Hydraulic Tube (ST 52.4 NBK) Working Pressure Table

No.	Part Number	Description	Working Pressure (BAR)	Burst Pressure (BAR)	Weight /6MTR (KG)
115	TH-52-NBK-MM-38X3.0	38MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	315	757	15.53
116	TH-52-NBK-MM-38X4.0	38MM OD x 4.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	421	1010	20.11
117	TH-52-NBK-MM-38X5.0	38MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	526	1262	24.40
118	TH-52-NBK-MM-42X3.0	42MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	285	685	17.30
119	TH-52-NBK-MM-42X4.0	42MM OD x 4.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	381	914	22.48
120	TH-52-NBK-MM-42X5.0	42MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	476	1142	27.36
121	TH-52-NBK-MM-45X5.0	45MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	444	1066	29.58
122	TH-52-NBK-MM-50X1.0	50MM OD x 10.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	799	1919	59.16
123	TH-52-NBK-MM-50X5.0	50MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	400	959	33.28
124	TH-52-NBK-MM-50X6.0	50MM OD x 6.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	480	1151	39.05
125	TH-52-NBK-MM-54X6.0	54MM OD x 6.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	444	1066	42.60
126	TH-52-NBK-MM-60X5.0	60MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	333	800	40.67
127	TH-52-NBK-MM-60X6.0	60MM OD x 6.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	400	959	47.92
128	TH-52-NBK-MM-65X8.0	65MM OD x 8.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	492	1181	67.44
129	TH-52-NBK-MM-66X8.5	66MM OD x 8.5MM THK x 6 MTR HYDRAULIC TUBE ST52.4	515	1236	72.29
130	TH-52-NBK-MM-76.1X6.3	76.1MM OD x 6.3MM THK x 6 MTR HYDRAULIC TUBE ST52.4	331	794	65.04
131	TH-52-NBK-MM-80X10.0	80MM OD x 10.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	500	1199	103.53
132	TH-52-NBK-MM-90X5.0	90MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	222	533	62.86
133	TH-52-NBK-MM-90X10.0	90MM OD x 10.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	444	1066	118.32
134	TH-52-NBK-MM-97X12.0	97MM OD x 12.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	494	1187	150.86
135	TH-52-NBK-MM-100X10.0	100MM OD x 10.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	400	959	133.11
136	TH-52-NBK-MM-120X12.0	120MM OD x 12.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	400	959	191.68
137	TH-52-NBK-IN-20X060	2"OD x 6.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	472	829	39.76

Note: Working Pressure Calculation: DIN 2413 I Static Straight Pipe including manufacturing tolerance.

Hydraulic Tube (ST 37.4 NBK / ST52.4 NBK) Working Pressure Table

No.	Part Number	Description	Working Pressure (BAR)	Burst Pressure (BAR)	Weight /6MTR (KG)
77	TH-37-NBK-NB-06X030	3/4"NB x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	312	774	10.74
78	TH-37-NBK-NB-16X035	1"NB x 3.5MM THK x 6 MTR HYDRAULIC TUBE ST37.4	291	723	15.79
79	TH-37-NBK-NB-16X045	1"NB x 4.55MM THK x 6 MTR HYDRAULIC TUBE ST37.4	378	939	19.82
80	TH-37-NBK-NB-20X048	1 1/4"NB x 4.85MM THK x 6 MTR HYDRAULIC TUBE ST37.4	321	797	27.15
81	TH-37-NBK-NB-24X050	1 1/2"NB x 5.08MM THK x 6 MTR HYDRAULIC TUBE ST37.4	295	734	32.70
82	TH-37-NBK-NB-24X063	2 1/2"NB x 6.3MM THK x 6 MTR HYDRAULIC TUBE ST37.4	NIL	580	65.22
83	TH-37-NBK-IN-04X012	1/4"OD x 1.2MM THK x 6 MTR HYDRAULIC TUBE ST37.4	534	1327	0.91
84	TH-37-NBK-IN-04X015	1/4"OD x 1.5MM THK x 6 MTR HYDRAULIC TUBE ST37.4	668	1658	1.08
85	TH-37-NBK-IN-03X012	3/8"OD x 1.22MM THK x 6 MTR HYDRAULIC TUBE ST37.4	362	899	1.50
86	TH-37-NBK-IN-03X015	3/8"OD x 1.5MM THK x 6 MTR HYDRAULIC TUBE ST37.4	445	1105	1.78
87	TH-37-NBK-IN-08X015	1/2"OD x 1.5MM THK x 6 MTR HYDRAULIC TUBE ST37.4	334	829	2.48
88	TH-37-NBK-IN-06X020	3/4"OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	297	737	5.04
89	TH-37-NBK-IN-06X026	3/4"OD x 2.64MM THK x 6 MTR HYDRAULIC TUBE ST37.4	392	973	6.41
90	TH-37-NBK-IN-16X030	1"OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	334	829	9.94
91	TH-37-NBK-IN-20X030	1 1/4"OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	267	663	12.76
92	TH-37-NBK-IN-20X032	1 1/4"OD x 3.25MM THK x 6 MTR HYDRAULIC TUBE ST37.4	289	719	13.70
93	TH-52-NBK-MM-10X2.0	10MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	799	1919	2.37
94	TH-52-NBK-MM-12X2.0	12MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	666	1599	2.96
95	TH-52-NBK-MM-15X2.0	15MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	533	1279	3.85
96	TH-52-NBK-MM-16X1.5	16MM OD x 1.5MM THK x 6 MTR HYDRAULIC TUBE ST52.4	375	899	3.22
97	TH-52-NBK-MM-16X2.0	16MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	500	1199	4.14
98	TH-52-NBK-MM-18X1.5	18MM OD x 1.5MM THK x 6 MTR HYDRAULIC TUBE ST52.4	333	800	3.66
99	TH-52-NBK-MM-18X2.0	18MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	444	1066	4.73
100	TH-52-NBK-MM-20X2.0	20MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	400	959	5.32
101	TH-52-NBK-MM-20X2.5	20MM OD x 2.5MM THK x 6 MTR HYDRAULIC TUBE ST52.4	500	1199	6.47
102	TH-52-NBK-MM-20X3.0	20MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	599	1439	7.54
103	TH-52-NBK-MM-22X2.0	22MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	363	872	5.92
104	TH-52-NBK-MM-25X2.0	25MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	320	768	6.80
105	TH-52-NBK-MM-25X2.5	25MM OD x 2.5MM THK x 6 MTR HYDRAULIC TUBE ST52.4	400	959	8.32
106	TH-52-NBK-MM-25X3.0	25MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	480	1151	9.76
107	TH-52-NBK-MM-25X4.0	25MM OD x 4.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	639	1535	12.42
108	TH-52-NBK-MM-25X5.0	25MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	799	1919	14.79
109	TH-52-NBK-MM-28X2.0	28MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	285	685	7.69
110	TH-52-NBK-MM-28X3.0	28MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	428	1028	11.09
111	TH-52-NBK-MM-30X3.0	30MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	400	959	11.98
112	TH-52-NBK-MM-30X4.0	30MM OD x 4.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	533	1279	15.38
113	TH-52-NBK-MM-35X3.0	35MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	343	822	14.20
114	TH-52-NBK-MM-35X4.0	35MM OD x 4.0MM THK x 6 MTR HYDRAULIC TUBE ST52.4	457	1096	18.34

Note: Working Pressure Calculation: DIN 2413 I Static Straight Pipe including manufacturing tolerance.

Hydraulic Tube (ST 37.4 NBK) Working Pressure Table

No.	Part Number	Description	Working Pressure (BAR)	Burst Pressure (BAR)	Weight /6MTR (KG)
39	TH-37-NBK-MM-20X5.0	20MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	707	1755	11.09
40	TH-37-NBK-MM-22X2.0	22MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	257	638	5.92
41	TH-37-NBK-MM-22X2.5	22MM OD x 2.5MM THK x 6 MTR HYDRAULIC TUBE ST37.4	321	798	7.21
42	TH-37-NBK-MM-22X3.0	22MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	385	957	8.43
43	TH-37-NBK-MM-22X4.0	22MM OD x 4.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	514	1276	10.65
44	TH-37-NBK-MM-25X2.0	25MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	226	562	6.80
45	TH-37-NBK-MM-25X2.5	25MM OD x 2.5MM THK x 6 MTR HYDRAULIC TUBE ST37.4	283	702	8.32
46	TH-37-NBK-MM-25X3.0	25MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	339	842	9.76
47	TH-37-NBK-MM-25X3.5	25MM OD x 3.5MM THK x 6 MTR HYDRAULIC TUBE ST37.4	396	983	11.13
48	TH-37-NBK-MM-25X4.0	25MM OD x 4.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	452	1123	12.42
49	TH-37-NBK-MM-25X5.0	25MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	565	1404	14.79
50	TH-37-NBK-MM-28X2.0	28MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	202	501	7.69
51	TH-37-NBK-MM-28X3.0	28MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	303	752	11.09
52	TH-37-NBK-MM-28X4.0	28MM OD x 4.0MM THK x 3 MTR HYDRAULIC TUBE ST37.4	404	1003	14.20
53	TH-37-NBK-MM-28X5.0	28MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	505	1254	17.01
54	TH-37-NBK-MM-30X2.0	30MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	188	468	8.28
55	TH-37-NBK-MM-30X3.0	30MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	283	702	11.98
56	TH-37-NBK-MM-30X4.0	30MM OD x 4.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	377	936	15.38
57	TH-37-NBK-MM-30X5.0	30MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	471	1170	18.49
58	TH-37-NBK-MM-35X3.0	35MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	242	602	14.20
59	TH-37-NBK-MM-35X4.0	35MM OD x 4.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	323	802	18.34
60	TH-37-NBK-MM-35X5.0	35MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	404	1003	22.19
61	TH-37-NBK-MM-38X3.0	38MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	223	554	15.53
62	TH-37-NBK-MM-38X4.0	38MM OD x 4.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	297	739	20.11
63	TH-37-NBK-MM-38X5.0	38MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	372	924	24.40
64	TH-37-NBK-MM-42X2.0	42MM OD x 2.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	135	334	11.83
65	TH-37-NBK-MM-42X3.0	42MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	202	501	17.30
66	TH-37-NBK-MM-42X4.0	42MM OD x 4.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	269	669	22.48
67	TH-37-NBK-MM-42X5.0	42MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	336	836	27.36
68	TH-37-NBK-MM-50X3.0	50MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	170	421	20.85
69	TH-37-NBK-MM-50X5.0	50MM OD x 5.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	283	702	33.28
70	TH-37-NBK-MM-60X3.0	60MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	141	351	25.29
71	TH-37-NBK-MM-65X6.0	65MM OD x 6.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	261	648	52.36
72	TH-37-NBK-MM-75X3.0	75MM OD x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	113	281	31.95
73	TH-37-NBK-NB-02X024	1/8"NB x 2.41MM THK x 6 MTR HYDRAULIC TUBE ST37.4	649	1611	2.88
74	TH-37-NBK-NB-04X030	1/4"NB x 3.02MM THK x 6 MTR HYDRAULIC TUBE ST37.4	618	1536	4.81
75	TH-37-NBK-NB-03X032	3/8"NB x 3.2MM THK x 6 MTR HYDRAULIC TUBE ST37.4	523	1298	6.67
76	TH-37-NBK-NB-08X030	1/2"NB x 3.0MM THK x 6 MTR HYDRAULIC TUBE ST37.4	391	971	8.30

Note: Working Pressure Calculation: DIN 2413 I Static Straight Pipe including manufacturing tolerance.

Ordering Information:

TH - 37 - NBK - MM - 6 X 1.5
I II III IV V VI

I Type of Item : TH Hydraulic Steel Tubes

II Material Grade : 37 ST 37.4 (E235N)
52 ST 52.4 (E355N)

III Item Finish : NBK Normalized. The tubes are annealed above the upper transformation point in a controlled atmosphere or under vacuum

IV Size Designator : MM Metric Size
IN Inches Size
NB Nominal Bore Size

V OD for tube :

For tubes in Metric OD Sizes

Size	6MM	12MM	20MM	......	35MM	38MM	42MM
Code	6	12	20		35	38	42

For Inch OD & Inch NB Sizes

Size	1/8"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
Code	02	04	05	06	08	10	12
Size	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
Code	16	20	24	32	40	48	64

VI Tube Thickness :

For Metric OD, Inch OD & Inch NB Sizes

Size	1.0MM	1.5MM	2.0MM	......	4MM	5MM	10.0MM
Code	1.0	1.5	2.0		4.0	5.0	10.0

Seamless Precision Steel Tubes acc. To DIN 2391 / DIN 2445

Dimension Specifications:
DIN 2391/C (DIN EN 10305-4) - Steel tubes for precision applications - Technical delivery conditions - Part 4: Seamless cold drawn tubes for hydraulic and pneumatic power systems

DIN 2445/2 - Seamless steel tubes for dynamic loads - Part 2: Steel tubes for precision application in fluid systems, 100 bar to 500 bar

Material Specifications:
ST37.4 (E235N)
ST52.4 (E355N)

Finishing:
NBK, Normalized, phosphated and oiled inside and outside. The tubes are annealed above the upper transformation point in a controlled atmosphere or under vacuum

Recommended Bend Radius
A bend radius of 3x the external tube diameter is recommended for cold bending of tubes with tube benders or by hand. (As per Figure 1)

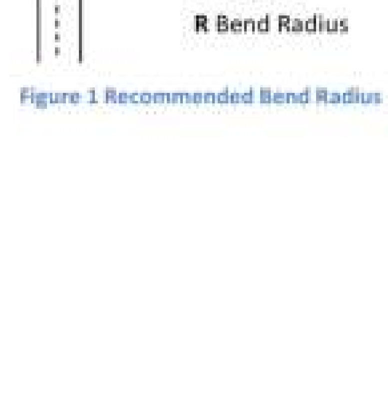

Figure 1 Recommended Bend Radius

Welding Suitability
Tubes of ST37.4, ST52.4 are suitable for welding according to usual techniques. The welding filler should be selected in accordance with DIN EN 1600 and DIN EN 12072 part 1 taking into account the type of application and the welding technique.

Chemical Composition:

Steel Grade	Chemical Composition (%)				
	C max.	Si max.	Mn max.	P max.	S max.
ST37.4 (E235N)	0.170	0.350	1.20	0.025	0.015
ST 52.4 (E355N)	0.220	0.550	1.60	0.025	0.015

Mechanical Properties of the tubes at room temperature:

Steel Grade	Tensile Strength R_m (N/mm^2)	Upper Yield Point R_{eH}* (N/mm^2) min.	Elongation at rupture A_5 (%) min.
ST 37.4 (E235N)	$340 \le R_m \le 480$	235	25
ST 52.4 (E355N)	$490 \le R_m \le 630$	355	22

*In the case of tubes of outside diameter ≤ 30MM, the wall thickness of which is ≤ 3MM, the minimum value of the yield point is 10 N/mm^2 lower