Seamless Steel Tubes
for precision applications

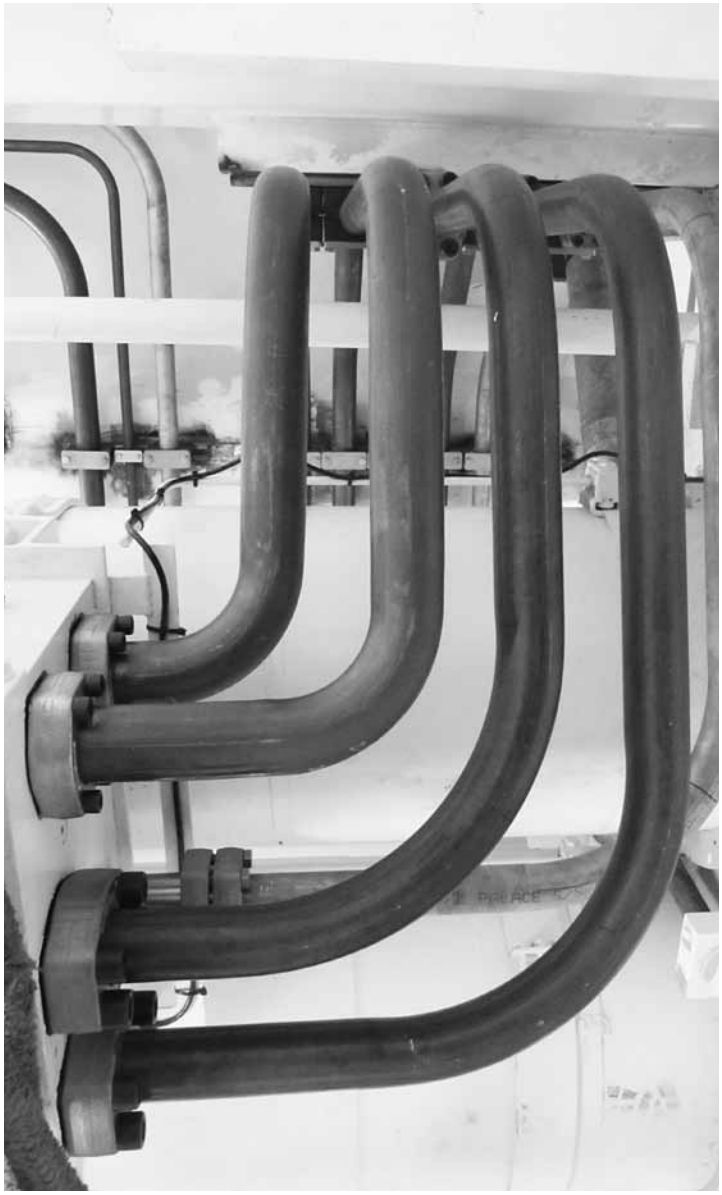
EN10305-4: Seamless cold drawn tubes for hydraulic, grease/lubrication and pneumatic power systems

NBK Phosphated and Oiled High Quality Bendable and Flareable Cold Drawn Seamless Carbon Steel

For hydraulic applications, steel tubes are commonly used with a phosphate external coating which also provides corrosion resistance.

Other more corrosion resistant materials such as 304, 316 and Duplex Stainless Steels are also available for use with flared and retained ring systems.

- European Origin of Material
- E235+N (ST 37.4 NBK)
- E355+N (ST 52.4 NBK)
- Phosphated Internally and Externally
- Oiled Internally and Externally
- 6,000 mm (6 m) (-0, +50 mm)
- Ends Plugged with Plastic Caps
- Certification on EN 10204 3.1
- Continuous Marking along the length including Heat Number



NOTES:

The only material acceptable for use with Tube-Mac® 37° Flare Systems is EN10305-4 (DIN2391c NBK)

The allowable working pressure of the system may be less than the allowable working pressure of the tube

CHEMICAL COMPOSITION % OF E355 + N (1.0580) ST52.4

C	Si	Mn	P	S
max 0.22	max 0.55	max 1.6	max 0.045	max 0.045

CHEMICAL COMPOSITION % OF E235 + N (1.0308) ST37.4

C	Si	Mn	P	S
max 0.17	max 0.35	max 1.2	max 0.045	max 0.045

Ordering Information

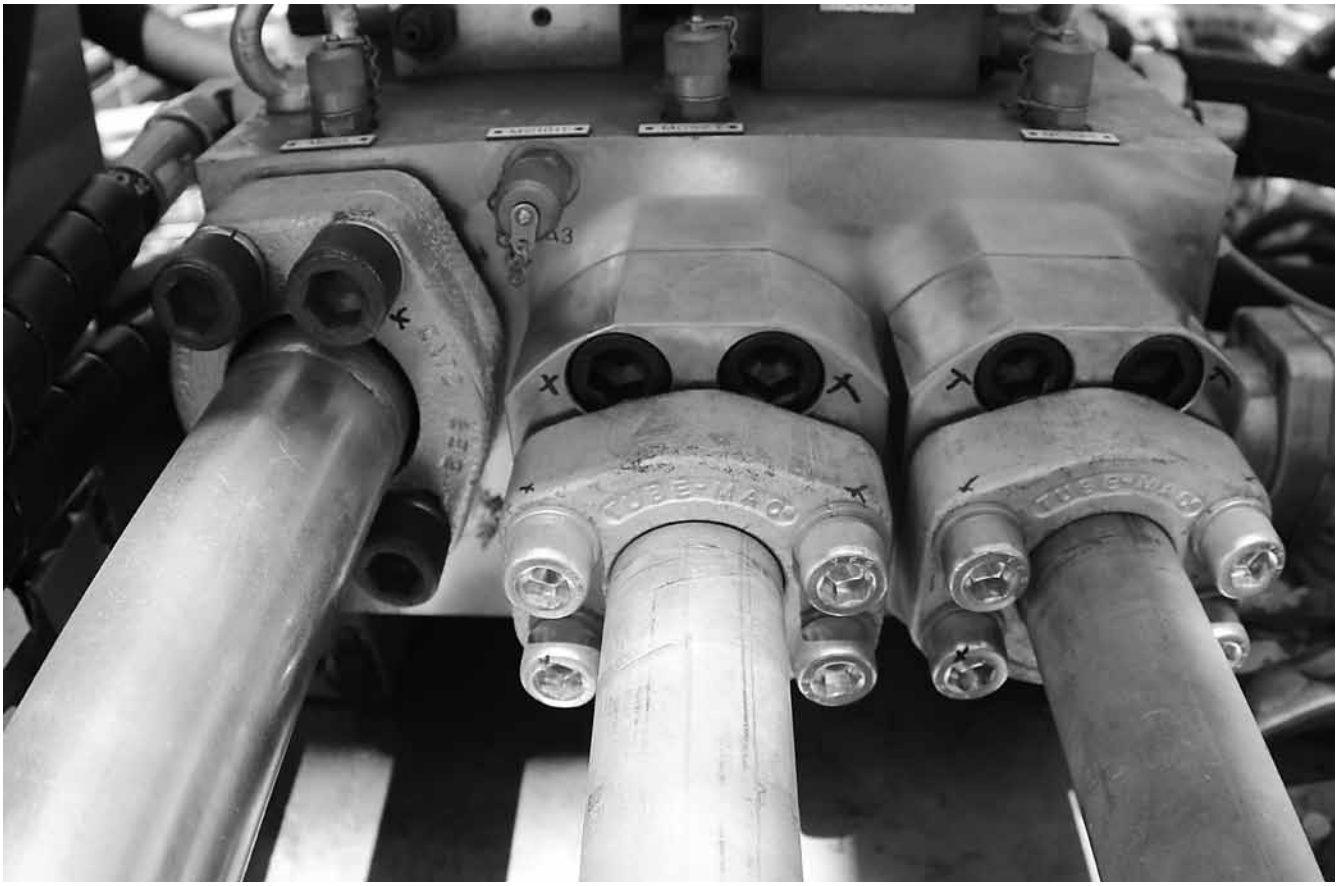
E355+N ST 52.4

Part Number	Description	Bore Diameter (mm)	Weight (kg/m)	Working Pressure (bar)*
T030.0X04.0XMSPN	30.0mm OD x 4.0mm WT Hydraulic Tube Seamless Steel E355+N EN10305-4 ST52.4 NBK Phosphated & Oiled	22	2.57	424
T038.0X04.0XMSPN	38.0mm OD x 4.0mm WT Hydraulic Tube Seamless Steel E355+N EN10305-4 ST52.4 NBK Phosphated & Oiled	30	3.36	327
T050.0X05.0XMSPN	50.0mm OD x 5.0mm WT Hydraulic Tube Seamless Steel E355+N EN10305-4 ST52.4 NBK Phosphated & Oiled	40	5.56	315
T060.0X05.0XMSPN	60.0mm OD x 5.0mm WT Hydraulic Tube Seamless Steel E355+N EN10305-4 ST52.4 NBK Phosphated & Oiled	50	6.79	259
T060.0X08.0XMSPN	60.0mm OD x 8.0mm WT Hydraulic Tube Seamless Steel E355+N EN10305-4 ST52.4 NBK Phosphated & Oiled	46	10.27	445
T066.0X08.5XMSPN	66.0mm OD x 8.5mm WT Hydraulic Tube Seamless Steel E355+N EN10305-4 ST52.4 NBK Phosphated & Oiled	49	12.07	429
T080.0X10.0XMSPN	80.0mm OD x 10.0mm WT Hydraulic Tube Seamless Steel E355+N EN10305-4 ST52.4 NBK Phosphated & Oiled	60	17.28	418

E235+N ST 37.4

Part Number	Description	Bore Diameter (mm)	Weight (kg/m)	Working Pressure (bar)*
T050.0X03.0XLSPN	50.0mm OD x 03.0mm WT Hydraulic Tube Seamless Steel E235+N EN10305-4 ST37.4 NBK Phosphated & Oiled	44	4.38	115
T060.0X03.0XLSPN	60.0mm OD x 03.0mm WT Hydraulic Tube Seamless Steel E235+N EN10305-4 ST37.4 NBK Phosphated & Oiled	54	4.22	95

** Working pressures are based on a minimum bending radius of 3D according to DNV*



Stainless Steel Tube

Prochem leads the field in the supply of high quality hydraulic tube for offshore and onshore applications.

THEORETICAL WORKING PRESSURE FOR SEAMLESS TUBE TP316/316L

316 (Seamless) -253 to 38°C

Size		Wall Thickness							
		inch	0.028	0.036	0.048	0.064	0.083	0.109	0.128
mm	inch	mm	0.71	0.91	1.22	1.63	2.11	2.77	3.25
3.18	1/8"	psi	8,579	12,083	19,185				
		kPa	59,110	83,254	132,188				
4.76	3/16"	psi	5,883	7,153	10,389				
		kPa	40,534	49,282	71,581				
6.35	1/4"	psi	4,311	5,682	7,199	10,464	15,363		
		kPa	29,700	39,150	49,603	72,097	105,848		
7.94	5/16"	psi	3,401	4,460	6,129	7,836	11,060		
		kPa	23,436	30,730	42,229	53,990	76,205		
9.53	3/8"	psi		3,671	5,017	6,274	8,679		
		kPa		25,290	34,566	43,230	59,797		
12.7	1/2"	psi		2,711	3,681	5,031	6,726	8,539	
		kPa		18,678	25,362	34,667	46,343	58,834	
15.88	5/8"	psi		2,149	2,907	3,953	5,249	6,474	
		kPa		14,806	20,029	27,233	36,166	44,604	
19.05	3/4"	psi		1,780	2,402	3,255	4,304	5,809	***5,887***
		kPa		12,264	16,549	22,424	29,654	40,023	***40,562***
25.4	1"	psi			1,781	2,403	3,161	4,235	***4,741***
		kPa			12,269	16,555	21,780	29,181	***32,665***
31.75	1-1/4"	psi				***1,906***	***2,500***	***3,335***	***3,726***
		kPa				***13,131***	***17,224***	***22,980***	***25,673***
38.1	1-1/2"	psi				***1,574***	***2,060***	***2,741***	***3,058***
		kPa				***10,844***	***14,196***	***18,886***	***21,072***
50.8	2"	psi				***1,173***	***1,532***	***2,032***	***2,263***
		kPa				***8,083***	***10,556***	***13,997***	***15,593***

TUBE WORKING PRESSURE NOTES:

Tube working pressures have been calculated in accordance with ASME B31.3
Where Thickness < Diameter/6, the formula 304.1.2 3a has been used. Where Thickness ≥ Diameter/6, the formula K304.1.2 35c has been used.

For TP316

S = 20,000 psi Y = 0.4 W = 1 E = 1 c0 has been neglected

Tube Outside Diameter and Wall Thickness Tolerances have been considered when calculating the working pressures.

Numbers in standard text have been calculated based on ASTM A269/213 tolerances

Numbers in bold italic text have been calculated based on ASTM A269 tolerances

The Allowable Working Pressures calculated are a guide only. As there are variables that will alter the Allowable Working Pressure of the tube, it is the ultimate responsibility of the customer to verify that the tube is suitable for the application.

This table does not advise suitability for use with compression fittings. The purchaser must refer to the compression fitting manufacturers tubing data charts for size and wall thickness suitability.