


WORLEYPARSONS PO# CA42600102-B-1000 Item# 191  
 Heat Number: 63524  
 Trans Am Piping Products Ltd. - Rev'd By: PW  
 Shipment/Seq #: S 18 - 1929 4

<b>Manufacturer:</b> ArcelorMittal Tubular Products Roman S.A. STEFAN CEL MARE STR, BL 15, SC. A, PARTER I ROMAN, NEAMT ROMANIA		<b>MILL TEST CERTIFICATE</b> according to EN 10204/3.1/2004				Page 1/3 D 4912/1 30.11.2018									
<b>Buyer:</b> ARCELORMITTAL PROJECTS EUROPE B.V. MANNESMANNWEG 5,4794SL HEIJNINGEN NETHERLANDS		SEAMLESS STEEL PIPES				<b>Total weight:</b> 21.185 tons 46 705 lbs		<b>Total Length:</b> 171.81 meters 563.70 feet		<b>Pieces</b>   <b>Bundles</b>					
<b>Buyer's reference</b> PO NO.: 3200062486/18-0793		<b>Standard:</b> API 5L ed.45-2012-PSL1; ASME SA 106/SA 106M-2018; ASTM A 106/A 106M-2018; ASME SA 530/SA 530M-2017; NACE MR 0175/ISO 15156-1&2-2015; ANSI/NACE MR 0103/ISO 17945-2015; ASME B36.10M-2015; Spec. CSA Z245.1-2014-290 CAT I SS-API 5L B/X42-A/SA 106B; Pipe specification & AMTP Roman response													
<b>Contract</b> 50003808		<b>Dimensions:</b> 406.40 x 12.70 mm 16.000 x 0.500 inch			<b>Schedule:</b> XS/40			<b>Length:</b> 11.00 - 11.80 m 36.09 - 38.71 feet							
<table border="1"> <thead> <tr> <th>Item</th> <th>Item Client</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>-</td> </tr> </tbody> </table>		Item	Item Client	2	-	<b>Hydro Test:</b>		<b>Bar</b> 154	<b>PSI</b> -	<b>MPa</b> 15.4	<b>Time(sec)</b> 5	<b>Steel Grade:</b> B/X42/B/GRADE 290-CATEGORY I SS			
Item	Item Client														
2	-														

**Chemical Analysis(%)**

Heat	Bulletin No.	Product Req.	Max Min	C	Mn	Si	S	P	Cr	Ni	Cu	Al	Mo	V	Nb	Ti	Ca	B
				0.26	1.35	0.50	0.030	0.030	0.40	0.40	0.40	0.40	0.40	0.40	-	0.15	0.080	-
63524		Heat analysis		0.14	0.87	0.20	0.003	0.008	0.13	0.10	0.19	0.027	0.02	0.009	0.001	0.001	0.0012	0.0003
63523		Heat analysis		0.16	0.82	0.21	0.003	0.007	0.10	0.09	0.19	0.031	0.02	0.008	0.001	0.001	0.0010	0.0003
63524	18-1792	Product analysis		0.15	0.86	0.21	0.004	0.009	0.13	0.09	0.18	0.029	0.02	0.008	0.002	0.001	0.0018	0.0001
63524	18-1792	Product analysis		0.15	0.86	0.21	0.004	0.009	0.14	0.09	0.17	0.028	0.02	0.008	0.002	0.001	0.0020	0.0001
63523	18-1792	Product analysis		0.16	0.84	0.23	0.002	0.008	0.11	0.09	0.17	0.029	0.02	0.009	0.002	0.001	0.0013	0.0003
63523	18-1792	Product analysis		0.16	0.85	0.23	0.002	0.008	0.11	0.10	0.18	0.030	0.02	0.009	0.002	0.001	0.0015	0.0003

**Chemical Analysis(%)**


Heat	Bulletin No.	Product Req.	Max Min	Nb + V	Nb + Ti + V	Cr + Mo + Ni + Cu + V	CE IIW
				0.060	0.150	0.990	0.39
63524		Heat analysis		0.010	0.011	0.449	0.34
63523		Heat analysis		0.009	0.010	0.408	0.34
63524	18-1792	Product analysis		0.010	0.011	0.428	0.34
63524	18-1792	Product analysis		0.010	0.011	0.428	0.34
63523	18-1792	Product analysis		0.011	0.012	0.399	0.35
63523	18-1792	Product analysis		0.011	0.012	0.419	0.35

$CE_{pcm} = C+Si/30+Mn/20+Cu/20+Ni/60+Cr/20+Mo/15+V/10+5B$ 
 $CE_S = C+Mn/6$ 
 $CE_{IIW} = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15$

We state on our sole responsibility that the delivered products are in conformity with the order requirements.

Quality Control Representative  
Eng. Damoc Ciprian



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2				154						15.4		5			

### 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: 0.93
		mm	inch	mm	inch	mm	inch	mm <sup>2</sup>	inch <sup>2</sup>							
63524	Longitudinal Flat	50.8	2	40.00	1.575	13.30	0.524	532.0	20.945	18-4079	334.00	48.4	513.00	74.4	43.60	0.65
63523	Longitudinal Flat	50.8	2	40.00	1.575	13.10	0.516	524.0	20.630	18-4079	312.00	45.3	500.00	72.5	43.70	0.62

### Hardness Test

Heat	Hardness Test Bulletin No.	HB max.197	HV 10 max.-	HV 10 max.-					HRC max.-	
				OD	Midwall	ID	End A	End B		
63524	18-185	155;154;156;157	-	-	-	-	-	-	-	<-
63523	18-185	157;158;159;160	-	-	-	-	-	-	-	<-

### Technological/Microstructure Test

Heat	Flattening Test Bulletin No.	Flattening Test
63524	18-6008	OK
63523	18-6008	OK

### Heat

Heat	Pieces	Length (m)	Weight (kg)
63524	13	-	-
63523	2	-	-

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