

Steel seamless tubes for steam generators and pipelines

TU 14-3R-55-2001

Used for steam generators and pipelines, installations with high and supercritical steam parameters.

Dimensions and weight of hot-worked tubes *

| Outside diameter, mm | Weight per meter, kg, for wall thickness, mm | | | | | | | | | | | | | | | | | | |
|----------------------|--|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| | 3,5 | 4,0 | 4,5 | 5,0 | 5,5 | 6,0 | 6,5 | 7,0 | 7,5 | 8,0 | 9,0 | 10,0 | 11,0 | 12,0 | 13,0 | 14,0 | 15,0 | 16,0 | 17,0 |
| 57 | 4,72 | 5,35 | 5,96 | 6,56 | 7,14 | 7,71 | 8,27 | - | - | - | - | - | - | - | - | - | - | - | - |
| 60 | 4,99 | 5,65 | 6,30 | 6,94 | 7,56 | 8,17 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 76 | 6,41 | 7,27 | 8,12 | 8,96 | 9,78 | 10,59 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 83 | 6,95 | 7,98 | 8,92 | 9,84 | 10,75 | 11,65 | 12,54 | 13,42 | 14,28 | 15,12 | - | - | - | - | - | - | - | - | - |
| 89 | 7,47 | 8,58 | 9,60 | 10,60 | 11,59 | 12,56 | 13,53 | 14,48 | 15,41 | 16,34 | - | - | - | - | - | - | - | - | - |
| 102 | - | - | 11,08 | 12,24 | 13,40 | 14,54 | 15,66 | 16,78 | 17,88 | 18,97 | - | - | - | - | - | - | - | - | - |
| 108 | - | - | 11,76 | 13,00 | 14,23 | 15,45 | 16,65 | 17,84 | 19,02 | 20,18 | - | - | - | - | - | - | - | - | - |
| 114 | - | - | - | 14,40 | 15,76 | 17,11 | 18,44 | 19,76 | 21,06 | - | - | - | - | - | - | - | - | - | - |
| 146 | - | - | - | - | - | 22,20 | 23,95 | 25,70 | 27,42 | 29,14 | 32,52 | 35,85 | 39,13 | 42,34 | 45,50 | 48,60 | 51,64 | 54,63 | 57,56 |
| 152 | - | - | - | - | - | 23,15 | 24,99 | 26,81 | 28,62 | 30,41 | 33,96 | 37,44 | 40,88 | 44,25 | 47,57 | 50,83 | 54,08 | 57,18 | 60,26 |
| 159 | - | - | - | - | - | 24,26 | 26,19 | 28,11 | 30,01 | 31,90 | 35,63 | 39,30 | 42,92 | 46,48 | 49,98 | 53,42 | 56,81 | 60,14 | 63,42 |
| 168 | - | - | - | - | - | - | 27,74 | 29,78 | 31,80 | 33,80 | 37,77 | 41,69 | 45,54 | 49,34 | 53,08 | 56,76 | 60,39 | 63,96 | 67,48 |
| 194 | - | - | - | - | - | - | - | 34,60 | 36,97 | 39,32 | 43,98 | 48,58 | 53,12 | 57,61 | 62,04 | 66,41 | 70,73 | 74,99 | 79,19 |
| 219 | - | - | - | - | - | - | - | - | 41,94 | 44,62 | 49,94 | 55,21 | 60,41 | 65,56 | 70,66 | 75,69 | 80,67 | 85,59 | 90,46 |
| 245 | - | - | - | - | - | - | - | - | - | - | 56,14 | 62,10 | 67,99 | 73,83 | 79,62 | 85,34 | 91,01 | 96,62 | 102,18 |
| 273 | - | - | - | - | - | - | - | - | - | - | - | 69,52 | 76,16 | 82,74 | 89,27 | 95,73 | 102,14 | 108,50 | 114,79 |
| 325 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 107,19 | 115,03 | 122,82 | 130,55 | 138,28 |

Dimensions and weight of hot-worked tubes (continued)*

| Outside diameter, mm | Weight per meter, kg, for wall thickness, mm | | | | | | | | | | | | | | | | | | |
|----------------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | | | 20,0 | 22,0 | 24,0 | 25,0 | 26,0 | 28,0 | 30,0 | 32,0 | 34,0 | 36,0 | 38,0 | 40,0 | 42,0 | 45,0 | 48,0 | 50,0 | 56,0 |
| 146 | 60,48 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 152 | 63,30 | 66,27 | 69,19 | 74,85 | 80,29 | 82,92 | 85,50 | 90,48 | - | - | - | - | - | - | - | - | - | - | - |
| 159 | 66,64 | 69,80 | 72,90 | 78,94 | 84,74 | 87,56 | 90,32 | 95,68 | - | - | - | - | - | - | - | - | - | - | - |
| 168 | 70,98 | 74,33 | 77,67 | 84,19 | 90,47 | 93,53 | 96,53 | 102,36 | 107,96 | - | - | - | - | - | - | - | - | - | - |
| 194 | 83,34 | 87,43 | 91,46 | 99,35 | 107,01 | 110,76 | 114,45 | 121,66 | 128,64 | 135,39 | - | - | - | - | - | - | - | - | - |
| 219 | 95,27 | 100,02 | 104,71 | 113,93 | 122,92 | 127,33 | 131,68 | 140,21 | 148,52 | 156,60 | 164,45 | 172,07 | 179,46 | 186,63 | 193,56 | - | - | - | - |
| 245 | 107,67 | 113,11 | 118,50 | 129,09 | 139,46 | 144,56 | 149,60 | 159,51 | 169,20 | 178,65 | 187,88 | 196,88 | 205,65 | 215,26 | 222,51 | 234,56 | 246,09 | 253,50 | - |
| 273 | 121,03 | 127,32 | 133,34 | 145,42 | 157,28 | 163,28 | 168,90 | 180,30 | 191,46 | 202,40 | 213,12 | 223,60 | 233,86 | 243,89 | 253,69 | 267,96 | 281,72 | 290,61 | 315,91 |
| 325 | 145,85 | 153,41 | 160,91 | 175,75 | 190,36 | 197,58 | 204,74 | 218,89 | 232,82 | 246,52 | 259,99 | 273,23 | 286,24 | 299,03 | 311,58 | 329,99 | 347,89 | 359,54 | - |

*- theoretical weight of carbon, low-alloy and martensitic chromium steel grades.

Lengths supplied:

- off-gage length of 4.0 to 10.0 m;
- specific cut length within off-gage length taking into account possible minimum and maximum lengths;
- multiple length within specific cut length (as may be agreed by parties).

Steel grades for tube production

| Steel grade | Chemical compound according to |
|---|--------------------------------|
| 20, 20-ПВ, 15ГС, 12Х1МФ, 15Х1М1Ф, 10Х9МФБ-Ш (10Х9МФБ) | TU 14-3R-55 |

Manufacturing plant warrants tube capability to pass hydraulic pressure test.

Obligatory requirements:

- chemical composition check;
- impact-bending test;
- hardness test;
- non-destructive check for longitudinal defects and defects of delaminating type;
- collapse test, flaring test, bend-over test;
- macrostructure control (for tubes with wall thickness of no less than 15 mm);
- tube metal macrostructure control;
- contamination control of tube metal for nonmetallic impurities;
- stress-durability test (intermittent monitoring).

At customer's request it is possible to carry out:

- non-destructive check for transversal defects and defects of delaminating type;
- non-destructive check for longitudinal and transversal defects according to higher standards;
- anticorrosion tube protection with grease;
- grain-boundary corrosion resistance testing.

Re-rolled mill products for machine-building and construction products

TU U 27.1-4-569-2004

Used for manufacturing of machine-building and construction products.

Dimensions of tubes

| Mill products group | Mill products description | Dimensions, mm | | Mill products length (off-grade length), mm min |
|---------------------|---|----------------|----------------|--|
| | | Outer diameter | Wall thickness | |
| 1 | Hot-rolled mill products | 73,0 – 377,0 | 5,0 – 65,0 | 2000,0 |
| 2 | cold-rolled mill products | 37,0 – 203,0 | 3,0 – 30,0 | 2000,0 |
| 3 | Hot-rolled heavy-walled mill products (tubular billet) | 320,0 – 330,0 | 70,0 | 500,0 |
| | | 370,0 – 380,0 | 70,0 | 600,0 |
| | | 430,0 – 440,0 | 60,0 | 600,0 |
| | | 440,0 – 450,0 | 80,0 | 500,0 |

Steel grades for tube production with chemical composition according to:

DSTU 2651, GOST 1050, GOST 4543, GOST 801, GOST 19281 etc.

Skid rails

TU U 27.2-8-87-2004

Used for production of water-cooled metal constructions.

Pipe dimensions and weight

| Outside square side, mm | Inner diameter, mm | Rounded radius, mm | Weight per 1 m of tube, kg |
|-------------------------|--------------------|--------------------|----------------------------|
| 140 | 85 | 20 | 106,6 |
| 155 | 100 | | 124,3 |

Limit deviation for every tube dimension: ± 5 mm

Lengths supplied:

- off-gage length of 4.0 to 13.0 m.

Tubes are manufactured of killed open-hearth steel.

Sulphur and phosphorus weight fractions in steel each must not exceed 0,045%.