


Heat: 808991
Your PO: PO240894

Order: 3062974 Line: 1
Item:

Manufacturer: ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR, BL 15, SC. A, PARTER I ROMAN, NEAMT ROMANIA		MILL TEST CERTIFICATE according to EN 10204/3.1/2004				Page 1/5 B 22655/2 31.08.2021			
Buyer: ArcelorMittal Projects Americas LLC 19500 State Highway 249 Suite 650 / Houston, USA		SEAMLESS STEEL PIPES				Total weight: 40.793 tons 89 933 lbs	Total Length: 330.84 meters 1 085.41 feet	Pieces 28	Bundles -
Buyer's reference PO NO.: 10119687/291056-00		Standard: API 5L ed.46-2018-PSL 1; ASTM A 106/A 106M-2019a; ASME SA 106/SA 106M-2019; ASTM A 53/A 53M-2020; ASME SA 53/SA 53M-2019; ANSI/ NACE MR 0103-ISO 17945-2015; NACE MR 0175/ISO 15156-1&2-2015							
Contract 50005051		Dimensions: 406.40 x 12.70 mm 16.000 x 0.500 inch		Schedule: XS/40		Length: 11.30 - 12.50 m -		37.07 - 41.01 feet	
Item	Item Client	Hydro Test:	Bar	PSI	MPa	Time(sec)	Steel Grade:		B/X42/B
18	180		155	2237	15.5	5			-

Chemical Analysis(%)


Heat	Bulletin No.	Product Req.	Max Min	C	Mn	Si	S	P	Cr	Ni	Cu	Mo	V	Nb	Ti	B
				0.28	1.06	-	0.030	0.030	0.40	0.40	0.40	0.15	-	-	-	-
808991		Heat analysis		0.20	1.05	0.25	0.003	0.008	0.07	0.07	0.15	0.01	0.004	0.002	0.003	0.0001
809009		Heat analysis		0.16	0.84	0.19	0.002	0.006	0.06	0.08	0.15	0.01	0.003	0.002	0.002	0.0001
809005		Heat analysis		0.14	0.84	0.18	0.003	0.006	0.05	0.06	0.15	0.01	0.002	0.002	0.003	0.0001
809006		Heat analysis		0.14	0.85	0.20	0.002	0.005	0.05	0.06	0.15	0.01	0.003	0.002	0.003	0.0001
809011		Heat analysis		0.15	0.86	0.21	0.003	0.006	0.07	0.07	0.15	0.02	0.003	0.002	0.003	0.0001
809317		Heat analysis		0.15	0.85	0.20	0.005	0.011	0.08	0.07	0.20	0.02	0.003	0.002	0.003	0.0001
808991	21-679	Product analysis		0.19	1.00	0.25	0.003	0.009	0.07	0.08	0.14	0.01	0.004	0.002	0.003	0.0001
808991	21-679	Product analysis		0.20	1.01	0.26	0.003	0.009	0.07	0.08	0.14	0.01	0.004	0.002	0.003	0.0001
809009	21-683	Product analysis		0.15	0.85	0.19	0.002	0.007	0.06	0.09	0.14	0.01	0.003	0.002	0.002	0.0001
809009	21-683	Product analysis		0.15	0.85	0.20	0.002	0.007	0.06	0.09	0.14	0.01	0.003	0.002	0.002	0.0001
809005	21-579	Product analysis		0.14	0.85	0.19	0.003	0.007	0.06	0.07	0.14	0.01	0.002	0.002	0.003	0.0001
809005	21-579	Product analysis		0.15	0.85	0.19	0.003	0.007	0.06	0.07	0.14	0.01	0.002	0.002	0.003	0.0001
809006	21-579	Product analysis		0.14	0.85	0.20	0.002	0.006	0.06	0.07	0.14	0.01	0.002	0.002	0.003	0.0001
809006	21-579	Product analysis		0.14	0.84	0.20	0.001	0.006	0.06	0.07	0.14	0.01	0.002	0.002	0.003	0.0001
809011	21-579	Product analysis		0.15	0.87	0.22	0.003	0.006	0.07	0.07	0.14	0.02	0.002	0.002	0.003	0.0002
809011	21-579	Product analysis		0.15	0.87	0.22	0.002	0.006	0.07	0.07	0.14	0.02	0.002	0.002	0.003	0.0002
809317	21-899	Product analysis		0.15	0.85	0.20	0.004	0.011	0.08	0.07	0.20	0.02	0.003	0.002	0.003	0.0001
809317	21-899	Product analysis		0.16	0.85	0.20	0.004	0.011	0.08	0.07	0.20	0.02	0.003	0.002	0.003	0.0001

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Contract 50005051		Dimensions: 406.40 x 12.70 mm 16.000 x 0.500 inch		Schedule: XS/40		Length: 11.30 - 12.50 m -		37.07 - 41.01 feet	
Item	Item Client	Hydro Test:	Bar	PSI	MPa	Time(sec)	Steel Grade: B/X42/B		
18	180		155	2237	15.5	5	-		

Chemical Analysis(%)


Heat	Bulletin No.	Product Req.	Nb + V		Nb + Ti + V		Cr + Mo + Ni + Cu + V	
			Max	Min	Max	Min	Max	Min
			0.060	-	0.150	-	1.000	-
808991		Heat analysis	0.006		0.009		0.304	
809009		Heat analysis	0.005		0.007		0.303	
809005		Heat analysis	0.004		0.007		0.272	
809006		Heat analysis	0.005		0.008		0.273	
809011		Heat analysis	0.005		0.008		0.313	
809317		Heat analysis	0.005		0.008		0.373	
808991	21-679	Product analysis	0.006		0.009		0.304	
808991	21-679	Product analysis	0.006		0.009		0.304	
809009	21-683	Product analysis	0.005		0.007		0.303	
809009	21-683	Product analysis	0.005		0.007		0.303	
809005	21-579	Product analysis	0.004		0.007		0.282	
809005	21-579	Product analysis	0.004		0.007		0.282	
809006	21-579	Product analysis	0.004		0.007		0.282	
809006	21-579	Product analysis	0.004		0.007		0.282	
809011	21-579	Product analysis	0.004		0.007		0.302	
809011	21-579	Product analysis	0.004		0.007		0.302	
809317	21-899	Product analysis	0.005		0.008		0.373	
809317	21-899	Product analysis	0.005		0.008		0.373	

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Item	Item Client	Hydro Test:	Bar	PSI	MPa	Time(sec)	Steel Grade:		B/X42/B
18	180		155	2237	15.5	5			-

Chemical Analysis(%)

Heat	Bulletin No.	Product Req.	Max	Nb + V		Nb + Ti + V		Cr + Mo + Ni + Cu + V	
				0.060		0.150		1.000	
			Min	-		-		-	

$$CE_{pcm} = C+Si/30+Mn/20+Cu/20+Ni/60+Cr/20+Mo/15+V/10+5B$$

$$CE_S = C+Mn/6$$

$$CE_{IIW} = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15$$

Tensile Test


Heat	Orientation	Length		Width/Diameter		Thickness		Section		Mechanical test Bulletin No.	YS MPa	YS (PSI:1000)	UTS MPa	UTS (PSI:1000)	E %	YS/UTS max: -
		mm	inch	mm	inch	mm	inch	mm ²	inch ²							
808991	Longitudinal Flat	50.8	2	40.00	1.575	13.70	0.539	548.0	21.575	21-1868	347.00	50.3	529.00	76.7	37.30	0.66
808991	Longitudinal Flat	50.8	2	40.00	1.575	13.20	0.520	528.0	20.787	21-1868	342.00	49.6	525.00	76.1	38.10	0.65
809009	Longitudinal Flat	50.8	2	40.00	1.575	12.90	0.508	516.0	20.315	21-1869	344.00	49.9	517.00	75.0	38.50	0.67
809005	Longitudinal Flat	50.8	2	40.00	1.575	12.90	0.508	516.0	20.315	21-2500	336.00	48.7	514.00	74.5	37.30	0.65
809006	Longitudinal Flat	50.8	2	40.00	1.575	13.40	0.528	536.0	21.102	21-1869	340.00	49.3	520.00	75.4	38.30	0.65
809011	Longitudinal Flat	50.8	2	40.00	1.575	13.60	0.535	544.0	21.417	21-3127	344.00	49.9	508.00	73.7	38.70	0.68
809317	Longitudinal Flat	50.8	2	40.00	1.575	13.60	0.535	544.0	21.417	21-2337	342.00	49.6	520.00	75.4	39.20	0.66

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18	180		155	2237	15.5	5	-		

Hardness Test

Heat	Hardness Test Bulletin No.	HB max.-	HV 10 max.-	HV 10 max.-					HRC max.22
				OD	Midwall	ID	End A	End B	
808991	21-1520	-	-	-	-	-	-	-	<20
808991	21-1520	-	-	-	-	-	-	-	<20
809009	21-1521	-	-	-	-	-	-	-	<20
809005	21-2102	-	-	-	-	-	-	-	<20
809006	21-1517	-	-	-	-	-	-	-	<20
809011	21-2599	-	-	-	-	-	-	-	<20
809317	21-1937	-	-	-	-	-	-	-	<20

Technological/Microstructure Test


Heat	Flattening Test Bulletin No.	Flattening Test
808991	21-2519	OK
808991	21-2519	OK
809009	21-2520	OK
809005	21-3662	OK
809006	21-2562	OK
809011	21-4831	OK
809317	21-3025	OK

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Item	Item Client	Hydro Test:	Bar	PSI	MPa	Time(sec)	Steel Grade: B/X42/B		
18	180		155	2237	15.5	5	-		

Heat

Heat	Pieces	Length (m)	Weight (kg)
808991	15	-	-
809009	5	-	-
809005	3	-	-
809006	3	-	-
809011	1	-	-
809317	1	-	-

Remarks Manufacturing process – hot rolling.
Hot finished, steel is fully killed and vacuum degassing, produced by electric furnace ,country of origin is Romania and country of melt is ABS Sisak d.o.o B.Kavurica 12,44010 Sisak Republica Hravatska - Croatia.
Visual inspection and dimensional check without objection.
NDT full body:
- 100% electromagnetic inspection for longitudinal and transverse defects, outside and inside with reference standard U2/C(5% of WT) –satisfactory.
- ultrasonic thickness measurements, the coverage with 100% of the pipe surface.
NDT on the pipe ends:
- wet magnetical particles testing on the pipe ends – satisfactory.
Hydrostatic test hold for 5 sec. no leakage noticed.
The products was manufactured, sampled, tested, marked and inspected in accordance with the Standards, the supplementary requirements, and any other requirements designated in the purchase order, and has been found to meet such requirements.

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