

## How to determine the weight of one metre of pipe: tables, standards and formulas

Pipes, including steel ones, are used in commercial or residential buildings and structures. As a rule, it is the main component of the water supply, sewage and heating systems. In addition, steel pipes can be used for other purposes, such as arranging a pneumatic tube system in an industrial enterprise or as load-bearing and secondary civil structures, cable ducts, etc.



However, it is important to take one nuance into account in order to purchase the required quantity of pipes during construction or repair. Pipelines are measured in metres, both in drawings and in real life, while such products are sold by the tonne from mills and steel and metal warehouses. Therefore, to ensure that the quantity of the purchased material is not significantly less or more than what is required, it is necessary to calculate as precisely as possible how many of and what kinds of pipe are to be purchased, which means converting from metres to tonnes or vice versa.

### The theoretical weight of steel pipe

This task may seem to be too complex, but, in fact, that is not the case, as there are standards in Ukraine and other countries under which steel pipes are produced. They specify requirements for the products and materials tubular products are produced from: density, pipe/tube wall thickness and other essential parameters. Thus, it becomes easier to determine the pipe/tube weight, that is, to convert metres to kilogrammes.

The key Ukrainian standard for the production of electric welded pipes and construction sections is DSTU EN 10214. However, several other regulatory documents are also applied:



- GOST 10704. Straight seam saw pipes. Product mix

- GOST 10705. Electric welded steel pipes. Specifications
- GOST 10706. Straight seam saw pipes. Technical specifications
- GOST 13663. Shaped steel pipes
- GOST 8731. Seamless hot-deformed steel pipes
- GOST 8732. Seamless hot-deformed steel pipes
- GOST 8733. Seamless cold-deformed and warm-deformed steel pipes
- GOST 8734. Seamless cold-deformed steel pipes and others

All the above GOSTs will be annulled in Ukraine in mid-2022, while remaining in force in the CIS.

### How to determine the weight of a round pipe/tube?

Theoretical weight calculation tables for steel pipes were developed in compliance with these EN 10219-2 standards and other documents.

Dimensions and weight of tubes according to EN 10219-2		
Outside diameter, mm	Wall thickness, mm	Weight per 1 meter of pipe, kg
21,3	2,0	0,95
21,3	2,5	1,16
21,3	3,0	1,35
26,9	2,0	1,23
26,9	2,5	1,50
26,9	3,0	1,77
33,7	2,0	1,56
33,7	2,5	1,92
33,7	3,0	2,27
42,4	2,0	1,99
42,4	2,5	2,46
42,4	3,0	2,91
42,4	4,0	3,79
48,3	2,0	2,28
48,3	2,5	2,82
48,3	3,0	3,35
48,3	4,0	4,37
48,3	5,0	5,34
60,3	2,0	2,88
60,3	2,5	3,56
60,3	3,0	4,24
60,3	4,0	5,55
60,3	5,0	6,82
76,1	2,0	3,65
76,1	2,5	4,54
76,1	3,0	5,41
76,1	4,0	7,11
76,1	5,0	8,77
76,1	6,0	10,4
76,1	6,3	10,8

88,9	2,0	4,29
88,9	2,5	5,33
88,9	3,0	6,36
88,9	4,0	8,38
88,9	5,0	10,3
88,9	6,0	12,3
88,9	6,3	12,8
101,6	2,0	4,91
101,6	2,5	6,11
101,6	3,0	7,29
101,6	4,0	9,63
101,6	5,0	11,9
101,6	6,0	14,1
101,6	6,3	14,8
114,3	2,5	6,89
114,3	3,0	8,23
114,3	4,0	10,9
114,3	5,0	13,5
114,3	6,0	16,0
114,3	6,3	16,8
114,3	8,0	21,0
139,7	3,0	10,1
139,7	4,0	13,4
139,7	5,0	16,6
139,7	6,0	19,8
139,7	6,3	20,7
139,7	8,0	26,0
139,7	10,0	32,0
168,3	3,0	12,2
168,3	4,0	16,2
168,3	5,0	20,1
168,3	6,0	24,0
168,3	6,3	25,2
168,3	8,0	31,6
168,3	10,0	39,0
177,8	4,0	17,1
177,8	5,0	21,3
177,8	6,0	25,4
177,8	6,3	26,6
177,8	8,0	33,5
177,8	10,0	41,4
177,8	12,0	49,1
177,8	12,5	51,0
193,7	4,0	18,7

193,7	5,0	23,3
193,7	6,0	27,8
193,7	6,3	29,1
193,7	8,0	36,6
193,7	10,0	45,3
193,7	12,0	53,8
193,7	12,5	55,9
219,1	4,0	21,2
219,1	5,0	26,4
219,1	6,0	31,5
219,1	6,3	33,1
219,1	8,0	41,6
219,1	10,0	51,6
219,1	12,0	61,3
219,1	12,5	63,7
244,5	5,0	29,5
244,5	6,0	35,3
244,5	6,3	37,0
244,5	8,0	46,7
244,5	10,0	57,8
244,5	12,0	68,8
244,5	12,5	71,5
273,0	5,0	33,0
273,0	6,0	39,5
273,0	6,3	41,4
273,0	8,0	52,3
273,0	10,0	64,9
273,0	12,0	77,2
273,0	12,5	80,3
323,9	5,0	39,3
323,9	6,0	47,0
323,9	6,3	49,3
323,9	8,0	62,3
323,9	10,0	77,4
323,9	12,0	92,3
323,9	12,5	96,0
355,6	5,0	43,2
355,6	6,0	51,7
355,6	6,3	54,3
355,6	8,0	68,6
355,6	10,0	85,2
355,6	12,0	102
355,6	12,5	106
355,6	16,0	134

355,6	20,0	166
406,4	6,0	59,2
406,4	6,3	62,2
406,4	8,0	78,6
406,4	10,0	97,8
406,4	12,0	117
406,4	12,5	121
406,4	16,0	154
406,4	20,0	191
406,4	25,0	235
457,0	6,0	66,7
457,0	6,3	70,0
457,0	8,0	88,6
457,0	10,0	110
457,0	12,0	132
457,0	12,5	137
457,0	16,0	174
457,0	20,0	216
457,0	25,0	266
457,0	30,0	316
508,0	6,0	74,3
508,0	6,3	77,9
508,0	8,0	98,6
508,0	10,0	123
508,0	12,0	147
508,0	12,5	153
508,0	17,4	16,0
508,0	20,0	241
508,0	25,0	298
508,0	30,0	354
610,0	6,0	89,4
610,0	6,3	93,8
610,0	8,0	119
610,0	10,0	148
610,0	12,0	177
610,0	12,5	184
610,0	16,0	234
610,0	20,0	291
610,0	25,0	361
610,0	30,0	429
711,0	6,0	104
711,0	6,3	109
711,0	8,0	139
711,0	10,0	173