



V&M DEUTSCHLAND GmbH Werk Rath-Stopfen Rather Kreuzweg 106 40472 Düsseldorf	 VALLOUREC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT 3.1 EN 10204.2004 No.: 86310RS10 Page: 1 / 6 Date: 16.06.2010
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(A12) MATERIAL TEST REPORT	
(A01) V&M DEUTSCHLAND GmbH	(A05.1) V&M-Order-No. 85195300 (A08.2) Suborder
(A06.1) Customer	
(A06.2) Orderer V&M USA CORP. / SUITE 150	(A07.2) Order-No. 100907 Date 01.03.2010
(A06.3) Client's Client	(A07.3) Order-No. 13791
(B01, B02, B04) Description of the product	<p>HOT FINISHED SEAMLESS STEEL TUBES ENDS PLAIN, SQUARED TO TUBE AXIS WITHOUT CALIBRATION OF ENDS INSIDE WITHOUT RUST PROTECTION OUTSIDE DRY VARNISH STRAIGHTNESS ACC. TO API 5L DEVIATION FROM STRAIGHTNESS MAX. 0,024"/FOOT, TOTAL DEVIATION OF TUBE LENGTH MAX. 0,20 % TUBES LOOSE WITH CERTIFICATE: MERCHANDISE IS FREE OF MERCURY CONTAMINATION AND NO WELD REPAIR WAS PERFORMED TAG-NO 13791-7</p> <p>ASTM A 106 - 08 ASTM A 530 - 04 A ASME SA 106, EDITION 2007 ASME SA 530, EDITION 2007 ASME BOILER AND PRESSURE VESSEL CODE, SECTION II, PART A, EDITION 2007, ADDENDA 2009B NACE MR 0175/ISO 15156-2:2003/COR. 1:2005 / EN ISO 15156-2:2003, ANNEX A.2.1.2 SPECIFICATION TS1-C52, REV. B, DATED 01/22/10 WITH V&M COMMENTS, REV. 1 DATED 02/02/2010 GRADE B / GRADE C (ASTM A 106) / ASME SA 106)</p> <p>AS PER NACE MR-01-75 EDITION 1997 MAXIMUM HARDNESS 22 HRC/237 HB, MAXIMUM NI CONTENT 1 % MAXIMUM COLD FORMING 5 %</p>
(B03) NON-DESTRUCTIVE TESTING ACC. TO SPECIFICATION	

V&M DEUTSCHLAND GmbH (A01) Werk Rath-Stopfen Rather Kreuzweg 106 40472 Düsseldorf	 VALLOUREC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT (A02) 3.1 EN 10204:2004
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(A13) V&M Item	(A08) Cust. Item	(B14) Item text	(B08) Dimensions	(B10) Single length
7			O.D. 14 IN X WTH. 1,094 IN OUTSIDE DIAMETER TOLERANCE + 1,000 / - 1,000 % WALL THICKNESS TOLERANCE +10,000 / -10,000 %	IN RANDOM MILL LENGTH 23 - 30 FT

(A13) V&M Item	(A08) Cust. Item	(B08) Quantity	(B11) Total length ft	(B10) Weight lbs
7		9	257,380	38,228

(C71)

HEAT CHEMICAL ANALYSIS

(B07.1) Heat	(A15) Process	C %	Si %	Mn %	P %	S %	Al %	Cu %	Cr %	Ni %	Mo %
min	-	0.030	0.150	1.00	-	-	-	-	-	-	-
max	-	0.200	0.400	1.35	0.025	0.0100	0.060	0.350	0.300	0.400	0.150
260872	Oxygen (BOF)	0.150	0.260	1.27	0.010	<0.001	0.033	0.020	0.180	0.030	0.010

(B07.1) Heat	V %	Sn %	Ti %	Nb/Cb %	Ca %	CQ 03 %	EF 14 %	EF 02 %			
min	-	-	-	-	-	-	-	-			
max	0.080	0.0200	0.050	0.040	-	.43	1.00	0.15			
260872	0.060	0.0030	0.019	0.014	0.0010	.41	0.30	0.09			

CQ 03	$CE/CE = C + Mn/5 + (Cr+Mo+V)/5 + (Ni+Cu)/15$
EF 14	$EF = Cr + Mo + Ni + Cu + V$
EF 02	$EF = V + Ti + Nb$

Heats fully killed

EF 3: CR + MO = MAX. 0,320%

HEAT NO.: 260872

LADLE ANALYSIS: 0,190%

CHECK ANALYSIS: 0,175%

CHECK ANALYSIS: 0,175%

(C72)

PRODUCT CHEMICAL ANALYSIS

V&M DEUTSCHLAND GmbH Werk Reih-Stopfen Rather Kreuzweg 106 40472 Düsseldorf	 V&M VALLOUREC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT 3.1 EN 10204.2004
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(c72)

PRODUCT CHEMICAL ANALYSIS

(807.1) Heat	(c00.1) Test Piece	C %	Si %	Mn %	P %	S %	Al %	Cu %	Cr %	Ni %	Mo %
min		0.080	0.150	1.00	-	-	-	-	-	-	-
max		0.200	0.400	1.35	0.025	0.0100	0.060	0.350	0.300	0.400	0.150
260872		0.160	0.280	1.28	0.011	0.0005	0.029	0.021	0.168	0.037	0.007
260872		0.162	0.261	1.26	0.011	0.0005	0.029	0.021	0.168	0.037	0.007

(807.1) Heat	(c00.1) Test Piece	V %	Sn %	Ti %	Nb/Cb %	Ca %	CQ 03 %	EF 14 %	EF 02 %		
min		-	-	-	-	-	-	-	-		
max		0.080	0.0200	0.050	0.040	-	.43	1.00	0.15		
260872		0.063	0.0010	0.017	0.012	0.0013	.42	0.30	0.09		
260872		0.064	0.0020	0.017	0.013	0.0014	.42	0.30	0.09		

CQ 03	$CEV/CE = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15$
EF 14	$EF = CR + MO + NI + CU + V$
EF 02	$EF = V + TI + NB$

TENSILE TEST RESULTS

Type (c10.1)	ROUND TEST SPECIMEN
Test temperature (c03)	ROOM TEMPERATURE
Direction (c02)	longitudinal

(807.1) Heat	(c00.1) Test Piece	(c10) Diameter	(c11) YS	(c12) TS	(c13) Elong.	(c14.1) Ratio	(c15) Red.Area			
		mm	R _{p0.2} psi	R _m psi	Z [*] %	R/R _m -	Z %			
min		-	52200	70000	22.0	-	-			
max		-	76900	110200	-	-	-			
260872	701A	12.50	72371	88035	28.0	0.82	78			

TENSILE TEST RESULTS

Type (c10.1)	ROUND TEST SPECIMEN
Test temperature (c03)	ROOM TEMPERATURE
Direction (c02)	transverse

V&M DEUTSCHLAND GmbH (A01) Werk Rath-Stopfen Rath Kreuzweg 10B 40472 Düsseldorf	 VALLUREC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT (A02) 3.1 EN 10204:2004
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TENSILE TEST RESULTS

(B07.1)	(C00.1)	(C10)	(C11)	(C12)	(C13)	(C14.1)	(C15)				
Heat	Test Piece	Diameter	YS	TS	Elong.	Ratio	Red.Area				
		mm	R _{p0.2} psi	R _m psi	Z %	R/R _m -	Z %				
min		-	52200	70000	12.0	-	-				
max		-	76900	110200	-	-	-				
260872	701A	08.77	69905	87890	27.0	0.80	79				

IMPACT TEST RESULTS

Type (C40)	Charpy-V
Test temperature (C03)	+ 32 DEGREES F
Direction (C02)	transverse

(B07.1)	(C00.1)	(C41)	(C42.1)	(C42.1)	(C42.1)	(C43.3)				
Heat	Test Piece		Impact1	Impact2	Impact3	Mean				
		sq.in.	ft.lbs	ft.lbs	ft.lbs	ft.lbs				
min		-	15.0	15.0	15.0	20.0				
max		-	-	-	-	-				
260872	701A	0.124	305	301	276	284				

IMPACT TEST RESULTS

Type (C40)	Charpy-V
Test temperature (C03)	- 50 DEGREES F
Direction (C02)	transverse

(B07.1)	(C00.1)	(C41)	(C42.1)	(C42.1)	(C42.1)	(C43.3)				
Heat	Test Piece		Impact1	Impact2	Impact3	Mean				
		sq.in.	ft.lbs	ft.lbs	ft.lbs	ft.lbs				
260872	522B	0.124	6,60	6,60	4,40	5,90				
260872	701A	0.124	84,8	81,8	69,3	78,6				

HARDNESS TEST RESULTS

Location (C01.1)	OUTSIDE CONCERNING WALL
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V&M DEUTSCHLAND GmbH (A01) Werk Rath-Stopfen Rather Kreuzweg 106 40472 Düsseldorf	 VALLOUREC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT (A02) 3.1 EN 10204:2004 No. : 8831CR510 (A03) Page: 5 / 6 Date: 16.06.2010
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HARDNESS TEST RESULTS

(B07.1)	(C00.1)	(C31)	(C31)							
Heat	Test Piece	Value	Value							
		HB	HB							
min		137.0	137.0							
max		187.0	187.0							
260872	5228	159.0	156.0							
260972	701A	185.0	184.0							

(D54)


OTHER TESTS ON PIPE

Test	Conditions	Test rate	Result
HEAT TREATMENT	QUENCHED	15 MIN 1724 DEGREES F WATER	
HEAT TREATMENT	TEMPERED	30 MIN 1292 DEGREES F AIR	
HYDROSTATIC TEST	6900 PSI, HOLDING TIME 5 SEC.	EACH PIPE/ TUBE	NO LEAKAGE
FLATTENING TEST			SATISFACTORY
APPEARANCE AND DIMENSIONS (D01)		EACH PIPE/ TUBE	SATISFACTORY
MERCHANDISE IS FREE OF MERCURY CONTAMINATION AND NO WELD REPAIR WAS PERFORMED..			
GRAIN SIZE	ASTM E 112 TABLE 1: 5 AND FINER		

DEVIATION FROM STRAIGHTNESS MAX. 0,024"/FOOT AT EACH END,
 TOTAL DEVIATION OF TUBE LENGTH MAX. 0.2% - SATISFACTORY
 ULTRASONIC TESTING FOR LONGITUDINAL DEFECTS ACC. TO
 ASTM E 213, RECTANGULAR NOTCH, NOTCH DEPTH 12.5% OF THE
 WALL THICKNESS, EACH PIPE/TUBE: SATISFACTORY
 FULLY KILLED STEEL

(A04, B06)

MARKING, IDENTIFICATION

7 	DIE STAMPED ON ONE SIDE ROUND NOSE TOOLS HEAT-NO. GERMANY DIE STAMP SURROUNDED WHITE PAINT STENCILED ON ONE SIDE MANUFACTURER'S MARK MANUFACTURER'S NAME TERMS OF DELIVERY A106/SA106 B / C HEAT-NO. TEST PRESSURE PSI 6900 NDE 14 X 1,094 OD 1% TUBE/PIPE LENGTH FT TUBE/PIPE WEIGHT LBS WA CUSTOMER ORDER-NO, 100907 P.O.-NO. 13791 TAG-NO 13791-7 PORT OF HOUSTON PIPE NO. (TALLY-NR.)
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Enclosures

TALLY LIST SEE APPENDIX

(201)

V&M DEUTSCHLAND GmbH (A01) Werk Raft-Stopfen Ralher Kreuzweg 106 40472 Düsseldorf	 VALLOUREC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT (A02) 3.1 EN 10204:2004 No. : 80310RS10 (A03) Page: 6 / 8 Date: 15.06.2010
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The supplied products are in compliance with the requirements of the order

(A05, Z02, Z03)

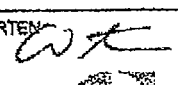
Date	15.06.2010
Validated by	Inspection Representative
	WARTEN <i>Warten</i>
☎	+49(0)211062216
☎	+49(0)211062216
Ⓜ	CERTIFICATES-RS- PLUG@VMTUBES.DE VALLOUREC & MANNESMANN TUBES
Stamp	VALLOUREC & MANNESMANN TUBES RAFT-STOPFEN RALHER KREUZWEG 106 40472 DÜSSELDORF

Indication in parentheses correspond to attributes according to EN 10160

This certificate and certification respectively may neither be modified nor used for other products. Offences are reported as falsification of documents and will be subject to criminal prosecution.

V&M DEUTSCHLAND GmbH (A01) Werk Rath-Stopfen Ralher Kreuzweg 108 40472 Düsseldorf-Rath	 VALLOUREC & MANNESMANN TUBES VALLOUREC GROUP	SUPPLEMENTAL STATEMENT OF MATERIAL TEST REPORT (A02)	
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(A12) SUPPLEMENTAL STATEMENT OF MATERIAL TEST REPORT	
(A01) V&M DEUTSCHLAND GmbH	(A08.1) V&M-Order No. 85185300 (A08.2) Suborder
(A05.1) Customer	
(A06.2) Orderer V&M USA CORP. / SUITE 150	(A07.2) Order-No. 100907 Date 01.03.2010
(A06.3) Orderer	(A07.3) Order-No. 13791
Applicable to material delivered with E.M. MATERIAL TEST REPORT	PIPE ALSO MEETS THE REQUIREMENTS FOR API 5L, 44TH EDITION, GRADE X62Q, PSL2, EXCEPT FOR MARKING (WITHOUT API STAMP).
Heat-No.	260872

(A05, Z02, Z03)	18.06.2010
Date	18.06.2010
Validated by	Inspection Representative WARTEN 
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Indication in parentheses correspond to strictures according to EN 10168

This testimonial and certification respectively may neither be modified nor used for other products. Offences are regarded as falsification of documents and will be subject to criminal prosecution.