

## TUBE SUPPLY, INC.

API 5CT GROUP	API 5CT GRADE	CARBON		MANGANESE		MOLYBDENUM		CHROMIUM		NICKEL	COPPER	PHOS- PHOROUS	SULFUR	SILICON	YIELD	YIELD	TENSILE	HARD	HEAT TREAT- MENT	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MAX	MAX	MAX	MAX	MAX	MIN	MAX	MIN	MAX		
1	H-40	•	•	•	•	•	•	•	•	•	•	•	0.03	0.03	•	40,000	80,000	60,000	•	NONE
	J-55	•	•	•	•	•	•	•	•	•	•	•	0.03	0.03	•	55,000	80,000	75,000	•	N N&T Q&T
	K-55	•	•	•	•	•	•	•	•	•	•	•	0.03	0.03	•	55,000	80,000	95,000	•	NONE
	N-80	•	•	•	•	•	•	•	•	•	•	•	0.03	0.03	•	80,000	110,000	110,000	•	N N&T Q&T
2	M-65	•	•	•	•	•	•	•	•	•	•	•	0.03	0.03	•	65,000	85,000	85,000	22	N N&T Q&T
	C-75 1 <sup>f</sup>	•	0.50	•	1.90	0.15	0.40	•	•	•	•	•	0.04	0.06	0.45	75,000	90,000	95,000	•	N & T
	C-75 2 <sup>2</sup>	•	0.43	•	1.50	•	•	•	•	•	•	•	0.04	0.06	0.45	75,000	90,000	95,000	•	Q & T
	C-75 3 <sup>f</sup>	0.38	0.48	0.75	1.00	0.15	0.25	0.80	1.10	•	•	•	0.04	0.06	•	75,000	90,000	95,000	•	N & T
	L-80 1	•	0.43 <sup>a</sup>	•	1.90	•	•	•	•	0.25	0.35	•	0.03	0.03	0.45	80,000	95,000	95,000	23	Q & T
	L-80 9CR	•	0.15	0.30	0.60	0.90	1.10	8.00	10.00	0.50	0.25	•	0.02	0.01	1.00	80,000	95,000	95,000	23	Q & T
	L-80 13CR	0.15	0.22	0.25	1.00	•	•	12.00	14.00	0.50	0.25	•	0.02	0.01	1.00	80,000	95,000	95,000	23	Q & T
	C-90 1	•	0.35	•	1.00	0.25 <sup>b</sup>	0.75	•	1.20	0.99	•	•	0.02	0.01	•	90,000	105,000	100,000	25.4	Q & T
	C-90 2	•	0.50	•	1.90	•	NL	•	NL	0.99	•	•	0.03	0.01	•	90,000	105,000	100,000	25.4	Q & T
	C-95	•	0.45 <sup>c</sup>	•	1.90	•	•	•	•	•	•	•	0.03	0.03	0.45	95,000	110,000	105,000	•	Q & T
	T-95 1	•	0.35	•	1.20	0.25 <sup>d</sup>	1.50	0.40	1.50	0.99	•	•	0.02	0.01	•	95,000	110,000	105,000	25.4	Q & T
T-95 2	•	0.50	•	1.90	•	•	•	•	0.99	•	•	0.03	0.01	•	95,000	110,000	105,000	25.4	Q & T	
3	P-105	•	•	•	•	•	•	•	•	•	•	•	0.04	0.06	•	105,000	135,000	120,000	•	N & T
	P-110	•	•	•	•	•	•	•	•	•	•	•	0.03 <sup>e</sup>	0.03 <sup>e</sup>	•	110,000	140,000	125,000	•	Q & T
4	Q-125 1	•	0.35	•	1.00	•	0.75	•	1.20	0.99	•	•	0.02	0.01	•	125,000	150,000	135,000	•	Q & T
	Q-125 2	•	0.35	•	1.00	•	NL	•	NL	0.99	•	•	0.02	0.02	•	125,000	150,000	135,000	•	Q & T
	Q-125 3	•	0.50	•	1.90	•	NL	•	NL	0.99	•	•	0.03	0.01	•	125,000	150,000	135,000	•	Q & T
	Q-125 4	•	0.50	•	1.90	•	NL	•	NL	0.99	•	•	0.03	0.02	•	125,000	150,000	135,000	•	Q & T

**NOTES:** N.L. = No limit. Elements shown must be reported in product analysis

<sup>a</sup> The carbon content for L-80 may be increased to 0.50% maximum if the product is oil quenched.

<sup>b</sup> The molybdenum content for Grade C-90, Type 1 has no minimum tolerance if the wall thickness is less than 0.700 inch.

<sup>c</sup> The carbon content for C-95 may be increased to 0.55% maximum if the product is oil quenched.

<sup>d</sup> The molybdenum content for Grade T-95, Type 1 may be decreased to 0.15% minimum if the wall thickness is less than 0.700 inch.

<sup>e</sup> The phosphorous is 0.020% max. and the sulfur is 0.010 max. for EW Grade P-110.

<sup>f</sup> These grades are no longer referenced in current revision.

### CHARPY REQUIREMENTS

Transverse =  $S(0.152t + 0.064)$  or 15 ft-lbs, whichever is greater

Longitudinal =  $S(0.304t + 0.128)$  or 30ft-lbs, whichever is greater

S = Maximum specified yield strength in ksi

t = The critical thickness in inches based on specified

dimensions for couplings, or wall thickness

\* Charpy's required on all products except for H-40