x | 12 | | x | 508 | | | 9,5 | 483 | 497,75 |
| | x | 14 | | x | 610 | | | 11 | 508 | 512,40 |
| 32 | x | 8 | 813 | x | 508 | 17 | 597 | 533 | 623,30 | |
| | x | 10 | | x | 610 | | | 9 | 559 | 638,20 |
| | x | 12 | | x | 711 | | | 13 | 572 | 653,30 |
| 36 | x | 10 | 914 | x | 610 | 19 | 673 | 610 | 887,00 | |
| | x | 12 | | x | 711 | | | 13 | 622 | 901,45 |
| | x | 14 | | x | 813 | | | 15 | 648 | 924,75 |



SADDLES

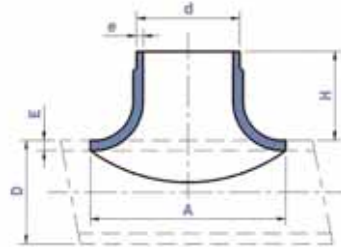
With equal or reduced branch

10 BAR

■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86087



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece | | |
|--------------------------|---|--------------|------|----------------|------|----------------|-------|--------------------------------|-----|------|
| OD x Od | | OD x Od | | E | e | H | A | | | |
| nominal inch | | actual mm | | mm | mm | mm | mm | | | |
| SEAMLESS | | | | | | | | | | |
| 1/2 | x | 1/2 | 20 | x | 20 | 1 | 1 | 20 | 32 | 0,05 |
| 3/4 | x | 1/2 | 25 | x | 20 | 1,5 | 1 | 20 | 40 | 0,05 |
| | x | 3/4 | | x | 25 | | 1,5 | 22 | | 0,06 |
| 1 | x | 3/4 | 30 | x | 25 | 1,5 | 1,5 | 22 | 40 | 0,06 |
| | x | 1 | | x | 30 | | 1,5 | 30 | | 0,10 |
| 1 1/4 | x | 1 | 38 | x | 30 | 1,5 | 1,5 | 30 | 50 | 0,10 |
| | x | 1 1/4 | | x | 38 | | 1,5 | 35 | | 0,11 |
| 1 1/2 | x | 1 1/4 | 44,5 | x | 38 | 1,5 | 1,5 | 35 | 64 | 0,14 |
| | x | 1 1/2 | | x | 44,5 | | 1,5 | | 74 | 0,15 |
| 2 | x | 1 1/4 | 57 | x | 38 | 1,5 | 1,5 | 35 | 64 | 0,15 |
| | x | 1 1/2 | | x | 44,5 | | 1,5 | | 74 | 0,17 |
| | x | 2 | | x | 57 | | 1,5 | 40 | 97 | 0,25 |
| | | | | | | | | | | |
| 2 1/2 | x | 1 1/4 | 76,1 | x | 38 | 2 | 1,5 | 35 | 64 | 0,30 |
| | x | 1 1/2 | | x | 44,5 | | 1,5 | | 74 | 0,34 |
| | x | 2 | | x | 57 | | 1,5 | 40 | 97 | 0,48 |
| | | | | | | | | | | |
| 2 1/2 | x | 2 1/2 | | x | 76,1 | | 2 | 50 | 126 | 0,52 |
| | | | | | | | | | | |
| 3 | x | 1 1/4 | 88,9 | x | 38 | 2 | 1,5 | 35 | 64 | 0,36 |
| | x | 1 1/2 | | x | 44,5 | | 1,5 | | 74 | 0,44 |
| | x | 2 | | x | 57 | | 1,5 | 40 | 97 | 0,50 |
| | | | | | | | | | | |
| 3 | x | 2 1/2 | | x | 76,1 | | 2 | 50 | 126 | 0,56 |
| | x | 3 | | x | 88,9 | | 2 | | 55 | 149 |
| 3 | x | 1 1/4 | 88,9 | x | 38 | ■ 2,5 | 1,5 | 35 | 64 | 0,45 |
| | x | 1 1/2 | | x | 44,5 | | 1,5 | | 74 | 0,55 |
| | x | 2 | | x | 57 | | 1,5 | 40 | 97 | 0,62 |
| | x | 2 1/2 | | x | 76,1 | | 2 | | 50 | 126 |
| 3 | x | 3 | | x | 88,9 | | ■ 2,5 | 55 | 149 | 0,95 |
| | | | | | | | | | | |
| 4 | x | 1 1/2 | 108 | x | 44,5 | 2,5 | 1,5 | 35 | 74 | 0,32 |
| | x | 2 | | x | 57 | | 1,5 | | 40 | 97 |
| | x | 2 1/2 | | x | 76,1 | | 2 | 50 | 126 | 0,65 |
| | x | 3 | | x | 88,9 | | 2 | | 55 | 149 |
| | x | 4 | | x | 108 | | 2,5 | 75 | 188 | 1,30 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



SADDLES

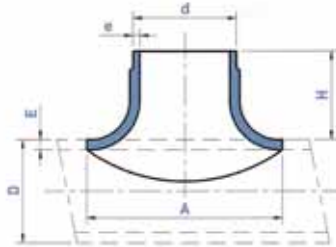
With equal or reduced branch

10 BAR

■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86087



| Outside diameter of pipe | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece | |
|----------------------------|-------------------------|----------------|---------|----------------|---------|--------------------------------|------|
| OD x Od nominal inch | OD x Od actual mm | E mm | e mm | H mm | A mm | | |
| SEAMLESS | | | | | | | |
| 5 | x 2 | 133 | 2,5 | 1,5 | 40 | 97 | 0,40 |
| | x 2 1/2 | | | 2 | 50 | 126 | 0,80 |
| | x 3 | | | 2 | 55 | 149 | 1,00 |
| | x 4 | | | 2,5 | 75 | 188 | 1,20 |
| | x 5 | | | 2,5 | 85 | 233 | 1,70 |
| 5 | x 2 | 133 | ■ 3 | 1,5 | 40 | 97 | 0,48 |
| | x 2 1/2 | | | 2 | 50 | 126 | 0,96 |
| | x 3 | | | ■ 2,5 | 55 | 149 | 1,20 |
| | x 4 | | | 2,5 | 75 | 188 | 1,44 |
| | x 5 | | | ■ 3 | 85 | 233 | 2,04 |
| 6 | x 2 1/2 | 159 | 2,5 | 2 | 50 | 126 | 0,65 |
| | x 3 | | | 2 | 55 | 149 | 1,00 |
| | x 4 | | | 2,5 | 75 | 188 | 1,20 |
| | x 5 | | | 2,5 | 85 | 233 | 2,00 |
| | x 6 | | | 2,5 | 95 | 279 | 2,60 |
| 6 | x 2 1/2 | 159 | ■ 3 | 2 | 50 | 126 | 0,78 |
| | x 3 | | | ■ 2,5 | 55 | 149 | 1,20 |
| | x 4 | | | 2,5 | 75 | 188 | 1,44 |
| | x 5 | | | ■ 3 | 85 | 233 | 2,40 |
| | x 6 | | | ■ 3 | 95 | 279 | 3,12 |
| 7 | x 2 1/2 | 193,7 | 3 | 2 | 50 | 126 | 0,95 |
| | x 3 | | | 2 | 55 | 149 | 1,30 |
| | x 4 | | | 2,5 | 75 | 188 | 1,40 |
| | x 5 | | | 2,5 | 85 | 233 | 1,90 |
| | x 6 | | | 2,5 | 95 | 279 | 2,50 |
| 7 | x 7 | 193,7 | ■ 3,5 | 3 | 110 | 334 | 3,20 |
| | x 2 1/2 | | | 2,5 | 50 | 126 | 1,33 |
| | x 3 | | | ■ 2,5 | 55 | 149 | 1,82 |
| | x 4 | | | 2,5 | 75 | 188 | 1,96 |
| | x 5 | | | ■ 3 | 85 | 233 | 2,66 |
| | x 6 | | | ■ 3 | 95 | 279 | 3,50 |
| | x 7 | | | ■ 3,5 | 110 | 334 | 4,48 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



SADDLES

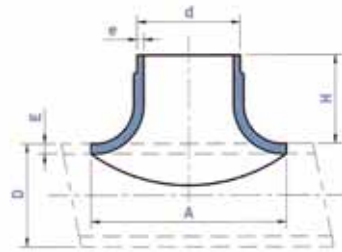
With equal or reduced branch

10 BAR

■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86087



| Outside diameter of pipe | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece | |
|----------------------------|-------------------------|----------------|---------|----------------|---------|--------------------------------|-------|
| OD x Od nominal inch | OD x Od actual mm | E mm | e mm | H mm | A mm | | |
| SEAMLESS | | | | | | | |
| 8 | x 3 | 219,1 | 3 | 2 | 55 | 149 | 1,30 |
| | x 4 | | | 2,5 | 75 | 188 | 1,80 |
| | x 5 | | | 2,5 | 85 | 233 | 2,70 |
| | x 6 | | | 2,5 | 95 | 279 | 3,80 |
| | x 7 | | | 3 | 110 | 334 | 4,50 |
| | x 8 | | | 3 | 125 | 379 | 5,70 |
| 8 | x 3 | 219,1 | ■ 3,5 | ■ 2,5 | 55 | 149 | 1,52 |
| | x 4 | | | ■ 2,5 | 75 | 188 | 2,10 |
| | x 5 | | | ■ 3 | 85 | 233 | 3,15 |
| | x 6 | | | ■ 3 | 95 | 279 | 4,43 |
| | x 7 | | | ■ 3,5 | 110 | 334 | 5,25 |
| | x 8 | | | ■ 3,5 | 125 | 379 | 6,65 |
| 10 | x 4 | 267 | 3 | 2,5 | 75 | 188 | 1,80 |
| | x 5 | | | 2,5 | 85 | 233 | 2,30 |
| | x 6 | | | 2,5 | 95 | 279 | 3,70 |
| | x 7 | | | 3 | 110 | 334 | 4,70 |
| | x 8 | | | 3 | 125 | 379 | 6,10 |
| | x 10 | | | 3 | 155 | 447 | 8,70 |
| 10 | x 4 | 267 | ■ 4 | 2,5 | 75 | 188 | 2,40 |
| | x 5 | | | ■ 3 | 85 | 233 | 3,06 |
| | x 6 | | | ■ 3 | 95 | 279 | 4,93 |
| | x 7 | | | ■ 3,5 | 110 | 334 | 6,27 |
| | x 8 | | | ■ 3,5 | 125 | 379 | 8,13 |
| | x 10 | | | ■ 4 | 155 | 447 | 11,60 |
| 12 | x 5 | 323,9 | 4 | 2,5 | 85 | 233 | 2,60 |
| | x 6 | | | 2,5 | 95 | 279 | 3,80 |
| | x 7 | | | 3 | 110 | 334 | 4,90 |
| | x 8 | | | 3 | 125 | 379 | 7,70 |
| | x 10 | | | 3 | 155 | 447 | 10,00 |
| | x 12 | | | 4 | 185 | 560 | 13,00 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



SADDLES

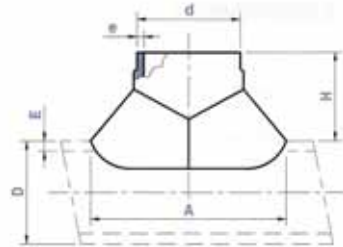
With equal or reduced branch

10 BAR

■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86087



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece |
|----------------------------|------|-------------------------|---------|----------------|---------|----------------|---------|--------------------------------|
| OD x Od nominal inch | | OD x Od actual mm | | E mm | e mm | H mm | A mm | |
| SEAM WELDED | | | | | | | | |
| 12 | x 5 | 232,9 | x 133 | ■ 5 | ■ 3 | 85 | 233 | 3,25 |
| | x 6 | | x 159 | | ■ 3 | 95 | 279 | 4,75 |
| | x 7 | | x 193,7 | | ■ 3,5 | 110 | 334 | 6,20 |
| | x 8 | | x 219,1 | | ■ 3,5 | 125 | 379 | 9,60 |
| | x 10 | | x 267 | | ■ 4 | 155 | 447 | 12,50 |
| | x 12 | | x 323,9 | | ■ 5 | 185 | 560 | 16,25 |
| 14 | x 6 | 368 | x 159 | 4 | 2,5 | 95 | 279 | 3,85 |
| | x 7 | | x 193,7 | | 2,5 | 110 | 334 | 4,20 |
| | x 8 | | x 219,1 | | 3 | 125 | 379 | 4,35 |
| | x 10 | | x 267 | | 3 | 155 | 447 | 7,30 |
| | x 12 | | x 323,9 | | 4 | 185 | 560 | 9,45 |
| | x 14 | | x 368 | | 4 | 200 | 613 | 12,35 |
| 14 | x 6 | 368 | x 159 | ■ 5,5 | ■ 3 | 95 | 279 | 5,30 |
| | x 7 | | x 193,7 | | ■ 3,5 | 110 | 334 | 5,80 |
| | x 8 | | x 219,1 | | ■ 3,5 | 125 | 379 | 6,00 |
| | x 10 | | x 267 | | ■ 4 | 155 | 447 | 10,00 |
| | x 12 | | x 323,9 | | ■ 5 | 185 | 560 | 13,00 |
| | x 14 | | x 368 | | ■ 5,5 | 200 | 613 | 17,00 |
| 16 | x 8 | 419,1 | x 219,1 | 4 | 3 | 125 | 379 | 4,35 |
| | x 10 | | x 267 | | 3 | 155 | 447 | 6,65 |
| | x 12 | | x 323,9 | | 4 | 185 | 560 | 9,35 |
| | x 14 | | x 368 | | 4 | 200 | 613 | 12,00 |
| | x 16 | | x 419,1 | | 4 | 225 | 680 | 17,35 |
| 16 | x 8 | 419,1 | x 219,1 | ■ 6 | ■ 3,5 | 125 | 379 | 6,50 |
| | x 10 | | x 267 | | ■ 4 | 155 | 447 | 10,00 |
| | x 12 | | x 323,9 | | ■ 5 | 185 | 560 | 14,00 |
| | x 14 | | x 368 | | ■ 5,5 | 200 | 613 | 18,00 |
| | x 16 | | x 419,1 | | ■ 6 | 225 | 680 | 26,00 |
| 18 | x 10 | 457,2 | x 267 | 4 | 3 | 155 | 447 | 6,30 |
| | x 12 | | x 323,9 | | 4 | 185 | 560 | 8,00 |
| | x 14 | | x 368 | | 4 | 200 | 613 | 9,70 |
| | x 16 | | x 419,1 | | 4 | 225 | 680 | 14,85 |
| | x 18 | | x 457,2 | | 4 | 250 | 800 | 21,70 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



SADDLES

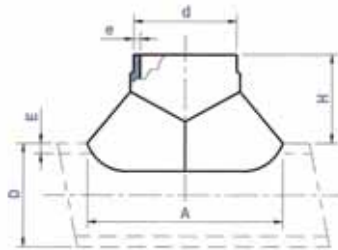
With equal or reduced branch

10 BAR

■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 86087



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece |
|----------------------------|------|-------------------------|---------|----------------|---------|----------------|---------|--------------------------------|
| OD x Ød nominal inch | | OD x Ød actual mm | | E mm | e mm | H mm | A mm | |
| SEAM WELDED | | | | | | | | |
| 18 | x 10 | 457,2 | x 267 | ■ 6 | ■ 4 | 155 | 447 | 9,45 |
| | x 12 | | x 323,9 | | ■ 5 | 185 | 560 | 12,00 |
| | x 14 | | x 368 | | ■ 5,5 | 200 | 613 | 14,60 |
| | x 16 | | x 419,1 | | ■ 6 | 225 | 680 | 22,30 |
| | x 18 | | x 457,2 | | ■ 6 | 250 | 800 | 32,60 |
| 20 | x 12 | 508 | x 323,9 | 4,5 | 4 | 185 | 560 | 9,00 |
| | x 14 | | x 368 | | 4 | 200 | 613 | 10,80 |
| | x 16 | | x 419,1 | | 4 | 225 | 680 | 16,80 |
| | x 18 | | x 457,2 | | 4 | 250 | 800 | 22,80 |
| | x 20 | | x 508 | | 4,5 | 275 | 880 | 28,80 |
| 20 | x 12 | 508 | x 323,9 | ■ 6,5 | ■ 5 | 185 | 560 | 13,00 |
| | x 14 | | x 368 | | ■ 5,5 | 200 | 613 | 15,60 |
| | x 16 | | x 419,1 | | ■ 6 | 225 | 680 | 24,30 |
| | x 18 | | x 457,2 | | ■ 6 | 250 | 800 | 32,95 |
| | x 20 | | x 508 | | ■ 6,5 | 275 | 880 | 41,60 |
| 24 | x 14 | 610 | x 368 | 5 | 4 | 200 | 613 | 11,10 |
| | x 16 | | x 419,1 | | 4 | 225 | 680 | 17,25 |
| | x 18 | | x 457,2 | | 4 | 250 | 800 | 22,80 |
| | x 20 | | x 508 | | 4,5 | 275 | 880 | 26,70 |
| | x 24 | | x 610 | | 5 | 300 | 1020 | 47,20 |
| 24 | x 14 | 610 | x 368 | ■ 8 | ■ 5,5 | 200 | 613 | 17,77 |
| | x 16 | | x 419,1 | | ■ 6 | 225 | 680 | 27,55 |
| | x 18 | | x 457,2 | | ■ 6 | 250 | 800 | 36,45 |
| | x 20 | | x 508 | | ■ 6,5 | 275 | 880 | 42,65 |
| | x 24 | | x 610 | | ■ 8 | 300 | 1020 | 75,50 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



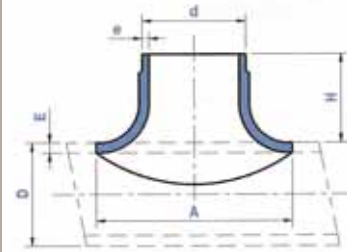
SADDLES

With equal or reduced branch

16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece |
|--------------------------------|---------|-------------------------|---------|----------------|---------|----------------|---------|--------------------------------|
| ØD x Ød nominal inch | | ØD x Ød actual mm | | E mm | e mm | H mm | A mm | |
| SEAMLESS | | | | | | | | |
| 1 1/4 | x 1 1/4 | 38 | x 38 | 2,5 | 2,5 | 35 | 64 | 0,18 |
| 1 1/2 | x 1 1/4 | 44,5 | x 38 | 2,5 | 2,5 | 35 | 64 | 0,23 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 74 | 0,25 |
| 2 | x 1 1/4 | 57 | x 38 | 2,5 | 2,5 | 35 | 64 | 0,25 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 74 | 0,28 |
| | x 2 | | x 57 | | 2,5 | 40 | 97 | 0,40 |
| 2 1/2 | x 1 1/4 | 76,1 | x 38 | 2,5 | 2,5 | 35 | 64 | 0,37 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 74 | 0,42 |
| | x 2 | | x 57 | | 2,5 | 40 | 97 | 0,60 |
| | x 2 1/2 | | x 76,1 | | 2,5 | 50 | 126 | 0,65 |
| 3 | x 1 1/4 | 88,9 | x 38 | 2,5 | 2,5 | 35 | 64 | 0,45 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 74 | 0,55 |
| | x 2 | | x 57 | | 2,5 | 40 | 97 | 0,62 |
| | x 2 1/2 | | x 76,1 | | 2,5 | 50 | 126 | 0,70 |
| | x 3 | | x 88,9 | | 2,5 | 55 | 149 | 0,95 |
| 4 | x 1 1/2 | 108 | x 44,5 | 3 | 2,5 | 35 | 74 | 0,38 |
| | x 2 | | x 57 | | 2,5 | 40 | 97 | 0,48 |
| | x 2 1/2 | | x 76,1 | | 2,5 | 50 | 126 | 0,78 |
| | x 3 | | x 88,9 | | 2,5 | 55 | 149 | 0,94 |
| | x 4 | | x 108 | | 3 | 75 | 188 | 1,56 |
| 6 | x 2 1/2 | 159 | x 76,1 | 3 | 2,5 | 50 | 126 | 0,78 |
| | x 3 | | x 88,9 | | 2,5 | 55 | 149 | 1,20 |
| | x 4 | | x 108 | | 3 | 75 | 188 | 1,44 |
| | x 6 | | x 159 | | 3 | 95 | 279 | 3,12 |
| SEAMLESS or SEAM WELDED | | | | | | | | |
| 8 | x 3 | 219,1 | x 88,9 | 4 | 2,5 | 55 | 149 | 1,73 |
| | x 4 | | x 108 | | 3 | 75 | 188 | 2,40 |
| | x 6 | | x 159 | | 3 | 95 | 279 | 5,06 |
| | x 8 | | x 219,1 | | 4 | 125 | 379 | 7,60 |



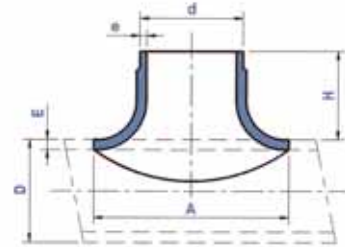
SADDLES

With equal or reduced branch

16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece | | |
|--------------------------|---|--------------|-------|----------------|-------|----------------|-----|--------------------------------|-----|-------|
| OD x Od | | OD x Od | | E | e | H | A | | | |
| nominal inch | | actual mm | | mm | mm | mm | mm | | | |
| SEAMLESS or SEAM WELDED | | | | | | | | | | |
| 10 | x | 4 | 267 | x | 108 | 4,5 | 3 | 75 | 188 | 2,70 |
| | x | 6 | | x | 159 | | 3 | 95 | 279 | 5,54 |
| | x | 8 | | x | 219,1 | | 4 | 125 | 379 | 9,14 |
| | x | 10 | | x | 267 | | 4,5 | 155 | 447 | 13,05 |
| 12 | x | 6 | 323,9 | x | 159 | 5,5 | 3 | 95 | 279 | 5,22 |
| | x | 8 | | x | 219,1 | | 4 | 125 | 379 | 10,58 |
| | x | 10 | | x | 267 | | 4,5 | 155 | 447 | 13,75 |
| | x | 12 | | x | 323,9 | | 5,5 | 185 | 560 | 17,87 |



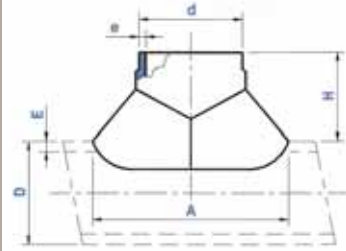
SADDLES

With equal or reduced branch

16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece | | |
|--------------------------|---|--------------|-------|----------------|-------|----------------|-----|--------------------------------|-----|-------|
| OD x Od | | OD x Od | | E | e | H | A | | | |
| nominal inch | | actual mm | | mm | mm | mm | mm | | | |
| SEAM WELDED | | | | | | | | | | |
| 8 | x | 8 | 219,1 | x | 219,1 | 4 | 4 | 125 | 379 | 5,70 |
| 10 | x | 8 | 267 | x | 219,1 | 4,5 | 4 | 125 | 379 | 6,75 |
| | x | 10 | | x | 267 | | 4,5 | 155 | 447 | 12,40 |
| 12 | x | 8 | 323,9 | x | 219,1 | 5,5 | 4 | 125 | 379 | 6,60 |
| | x | 10 | | x | 267 | | 4,5 | 155 | 447 | 12,10 |
| | x | 12 | | x | 323,9 | | 5,5 | 185 | 560 | 15,40 |
| 14 | x | 8 | 368 | x | 219,1 | 6,5 | 4 | 125 | 379 | 7,10 |
| | x | 10 | | x | 267 | | 4,5 | 155 | 447 | 11,80 |
| | x | 12 | | x | 323,9 | | 5,5 | 185 | 560 | 15,40 |
| | x | 14 | | x | 368 | | 6,5 | 200 | 613 | 20,10 |
| 16 | x | 10 | 419,1 | x | 267 | 7 | 4,5 | 155 | 447 | 11,65 |
| | x | 12 | | x | 323,9 | | 5,5 | 185 | 560 | 16,35 |
| | x | 14 | | x | 368 | | 6,5 | 200 | 613 | 19,50 |
| | x | 16 | | x | 419,1 | | 7 | 225 | 680 | 28,20 |
| 18 | x | 12 | 457,2 | x | 323,9 | 8 | 5,5 | 185 | 560 | 16,00 |
| | x | 14 | | x | 368 | | 6,5 | 200 | 613 | 19,45 |
| | x | 16 | | x | 419,1 | | 7 | 225 | 680 | 29,70 |
| | x | 18 | | x | 457,2 | | 8 | 250 | 800 | 43,40 |
| 20 | x | 14 | 508 | x | 368 | 8,5 | 6,5 | 200 | 613 | 20,40 |
| | x | 16 | | x | 419,1 | | 7 | 225 | 680 | 31,75 |
| | x | 18 | | x | 457,2 | | 8 | 250 | 800 | 43,10 |
| | x | 20 | | x | 508 | | 8,5 | 275 | 880 | 54,40 |



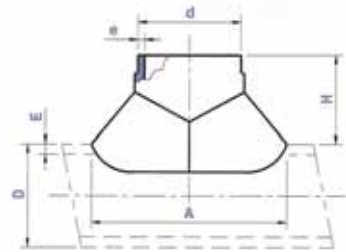
SADDLES

With equal or reduced branch

16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece | | |
|--------------------------|---|--------------|-----|----------------|-------|----------------|------|--------------------------------|------|--------|
| OD x Od | | OD x Od | | E | e | H | A | | | |
| nominal inch | | actual mm | | mm | mm | mm | mm | | | |
| SEAM WELDED | | | | | | | | | | |
| 24 | x | 16 | 610 | x | 419,1 | 10,5 | 7 | 225 | 680 | 36,15 |
| | x | 18 | | x | 457,2 | | 8 | 250 | 800 | 47,85 |
| | x | 20 | | x | 508 | | 8,5 | 275 | 880 | 56,00 |
| | x | 24 | | x | 610 | | 10,5 | 300 | 1020 | 99,20 |
| 28 | x | 18 | 711 | x | 457,2 | 12 | 8 | 250 | 800 | 77,70 |
| | x | 20 | | x | 508 | | 8,5 | 275 | 880 | 105,10 |
| | x | 24 | | x | 610 | | 10,5 | 300 | 1020 | 137,15 |
| | x | 28 | | x | 711 | | 12 | 360 | 1225 | 182,85 |
| 32 | x | 20 | 813 | x | 508 | 13,5 | 8,5 | 275 | 880 | 118,10 |
| | x | 24 | | x | 610 | | 10,5 | 300 | 1020 | 163,15 |
| | x | 28 | | x | 711 | | 12,5 | 360 | 1225 | 208,15 |
| | x | 32 | | x | 813 | | 13,5 | 410 | 1400 | 225,00 |
| 36 | x | 24 | 914 | x | 610 | 15,5 | 10,5 | 300 | 1020 | 206,70 |
| | x | 28 | | x | 711 | | 12,5 | 360 | 1225 | 246,85 |
| | x | 32 | | x | 813 | | 13,5 | 410 | 1400 | 294,45 |
| | x | 36 | | x | 914 | | 15,5 | 460 | 1550 | 357,00 |



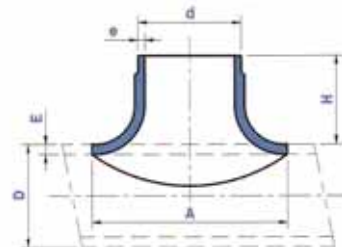
SADDLES

With equal or reduced branch

20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece |
|--------------------------------|---------|-------------------------|---------|----------------|---------|----------------|---------|--------------------------------|
| ØD x Ød nominal inch | | ØD x Ød actual mm | | E mm | e mm | H mm | A mm | |
| SEAMLESS | | | | | | | | |
| 1 1/4 | x 1 1/4 | 38 | x 38 | 2,5 | 2,5 | 35 | 64 | 0,18 |
| 1 1/2 | x 1 1/4 | 44,5 | x 38 | 2,5 | 2,5 | 35 | 64 | 0,23 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 74 | 0,25 |
| 2 | x 1 1/4 | 57 | x 38 | 2,5 | 2,5 | 35 | 64 | 0,25 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 74 | 0,28 |
| | x 2 | | x 57 | | 2,5 | 40 | 97 | 0,40 |
| 2 1/2 | x 1 1/4 | 76,1 | x 38 | 2,5 | 2,5 | 35 | 64 | 0,37 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 74 | 0,42 |
| | x 2 | | x 57 | | 2,5 | 40 | 97 | 0,60 |
| | x 2 1/2 | | x 76,1 | | 2,5 | 50 | 126 | 0,65 |
| 3 | x 1 1/4 | 88,9 | x 38 | 2,5 | 2,5 | 35 | 64 | 0,45 |
| | x 1 1/2 | | x 44,5 | | 2,5 | | 74 | 0,55 |
| | x 2 | | x 57 | | 2,5 | 40 | 97 | 0,62 |
| | x 2 1/2 | | x 76,1 | | 2,5 | 50 | 126 | 0,70 |
| | x 3 | | x 88,9 | | 2,5 | 55 | 149 | 0,95 |
| 4 | x 1 1/2 | 108 | x 44,5 | 3 | 2,5 | 35 | 74 | 0,38 |
| | x 2 | | x 57 | | 2,5 | | 40 | 97 |
| | x 2 1/2 | | x 76,1 | | 2,5 | 50 | 126 | 0,78 |
| | x 3 | | x 88,9 | | 2,5 | 55 | 149 | 0,94 |
| | x 4 | | x 108 | | 3 | 75 | 188 | 1,56 |
| 6 | x 2 1/2 | 159 | x 76,1 | 3,5 | 2,5 | 50 | 126 | 0,91 |
| | x 3 | | x 88,9 | | 2,5 | | 55 | 149 |
| | x 4 | | x 108 | | 3 | 75 | 188 | 1,68 |
| | x 6 | | x 159 | | 3,5 | 95 | 279 | 3,64 |
| SEAMLESS or SEAM WELDED | | | | | | | | |
| 8 | x 3 | 219,1 | x 88,9 | 4,5 | 2,5 | 55 | 149 | 1,94 |
| | x 4 | | x 108 | | 3 | | 75 | 188 |
| | x 6 | | x 159 | | 3,5 | 95 | 279 | 5,69 |
| | x 8 | | x 219,1 | | 4,5 | 125 | 379 | 8,55 |



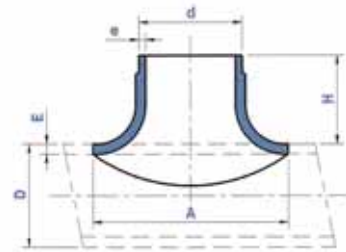
SADDLES

With equal or reduced branch

20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece | | |
|--------------------------|---|--------------|-------|----------------|-------|----------------|-----|--------------------------------|-----|-------|
| OD x Od | | OD x Od | | E | e | H | A | | | |
| nominal inch | | actual mm | | mm | mm | mm | mm | | | |
| SEAMLESS or SEAM WELDED | | | | | | | | | | |
| 10 | x | 4 | 267 | x | 108 | 5,5 | 3 | 75 | 188 | 3,30 |
| | x | 6 | | x | 159 | | 3,5 | 95 | 279 | 6,77 |
| | x | 8 | | x | 219,1 | | 4,5 | 125 | 379 | 11,17 |
| | x | 10 | | x | 267 | | 5,5 | 155 | 447 | 15,95 |
| 12 | x | 6 | 323,9 | x | 159 | 7 | 3,5 | 95 | 279 | 6,64 |
| | x | 8 | | x | 219,1 | | 4,5 | 125 | 379 | 13,46 |
| | x | 10 | | x | 267 | | 5,5 | 155 | 447 | 17,50 |
| | x | 12 | | x | 323,9 | | 7 | 185 | 560 | 22,74 |



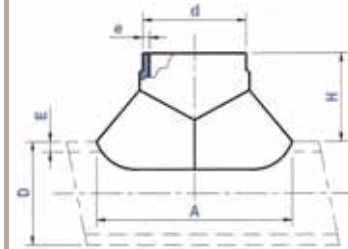
SADDLES

With equal or reduced branch

20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe | | | | Wall thickness | | Centre to face | | Theoretical weight Kg/piece | | |
|----------------------------|---|-------------------------|-------|----------------|---------|----------------|---------|--------------------------------|------|--------|
| ØD x Ød nominal inch | | ØD x Ød actual mm | | E mm | e mm | H mm | A mm | | | |
| SEAM WELDED | | | | | | | | | | |
| 8 | x | 8 | 219,1 | x | 219,1 | 4,5 | 4,5 | 125 | 379 | 6,40 |
| 10 | x | 8 | 267 | x | 219,1 | 5,5 | 4,5 | 125 | 379 | 8,25 |
| | x | 10 | | x | 267 | | 5,5 | 155 | 447 | 15,15 |
| 12 | x | 8 | 323,9 | x | 219,1 | 7 | 4,5 | 125 | 379 | 8,40 |
| | x | 10 | | x | 267 | | 5,5 | 155 | 447 | 15,40 |
| | x | 12 | | x | 323,9 | | 7 | 185 | 560 | 19,60 |
| 14 | x | 8 | 368 | x | 219,1 | 8 | 4,5 | 125 | 379 | 8,75 |
| | x | 10 | | x | 267 | | 5,5 | 155 | 447 | 14,55 |
| | x | 12 | | x | 323,9 | | 7 | 185 | 560 | 18,95 |
| | x | 14 | | x | 368 | | 8 | 200 | 613 | 24,75 |
| 16 | x | 10 | 419,1 | x | 267 | 9 | 5,5 | 155 | 447 | 15,00 |
| | x | 12 | | x | 323,9 | | 7 | 185 | 560 | 21,00 |
| | x | 14 | | x | 368 | | 8 | 200 | 613 | 25,10 |
| | x | 16 | | x | 419,1 | | 9 | 225 | 680 | 36,25 |
| 18 | x | 12 | 457,2 | x | 323,9 | 9,5 | 7 | 185 | 560 | 19,00 |
| | x | 14 | | x | 368 | | 8 | 200 | 613 | 23,10 |
| | x | 16 | | x | 419,1 | | 9 | 225 | 680 | 35,25 |
| | x | 18 | | x | 457,2 | | 9,5 | 250 | 800 | 51,55 |
| 20 | x | 14 | 508 | x | 368 | 11 | 8 | 200 | 613 | 26,40 |
| | x | 16 | | x | 419,1 | | 9 | 225 | 680 | 41,10 |
| | x | 18 | | x | 457,2 | | 9,5 | 250 | 800 | 55,80 |
| | x | 20 | | x | 508 | | 11 | 275 | 880 | 70,40 |
| 24 | x | 16 | 610 | x | 419,1 | 13 | 9 | 225 | 680 | 44,75 |
| | x | 18 | | x | 457,2 | | 9,5 | 250 | 800 | 59,25 |
| | x | 20 | | x | 508 | | 11 | 275 | 880 | 69,30 |
| | x | 24 | | x | 610 | | 13 | 300 | 1020 | 122,80 |

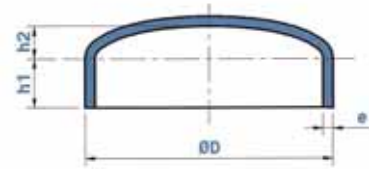


END CAPS

10 BAR ■ and 14 Bar

Material: CuNi 90/10

Dimension: DIN 28011



| Outside diameter of pipe OD | | Wall thickness e mm | Heigh | | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|----------|----------|-----------------------------------|
| nominal inch | actual mm | | h1 mm | h2 mm | |
| SEAMLESS | | | | | |
| 1 | 30 | 1,5 | 14 | 5 | 0,07 |
| 1 1/4 | 38 | 1,5 | | 6,5 | 0,10 |
| 1 1/2 | 44,5 | 1,5 | | 8 | 0,12 |
| 2 | 57 | 1,5 | 18 | 10 | 0,18 |
| 2 1/2 | 76,1 | 2 | | 14 | 0,31 |
| 3 | 88,9 | 2 | 20 | 16 | 0,39 |
| 3 | 88,9 | ■ 2,5 | | 20 | 0,53 |
| 4 | 108 | 2,5 | | 24 | 0,75 |
| 5 | 133 | 2,5 | | 29 | 0,95 |
| 5 | 133 | ■ 3 | | 36 | 1,20 |
| 6 | 159 | 2,5 | | 41 | 1,35 |
| 6 | 159 | ■ 3 | | 50 | 1,60 |
| 7 | 193,7 | 3 | | 61 | 1,95 |
| 7 | 193,7 | ■ 3,5 | | 69 | 2,40 |
| 8 | 219,1 | 3 | | 79 | 2,60 |
| 8 | 219,1 | ■ 3,5 | | 87 | 3,10 |
| 10 | 267 | 3 | | 96 | 3,85 |
| 10 | 267 | ■ 4 | | 115 | 4,85 |
| 12 | 323,9 | 4 | | | 6,60 |
| 12 | 323,9 | ■ 5 | | 8,20 | |
| 14 | 368 | 4 | | 8,80 | |
| 14 | 368 | ■ 5,5 | | 12,60 | |
| 16 | 419,1 | 4 | 25 | 12,20 | |
| 16 | 419,1 | ■ 6 | 20 | 17,40 | |
| 18 | 457,2 | 4 | 25 | 12,55 | |
| 18 | 457,2 | ■ 6 | 25 | 17,90 | |
| 20 | 508 | 4,5 | 20 | 18,80 | |
| 20 | 508 | ■ 6,5 | 25 | 26,35 | |
| 24 | 610 | 5 | 20 | 26,70 | |
| 24 | 610 | ■ 8 | 35 | 49,60 | |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

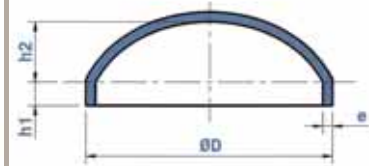


END CAPS

16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe OD | | Wall thickness e mm | Heigh | | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|-------|---------|-----------------------------------|
| nominal inch | actual mm | | h1 | + h2 | |
| SEAMLESS | | | | | |
| 1 1/2 | 44,5 | 2,5 | | 19,6 | 0,13 |
| 2 | 57 | | | 22 | 0,19 |
| 2 1/2 | 76,1 | | | 25,7 | 0,31 |
| 3 | 88,9 | | | 28,2 | 0,40 |
| 4 | 108 | 3 | | 31,7 | 0,75 |
| 6 | 159 | | | 41 | 1,50 |
| 8 | 219,1 | 4 | | 55 | 2,75 |
| 10 | 267 | 4,5 | | 69 | 4,90 |
| 12 | 323,9 | 5,5 | | 80 | 9,17 |
| 14 | 368 | 6,5 | | 93 | 14,05 |
| 16 | 419,1 | 7 | | 102 | 18,60 |
| 18 | 457,2 | 8 | | 119 | 22,75 |
| 20 | 508 | 8,5 | | 129 | 31,70 |
| 24 | 610 | 10,5 | | 148 | 56,16 |
| 28 | 711 | 12 | | 176 | 85,55 |
| 32 | 813 | 13,5 | | 200 | 125,40 |
| 36 | 914 | 15,5 | | 221 | 175,40 |

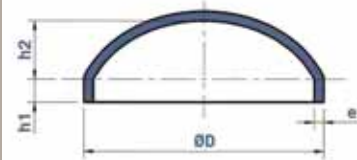


END CAPS

20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of pipe OD | | Wall thickness e mm | Heigh | | Theoretical weight Kg/piece |
|--------------------------------|--------------|------------------------------|-------|---------|-----------------------------------|
| nominal inch | actual mm | | h1 | + h2 | |
| SEAMLESS | | | | | |
| 1 1/2 | 44,5 | 2,5 | | 19,6 | 0,13 |
| 2 | 57 | | | 22 | 0,19 |
| 2 1/2 | 76,1 | | | 25,7 | 0,31 |
| 3 | 88,9 | | | 28,2 | 0,40 |
| 4 | 108 | | | 31,7 | 0,75 |
| 6 | 159 | 3,5 | | 44 | 1,75 |
| 8 | 219,1 | 4,5 | | 60 | 3,10 |
| 10 | 267 | 5,5 | | 69 | 5,96 |
| 12 | 323,9 | 7 | | 85 | 11,68 |
| 14 | 368 | 8 | | 103 | 17,30 |
| 16 | 419,1 | 9 | | 112 | 23,90 |
| 18 | 457,2 | 9,5 | | 119 | 27,00 |
| 20 | 508 | 11 | | 139 | 41,00 |
| 24 | 610 | 13 | | 163 | 68,30 |
| 28 | 711 | 15 | | 191 | 106,90 |
| 32 | 813 | 17 | | 210 | 157,90 |
| 36 | 914 | 19 | | 231 | 215,00 |



FLANGES



FLANGES

| | | |
|---|---|--|
| <p>Composite Weld Neck Flanges Inner flanges (DIN)</p>  <p>Page: 62</p> | <p>Composite Weld Neck Flanges Inner flanges (Short type EEMUA)</p>  <p>Page: 63, 64</p> | <p>Composite Weld Neck Flanges Inner flanges (Long type EEMUA)</p>  <p>Page: 65, 66</p> |
| <p>Composite Weld Neck Flanges Outer flanges (ISO)</p>  <p>Page: 67</p> | <p>Composite Weld Neck Flanges Outer flanges (EEMUA)</p>  <p>Page: 68</p> | <p>Composite Weld Neck Flanges Outer flanges (ANSI)</p>  <p>Page: 69, 70</p> |
| <p>Composite blind Flanges (ISO, ANSI)</p>  <p>Page: 71, 72, 73</p> | <p>Solid Welding Neck Flanges (DIN)</p>  <p>Page: 74</p> | <p>Solid Weld Neck Flanges (EEMUA, ANSI)</p>  <p>Page: 75, 76, 77, 78</p> |
| <p>Solid Slip On Flanges (DIN, ANSI)</p>  <p>Page: 79, 81, 82</p> | <p>Solid Slip On Flanges (EEMUA)</p>  <p>Page: 80</p> | <p>Solid Blind Flanges (ISO, ANSI)</p>  <p>Page: 83, 84</p> |

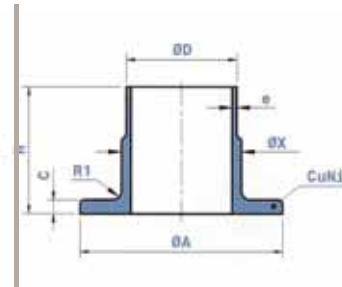


COMPOSITE WELD NECK FLANGES

Inner flanges

Material: CuNi 90/10

Dimension: DIN 86037



| Outside diameter of pipe OD | | Wall thickness e mm | OA mm | H mm | C mm | OX mm | R1 mm | Theo. weight Kg/piece |
|--------------------------------|--------------|------------------------------|----------|---------|---------|----------|----------|-----------------------------|
| nominal inch | actual mm | | | | | | | |
| 3/4 | 25 | 1,5 | 58 | 40 | 5 | 27 | 3 | 0,17 |
| 1 | 30 | | 68 | | | 32 | | 0,24 |
| 1 1/4 | 38 | | 78 | | | 40 | 0,26 | |
| 1 1/2 | 44,5 | | 88 | 45 | 6 | 46,5 | 4 | 0,42 |
| 2 | 57 | | 102 | | | 59 | | 0,53 |
| 2 1/2 | 76,1 | 2 | 122 | 50 | 7 | 78 | 5 | 0,64 |
| 3 | 88,9 | ■ 2,5 | 138 | | | 91 | | 0,86 |
| 4 | 108 | 2,5 | 158 | | | 110 | | 0,90 |
| 5 | 133 | ■ 3 | 188 | | | 135,5 | | 1,10 |
| 6 | 159 | 2,5 | 212 | | | 161,5 | | 1,50 |
| | | ■ 3 | | | | | | 2,00 |
| 7 | 193,7 | 3 | 242 | | | 197 | | 2,10 |
| | | ■ 3,5 | | | | | | 2,30 |
| | | 3 | | | | | | 2,55 |
| 8 | 219,1 | 3 | 268 | | | 222 | | 2,70 |
| | | ■ 3,5 | | 2,90 | | | | |
| 10 | 267 | 3 | 320 | 270 | 3,40 | | | |
| | | ■ 4 | | | 3,80 | | | |
| 12 | 323,9 | 4 | 370 | 327 | 4,60 | | | |
| | | ■ 5 | | | 5,40 | | | |
| 14 | 368 | 4 | 430 | 371 | 6,20 | | | |
| | | ■ 5,5 | | | 6,95 | | | |
| 16 | 419,1 | 4 | 482 | 422 | 7,50 | | | |
| | | ■ 6 | | | 8,65 | | | |
| 18 | 457,2 | 4 | 530 | 460 | 9,00 | | | |
| | | ■ 6 | | | 10,15 | | | |
| 20 | 508 | 4,5 | 585 | 511 | 10,65 | | | |
| | | ■ 6,5 | | | 11,90 | | | |
| 24 | 610 | 5 | 685 | 613 | 14,90 | | | |
| | | ■ 8 | | | 17,65 | | | |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

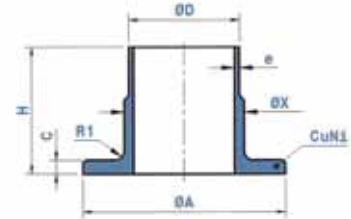


COMPOSITE WELD NECK FLANGES

Short inner flanges type EEMUA

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 145



| Outside diameter of pipe OD | | Wall thickness e mm | OA mm | H mm | C mm | ØX mm | R1 mm | Theo. weight Kg/piece |
|--------------------------------|--------------|------------------------------|----------|---------|---------|----------|----------|-----------------------------|
| nominal inch | actual mm | | | | | | | |
| 1/2 | 16 | 2 | 40 | 35 | 4 | 18 | 2 | 0,07 |
| 3/4 | 25 | | 50 | | | 27 | | 3 |
| 1 | 30 | | 60 | 40 | 5 | 32 | 4 | 0,20 |
| 1 1/4 | 38 | 70 | 40 | | | 0,25 | | |
| 1 1/2 | 44,5 | 2,5 | 80 | 45 | 6 | 46,5 | 5 | 0,42 |
| 2 | 57 | | 99 | | | 59 | | 0,50 |
| 2 1/2 | 76,1 | | 120 | 78 | 0,67 | | | |
| 3 | 88,9 | 3 | 130 | 50 | 7 | 91 | 5 | 0,86 |
| 4 | 108 | | 158 | | | 110 | | 1,18 |
| 6 | 159 | | 212 | 161,5 | 2,20 | | | |
| 8 | 219,1 | 4 | 270 | 50 | 9 | 222 | 7 | 3,20 |
| 10 | 267 | | 320 | | | 270 | | 3,90 |
| 12 | 323,9 | 5,5 | 370 | 60 | 11 | 327 | 9 | 6,50 |
| 14 | 368 | 6,5 | 430 | | | 371 | | 7,45 |
| 16 | 419,1 | 7 | 482 | 60 | 12 | 422 | 9 | 9,20 |
| 18 | 457,2 | 8 | 530 | | | 460 | | 11,45 |
| 20 | 508 | 8,5 | 585 | 60 | 14 | 511 | 9 | 13,40 |
| 24 | 610 | 10,5 | 685 | | | 613 | | 20,75 |
| 28 | 711 | 12 | 800 | 60 | 19 | 719 | 9 | 33,35 |
| 32 | 813 | 13,5 | 905 | | | 821 | | 42,25 |
| 36 | 914 | 15,5 | 1000 | 22 | 922 | 49,35 | | |



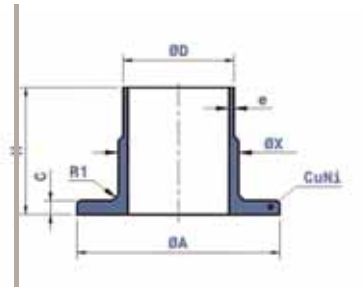
COMPOSITE WELD NECK FLANGES

Short inner flanges type EEMUA

20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 145



| Outside diameter of pipe OD | | Wall thickness e mm | OA mm | H mm | C mm | OX mm | R1 mm | Theo. weight Kg/piece |
|--------------------------------|--------------|------------------------------|----------|---------|---------|----------|----------|-----------------------------|
| nominal inch | actual mm | | | | | | | |
| 1/2 | 16 | 2 | 40 | 35 | 4 | 18 | 2 | 0,07 |
| 3/4 | 25 | | 50 | | | 27 | | 3 |
| 1 | 30 | | 60 | 40 | 5 | 32 | 4 | 0,20 |
| 1 1/4 | 38 | 70 | 40 | | | 0,25 | | |
| 1 1/2 | 44,5 | 80 | 45 | | | 6 | | 46,5 |
| 2 | 57 | 99 | | 59 | 0,50 | | | |
| 2 1/2 | 76,1 | 120 | | 78 | 0,67 | | | |
| 3 | 88,9 | 3 | 130 | 50 | 7 | 91 | 5 | 0,86 |
| 4 | 108 | | 158 | | | 110 | | 1,20 |
| 6 | 159 | | 212 | | | 161,5 | | 2,20 |
| 8 | 219,1 | 4,5 | 270 | 50 | 9 | 222 | 7 | 3,30 |
| 10 | 267 | 5,5 | 320 | | | 270 | | 4,20 |
| 12 | 323,9 | 7 | 370 | | | 327 | | 6,80 |
| 14 | 368 | 8 | 430 | 60 | 11 | 371 | 9 | 8,20 |
| 16 | 419,1 | 9 | 482 | | | 422 | | 10,35 |
| 18 | 457,2 | 9,5 | 530 | | | 460 | | 12,40 |
| 20 | 508 | 11 | 585 | 60 | 12 | 511 | 9 | 15,10 |
| 24 | 610 | 13 | 685 | | | 613 | | 23,25 |
| 28 | 711 | 15 | 800 | | | 719 | | 36,80 |
| 32 | 813 | 17 | 905 | 60 | 20,5 | 821 | 9 | 46,85 |
| 36 | 914 | 19 | 1000 | | | 922 | | 54,55 |



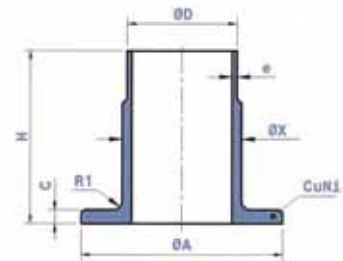
COMPOSITE WELD NECK FLANGES

Long inner flanges type EEMUA

16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 145



| Outside diameter of pipe OD | | Wall thickness e mm | OA mm | H mm | C mm | OX mm | R1 mm | Theo. weight Kg/piece | |
|--------------------------------|--------------|------------------------------|----------|---------|---------|----------|----------|-----------------------------|------|
| nominal inch | actual mm | | | | | | | | |
| 1/2 | 16 | 2 | 40 | 51 | 4 | 18 | 2 | 0,09 | |
| 3/4 | 25 | | 50 | | | 27 | | 3 | 0,19 |
| 1 | 30 | | 60 | | | 32 | | 4 | 0,23 |
| 1 1/4 | 38 | 70 | 40 | 0,29 | | | | | |
| 1 1/2 | 44,5 | 80 | 46,5 | 0,44 | | | | | |
| 2 | 57 | 2,5 | 99 | 64 | 6 | 59 | 5 | 0,61 | |
| 2 1/2 | 76,1 | | 120 | | | 78 | | 0,80 | |
| 3 | 88,9 | | 130 | | | 91 | | 0,97 | |
| 4 | 108 | 3 | 158 | 76 | 7 | 110 | 5 | 1,50 | |
| 6 | 159 | | 212 | | | 161,5 | | 2,90 | |
| 8 | 219,1 | | 270 | | | 222 | | 5,10 | |
| 10 | 267 | 4,5 | 320 | 127 | 9 | 270 | 7 | 8,90 | |
| 12 | 323,9 | 5,5 | 370 | 152 | | 327 | | 13,80 | |
| 14 | 368 | 6,5 | 430 | | | 371 | | 16,60 | |
| 16 | 419,1 | 7 | 482 | | 190 | 422 | 20,25 | | |
| 18 | 457,2 | 8 | 530 | 460 | | 23,60 | | | |
| 20 | 508 | 8,5 | 585 | 511 | | 28,65 | | | |
| 24 | 610 | 10,5 | 685 | 190 | 14 | 613 | 9 | 39,25 | |
| 28 | 711 | 12 | 800 | | 19 | 719 | | 75,30 | |
| 32 | 813 | 13,5 | 905 | | 20,5 | 827 | | 94,60 | |
| 36 | 914 | 15,5 | 1000 | 22 | 922 | 115,55 | | | |



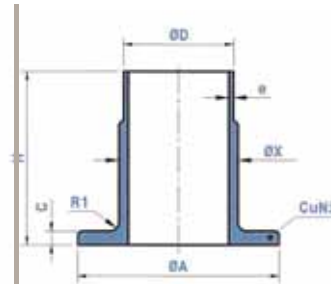
COMPOSITE WELD NECK FLANGES

20 BAR

Long inner flanges type EEMUA

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 145



| Outside diameter of pipe OD | | Wall thickness e mm | OA mm | H mm | C mm | OX mm | R1 mm | Theo. weight Kg/piece | |
|--------------------------------|--------------|------------------------------|----------|---------|---------|----------|----------|-----------------------------|------|
| nominal inch | actual mm | | | | | | | | |
| 1/2 | 16 | 2 | 40 | 51 | 4 | 18 | 2 | 0,09 | |
| 3/4 | 25 | | 50 | | | 27 | | 3 | 0,19 |
| 1 | 30 | | 60 | | | 32 | | 4 | 0,23 |
| 1 1/4 | 38 | 70 | 40 | 0,29 | | | | | |
| 1 1/2 | 44,5 | 80 | 46,5 | 0,44 | | | | | |
| 2 | 57 | 2,5 | 99 | 64 | 6 | 59 | 5 | 0,61 | |
| 2 1/2 | 76,1 | | 120 | | | 78 | | 0,80 | |
| 3 | 88,9 | | 130 | | | 91 | | 0,97 | |
| 4 | 108 | 3 | 158 | 76 | 7 | 110 | 5 | 1,50 | |
| 6 | 159 | 3,5 | 212 | 89 | | 161,5 | | 2,90 | |
| 8 | 219,1 | 4,5 | 270 | 102 | | 222 | | 5,20 | |
| 10 | 267 | 5,5 | 320 | 127 | 9 | 270 | 7 | 9,80 | |
| 12 | 323,9 | 7 | 370 | 152 | | 327 | | 15,40 | |
| 14 | 368 | 8 | 430 | | | 371 | | 19,00 | |
| 16 | 419,1 | 9 | 482 | | 12 | 422 | 23,95 | | |
| 18 | 457,2 | 9,5 | 530 | 460 | | 26,40 | | | |
| 20 | 508 | 11 | 585 | 511 | | 33,85 | | | |
| 24 | 610 | 13 | 685 | 190 | 14 | 613 | 9 | 45,50 | |
| 28 | 711 | 15 | 800 | | 19 | 719 | | 86,20 | |
| 32 | 813 | 17 | 905 | | 20,5 | 821 | | 100,15 | |
| 36 | 914 | 19 | 1000 | | 22 | 922 | | 131,95 | |



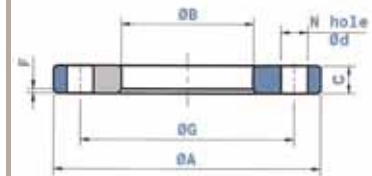
COMPOSITE WELD NECK FLANGES

10 BAR

Outer Flanges

Material: CuNi 90/10

Dimension: ISO NP10 - DIN 86037



| Outside diameter of pipe OD | | OA mm | C mm | OB mm | F mm | Drilling | | | Theo. weight Kg/piece |
|--------------------------------|--------------|----------|---------|----------|---------|----------|---------|----------|-----------------------------|
| nominal inch | actual mm | | | | | OG mm | N mm | Od mm | |
| 3/4 | 25 | 105 | 14 | 28 | 3 | 75 | 4 | 14 | 0,80 |
| 1 | 30 | 115 | 16 | 33 | 4 | 85 | | 18 | 1,10 |
| 1 1/4 | 38 | 140 | | 42 | | 1,65 | | | |
| 1 1/2 | 44,5 | 150 | 50 | 1,85 | | | | | |
| 2 | 57 | 165 | 62 | 2,20 | | | | | |
| 2 1/2 | 76,1 | 185 | 81 | 2,65 | | | | | |
| 3 | 88,9 | 200 | 94 | 3,30 | | | | | |
| 4 | 108 | 220 | 113 | 3,65 | | | | | |
| 5 | 133 | 250 | 138 | 4,55 | | | | | |
| 6 | 159 | 285 | 164 | 5,60 | | | | | |
| 7 | 193,7 | 315 | 22 | 200 | 270 | 8 | 22 | 7,50 | |
| 8 | 219,1 | 340 | 20 | 225 | 295 | | | 7,45 | |
| 10 | 267 | 395 | 22 | 273 | 350 | 12 | 26 | 10,30 | |
| 12 | 323,9 | 445 | 24 | 331 | 400 | | | 12,00 | |
| 14 | 368 | 505 | 26 | 375 | 460 | 16 | 30 | 16,00 | |
| 16 | 419,1 | 565 | | 426 | 515 | | | 20,00 | |
| 18 | 457,2 | 615 | 28 | 465 | 565 | 20 | 30 | 25,00 | |
| 20 | 508 | 670 | 30 | 517 | 620 | | | 31,00 | |
| 24 | 610 | 780 | 32 | 618 | 9 | 725 | 40,00 | | |

- Other dimensions, wall thicknesses and outside diameters are also available upon request.



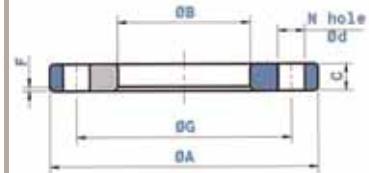
COMPOSITE WELD NECK FLANGES

150 LBS

Outer Flanges

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 145



| Outside diameter of pipe OD | | OA | C | OB | F | Drilling | | | Theo. weight Kg/piece |
|--------------------------------|--------------|------|-----|-------|---|----------|------|--------|-----------------------------|
| nominal inch | actual mm | | | | | OG | N | Od | |
| 1/2 | 16 | 89 | 14 | 19 | 2 | 60,3 | 4 | 15,9 | 0,60 |
| 3/4 | 25 | 98 | | 28 | 3 | 69,8 | | 19,0 | 0,80 |
| 1 | 30 | 108 | | 33 | | 79,4 | | | 0,90 |
| 1 1/4 | 38 | 117 | | 41 | | 88,9 | | | 1,10 |
| 1 1/2 | 44,5 | 127 | | 48 | | 98,4 | | | 1,20 |
| 2 | 57 | 152 | 62 | 120,6 | | 2,10 | | | |
| 2 1/2 | 76,1 | 178 | 18 | 81 | 4 | 139,7 | 22,2 | 2,60 | |
| 3 | 88,9 | 190 | | 19 | | 152,4 | | 2,90 | |
| 4 | 108 | 229 | 24 | 113 | 4 | 190,4 | 25,4 | 5,90 | |
| 6 | 159 | 279 | 27 | 164 | 4 | 241,3 | | 8,40 | |
| 8 | 219,1 | 343 | 31 | 225 | 5 | 298,4 | 28,6 | 12,35 | |
| 10 | 267 | 406 | 38 | 273 | | 362,0 | | 19,70 | |
| 12 | 323,9 | 483 | 41 | 330 | 7 | 431,8 | 31,8 | 32,20 | |
| 14 | 368 | 533 | 45 | 374 | | 476,2 | | 38,20 | |
| 16 | 419,1 | 597 | 51 | 426 | | 539,8 | | 52,15 | |
| 18 | 457,2 | 635 | 52 | 465 | 9 | 577,8 | 34,9 | 54,05 | |
| 20 | 508 | 698 | 58 | 517 | | 635,0 | | 73,20 | |
| 24 | 610 | 813 | 71 | 618 | | 749,3 | | 114,25 | |
| 28 | 711 | 927 | 81 | 727 | 9 | 864,0 | 41,1 | 151,80 | |
| 32 | 813 | 1060 | 95 | 829 | | 978,0 | | 233,50 | |
| 36 | 914 | 1168 | 105 | 931 | | 1086,0 | | 294,10 | |



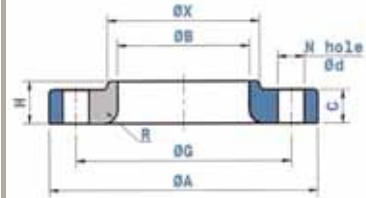
COMPOSITE WELD NECK FLANGES

150 LBS

Outer Flanges

Material: CuNi 90/10

Dimension: ANSI B16.5



| Outside diameter of pipe OD | | ØA | H | C | ØX | ØB | R | Drilling | | | Theo. weight Kg/piece |
|--------------------------------|--------------|-------|-------|------|-------|------|-------|----------|-------|------|-----------------------------|
| nominal inch | actual mm | | | | | | | ØG | N | Ød | |
| 1/2 | 20 | 88,9 | 15,9 | 11,1 | 30,2 | 22 | 3,2 | 60,3 | 4 | 15,9 | 0,80 |
| 3/4 | 25 | 98,4 | | 12,7 | 38,1 | 28 | | 69,8 | | | 0,90 |
| 1 | 30 | 107,9 | 14,3 | 49,2 | 33 | 79,4 | 1,00 | | | | |
| 1 1/4 | 38 | 117,5 | 20,6 | 15,9 | 58,8 | 41 | 4,8 | 88,9 | | 1,30 | |
| 1 1/2 | 44,5 | 127,0 | 22,2 | 17,5 | 65,1 | 48 | 6,4 | 98,4 | | 1,40 | |
| 2 | 57 | 152,4 | 25,4 | 19,0 | 77,8 | 62 | 7,9 | 120,6 | | 2,30 | |
| 2 1/2 | 76,1 | 177,8 | 28,6 | 22,2 | 90,5 | 81 | 9,5 | 139,7 | 8 | 19,0 | 3,20 |
| 3 | 88,9 | 190,5 | 30,2 | 23,8 | 107,9 | 94 | | 152,4 | | | 3,60 |
| 4 | 108 | 228,6 | 33,3 | | 134,9 | 113 | 11,1 | 190,5 | | | 5,90 |
| 5 | 133 | 254,0 | 36,5 | 25,4 | 163,5 | 138 | 11,1 | 215,9 | 8 | 22,2 | 6,80 |
| 6 | 159 | 279,4 | 39,7 | | 192,1 | 164 | | 241,3 | | | 8,60 |
| 8 | 219,1 | 342,9 | 44,4 | 28,6 | 246,1 | 225 | 12,70 | 298,4 | | | 12 |
| 10 | 267 | 406,4 | 49,2 | 30,2 | 304,8 | 273 | | 361,9 | 19,50 | | |
| 12 | 323,9 | 482,6 | 55,6 | 31,7 | 365,1 | 330 | 12,70 | 431,8 | 16 | 28,6 | 29,00 |
| 14 | 368 | 533,4 | 79,4 | 34,9 | 400,0 | 374 | | 476,2 | | | 45,00 |
| 16 | 419,1 | 596,9 | 87,3 | 36,5 | 457,2 | 426 | 12,70 | 539,7 | 20 | 31,7 | 58,00 |
| 18 | 457,2 | 635,0 | 96,8 | 39,7 | 504,8 | 465 | | 577,8 | | | 66,00 |
| 20 | 508 | 698,5 | 103,2 | 42,9 | 558,8 | 517 | 12,70 | 635,0 | 20 | 34,9 | 84,00 |
| 24 | 610 | 812,8 | 111,1 | 47,6 | 663,6 | 618 | | 749,3 | | | 118,00 |

- Other dimensions, wall thicknesses and outside diameters are also available upon request.



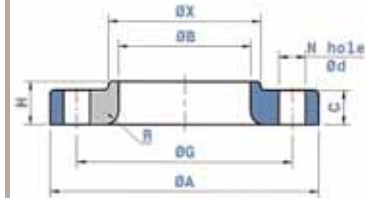
COMPOSITE WELD NECK FLANGES

300 LBS

Outer Flanges

Material: CuNi 90/10

Dimension: ANSI B16.5



| Outside diameter of pipe OD | | OA | H | C | OX | OB | R | Drilling | | | Theo. weight Kg/piece | |
|--------------------------------|--------------|-------|-------|------|-------|-----|-------|----------|----|-------|-----------------------------|--------|
| nominal inch | actual mm | | | | | | | OG | N | Od | | |
| 1/2 | 20 | 95,2 | 22,2 | 14,3 | 38,1 | 22 | | 66,7 | 4 | 15,9 | 1,20 | |
| 3/4 | 25 | 117,5 | 25,4 | 15,9 | 47,6 | 28 | 3,2 | 82,5 | | 19,0 | 1,30 | |
| 1 | 30 | 123,8 | 27,0 | 17,5 | 54,0 | 33 | | 88,9 | | 19,0 | 1,40 | |
| 1 1/4 | 38 | 133,3 | | 19,0 | 63,5 | 41 | 4,8 | 98,4 | | 19,0 | 1,80 | |
| 1 1/2 | 44,5 | 155,6 | 30,2 | 20,6 | 69,8 | 48 | 6,4 | 114,3 | 8 | 22,2 | 2,70 | |
| 2 | 57 | 165,1 | 33,3 | 22,2 | 84,1 | 62 | 7,9 | 127,0 | | 19,0 | 3,20 | |
| 2 1/2 | 76,1 | 190,5 | 38,1 | 25,4 | 100,0 | 81 | | 149,2 | 12 | 22,2 | 4,50 | |
| 3 | 88,9 | 209,5 | 42,9 | 28,6 | 117,5 | 94 | 9,5 | 168,3 | | | 5,90 | |
| 4 | 108 | 254,0 | 47,6 | 31,7 | 146,0 | 113 | 11,1 | 200,0 | | | 10,00 | |
| 5 | 133 | 279,4 | 50,8 | 34,9 | 177,8 | 138 | | 234,9 | | | 12,70 | |
| 6 | 159 | 317,5 | 52,4 | 36,5 | 206,4 | 164 | 12,7 | 269,9 | 16 | 17,70 | | |
| 8 | 219,1 | 381,0 | 61,9 | 41,3 | 260,3 | 225 | | 330,2 | | 12 | 25,4 | 26,30 |
| 10 | 267 | 444,5 | 95,2 | 47,6 | 320,7 | 273 | | 387,3 | 20 | 16 | 28,6 | 41,00 |
| 12 | 323,9 | 520,7 | 101,6 | 50,8 | 374,6 | 330 | | 450,8 | | 20 | 31,7 | 63,00 |
| 14 | 368 | 584,2 | 111,1 | 54,0 | 425,4 | 374 | 514,3 | 24 | 24 | 34,9 | 86,00 | |
| 16 | 419,1 | 647,7 | 120,6 | 57,1 | 482,6 | 426 | 571,5 | | | | 24 | 109,00 |
| 18 | 457,2 | 711,2 | 130,2 | 60,3 | 533,4 | 465 | 628,6 | 24 | 24 | 34,9 | 138,00 | |
| 20 | 508 | 774,7 | 139,7 | 63,5 | 587,4 | 517 | 685,8 | | | | 24 | 170,00 |
| 24 | 610 | 914,4 | 152,4 | 69,8 | 701,7 | 618 | 812,8 | | | 41,3 | 241,00 | |

- Other dimensions, wall thicknesses and outside diameters are also available upon request.



COMPOSITE BLIND FLANGES

10 BAR

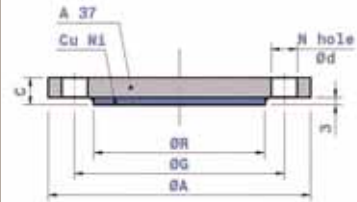
DISCS:

Material: CuNi 90/10

FLANGES:

Material: Carbon steel A105
(Galvanised or epoxy coated upon request)

Dimension: ISO NP 10



| Outside diameter of pipe OD | | OA mm | C mm | OR mm | Drilling | | | Theo. weight Kg/piece |
|--------------------------------|--------------|----------|---------|----------|----------|--------------------|----------|-----------------------------|
| nominal inch | actual mm | | | | OG mm | N bolt holes | Ød mm | |
| 1/2 | 20 | 95 | 14 | 46 | 65 | 4 | 14 | 0,78 |
| 3/4 | 25 | 105 | 16 | 56 | 75 | | 1,15 | |
| 1 | 30 | 115 | 18 | 65 | 85 | | 1,40 | |
| 1 1/4 | 38 | 140 | | 76 | 100 | | 2,00 | |
| 1 1/2 | 44,5 | 150 | 20 | 84 | 110 | 8 | 18 | 2,35 |
| 2 | 57 | 165 | | 99 | 125 | | 3,20 | |
| 2 1/2 | 76,1 | 185 | 118 | 145 | 4,15 | | | |
| 3 | 88,9 | 200 | 132 | 160 | 5,70 | | | |
| 4 | 108 | 220 | 22 | 156 | 180 | 20 | 26 | 7,05 |
| 5 | 133 | 250 | 24 | 184 | 210 | | 10,05 | |
| 6 | 159 | 285 | | 211 | 240 | | 13,00 | |
| 7 | 193,7 | 315 | 242 | 270 | 18,00 | | | |
| 8 | 219,1 | 340 | 26 | 266 | 295 | 12 | 22 | 20,80 |
| 10 | 267 | 395 | | 319 | 350 | | 29,65 | |
| 12 | 323,9 | 445 | 370 | 400 | 38,70 | | | |
| 14 | 368 | 505 | 28 | 429 | 460 | | 53,55 | |
| 16 | 419,1 | 565 | | 480 | 515 | 69,45 | | |
| 18 | 457,2 | 615 | 30 | 530 | 565 | 16 | 26 | 82,40 |
| 20 | 508 | 670 | | 582 | 620 | | 104,70 | |
| 24 | 610 | 780 | 34 | 682 | 725 | 20 | 30 | 149,75 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



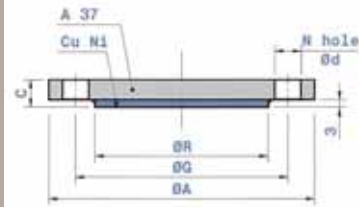
COMPOSITE BLIND FLANGES

150 LBS

DISCS:
Material: CuNi 90/10

FLANGES:
Material: Carbon steel A105
(Galvanised or epoxy coated upon request)

Dimension: ANSI B16.5



| Outside diameter of pipe ØD | | ØA | C | ØR | Drilling | | Theo. weight Kg/piece | |
|--------------------------------|--------------|-------|-------|-------|----------|--------------------|--------------------------|--------|
| nominal inch | actual mm | | | | ØG | N bolt holes | | Ød |
| 1/2 | 20 | 88,9 | 12,5 | 34,9 | 60,3 | 4 | 0,80 | |
| 3/4 | 25 | 98,4 | 14,1 | 42,9 | 69,8 | | 0,90 | |
| 1 | 30 | 108,0 | 15,7 | 50,8 | 79,4 | | 1,00 | |
| 1 1/4 | 38 | 117,5 | 17,3 | 63,5 | 88,9 | | 1,30 | |
| 1 1/2 | 44,5 | 127,0 | 20,5 | 73,0 | 98,4 | | 1,40 | |
| 2 | 57 | 152,4 | 22,5 | 92,1 | 120,6 | | 1,80 | |
| 2 1/2 | 76,1 | 177,8 | 23,7 | 104,8 | 139,7 | 8 | 3,20 | |
| 3 | 88,9 | 190,5 | 25,2 | 127,0 | 152,4 | | 19 | 4,00 |
| 4 | 108 | 228,6 | | 157,2 | 190,5 | 12 | 8,00 | |
| 5 | 133 | 254,0 | 185,7 | 215,9 | 9,00 | | | |
| 6 | 159 | 279,4 | 215,9 | 241,3 | 12,00 | | | |
| 8 | 219,1 | 342,9 | 269,9 | 298,4 | 20,00 | | | |
| 10 | 267 | 406,4 | 31,6 | 323,8 | 361,9 | 16 | 32,00 | |
| 12 | 323,9 | 482,6 | 33,2 | 381,0 | 431,8 | | 25,4 | 50,00 |
| 14 | 368 | 533,4 | 36,3 | 425,1 | 476,2 | 20 | 28,6 | 59,00 |
| 16 | 419,1 | 596,9 | 37,9 | 482,6 | 539,7 | | 31,7 | 77,00 |
| 18 | 457,2 | 635,0 | 41,1 | 533,4 | 577,8 | 20 | 34,9 | 95,00 |
| 20 | 508 | 698,5 | 44,3 | 584,2 | 635,0 | | | 123,00 |
| 24 | 610 | 812,8 | 49,0 | 692,1 | 749,3 | | | 186,00 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



COMPOSITE BLIND FLANGES

300 LBS

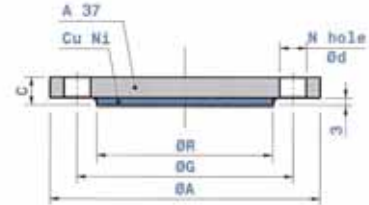
DISCS:

Material: CuNi 90/10

FLANGES:

Material: Carbon steel A105
(Galvanised or epoxy coated upon request)

Dimension: ANSI B16.5



| Outside diameter of pipe OD | | OA mm | C mm | ØR mm | ØG mm | Drilling | | Theo. weight Kg/piece | |
|--------------------------------|--------------|----------|---------|----------|----------|--------------------|----------|-----------------------------|-------|
| nominal inch | actual mm | | | | | N bolt holes | Ød mm | | |
| 1/2 | 20 | 95,2 | 15,6 | 34,9 | 66,7 | 4 | 15,9 | 1,00 | |
| 3/4 | 25 | 117,5 | 17,3 | 42,9 | 82,5 | | 1,50 | | |
| 1 | 30 | 123,8 | 18,9 | 50,8 | 88,9 | | 2,00 | | |
| 1 1/4 | 38 | 133,3 | 20,4 | 63,5 | 98,4 | | 2,50 | | |
| 1 1/2 | 44,5 | 155,6 | 22,0 | 73,0 | 114,3 | 8 | 22,2 | 3,00 | |
| 2 | 57 | 165,1 | 23,6 | 92,1 | 127,0 | | 19 | 3,50 | |
| 2 1/2 | 76,1 | 190,5 | 26,8 | 104,8 | 149,2 | | 22,2 | 5,50 | |
| 3 | 88,9 | 209,5 | 30,0 | 127,0 | 168,3 | | | 7,00 | |
| 4 | 108 | 254,0 | 33,2 | 157,2 | 200,0 | 12,00 | | | |
| 5 | 133 | 279,4 | 36,3 | 185,7 | 234,9 | 12 | 22,2 | 16,00 | |
| 6 | 159 | 317,5 | 37,9 | 215,9 | 269,9 | | | 23,00 | |
| 8 | 219,1 | 381,0 | 42,7 | 269,9 | 330,2 | | | 25,4 | 36,50 |
| 10 | 267 | 444,5 | 49,0 | 323,8 | 387,3 | | | 28,6 | 57,50 |
| 12 | 323,9 | 520,7 | 52,2 | 381,0 | 450,8 | 16 | 31,7 | 83,00 | |
| 14 | 368 | 584,2 | 55,4 | 425,1 | 514,3 | | | 107,00 | |
| 16 | 419,1 | 647,7 | 58,6 | 482,6 | 571,5 | 20 | 34,9 | 139,00 | |
| 18 | 457,2 | 711,2 | 61,7 | 533,4 | 628,6 | | | 177,00 | |
| 20 | 508 | 774,7 | 64,9 | 584,2 | 685,8 | 24 | 41,3 | 223,00 | |
| 24 | 610 | 914,4 | 71,2 | 692,1 | 812,8 | | | 342,00 | |

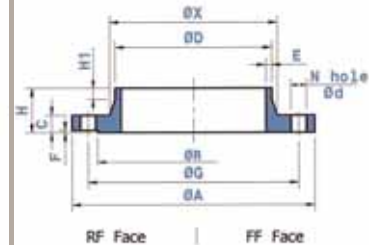
- Other dimensions, wall thicknesses and outside diameters are also available upon request.



SOLID WELDING NECK FLANGES

10&16 BAR

Material: CuNi 90/10



NP 10

Dimension: DIN 2632

| Outside diameter of pipe OD | | OA | H | C | OX | OR | F | E | Y | Drilling | | | Theo. weight |
|---|--------------|-----|----|----|-----|-----|-----|---------------------------------|-----|----------|--------------------|-------|-----------------|
| nominal inch | actual mm | | | | | | | | | OG | N bolt holes | Od | |
| ND 1/2 to 7 Welding neck flanges as per DIN 2633, NP 16 are to be used. | | | | | | | | | | | | | |
| 8 | 219,1 | 340 | 62 | 24 | 235 | 268 | 3 | To be specified by purchaser | 16 | 295 | 8 | 22 | 12,84 |
| 10 | 267 | 395 | 68 | 26 | 285 | 320 | | | | 350 | 12 | | 16,70 |
| 12 | 323,9 | 445 | | | 344 | 370 | | | | 400 | 16 | | 19,77 |
| 14 | 368 | 505 | 72 | 28 | 385 | 430 | 460 | | | 20 | | 26,81 | |
| 16 | 419,1 | 565 | | | 440 | 482 | 515 | | | | 32,49 | | |
| 20 | 508 | 670 | 75 | 28 | 542 | 585 | 620 | | | 26 | 43,28 | | |
| 24 | 610 | 780 | 80 | 28 | 642 | 685 | 5 | 18 | 725 | 20 | 30 | 50,67 | |

NP 16

Dimension: DIN 2633

| Outside diameter of pipe OD | | OA | H | C | OX | OR | F | E | H1 | Drilling | | | Theo. weight |
|--------------------------------|--------------|-----|----|----|-----|-----|-----|---------------------------------|------|----------|--------------------|-------|-----------------|
| nominal inch | actual mm | | | | | | | | | OG | N bolt holes | Od | |
| 1/2 | 20 | 95 | 35 | 14 | 30 | 45 | 2 | To be specified by purchaser | 6 | 65 | 4 | 14 | 0,74 |
| 3/4 | 25 | 105 | 38 | 16 | 38 | 58 | | | | 75 | | | 1,08 |
| 1 | 30 | 115 | | | 42 | 68 | | | | 85 | | | 1,30 |
| 1 1/4 | 38 | 140 | 40 | 18 | 52 | 78 | 100 | | 1,92 | | | | |
| 1 1/2 | 44,5 | 150 | 42 | | 60 | 88 | 110 | | 2,11 | | | | |
| 2 | 57 | 165 | 45 | 20 | 72 | 102 | 125 | | 2,88 | | | | |
| 2 1/2 | 76,1 | 185 | 45 | | 90 | 122 | 145 | 3,48 | | | | | |
| 3 | 88,9 | 200 | 50 | 22 | 105 | 138 | 160 | 4,20 | | | | | |
| 4 | 108 | 220 | 52 | | 125 | 158 | 180 | 5,25 | | | | | |
| 5 | 133 | 250 | 55 | 24 | 150 | 188 | 210 | 7,15 | | | | | |
| 6 | 159 | 285 | 55 | | 175 | 212 | 240 | 8,80 | | | | | |
| 7 | 193,7 | 315 | 60 | 26 | 210 | 242 | 270 | 11,19 | | | | | |
| 8 | 219,1 | 340 | 62 | | 235 | 268 | 295 | 12,50 | | | | | |
| 10 | 267 | 405 | 70 | 28 | 285 | 320 | 355 | 17,72 | | | | | |
| 12 | 323,9 | 460 | 78 | | 344 | 378 | 410 | 25,00 | | | | | |
| 14 | 368 | 520 | 82 | 30 | 390 | 438 | 470 | 35,45 | | | | | |
| 16 | 419,1 | 580 | 85 | | 445 | 490 | 525 | 45,21 | | | | | |
| 20 | 508 | 715 | 90 | 34 | 548 | 610 | 650 | 69,30 | | | | | |
| 24 | 610 | 840 | 95 | | 652 | 725 | 5 | 18 | 770 | 20 | 36 | 85,65 | |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

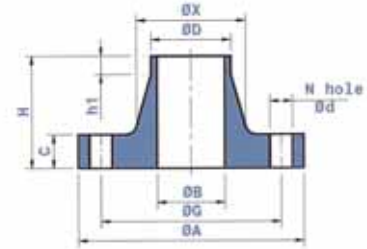


SOLID WELDING NECK FLANGES

16 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 145



| Outside diameter of pipe OD | | OA | H | C | OX | OB | h1 | Drilling | | | Theo. weight Kg/piece |
|--------------------------------|--------------|------|-----|--------|--------|--------|--------|----------|--------|------|-----------------------------|
| nominal inch | actual mm | | | | | | | ØG | N | Ød | |
| 1/2 | 16 | 89 | 48 | 14 | 23 | 12,00 | 8 | 60,3 | 4 | 15,9 | 0,74 |
| 3/4 | 25 | 98 | 52 | 16 | 32 | 21,00 | 7 | 69,8 | | | 1,04 |
| 1 | 30 | 108 | 56 | | 42 | 25,00 | 8 | 79,4 | | | 1,36 |
| 1 1/4 | 38 | 117 | 57 | 17 | 51 | 33,03 | 8 | 88,9 | | | 1,70 |
| 1 1/2 | 44,5 | 127 | 62 | 20 | 61 | 39,53 | 7 | 98,4 | | | 2,38 |
| 2 | 57 | 152 | 64 | 25 | 73 | 52,16 | 9 | 120,6 | | | 3,93 |
| 2 1/2 | 76,1 | 178 | 70 | 27 | 91 | 71,23 | 8 | 139,7 | 8 | 22,2 | 5,62 |
| 3 | 88,9 | 190 | | | 105 | 84,08 | | 152,4 | | | 6,27 |
| 4 | 108 | 229 | 135 | | 102,13 | 190,5 | | 9,53 | | | |
| 6 | 159 | 279 | 192 | 153,75 | 241,3 | 25,4 | | 13,65 | | | |
| 8 | 219,1 | 343 | 246 | 211,10 | 298,4 | | | 21,19 | | | |
| 10 | 267 | 406 | 305 | 257,97 | 362 | 28,6 | | 29,52 | | | |
| 12 | 323,9 | 483 | 365 | 312,83 | 431,8 | | | 12 | 44,77 | | |
| 14 | 368 | 533 | 41 | 400 | 354,22 | 31,8 | | 57,27 | | | |
| 16 | 419,1 | 597 | 43 | 457 | 404,17 | | | 16 | 74,40 | | |
| 18 | 457,2 | 635 | 113 | 505 | 441,50 | 34,9 | | 88,16 | | | |
| 20 | 508 | 698 | 118 | 559 | 490,50 | | | 20 | 106,20 | | |
| 24 | 610 | 813 | 137 | 664 | 589,50 | 41,1 | | 153,15 | | | |
| 28 | 711 | 927 | 145 | 748 | 687,50 | | 28 | 255,28 | | | |
| 32 | 813 | 1060 | 160 | 876 | 786,50 | 356,45 | 291,45 | | | | |
| 36 | 914 | 1168 | 175 | 984 | 883,50 | | 32 | 356,45 | | | |

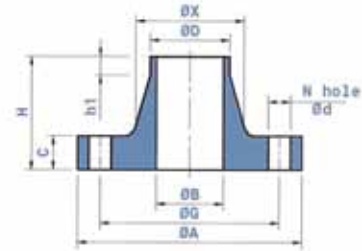


SOLID WELDING NECK FLANGES

20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 145



| Outside diameter of pipe ØD | | ØA mm | H mm | C mm | ØX mm | ØB mm | h1 mm | Drilling | | | Theo. weight Kg/piece | | |
|--------------------------------|--------------|----------|---------|---------|----------|----------|----------|----------|--------------------|----------|-----------------------------|-------|--------|
| nominal inch | actual mm | | | | | | | ØG mm | N bolt holes | Ød mm | | | |
| 1/2 | 16 | 89 | 48 | 14 | 23 | 12,00 | 8 | 60,3 | 4 | 15,9 | 0,74 | | |
| 3/4 | 25 | 98 | 52 | 16 | 32 | 21,00 | 7 | 69,8 | | | 1,04 | | |
| 1 | 30 | 108 | 56 | | 42 | 25,00 | 8 | 79,4 | | | 1,36 | | |
| 1 1/4 | 38 | 117 | 57 | 17 | 51 | 33,03 | 8 | 88,9 | | | 1,70 | | |
| 1 1/2 | 44,5 | 127 | 62 | 20 | 61 | 39,53 | 7 | 98,4 | 4 | 19 | 2,38 | | |
| 2 | 57 | 152 | 64 | 25 | 73 | 52,16 | 9 | 120,6 | | | 3,93 | | |
| 2 1/2 | 76,1 | 178 | 70 | 27 | 91 | 71,23 | 8 | 139,7 | 8 | 22,2 | 5,62 | | |
| 3 | 88,9 | 190 | | | 105 | 84,08 | | 152,4 | | | 6,27 | | |
| 4 | 108 | 229 | 135 | | 102,13 | 190,5 | | 9,53 | | | | | |
| 6 | 159 | 279 | 192 | 152,38 | 241,3 | 13,99 | | | | | | | |
| 8 | 219,1 | 343 | 98 | 31 | 246 | 210,10 | | 298,4 | 8 | 25,4 | 21,57 | 21,57 | |
| 10 | 267 | 406 | | | 305 | 255,93 | | 362,0 | | | | 30,47 | |
| 12 | 323,9 | 483 | 99 | 41 | 365 | 309,74 | | 431,8 | 12 | 28,6 | 78,03 | 46,56 | |
| 14 | 368 | 533 | | | 400 | 351,00 | | 476,2 | | | | 59,49 | |
| 16 | 419,1 | 597 | 106 | 43 | 457 | 399,84 | | 539,8 | 16 | 31,8 | 91,08 | 78,03 | |
| 18 | 457,2 | 635 | 113 | 45 | 505 | 438,50 | | 577,8 | | | | 635,0 | 31,8 |
| 20 | 508 | 698 | 118 | 49 | 559 | 486,50 | 635,0 | 20 | 34,9 | 249,09 | 160,79 | | |
| 24 | 610 | 813 | 137 | | 664 | 584,50 | 749,3 | | | | 864,0 | 34,9 | 249,09 |
| 28 | 711 | 927 | 145 | 72 | 748 | 681,50 | 864,0 | 28 | 41,1 | 303,95 | 303,95 | | |
| 32 | 813 | 1060 | 160 | | 876 | 779,50 | 978,0 | | | | 978,0 | 41,1 | 303,95 |
| 36 | 914 | 1168 | 175 | | 984 | 876,50 | 1086,0 | | | | 1086,0 | 32 | 41,1 |

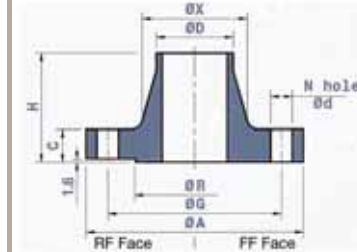


SOLID WELDING NECK FLANGES

150 LBS

Material: CuNi 90/10

Dimension: ANSI B16.5



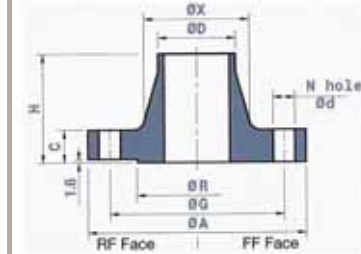
| Outside diameter of pipe OD | | OA | H | C | OX | OR | Drilling | | | Theo. weight Kg/piece | |
|--------------------------------|--------------|-------|-------|------|-------|-------|----------|--------------------|--------|-----------------------------|-------|
| nominal inch | actual mm | | | | | | OG | N bolt holes | Ød | | |
| 1/2 | 20 | 88,9 | 47,6 | 11,1 | 30,2 | 34,9 | 4 | 15,9 | 0,68 | | |
| 3/4 | 25 | 98,4 | 52,4 | 12,7 | 38,1 | 42,9 | | | 69,8 | 0,91 | |
| 1 | 30 | 107,9 | 55,6 | 14,3 | 49,2 | 50,8 | | | 79,4 | 1,25 | |
| 1 1/4 | 38 | 117,5 | 57,1 | 15,9 | 58,7 | 63,5 | | | 88,9 | 1,58 | |
| 1 1/2 | 44,5 | 127,0 | 61,9 | 17,5 | 65,1 | 73,0 | | | 98,4 | 2,05 | |
| 2 | 57 | 152,4 | 63,5 | 19,1 | 77,8 | 92,10 | | 120,6 | 3,05 | | |
| 2 1/2 | 76,1 | 177,8 | 69,8 | 22,2 | 90,5 | 104,8 | | 8 | 19 | 5,10 | |
| 3 | 88,9 | 190,5 | | | | | | | | 107,9 | 127,0 |
| 4 | 108 | 228,6 | 76,2 | 23,8 | 134,9 | 157,2 | | | 190,5 | 22,2 | 7,90 |
| 5 | 133 | 254,0 | | | | | | | | | 163,5 |
| 6 | 159 | 279,4 | 88,9 | 25,4 | 192,1 | 215,9 | 241,3 | | 25,4 | 12,20 | |
| 8 | 219,1 | 342,9 | | | | | | | | 246,1 | 269,9 |
| 10 | 267 | 406,4 | 101,6 | 28,6 | 246,1 | 269,9 | 298,4 | | 25,4 | 27,00 | |
| 12 | 323,9 | 482,6 | | | | | | | | 30,2 | 304,8 |
| 14 | 368 | 533,4 | 114,3 | 31,8 | 365,1 | 381,0 | 431,8 | | 28,6 | 53,00 | |
| 16 | 419,1 | 596,9 | | | | | | | | 34,9 | 400,0 |
| 18 | 457,2 | 635,0 | 127 | 36,5 | 457,2 | 482,6 | 539,7 | 31,7 | 72,00 | | |
| 20 | 508 | 698,5 | | | | | | | 39,7 | 504,8 | 533,4 |
| 24 | 610 | 812,8 | 144,5 | 42,9 | 558,8 | 584,2 | 635,0 | 34,9 | 134,00 | | |
| | | | 152,4 | 47,6 | 663,6 | 692,1 | 749,3 | | | | |

- Other dimensions, wall thicknesses and outside diameters are also available upon request.



SOLID WELDING NECK FLANGES 300 LBS

Material: CuNi 90/10
Dimension: ANSI B16.5



| Outside diameter of pipe ØD | | ØA mm | H mm | C mm | OX mm | OR mm | Drilling | | | Theo. weight Kg/piece |
|--------------------------------|--------------|----------|---------|---------|----------|----------|----------|--------------------|----------|-----------------------------|
| nominal inch | actual mm | | | | | | OG mm | N bolt holes | Ød mm | |
| 1/2 | 20 | 95,2 | 52,4 | 14,3 | 38,1 | 34,9 | 4 | 15,9 | 1,72 | |
| 3/4 | 25 | 117,5 | 57,1 | 15,9 | 47,6 | 42,9 | | | 2,06 | |
| 1 | 30 | 123,8 | 61,9 | 17,5 | 54,0 | 50,8 | | | 2,29 | |
| 1 1/4 | 38 | 133,3 | 65,1 | 19,0 | 63,5 | 63,5 | | | 2,86 | |
| 1 1/2 | 44,5 | 155,6 | 68,3 | 20,6 | 69,8 | 73,0 | 8 | 19 | 4,01 | |
| 2 | 57 | 165,1 | 69,8 | 22,2 | 84,1 | 92,1 | | | 4,58 | |
| 2 1/2 | 76,1 | 190,5 | 76,2 | 25,4 | 100,0 | 104,8 | 8 | 22,2 | 5,73 | |
| 3 | 88,9 | 209,5 | 79,4 | 28,6 | 117,5 | 127,0 | | | 8,02 | |
| 4 | 108 | 254,0 | 85,7 | 31,8 | 146,1 | 157,2 | | | 12,60 | |
| 5 | 133 | 279,4 | 98,4 | 34,9 | 177,8 | 185,7 | | | 17,90 | |
| 6 | 159 | 317,5 | | 36,5 | 206,4 | 215,9 | 21,76 | | | |
| 8 | 219,1 | 381,0 | 111,1 | 41,3 | 260,4 | 269,9 | 12 | 25,4 | 34,35 | |
| 10 | 267 | 444,5 | 117,5 | 47,6 | 320,7 | 323,8 | | | 46,95 | |
| 12 | 323,9 | 520,7 | 130,2 | 50,8 | 374,6 | 381,0 | 16 | 31,7 | 70,99 | |
| 14 | 368 | 584,2 | 142,9 | 54,0 | 425,4 | 425,1 | | | 96,18 | |
| 16 | 419,1 | 647,7 | 146,1 | 57,2 | 482,6 | 482,6 | 20 | 34,9 | 127,10 | |
| 18 | 457,2 | 711,2 | 158,7 | 60,3 | 533,3 | 533,4 | | | 158,01 | |
| 20 | 508 | 774,7 | 161,9 | 63,5 | 587,4 | 584,2 | 24 | 41,3 | 195,80 | |
| 24 | 610 | 914,4 | 168,3 | 69,8 | 701,7 | 692,1 | | | 283,00 | |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



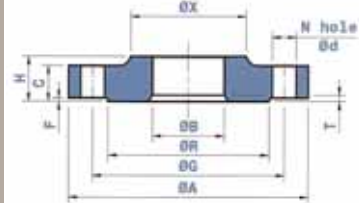
SOLID SLIP ON FLANGES

10 BAR

Material: CuNi10Fe1Mn
alloy UNS C70600

CuNi30Mn1Fe
alloy UNS C71500

Dimension: DIN 86033



| Outside diameter of pipe OD | | OA | H | C | OX | OR | OB | F | T | Drilling | | | Theo. weight kg/piece |
|--------------------------------|--------------|-----|----|-----|-------|--------|--------|--------|---------------|----------|--------------------|-------|-----------------------------|
| nominal inch | actual mm | | | | | | | | | OG | N bolt holes | Od | |
| 3/8 | 16 | 90 | 18 | 12 | 26 | 40 | 16,20 | 2 | NO APPLICABLE | 60 | 4 | 14 | 0,52 |
| 1/2 | 20 | 95 | | | 30 | 45 | 20,20 | | | 65 | | | 0,57 |
| 3/4 | 25 | 105 | | | 35 | 58 | 25,20 | | | 75 | | | 0,71 |
| 1 | 30 | 115 | 40 | 68 | 30,20 | 85 | 0,86 | | | | | | |
| 1 1/4 | 38 | 140 | 20 | 14 | 49 | 78 | 38,25 | 100 | | 1,47 | | | |
| 1 1/2 | 44,5 | 150 | | | 56 | 88 | 44,75 | 110 | | 1,60 | | | |
| 2 | 57 | 165 | 22 | 16 | 69 | 102 | 57,30 | 125 | | 2,20 | | | |
| 2 1/2 | 76,1 | 185 | | | 88 | 122 | 76,30 | 145 | | 2,66 | | | |
| 3 | 88,9 | 200 | 24 | 18 | 101 | 138 | 89,40 | 160 | | 3,32 | | | |
| 4 | 108 | 220 | 28 | 20 | 120 | 158 | 108,40 | 180 | | 4,31 | | | |
| 5 | 133 | 250 | | | 146 | 188 | 133,65 | 210 | 5,37 | | | | |
| 6 | 159 | 285 | 30 | 22 | 172 | 212 | 159,65 | 240 | 6,37 | | | | |
| 7 | 193,7 | 315 | 32 | | 24 | 209 | 242 | 195,00 | 270 | 7,22 | | | |
| 8 | 219,1 | 340 | | 234 | | 268 | 220,00 | 295 | 9,12 | | | | |
| 10 | 267 | 395 | 34 | 26 | 284 | 320 | 268,20 | 350 | 12,10 | | | | |
| 12 | 323,9 | 445 | 36 | | 343 | 370 | 325,35 | 400 | 13,70 | | | | |
| 14 | 368 | 505 | 38 | 28 | 389 | 430 | 369,35 | 460 | 19,30 | | | | |
| 16 | 419,1 | 565 | 40 | | 442 | 482 | 420,50 | 515 | 23,20 | | | | |
| 18 | 457,2 | 615 | 42 | 31 | 482 | 530 | 458,50 | 565 | 27,90 | | | | |
| 20 | 508 | 670 | 47 | | 535 | 585 | 509,50 | 620 | 35,00 | | | | |
| 24 | 610 | 780 | 49 | 640 | 685 | 612,00 | 7 | 8 | 725 | 20 | 30 | 42,90 | |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

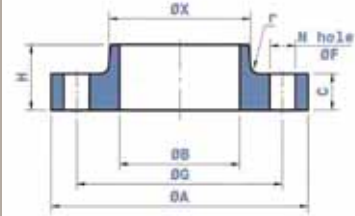


SOLID SLIP ON FLANGES 16&20 BAR

Material: CuNi10Fe1Mn
alloy UNS C70600

CuNi30Mn1Fe
alloy UNS C71500

Dimension: EMMUA Pub. N° 145



| Outside diameter of pipe OD | | OA | H | C | OX | OB | r | Drilling | | | Theo. weight Kg/piece |
|--------------------------------|--------------|-----|----|-----|--------|-------|------|----------|--------------------|------|-----------------------------|
| nominal inch | actual mm | | | | | | | OG | N bolt holes | Od | |
| 1/2 | 16 | 89 | 20 | 14 | 23 | 16,07 | 4 | 60,3 | 4 | 15,9 | 1,15 |
| 3/4 | 25 | 98 | 24 | 16 | 32 | 25,08 | | 69,8 | | | 1,20 |
| 1 | 30 | 108 | | | 47 | 30,08 | | 79,4 | | | 1,30 |
| 1 1/4 | 38 | 117 | 26 | 17 | 51 | 38,10 | | 88,9 | | | 1,70 |
| 1 1/2 | 44,5 | 127 | | | 61 | 44,60 | 98,4 | 1,80 | | | |
| 2 | 57 | 152 | 28 | 25 | 73 | 57,23 | 6 | 120,6 | 19 | 2,90 | |
| 2 1/2 | 76,1 | 178 | 32 | 27 | 91 | 76,33 | | 139,7 | | 4,30 | |
| 3 | 88,9 | 190 | | | 105 | 89,18 | | 152,4 | | 4,40 | |
| 4 | 108 | 229 | 40 | 135 | 108,38 | 8 | | 190,5 | | 8 | 7,30 |

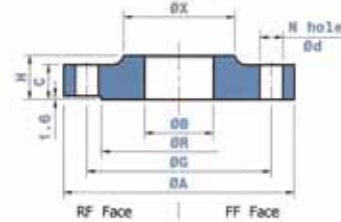


SOLID SLIP ON FLANGES

150 LBS

Material: CuNi 90/10

Dimension: ANSI B16.5



| Outside diameter of pipe OD | | OA | H | C | OX | OR | OB | Drilling | | | Theo. weight Kg/piece | |
|--------------------------------|--------------|-------|------|-------|-------|-------|-------|----------|--------------------|-------|--------------------------|------|
| nominal inch | actual mm | | | | | | | OG | N bolt holes | Ød | | |
| 1/2 | 20 | 88,9 | 15,9 | 11,1 | 30,2 | 34,9 | 20,2 | 60,3 | 4 | 15,9 | 0,90 | |
| 3/4 | 25 | 98,4 | | 12,7 | 38,1 | 42,9 | 25,2 | 69,8 | | | 1,10 | |
| 1 | 30 | 107,9 | 14,3 | 49,2 | 50,8 | 30,2 | 79,4 | 1,20 | | | | |
| 1 1/4 | 38 | 117,5 | 15,9 | 58,7 | 63,5 | 38,3 | 88,9 | 1,50 | | | | |
| 1 1/2 | 44,5 | 127,0 | 17,5 | 65,1 | 73,0 | 44,8 | 98,4 | 1,60 | | | | |
| 2 | 57 | 152,4 | 19,1 | 77,8 | 92,1 | 57,4 | 120,6 | 2,70 | | | | |
| 2 1/2 | 76,1 | 177,8 | 22,2 | 90,5 | 104,8 | 76,5 | 139,7 | 4,10 | | | | |
| 3 | 88,9 | 190,5 | 30,2 | 23,8 | 107,9 | 127,0 | 89,4 | 152,4 | | 8 | 19,0 | 4,10 |
| 4 | 108 | 228,6 | 33,3 | | 134,9 | 157,2 | 108,5 | 190,5 | | | | 7,00 |
| 5 | 133 | 254,0 | 36,5 | | 163,5 | 185,7 | 133,8 | 215,9 | | | 8,00 | |
| 6 | 159 | 279,4 | 39,7 | | 192,1 | 215,9 | 159,8 | 241,3 | 9,90 | | | |
| 8 | 219,1 | 342,9 | 44,4 | | 246,1 | 269,9 | 220,3 | 298,4 | 15,70 | | | |
| 10 | 267 | 406,4 | 49,2 | 304,8 | 323,8 | 268,4 | 361,9 | 12 | 25,4 | 22,80 | | |
| 12 | 323,9 | 482,6 | 55,6 | 365,1 | 381,0 | 325,4 | 431,8 | | | 33,90 | | |
| 14 | 368 | 533,4 | 57,1 | 34,9 | 400,0 | 425,1 | 369,5 | | 476,2 | 16 | 28,6 | |
| 16 | 419,1 | 596,9 | 63,5 | 36,5 | 457,2 | 482,6 | 420,5 | | 539,7 | | 49,00 | |
| 18 | 457,2 | 635,0 | 68,3 | 39,7 | 504,8 | 533,4 | 458,7 | 577,8 | 20 | 31,7 | 63,00 | |
| 20 | 508 | 698,5 | 73,0 | 42,9 | 558,8 | 584,2 | 509,5 | 635,0 | | | 81,50 | |
| 24 | 610 | 812,8 | 82,5 | 47,6 | 663,6 | 692,1 | 611,5 | 749,3 | | 34,9 | 105,55 | |

- Other dimensions, wall thicknesses and outside diameters are also available upon request.

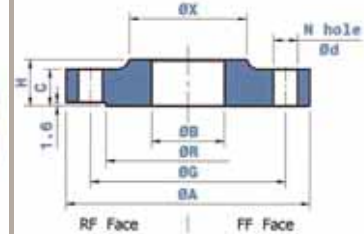


SOLID SLIP ON FLANGES

300 LBS

Material: CuNi 90/10

Dimension: ANSI B16.5



| Outside diameter of pipe OD | | ØA mm | H mm | C mm | ØX mm | ØR mm | ØB mm | Drilling | | | Theo. weight Kg/piece | |
|--------------------------------|--------------|----------|---------|---------|----------|----------|----------|----------|--------------------|----------|-----------------------------|-------|
| nominal inch | actual mm | | | | | | | ØG mm | N bolt holes | Ød mm | | |
| 1/2 | 20 | 95,2 | 22,2 | 14,3 | 38,1 | 34,9 | 20,2 | 66,7 | 4 | 15,9 | 0,90 | |
| 3/4 | 25 | 117,5 | 25,4 | 15,9 | 47,6 | 42,9 | 25,2 | 82,5 | | 19 | 1,40 | |
| 1 | 30 | 123,8 | 27,0 | 17,5 | 54,0 | 50,8 | 30,2 | 88,9 | | 19 | 1,70 | |
| 1 1/4 | 38 | 133,3 | | 19,0 | 63,5 | 63,5 | 38,3 | 98,4 | | 22,2 | 2,00 | |
| 1 1/2 | 44,5 | 155,6 | 30,2 | 20,6 | 69,8 | 73,0 | 44,8 | 114,3 | 8 | 19 | 3,00 | |
| 2 | 57 | 165,1 | 33,3 | 22,2 | 84,1 | 92,1 | 57,4 | 127,0 | | 19 | 3,40 | |
| 2 1/2 | 76,1 | 190,5 | 38,1 | 25,4 | 100,0 | 104,8 | 76,5 | 149,2 | | 22,2 | 5,10 | |
| 3 | 88,9 | 209,5 | 42,9 | 28,6 | 117,5 | 127,0 | 89,4 | 168,3 | | | 6,80 | |
| 4 | 108 | 254,0 | 47,6 | 31,8 | 146,0 | 157,2 | 108,5 | 200,0 | 12 | 22,2 | 11,30 | |
| 5 | 133 | 279,4 | 50,8 | 34,9 | 177,8 | 185,7 | 133,8 | 234,9 | | | 14,20 | |
| 6 | 159 | 317,5 | 52,4 | 36,5 | 206,4 | 215,9 | 159,8 | 269,9 | | 18,30 | 25,4 | 28,20 |
| 8 | 219,1 | 381,0 | 61,9 | 41,3 | 260,3 | 269,9 | 220,3 | 330,2 | | | 28,6 | 39,50 |
| 10 | 267 | 444,5 | 66,7 | 47,6 | 320,7 | 323,8 | 268,4 | 387,3 | 16 | 31,7 | 57,70 | |
| 12 | 323,9 | 520,7 | 73,0 | 50,8 | 374,6 | 381,0 | 325,4 | 450,8 | | | 80,60 | |
| 14 | 368 | 584,2 | 76,2 | 54,0 | 425,4 | 425,1 | 369,5 | 514,3 | 20 | 34,9 | 102,10 | |
| 16 | 419,1 | 647,7 | 82,5 | 57,2 | 482,6 | 482,6 | 420,5 | 571,5 | | | 125,20 | |
| 18 | 457,2 | 711,2 | 88,9 | 60,3 | 533,4 | 533,4 | 458,7 | 628,5 | 24 | 41,3 | 154,70 | |
| 20 | 506 | 774,7 | 95,2 | 63,5 | 587,4 | 584,2 | 509,5 | 685,8 | | | 240,65 | |
| 24 | 610 | 914,4 | 106,4 | 69,8 | 701,7 | 692,1 | 611,5 | 812,8 | | | | |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.

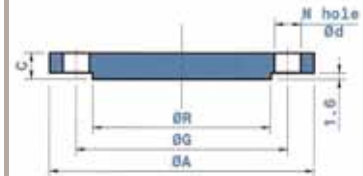


SOLID BLIND FLANGES

150 LBS

Material: CuNi 90/10

Dimension: ANSI B16.5



| Outside diameter of pipe OD | | OA mm | C mm | ØR mm | Drilling | | | Theo. weight Kg/piece | |
|--------------------------------|--------------|----------|---------|----------|----------|--------------------|----------|-----------------------------|-------|
| nominal inch | actual mm | | | | OG mm | N bolt holes | Ød mm | | |
| 1/2 | 20 | 88,9 | 11,1 | 34,9 | 60,3 | 4 | 15,9 | 0,90 | |
| 3/4 | 25 | 98,4 | 12,7 | 42,9 | 69,8 | | | 1,05 | |
| 1 | 30 | 108,0 | 14,3 | 50,8 | 79,4 | | | 1,15 | |
| 1 1/4 | 38 | 117,5 | 15,9 | 63,5 | 88,9 | | | 1,50 | |
| 1 1/2 | 44,5 | 127,0 | 17,5 | 73,0 | 98,4 | | | 1,60 | |
| 2 | 57 | 152,4 | 19,1 | 92,1 | 120,6 | | | 2,05 | |
| 2 1/2 | 76,1 | 177,8 | 22,3 | 104,8 | 139,7 | 8 | 19 | 3,65 | |
| 3 | 88,9 | 190,5 | 23,8 | 127,0 | 152,4 | | | 4,55 | |
| 4 | 108 | 228,6 | | 157,2 | 190,5 | | | 9,10 | |
| 5 | 133 | 254,0 | 25,4 | 185,7 | 215,9 | 12 | 22,2 | 10,25 | |
| 6 | 159 | 279,4 | | 215,9 | 241,3 | | | 13,70 | |
| 8 | 219,1 | 342,9 | | 269,9 | 298,4 | | | 22,80 | |
| 10 | 367 | 406,4 | | 323,8 | 361,9 | | | 36,45 | |
| 12 | 323,9 | 482,6 | | 31,8 | 381,0 | | | 431,8 | 57,00 |
| 14 | 368 | 533,4 | | 34,9 | 425,1 | | | 476,2 | 67,25 |
| 16 | 419,1 | 596,9 | 36,5 | 482,6 | 539,7 | 16 | 28,6 | 87,80 | |
| 18 | 457,2 | 635,0 | 39,7 | 533,4 | 577,8 | | | 108,30 | |
| 20 | 508 | 698,5 | 42,9 | 584,2 | 635,0 | 20 | 31,7 | 140,25 | |
| 24 | 610 | 812,8 | 47,6 | 692,1 | 749,3 | | | 212,05 | |

• Other dimensions, wall thicknesses and outside diameters are also available upon request

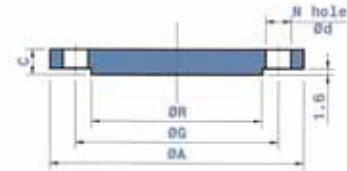


SOLID BLIND FLANGES

300 LBS

Material: CuNi 90/10

Dimension: ANSI B16.5



| Outside diameter of pipe OD | | OA mm | C mm | OR mm | OG mm | Drilling N bolt holes | Od mm | Theo. weight Kg/piece |
|--------------------------------|--------------|----------|---------|----------|----------|--------------------------------|----------|-----------------------------|
| nominal inch | actual mm | | | | | | | |
| 1/2 | 20 | 95,2 | 14,3 | 34,9 | 66,7 | 4 | 15,9 | 1,15 |
| 3/4 | 25 | 117,5 | 15,9 | 42,9 | 82,5 | | 19 | 1,70 |
| 1 | 30 | 123,8 | 17,5 | 50,8 | 88,9 | | 2,30 | |
| 1 1/4 | 38 | 133,3 | 19,0 | 63,5 | 98,4 | | 2,85 | |
| 1 1/2 | 44,5 | 155,6 | 20,6 | 73,0 | 114,3 | 8 | 22,2 | 3,40 |
| 2 | 57 | 165,1 | 22,2 | 92,1 | 127,0 | | 19 | 4,00 |
| 2 1/2 | 76,1 | 190,5 | 25,4 | 104,8 | 149,2 | | 22,2 | 6,30 |
| 3 | 88,9 | 209,5 | 28,6 | 127,0 | 168,3 | | | 8,00 |
| 4 | 108 | 254,0 | 31,8 | 157,2 | 200,0 | 13,70 | | |
| 5 | 133 | 279,4 | 34,9 | 185,7 | 234,9 | 12 | 25,4 | 18,25 |
| 6 | 159 | 317,5 | 36,5 | 215,9 | 269,9 | | | 26,20 |
| 8 | 219,1 | 381,0 | 41,3 | 269,9 | 330,2 | | | 41,60 |
| 10 | 267 | 444,5 | 47,6 | 323,8 | 387,3 | 16 | 28,6 | 65,55 |
| 12 | 323,9 | 520,7 | 50,8 | 381,0 | 450,8 | | | 94,60 |
| 14 | 368 | 584,2 | 54,0 | 425,1 | 514,3 | 20 | 31,7 | 122,0 |
| 16 | 419,1 | 647,7 | 57,2 | 482,6 | 571,5 | | | 158,45 |
| 18 | 457,2 | 711,2 | 60,3 | 533,4 | 628,6 | 24 | 34,9 | 201,80 |
| 20 | 508 | 774,7 | 63,5 | 584,2 | 685,8 | | | 254,20 |
| 24 | 610 | 914,4 | 69,8 | 692,1 | 812,8 | | | 41,3 |







• Other dimensions, wall thicknesses and outside diameters are also available upon request.



MACHINED FITTINGS






Machined Fittings

| | | |
|--|---|--|
| <p>Elbows 45° Socket welding or capillary ends</p>  <p>Page: 89</p> | <p>Elbows 90° Socket welding or capillary ends</p>  <p>Page: 89</p> | <p>Equal Tees Socket welding or capillary ends</p>  <p>Page: 90</p> |
| <p>Reducing Tees Socket welding or capillary ends</p>  <p>Page: 91</p> | <p>Straight Couplings Socket welding or capillary ends</p>  <p>Page: 92</p> | <p>Half Couplings Socket welding or capillary ends</p>  <p>Page: 92</p> |
| <p>Reducing Couplings Socket welding or capillary ends</p>  <p>Page: 93</p> | <p>Couplings Threaded</p>  <p>Page: 94</p> | <p>Half Couplings Threaded</p>  <p>Page: 94</p> |
| <p>Reducing Inserts SW or capillary ends x Male ends</p>  <p>Page: 95</p> | <p>Reducing Inserts Male x SW or capillary ends</p>  <p>Page: 96</p> | <p>Union Connectors Socket welding or capillary ends</p>  <p>Page: 97</p> |









Machined Fittings

| | | |
|---|---|--|
| <p>Union Connectors Butt welding ends</p>  <p>Page: 97</p> | <p>Male Union Connectors SW or capillary end x Male thread</p>  <p>Page: 98</p> | <p>Male Union Connectors Butt welding ends x Male thread</p>  <p>Page: 98</p> |
| <p>Female Union Connectors SW or capillary end x Female thread</p>  <p>Page: 99</p> | <p>Female Union Connectors Butt Welding ends x Female thread</p>  <p>Page: 99</p> | <p>Straight Connectors SW or capillary end x Male thread</p>  <p>Page: 100</p> |
| <p>Straight Connectors SW or capillary end x Female thread</p>  <p>Page: 101</p> | <p>Male Adaptors Butt welding end x Male thread</p>  <p>Page: 102</p> | <p>Female Adaptors Butt welding end x Female thread</p>  <p>Page: 102</p> |
| <p>Sprinkler Bushes</p>  <p>Page: 103</p> | <p>Male Plug</p>  <p>Page: 103</p> | <p>End Caps Socket welding or capillary ends</p>  <p>Page: 104</p> |



Machined Fittings

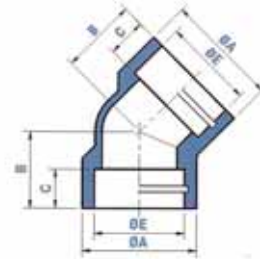
| End Caps Threaded | Hexagonal Nipples Threaded | Pipe Nipples Threaded |
|---|---|---|
|  <p data-bbox="509 719 600 741">Page: 104</p> |  <p data-bbox="890 719 981 741">Page: 105</p> |  <p data-bbox="1273 719 1364 741">Page: 105</p> |
| Weldolets | Sockolets | Threadolets |
|  <p data-bbox="509 1093 600 1115">Page: 106</p> |  <p data-bbox="890 1093 981 1115">Page: 107</p> |  <p data-bbox="1273 1093 1364 1115">Page: 108</p> |



ELBOWS

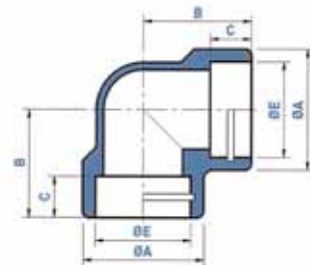
SOCKET WELDING OR CAPILLARY ENDS

Material: CuNi 90/10



Elbows 45°

| Outside diameter of pipe OD | | OA mm | B mm | C mm | OE mm | Theoretical weight Kg/piece |
|--------------------------------|--------------|----------|---------|---------|----------|-----------------------------------|
| nominal inch | actual mm | | | | | |
| 3/8 | 16 | 22,20 | 19,0 | 10 | 16,1 | 0,07 |
| 1/2 | 20 | 26,05 | | | 20,1 | 0,10 |
| 3/4 | 25 | 33,00 | 22,5 | 13 | 25,1 | 0,26 |
| 1 | 30 | 38,00 | | | 30,1 | 0,41 |
| 1 1/4 | 38 | 46,00 | 28,5 | 13 | 38,1 | 0,64 |
| 1 1/2 | 44,5 | 56,00 | 33,0 | | 44,6 | 0,69 |
| 2 | 57 | 63,50 | 36,0 | 16 | 57,3 | 1,09 |



Elbows 90°

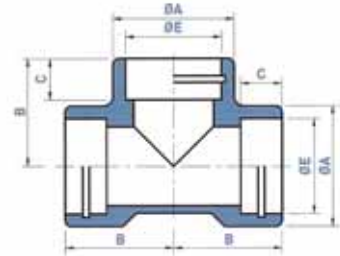
| Outside diameter of pipe OD | | OA mm | B mm | C mm | OE mm | Theoretical weight Kg/piece |
|--------------------------------|--------------|----------|---------|---------|----------|-----------------------------------|
| nominal inch | actual mm | | | | | |
| 3/8 | 16 | 22,20 | 20 | 10 | 16,1 | 0,07 |
| 1/2 | 20 | 26,05 | 25 | | 20,1 | 0,10 |
| 3/4 | 25 | 33,00 | 29 | 13 | 25,1 | 0,26 |
| 1 | 30 | 38,00 | 34 | | 30,1 | 0,32 |
| 1 1/4 | 38 | 46,00 | 38 | 13 | 38,1 | 0,59 |
| 1 1/2 | 44,5 | 56,00 | 44 | | 44,6 | 1,01 |
| 2 | 57 | 63,50 | 50 | 16 | 57,3 | 1,31 |



EQUAL TEES

SOCKET WELDING OR CAPILLARY ENDS

Material: CuNi 90/10

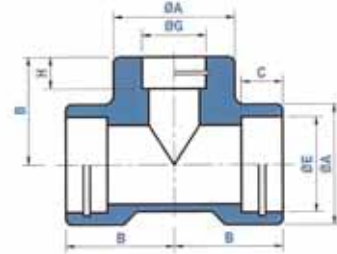


| Outside diameter of pipe OD | | OA mm | B mm | OE mm | C mm | Theoretical weight Kg/piece |
|--------------------------------|--------------|----------|---------|----------|---------|-----------------------------------|
| nominal inch | actual mm | | | | | |
| 3/8 | 16 | 22,20 | 20 | 16,1 | 10 | 0,09 |
| 1/2 | 20 | 26,05 | 25 | 20,1 | | 0,12 |
| 3/4 | 25 | 33,00 | 29 | 25,1 | 13 | 0,31 |
| 1 | 30 | 38,00 | 34 | 30,1 | | 0,37 |
| 1 1/4 | 38 | 46,00 | 38 | 38,1 | | 0,65 |
| 1 1/2 | 44,5 | 56,00 | 44 | 44,6 | 16 | 1,08 |
| 2 | 57 | 63,50 | 50 | 57,3 | | 1,43 |



REDUCING TEES SOCKET WELDING OR CAPILLARY ENDS

Material: CuNi 90/10



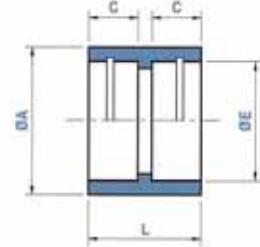
| Outside diameter of pipe | | | | | OA | B | OE | C | OG | H | Theoretical weight |
|--------------------------|---------|-----------|------|------|------|----|------|------|------|------|--------------------|
| OD | | | | | | | | | | | |
| nominal inch | | actual mm | | | | | | | | | |
| 1/2 | x 3/8 | 20 | x 16 | | 26,5 | 25 | 20,1 | 10 | 16,1 | | 0,14 |
| 3/4 | x 3/8 | 25 | x 16 | | 33 | 29 | 25,1 | | 20,1 | 10 | 0,37 |
| | x 1/2 | | x 20 | 0,35 | | | | | | | |
| 1 | x 3/8 | 30 | x 16 | | 38 | 34 | 30,1 | | 16,1 | 13 | 0,47 |
| | x 1/2 | | x 20 | 0,45 | | | | | | | |
| | x 3/4 | | x 25 | 0,41 | | | | | | | |
| 1 1/4 | x 3/8 | 38 | x 16 | | 46 | 38 | 38,1 | 13 | 16,1 | 10 | 0,83 |
| | x 1/2 | | x 20 | 0,81 | | | | | | | |
| | x 3/4 | | x 25 | 0,77 | | | | | | | |
| | x 1 | | x 30 | 0,73 | | | | | | | |
| 1 1/2 | x 3/8 | 44,5 | x 16 | | 56 | 44 | 44,6 | | 16,1 | 10 | 1,35 |
| | x 1/2 | | x 20 | 1,33 | | | | | | | |
| | x 3/4 | | x 25 | 1,29 | | | | | | | |
| | x 1 | | x 30 | 1,25 | | | | | | | |
| 2 | x 1 1/4 | 57 | x 38 | | 63,5 | 50 | 57,3 | 16 | 38,1 | 13 | 1,17 |
| | x 1/8 | | x 16 | 1,89 | | | | | | | |
| | x 1/2 | | x 20 | 1,87 | | | | | | | |
| | x 3/4 | | x 25 | 1,83 | | | | | | | |
| | x 1 | | x 30 | 1,79 | | | | | | | |
| | x 1 1/4 | x 38 | 1,71 | | | | | | | | |
| | x 1 1/2 | x 44,5 | | | | | | 44,6 | | 1,62 | |



COUPLINGS

SOCKET WELDING OR CAPILLARY ENDS

Material: CuNi 90/10



Straight couplings

| Outside diameter of pipe OD | | OA mm | L mm | OE mm | C mm | Theoretical weight Kg/piece |
|--------------------------------|--------------|----------|---------|----------|---------|-----------------------------------|
| nominal inch | actual mm | | | | | |
| 3/8 | 16 | 23 | 23 | 16,1 | 10 | 0,04 |
| 1/2 | 20 | 27 | | 20,1 | | 0,06 |
| 3/4 | 25 | 32 | 30 | 25,1 | 13 | 0,08 |
| 1 | 30 | 37 | | 30,1 | | 0,10 |
| 1 1/4 | 38 | 45 | | 38,1 | | 0,12 |
| 1 1/2 | 44,5 | 52 | 31 | 44,6 | | 0,17 |
| 2 | 57 | 64 | 38 | 57,3 | 16 | 0,22 |



Half couplings

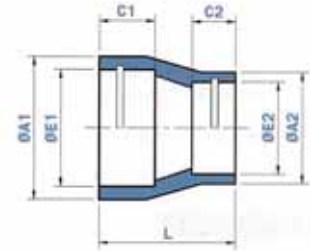
| Outside diameter of pipe OD | | OA mm | L mm | OE mm | C mm | Theoretical weight Kg/piece |
|--------------------------------|--------------|----------|---------|----------|---------|-----------------------------------|
| nominal inch | actual mm | | | | | |
| 3/8 | 16 | 23 | 13 | 16,1 | 10 | 0,02 |
| 1/2 | 20 | 27 | | 20,1 | | 0,03 |
| 3/4 | 25 | 32 | 17 | 25,1 | 13 | 0,04 |
| 1 | 30 | 37 | | 30,1 | | 0,05 |
| 1 1/4 | 38 | 45 | | 38,1 | | 0,06 |
| 1 1/2 | 44,5 | 52 | 18 | 44,6 | | 0,08 |
| 2 | 57 | 64 | 22 | 57,3 | 16 | 0,11 |



REDUCING COUPLINGS

SOCKET WELDING OR CAPILLARY ENDS

Material: CuNi 90/10



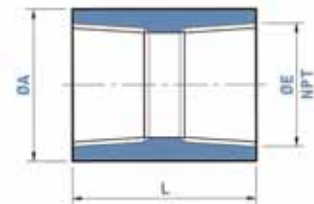
| Outside diameter of pipe | | | | | | OA1 | OE1 | C1 | OA2 | OE2 | C2 | L | Theoretical weight |
|--------------------------|---------|--------|--------|----|------|-----|------|------|-----|------|------|----|--------------------|
| OD | | | | | | | | | | | | | |
| nominal | | actual | | | | mm | mm | mm | mm | mm | mm | mm | Kg/piece |
| inch | | mm | mm | mm | mm | | | | | | | | |
| 1/2 | x 3/8 | 20 | x 16 | 27 | 20,1 | 10 | 23 | 16,1 | 10 | 27 | 0,07 | | |
| 3/4 | x 3/8 | 25 | x 16 | | | | | | | | | | |
| | x 1/2 | | x 20 | 37 | 30,1 | 23 | 16,1 | 13 | 31 | 0,08 | | | |
| 1 | x 3/4 | 30 | x 25 | | | | | | | | | | 45 |
| | x 3/8 | | x 16 | 45 | 38,1 | 23 | 16,1 | 13 | 45 | 0,18 | | | |
| 1 1/4 | x 1/2 | 38 | x 20 | | | | | | | | | | 52 |
| | x 3/4 | | x 25 | 52 | 44,6 | 32 | 25,1 | 13 | 36 | 0,16 | | | |
| | x 1 | | x 30 | | | | | | | | | | 52 |
| 1 1/2 | x 3/8 | 44,5 | x 16 | 64 | 57,3 | 23 | 16,1 | 10 | 51 | 0,20 | | | |
| | x 1/2 | | x 20 | | | | | | | | | | 64 |
| | x 3/4 | | x 25 | 64 | 57,3 | 32 | 25,1 | 13 | 42 | 0,22 | | | |
| | x 1 | | x 30 | | | | | | | | | | 64 |
| | x 1 1/4 | | x 38 | 64 | 57,3 | 45 | 38,1 | 13 | 36 | 0,24 | | | |
| 2 | x 3/8 | 57 | x 16 | | | | | | | | | | 64 |
| | x 1/2 | | x 20 | 64 | 57,3 | 27 | 20,1 | 13 | 58 | 0,27 | | | |
| | x 3/4 | | x 25 | | | | | | | | | | 64 |
| | x 1 | | x 30 | 64 | 57,3 | 37 | 30,1 | 13 | 50 | 0,25 | | | |
| | x 1 1/4 | | x 38 | | | | | | | | | | 64 |
| | x 1 1/2 | | x 44,5 | 64 | 57,3 | 52 | 44,6 | 13 | 41 | 0,23 | | | |



COUPLINGS

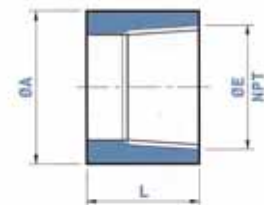
THREADED

Material: CuNi 90/10
Dimension: EMMUA Pub. N° 146



Straight couplings

| Outside diameter of pipe OD | | OA mm | L mm | OE Thread (NPT) | Theoretical weight Kg/piece |
|--------------------------------|--------------|----------|---------|-----------------------|-----------------------------------|
| nominal inch | actual mm | | | | |
| 1/2 | 16 | 29 | 48 | 1/2" | 0,16 |
| 3/4 | 25 | 35 | 51 | 3/4" | 0,28 |
| 1 | 30 | 44 | 60 | 1" | 0,38 |
| 1 1/4 | 38 | 57 | 67 | 1" 1/4 | 0,58 |
| 1 1/2 | 44,5 | 64 | 79 | 1" 1/2 | 0,78 |
| 2 | 57 | 76 | 86 | 2" | 1,42 |



Half couplings

| Outside diameter of pipe OD | | OA mm | L mm | OE Thread (NPT) | Theoretical weight Kg/piece |
|--------------------------------|--------------|----------|---------|-----------------------|-----------------------------------|
| nominal inch | actual mm | | | | |
| 1/2 | 16 | 29 | 24,0 | 1/2" | 0,08 |
| 3/4 | 25 | 35 | 25,5 | 3/4" | 0,14 |
| 1 | 30 | 44 | 30,0 | 1" | 0,19 |
| 1 1/4 | 38 | 57 | 33,5 | 1" 1/4 | 0,29 |
| 1 1/2 | 44,5 | 64 | 39,5 | 1" 1/2 | 0,39 |
| 2 | 57 | 76 | 43,0 | 2" | 0,71 |

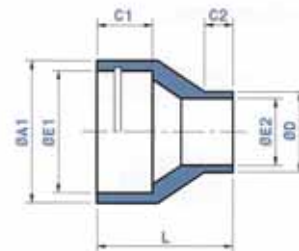
• Other threads than NPT are also available upon request.



REDUCING INSERTS

Capillary x male ends

Material: CuNi 90/10



| Outside diameter of pipe OD | | | | | OA1 | OE1 | C1 | OD (OD) | OE2 | C2 | L | Theoretical weight Kg/piece | | | |
|-----------------------------|---|--------------|------|----|------|-----|------|---------|-----|----|----|--------------------------------|------|------|------|
| nominal inch | x | actual mm | x | mm | | | | | | | | | | | |
| 1/2 | x | 3/8 | 20 | x | 16 | 27 | 20,1 | 10 | 16 | 14 | 29 | 0,03 | | | |
| 3/4 | x | 3/8 | 25 | x | 16 | 32 | 25,1 | 13 | 20 | 18 | 29 | 0,04 | | | |
| | x | 1/2 | | x | 20 | | | | | | | | 29 | 0,04 | |
| 1 | x | 3/8 | 30 | x | 16 | 37 | 30,1 | 12 | 16 | 14 | 35 | 0,05 | | | |
| | x | 1/2 | | x | 20 | | | | | | | | 33 | 0,05 | |
| | x | 3/4 | | x | 25 | | | | | | | | 30 | 0,06 | |
| 1 1/4 | x | 3/8 | 38 | x | 16 | 45 | 38,1 | 13 | 16 | 14 | 43 | 0,06 | | | |
| | x | 1/2 | | x | 20 | | | | | | | | 41 | 0,07 | |
| | x | 3/4 | | x | 25 | | | | | | | | | | 38 |
| | x | 1 | | x | 30 | | | | | | | | 37 | 0,09 | |
| 1 1/2 | x | 1/2 | 44,5 | x | 20 | 52 | 44,6 | 12 | 20 | 18 | 44 | 0,10 | | | |
| | x | 3/4 | | x | 25 | | | | | | | | 42 | 0,12 | |
| | x | 1 | | x | 30 | | | | | | | | | | 41 |
| | x | 1 1/4 | | x | 38 | | | | | | | | 41 | 0,14 | |
| 2 | x | 3/4 | 57 | x | 25 | 64 | 57,3 | 16 | 25 | 22 | 12 | 49 | 0,14 | | |
| | x | 1 | | x | 30 | | | | | | | | | 48 | 0,19 |
| | x | 1 1/4 | | x | 38 | | | | | | | | | | |
| | x | 1 1/2 | | x | 44,5 | | | | | | | | | 44 | 0,23 |

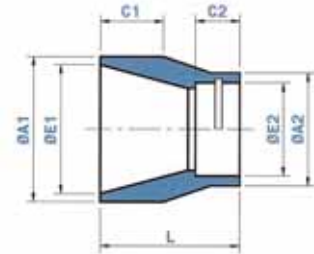
• Other dimensions, wall thicknesses and outside diameters are also available upon request.



REDUCING INSERTS

Male x capillary ends

Material: CuNi 90/10



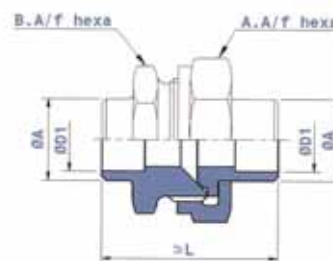
| Outside diameter of pipe | | | | OA1 | OE1 | C1 | OA2 | OE2 | C2 | L | Theoretical weight |
|--------------------------|---|-----------|------|-----|------|----|-----|------|----|----|--------------------|
| OD | | | | | | | | | | | |
| nominal inch | | actual mm | | mm | mm | mm | mm | mm | mm | mm | Kg/piece |
| 1/2 | x | 3/8 | 20 | x | 16 | 12 | 23 | 16,1 | 10 | 23 | 0,03 |
| 3/4 | x | 3/8 | 25 | x | 16 | | | 16,1 | | | 0,05 |
| | x | 1/2 | | x | 20 | | | 20,1 | | | 0,04 |
| 1 | x | 3/8 | 30 | x | 16 | 13 | 22 | 16,1 | 13 | 30 | 0,06 |
| | x | 1/2 | | x | 20 | | | 20,1 | | | 0,06 |
| | x | 3/4 | | x | 25 | | | 25,1 | | | 0,06 |
| 1 1/4 | x | 3/8 | 38 | x | 16 | 17 | 23 | 16,1 | 10 | 41 | 0,12 |
| | x | 1/2 | | x | 20 | | | 20,1 | | | 0,12 |
| | x | 3/4 | | x | 25 | | | 25,1 | | | 0,12 |
| | x | 1 | | x | 30 | | | 30,1 | | | 0,10 |
| 1 1/2 | x | 3/8 | 44,5 | x | 16 | 17 | 23 | 16,1 | 10 | 43 | 0,18 |
| | x | 1/2 | | x | 20 | | | 20,1 | | | 0,18 |
| | x | 3/4 | | x | 25 | | | 25,1 | | | 0,16 |
| | x | 1 | | x | 30 | | | 30,1 | | | 0,15 |
| | x | 1 1/4 | | x | 38 | | | 38,1 | | | 0,11 |
| 2 | x | 3/8 | 57 | x | 16 | 13 | 23 | 16,1 | 10 | 52 | 0,30 |
| | x | 1/2 | | x | 20 | | | 20,1 | | | 0,31 |
| | x | 3/4 | | x | 25 | | | 25,1 | | | 0,31 |
| | x | 1 | | x | 30 | | | 30,1 | | | 0,32 |
| | x | 1 1/4 | | x | 38 | | | 38,1 | | | 0,28 |
| | x | 1 1/2 | | x | 44,5 | | | 44,6 | | | 0,26 |

- Other dimensions, wall thicknesses and outside diameters are also available upon request.



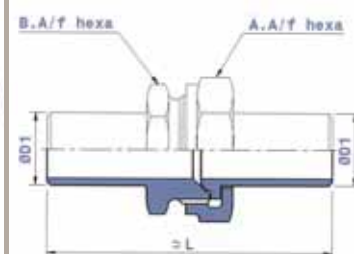
UNION CONNECTORS

Material: CuNi 90/10



Socket welding or capillary ends

| Outside diameter of pipe | | OA mm | ≥ L mm | A.A/f mm | B.a/f mm | Theoretical weight Kg/piece |
|--------------------------|------------------|----------|-----------|-------------|-------------|--------------------------------|
| nominal inch | OD1 actual mm | | | | | |
| 3/8 | 16 | 23 | 62 | 42 | 36 | 0,24 |
| 1/2 | 20 | 27 | 62 | 42 | 36 | 0,31 |
| 3/4 | 25 | 32 | 73 | 50 | 46 | 0,44 |
| 1 | 30 | 37 | 73 | 60 | 50 | 0,55 |
| 1 1/4 | 38 | 45 | 79 | 70 | 65 | 0,73 |
| 1 1/2 | 44,5 | 52 | 84 | 70 | 65 | 1,08 |
| 2 | 57 | 64 | 94 | 85 | 80 | 1,54 |



Butt welding ends

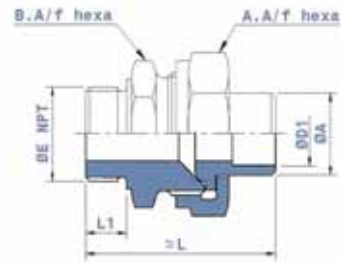
| Outside diameter of pipe | | ≥ L mm | A.A/f mm | B.A/f mm | Theoretical weight Kg/piece |
|--------------------------|------------------|-----------|-------------|-------------|--------------------------------|
| nominal inch | OD1 actual mm | | | | |
| 3/8 | 16 | 95 | 42 | 36 | 0,35 |
| 1/2 | 20 | 99 | 42 | 36 | 0,45 |
| 3/4 | 25 | 101 | 50 | 46 | 0,59 |
| 1 | 30 | 105 | 60 | 50 | 0,88 |
| 1 1/4 | 38 | 110 | 70 | 65 | 1,15 |
| 1 1/2 | 44,5 | 113 | 70 | 65 | 1,54 |
| 2 | 57 | 120 | 85 | 80 | 2,30 |

• Other dimensions, wall thicknesses and outside diameters are also available upon request.



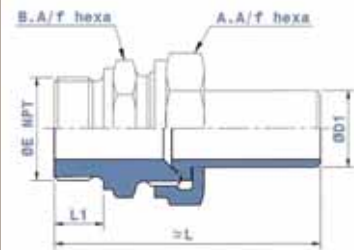
MALE UNION CONNECTORS

Material: CuNi 90/10



Socket welding or capillary end x Male

| Outside diameter of pipe | | OE Thread NPT | OA mm | L1 mm | ≥ L mm | A.A/f mm | B.A/f mm | Theoretical weight Kg/piece |
|--------------------------|---------------|---------------|-------|-------|--------|----------|----------|-----------------------------|
| nominal inch | OD1 actual mm | | | | | | | |
| 3/8 | 16 | 3/4" | 23 | 19 | 74 | 42 | 36 | 0,35 |
| 1/2 | 20 | 3/4" | 27 | | 79 | 42 | 36 | 0,47 |
| 3/4 | 25 | 1" | 32 | 21 | 82 | 50 | 46 | 0,55 |
| 1 | 30 | 1" 1/4 | 37 | 23 | 89 | 60 | 50 | 0,73 |
| 1 1/4 | 38 | 1" 1/2 | 45 | 25 | 97 | 70 | 65 | 1,05 |
| 1 1/2 | 44,5 | 1" 3/4 | 52 | 25,5 | 100 | 70 | 65 | 1,55 |
| 2 | 57 | 2" | 64 | 27,5 | 109 | 85 | 80 | 2,00 |



Butt welding end x Male

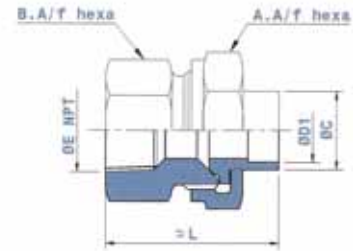
| Outside diameter of pipe | | OE Thread NPT | L1 mm | ≥ L mm | A.A/f mm | B.A/f mm | Theoretical weight Kg/pieces |
|--------------------------|---------------|---------------|-------|--------|----------|----------|------------------------------|
| nominal inch | OD1 actual mm | | | | | | |
| 3/8 | 16 | 3/4" | 19 | 84 | 42 | 36 | 0,37 |
| 1/2 | 20 | 3/4" | | 92 | 42 | 36 | 0,50 |
| 3/4 | 25 | 1" | 21 | 95 | 50 | 46 | 0,60 |
| 1 | 30 | 1" 1/4 | 23 | 100 | 60 | 50 | 0,80 |
| 1 1/4 | 38 | 1" 1/2 | 25 | 106 | 70 | 65 | 1,15 |
| 1 1/2 | 44,5 | 1" 3/4 | 25,5 | 115 | 70 | 65 | 1,65 |
| 2 | 57 | 2" | 27,5 | 130 | 85 | 80 | 2,15 |

- Other threads than NPT are also available upon request.
- Other dimensions, wall thicknesses and outside diameters are also available upon request.



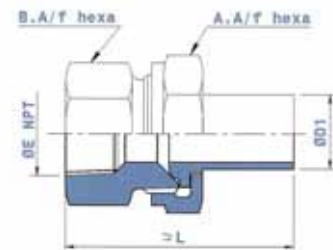
FEMALE UNION CONNECTORS

Material: CuNi 90/10



Socket welding or capillary end x Female

| Outside diameter of pipe | | OE Thread NPT | OC mm | ≥ L mm | A.A/f mm | B.A/f mm | Theoretical weight Kg/piece |
|--------------------------|------------------|---------------------|----------|-----------|-------------|-------------|-----------------------------------|
| nominal inch | OD1 actual mm | | | | | | |
| 3/8 | 16 | 1/2" | 23 | 50 | 42 | 27 | 0,25 |
| 1/2 | 20 | 1/2" | 27 | 51 | 42 | 27 | 0,31 |
| 3/4 | 25 | 3/4" | 32 | 56 | 50 | 32 | 0,43 |
| 1 | 30 | 1" | 37 | 60 | 60 | 41 | 0,45 |
| 1 1/4 | 38 | 1 1/4" | 45 | 68 | 70 | 50 | 0,72 |
| 1 1/2 | 44,5 | 1 1/2" | 52 | 70 | 70 | 55 | 0,85 |
| 2 | 57 | 2" | 64 | 76 | 85 | 70 | 1,35 |



Butt welding end x Female

| Outside diameter of pipe | | OE Thread NPT | ≥ L mm | A.A/f mm | B.a/f mm | Theoretical weight Kg/piece |
|--------------------------|------------------|---------------------|-----------|-------------|-------------|-----------------------------------|
| nominal inch | OD1 actual mm | | | | | |
| 3/8 | 16 | 1/2" | 60 | 42 | 27 | 0,25 |
| 1/2 | 20 | 1/2" | 61 | 42 | 27 | 0,28 |
| 3/4 | 25 | 3/4" | 69 | 50 | 32 | 0,38 |
| 1 | 30 | 1" | 73 | 60 | 41 | 0,41 |
| 1 1/4 | 38 | 1 1/4" | 87 | 70 | 50 | 0,68 |
| 1 1/2 | 44,5 | 1 1/2" | | 70 | 55 | 0,77 |
| 2 | 57 | 2" | 96 | 85 | 70 | 1,05 |

- Other threads than NPT are also available upon request.
- Other dimensions, wall thicknesses and outside diameters are also available upon request.



STRAIGHT CONNECTORS

Socket welding or capillary end x Male thread

Material: CuNi 90/10



| Outside diameter of pipe | | | | OE Thread NPT | OA mm | C mm | L mm | A.A/f mm | Theoretical weight Kg/piece |
|--------------------------|-----------------------|------|--------|---------------------|----------|---------|---------|-------------|-----------------------------------|
| nominal inch | OD1 x OE actual mm | | | | | | | | |
| 3/8 | x 1/2 | 16 | x 20 | 1/2" | 23 | 10 | 30 | 22 | 0,10 |
| | x 3/4 | | x 25 | 3/4" | | | 33 | 30 | 0,13 |
| | x 1 | | x 30 | 1" | | | 38 | 36 | 0,28 |
| 1/2 | x 1/2 | 20 | x 20 | 1/2" | 27 | | 33 | 27 | 0,11 |
| | x 3/4 | | x 25 | 3/4" | | | 34 | 30 | 0,14 |
| | x 1 | | x 30 | 1" | | | 39 | 36 | 0,25 |
| | x 1 1/4 | | x 38 | 1 1/4" | | 43 | 46 | 0,51 | |
| 3/4 | x 3/4 | 25 | x 25 | 3/4" | 32 | 13 | 35 | 32 | 0,15 |
| | x 1 | | x 30 | 1" | | | 39 | 36 | 0,20 |
| | x 1 1/4 | | x 38 | 1 1/4" | | | 43 | 46 | 0,46 |
| | x 1 1/2 | | x 44,5 | 1 1/2" | | | 44 | 50 | 0,62 |
| 1 | x 3/4 | 30 | x 25 | 3/4" | 37 | | 38 | 41 | 0,24 |
| | x 1 | | x 30 | 1" | | | 41 | | 0,25 |
| | x 1 1/4 | | x 38 | 1 1/4" | | 44 | 46 | 0,39 | |
| | x 1 1/2 | | x 44,5 | 1 1/2" | | 45 | 50 | 0,55 | |
| 1 1/4 | x 3/4 | 38 | x 25 | 3/4" | 45 | 13 | 44 | 46 | 0,30 |
| | x 1 | | x 30 | 1" | | | 44 | | 0,27 |
| | x 1 1/4 | | x 38 | 1 1/4" | | | 45 | 0,32 | |
| | x 1 1/2 | | x 44,5 | 1 1/2" | | | 46 | 50 | 0,36 |
| 1 1/2 | x 1 | 44,5 | x 30 | 1" | 52 | | 47 | 55 | 0,40 |
| | x 1 1/4 | | x 38 | 1 1/4" | | | 48 | | 0,48 |
| | x 1 1/2 | | x 44,5 | 1 1/2" | | 48 | 0,48 | | |
| | x 2 | | x 57 | 2" | | | | 0,87 | |
| 2 | x 1 1/4 | 57 | x 38 | 1 1/4" | 64 | 16 | 51 | 65 | 0,68 |
| | x 1 1/2 | | x 44,5 | 1 1/2" | | | | | 51 |
| | x 2 | | x 57 | 2" | | | 51 | 0,57 | |
| | x 2 1/2 | | x 76,1 | 2 1/2" | | | 60 | 75 | 1,17 |

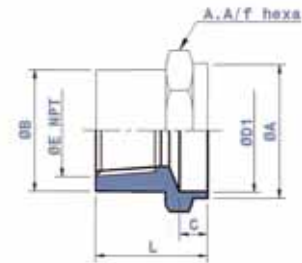
• Other threads than NPT are also available upon request.



STRAIGHT CONNECTORS

Socket welding or capillary end x Female thread

Material: CuNi 90/10



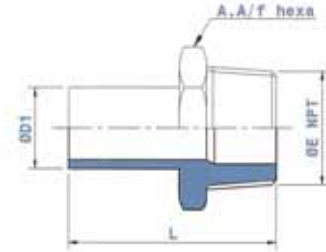
| Outside diameter of pipe | | | | OE Thread NPT | OA mm | C mm | OB mm | L mm | A.A/f mm | Theoretical weight Kg/piece | | | | |
|--------------------------|---|-----------------------|---|---------------------|----------|---------|----------|---------|-------------|-----------------------------------|------|------|----|------|
| nominal inch | | ØD1 x OE actual mm | | | | | | | | | | | | |
| 3/8 | x | 1/2 | x | 20 | 1/2" | 10 | 27 | 31 | 27 | 0,07 | | | | |
| | x | 3/4 | x | 25 | 3/4" | | 23 | 32 | 33 | 32 | 0,10 | | | |
| | x | 1 | x | 30 | 1" | | 40 | 38 | 41 | 41 | 0,20 | | | |
| 1/2 | x | 1/2 | x | 20 | 1/2" | | 27 | 27 | 28 | 27 | 0,08 | | | |
| | x | 3/4 | x | 25 | 3/4" | | | 32 | 32 | 32 | 32 | 0,11 | | |
| | x | 1 | x | 30 | 1" | | | 40 | 37 | 41 | 41 | 0,31 | | |
| | x | 1 1/4 | x | 38 | 1 1/4" | 49 | | 40 | 50 | 50 | 0,29 | | | |
| 3/4 | x | 3/4 | x | 25 | 3/4" | 32 | | 32 | 31 | 32 | 0,10 | | | |
| | x | 1 | x | 30 | 1" | | | 40 | 35 | 41 | 41 | 0,20 | | |
| | x | 1 1/4 | x | 38 | 1 1/4" | | 49 | 39 | 50 | 50 | 0,29 | | | |
| | x | 1 1/2 | x | 44,5 | 1 1/2" | | 55 | 41 | 55 | 55 | 0,32 | | | |
| 1 | x | 3/4 | x | 25 | 3/4" | | 37 | 32 | 31 | 41 | 0,23 | | | |
| | x | 1 | x | 30 | 1" | | | 40 | 35 | 41 | 41 | 0,19 | | |
| | x | 1 1/4 | x | 38 | 1 1/4" | 49 | | 38 | 50 | 50 | 0,28 | | | |
| | x | 1 1/2 | x | 44,5 | 1 1/2" | 55 | | 40 | 55 | 55 | 0,30 | | | |
| 1 1/4 | x | 3/4 | x | 25 | 3/4" | 45 | | 32 | 39 | 46 | 50 | 0,39 | | |
| | x | 1 | x | 30 | 1" | | | 40 | | | | 0,31 | | |
| | x | 1 1/4 | x | 38 | 1 1/4" | | 49 | 0,29 | | | | | | |
| | x | 1 1/2 | x | 44,5 | 1 1/2" | | 55 | 0,32 | | | | | | |
| 1 1/2 | x | 1 | x | 30 | 1" | | 52 | 40 | | | | 55 | 70 | 0,55 |
| | x | 1 1/4 | x | 38 | 1 1/4" | | | 49 | | | | | | 0,50 |
| | x | 1 1/2 | x | 44,5 | 1 1/2" | 55 | | 0,43 | | | | | | |
| | x | 2 | x | 57 | 2" | 70 | | 0,65 | | | | | | |
| 2 | x | 1 1/4 | x | 38 | 1 1/4" | 64 | | 49 | 65 | 70 | 0,80 | | | |
| | x | 1 1/2 | x | 44,5 | 1 1/2" | | | 55 | | | 0,73 | | | |
| | x | 2 | x | 57 | 2" | | 70 | 0,65 | | | | | | |
| | x | 2 1/2 | x | 76,1 | 2 1/2" | | 85 | 0,97 | | | | | | |

- Other threads than NPT are also available upon request.



Adaptors

Material: CuNi 90/10



Butt welding end x Male thread

| Outside diameter of pipe | | | | OE Thread NPT | L mm | A.A/f mm | Theoretical weight Kg/piece |
|--------------------------|---|-----------------------|-------------|------------------|---------|-------------|--------------------------------|
| nominal inch | | OD1 x OE actual mm | | | | | |
| 3/8 | x | 1/2 | 16 x 20 | 1/2" | 40 | 27 | 0,15 |
| 1/2 | x | 1/2 | 20 x 20 | | 0,16 | | |
| 3/4 | x | 3/4 | 25 x 25 | 3/4" | 45 | 32 | 0,22 |
| 1 | x | 3/4 | 30 x 25 | | 48 | | 0,28 |
| | x | 1 | 30 x 30 | 1" | 53 | 38 | 0,32 |
| 1 3/4 | x | 1 1/2 | 38 x 44,5 | 1" 1/2 | 60 | 50 | 0,50 |
| 1 1/2 | x | 1 1/2 | 44,5 x 44,5 | | 65 | | 0,60 |
| 2 | x | 1 1/2 | 57 x 44,5 | 2" | 65 | 65 | 0,85 |
| | x | 2 | 57 x 57 | | 70 | | 0,98 |



Butt welding end x Female thread

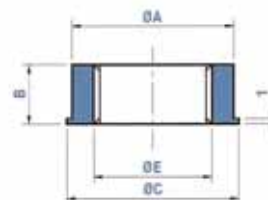
| Outside diameter of pipe | | | | OE Thread NPT | L mm | A.A/f mm | Theoretical weight Kg/piece |
|--------------------------|---|-----------------------|-------------|------------------|---------|-------------|--------------------------------|
| nominal inch | | OD1 x OE actual mm | | | | | |
| 3/8 | x | 1/2 | 16 x 20 | 1/2" | 34 | 27 | 0,07 |
| 1/2 | x | 3/4 | 20 x 25 | 3/4" | 37 | 32 | 0,10 |
| 3/4 | x | 3/4 | 25 x 25 | | 34 | 32 | 0,15 |
| 1 | x | 1 | 25 x 30 | 1" | 41 | 41 | 0,19 |
| | x | 1 | 30 x 30 | | 39 | | 0,25 |
| 1 3/4 | x | 1 1/2 | 38 x 44,5 | 1" 1/2 | 50 | 55 | 0,35 |
| 1 1/2 | x | 1 1/2 | 44,5 x 44,5 | | 47 | | 0,40 |
| 2 | x | 1 1/2 | 57 x 44,5 | 2" | 51 | 70 | 0,50 |
| | x | 2 | 57 x 57 | | | | 0,50 |

- Other threads than NPT are also available upon request.
- Other dimensions, wall thicknesses and outside diameters are also available upon request.



SPRINKLER BUSHES & MALE PLUGS

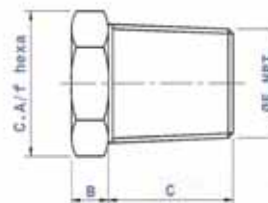
Material: CuNi 90/10



Sprinkler bushes

| Outside diameter of pipe | | OE Thread | OA mm | OC mm | B mm | Theoretical weight Kg/piece |
|--------------------------|--------------|-----------------------|----------|----------|---------|-----------------------------------|
| nominal inch | actual mm | | | | | |
| 3/8 | 16 | ON APPLICATION | 16 | 18 | 11 | 0,01 |
| 1/2 | 20 | | 20 | 22 | | 0,01 |
| 3/4 | 25 | | 25 | 27 | | 0,02 |
| 1 | 30 | | 30 | 32 | 12 | 0,03 |
| 1 1/4 | 38 | | 38 | 40 | 16 | 0,06 |
| 1 1/2 | 44,5 | | 44,5 | 47 | | 0,08 |
| 2 | 57 | | 57 | 59 | | 0,09 |

NOTE: OE-3/8", 1/2", 3/4", 1", 1" 1/2, NPT or BSP to be specified.



Dimension: EMMUA Pub. N° 146

Male plugs

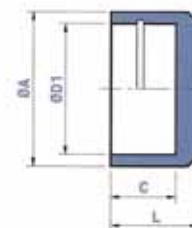
| Outside diameter of pipe | | OE Thread NPT | B mm | C mm | C.A/f mm | Theoretical weight Kg/piece |
|--------------------------|--------------|---------------------|---------|---------|-------------|-----------------------------------|
| nominal inch | actual mm | | | | | |
| 1/2 | 16 | 1/2" | 8 | 18 | 19 | 0,17 |
| 3/4 | 25 | 3/4" | 10 | | 24 | 0,30 |
| 1 | 30 | 1" | | 21 | 30 | 0,55 |
| 1 1/4 | 38 | 1" 1/4 | 14 | 22 | 41 | 0,95 |
| 1 1/2 | 44,5 | 1" 1/2 | 16 | | 1,10 | |
| 2 | 57 | 2" | 17 | | 50 | 1,85 |

- Other threads than NPT are also available upon request.
- Other dimensions, wall thicknesses and outside diameters are also available upon request.



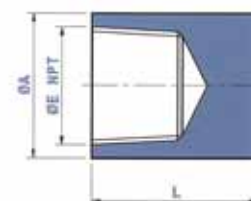
END CAPS

Material: CuNi 90/10



Socket welding or capillary ends

| Outside diameter of pipe | | OA mm | L mm | C mm | Theoretical weight Kg/piece |
|--------------------------|--------------|----------|---------|---------|--------------------------------|
| nominal inch | actual mm | | | | |
| 3/8 | 16 | 23 | 14,0 | 10 | 0,04 |
| 1/2 | 20 | 27 | 14,5 | | 0,05 |
| 3/4 | 25 | 32 | 15,0 | | 0,07 |
| 1 | 30 | 37 | 16,0 | 13 | 0,08 |
| 1 1/4 | 38 | 45 | 20,0 | | 0,13 |
| 1 1/2 | 44,5 | 52 | 20,5 | | 0,19 |
| 2 | 57 | 64 | | 16 | 0,22 |



Dimension: EMMUA Pub. N° 146

Female threaded

| Outside diameter of pipe | | OE Thread NPT | OA mm | L mm | Theoretical weight Kg/piece |
|--------------------------|--------------|---------------------|----------|---------|--------------------------------|
| nominal inch | actual mm | | | | |
| 1/2 | 16 | 1/2" | 29 | 32 | 0,17 |
| 3/4 | 25 | 3/4" | 35 | 37 | 0,30 |
| 1 | 30 | 1" | 44 | 38 | 0,55 |
| 1 1/4 | 38 | 1" 1/4 | 57 | 41 | 0,95 |
| 1 1/2 | 44,5 | 1" 1/2 | 64 | | 1,10 |
| 2 | 57 | 2" | 76 | 42 | 1,85 |

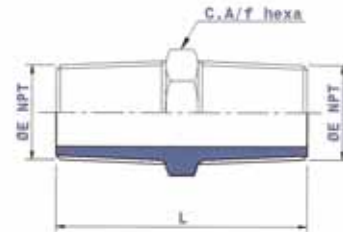
- Other threads than NPT are also available upon request.



NIPPLES

THREADED

Material: CuNi 90/10



Hexagonal nipples

| Outside diameter of pipe | | ØE Thread NPT | L mm | C.A/f mm | Theoretical weight Kg/piece |
|--------------------------|--------------|---------------------|---------|-------------|-----------------------------------|
| nominal inch | actual mm | | | | |
| 1/4 | 12 | 1/4" | 42 | 17 | 0,05 |
| 3/8 | 16 | 3/8" | 47 | 22 | 0,11 |
| 1/2 | 20 | 1/2" | 48 | 24 | 0,13 |
| 3/4 | 25 | 3/4" | 52 | 30 | 0,20 |
| 1 | 30 | 1" | 60 | 36 | 0,29 |
| 1 1/4 | 38 | 1" 1/4 | 72 | 46 | 0,36 |
| 1 1/2 | 44,5 | 1" 1/2 | 74 | 50 | 0,43 |
| 2 | 57 | 2" | 78 | 65 | 0,59 |



Pipe nipple

| Outside diameter of pipe | | ØE Thread NPT | L mm | Theoretical weight Kg/piece |
|--------------------------|--------------|---------------------|---------|-----------------------------------|
| nominal inch | actual mm | | | |
| 1/4 | 12 | 1/4" | 42 | 0,04 |
| 3/8 | 16 | 3/8" | 47 | 0,10 |
| 1/2 | 20 | 1/2" | 48 | 0,12 |
| 3/4 | 25 | 3/4" | 52 | 0,19 |
| 1 | 30 | 1" | 60 | 0,28 |
| 1 1/4 | 38 | 1" 1/4 | 72 | 0,35 |
| 1 1/2 | 44,5 | 1" 1/2 | 74 | 0,42 |
| 2 | 57 | 2" | 78 | 0,58 |

- Other threads than NPT are also available upon request.
- Other dimensions, wall thicknesses and outside diameters are also available upon request.

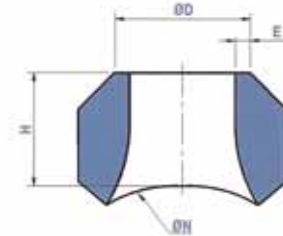


WELDOLETS

16&20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of branch pipe OD | | Outside diameter of header ON | | E | | H | Theoretical weight | | |
|---------------------------------------|--------------|----------------------------------|--------------|--------|--------|--------|--------------------|-------|------|
| nominal inch | actual mm | nominal inch | actual mm | mm | | mm | Kg/piece | | |
| 1/2 | 16 | 1/2 to 1 1/2 | 16 to 44,5 | 2 | | 19,05 | 0,07 | | |
| | | 2 to 24 | 57 to 610 | | | 17,50 | | | |
| 3/4 | 25 | 3/4 to 1 1/2 | 25 to 44,5 | | | 22,20 | 0,11 | | |
| | | 2 to 24 | 57 to 610 | | | 20,60 | | | |
| 1 | 30 | 1 to 1 1/2 | 30 to 44,5 | | | 2,5 | | 27,00 | 0,18 |
| | | 2 to 24 | 57 to 610 | | | | | 22,20 | |
| 1 1/4 | 38 | 1 1/4 to 1 1/2 | 38 to 44,5 | | | | | 30,20 | 0,32 |
| | | 2 to 24 | 57 to 610 | | | | | 25,40 | |
| 1 1/2 | 44,5 | 1 1/2 | 44,5 | | | | | 33,30 | 0,36 |
| | | 2 to 24 | 57 to 610 | | | | | 28,60 | |
| 2 | 57 | 2 to 2 1/2 | 57 to 76,1 | 38,10 | 0,68 | | | | |
| | | 3 to 24 | 88,9 to 610 | 33,30 | | | | | |
| 2 1/2 | 76,1 | 3 to 4 | 76,1 to 108 | 47,60 | 1,40 | | | | |
| | | 6 to 24 | 159 to 610 | 44,50 | | | | | |
| 3 | 88,9 | 3 to 4 | 88,9 to 108 | 47,60 | 1,70 | | | | |
| | | 6 to 24 | 159 to 610 | 44,50 | | | | | |
| 4 | 108 | 4 | 108 | 46,80 | 3,00 | | | | |
| | | 6 | 159 | 52,40 | | | | | |
| | | 8 to 24 | 219,1 to 610 | 49,20 | | 6,40 | | | |
| | | | | 16 Bar | 20 Bar | | | | |
| 6 | 159 | 6 to 24 | 159 to 610 | 3 | 3,5 | 60,30 | 6,400 | | |
| 8 | 219,1 | 8 to 24 | 219 to 610 | 4 | 4,5 | 69,90 | 12,70 | | |
| 10 | 267 | 10 to 24 | 267 to 610 | 4,5 | 5,5 | 77,80 | 17,70 | | |
| 12 | 323,9 | 12 to 24 | 323,9 to 610 | 5,5 | 7 | 85,70 | 29,50 | | |
| 14 | 368 | 14 to 24 | 368 to 610 | 6,5 | 8 | 88,90 | 31,80 | | |
| 16 | 419,1 | 16 to 24 | 419,1 to 610 | 7 | 9 | 93,70 | 41,70 | | |
| 18 | 457,2 | 18 to 24 | 457,2 to 610 | 8 | 9,5 | 96,80 | 53,20 | | |
| 20 | 508 | 20 to 24 | 508 to 610 | 8,5 | 11 | 115,90 | 68,30 | | |
| 24 | 610 | 24 | 610 | 10,5 | 13 | 115,90 | 91,20 | | |

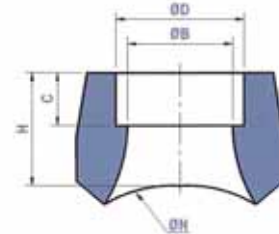


SOCKOLETS

16&20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of branch pipe OD | | Outside diameter of header ON | | OB mm | H mm | C mm | Theoretical weight Kg/piece |
|---------------------------------------|--------------|----------------------------------|--------------|----------|---------|---------|--------------------------------|
| nominal inch | actual mm | nominal inch | actual mm | | | | |
| 1/2 | 16 | 3/4 to 1 1/2 | 25 to 44,5 | 12,0 | 25,4 | 10 | 0,10 |
| | | 2 to 36 | 57 to 914 | | 23,8 | | |
| 3/4 | 25 | 1 to 1 1/2 | 30 to 44,5 | 21,0 | 26,9 | 13 | 0,13 |
| | | 2 to 36 | 57 to 914 | | 25,4 | | |
| 1 | 30 | 1 1/4 to 1 1/2 | 38 to 44,5 | 25,0 | 33,3 | | 0,22 |
| | | 2 to 36 | 57 to 914 | | 28,6 | | |
| 1 1/4 | 38 | 2 to 36 | 57 to 914 | 33,0 | 33,3 | | 0,35 |
| 1 1/2 | 44,5 | 2 to 36 | 57 to 914 | 39,5 | 30,2 | 0,50 | |
| 2 | 57 | 2 1/2 to 36 | 76,1 to 914 | 52,0 | 38,1 | 16 | 0,90 |

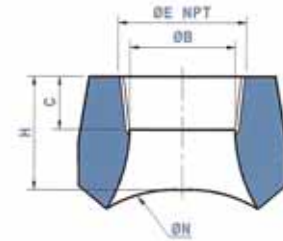


THREADOLETS

16&20 BAR

Material: CuNi 90/10

Dimension: EMMUA Pub. N° 146



| Outside diameter of branch pipe OD | | Outside diameter of header OA | | OB (bore) mm | H mm | C mm | Theoretical weight Kg/piece |
|---------------------------------------|---------------|----------------------------------|--------------|--------------------|---------|---------|-----------------------------------|
| nominal inch | actual NPT | nominal inch | actual mm | | | | |
| 1/2 | 1/2" | 3/4 to 1 1/2 | 25 to 44,5 | 11,74 | 25,4 | 13,5 | 0,10 |
| | | 2 to 36 | 57 to 914 | | 23,8 | | |
| 3/4 | 3/4" | 1 to 1 1/2 | 30 to 44,5 | 15,58 | 26,9 | 14 | 0,13 |
| | | 2 to 36 | 57 to 914 | | 25,4 | | |
| 1 | 1" | 1 1/4 to 1 1/2 | 38 to 44,5 | 20,70 | 33,3 | 17,5 | 0,22 |
| | | 2 to 36 | 57 to 914 | | 28,6 | | |
| 1 1/4 | 1 1/4" | 2 to 36 | 57 to 914 | 29,50 | 33,3 | 18 | 0,35 |
| 1 1/2 | 1 1/2" | 2 to 36 | 57 to 914 | 34,02 | 30,2 | 18,5 | 0,50 |
| 2 | 2" | 2 1/2 to 36 | 76,1 to 914 | 42,82 | 38,1 | 19 | 0,90 |





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