

## Seamless EO steel tubes Material E235N (St. 37.4)

Tolerances DIN EN 10305-4

Order code		Tube O.D. (mm)	Tolerance	Wall thickness (mm)	Tube I.D. (mm)	Design pressure bar		Burst pressure bar	Weight kg/m
Phosphated and oiled	Cr(VI)-free					DIN 2413 I Static	DIN 2413 III Dynamic		
R04X0.5	R04X0.5CF	4	±0.08	0.50	3.0	313	273	1160	0.047
	R04X0.75CF	4		0.75	2.5	470	391	1820	0.063
R04X1	R04X1CF	4	±0.08	1.00	2.0	627	500	2700	0.074
	R05X1CF	5		1.00	3.0	501	416	2120	0.099
R06X1 R06X1.5	R06X0.75CF	6	±0.08	0.75	4.5	333	288	1150	0.103
	R06X1CF	6		1.00	4.0	444	372	1650	0.123
	R06X1.5CF	6		1.50	3.0	666	526	2550	0.166
	R06X2CF	6		2.00	2.0	692	662	>3500	0.197
	R06X2.25CF	6		2.25	1.5	757	725	>3500	0.208
R08X1 R08X1.5 R08X2	R08X1CF	8	±0.08	1.00	6.0	333	288	1175	0.173
	R08X1.5CF	8		1.50	5.0	499	412	1925	0.240
	R08X2CF	8		2.00	4.0	666	526	2500	0.296
	R08X2.5CF	8		2.50	3.0	658	630	2650	0.339
R10X1 R10X1.5 R10X2	R10X1CF	10	±0.08	1.00	8.0	282	248	900	0.222
	R10X1.5CF	10		1.50	7.0	423	357	1450	0.314
	R10X2CF	10		2.00	6.0	564	458	2025	0.395
	R10X2.5CF	10		2.50	5.0	705	551	2675	0.462
	R10X3CF	10		3.00	4.0	666	638	>3500	0.518
R12X1 R12X1.5 R12X2	R12X1CF	12	±0.08	1.00	10.0	235	209	750	0.271
	R12X1.5CF	12		1.50	9.0	353	303	1150	0.388
	R12X2CF	12		2.00	8.0	470	391	1600	0.493
	R12X2.5CF	12		2.50	7.0	588	474	2025	0.586
	R12X3CF	12		3.00	6.0	705	551	2600	0.666
	R12X3.5CF	12		3.50	5.0	651	624		0.734
R14X2  R14X3	R14X1.5CF	14	±0.08	1.50	11.0	302	264	975	0.462
	R14X2CF	14		2.00	10.0	403	342	1325	0.592
	R14X2.5CF	14		2.50	9.0	504	415	1650	0.709
	R14X3CF	14		3.00	8.0	604	485	2200	0.814
		14		3.50	7.0	705	551	2625	0.906
R15X1 R15X1.5 R15X2	R15X1CF	15	±0.08	1.00	13.0	188	170	575	0.345
	R15X1.5CF	15		1.50	12.0	282	248	950	0.499
	R15X2CF	15		2.00	11.0	376	321	1275	0.641
		15		3.00	9.0	564	458	2000	0.888
R16X1.5 R16X2 R16X2.5 R16X3	R16X1.5CF	16	±0.08	1.50	13.0	264	233	850	0.536
	R16X2CF	16		2.00	12.0	353	303	1175	0.691
	R16X2.5CF	16		2.50	11.0	441	370	1500	0.832
	R16X3CF	16		3.00	10.0	529	433	1850	0.962
R18X1 R18X1.5 R18X2 R18X2.5	R18X1CF	18	±0.08	1.00	16.0	157	143	450	0.419
	R18X1.5CF	18		1.50	15.0	235	209	700	0.610
	R18X2CF	18		2.00	14.0	313	273	975	0.789
	R18X2.5CF	18		2.50	13.0	392	333	1300	0.956
	R18X3CF	18		3.00	12.0	470	391	1575	1.111

**Surface finish:**

- Phosphated and oiled:
- Tubes with I.D. 1.5–5 mm: outside and inside oiled.
- Tubes from 6 mm I.D.: outside and inside phosphated and oiled.

• Cr(VI)-free:

These dimensions are externally thick coat passivated (thickness of coat 8–12 µm), inside oiled.

**Calculation pressures:**

Calculation pressures given are according to DIN 2413 part I for **static stress**

$$P = \frac{20 \cdot K \cdot s \cdot c}{S \cdot d_a} \text{ (bar)}$$

Material characteristic value  $K = 235\text{N/mm}^2$  and DIN 2413 part III for **dynamic stress**

$$P = \frac{20 \cdot K \cdot s \cdot c}{S \cdot (d_a + s \cdot c)} \text{ (bar)}$$

Material characteristic value  $K = 226\text{N/mm}^2$  (permanent fatigue strength)

Safety correction value  $S = 1.5$  for static and dynamic stress,  $S =$  wallthickness.

Factor  $c$  for consideration of wall thickness divergence for **static and dynamic stress** = 0.8 for tube O.D. 4 and 5; 0.85 for tube o.d. 6 and 8; 0.9 for larger tube O.D.