

DIN 2395-1 RECTANGULAR AND SQUARE ELECTRIC WELDED PRECISION STEEL TUBES

1. Field of application

This Standard specifies the technical conditions of delivery for rectangular and square welded precision steel tubes according to DIN 2395 Part 1 made of the steel grades listed in section 5.

Tubes in accordance with this Standard are manufactured by cold forming and electric resistance pressure welding.

This Standard does not apply to hollow sections for structural steel engineering according to DIN 59411.

1. Chemical composition

Code number for material	Chemical composition (%)						
	C	P	S	N	Si	Mn	Al
UST37.2	0.21Max	0.065Max	0.065Max	0.009Max	-	-	-
RSt37.2	0.19Max	0.060Max	0.060Max	0.010Max	-	-	-
St37.3	0.19Max	0.050Max	0.050Max	-	-	-	*)
St44.2	0.24Max	0.060Max	0.060Max	0.010Max	-	-	-
St44.3	0.23Max	0.050Max	0.050Max	-	-	-	*)
M22	0.16 to 0.23	0.040Max	0.040Max	-	0.28Max	0.40 to 0.75	0.02Min
QStE340N	0.18Max	0.035Max	0.035Max	-	9.53Max	1.56Max	-

*) Contains a sufficient quantity of aluminum or other nitrogen-fixing elements

2. Mechanical property

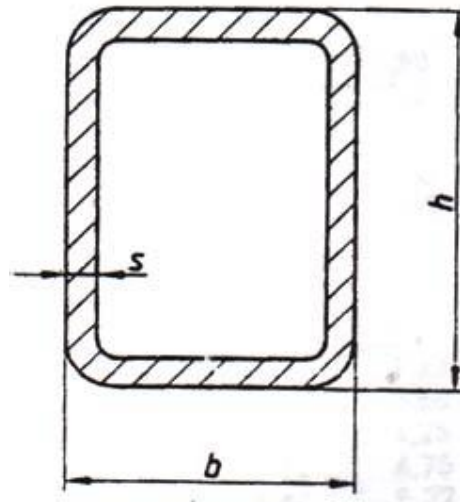
Code number for material	Mechanical properties for conditions on delivery						
	NBK (nominalized) ¹⁾				BKM (welded and sized)		
	Tensile strength R _m N/mm ²	Yield point ReH N/mm ² min.	Elongation at rupture A5% min.	Tensile strength R _m N/mm ²	Yield point ReH N/mm ² min.	Elongation at rupture A5% min.	
UST37-2	360 to 470	235	23	390	250	7	
RSt37-2							
St37-3							
St44-2	430 to 540	275	21	460	290	6	
St44-3							
M22	420Min	290	25	-	-	-	
QStE340 N	460 to 580	340	27	-	-	-	

1) After any heat treatment that may be necessary following working, the strength characteristics specified may fall at the most by 20-N/mm².

2. Other relevant standards

DIN 2395 Part 2 Rectangular and square electric-welded precision steel tubes; technical conditions of delivery for general use.

3. Dimensions, designation



Designation of a welded precision steel tube of commercial quality (quality grade A, steel grade at manufacturer's discretion), with a height $h = 50\text{mm}$, a width $b = 20\text{mm}$

Tube DIN 2395 - A - 50 x 20 x 2

Designation of a welded precision steel tube meeting special requirements (quality grade B), made of St 37.2, with a height $h = 50\text{mm}$, a width $b = 20\text{mm}$ and a wall thickness $s = 2\text{mm}$;

Tube DIN 2395 - B - St 37.2 - 50 X 20 X 2

4. Technical conditions of delivery

Technical conditions of delivery according to DIN 2395 Part 2.

Side length			Mass per meter length in kg for $s =$							
h	b	Per. dev.								
Nominal dimension	Nominal dimension	for h and b	1	1.25	1.5	2	2.5	3.	4	5

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15	15	±0.20	0.438	0.537	0.632	0.810				
18	18	±0.20	0.532	0.655	0.773	0.998				
20	10	±0.20	0.438	0.537	0.632	0.810				
	15		0.516	0.635	0.750	0.967				
	20		0.595	0.733	0.868	1.12	-			
25	15	±0.25	0.595	0.733	0.868	1.12	-			
	25		0.752	0.930	1.10	1.44	-			
30	10	±0.25	0.595	0.733	0.868	1.12	-			
	15		0.673	0.831	0.985	1.28	-			
	20		0.752	0.930	1.10	1.44	-			
	30		0.909	1.13	1.34	1.75	2.15	2.39		
34	20	±0.25	0.815	1.01	1.20	1.56	-			
	34		1.03	1.28	1.53	2.00	2.46	2.77		
35	20	±0.25	0.830	1.03	1.22	1.59	1.95	-		
	25		0.909	1.13	1.34	1.75	2.15	2.39		
	35		1.07	1.32	1.57	2.07	2.54	2.86		
36	11	±0.25	0.705	0.871	1.03	1.34	-			
40	20	±0.30			1.34	1.75	2.15	2.39		
	25		1.46	1.91	2.34	2.63				
	30		1.57	2.07	2.54	2.86				
	40		1.81	2.38	2.93	3.33	4.25			
45	45	±0.30			2.05	2.69	3.33	3.80	4.88	
50	20	±0.30			1.57	2.07	2.54	2.86		
	25		1.69	2.22	2.74	3.10				
	30		1.81	2.38	2.93	3.33	4.25			
	34		1.90	2.51	3.09	3.52	4.50			
	40		2.05	2.69	3.33	3.80	4.88			
50	2.28	3.01	3.72	4.28	5.51					
55	34	±0.40			2.02	2.66	3.29	3.76	4.82	-

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60	20	±0.40				2.38	2.93	3.33	-	-
	30					2.69	3.33	3.80	4.88	-
	40					3.01	3.72	4.28	5.51	-
	50					3.32	4.11	4.75	6.14	-
	60					3.64	4.50	5.22	6.76	-
70	40	±0.50				3.32	4.11	4.75	6.14	-
	70					4.26	5.29	6.16	8.02	9.70
80	20	±0.60				3.01	3.72	4.28	-	-
	30					3.32	4.11	4.75	-	-
	40					3.64	4.50	5.22	6.76	8.13
	50					3.95	4.90	5.69	7.39	8.91
	60					4.26	5.29	6.16	8.02	9.70
	80				4.89	6.07	7.10	9.28	11.3	
90	90	±0.75				5.52	6.86	9.04	10.5	12.8
100	40	±0.75				4.26	5.29	6.16	8.02	9.70
	50					4.58	5.68	6.63	8.65	10.5
	60					4.89	6.07	7.10	9.28	11.3
	80					5.52	6.86	8.04	10.5	12.8
	100					6.15	7.64	8.99	11.8	14.4
120	40	±0.80				4.89	6.07	7.10	9.28	11.3
	60					5.52	6.86	8.04	10.5	12.8

Permissible deviations of wall thickness $s \pm 10\%$

The tubes are normally manufactured in sizes within the stepped lines. Sizes for which a mass per unit length is given are normal commercial sizes.

The masses given in the table are based on the nominal dimensions, taking into account the following mean radii : for wall thicknesses $s \leq 2.5\text{mm}$: $0.5 X s$; $s = 3$ and 4mm : $1.75 X s$; $s = 5\text{mm}$: $2 X s$