

TuffDOM Tubing - Welded cold drawn tubes

SIZE RANGE																														
OD	Wall thickness mm																													
mm.	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	9	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15	15.8	16.5	17.5	18.5	19
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185																														
190																														
200																														
210																														
220																														
230																														
240																														
250																														
260																														
270																														
290																														
300																														
305																														
	standard										On request																			

CHEMICAL COMPOSITION								
Steel	C	Mn	P	S	Si	V e/o Nb	Al	Cequivalent
TuffDOM520	0.13/0.18	1.20/1.50	0.20 max	0.015 max	0.35 max		0.02 min	0.40
TuffDOM620	0.13/0.18	1.20/1.50	0.20 max	0.015 max	0.35 max	0.15 max	0.02 min	0.41
SAE 1026	0.22/0.28	0.60/0.90	0.025 max	0.015 max	0.15 max		0.02 min	0.39

MECHANICAL PROPERTIES (SRA) (*)						
Steel	Yield strength	Tensile strength	Elongation min. in 50 mm	Min. hardness	Cv IMPACT according to ASTM A370	
	N/mm2	N/mm2	%	Rb	-20°c	+20°c
TuffDOM520	520	590	18	85	41 J	108 J
TuffDOM620	620	690	15	92	14 J	81 J
SAE 1026	520	590	15	85	3 J	14 J

(*) The above data to be used for illustration purpose and not to be taken as minimum values. Specific requirements must be specially indicated.

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TOLERANCES

TOLERANCES ON WALL THICKNESS					
Wall mm	OUTSIDE DIAMETER mm				
	22 ÷ 46.99	47 ÷ 94.99		95 ÷ 304.99	
1.75	+0.05/-0.08	+0.05/-0.08		+0.10/-0.10	
2.25 : 2.50	+0.05/-0.08	+0.08/-0.08		+0.10/-0.13	
2.75 : 3.50	+0.05/-0.10	+0.08/-0.08		+0.13/-0.13	
4.00	+0.08/-0.10	+0.08/-0.10		+0.13/-0.15	
4.50	+0.10/-0.10	+0.08/-0.13		+0.15/-0.15	
5.00	+0.10/-0.13	+0.10/-0.13		+0.15/-0.18	
5.50	+0.10/-0.15	+0.10/-0.15		+0.18/-0.18	
6.00 : 7.00	+0.13/-0.15	+0.13/-0.15		+0.18/-0.18	
7.50	+0.15/-0.15	+0.15/-0.15		+0.18/-0.18	
8.00	+0.18/-0.18	+0.18/-0.18		+0.20/-0.20	
8.75	+0.20/-0.20	+0.20/-0.20		+0.23/-0.23	
9.50		+0.23/-0.23		+0.23/-0.23	
10.00		+0.25/-0.25		+0.25/-0.25	
11.00		+0.28/-0.28		+0.28/-0.28	
12.00		+0.30/-0.30		+0.30/-0.30	
13.50		+0.33/-0.33		+0.33/-0.33	
14.25				+0.33/-0.33	
14.75				+0.36/-0.36	
15.75				+0.41/-0.41	
TOLERANCES ON OD & ID mm (reduced tolerances on request)					
OD mm	Ratio wall/OD	OD mm		ID mm	
		+	-	+	-
Up to 44	all	0.13	0.00	0.00	0.13
45÷54	all	0.15	0.00	0.00	0.15
55÷64	all	0.18	0.00	0.00	0.18
65÷74	all	0.20	0.00	0.00	0.20
75÷84	all	0.23	0.00	0.00	0.23
85÷94	all	0.25	0.00	0.00	0.25
95÷104	all	0.28	0.00	0.00	0.28
105÷114	all	0.30	0.00	0.00	0.30
115÷124	all	0.33	0.00	0.00	0.33
125÷134	all	0.36	0.00	0.00	0.36
135÷140	all	0.38	0.00	0.00	0.38
141÷150	< 6	0.25	0.25	0.25	0.25
	> 6	0.23	0.23	0.23	0.23
151÷165	< 6	0.33	0.33	0.33	0.33
	> 6	0.25	0.25	0.25	0.25
166÷179	< 6	0.38	0.38	0.38	0.38
	> 6	0.30	0.30	0.30	0.30
180÷189	< 6	0.46	0.46	0.46	0.46
	> 6	0.33	0.33	0.33	0.33
190÷205	< 6	0.51	0.51	0.51	0.51
	> 6	0.38	0.38	0.38	0.38
206÷215	< 6	0.58	0.58	0.58	0.58
	> 6	0.41	0.41	0.41	0.41
216÷229	< 6	0.64	0.64	0.64	0.64
	> 6	0.43	0.43	0.43	0.43
230÷240	< 6	0.71	0.71	0.71	0.71
	> 6	0.48	0.48	0.48	0.48
241÷250	< 6	0.76	0.76	0.76	0.76
	> 6	0.51	0.51	0.51	0.51
251÷280	< 6	0.86	0.86	0.86	0.86
	> 6	0.56	0.56	0.56	0.56
281÷305	< 6	0.89	0.89	0.89	0.89
	> 6	0.64	0.64	0.64	0.64

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The ovality shall be within the above tolerances except when the wall thickness is less than 3% of the OD. In such cases, the following additional ovality has to be added.

OD mm	ovality	OD mm	ovality
up to 50	0.25	from 151 to 175	0.90
from 51 to 75	0.40	from 176 to 200	1.00
from 76 to 100	0.50	from 201 to 225	1.15
from 101 to 125	0.65	from 226 to 250	1.30
from 126 to 150	0.75	over 251	1.50

STOCK ALLOWANCES

TURNING ON OD AND ID

finished OD mm	Finished wall thickness mm				
	Up to 4.75	4.75 ÷ 6.00	6.01 ÷ 9.00	9.01 ÷ 11.50	11.51 ÷ 15.75
up to 38.00 included	0.40	0.50	0.65	0.65	
from 38.01 to 76.00	0.50	0.65	0.75	0.75	
from 76.01 to 120.00	0.65	0.75	0.90	0.90	1.00
from 120.01 to 152.00	0.75	0.90	1.00	1.00	1.15
from 152.01 to 175.00	0.90	1.00	1.15	1.15	1.25
from 175.01 to 200.00			1.20	1.20	1.35
from 200.01 to 265.00			1.25	1.25	1.40
from 265.01 to 305.00			1.40	1.40	1.50

Camber: for every 300 mm or fraction, add 0.25 mm for camber

HONING ON INSIDE DIAMETER

inside finished diameter mm	Finished wall thickness mm					
	3.00	5.00	7.50	10.00	12.50	15.00
32	0.28	0.41	0.46			
40	0.30	0.41	0.46			
50	0.30	0.41	0.46			
63	0.30	0.41	0.48	0.53	0.58	0.58
80	0.33	0.43	0.48	0.53	0.61	0.61
100	0.36	0.46	0.51	0.56	0.64	0.64
125	0.38	0.48	0.53	0.58	0.64	0.64
160	0.41	0.51	0.56	0.61	0.66	0.66
200			0.58	0.64	0.69	0.69
250			0.58	0.66	0.71	0.71
280			0.61	0.66	0.71	0.71

For particular applications, reduced stock allowances can be required.

CENTERLESS GRINDING ON OUTSIDE DIAMETER

inside finished diameter mm	Finished wall thickness mm					
	Up to 3.25	3.25 ÷ 4.50	4.51 ÷ 6.00	6.00 ÷ 9.00	9.00 ÷ 11.50	11.50 ÷ 17.75
Up to 76.00	0.30	0.35	0.40	0.50	0.55	
from 76.01 to 120.00	0.40	0.45	0.50	0.55	0.60	0.65
from 120.01 to 152.00	0.45	0.50	0.55	0.60	0.65	0.70
from 152.01 to 175.00	0.50	0.55	0.60	0.65	0.70	0.75
from 175.01 to 200.00			0.65	0.70	0.75	0.80
from 200.01 to 265.00				0.70	0.75	0.80
from 265.01 to 305.00				0.75	0.80	0.85