



ARTROM STEEL TUBES S.A.

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E-mail: office.slatina@artrom.com www.artrom.com
EUID: ROONRC.J28/9/1991; J28/9/31.01.1991 VAT No. RO 1510210/1992
Subscribed and Paid Share Capital: 291.587.538,34 lei

COUPLING STOCKS

1. Standard

API 5CT, API 5L

2. Used for

Hot rolled tubes used in coupling production.

3. Dimensions

According Tab.1

4. Tolerances

Standard	Outside Diameter	Wall Thickness
API 5 CT	OD<114.3: ±0.79mm	on the purchase agreement
	OD>=114.3: +1/-0.5%	
API 5L	OD<60.3: +0.4/-0.8 mm	WT<=4: +0.6/-0.5mm
	60.3<OD<=168.3: ±0.75%	4<WT<25: +15%/-12.5%
	OD>168.3: ±0.75%	

5. Chemical Composition (%) – Acc. Tab.2 and Tab.3





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Tab.2 – Chemical Composition (%) acc. API 5L

Delivery status	Level	Grade	Mass fraction, based upon heat and product analyses [%] max.														Carbon equivalent max. [%]		
			C	Si	Mn	P	S	V	Nb	Ti	Cu	Ni	Cr	Mo	Al tot	N	B	CEIIW	CEPcm
Normalization or rolling normalization	PSL1	L210 or A	0.22		0.90	0.03	0.03				0.50	0.50	0.50	0.15			0.001		
		L245 or B	0.28		1.20	0.03	0.03	Nb+V+Ti ≤ 0.15% Nb+V ≤ 0.06%			0.50	0.50	0.50	0.15			0.001		
		L290 or X42	0.28		1.30	0.03	0.03	Nb+V+Ti ≤ 0.15%			0.50	0.50	0.50	0.15			0.001		
		L320 or r X46	0.28		1.40	0.03	0.03	Nb+V+Ti ≤ 0.15%			0.50	0.50	0.50	0.15			0.001		
		L360 or r X52	0.28		1.40	0.03	0.03	Nb+V+Ti ≤ 0.15%			0.50	0.50	0.50	0.15			0.001		
		L390 or r X56	0.28		1.40	0.03	0.03	Nb+V+Ti ≤ 0.15%			0.50	0.50	0.50	0.15			0.001		
		L415 or r X60	0.28		1.40	0.03	0.03	Nb+V+Ti ≤ 0.15%			0.50	0.50	0.50	0.15			0.001		
L450 or X65	0.28		1.40	0.03	0.03	Nb+V+Ti ≤ 0.15%			0.50	0.50	0.50	0.15			0.001				
Normalization	PSL2	L245N or BN	0.24	0.40	1.20	0.025	0.015	Nb+V ≤ 0.06%		0.04	0.50	0.30	0.30	0.15			0.001	0.43	0.25
		L290N or X42N	0.24	0.40	1.20	0.025	0.015	0.06	0.05	0.04	0.50	0.30	0.30	0.15			0.001	0.43	0.25
		L320N or X46N	0.24	0.40	1.40	0.025	0.015	0.07	0.05	0.04	0.50	0.30	0.30	0.15			0.001	0.43	0.25
		Nb+V+Ti ≤ 0.15%																	
		L360N or X52N	0.24	0.45	1.40	0.025	0.015	0.10	0.05	0.04	0.50	0.30	0.30	0.15			0.001	0.43	0.25
		Nb+V+Ti ≤ 0.15%																	
L390N or X56N	0.24	0.45	1.40	0.025	0.015	0.10	0.05	0.04	0.50	0.30	0.30	0.15			0.001	0.43	0.25		
Nb+V+Ti ≤ 0.15%																			
L415N or X60N	0.24	0.45	1.40	0.025	0.015	0.10	0.05	0.04	0.50	0.50	0.50	0.50			0.001	As agree			
Nb+V+Ti ≤ 0.15%																			

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API:
5CT-2357
5L-1271

LRQA:
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ISO 14001
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TUV:
PED/AD-2000 W0/W4
Vd TUV

TUV CPR:
EN 10210-1,2
EN 10255

DNV
RINA

LRQA:
IATF 16949

Delivery status	Level	Grade	Mass fraction, based upon heat and product analyses [%] max.														Carbon equivalent max. [%]			
			C	Si	Mn	P	S	V	Nb	Ti	Cu	Ni	Cr	Mo	Al tot	N	B	CEIIW	CEPcm	
Quenching and tempering (Q&T)	PSL2	L245Q or BQ	0.18	0.45	1.40	0.025	0.015	0.05	0.05	0.04	0.50	0.30	0.30	0.15			0.001	0.43	0.25	
		L290Q or X42Q	0.18	0.45	1.40	0.025	0.015	0.05	0.05	0.04	0.50	0.30	0.30	0.15			0.001	0.43	0.25	
		L320Q or X46Q	0.18	0.45	1.40	0.025	0.015	0.05	0.05	0.04	0.50	0.30	0.30	0.15			0.001	0.43	0.25	
		L360Q or X52Q	0.18	0.45	1.50	0.025	0.015	0.05	0.05	0.04	0.50	0.30	0.30	0.15			0.001	0.43	0.25	
		L390Q or X56Q	0.18	0.45	1.50	0.025	0.015	0.07	0.05	0.04	0.50	0.30	0.30	0.15			0.001	0.43	0.25	
								Nb+V+Ti≤0.15%										0.001	0.43	0.25
		L415Q or X60Q	0.18	0.45	1.70	0.025	0.015	Nb+V+Ti≤0.15%			0.50	0.50	0.50	0.50			0.001	0.43	0.25	
		L450Q or X65Q	0.18	0.45	1.70	0.025	0.015	Nb+V+Ti≤0.15%			0.50	0.50	0.50	0.50			0.001	0.43	0.25	
L485Q or X70Q	0.18	0.45	1.80	0.025	0.015	Nb+V+Ti≤0.15%			0.50	0.50	0.50	0.50			0.001	0.43	0.25			
Annex H Normalization	PSL2	L245NS or BNS	0.14	0.40	1.35	0.02	0.003	Nb+V≤0.06%		0.04	0.35	0.30	0.30	0.15	0.06	0.012	0.0005	0.36	0.19	
							Nb+V+Ti≤0.15%													
		L290NS or X42NS	0.14	0.40	1.35	0.02	0.003	0.05	0.05	0.04	0.35	0.30	0.30	0.15	0.06	0.012	0.0005	0.36	0.19	
		L320NS or X46NS	0.14	0.40	1.40	0.02	0.003	0.07	0.05	0.04	0.35	0.30	0.30	0.15	0.06	0.012	0.0005	0.38	0.20	
L360NS or X52NS	0.16	0.45	1.65	0.02	0.003	0.10	0.05	0.04	0.35	0.30	0.30	0.15	0.06	0.012	0.0005	0.43	0.22			
						Nb+V+Ti≤0.15%														
Annex H Q&T	PSL2	L245QS or BQS	0.14	0.40	1.35	0.02	0.003	0.04	0.04	0.04	0.35	0.30	0.30	0.15	0.06	0.012	0.0005	0.34	0.19	
		L290QS or X42QS	0.14	0.40	1.35	0.02	0.003	0.04	0.04	0.04	0.35	0.30	0.30	0.15	0.06	0.012	0.0005	0.34	0.19	
		L320QS or X46QS	0.15	0.45	1.40	0.02	0.003	0.05	0.05	0.04	0.35	0.30	0.30	0.15	0.06	0.012	0.0005	0.36	0.20	
		L360QS or X52QS	0.16	0.45	1.65	0.02	0.003	0.07	0.05	0.04	0.35	0.30	0.30	0.15	0.06	0.012	0.0005	0.39	0.20	
								Nb+V+Ti≤0.15%												
L390QS or X56QS	0.16	0.45	1.65	0.02	0.003	0.07	0.05	0.04	0.35	0.30	0.30	0.15	0.06	0.012	0.0005	0.40	0.21			
						Nb+V+Ti≤0.15%														

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TUV CPR:
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DNV
RINA

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		L415QS or X60QS	0.16	0.45	1.65	0.02	0.003	0.08	0.05	0.04	0.35	0.50	0.50	0.50	0.06	0.012	0.0005	0.41	0.22
		Nb+V+Ti≤0.15%																	
		L450QS or X65QS	0.16	0.45	1.65	0.02	0.003	0.09	0.05	0.06	0.35	0.50	0.50	0.50	0.06	0.012	0.0005	0.42	0.22

Tab.3- Chemical Composition (%) acc.API 5CT

Level	Grade	Mass Fraction [%]													
		C		Mn		Mo		Cr		Ni	Cu	P	S	Si	
		min	max	min	max	min	max	min	max	max	max	max	max	max	
PSL1	H40											0.030	0.030		
	R95		0.45		1.90							0.030	0.030	0.45	
	C110		0.35		1.20	0.25	1.00	0.40	1.50	0.99		0.020	0.005		
PSL2	J55											0.030	0.030		
	K55											0.030	0.030		
	L80(1)		0.43		1.90					0.25	0.35	0.030	0.030	0.45	
	N80(1)											0.030	0.030		
	N80(Q)											0.030	0.030		
	P110											0.030	0.030		
	T95(1)		0.35		1.20	0.25	0.85	0.40	1.50	0.99		0.020	0.010		
Q125		0.35		1.35		0.85		1.50	0.99		0.020	0.010			

6. Mechanical Properties – Acc. Tab.4 and Tab.5

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Tab.4 Mechanical Properties Acc.API 5L

Delivery status	Level	Grade	Yield Strength Rt0,5, ksi (MPa) minimum		Tensile Strength Rm, PSI (MPa) minimum		Ratio Rt05 / Rm
			minim	maxim	minim	maxim	
Normaliza- tion or roll- ing normali- zation	PSL1	L210 or A	30500(210)		48600(335)		
		L245 or r B	35500(245)		60200(415)		
		L290 or X42	42100(290)		60200(415)		
		L320 or X46	46400(320)		63100(435)		
		L360 or X52	52200(360)		66700(460)		
		L390 or X56	56600(390)		71100(490)		
		L415 or X60	60200(415)		75400(520)		
L450 or X65	65300(450)		77600(535)				
Normaliza- tion	PSL2	L245N or BN	35500(245)	65300(450)	60200(415)	95000(655)	0.93
		L290N or X42N	42100(290)	71800(495)	60200(415)	95000(655)	0.93
		L320N or X46N	46400(320)	76100(525)	63100(435)	95000(655)	0.93
		L360N or X52N	52200(360)	76900(530)	66700(460)	110200(760)	0.93
		L390N or X56N	56600(390)	79000(545)	71100(490)	110200(760)	0.93
		L415N or X60N	60200(415)	81900(565)	75400(520)	110200(760)	0.93
Quenching and temper- ing (Q&T)	PSL2	L245Q or BQ	35500(245)	65300(450)	60200(415)	95000(655)	0.93
		L290Q or X42Q	42100(290)	71800(495)	60200(415)	95000(655)	0.93
		L320Q or X46Q	46400(320)	76100(525)	63100(435)	95000(655)	0.93
		L360Q or X52Q	52200(360)	76900(530)	66700(460)	110200(760)	0.93
		L390Q or X56Q	56600(390)	79000(545)	71100(490)	110200(760)	0.93
		L415Q or X60Q	60200(415)	81900(565)	75400(520)	110200(760)	0.93
		L450Q or X65Q	65300(450)	87000(600)	77600(535)	110200(760)	0.93
Annex H Normaliza- tion	PSL2	L245NS or BNS	35500(245)	65300(450)	60200(415)	95000(655)	0.93
		L290NS or X42NS	42100(290)	71800(495)	60200(415)	95000(655)	0.93
		L320NS or X46NS	46400(320)	76100(525)	63100(435)	95000(655)	0.93
		L360NS or X52NS	52200(360)	76900(530)	66700(460)	110200(760)	0.93

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Delivery status	Level	Grade	Yield Strength Rt0,5, ksi (MPa) minimum		Tensile Strength Rm, PSI (MPa) minimum		Ratio Rt05 / Rm
			minim	maxim	minim	maxim	
Annex H Q&T	PSL2	L245QS or BQS	35500(245)	65300(450)	60200(415)	95000(655)	0.93
		L290QS or X42QS	42100(290)	71800(495)	60200(415)	95000(655)	0.93
		L320QS or X46QS	46400(320)	76100(525)	63100(435)	95000(655)	0.93
		L360QS or X52QS	52200(360)	76900(530)	66700(460)	110200(760)	0.93
		L390QS or X56QS	56600(390)	79000(545)	71100(490)	110200(760)	0.93
		L415QS or X60QS	60200(415)	81900(565)	75400(520)	110200(760)	0.93
		L450QS or X65QS	65300(450)	87000(600)	77600(535)	110200(760)	0.93

Tab.5 Mechanical Properties Acc.API 5CT

Level	Grade	Yield Strength (ksi)		Tensile Strength (ksi)	Total elongation under Load %	Hardness max.		Specified Wall Thickness (In.)	Allowable Hardness Variation
		minim	maxim	minim		HRC	HBW		HRC
PSL1	H40	40	80	60	0.5				
	R95	95	110	105	0.5				
	C110	110	120	115	0.7	30	286	≤0.500 0.501 la 0.749 0.750 la 0.999 ≥1.000	3.0 4.0 5.0 6.0
PSL2	J55	55	80	75	0.5				
	K55	55	80	95	0.5				
	L80(1)	80	95	95	0.5	23.0	241		
	N80(1)	80	110	100	0.5				
	N80(Q)	80	110	100	0.5				
	P110	110	140	125	0.6				
	T95(1)	95	110	105	0.5	25.4	255	≤0.500 0.501 la 0.749 0.750 la 0.999 ≥1.000	3.0 4.0 5.0 6.0
Q125	125	150	135	0.65			≤0.500 0.501 la 0.749 ≥0.750	3.0 4.0 5.0	

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7. Lengths

Random lengths 4÷8m (13.1÷26.2ft) or fixed length within the random lengths range.

8. Protection

Unprotected.

9. Marking

According to standard or per customer request.

10. Delivery

Bundles up to 4000 kg (8800 lbs).

11. Mill test report

Mill test reports are issued to customer requirements. Usually they comply with DIN 50049, EN 10204.

12. Quality certified:

API 5CT, API 5L.



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Tab.1 Coupling stocks dimensions

UPSET TUBING acc. API 5CT		
Specified Outside Diameter of Pipe (D) in (mm)	Outside Diameter	
	<i>in</i>	<i>mm</i>
1.900 (48.26)	2.500	63.50
2 3/8 (60.32)	3.063	77.80
2 7/8 (73.02)	3.668	93.17
3 1/2 (88.90)	4.500	114.30
4 (101.60)	5.000	127.00
4 1/2 (114.30)	5.563	141.30

NON-UPSET TUBING acc. API 5CT		
Specified Outside Diameter of Pipe (D) in (mm)	Outside Diameter	
	<i>in</i>	<i>mm</i>
2 3/8 (60.32)	2.875	73.02
2 7/8 (73.02)	3.500	88.90
3 1/2 (88.90)	4.250	107.95
4 (101.60)	4.750	120.65
4 1/2 (114.30)	5.200	132.08

Casing acc. API 5CT		
Specified Outside Diameter of Pipe (D) in (mm)	Outside Diameter	
	<i>in</i>	<i>mm</i>
4 1/2 (114.30)	5.250	133.35
5 (127.00)	5.800	147.32
5 1/2 (139.70)	6.300	160.02
6 5/8 (168.28)	7.390	187.71
7 (177.80)	7.875	200.03
7 5/8 (193.70)	8.500	215.90
8 5/8 (219.08)	9.625	244.48

Line Pipe acc. API 5L		
Specified Outside Diameter of Pipe (D) in (mm)	Outside Diameter	
	<i>in</i>	<i>mm</i>
2 3/8 (60.3)	2.875	73.0
2 7/8 (73.0)	3.375	85.7
3 1/2 (88.9)	4.000	101.6
4 (101.6)	4.625	117.5
4 1/2 (114.3)	5.200	132.1
5 9/16 (141.3)	6.296	159.9
6 5/8 (168.3)	7.390	187.7

Note: Wall Thickness according to customer's request.



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