



**R.T.I. S.p.A**  
SEDE LEGALE E AMMINISTRATIVA  
Via Ambrosoli, 2/A  
20090 RODANO MILLEPINI (MI)  
Tel: +39.02.95328610 r.a. Fax: +39.02.95328611  
C.F. 00659860191 – P.IVA/V.A.T.(IT) 10003740155

Rodano, 28/12/2012

**Oggetto:** CERTIFICATI MATERIALI  
CARTIFICATE OF MATERIAL

**Nostra Commessa:** 62010/1  
**Vostro Num.Ordine:** 122056

**Del** 13/09/2012  
**Del** 13/09/2012

Con la presente Vi trasmettiamo copia conforme all'originale dei certificati relativi all'ordine sopra menzionato.  
*Please find enclosed copy of the certificate conforming to the original relevant the above mentioned order.*

Spett.le

**DESMET BALLESTRA S.P.A.**

VIA PIERO PORTALUPPI, 17

**Località** MILANO **CAP** 20138 **Prov.** MI

Saldo/Balance	Acc./Part.delivery
<b>X</b>	

--RIEPILOGO POSIZIONI / SUMMARY POSITIONS --							RIEPILOGO CERTIFICATI / SUMMARY CERTIFICATES						
Vs. Pos.	ARTICOLO / ITEM	DESCRIZIONE / Description	Qtà consegnata / Qty delivered	Vs. Riferimento	Num. bolla di consegna	File RTI	Colata/ Heat	Num. Certificato / Certificate number	Note				
	AL0105	COPPER TUBING PVC COVERED 6MMODX1MM W.T. SUPPLIED IN COILS MTS.50 EACH	550		B 1/5276 del 31/10/2012		CONFORMITY	28125					
	AL0120	COPPER TUBING PVC COVERED 12MMODX1MM W.T. SUPPLIED IN COILS MTS.50 EACH	50		B 1/5276 del 31/10/2012		CONFORMITY	28125					
	AL0195NC	SEAMLESS TUBING A269/213 TP316/316L 12MMOD X 1MM W.T. SUPPLIED IN BARS 5 TO 7 MTS. CONFORMING TO NACE MR 01-75	137,99		B 1/5276 del 31/10/2012		Y111162-L	CM5298					
	AL0195NC	SEAMLESS TUBING A269/213 TP316/316L 12MMOD X 1MM W.T. SUPPLIED IN BARS 5 TO 7 MTS. CONFORMING TO NACE MR 01-75	162,01		B 1/5276 del 31/10/2012		Y111162-L	CM5298					
	B-CM-ML6-NS8	BRASS MALE CONN.6MM TUBE OD X1/2NPT	57		B 1/5276 del 31/10/2012		CONFORMITY	28125					
	EHC2180	ST.ST.316 UNION TEE 12MMOD MOD.ETM12-316	3		B 1/5276 del 31/10/2012		1AB P453	81054421 T58258					
	EHC2180	ST.ST.316 UNION TEE 12MMOD MOD.ETM12-316	29		B 1/5276 del 31/10/2012		1AB P453	81054421 T58258					
	EHC2300	ST.ST.316 MALE STRAIGHT CONNECTOR 12MMODX1/4"NPT MOD.M12MSC1/4N-316	3		B 1/5276 del 31/10/2012		P453 P442	T58258 T58247					
	EHC2300	ST.ST.316 MALE STRAIGHT CONNECTOR 12MMODX1/4"NPT MOD.M12MSC1/4N-316	57		B 1/5276 del 31/10/2012		P453 P442	T58258 T58247					
	EHC2310	ST.ST.316 MALE STRAIGHT CONNECTOR 12MMODX1/2"NPT MOD.M12MSC1/2N-316	125		B 1/5276 del 31/10/2012		P410 P442	T58200 T58247					
	EHC2310	ST.ST.316 MALE STRAIGHT CONNECTOR 12MMODX1/2"NPT MOD.M12MSC1/2N-316	12		B 1/5276 del 31/10/2012		P410 P442	T58200 T58247					
	EPA0670	BRASS MALE STRAIGHT CONNECTOR 6MMODX1/4"NPT MOD.FBMB6-1/4	122		B 1/5276 del 31/10/2012		CONFORMITY	28127					
	EPA0740	BRASS MALE STRAIGHT CONNECTOR 12MMODX1/2"NPT MOD.FBMB12-1/2	16		B 1/5276 del 31/10/2012		CONFORMITY	28127					

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	EPA0950	BRASS MALE STRAIGHT CONNECTOR 6MMODX1/4"BSPT MOD.F3BMB6-1/4	4		B 1/5276 del 31/10/2012		CONFORMITY	28127					
	EPA0950	BRASS MALE STRAIGHT CONNECTOR 6MMODX1/4"BSPT MOD.F3BMB6-1/4	16		B 1/5276 del 31/10/2012		CONFORMITY	28127					
	EPA1380	BRASS FEMALE STRAIGHT CONNECTOR 6MMODX1/4"NPT MOD.GBMB6-1/4	30		B 1/5276 del 31/10/2012		CONFORMITY	28127					
	EPA1850	BRASS UNION TEE 6MMOD MOD.JBMB6	6		B 1/5276 del 31/10/2012		CONFORMITY	28127					
	EPA2430	BRASS NUT + FERRULE 12MMOD MOD.BTMB12	10		B 1/5276 del 31/10/2012		CONFORMITY	28127					
	EUA0002	N12X1/1-50	50		B 1/5276 del 31/10/2012		CONFORMITY	28126					
	EUA0023	N6X1/1-50	50		B 1/5276 del 31/10/2012		CONFORMITY	28126					
	FLA0527	ST.ST.316 BAR STOCK BALL VALVE HY-PRO S.6000 PSI PTFE SEAT/PACKING 1/2"NPTF MOD. HPBYB8FF	10		B 1/5276 del 31/10/2012		P344 P361	T58120 T58143					
	FLA0527	ST.ST.316 BAR STOCK BALL VALVE HY-PRO S.6000 PSI PTFE SEAT/PACKING 1/2"NPTF MOD. HPBYB8FF	34		B 1/5276 del 31/10/2012		P344 P361	T58120 T58143					
	FLA0539	ST.ST.316 BAR STOCK BALL VALVE HY-PRO S.6000 PSI PTFE SEAL/PACKING 1/4"NPTF MOF. HPRVB4FF	9		B 1/5276 del 31/10/2012		P431 P456	T58239 T026968					
	FLA0539	ST.ST.316 BAR STOCK BALL VALVE HY-PRO S.6000 PSI PTFE SEAL/PACKING 1/4"NPTF MOF. HPRVB4FF	29		B 1/5276 del 31/10/2012		P431 P456	T58239 T026968					
	MANOM002	DN 2" ABS GAUGE 1/4"NPTM (REAR) 0-6 BAR/PSI	8		B 1/5276 del 31/10/2012		CONFORMITY	28125					
	MANOM006	MANOM.ABS-50MM-1/4NPT-POST-0-10 B/P	4		B 1/5276 del 31/10/2012		CONFORMITY	28125					
	RF1625003	CONIC UNION SERIES SERIES 3000 NPT F316L 1/2"	3		B 1/5276 del 31/10/2012		ABG	DEL/29063/05/212/2					
	RF1628001	HEX HEAD MALE PLUG NPT F316L 1/4"	6		B 1/5276 del 31/10/2012		DKP	DEL29674/09/212/1					
	RF1657003	PIPE NIPPLE SCH.80 L.100 NPT X NPT 316L D.1/2"	10		B 1/5276 del 31/10/2012		DFQ	DEL/29064/05/212/2					
	RF415Z003	COUPLING SERIES 3000 NPT A105 GALV. D.1/2"	3		B 1/5276 del 31/10/2012		H80	01013/001					
	RF415003	COUPLING SERIES 3000 NPT A105 D.1/2"	8		B 1/5276 del 31/10/2012		7738	49611					
	RF425Z003	CONIC UNION SERIES SERIES 3000 NPT A105 GALVANIZE 1/2"	5		B 1/5276 del 31/10/2012		ML-FW AC1214	1123/2012					
	RF425003	CONIC UNION SERIES SERIES 3000 NPT A105 1/2"	10		B 1/5276 del 31/10/2012		ML-FW AC1214	1123/2012					
	RF428Z001	HEAXAGONAL HEAD MALE PLUG NPT A105 GALV. D.1/4"	5		B 1/5276 del 31/10/2012		G79	20122035					
	RF428001	HEX HEAD PLUG S.6000 A105 D.1/4"NPT-M	20		B 1/5276 del 31/10/2012		G79 G79604	1123/2012					

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	RF428001	HEX HEAD PLUG S.6000 A105 D.1/4"NPT-M	30		B 1/5276 del 31/10/2012		G79 G79604	1123/2012	
	RF428001	HEX HEAD PLUG S.6000 A105 D.1/4"NPT-M	18		B 1/5276 del 31/10/2012		G79604	2582/2012	
	RF4342187	RED.HEX NIPPLE SERIES 3000 NPT A105 GALV. D.1/2" X D.1/4"	1		B 1/5276 del 31/10/2012		H07	01926/004	
	RF457Z003	PIPE NIPPLE SCH.80 L.100 NPT X NPT A106 GALV. D.1/2"	13		B 1/5276 del 31/10/2012		E80	02457/003	
	RF457003	PIPE NIPPLE SCH.80 L.100 NPT X NPT A106 D.1/2"	47		B 1/5276 del 31/10/2012		NPA	174230/4	
	RF457003	PIPE NIPPLE SCH.80 L.100 NPT X NPT A106 D.1/2"	2		B 1/5276 del 31/10/2012		14898	1123/2012	
	T0012B003XS	SMLS.PIPE A106 B.D.1/2"XS	6		B 1/5276 del 31/10/2012		27952	1110	
	T010AP003XSZ	SMLS PIPE A106 GR.B HOT DEEP GALV. THREADED ENDS AS PER "NPT" COMPLETE WITH ONE COUPLING FOR EACH BAR D.1/2" SCH.80	6		B 1/5276 del 31/10/2012		74239K	50782/08	
	VN500001	LIGHT ALLOY AIR FILTER REGULATOR 5-40 PSI CONNECTIONS 1/4"NPTF MOD.R92	8		B 1/5276 del 31/10/2012		CONFORMITY	28125	
	VN500002	LIGHT ALLOY AIR FILTER REGULATOR 5-100 PSI CONNECTIONS 1/4"NPTF MOD.R97	4		B 1/5276 del 31/10/2012		CONFORMITY	28125	
	V20120161746094	EM591D3331312	4		B 1/5276 del 31/10/2012		CONFORMITY	28125	
	V20120161746094	EM591D3331312	16		B 1/5276 del 31/10/2012		CONFORMITY	28125	



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C.F.: 00659860191 - P.Iva/V.A.T.: 10003740155

I010062010

Messers

DESMET BALLESTRA S.P.A.

VIA PIERO PORTALUPPI, 17

20138 MILANO

MI

Rodano, 31 ottobre 2012

Ordine /P.O.NO.122056  
Ddt.N./Bill NO.0005276

of 12/09/12  
of 31/10/12

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CERTIFICATO DI CONFORMITA' /CERTIFICATE OF COMPLIANCE NO. 0028125  
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Si certifica che il materiale sottoelencato, a fronte dell'ordine e Ddt sopra menzionati, ha superato positivamente i ns. controlli visivo/dimensionali e corrisponde esattamente a quanto richiesto.

We hereby certify that the below material of your P.O. and Bill mentioned in subject has been visually and dimensionally tested in our factory with positive results. The same is in total compliance with your request.

XCERT01

Web site: [www.rti-tec.it](http://www.rti-tec.it)  
email: [info@rti-tec.it](mailto:info@rti-tec.it)  
MOD PARK 01  
Date 19/11/11  
Rev. 0

Cap.Soc. 180.000 i.v.  
Iscriz. Trib. Milano n. 302998 - C.C.I.A.A. 1334658





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Item	Description	Q.ty	U.M.
AL0105	TUBING RAME RIC. PVC 6MMX1MM MOD.RAMEPVC6X1 COLORE NERO	550,000	MT
AL0120	TUBING RAME RIC. PVC 12MMX1MM MOD.RAMEPVC12X1 COLORE NERO	50,000	MT
AL0195NC	TUBING A 269 TP 316L SS 12MMX1 BARRA MOD.31612X1 NACE MR 01-75	162,010	MT
AL0195NC	TUBING A 269 TP 316L SS 12MMX1 BARRA MOD.31612X1 NACE MR 01-75	137,990	MT
B-CM-ML6-NS8	TERM.DIRITTO MASCHIO OTTONE 6MMODx1/2"NPT MOD.B-CM-ML6-NS8	57,000	PZ
MANOM002	MANOMETRO CON CASSA IN ABS DN 50mm DOPPIA SCALA 0/6 BAR+PSI ATTACCO POSTERIORE OTTONE FIL. 1/4"	8,000	PZ
MANOM006	MANOMETRO CON CASSA IN ABS DN 50mm DOPPIA SCALA 0/10 BAR+PSI ATTACCO POSTERIORE OTTONE FIL. 1/4"	4,000	PZ
RF1625003	BOCCHETTONI SEDE CONICA SERIE 3000 NPT F316L D.1/2"	3,000	PZ
RF1628001	TAPPI TESTA ESAGONALE MASCHIO NPT F316L D.1/4"	6,000	PZ
RF1657003	NIPPLI TUBO SCH.80 L.100 NPT X NPT 316L D.1/2"	10,000	PZ
RF415Z003	MANICOTTI SERIE 3000 NPT A105 ZIN. D.1/2"	3,000	PZ
RF415003	MANICOTTI SERIE 3000 NPT A105 D.1/2"	8,000	PZ
RF425Z003	BOCCHETTONI SEDE CONICA SERIE 3000 NPT A105 ZIN. D.1/2"	5,000	PZ
RF425003	BOCCHETTONI SEDE CONICA SERIE 3000 NPT A105 D.1/2"	10,000	PZ
RF428Z001	TAPPI TESTA ESAGONALE MASCHIO NPT A105 ZIN. D.1/4"	5,000	PZ
RF428001	TAPPI TESTA ESAGONALE MASCHIO NPT A105 D.1/4"	18,000	PZ
RF428001	TAPPI TESTA ESAGONALE MASCHIO NPT A105 D.1/4"	30,000	PZ
RF428001	TAPPI TESTA ESAGONALE MASCHIO NPT A105 D.1/4"	20,000	PZ
RF434Z187	NIPPLI ESAGONALI RIDOTTI SERIE 3000 NPT A105 ZIN. D.1/2" X D.1/4"	1,000	PZ
RF457Z003	NIPPLI TUBO SCH.80 L.100 NPT X NPT A106 ZIN. D.1/2"	13,000	PZ
RF457003	NIPPLI TUBO SCH.80 L.100 NPT X NPT A106 D.1/2"	2,000	PZ
RF457003	NIPPLI TUBO SCH.80 L.100 NPT X NPT A106 D.1/2"	47,000	PZ
T0012B003XS	TUBI A106/B SENZA SALDATURA D.1/2" XS CON PROTEZIONE ANTIRUGGINE MARCATURA VISIBILE A NORMA A530	6,000	MT

XCERTXP

Web site: [www.rti-tec.it](http://www.rti-tec.it)  
email: [info@rti-tec.it](mailto:info@rti-tec.it)  
MOD PARK 01  
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Item	Description	Q.ty	U.M.
T010AP003XSZ	TUBI A106B SS ZINC.VM 1/2"NPT 80	6,000	MT
VN500001	FILTRO RIDUTT. 0-40 PSI ALLUMINIO	8,000	PZ
	PARTI INTERNE INOX - MOD. R92		
VN500002	FILTRO RIDUTT. 0-100 PSI ALLUMINIO	4,000	PZ
	PARTI INTERNE INOX - MOD. R97		
	CONNESSIONI 1/4" NPT-F		
V20120161746094	EM591D3331312	16,000	PZ
V20120161746094	EM591D3331312	4,000	PZ

Cordiali saluti.  
Best regards.

R.T.I. S.p.A.  
Doneda Massimo


XCERTXP


Web site: [www.rti-tec.it](http://www.rti-tec.it)  
email: [info@rti-tec.it](mailto:info@rti-tec.it)

MOD PARK 01  
Date 19/11/11  
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<b>INOXTUBE</b> 13 ter, rue des Margats 77120 COULOMMIERS tél. : 01 64 65 10 00 fax. : 0164 65 85 20	<b>CERTIFICAT DE CONTRÔLE ET DE CONFORMITE</b> CERTIFICAT DE CONTRÔLE DES PRODUITS PAR L'USINE (CCPU) Certificate of control and conformity / Abnahme prüfzeugnis  Selon NF EN 10204 3.1.B / DIN 50049 3.1B <i>According to / Nach</i>	Date : 20/11/2012 Date / Datum  N° : CM5298 Nr / No								
<b>CLIENT : RTI Spa</b> <i>Purchaser / Besteller</i> N° de Commande : 39323/10 <i>Order / Bestell</i>										
N° d'AR :                      N° de bordereau de livraison: 28854 <i>Works Nr / Werks Nr</i> <i>Delivery document Nr / Lieferschein</i>										
<b>DIMENSIONS - DESIGNATIONS</b> <i>Size - désignation / Abmessung</i>										
<b>QUANTITE DE LIVRAISON</b> <i>Delivery quantity / Liefermenge</i>										
Mètres / Meter                      Kg                      Nombre / Number										
1	<b>Tubes référence AL0195NC</b> Tubes 12 x 1 en longueurs droites	504,00                      137,943								
<b>MATIERE : INOX - suivant norme ASTM A213/A269-EN 10216-5-NACE</b> <i>Metal / Metall</i> <b>MR0175</b>										
<b>NUANCE : 316L SS HYPERTREMPE (1050°C / 5 Min)</b> <i>Grade / Markenbezeichnung</i>										
<b>ANALYSE SUR COULEE N° : Y111162-L</b> <i>Ladle analysis / Schmelzanalyse</i>										
<b>N° LOT INOXTUBE: N11206183</b>										
LOT	C	Si	P	S	Mn	Ni	Cr	Mo		
1	0,027	0,36	0,04	0,005	1	10,06	16,56	2,06		
Mini Maxi										
Mini Maxi										
<b>CARACTERISTIQUES MECANQUES</b> <i>Mechanical Characteristic</i>										
<b>Rm N/mm²</b> <i>U.T.S. / Zugfestigkeit</i>			<b>Rp0,2 N/mm²</b> <i>YS / Streckgrenze</i>		<b>ALLONGEMENT (%)</b> <i>Elongation / Bruchdehnung</i>		<b>DURETE</b> <i>Hardness / Härte</i>			
1                      580			280		50		70 HRB			
Ø ext. : conforme  Ø int. : conforme  Epaisseur : conforme  Evasé : conforme <i>Flaring test / Aufweitung</i> Pliage : conforme <i>Bend test / Faltversuch</i> Epreuve hydraulique: <i>Hydraulic test / Wasser probe</i> Concentricité: <i>Concentricity / Konzentrisität</i>				Aspect : conforme <i>Aspect / Zustand</i> Courant de Foucault: <i>Eddy current testing / Wirbelprüfung</i> Aplatissement : conforme <i>Flattening test / Ringfaltversuch</i> Micrographie : <i>Micro-section / Mikroschliff</i> Corrosion : <i>Corrosion / Korrosion</i> Ressuage: <i>Dye penetrant test / Selgern</i> Ultrasons : <i>Ultrasonic testing / Ultraschallprüfung</i>						
NOUS ATTESTONS QUE LES PRODUITS LIVRES SONT CONFORMES AUX STIPULATIONS DE LA COMMANDE. <i>With the knowledge or result of acceptance's tests we certify that the delivered products comply with the specification of the order and with the standards and rules to be applied.</i> Nach einsicht der Ergebnisse aus, abnahmeprüfungen an der lieferung bescheinigen wir das gelieferte erzeugnis den Vereinbarungen bei der bestellung sowie den zur zeit gültigen normen und bestimmungen entspricht.						Nom Responsable A.Q.: MME L. CHABANNE Vis : 			Décision : <b>CONFORME</b>	

Usine productrice Hersteller Manufacturer <b>Ugine</b> Avenue Paul Girod 73403 Ugine France	<b>CERTIFICAT DE RECEPTION 3.1</b> <b>INSPECTION CERTIFICATE 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b> ----- <b>EN 10204 / 3.1</b>	<b>UGITECH</b> Providing special steel solutions 
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Numéro / Nummer / Number <b>81054421 000010</b>	Ordre de fab. / Auftrag / Prod. Order <b>A1146FU16100</b>	N° coulée / Schmelzen Nr / Heat N° <b>144024</b>	N° lot MM / Chargen / Batch <b>1146FU1610</b>
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Certification - Werkzeugnis - Certificate <b>AD 2000-MERKBLATT W0/TRD100</b> Pressure Equipment Directive 97/23/EC ISO 9001 ISO/TS 16949 ISO 14001	ISO 9100 ISO 9120	Marque d'usine Herstellerzeichen Supplier's Mark 	Poinçon de l'expert Prüfstempel Inspector's stamp <b>IQ</b>
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UGIMA 316SX1 BARRE TOURNÉE POLIE HYPERTREMPÉ(E) H9ROND(E) 30,000MM LONG. 6,000M +100,000MM -0,000MM UGIMA 316SX1 BARRE TOURNÉE POLIE HYPERTREMPÉ(E) H9ROND(E) 30,000MM LONG. 6,000M +100,000MM -0,000MM UGIMA 316SX1 STAB GESCHÄLT POLIERT ABGESCHRECKT H9RUND 30,000MM LONG. 6,000M +100,000MM -0,000MM UGIMA 316SX1 BAR TURNED POLISHED SOLUTION ANNEALED H9ROUND 30,000MM LONG. 6,000M +100,000MM -0,000MM
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Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consigner <b>22438 RAYMOND BARRE</b>	N° de commande client - Kundbestellnummer - Purchase order number <b>37859 +38084 RF RD20</b>
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Norme de référence / Bezugsnorm / Standard for reference <b>ASTM A182/A182M-10 F316</b>
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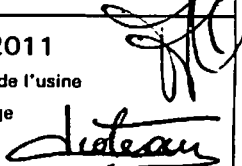
Spécification client / Kundenspezifikation / Customer's specification <b>MO11/2 20 14/10/2002</b>
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Nombre Stueckzahl Pieces Nbr <b>21</b>	Profil Profile Shape RO	Dimension Ausmessung Dimension <b>30,000 MM</b>	Longueur Laenge Length <b>6,000</b>	Poids Gewicht Weight <b>747 KG</b>
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Mode d'élaboration Erzhmel zungsart Melting process <b>EAF + AOD          + CC</b>	N° prélèvement Probenummer Test number <b>2RCL</b>	Demandé / Vorschrift / Required Min Max coulée/ Schmelzen / Heat Produit / Erzeugnisform/ Product	% C 0,0350 0,0700 0,0570	% SI 1,0000	% MN 2,0000	% NI 10,0000 14,0000	% CR 16,0000 18,0000	% MO 2,0000 3,0000	% CU 1,0000	% S 0,0150 0,0300 0,0232
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Demandé / Vorschrift / Required Min Max coulée/ Schmelzen / Heat Produit / Erzeugnisform/ Product	% P 0,0400	% N 0,1000	% TI 0,7500	% CO 0,1130	% AL 0,0020
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Demandé / Vorschrift / Required Min Max coulée/ Schmelzen / Heat Produit / Erzeugnisform/ Product	% P 0,0400	% N 0,1000	% TI 0,7500	% CO 0,1130	% AL 0,0020
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Nous déclarons que la fourniture citée est conforme aux exigences du contrat et que, après vérifications et essais, elle répond en tout point, aux exigences spécifiées, aux normes et règlements applicables, sauf exceptions, réserves ou dérogations énumérées dans la présente déclaration de conformité ; Document validé par signature électronique. Produit fabriqué dans le respect du règlement REACH. We declare that the mentioned product is in compliance with the requirements of the contract and that, after checks and tests, it meets in all respects the specified requirements and applicable standards and regulations, except observations or exceptions as listed in this declaration of conformity ; Document validated by electronic signature. Material manufactured in the REACH regulation respect.	Ugine le 14.12.2011 L'agent Réceptionnaire de l'usine Der Werksachverständige The work inspector 
--	--

HCT LAB  
 Checked & Approved by  
 Parker Hannifin PTE  
 09-08-2012 08:27:20 Page 1 of 3



Usine productrice Hersteller Manufacturer		Ugine Avenue Paul Girod 73403 Ugine France		<b>CERTIFICAT DE RECEPTION 3.1</b> <b>INSPECTION CERTIFICATE 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b> ----- <b>EN 10204 / 3.1</b>				<b>UGITECH</b> Providing special steel solutions									
5		3		1													
Numéro / Nummer / Number 81054421 000010		Ordre de fab. / Auftrag / Prod. Order A1146FU16100		N° coulée / Schmelzen Nr / Heat N° 144024		N° lot MM / Chargen / Batch 1146FU1610		4		11-3							
24		90		T°C		Limite d'élasticité Streckgrenze Yield Strength 0,2% 1% Mpa Mpa		RM Zugfestigkeit Tensile Mpa 515		Alongement Bruchdehnung Elongation A5D A4D % % 30 30		Striction Einschnürung Red area % 50		Dureté-Haerte-Hardness HB HV HRB HRC			
13		Min Max Min Max		°C 20 20		Mpa 205		Mpa 515		%		%		%			
N° prélèvement Probenummer Test number		2RCL		120 L 1		20		257		589		54		56		76	
39B																	
A l'état de Référence / treatment on test sample / Probestreifenbehandlung																	
14		25		26A		26B		27		28		89		29		30	
Taux de corroyage Forging ratio Verschmiedungsgrad 51,6		101		Type Form Type		T°C		Sens Richtung Direction		Min		Valeurs individuelles Einzelwerte Individual values		Moyenne Mittelwerte Average		Expansion latérale Seitliche Breitung Lateral Expansion	
A l'état de livraison / Lieferzustand / As delivered		13		31		33		32		95		35		36		91	
HYPERTEMPE 1050°C-1110°C TREMPE EAU				°C		J								J			
A l'état de Référence / treatment on test sample / Probestreifenbehandlung		14															

PRODUIT GARANTI SANS RADIOACTIVITE ET CONTAMINATION PAR LE MERCURE  
 RESISTANT A LA CORROSION INTERGRANULAIRE CONFORMEMENT A ASTM A262-02 PRACTICE A&E

Quantité livrée / delivered quantity / gelieferte Quantität		92		93		94	
Nous déclarons que la fourniture citée est conforme aux exigences du contrat et que, après vérifications et essais, elle répond en tout point, aux exigences spécifiées, aux normes et règlements applicables, sauf exceptions, réserves ou dérogations énumérées dans la présente déclaration de conformité : Document validé par signature électronique. Produit fabriqué dans le respect du règlement REACH.		Ugine le 14.12.2011 L'agent Réceptionnaire de l'usine Der Werk sachverständige The work inspector		66-1 66-2		63	
We declare that the mentioned product is in compliance with the requirements of the contract and that, after checks and tests it meets in all respects the specified requirements and applicable standards and regulations, except reservations or exceptions as listed in this declaration of conformity : Document validated by electronic signature. Material manufactured in the REACH regulation respect.		09-08-2012 08:27:20 Page 2 of 3		040000537231 Page 2/2		63	



**RAYMOND BARRÉ S.A.**

**ETS RAYMOND BARRÉ**

17, rue de l'espérance - B.P. 29

08800 HAUTES RIVIERES

Tél.: 00 33 3 24 53 42 18

Fax.: 00 33 3 24 53 48 54

E-mail : info@barefor.com

## CERTIFICATE OF CONFORMITY

CUSTOMER	PARKER HANNIFIN	CERT. NUMBER	212/12
ORDER N°	7210958 OP 00008464 L.1	ADVICE NOTE N°	1202447
MATERIAL SPEC.	MO11/2	ADVISED DATE	03/08/2012
PRODUCT NUMBER		ADVISED QUANTITY	400

PART NUMBER	5204E	PART DESCRIPTION	TEE PIECE SIZE 8
MATERIAL	316	ORIGIN OF MATERIAL	UGITECH

HEAT TREATMENT	Hypertempered / Solution annealed	<b>N.D.T. INFORMATION :</b> Material free of mercury contamination during manufacture and handling in process.
H.C.T.	1AB	

### CAST ANALYSIS - Cast Number : 144024

	C	Mn	P	S	Si	Ni	Cr	Mo
Std.	0,035-0,070	2,00 max.	0,04 max.	0,015-0,030	1,00 max.	10,0-14,0	16,0-18,0	2,0-3,0
Act.	0,057	1,078	0,0273	0,0232	0,38	10,546	17,476	2,023
	N	Co	Cu					
Std.	0,07-0,10	0,75 max.	1,0 max.					
Act.	0,076	0,113	0,493					

### MECHANICAL TEST RESULTS - Specification :

	Yield (MPa)	U.T.S. (MPa)	El %	Redn of Area %
Std.	205 min.	515 min.	30	50
Act.	420	780	45	82

COMMENTS :

Hardness HB

195 / 210 HB

We certify that the supplies detailed hereon have been manufactured, inspected and tested and unless otherwise stated conform in all respects with the requirements of the contract or order.

INSPECTORATE

F. ZAS

Signed

Ets Raymond BARRÉ

DATE

03/08/2012

**H.C.T. 1AB**

**Checked & Approved by  
Parker Hannifin IPDE**

09-08-2012 08:27:20 Page 3 of 3

For and on Behalf of Ets Raymond BARRÉ



# HI-TECH

## Special Steels Limited

Rotherham Road, Laughton Common,  
Dinnington, Sheffield S25 3RF  
Tel: Dinnington (01909) 564545  
Fax No (01909) 550682

Registered in England No. 1921116

### Customer

Parker Hannifin Manufacturing Ltd  
Riverside Road  
Pottington Business Park  
Barnstaple  
Devon EX31 1NP

### TEST CERTIFICATE IN ACCORDANCE WITH BS EN 10204 3.1/ISO 10474 3.1

Certificate No.	T58258	Product	Stainless steel bar	
Order No.	Consignment	Cast No.	228054	Specification 1.4404
Our Reference	Z98553/P40475	Quantity	324 Kgs	Size 22mm A/F Hex
Advice Note No.	C1456	Finish	Cold sized	
Heat Treatment	Fully solution treated and water quenched prior to cold sizing			

### Chemical Analysis

C	0.015	Si	0.385	Mn	1.328	S	0.0251	P	0.0296
Ni	10.087	Cr	16.539	Mo	2.117	Ti		Nb	
Co	0.103	Cu	0.502	N	0.038	W		Ca	
Sn		Ta		V		Al		Fe	

### Mechanical Properties

Tensile Strength	821 Mpa	0.2% Proof Stress	741 Mpa
Reduction of Area	69,0%	Elongation	24,0%
Hardness	31 HRC	Impact Tests	

### Special Conditions / Processing Details

In accordance with BS EN 10088-3 2005 1.4404

HCT No : P453

In accordance with MO11/1 Concession

Part No : 7610444302

Free from mercury and radioactive contamination

ICC test to ASTM A262 'E' - Satisfactory

This material has been solution annealed and is free from grain boundary carbide precipitation

Also conforming to ASTM A276/A479 Gr 316/316L



Manufacturers Test Cert No.

Concessions Agreed

"Certified that the whole of the supplied detailed hereon, unless otherwise stated, are covered by the Sources Certificate of Conformity/Test Certificate referenced hereon, and has been subject to the Quality System requirements in accordance with the conditions of our BS EN ISO 9001 2008 registration, for lot traceable products".


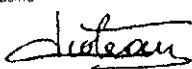
"Certified that the supplies/services detailed hereon have been inspected and tested in accordance with the conditions, requirements of the contract or purchase order and, unless otherwise noted below, conform in all respects to the specification(s)/drawing(s) relevant thereto".

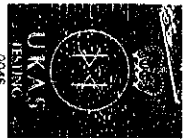
**H.C.T. P453**  
**Checked & Approved by**  
**Parker Hannifin IPD**  
17/08/2012  
Quality Controller  
**18-08-2012 11:49:14 Page 1 of 4**

Usine productrice Hersteller Manufacturer <b>Ugine</b> <b>Avenue Paul Girod</b> <b>73403 Ugine France</b>		<b>CERTIFICAT DE RECEPTION 3.1</b> <b>INSPECTION CERTIFICATE 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b>  <b>EN 10204 / 3.1</b> <b>NFL 00-015 Certified material test report</b>		<b>UGITECH</b> Providing special steel solutions 	
Numéro / Nummer / Number <b>81139260 000010</b>		Ordre de fab. / Auftrag / Prod. Order <b>A1227GV13000</b>		N° coulé / Schmelzen Nr / Heat N° <b>228054</b>	
Certification - Werkzeugnis - Certificate <b>AD 2000-MERKBLATT W0/TRD100</b> <b>Pressure Equipment Directive 97/23/EC</b> <b>ISO 9001</b> <b>ISO/TS 16949</b> <b>ISO 14001</b>		ISO 9100 ISO 9120		Marque d'usine Herstellerzeichen Supplier's Mark 	
		Poinçon de l'expert Prüfstempel Inspector's stamp <b>IQ</b>			
<b>UGIMA 4404HM WIRE ROLLED PICKLED SOLUTION ANNEALED HEXAGONAL 25,000MM</b>					
Produit Erzeugnisform Product <b>UGIMA 4404HM FIL LAMINÉ(E) DÉCAPÉ HYPERTREMPÉ(E) HEXAGONAL(E) 25,000MM</b> <b>UGIMA 4404HM WALZDRAHT GEWALZT GEBEIZT LÖSUNGSGEGLÜHT SECHSKANT 25,000MM</b> <b>UGIMA 4404HM WIRE ROLLED PICKLED SOLUTION ANNEALED HEXAGONAL 25,000MM</b>					
Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consigner <b>19516 HI-TECH SPECIAL STEELS LTD</b>			N° de commande client - Kundenbestellnummer - Purchase order number <b>2950008448</b>		
Norme de référence / Bezugsnorm / Standard for reference <b>ASME SA479 2007 Sect. II &amp; add TYPE 316L</b> <b>EN 10088-1/3ED2005 1.4404</b> <b>AISI 316L</b>  <b>ASTM A479/A479M-11 TYPE 316L</b> <b>UNS 10th Edition S31603</b>					
Spécification client / Kundenspezifikation / Customer's specification <b>SS-85 - ES 235 FOR ANALYSIS ONLY - 28 JUL 00</b>					
Nombre Stueckzahl Pieces Nbr <b>18</b>		Profil Profile Shape <b>HX</b>		Dimension Ausmessung Dimension <b>25,000 MM</b>	
				Longueur Laenge Length <b>21-2</b>	
				Poids Gewicht Weight <b>4345 KG</b>	
Mode d'élaboration Erzeugnisart Melting process <b>EA + AOD</b> <b>+ CC</b>		N° prélèvement Probennummer Test number <b>3TGF</b>		Demandé / Vorschrift / Required  Min Max  coulé / Schmelzen / Heat Produit / Erzeugnisform / Product	
				42 43 44 45 46 47 48 49	
				% C % Si % Mn % Ni % CR % MO % CU % S	
				0,0300 0,7500 2,0000 13,0000 18,0000 2,5000 1,0000 0,0300	
				0,0150 0,3850 1,3280 10,0870 16,5390 2,1170 0,5020 0,0251	
Demandé / Vorschrift / Required Min Max		50 51 52 53 54 55 70 71 72 73 74 75			
				% P % N % CO	
				0,0400 0,1000	
				0,0296 0,0380 0,1030	
Demandé / Vorschrift / Required Min Max		76 77 78 79 80 81 82 83 84 85 86 87			
				0,0400 0,1000	
				0,0296 0,0380 0,1030	
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800		UGINE le 16.07.2012 L'agent Réceptionnaire de l'usine Der Werksachverständige The work inspector		66-1 66-2 040000596492 Page 1/2	

**H.C.T. P453**  
**Checked & Approved by**  
**Parker Hannifin IPDE**  
 18-08-2012 11:49:14 Page 2 of 4



Usine productrice Hersteller Manufacturer <b>Ugine</b> <b>Avenue Paul Girod</b> <b>73403 Ugine France</b>		<b>CERTIFICAT DE RECEPTION 3.1</b> <b>INSPECTION CERTIFICATE 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b> <hr/> <b>EN 10204 / 3.1</b> <b>NFL 00-015 Certified material test report</b>				<b>UGITECH</b> Providing special steel solutions 	
Numéro / Nummer / Number <b>81139260 000010</b>		Ordre de fab. / Auftrag / Prod. Order <b>A1227GV13000</b>		N° coulée / Schmelzen Nr / Heat N° <b>228054</b>		N° lot MM / Chargen / Batch <b>1227GV1300</b>	
		Limite d'élasticité Streckgrenze Yield Strength 0.2% 1% Mpa Mpa		RM Zugfestigkeit Tensile Mpa		Allongement Bruchdehnung Elongation A5D A4D % % 30 30 99	
		T° C ° C 20 20				Striction Einschnürung Red area % 40	
		Dureté-Haerte-Hardness HB HV HRC					
N° prélèvement Probenummer Test number <b>39B</b>		24 90 13 Min Max Min Max		262 598 57 59 76			
A l'état de Référence / treatment on test sample / Probastreifenbehandlung							
Taux de corroyage Forging ratio Verschmiedungsgrad <b>77,6</b>		25 26A 26B 27 28 89 29 30 88 100 37		Résilience-Kerbschlagzähigkeit-Notch Toughness			
A l'état de livraison / Lieferzustand / As delivered solution annealed		Type Form Type T° C 31 33 ° C		Sans Direction Richtung Direction Min 95 J		Valeurs Individuelles Einzelwerte Individual values Moyenne Mittelwerte Average 35 36 J	
A l'état de Référence / treatment on test sample / Probastreifenbehandlung							
ASTMA479-A479M 08-10A/ASMESA-479 ED .07 SECT.II 2010 NO ADD./QQ-S-763F/AMSQQ-S-763A/ASTMA276 8A-10 FREE FROM WELDS & WELD REPAIRS/FREE FROM MERCURY CONTAMINATION/FREE FROM CONTINUOUS CARBIDE NETWORK QUALITY MANUAL REV.E OF 22 NOV.2009 MATERIAL IS SOLUTION ANNEALED INTERGRANULAR CORROSION PER ASTM A262 PRACTICES A & E ACCEPTABLE PROVISION OF 10 CFR PART 21 & 10 CFR PART 50 APP.B APPLY COUNTRY OF MELT SOURCE : FRANCE							
Quantité livrée / delivered quantity / gelieferte Quantität 92						94	
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800		93		94		Ugine le 16.07.2012 L'agent Réceptionnaire de l'usine Der Werkstoffverständige The work inspector 	
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800						63	



# Special Testing Ltd

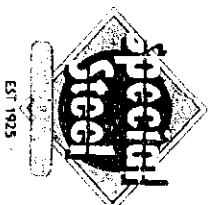
Bacon Lane, Sheffield S9 3NH  
Tel: 0114 244 1061  
Fax: 0114 244 0444 Works  
Fax: 0114 244 5566 Acc/Admin  
www.specialtesting.co.uk

## Test Certificate 215407

AUTHENTICATION CODE 4F1BACDE405B  
ROLLS ROYCE APPROVED LABORATORY

Approval No. 11191

CUSTOMER  
HI-TECH SPECIAL STEELS LTD  
ALLOY & METAL WORKS, ROTHERHAM RD  
LAUGHTON COMMON, DUNNINGTON  
SHEFFIELD S25 3RF  
DATE RECEIVED 09 August 2012  
TEST DATE 11 August 2012



CUSTOMER ORDER NO	PRD2558	TEST NUMBER	215407	IDENTITY	PA0475	CAST*	228054	ALL REQUIREMENTS MIN UNLESS STATED
SPECIFICATION	BS EN10088-3:2005 (X2CrNiMo17-12-2)	1.4404				TEST PIECE FROM*	22MM A/F HEX	
TENSILE: BS EN ISO 6892-1:2009 A224		0.2% PROOF	1.0% PROOF	UTS	ELONG ON	%	R OF A %	COMMENTS
OR TEMP	SECTION	AREA SQ	UNIT	REQUIREMENTS				
L RT	10.01mm	78.70mm²	Mpa	RESULTS	741	789	821	50mm 24.0 69.0 N/A
HARDNESS: BS EN ISO 6506-1 2005		DESIGNATION	REQUIREMENTS	RESULTS				
BRINELL (MID RADIAL)		HBW 10/3000		269				
HARDNESS: BS EN ISO 6508-1 2005		DESIGNATION	REQUIREMENTS	RESULTS				
ROCKWELL C (MID RADIAL)		HRC		31				

END OF CERTIFICATE

### REPRESENTING\*

No copy is authentic without the embossed seal and signature. This certificate can be authenticated at [www.specialtesting.co.uk](http://www.specialtesting.co.uk) with the code 4F1BACDE405B

This certificate shall not be reproduced, except in full, without the written approval of the laboratory.

For and on behalf of

**SPECIAL TESTING LTD**

A Member of the Special Steel Group of Companies

Kath Elliott

Certification Officer

*K. J. Elliott*

Test results do not in any way confer approval of the quality of manufacture of the material. All results are subject to uncertainty of measurement budgets, details available upon request.  
Information marked \* is supplied by the customer.

**H.C.T. P453**  
**Checked & Approved by**  
**Parker Hannifin IPDE**  
18-08-2012 11:49:14 Page 4 of 4



# HI-TECH

## Special Steels Limited

Rotherham Road, Laughton Common,  
Dinnington, Sheffield S25 3RF  
Tel: Dinnington (01909) 564545  
Fax No (01909) 550682

### Customer

Parker Hannifin Manufacturing Ltd  
Riverside Road  
Pottington Business Park  
Barnstaple  
Devon EX31 1NP

Registered in England No. 1921116

### TEST CERTIFICATE IN ACCORDANCE WITH BS EN 10204 3.1/ISO 10474 3.1

Certificate No.	T58247	Product	Stainless steel bar		
Order No.	Consignment	Cast No.	224009	Specification	1.4404
Our Reference	Z98490/P40461	Quantity	468KGS	Size	22mm A/F
Advice Note No.	C1452	Finish	Linished		
Heat Treatment	Fully solution treated and water quenched prior to cold sizing				

### Chemical Analysis

C	0.021	Si	0.386	Mn	0.318	S	0.027	P	0.0315
Ni	10.117	Cr	16.568	Mo	2.04	Ti		Nb	
Co	0.132	Cu	0.52	N	0.039	W		Ca	
Sn		Ta		V		Al		Fe	

### Mechanical Properties

Tensile Strength	817 Mpa	0.2% Proof Stress	730 Mpa
Reduction of Area	67.00%	Elongation	26.00%
Hardness	27 Hrc	Impact Tests	

### Special Conditions / Processing Details

In accordance with BS EN 10088-3 2005 1.4404	HCT No : P442
In accordance with MO11/1 Concession	Part No : 7610444302
Free from mercury and radioactive contamination ICC test to ASTM A262 'E' - Satisfactory This material has been solution annealed and is free from grain boundary carbide precipitation Also conforming to ASTM A276/A479 Gr 316/316L	
Manufacturers Test Cert No.	Concessions Agreed

"Certified that the whole of the supplied detailed hereon, unless otherwise stated", are covered by the Sources Certificate of Conformity/Test Certificate referenced hereon, and has been subject to the Quality System requirements in accordance with the conditions of our BS EN ISO 9001 2008 registration, for lot traceable products".

"Certified that the supplies/services detailed hereon have been inspected and tested in accordance with the conditions, requirements of the contract or purchase order and, unless otherwise noted below, conform in all respects to the specification(s)/drawing(s) relevant thereto".

**H.C.T. P442**  
**Checked & Approved by**  
**Parker Hannifin IPDE**  
**02-08-2012 07:18:06 Page 1 of 4**  
31.7.12  
Quality Controller





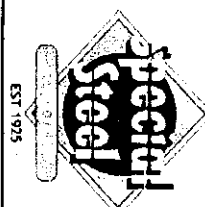
**Special Testing Ltd**  
Bacon Lane, Sheffield S9 3NH  
Tel: 0114 244 1061  
Fax: 0114 244 0444 Works  
Fax: 0114 244 5566 Acc/Admin  
www.specialtesting.co.uk

## Test Certificate 214177

AUTHENTICATION CODE ATDB0E63418B  
ROLLS ROYCE APPROVED LABORATORY

Approval No. 11191

CUSTOMER  
HI-TECH SPECIAL STEELS LTD  
ALLOY & METAL WORKS, ROTHERHAM RD  
LAUGHTON COMMON, DUNNINGTON  
SHEFFIELD S25 3RF  
DATE RECEIVED 24 July 2012  
TEST DATE 26 July 2012



CUSTOMER ORDER NO	PRD2524	TEST NUMBER	214177	IDENTITY	P40457/P40461	CAST*	224009	ALL REQUIREMENTS MIN UNLESS STATED
SPECIFICATION	BS EN10088-3:2005 (X2CrNiMo17-12-2) 1.4404							TEST PIECE FROM* 8/5" / 22MM AF HEX
TENSILE: BS EN ISO 6892-1:2009 A224	0.2% PROOF		1.0% PROOF		UTS		ELONG ON	% R OF A % COMMENTS
OR TEMP	SECTION	AREA SQ	UNIT	REQUIREMENTS				
L RT	9.97mm	78.07mm²	Mpa	RESULTS	730	778	817	50mm 26.0 67.0 N/A
HARDNESS: BS EN ISO 6506-1:2005				DESIGNATION	REQUIREMENTS		RESULTS	
BRINELL (MID RADIAL)				HBW 10/3000	N/A		257	
HARDNESS: BS EN ISO 6508-1:2005				DESIGNATION	REQUIREMENTS		RESULTS	
ROCKWELL C (MID RADIAL)				HRC	N/A		27	

END OF CERTIFICATE

REPRESENTING\*

No copy is authentic without the embossed seal and signature. This certificate can be authenticated at www.specialtesting.co.uk with the code ATDB0E63418B

This certificate shall not be reproduced, except in full, without the written approval of the laboratory.

For and on behalf of

**SPECIAL TESTING LTD**

A Member of the Special Steel Group of Companies

Liam Burdett


Asst Testhouse Manager

Test results do not in any way confer approval of the quality of manufacture of the material. All results are subject to uncertainty of measurement budgets, details available upon request.  
Information marked \* is supplied by the customer.

**H.C.T. P442**  
**Checked & Approved by**  
**Parker Hannifin IPDE**  
02-08-2012 07:18:06 Page 2 of 4



Usine productrice Hersteller Manufacturer <b>Ugine</b> <b>Avenue Paul</b> <b>Girod</b> <b>73403 Ugine</b> <b>France</b>		<b>CERTIFICAT DE RECEPTION 3.1</b> <b>INSPECTION CERTIFICATE 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b> ----- <b>EN 10204 / 3.1</b> <b>NF L 00-015 Certified material test report</b>			<b>UGITECH</b> Providing special steel solutions 		
Numéro / Nummer / Number <b>81131385 000010</b>		Ordre de fab. / Auftrag / Prod. Order <b>A1227EJ83000</b>		N° coulée / Schmelzen Nr / Heat N° <b>224009</b>		N° lot MM / Chargen / Batch <b>1227EJ8300</b>	
Certification - Werkzeugnis - Certificate <b>AD 2000-MERKBLATT W0/TRD100</b> <b>Pressure Equipment Directive 97/23/EC</b> <b>ISO 9001</b> <b>ISO/TS 16949</b> <b>ISO 14001</b>				Marque d'usine Herstellerzeichen Supplier's Mark 		Poinçon de l'expert Prüfstempel Inspector's stamp 	
<b>UGIMA 4404HM WIRE ROLLED PICKLED SOLUTION ANNEALEDHEXAGONAL 25,000MM</b>							
Produit Erzeugnisform Product <b>UGIMA 4404HM FIL LAMINÉ(E) DÉCAPÉ HYPERTREMPÉ(E)HEXAGONAL(E) 25,000MM</b> <b>UGIMA 4404HM WALZDRAHT GEWALZT GEBEIZT LÖSUNGSGEGLÜHTSECHSKANT 25,000MM</b> <b>UGIMA 4404HM WIRE ROLLED PICKLED SOLUTION ANNEALEDHEXAGONAL 25,000MM</b>							
Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consigner <b>19516 HI-TECH SPECIAL STEELS LTD</b>				N° de commande client - Kundenbestellnummer - Purchase order number <b>2950008319</b>			
Norme de référence / Bezugsnorm / Standard for reference <b>ASME SA479 2007 Sect.II &amp; add TYPE 316L</b> <b>EN 10088-1/3ED2005 1.4404</b> <b>AISI 316L</b> <b>ASTM A479/A479M-11 TYPE 316L</b> <b>UNS 10th Edition S31603</b>							
Spécification client / Kundenspezifikation / Customer's specification <b>SS-85 - ES 235 FOR ANALYSIS ONLY - 28 JUL.00</b>							
Nombre Stueckzahl Pieces Nbr <b>14</b>		Profil Profile Shape <b>HX</b>		Dimension Ausmessung Dimension <b>25,000 MM</b>		Longueur Laenge Length <b>21-2</b>	
Poids Gewicht Weight <b>6704 KG</b>							
Mode d'élaboration Erchmel zungsart Melting process <b>EAF + AOD</b> <b>+ CC</b>		N° prélèvement Probennummer Test number <b>3NFN</b>		Demandé / Vorschrift : Required Min Max coulée/ Schmelzen / Heat Produit / Erzeugnisform/ Product		42 % C 0,0300 0,0210 43 % SI 0,7500 0,3860 44 % MN 1,2500 2,0000 1,3180 45 % NI 10,0000 13,0000 10,1170 46 % CR 16,5000 18,0000 16,5680 47 % MO 2,0000 2,5000 2,0410 48 % CU 1,0000 0,5200 49 % S 0,0150 0,0300 0,0270	
Demandé / Vorschrift : Required Min Max coulée/ Schmelzen / Heat Produit / Erzeugnisform/ Product		50 % P 0,0400 0,0315 51 % N 0,1000 0,0390 52 % CO 0,1320					
Demandé / Vorschrift : Required Min Max coulée/ Schmelzen / Heat Produit / Erzeugnisform/ Product		76 77 78 79 80 81 82 83 84 85 86 87					
<b>H.C.T. P442</b> <b>Checked &amp; Approved by</b> <b>Parker Hannifin IPDE</b> <b>02-08-2012 07:18:06 Page 3 of 4</b>							
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800				Ugine le 30.06.2012 L'agent Réceptionnaire de l'usine Der Werksachverständige The work inspector			
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800				66-2 040000589607 Page 1/2 63			

Usine productrice Hersteller Manufacturer <b>Ugine</b> <b>Avenue Paul</b> <b>Girod</b> <b>73403 Ugine</b> <b>France</b>		<b>CERTIFICAT DE RECEPTION 3.1</b> <b>INSPECTION CERTIFICATE 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b> ----- <b>EN 10204 / 3.1</b> <b>NF L 00-015 Certified material test report</b>				<b>UGITECH</b> Providing special steel solutions 									
Numéro / Nummer / Number <b>81131385 000010</b>		Ordre de fab. / Auftrag / Prod. Order <b>A1227EJ83000</b>		N° coulée / Schmelzen Nr / Heat N° <b>224009</b>		N° lot MM / Chargen / Batch <b>1227EJ8300</b>									
24 13 Min Max Min Max		90 T °C °C 20 20		Limite d'élasticité Streckgrenze Yield Strength 0,2% 1% Mpa Mpa 170		RM Zugfestigkeit Tensile Mpa 592		Allongement Bruchdehnung Elongation A5D A4D % % 30 30 99		Striction Einschnürung Red area % 40		Dureté-Haerte-Hardness HB HV HRB HRC			
N° prélèvement Probenummer Test number <b>3NFN</b> <b>398</b>		14 L 20		268		592		55 57		75					
A l'état de Référence / treatment on test sample / Probestreifenbehandlung 14		25		26A 26B		27		28 89		29		30 88 100		37	
Taux de corroyage Forging ratio Verschmiedungsgrad <b>77,6</b>		101 31		33		32		95		35		36		91	
A l'état de livraison / Lieferzustand / As delivered 13 solution annealed		°C		J						J					
A l'état de Référence / treatment on test sample / Probestreifenbehandlung 14															
ASTMA479-A479M 08-10A/ASMESA-479 ED .07 SECT.II 2010 NO ADD./QQ-S-763F/AMSQQ-S-763A/ASTMA276 8A-10														5	
FREE FROM WELDS & WELD REPAIRS/FREE FROM MERCURY CONTAMINATION/FREE FROM CONTINUOUS CARBIDE NETWORK														6	
QUALITY MANUAL REV.E OF 22 NOV.2009															
MATERIAL IS SOLUTION ANNEALED															
INTERGRANULAR CORROSION PER ASTM A262 PRACTICES A & E ACCEPTABLE															
PROVISION OF 10 CFR PART 21 & 10 CFR PART 50 APP.B APPLY															
COUNTRY OF MELT SOURCE : FRANCE															
Quantité livrée / delivered quantity / gelieferte Quantität														94	
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800														92	
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800														93	
Ugine le 30.06.2012 L'agent Réceptionnaire de l'usine Der Werksachverständige The work inspector														94	
040000589607 Page 2/2														63	

**H.C.T. P442**  
**Checked & Approved by**  
**Parker Hannifin IPDE**  
**02-08-2012 07:18:06 Page 4 of 4**



# HI-TECH

## Special Steels Limited

Rotherham Road, Laughton Common,  
Dinnington, Sheffield S25 3RF  
Tel: Dinnington (01909) 564545  
Fax No (01909) 550682

Registered in England No. 1921116

### Customer

Parker Hannifin Manufacturing Ltd  
Riverside Road  
Pottington Business Park  
Barnstaple  
Devon EX31 1NP

### TEST CERTIFICATE IN ACCORDANCE WITH BS EN 10204 3.1/ISO 10474 3.1

Certificate No.	T58200	Product	Stainless steel bar		
Order No.	Consignment	Cast No.	216052	Specification	1.4404
Our Reference	Z98230/P40412	Quantity	551 Kgs	Size	22mm A/F Hex
Advice Note No.	C1433	Finish	Cold sized		
Heat Treatment	Fully solution treated and water quenched prior to cold sizing				

### Chemical Analysis

C	0.021	Si	0.467	Mn	1.315	S	0.03	P	0.0275
Ni	10.094	Cr	16.555	Mo	2.031	Ti		Nb	
Co		Cu	0.518	N	0.038	W		Ca	
Sn		Ta		V		Al		Fe	

### Mechanical Properties

Tensile Strength	846 Mpa	0.2% Proof Stress	736 Mpa
Reduction of Area	69,0%	Elongation	24,0%
Hardness	24 HRC	Impact Tests	



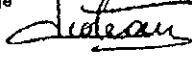
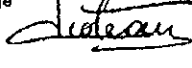
### Special Conditions / Processing Details

In accordance with BS EN 10088-3 2005 1.4404	HCT No : P410
In accordance with MO11/1 Concession	Part No : 7610444302
Free from mercury and radioactive contamination ICC test to ASTM A262 'E' - Satisfactory This material has been solution annealed and is free from grain boundary carbide precipitation Also conforming to ASTM A276/A479 Gr 316/316L	
Manufacturers Test Cert No.	Concessions Agreed


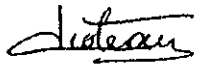
"Certified that the whole of the supplied detailed hereon, unless otherwise stated", are covered by the Sources Certificate of Conformity/Test Certificate referenced hereon, and has been subject to the Quality System requirements in accordance with the conditions of our BS EN ISO 9001 2008 registration, for lot traceable products".

"Certified that the supplies/services detailed hereon have been inspected and tested in accordance with the conditions, requirements of the contract or purchase order and, unless otherwise noted below, conform in all respects to the specification(s)/drawing(s) relevant thereto".

**H.C.T. P410**  
**Checked & Approved by**  
**Parker Hannifin IPDE**  
22/06/2012  
Quality Controller  
**23-06-2012 07:21:48 Page 1 of 4**

Usine productrice Hersteller Manufactururer <b>Ugine</b> <b>Avenue Paul Girod</b> <b>73403 Ugine</b> <b>France</b>		<b>CERTIFICAT DE RECEPTION 3.1</b> <b>INSPECTION CERTIFICATE 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b> ----- <b>EN 10204 / 3.1</b> <b>NF L 00-015 Certified material test report</b>		<b>UGITECH</b> Providing special steel solutions 	
Numéro / Nummer / Number <b>81115520 000010</b>		Ordre de fab. / Auftrag / Prod. Order <b>A1226ZC27000</b>		N° coulée / Schmelzen Nr / Heat N° <b>216052</b>	
Certification - Werkzeugs - Certificate <b>AD 2000-MERKBLATT W0/TRD100</b> <b>Pressure Equipment Directive 97/23/EC</b> <b>ISO 9001</b> <b>ISO/TS 16949</b> <b>ISO 14001</b>		ISO 9100 <b>ISO 9120</b>		Marque d'usine Herstellerzeichen Supplier's Mark  Poinçon de l'expert Prüfstempel Inspector's stamp <b>IQ</b>	
<b>UGIMA 4404HM WIRE ROLLED PICKLED SOLUTION ANNEALED HEXAGONAL 25,000MM</b>					
Produit <b>UGIMA 4404HM FIL LAMINÉ(E) DÉCAPÉ HYPERTREMPÉ(E) HEXAGONAL(E) 25,000MM</b> Erzeugnisform <b>UGIMA 4404HM WALZDRAHT GEWALZT GEBEIZT LÖSUNGSGEGLÜHT SECHSKANT 25,000MM</b> Product <b>UGIMA 4404HM WIRE ROLLED PICKLED SOLUTION ANNEALED HEXAGONAL 25,000MM</b>					
Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consigner <b>19516 HI-TECH SPECIAL STEELS LTD</b>				N° de commande client - Kundenbestellnummer - Purchase order number <b>2950007902</b>	
Norme de référence / Bezugsnorm / Standard for reference <b>ASME SA479 2007 Sect.II &amp; add TYPE 316L</b> <b>EN 10088-1/3ED2005 1.4404</b> <b>AISI 316L</b>					
ASTM A479/A479M-11 TYPE 316L UNS 10th Edition S31603					
Spécification client / Kundenspezifikation / Customer's specification <b>SS-85 - ES 235 FOR ANALYSIS ONLY - 28 JUL.00</b>					
Nombre Stueckzahl Pieces Nbr <b>18</b>		Profil Profile Shape <b>HX</b>		Dimension Ausmessung Dimension <b>25,000 MM</b>	
Longueur Laenge Length <b>21-2</b>		Poids Gewicht Weight <b>19489 KG</b>		22	
Mode d'élaboration Erzeugnisform Melting process <b>EAF + AOD</b> <b>+ CC</b>		N° prélèvement Probenummer Test number <b>3DC3</b>		Demandé / Vorschrift / Required 42 43 44 45 46 47 48 49 % C % Si % Mn % Ni % Cr % Mo % Cu % S Min 1,2500 10,0000 16,5000 2,0000 0,0150 Max 0,0300 0,7500 2,0000 13,0000 18,0000 2,5000 1,0000 0,0300 coulée / Schmelzen / Heat 0,0210 0,4670 1,3150 10,0940 16,5550 2,0310 0,5180 0,0300 Produit / Erzeugnisform / Product	
Demandé / Vorschrift / Required 50 51 52 53 54 55 70 71 72 73 74 75 % P % N Min Max 0,0400 0,1000 coulée / Schmelzen / Heat 0,0275 0,0380 Produit / Erzeugnisform / Product		Demandé / Vorschrift / Required 76 77 78 79 80 81 82 83 84 85 86 87 Min Max coulée / Schmelzen / Heat Produit / Erzeugnisform / Product		Demandé / Vorschrift / Required 76 77 78 79 80 81 82 83 84 85 86 87 Min Max coulée / Schmelzen / Heat Produit / Erzeugnisform / Product	
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800				UGINE le 25.05.2012 L'agent Réceptionnaire de l'usine Der Werksachverständige 	
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800				The work inspector 	

**H.C.T. P410**  
**Checked & Approved by**  
**Parker Hannifin IPDE**  
 23-06-2012 07:21:48 Page 2 of 4

Usine productrice Hersteller Manufacturer		Ugine Avenue Paul Girod 73403 Ugine France		<b>CERTIFICAT DE RECEPTION 3.1</b> <b>INSPECTION CERTIFICATE 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b>  <b>EN 10204 / 3.1</b> <b>NE L 00-015 Certified material test report</b>						<b>UGITECH</b> Providing special steel solutions 																																													
Numéro / Number / Number 81115520 000010		Ordre de fab. / Auftrag / Prod. Order A1226ZC27000		N° coulé / Schmelzen Nr / Heat N° 216052		N° lot MM / Chargen / Batch 1226ZC2700																																																	
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24		90		Mpa Mpa		Mpa		% %		% 40		HB HV HRB HRC																																											
13		Min Max Min Max		20 20		170		30 30 99																																															
N° prélèvement Probenummer Test number 39B		3DC3 1 L		20		263		597		52 54 75																																													
A l'état de Référence / treatment on test sample / Probestreifenbehandlung																																																							
14		25		26A		26B		27		28 89		29 30 88 100 37																																											
Taux de corroyage Forging ratio Verschmiedungsgrad 77,6		<b>Résilience-Kerbschlagzähigkeit-Notch Toughness</b> <table border="1"> <tr> <td>Type Form Type</td> <td>T° C</td> <td>Sens Richtung Direction</td> <td>Min</td> <td>Valeurs individuelles Einzelwerte Individual values</td> <td>Moyenne Mittelwerte Average</td> <td>Expansion latérale Seitliche Breitung Lateral Expansion</td> </tr> <tr> <td>101</td> <td>31</td> <td>33</td> <td>32</td> <td>95</td> <td>35</td> <td>36</td> </tr> <tr> <td colspan="2">A l'état de livraison / Lieferzustand / As delivered</td> <td colspan="2">° C</td> <td>J</td> <td>J</td> <td></td> </tr> <tr> <td colspan="2">13</td> <td colspan="2"></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">A l'état de Référence / treatment on test sample / Probestreifenbehandlung</td> <td colspan="2"></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">14</td> <td colspan="2"></td> <td></td> <td></td> <td></td> </tr> </table>												Type Form Type	T° C	Sens Richtung Direction	Min	Valeurs individuelles Einzelwerte Individual values	Moyenne Mittelwerte Average	Expansion latérale Seitliche Breitung Lateral Expansion	101	31	33	32	95	35	36	A l'état de livraison / Lieferzustand / As delivered		° C		J	J		13							A l'état de Référence / treatment on test sample / Probestreifenbehandlung							14						
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14																																																							
ASTMA479-A479M 08-10A/ASMESA-479 ED .07 SECT.II 2010 NO ADD./QQ-S-763F/AMSQQ-S-763A/ASTMA276 8A-10 FREE FROM WELDS & WELD REPAIRS/FREE FROM MERCURY CONTAMINATION/FREE FROM CONTINUOUS CARBIDE NETWORK QUALITY MANUAL REV.E OF 22 NOV.2009 MATERIAL IS SOLUTION ANNEALED INTERGRANULAR CORROSION PER ASTM A262 PRACTICES A & E ACCEPTABLE PROVISION OF 10 CFR PART 21 & 10 CFR PART 50 APP.B APPLY COUNTRY OF MELT SOURCE : FRANCE																																																							
Quantité livrée / delivered quantity / gelieferte Quantität																																																							
82		84																																																					
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UGINE le 25.05.2012 L'agent Réceptionnaire de l'usine Der Werk Sachsverständige The work Inspector  040000574203 Page 2/2																																																							



**Special Testing Ltd**  
Bacon Lane, Sheffield S9 3NH  
Tel: 0114 244 1061  
Fax: 0114 244 0444 Works  
www.specialtesting.co.uk

## Test Certificate 210988

AUTHENTICATION CODE BD7645D69CFD  
ROLLS ROYCE APPROVED LABORATORY  
Approval No. 11191

CUSTOMER  
HI-TECH SPECIAL STEELS LTD  
ALLOY & METAL WORKS, ROTHERHAM RD  
LAUGHTON COMMON, DUNNINGTON  
SHEFFIELD S25 3RF  
DATE RECEIVED 20 June 2012  
TEST DATE 22 June 2012



CUSTOMER ORDER NO	PRD2387	TEST NUMBER	210988	IDENTITY	P40412	CAST*	216052	ALL REQUIREMENTS MIN UNLESS STATED			
SPECIFICATION	BS EN10088-3:2005 (X2CrNiMo17-12-2) 1.4404							TEST PIECE FROM*			
TENSILE: BS EN ISO 6892-1:2009 A224	0.2% PROOF		1.0% PROOF		UTS		ELONG ON		%	R OF A %	COMMENTS
OR TEMP	SECTION	AREA SQ	UNIT	REQUIREMENTS							
L RT	10.00mm	78.54mm²	Mpa	RESULTS	736	814	846	50mm	24.0	69.0	N/A
HARDNESS: BS EN ISO 6506-1:2005				DESIGNATION	REQUIREMENTS		RESULTS				
BRINELL (MID RADIAL)				HBW 10/3000	N/A		257				
HARDNESS: BS EN ISO 6508-1:2005				DESIGNATION	REQUIREMENTS		RESULTS				
ROCKWELL C (MID RADIAL)				HRC	N/A		24				

2410

proved by

END OF CERTIFICATE

REPRESENTING\*

No copy is authentic without the embossed seal and signature. This certificate can be authenticated at [www.specialtesting.co.uk](http://www.specialtesting.co.uk) with the code BD7645D69CFD

This certificate shall not be reproduced, except in full, without the written approval of the laboratory.

For and on behalf of  
**SPECIAL TESTING LTD**  
A Member of the Special Steel Group of Companies

Kath Elliott  
Certification Officer

Test results do not in any way confer approval of the quality of manufacture of the material. All results are subject to uncertainty of measurement budgets, details available upon request.  
Information marked \* is supplied by the customer.

**H.C.T. P410**  
Checked & Approved by  
Parker Hannifin IPDE  
23-06-2012 07:21:48 Page 4 of 4



22/6/12



# R.T.I. S.P.A.

SEDE LEGALE E AMMINISTRATIVA  
Via Ambrosoli 2/a - 20090 Rodano Millepini MI  
Tel: +39 0295328610 r.a. Fax: +39 0295328611  
C.F.: 00659860191 - P.Iva/V.A.T.: 10003740155

Messers

DESMET BALLESTRA S.P.A.

VIA PIERO PORTALUPPI, 17

20138 MILANO

MI

Rodano, 31 ottobre 2012

P.O.NO.	122056	of	12/09/12
Bill NO.	0005276	of	31/10/12

\*\*\*\*\*  
CERTIFICATE OF CONFORMITY - INSTRUMENTATION FITTINGS/VALVES NO. 0028127  
\*\*\*\*\*

We certify that the Parker Instrumentation fittings supplied against your order have been manufactured and tested in accordance with the following :

## 1. Quality assurance

Quality assurance procedures conform fully with EN ISO 9001:2008.  
Formal quality approval is certified by Lloyds Register of Quality Assurance; approval certificate No. DNV 73760-2010-AQ-GBR-UKAS.  
In the production or testing of stainless steel components shipped against your order, non mercury was used in directly connected manometers, seals, pumps or glass thermometers; nor in such production or testing was mercury being handled in the immediate vicinity of such material.  
All markings have been applied by either low stress stamping or electro-chemical etching.

## 2. Materials

Material used conform to one or more of the following specifications :

- |       |  |  |
|-------|--|--|
| 2.1   | 316 Stainless steel bar stock :                    | - BS970 PART 1 GRADE 316 S31 / EN10088-3 Grade 1.4401 / DIN 17440 WERKSTOFF 1.4401/ASME SA479-316. |
| 2.1.1 | 316L Stainless steel bar stock :                   | - BS970 PART 1 GRADE 316 S11 / EN10088-3 Grade 1.4404 / DIN 17440 WERKSTOFF 1.4404/ASME SA479-316L |
| 2.1.2 | 316 Stainless steel forgings :                     | - BS970 PART 1 GRADE 316 S31 / EN10088-3 Grade 1.4401 / DIN 17440 WERKSTOFF 1.4401/ASME SA182-316. |
| 2.2   | Brass bar stock :                                  | BS2874 CZ121<br>ASTM B16 ALLOY 360<br>ASTM B453 ALLOY 345  |
| 2.2.1 | Brass forgings :                                   | BS2872 CZ122<br>ASTM B124 ALLOY 377  |
| 2.3   | Carbon steel bar stock :                           | ASTM A108  |
| 2.3.1 | Carbon steel forgings :                            | ASTM A576  |
| 2.4   | bronze) bar stock :                                | NES 833 PART 2<br>GRADE 1  |
| 2.4.1 | High duty bronze (aluminium bronze) forgings :     | NES 833 PART 2<br>GRADE 2  |
| 2.5   | Monel (nickel copper alloy) bar stock/forgings :   | BS3076 NA13<br>ASTM B164   |
| 2.6   | 6% molybdenum stainless steel bar stock/forgings : | UNS S31254   |

Parker Hannifin S.P.A.

R.T.I.SPA declares that the above certificate is copy conform to the original

XCERT03

Web site: [www.rti-tec.it](http://www.rti-tec.it)  
email: [info@rti-tec.it](mailto:info@rti-tec.it)  
MOD PARK 01  
Date 19/11/11  
Rev. 0

Cap.Soc. 180.000 i.v.  
Iscriz. Trib. Milano n. 302998 - C.C.I.A.A. 1334658







# R.T.I. S.P.A.

SEDE LEGALE E AMMINISTRATIVA  
Via Ambrosoli 2/a - 20090 Rodano Millepini MI  
Tel: +39 0295328610 r.a. Fax: +39 0295328611  
C.F.: 00659860191 - P.Iva/V.A.T.: 10003740155

Item	Description	Q.ty	U.M.
EHC2180	UNIONE A TEE 12MMOD MOD.ETM12-316	29,000	PZ
EHC2180	UNIONE A TEE 12MMOD MOD.ETM12-316	3,000	PZ
EHC2300	TERM. DIRITTO MASCHIO 12MMODX1/4"NPT MOD.M12MSC1/4N-316	57,000	PZ
EHC2300	TERM. DIRITTO MASCHIO 12MMODX1/4"NPT MOD.M12MSC1/4N-316	3,000	PZ
EHC2310	TERM. DIRITTO MASCHIO 12MMODX1/2"NPT MOD.M12MSC1/2N-316	12,000	PZ
EHC2310	TERM. DIRITTO MASCHIO 12MMODX1/2"NPT MOD.M12MSC1/2N-316	125,000	PZ
EPA0670	TERM. DIRITTO MASCHIO OTTONE 6MMODX1/4"NPT MOD.FBMB6-1/4	122,000	PZ
EPA0740	TERM. DIRITTO MASCHIO OTTONE 12MMODX1/2"NPT MOD.FBMB12-1/2	16,000	PZ
EPA0950	TERM. DIRITTO MASCHIO OTTONE 6MMODX1/4"BSPT MOD.F3BMB6-1/4	16,000	PZ
EPA0950	TERM. DIRITTO MASCHIO OTTONE 6MMODX1/4"BSPT MOD.F3BMB6-1/4	4,000	PZ
EPA1380	TERM. DIRITTO FEMMINA OTTONE 6MMODX1/4"NPT MOD.GBMB6-1/4	30,000	PZ
EPA1850	UNIONE A TEE OTTONE 6MMOD MOD.JBMB6	6,000	PZ
EPA2430	DADO CON ANELLO OTTONE 12MMOD MOD.BTMB12	10,000	PZ
FLA0527	VALVOLA SFERA SERIE HY-PRO 6000 PSI AISI 316 1/2"NPTF MOD. HPBYB8FF	34,000	PZ
FLA0527	VALVOLA SFERA SERIE HY-PRO 6000 PSI AISI 316 1/2"NPTF MOD. HPBYB8FF	10,000	PZ
FLA0539	VALVOLA SFERA MONOBLOCCO 6000 PSI PTFE PACKING/PTFE SEAT 316/316L 1/4"NPTF MOD. HPBYB4FF	29,000	PZ
FLA0539	VALVOLA SFERA MONOBLOCCO 6000 PSI PTFE PACKING/PTFE SEAT 316/316L 1/4"NPTF MOD. HPBYB4FF	9,000	PZ

Cordiali saluti.  
Best regards.

R.T.I. S.p.A.  
Doneda Massimo

XCERTXP

Web site: [www.rti-tec.it](http://www.rti-tec.it)  
email: [info@rti-tec.it](mailto:info@rti-tec.it)  
MOD PARK 01  
Date 19/11/11  
Rev. 0

Cap.Soc. 180.000 i.v.  
Iscriz. Trib. Milano n. 302998 - C.C.I.A.A. 1334658







# R.T.I. S.P.A.

SEDE LEGALE E AMMINISTRATIVA  
Via Ambrosoli 2/a - 20090 Rodano Millepini MI  
Tel: +39 0295328610 r.a. Fax: +39 0295328611  
C.F.: 00659860191 - P.Iva/V.A.T.: 10003740155

Messers

DESMET BALLESTRA S.P.A.

VIA PIERO PORTALUPPI, 17

20138 MILANO

MI

Rodano, 31 ottobre 2012

P.O.NO.	122056	of	12/09/12
Bill NO.	0005276	of	31/10/12

\*\*\*\*\*  
CONFORMANCE CERTIFICATE FOR MATERIAL SHIPPED NO. 0028126  
\*\*\*\*\*

In conformity with the original documentation enclosed, Parker Hannifin Spa  
Hereby certifies that material supplied as indicated above were manufactured  
in conformance with material and/or manufacturing specification indicated said  
purchase order.

If requested, component listed below are marked with traceable code number  
specified.

Parker Hannifin S.P.A.

R.T.I SPA declares that the above certificate is copy conform to the original.

XCERT02

Web site: [www.rti-tec.it](http://www.rti-tec.it)  
email: [info@rti-tec.it](mailto:info@rti-tec.it)  
MOD PARK 01  
Date 19/11/11  
Rev. 0

Cap.Soc. 180.000 i.v.  
Iscriz. Trib. Milano n. 302998 - C.C.I.A.A. 1334658





## R.T.I. S.P.A.

SEDE LEGALE E AMMINISTRATIVA

Via Ambrosoli 2/a - 20090 Rodano Millepini MI

Tel: +39 0295328610 r.a. Fax: +39 0295328611

C.F.: 00659860191 - P.Iva/V.A.T.: 10003740155

Item	Description	Q.ty	U.M.
EUA0002	N12X1/1-50	50,000	MT
EUA0023	N6X1/1-50	50,000	MT

Cordiali saluti.  
Best regards.

R.T.I. S.p.A.  
Doneda Massimo

XCERTXP

Web site: [www.rti-tec.it](http://www.rti-tec.it)

email: [info@rti-tec.it](mailto:info@rti-tec.it)

MOD PARK 01

Date 19/11/11

Rev. 0

Cap.Soc. 180.000 i.v.  
Iscriz. Trib. Milano n. 302998 - C.C.I.A.A. 1334658





# HI-TECH

## Special Steels Limited

Rotherham Road, Laughton Common,  
Dinnington, Sheffield S25 3RF  
Tel: Dinnington (01909) 564545  
Fax No (01909) 550682

Registered in England No. 1921116

### Customer

David Paull (CNC)  
T/A DP Eng Ltd  
Jon Davey Drive  
Treleigh Ind Est  
Redruth TR16 4AX

### TEST CERTIFICATE IN ACCORDANCE WITH BS EN 10204 3.1/ISO 10474 3.1

Certificate No.	T58120	Product	Stainless steel bar		
Order No.	Consignment	Cast No.	146099	Specification	1.4404
Our Reference	Z97374/P40337	Quantity	170 Kgs	Size	1.25" A/F Hex
Advice Note No.	DP183	Finish	Linished		
Heat Treatment	Fully solution treated and water quenched prior to cold sizing				

### Chemical Analysis

C	0.021	Si	0.49	Mn	1.34	S	0.025	P	0.0263
Ni	11.119	Cr	16.63	Mo	2.048	Ti		Nb	
Co		Cu		N	0.029	W		Ca	
Sn		Ta		V		Al		Fe	

### Mechanical Properties

Tensile Strength	657 Mpa	0.2% Proof Stress	521 Mpa
Reduction of Area	72,0%	Elongation	38,0%
Hardness	17 HRC	Impact Tests	

### Special Conditions / Processing Details

In accordance with BS EN 10088-3 2005 1.4404  
In accordance with MO19/1  
Conforming to NACE MR0175/MR0103  
Free from mercury and radioactive contamination  
ICC test to ASTM A262 'E' - Satisfactory  
Also conforming to ASTM A276/A479 Gr 316/316L & ASTM A182 F316/316L

HCT No : P344

Part No : 7711238202



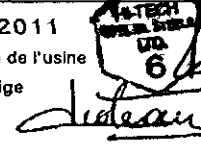
Manufacturers Test Cert No.


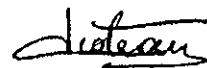
Concessions Agreed

"Certified that the whole of the supplied detailed hereon, unless otherwise stated\*, are covered by the Sources Certificate of Conformity/Test Certificate referenced hereon, and has been subject to the Quality System requirements in accordance with the conditions of our BS EN ISO 9001 2008 registration, for lot traceable products".

"Certified that the supplies/services detailed hereon have been inspected and tested in accordance with the conditions, requirements of the contract or purchase order and, unless otherwise noted below, conform in all respects to the specification(s)/drawing(s) relevant thereto".

**H.C.T. P344**  
**Checked & Approved by**  
**Parker Hannifin IPDE**  
25/04/2012  
Quality Controller  
25-04-2012 17:02:14 Page 1 of 4

Usine productrice Hersteller Manufacturer		Ugine Avenue Paul Girod 73403 Ugine France		<b>INSPECTION CERTIFICATE 3.1</b> <b>CERTIFICAT DE RECEPTION 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b> ----- <b>EN 10204 / 3.1</b>				<b>UGITECH</b> Providing special steel solutions						
		5						3		1				
Numéro / Nummer / Number <b>81050969 000010</b>		Ordre de fab. / Auftrag / Prod. Order <b>A1146JH04000</b>		N°coulée / Schmelzen Nr / Heat N° <b>146099</b>				N°lot MM / Chargen / Batch <b>1146JH0400</b>						
		4		11-1				11-2				11-3		
Certification - Werkzeugnis - Certificate <b>AD 2000-MERKBLATT W0/TRD100</b> <b>Pressure Equipment Directive 97/23/EC</b> <b>ISO 9001</b> <b>ISO/TS 16949</b> <b>ISO 14001</b>				<b>ISO 9100</b> <b>ISO 9120</b>				Marque d'usine Herstellerzeichen Supplier's Mark  Poinçon de l'expert Prüfstempe Inspector's stamp <b>IQ</b>						
				99				98				97		
<b>UGIMA 316LFG BAR ROLLED BLACK SOLUTION ANNEALEDHEXAGONAL 34,000MM LONG. 5,460M + 200,000MM -0,000MM</b> Produit <b>UGIMA 316LFG BARRE LAMINÉ(E) NOIR(E) HYPERTREMPÉ(E) HEXAGONAL(E) 34,000MM LONG. 5,460M + 200,000MM</b> Erzeugnisform <b>UGIMA 316LFG STAB GEWALTZT SCHWARZ ABGESCHRECKTSECHSKANT 34,000MM LONG. 5,460M + 200,000MM -0,000</b> Product <b>UGIMA 316LFG BAR ROLLED BLACK SOLUTION ANNEALEDHEXAGONAL 34,000MM LONG. 5,460M + 200,000MM -0,00</b>														
6														
Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consigner <b>19516 HI-TECH SPECIAL STEELS LTD</b>						N°de commande client - Kundenbestellnummer - Purchase order number <b>2950005871</b>								
						9						10		
Norme de référence / Bezugsnorm / Standard for reference <b>AISI 316L</b>  <b>EN 10088-3 ED 2005 1.4404</b>														
12-2														
Spécification client / Kundenspezifikation / Customer's specification -														
12-3														
Nombre Stueckzahl Pieces Nbr <b>168</b>		Profil Profile Shape <b>HX</b>		Dimension Ausmessung Dimension <b>34,000 MM</b>		Longueur Laenge Length <b>5,460</b>		Poids Gewicht Weigh <b>7394 KG</b>						
		18		19		21-1		21-2		22				
Mode d'élaboration Erchmelzungsart Melting process <b>EAF + AOD</b> <b>+ CC</b>		N°prélèvement Probenummer Test number <b>2NHH</b>		Demandé / Vorschrift / Required % C % Si % Mn % Ni % CR % MO % S % P Min 10,0000 16,5000 2,0000 Max 0,0300 0,7500 2,0000 13,0000 18,0000 2,5000 0,0300 0,0450 coulée/ Schmelzen / Heat 0,0210 0,4900 1,3400 11,1190 16,6300 2,0480 0,0250 0,0263 Produit / Erzeugnisform/ Product										
		38		39A										
Demandé / Vorschrift / Required % N Min Max		50 51 52 53 54 55 70 71 72 73 74 75		0,1000 0,0290										
		76		77 78 79 80 81 82 83 84 85 86 87										
Demandé / Vorschrift / Required Min Max		76 77 78 79 80 81 82 83 84 85 86 87		0,0290										
		76		77 78 79 80 81 82 83 84 85 86 87										
coulée/ Schmelzen / Heat Produit / Erzeugnisform/ Product		76 77 78 79 80 81 82 83 84 85 86 87												
		76		77 78 79 80 81 82 83 84 85 86 87										
The contents of this report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800.														
66-1														
Ugine le 00.12.2011 L'agent Réceptionnaire de l'usine Der Werksachverständige The work Inspector														
66-2														
We declare that the mentioned product is in compliance with the requirements of the contract and that, after checks and tests, it meets in all respects the specified requirements and applicable standards and regulations, except reservations or exceptions as listed in this declaration of conformity ; Document validated by electronic signature. Material manufactured in the REACH regulation respect. 														
66-2														
040000534037 Page 1/2														

Usine productrice Hersteller Manufacturer <b>Ugine</b> Avenue Paul Giron 73403 Ugine France		<b>INSPECTION CERTIFICATE 3.1</b> <b>CERTIFICAT DE RECEPTION 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b> ----- <b>EN 10204 / 3.1</b>				<b>UGITECH</b> Providing special steel solutions 													
Numéro / Nummer / Number <b>81050969 000010</b>		Ordre de fab. / Auftrag / Prod. Order <b>A1146JH04000</b>		N°coulée / Schmelzen Nr / Heat N° <b>146099</b>		N°lot MM / Chargen / Batch <b>1146JH0400</b>													
24 13 Min Max Min Max		90 °C 20 20		Limite d'élasticité Streckgrenze Yield Strength 0,2% 1% Mpa Mpa 200 235		RM Zugfestigkeit Tensile Mpa 500 700		Allongement Bruchdehnung Elongation A5D A4D % % 40		Striction Einschnürung Red area % 75		Dureté-Haerte-Hardness HB HV HRB HRC 215							
N°prélèvement Probenummer Test number <b>2NHH</b> <b>1</b>		120 L 1		20		314 354		566		53		75		162					
A l'état de Référence / treatment on test sample / Probestreifenbehandlung 14		25		26A 26B		27		28 89		29		30 88 100		37					
Taux de corroyage Forging ratio Verschmiedungsgrad <b>42,0</b>		101		Résilience-Kerbschlagzähigkeit-Notch Toughness															
A l'état de livraison / Lieferzustand / As delivered solution annealed 13		31 KISOV		33 °C 20		32 Sens Richtung Direction L		95 Min J 100		35 Valeurs Individuelles Einzelwerte Individual values J 201-214-204 -- --		36 Moyenne Mittelwerte Average J 206		91 Expansion latérale Seitliche Breitung Lateral Expansion					
A l'état de Référence / treatment on test sample / Probestreifenbehandlung 14																			
INTERCRYSTALLINE CORROSION RESISTANT ACCORDING TO ASTM A262 PRACTICE E INTERCRYSTALLINE CORROSION RESISTANT ACC. TO ISO 3651-2																			
HI-TECH SPECIAL STEEL																			
Quantité livrée / delivered quantity / gelieferte Quantität 92		93																	
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800																			
We declare that the mentioned product is in compliance with the requirements of the contract, and that, after checks and tests, it meets in all respects the specified requirements and applicable standards & prescriptions, except reservations or exceptions as listed in this declaration of conformity; Document validated by electronic signature. Material manufactured in the REACH-regulation respect																			
H.C.T. P344 88-1 L'agent Réceptionnaire de l'usine Der Werksachverständige The work Inspector 89-2 040000534037										Ugine le 06.12.2011  Page 2/2									



**Special Testing Ltd**  
 Bacon Lane, Sheffield S9 3NH  
 Tel: 0114 244 1061  
 Fax: 0114 244 0444 Works  
 Fax: 0114 244 5566 Acc/Admin  
 www.specialtesting.co.uk

## Test Certificate 205355

AUTHENTICATION CODE 4DC5F2D1DB71  
 ROLLS ROYCE APPROVED LABORATORY  
 Approval No 11191

CUSTOMER  
 HI-TECH SPECIAL STEELS LTD  
 ALLOY & METAL WORKS, ROTHERHAM RD  
 LAUGHTON COMMON, DUNNINGTON  
 SHEFFIELD S25 3RF  
 DATE RECEIVED 17 April 2012  
 TEST DATE 18 April 2012



CUSTOMER ORDER NO	PRD2090	TEST NUMBER	205355	IDENTITY	P40337	CAST	146099	ALL REQUIREMENTS MIN UNLESS STATED				
SPECIFICATION	BS EN10088-3 2005 (X2CrNiMo17-12-2) 1 4404					SIZE OF TEST PIECE	1 1/4" AF HEX					
TENSILE: BS EN ISO 6892-1:2009 A224						0.2% PROOF	1.0% PROOF	UTS	ELONG ON	%	R OF A %	COMMENTS
OR TEMP	SECTION	AREA SQ	UNIT	REQUIREMENTS								
L RT	10.02mm	78.85mm²	Mpa	RESULTS		521	552	657	50mm	38.0	72.0	N/A
HARDNESS: BS EN ISO6506-1 2005												
BRINELL (MID RADIAL)				DESIGNATION	REQUIREMENTS	RESULTS						
				HBW 10/3000	N/A	214						
HARDNESS: BS EN ISO6508-1 2005												
ROCKWELL C (MID RADIAL)				DESIGNATION	REQUIREMENTS	RESULTS						
				HRC	N/A	17						
ROCKWELL B				HRBW	N/A	95						

P344

Approved by

END OF CERTIFICATE

REPRESENTING	<p>No copy is authentic without the embossed seal and signature. This certificate can be authenticated at www.specialtesting.co.uk with the code 4DC5F2D1DB71</p> <p>This certificate shall not be reproduced except in full, without the written approval of the laboratory</p> <p>For and on behalf of  <b>SPECIAL TESTING LTD</b>          A Member of the Special Steel Group of Companies          Steve Pearce          Certification Manager</p>
--------------	---

Test results do not in any way confer approval of the quality of manufacture of the material. All results are subject to uncertainty of measurement budgets details available upon request.

**H.C.T. P344**  
 Checked & Approved by  
 Parker Hannifin IPDE  
 25-04-2012 17:02:14 Page 4 of 4



# HI-TECH

## Special Steels Limited

Rotherham Road, Laughton Common,  
Dinnington, Sheffield S25 3RF  
Tel: Dinnington (01909) 564545  
Fax No (01909) 550682

Registered in England No. 1921116

### Customer

David Paull CNC  
T/A DP Eng Ltd  
Jon Davey Drive  
Treleigh Ind Est  
Redruth TR16 4AX

### TEST CERTIFICATE IN ACCORDANCE WITH BS EN 10204 3.1/ISO 10474 3.1

Certificate No.	T58143	Product	Stainless steel bar		
Order No.	Consignment	Cast No.	151022	Specification	1.4404
Our Reference	Z97740/P40363	Quantity	510 Kgs	Size	41mm A/F Hex
Advice Note No.	DP164	Finish	Linished		
Heat Treatment	Fully solution treated and water quenched prior to cold sizing				

### Chemical Analysis

C	0.015	Si	0.5313	Mn	1.3302	S	0.0258	P	0.0239
Ni	11.101	Cr	16.648	Mo	2.0306	Ti		Nb	
Co		Cu		N	0.028	W		Ca	
Sn		Ta		V		Al		Fe	

### Mechanical Properties

Tensile Strength	615 Mpa	0.2% Proof Stress	492 Mpa
Reduction of Area	73,0%	Elongation	43,0%
Hardness	16 HRC	Impact Tests	

### Special Conditions / Processing Details

In accordance with BS EN 10088-3 2005 1.4404  
In accordance with MO19/1  
Conforming to NACE MR0175/MR0103  
Free from mercury and radioactive contamination  
ICC test to ASTM A262 'E' - Satisfactory  
Also conforming to ASTM A276/A479 Gr 316/316L & ASTM A182 F316/316L

HCT No : P361

Part No : 7610828204




Manufacturers Test Cert No.

Concessions Agreed


"Certified that the whole of the supplied detailed hereon, unless otherwise stated", are covered by the Sources Certificate of Conformity/Test Certificate referenced hereon, and has been subject to the Quality System requirements in accordance with the conditions of our BS EN ISO 9001 2008 registration, for lot traceable products".

"Certified that the supplies/services detailed hereon have been inspected and tested in accordance with the conditions, requirements of the contract or purchase order and, unless otherwise noted below, conform in all respects to the specification(s)/drawing(s) relevant thereto".

**H.C.T. P361**  
**Checked & Approved by**  
**Parker Hannifin**  
16-05-2012  
Quality Controller  
16-05-2012 10:29:28 Page 1 of 4

Usine productrice Hersteller Manufacturer Ugine Avenue Paul Girod 73403 Ugine France		INSPECTION CERTIFICATE 3.1 CERTIFICAT DE RECEPTION 3.1 ABNAHMEPRUEFZEUGNIS 3.1 ----- EN 10204 / 3.1			UGITECH Providing special steel solutions				
Numéro / Nummer / Number 81080957 000010		Ordre de fab. / Auftrag / Prod. Order A1146LR97000		N° coulé / Schmelzen Nr / Heat N° 151022		N° lot MM / Chargen / Batch 1146LR9700			
Certification - Werkzeugs - Certificate AD 2000-MERKBLATT W0/TRD100 Pressure Equipment Directive 97/23/EC ISO 9001 ISO/TS 16949 ISO 14001				Marque d'usine Herstellerzeichen Supplier's Mark 		Poligon de l'expert Prüfstempel Inspector's stamp 			
UGIMA 316LFG BAR ROLLED BLACK SOLUTION ANNEALED HEXAGONAL 43,000MM LONG. 5,800M + 200,0 00MM -0,000MM Produit UGIMA 316LFG BARRE LAMINÉ(E) NOIR(E) HYPERTREMPÉ(E) HEXAGONAL(E) 43,000MM LONG. 5,800M + 200,000MM Erzeugnisform UGIMA 316LFG STAB GEWALZT SCHWARZ LÖSUNGSGEGLÜHT SECHSKANT 43,000MM LONG. 5,800M + 200,000MM -0,0 Product UGIMA 316LFG BAR ROLLED BLACK SOLUTION ANNEALED HEXAGONAL 43,000MM LONG. 5,800M + 200,000MM -0,00									
Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consigner 19516 HI-TECH SPECIAL STEELS LTD				N° de commande client - Kundenbestellnummer - Purchase order number 2950006645					
Norme de référence / Bezugsnorm / Standard for reference AISI 316L EN 10088-3 ED 2005 1.4404									
Spécification client / Kundenspezifikation / Customer's specification									
Nombre Stückzahl Pieces Nbr 196		Profil Profile Shape HX		Dimension Ausmessung Dimension 43,000 MM		Longueur Länge Length 5,800		Poids Gewicht Weight 14512 KG	
Mode d'élaboration Erhmel zungsart Melting process EAF + AOD + CC		N° prélèvement Probenummer Test number 2TMM		Demandé / Vorschrift / Required % C Min Max 0,0300 0,7500 2,0000 0,0150		% SI Min Max 0,5313 0,5313		% MN Min Max 1,3302 1,3302	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 48 49		50 51 52 53 54 55 70 71 72 73 74 75		56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75	
38		39A		42 43 44 45 46 47 					



Usine productrice Hersteller Manufacturer <b>Ugine</b> <b>Avenue Paul</b> <b>Girod</b> <b>73403 Ugine</b> <b>France</b>		<b>INSPECTION CERTIFICATE 3.1</b> <b>CERTIFICAT DE RECEPTION 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b> ----- <b>EN 10204 / 3.1</b>				<b>UGITECH</b> Providing special steel solutions 											
Numéro / Nummer / Number <b>81080957 000010</b>		Ordre de fab. / Auftrag / Prod. Order <b>A1146LR97000</b>		N° coulée / Schmelzen Nr / Heat N° <b>151022</b>		N° lot MM / Chargen / Batch <b>1146LR9700</b>											
		Limite d'élasticité Streckgrenze Yield Strength 0,2% 1% Mpa Mpa <b>200 235</b>		RM Zugfestigkeit Tensile Mpa <b>500 700</b>		Allongement Bruchdehnung Elongation A5D A4D % % <b>40</b>		Striction Einschnürung Red area % <b>77</b>		Dureté-Haerte-Hardness HB HV HRB HRC <b>215</b>							
N° prélèvement Probenummer Test number <b>2TMM</b> <b>120 L</b> <b>1.0</b>		20		340 380		584 56		77		167							
A l'état de Référence / treatment on test sample / Probestreifenbehandlung <b>14</b>		25		26A 26B		27		28 89		29 30 88 100							
Taux de corroyage Forging ratio Verschmiedungsgrad <b>26,2</b>		Résilience-Kerbschlagzähigkeit-Notch Toughness															
A l'état de livraison / Lieferzustand / As delivered solution annealed <b>13</b>		Type Form Type <b>KISOV</b>		TC °C <b>20</b>		Sens Richtung Direction <b>L</b>		Min J <b>100</b>		Valeurs individuelles Einzelwerte Individual values <b>J 224-206-237</b>		Moyenne Mittelwerte Average <b>J 222</b>		Expansion latérale Seitliche Breitung Lateral Expansion <b>91</b>			
A l'état de Référence / treatment on test sample / Probestreifenbehandlung <b>14</b>																	
INTERCRYSTALLINE CORROSION RESISTANT ACCORDING TO ASTM A262 PRACTICE E												<b>5</b>					
INTERCRYSTALLINE CORROSION RESISTANT ACC. TO ISO 3651-2												<b>6</b>					
Quantité livrée / delivered quantity / gelieferte Quantität <b>92</b>														<b>93</b>		<b>94</b>	
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800														Ugine le 29.02.2012 L'agent Réceptionnaire de l'usine Der Werkachverständige The work inspector <b>040000540876</b> Page 2/2			
We declare that the mentioned product is in compliance with the requirements of the contract and that, after checks and tests, it meets in all respects the specified requirements and applicable standards and regulations, except reservation or exceptions as listed in this declaration of conformity ; Document validated by electronic signature. Material manufactured in the REACH regulation respect														<b>63</b>			

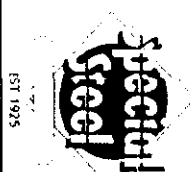


**Special Testing Ltd**  
 Bacon Lane, Sheffield S9 3NH  
 Tel: 0114 244 1061  
 Fax: 0114 244 0444 Works  
 Fax: 0114 244 5566 Acc/Admin  
 www.specialtesting.co.uk

## Test Certificate 207400

**AUTHENTICATION CODE 71C2AC4EEBDF**  
**ROLLS ROYCE APPROVED LABORATORY**  
 Approval No. 11191

**CUSTOMER**  
 HI-TECH SPECIAL STEELS LTD  
 ALLOY & METAL WORKS, ROTHERHAM RD  
 LAUGHTON COMMON, DUNNINGTON  
 SHEFFIELD S25 3RF  
**DATE RECEIVED** 09 May 2012  
**TEST DATE** 14 May 2012



CUSTOMER ORDER NO	PRD2299	TEST NUMBER	207400	IDENTITY	P40363	CAST*	151022	ALL REQUIREMENTS MIN UNLESS STATED				
SPECIFICATION	BS EN10088-3:2005 (X2CrNiMo17-12-2) 1.4404					TEST PIECE FROM*	41MM A/F HEX					
TENSILE: BS EN ISO 6892-1:2009 A224						0.2% PROOF	1.0% PROOF	UTS	ELONG ON	%	R OF A %	COMMENTS
OR TEMP	SECTION	AREA SQ	UNIT	REQUIREMENTS								
L RT	10.00mm	78.54mm²	Mpa	RESULTS		429	466	615	50mm	43.0	73.0	N/A
HARDNESS: BS EN ISO 6506-1 2005				DESIGNATION	REQUIREMENTS	RESULTS						
BRINELL (MID RADIAL)				HBW 10/3000	N/A	181						
HARDNESS: BS EN ISO 6508-1 2005				DESIGNATION	REQUIREMENTS	RESULTS						
ROCKWELL C (MID RADIAL)				HRC	N/A	16						

2361

proved by

END OF CERTIFICATE

REPRESENTING\*

No copy is authentic without the embossed seal and signature. This certificate can be authenticated at www.specialtesting.co.uk with the code 71C2AC4EEBDF  
 This certificate shall not be reproduced, except in full, without the written approval of the laboratory.

For and on behalf of  
**SPECIAL TESTING LTD**

A Member of the Special Steel Group of Companies

Janice Mooney  
 General Manager

Test results do not in any way confer approval of the quality of manufacture of the material. All results are subject to uncertainty of measurement budgets details available upon request.  
 Information marked \* is supplied by the customer.

**H.C.T. P361**  
**Checked & Approved by**  
**Parker Hannifin IPDE**  
 16-05-2012 10:29:28 Page 4 of 4



14/5/12



# HI-TECH

## Special Steels Limited

Rotherham Road, Laughton Common,  
Dinnington, Sheffield S25 3RF  
Tel: Dinnington (01909) 564545  
Fax No (01909) 550682

Registered in England No. 1921116

### Customer

David Paull CNC  
T/A DP Eng Ltd  
Jon Davey Drive  
Treleigh Ind Est  
Redruth TR16 4AX

### TEST CERTIFICATE IN ACCORDANCE WITH BS EN 10204 3.1/ISO 10474 3.1

Certificate No.	T58239	Product	Stainless steel bar	
Order No.	Consignment	Cast No.	215162	Specification 1.4404
Our Reference	Z98351/P40445	Quantity	523 Kgs	Size 41mm A/F Hex
Advice Note No.	DP178	Finish	Linished	
Heat Treatment	Fully solution treated and water quenched prior to cold sizing			

### Chemical Analysis

C	0.012	Si	0.505	Mn	1.322	S	0.0241	P	0.026
Ni	11.109	Cr	16.646	Mo	2.037	Ti		Nb	
Co		Cu		N	0.027	W		Ca	
Sn		Ta		V		Al		Fe	

### Mechanical Properties

Tensile Strength	625 Mpa	0.2% Proof Stress	472 Mpa
Reduction of Area	76,0%	Elongation	41,0%
Hardness	16 HRC	Impact Tests	

### Special Conditions / Processing Details

In accordance with BS EN 10088-3 2005 1.4404  
In accordance with MO19/1  
Conforming to NACE MR0175/MR0103  
Free from mercury and radioactive contamination  
ICC test to ASTM A262 'E' - Satisfactory  
Also conforming to ASTM A276/A479 Gr 316/316L & ASTM A182 F316/316L

HCT No : P431

Part No : 7610828204



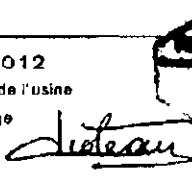
Manufacturers Test Cert No.

Concessions Agreed


"Certified that the whole of the supplied detailed hereon, unless otherwise stated", are covered by the Sources Certificate of Conformity/Test Certificate referenced hereon, and has been subject to the Quality System requirements in accordance with the conditions of our BS EN ISO 9001 2008 registration, for lot traceable products".

"Certified that the supplies/services detailed hereon have been inspected and tested in accordance with the conditions, requirements of the contract or purchase order and, unless otherwise noted below, conform in all respects to the specification(s)/drawing(s) relevant thereto".

**H.C.T. P431**  
**Checked & Approved by**  
**Parker Hannifin**  
Quality Controller  
18-07-2012 14:17:27 Page 1 of 4

Usine productrice Hersteller Manufactureur <b>Ugine</b> <b>Avenue Paul Girod</b> <b>73403 Ugine</b> <b>France</b>		<b>INSPECTION CERTIFICATE 3.1</b> <b>CERTIFICAT DE RECEPTION 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b>  <b>EN 10204 / 3.1</b>		<b>UGITECH</b> Providing optimal steel solutions 	
Numéro / Nummer / Number <b>81108856 000010</b>		Ordre de fab. / Auftrag / Prod. Order <b>A1226ZQ75000</b>		N° coulé / Schmelzen Nr / Heat N° <b>215162</b>	
Certification - Werkzeugs - Certificate <b>AD 2000-MERKBLATT W0/TRD100</b> <b>Pressure Equipment Directive 97/23/EC</b> <b>ISO 9001</b> <b>ISO/TS 16949</b> <b>ISO 14001</b>		ISO 9100 ISO 9120		Marque d'usine Herstellerzeichen Supplier's Mark 	
				Poignon de l'expert Prüfstempel Inspector's stamp <b>IQ</b>	
UGIMA 316LFG BAR ROLLED BLACK SOLUTION ANNEALEDHEXAGONAL 43,000MM LONG. 5,800M + 200,000MM -0,000MM Produkt Erzeugnisform Product UGIMA 316LFG BARRE LAMINÉ(E) NOIR(E) HYPERTREMPÉ(E)HEXAGONAL(E) 43,000MM LONG. 5,800M + 200,000MM UGIMA 316LFG STAB GEWALZT SCHWARZ LÖSUNGSGEGLÜHTSECHSKANT 43,000MM LONG. 5,800M + 200,000MM -0,0 UGIMA 316LFG BAR ROLLED BLACK SOLUTION ANNEALEDHEXAGONAL 43,000MM LONG. 5,800M + 200,000MM -0,00					
Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consignor <b>19516 HI-TECH SPECIAL STEELS LTD</b>				N° de commande client - Kundenbestellnummer - Purchase order number <b>9 2950006978</b>	
Norme de référence / Bezugsnorm / Standard for reference <b>AISI 316L</b> <b>EN 10088-3 ED 2005 1.4404</b>					
Spécification client / Kundenspezifikation / Customer's specification  					
Nombre Stückzahl Pieces Nbr <b>154</b>		Profil Profile Shape <b>HX</b>		Dimension Ausmessung Dimension <b>43,000 MM</b>	
				Longueur Länge Length <b>5,800</b>	
				Poids Gewicht Weight <b>11658 KG</b>	
Mode d'élaboration Erzeugnisart Melting process <b>EAF + AOD + CC</b>		N° prélèvement Probenummer Test number <b>3E8C</b>		Demandé / Vorschrift / Required 42 43 44 45 46 47 48 49 % C % Si % Mn % Ni % CR % MO % S % P Min Max 0,0300 0,7500 2,0000 13,0000 18,0000 2,5000 0,0300 0,0450 coulé/ Schmelzen / Heat 0,0120 0,5050 1,3220 11,1090 16,6460 2,0370 0,0241 0,0260 Produit / Erzeugnisform / Product	
Demandé / Vorschrift / Required 50 % N Min Max 0,1000 coulé/ Schmelzen / Heat 0,0270 Produit / Erzeugnisform / Product		51 52 53 54 55 70 71 72 73 74 75			
Demandé / Vorschrift / Required 76 77 78 79 80 81 82 83 84 85 86 87					
Min Max					
coulé/ Schmelzen / Heat Produit / Erzeugnisform / Product					
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NQA-0000				Ugine le 09.05.2012 L'agent Réceptionnaire de l'usine Der Werkachverständige The work Inspector 	
We declare that the mentioned product is in compliance with the requirements of the contract and that, after checks and tests, it meets in all respects the specified requirements and applicable standards and regulations, except reservations or exceptions as listed in this declaration of conformity : Document validated by electronic signature (date of manufacture in the RACI regulation respect)				68-1 68-2 040000575721 Page 1/2 63	

**HCT P431**  
**Checked & Approved by**  
**Parker Hannifin IPDE**  
 18-07-2012 14:17:27 Page 2 of 4

Usine productrice Hersteller Manufacturer <b>Ugine</b> <b>Avenue Paul Girod</b> <b>73403 Ugine</b> <b>France</b>		<b>INSPECTION CERTIFICATE 3.1</b> <b>CERTIFICAT DE RECEPTION 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b>  <b>EN 10204 / 3.1</b>				<b>UGITECH</b> Providing special steel solutions 									
Numéro / Nummer / Number <b>81108856 000010</b>		Ordre de fab. / Auftrag / Prod. Order <b>A1226ZQ75000</b>		N° coulée / Schmelzen Nr / Heat N° <b>215162</b>		N° lot MM / Chargen / Batch <b>1226ZQ7500</b>									
24 13 Min Max Min Max		T° C ° C 20 20		Limite d'élasticité Streckgrenze Yield Strength 0,2% 1% Mpa Mpa 200 235		RM Zugfestigkeit Tensile Mpa 500 700		Allongement Bruchdehnung Elongation A5D A4D % % 40		Striction Einschnürung Red area % 76		Dureté-Haerte-Hardness HB HV HRB HRC 215			
N° prélèvement Probenummer Test number <b>3E8C</b> <b>120 L</b> <b>1.0</b>		20		330 370		577		55		76		165			
A l'état de Référence / treatment on test sample / Probestreifenbehandlung															
Taux de corroyage Forging ratio Verschleißungsgrad <b>26,2</b>		Type Form Type <b>31</b>		T° C ° C 33		Sens Richtung Direction <b>32</b>		Min <b>95</b>		Valeurs individuelles Einzelwerte Individual values <b>35</b>		Moyenne Mittelwerte Average <b>38</b>		Expansion latérale Seitliche Breitung Lateral Expansion <b>91</b>	
A l'état de livraison / Lieferzustand / As delivered <b>13</b> solution annealed		KISOV		° C 20		L		J 100		J 223-230-220		J 224			
A l'état de Référence / treatment on test sample / Probestreifenbehandlung															
INTERCRYSTALLINE CORROSION RESISTANT ACCORDING TO ASTM A262 PRACTICE E INTERCRYSTALLINE CORROSION RESISTANT ACC. TO ISO 3651-2															
Quantité livrée / delivered quantity / gelieferte Quantität 92															
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800 93															
We declare that the mentioned product is in compliance with the requirements of the contract and that, after checks and tests, it meets in all respects the specified requirements and applicable standards and regulations, except reservations or exceptions as indicated in this declaration of conformity ; Document validated by electronic signature of the manufacturer in the SEAC regulation respect. 94															
Ugine le 09.05.2012 L'agent Réceptionnaire de l'usine Der Werkachverständige The work inspector <b>040000575721</b> Page 2/2															

# Special Testing Ltd

Bacon Lane, Sheffield S9 3NH  
Tel: 0114 244 1061  
Fax: 0114 244 0444 Works  
Fax: 0114 244 5566 Admin  
www.specialtesting.co.uk

## Test Certificate 213370

AUTHENTICATION CODE E744AAC16C8E  
ROLLS ROYCE APPROVED LABORATORY  
Approval No. 11191

CUSTOMER  
H+TECH SPECIAL STEELS LTD  
ALLOY & METAL WORKS, ROTHERHAM RD  
LAUGHTON COMMON, DUNNINGTON  
SHEFFIELD S25 3RF  
DATE RECEIVED 16 July 2012  
TEST DATE 16 July 2012



CUSTOMER ORDER NO	PRD2413	TEST NUMBER	213370	IDENTITY	P4045	CAST	215162	ALL REQUIREMENTS MIN UNLESS STATED
SPECIFICATION	BS EN 10088-3:2005 (X2CrNiMo17-12-2) 1.4404	0.2% PROOF	1.0% PROOF	UTS	ELONG ON	%	R OF A %	COMMENTS
TENSILE: BS EN ISO 6892-1:2009 A224								
OR TEMP	SECTION	AREA SQ	UNIT	REQUIREMENTS				
L RT	10.03mm	79.01mm²	Mpa	RESULTS	472	501	625	50mm 41.0 76.0 N/A
HARDNESS: BS EN ISO 6506-1:2005								
BRINELL (MID RADIAL)				DESIGNATION	HBW 10/3000	REQUIREMENTS	N/A	RESULTS
HARDNESS: BS EN ISO 6508-1:2005				DESIGNATION	HRC	REQUIREMENTS	N/A	RESULTS
ROCKWELL C (MID RADIAL)								16

END OF CERTIFICATE

REPRESENTING\*

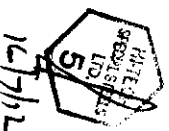
No copy is authentic without the embossed seal and signature. This certificate can be authenticated at www.specialtesting.co.uk with the code E744AAC16C8E  
This certificate shall not be reproduced, except in full, without the written approval of the laboratory.

For and on behalf of  
**SPECIAL TESTING LTD**  
A Member of the Special Steel Group of Companies

Liam Burdett  
Asst Testhouse Manager

Test results do not in any way confer approval of the quality of manufacture of the material. All results are subject to uncertainty of measurement budgets, details available upon request.  
Information marked \* is supplied by the customer.

**H.C.T. P431**  
**Checked & Approved by**  
**Parker Hannifin IPDE**  
**18-07-2012 14:17:27 Page 4 of 4**





# HI-TECH

## Special Steels Limited

Rotherham Road, Laughton Common,  
Dinnington, Sheffield S25 3RF  
Tel: Dinnington (01909) 564545  
Fax No (01909) 550682

Registered in England No. 1921116

### Customer

James Brown Ind Ltd  
Ty Coch Way  
Torfaen  
Cwmbran NP44 7HF

### TEST CERTIFICATE IN ACCORDANCE WITH BS EN 10204 3.1/ISO 10474 3.1

Certificate No.	T026968	Product	Stainless steel bar		
Order No.	Consignment	Cast No.	217099	Specification	1.4404
Our Reference	S094479/P207964	Quantity	313 Kgs	Size	1.25" A/F Hex
Advice Note No.	45291	Finish	Linished		
Heat Treatment	Fully solution treated and water quenched prior to cold sizing				

### Chemical Analysis

C	0.014	Si	0.523	Mn	1.307	S	0.0241	P	0.0257
Ni	11.097	Cr	16.603	Mo	2.03	Ti		Nb	
Co		Cu		N	0.029	W		Ca	
Sn		Ta		V		Al		Fe	

### Mechanical Properties

Tensile Strength	657 Mpa	0.2% Proof Stress	521 Mpa
Reduction of Area	70,0%	Elongation	38,0%
Hardness	10 HRC	Impact Tests	

### Special Conditions / Processing Details

In accordance with BS EN 10088-3 2005 1.4404  
In accordance with MO19/1  
Conforming to NACE MR0175/MR0103  
Free from mercury and radioactive contamination  
ICC test to ASTM A262 'E' - Satisfactory  
Also conforming to ASTM A276/A479 Gr 316/316L & ASTM A182 F316/316L

HCT No : P456

Part No : 7711238202

Manufacturers Test Cert No.

Concessions Agreed

"Certified that the whole of the supplied detailed hereon, unless otherwise stated", are covered by the Sources Certificate of Conformity/Test Certificate referenced hereon, and has been subject to the Quality System requirements in accordance with the conditions of our BS EN ISO 9001 2008 registration, for lot traceable products".

"Certified that the supplies/services detailed hereon have been inspected and tested in accordance with the conditions, requirements of the contract or purchase order and, unless otherwise noted below, conform in all respects to the specification(s)/drawing(s) relevant thereto".


**H.C.T. P456**  
**Checked & Approved by**  
**Parker Hannifin**  
15-08-2012  
Quality Controller  
15-08-2012 16:59:39 Page 1 of 4



Usine productrice Hersteller Manufacturer <b>Ugine</b> <b>Avenue Paul Girod</b> <b>73403 Ugine</b> <b>France</b>	<b>INSPECTION CERTIFICATE 3.1</b> <b>CERTIFICAT DE RECEPTION 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b> <hr/> <b>EN 10204 / 3.1</b>	<b>UGITECH</b> Providing special steel solutions
5	3	1
Numéro / Nummer / Number <b>81107862 000010</b>	Ordre de fab. / Auftrag / Prod. Order <b>A1216SY03000</b>	N° coulée / Schmelzen Nr. / Heat N° <b>217099</b>
4	11-1	11-2
N° lot MM / Chargen / Batch <b>1216SY0300</b>		
11-3		
Certification - Werkzeugsnis - Certificate <b>AD 2000-MERKBLATT W0/TRD100</b> <b>Pressure Equipment Directive 97/23/EC</b> <b>ISO 9001</b> <b>ISO/TS 16949</b> <b>ISO 14001</b>	ISO 9100 ISO 9120	Marque d'usine Herstellerzeichen Supplier's Mark  Poinçon de l'expert Prüfstempel Inspector's stamp 
99	98	97
UGIMA 316LFG BAR ROLLED BLACK SOLUTION ANNEALEDHEXAGONAL 34,000MM LONG. 5,460M + 200,000MM -0,000MM Produit UGIMA 316LFG BARRE LAMINÉ(E) NOIR(E) HYPERTREMPÉ(E)HEXAGONAL(E) 34,000MM LONG. 5,460M + 200,000MM Erzeugnisform UGIMA 316LFG STAB GEWALZT SCHWARZ LÖSUNGSGEGLÜHTSECHSKANT 34,000MM LONG. 5,460M + 200,000MM -0,0 Product UGIMA 316LFG BAR ROLLED BLACK SOLUTION ANNEALEDHEXAGONAL 34,000MM LONG. 5,460M + 200,000MM -0,00		
6		
Client at/or destinataire - Besteller und/oder Empfänger - Purchaser and/or Consigner <b>19516 HI-TECH SPECIAL STEELS LTD</b>	N° de commande client <b>2950006975</b>	
9	10	
Norme de référence / Bezugsnorm / Standard for reference <b>AISI 316L</b>		
12-2		
EN 10088-3 ED 2005 1.4404		
12-3		
Spécification client / Kundenspezifikation / Customer's specification		
Nombre Stückzahl Pieces Nbr <b>168</b>	Profil Profile Shape <b>HX</b>	Dimension Ausmessung Dimension <b>34,000 MM</b>
18	19	21-1
Longueur Laenge Length <b>5,460</b>	Poids Gewicht Weight <b>7376 KG</b>	22
21-2		
Mode d'élaboration Erzhmelzungsart Melting process <b>EAF + AOD</b> <b>+ CC</b>	N° prélèvement Probennummer Test number <b>3DZW</b>	Demandé / Vorschrift / Required 42 % C 0,0300 43 % Si 0,7500 44 % Mn 2,0000 45 % Ni 13,0000 46 % Cr 18,0000 47 % Mo 2,5000 48 % S 0,0300 49 % P 0,0450
38	39A	
coulée/ Schmelzen / Heat 0,0140 0,5230 1,3070 11,0970 16,6030 2,0300 0,0241 0,0257 Produit / Erzeugnisform/ Product		
50		
Demandé / Vorschrift / Required 51 % N Min Max 0,1000		
50		
coulée/ Schmelzen / Heat 0,0290 Produit / Erzeugnisform/ Product		
50		
Demandé / Vorschrift / Required 76 Min Max		
76		
coulée/ Schmelzen / Heat 77 78 79 80 81 82 83 84 85 86 87		
76		
The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800		
66-1		
We declare that the mentioned product is in compliance with the requirements of the contract and that after checks and tests, it meets in all respects the specified requirements and applicable standards and regulations, except reservations or exceptions as stated in this declaration of conformity : Document validated by electronic signature Material manufactured in the CEAC regulation respected		
66-2		
Ugine le 05.05.2012 L'agent Réceptionnaire de l'usine Der Werksachverständige The work inspector 		
63		

H.C.T. P456  
 Checked & Approved by  
 Parker Hannifin IPDE  
 15-08-2012 16:59:39 Page 2 of 4



Usine productrice Hersteller Manufacturer <b>Ugine</b> <b>Avenue Paul</b> <b>Girod</b> <b>73403 Ugine</b> <b>France</b>	<b>INSPECTION CERTIFICATE 3.1</b> <b>CERTIFICAT DE RECEPTION 3.1</b> <b>ABNAHMEPRUEFZEUGNIS 3.1</b>  <b>EN 10204 / 3.1</b>	<b>UGITECH</b> Providing special steel solutions 
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Numéro / Nummer / Number <b>81107862 000010</b>	Ordre de fab. / Auftrag / Prod. Order <b>A1216SY03000</b>	N° coulée / Schmelzen Nr / Heat N° <b>217099</b>	N° lot MM / Chargen / Batch <b>1216SY0300</b>
--	--	---	--

24	90	T °C	Limite d'élasticité Streckgrenze Yield Strength		RM Zugfestigkeit Tensile	Allongement Bruchdehnung Elongation		Striction Einschnürung Red area	Dureté-Haerte-Hardness			
			0,2%	1%		A5D	A4D		HB	HV	HRB	HRC
13	Min	°C	Mpa	Mpa	Mpa	%	%	%	215			
	20	20	200	235	500	40						
	Max	20			700							
	Min											
	Max											
N° prélèvement Probenummer Test number	3DZW 120 L 1.0	20	303	343	558	52		74	160			

A l'état de Référence / treatment on test sample / Probestreifenbehandlung	14	25	26A	26B	27	28	89	29	30	88	100	37
---	----	----	-----	-----	----	----	----	----	----	----	-----	----

Taux de corroyage		Résilience-Kerbschlagzähigkeit-Notch Toughness						
Forging ratio		Type	T °C	Sens	Min	Valeurs individuelles	Moyenne	Expansion latérale
Verschmiedungsgrad		Form		Richtung		Einzelwerte	Mittelwerte	Seitliche Breitung
42,0		Type		Direction		Individual values	Average	Lateral Expansion
101	31	33	32	95		35	36	91

A l'état de livraison / Lieferzustand / As delivered solution annealed	13	KISOV	°C 20	L	J 100	J 207-236-214 -- --	J 219	
--	----	-------	----------	---	----------	------------------------------	----------	--

A l'état de Référence / treatment on test sample / Probestreifenbehandlung	14							
---	----	--	--	--	--	--	--	--

INTERCRYSTALLINE CORROSION RESISTANT ACCORDING TO ASTM A262 PRACTICE E 5

INTERCRYSTALLINE CORROSION RESISTANT ACC.TO ISO 3851-2 6

Quantité livrée / delivered quantity / gelieferte Quantitat 92	93	94
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The contents of the report are accurate and all test results and operations performed by UGITECH or its subcontractors are in compliance with the material specification and the specific applicable material requirements of ASME NCA-3800.	Ugine le 05.05.2012 L'agent Réceptionnaire de l'usine Der Werksachverständige The work inspector <b>040000575279</b>
--	--

H.C.T. P456

Checked & Approved by

Parker Hannifin IDE

15-08-2012 16:59:39 Page 3 of 4



**Special Testing Ltd**  
Bacon Lane, Sheffield S9 3NH  
Tel: 0114 244 1061  
Fax: 0114 244 0444 Works  
Fax: 0114 244 5566 Acc/Admin  
www.specialtesting.co.uk

## Test Certificate 215657

**AUTHENTICATION CODE** 04229B30D497  
**ROLLS ROYCE APPROVED LABORATORY**  
Approval No: 11191

**CUSTOMER**  
HI-TECH SPECIAL STEELS LTD  
ALLOY & METAL WORKS, ROTHERHAM RD  
LAUGHTON COMMON, DUNNINGTON  
SHEFFIELD S26 3RF  
**DATE RECEIVED** 13 August 2012  
**TEST DATE** 13 August 2012



<b>CUSTOMER ORDER NO</b>	PRD2512	<b>TEST NUMBER</b>	215657	<b>IDENTITY</b>	P40478	<b>CAST</b>	217099	<b>ALL REQUIREMENTS MIN UNLESS STATED</b>
<b>SPECIFICATION</b>	BS EN10088-3:2005 (X2CrNiMo17-12-2) 1.4404	<b>TEST PIECE FROM</b>	1.1/4" A/F HEX					
<b>TENSILE: BS EN ISO 6892-1:2009 A224</b>	0.2% PROOF	1.0% PROOF	UTS	ELONG ON	%	R OF A %	COMMENTS	
<b>OR TEMP</b>	<b>SECTION</b>	<b>AREA SQ</b>	<b>UNIT</b>	<b>REQUIREMENTS</b>				
L RT	9.98mm	78.23mm <sup>2</sup>	Mpa	RESULTS	521	551	657	50mm 38.0 70.0 N/A
<b>HARDNESS: BS EN ISO 6506-1:2005</b>				<b>DESIGNATION</b>	<b>REQUIREMENTS</b>	<b>RESULTS</b>		
BRINELL (MID RADIAL)				HBW 10/3000		189		
<b>HARDNESS: BS EN ISO 6508-1:2005</b>				<b>DESIGNATION</b>	<b>REQUIREMENTS</b>	<b>RESULTS</b>		
ROCKWELL C (MID RADIAL)				HRC		10		

END OF CERTIFICATE

REPRESENTING\*

		No copy is authentic without the embossed seal and signature. This certificate can be authenticated at <a href="http://www.specialtesting.co.uk">www.specialtesting.co.uk</a> with the code 04229B30D497
		This certificate shall not be reproduced except in full without the written approval of the laboratory.
For and on behalf of	<b>SPECIAL TESTING LTD</b>	Kath Elliott Certification Officer
A Member of the Special Steel Group of Companies		

Test results do not in any way confer approval of the quality of manufacture of the material. All results are subject to uncertainty of measurement budgets, details available upon request.  
Information marked \* is supplied by the customer.

**H.C.T. P456**  
**Checked & Approved by**  
**Parker Hannifin IPDE**  
15-08-2012 16:59:39 Page 4 of 4

15/8/12

**DELTINOX**  
**STAINLESS - STEEL FITTINGS**  
**RACCORDS ACIER INOXYDABLE**  
**BP 597 59605 MAUBEUGE CEDEX FRANCE**

Plant : ZI des Longues Royes  
24 Rue Paul Eluard - 59750 FEIGNIES  
Tél : 03.27.65.28.28 - Fax : 03.27.64.03.94



**CERTIFICAT DE RECEPTION - ACCEPTANCE CERTIFICATE (EN 10204 : 2004 3.1)**

Client / Customer

**R.T.I. S.p.A.**  
VIA AMBROSOLI, 2/A  
RODANO MILLEPINI  
20090 ITALIE

N° Certificat / Certificate n° DEL/29063/05/212 / 2

16/05/2012

Commande / Order 37484/10

Bordereau / Dispatch note DEL/29063/05/212

16/05/2012

Traitement thermique / Heat Treatment

**HYPERTREMPE 1040°C MIN**

Divers / Others

**SOLUTION TREAT 1040°C MIN**

Spécification matière / Material Specification

**ASTM A 182/A 182M-11a F316L/ASME SA 182/SA182M Sect II Part A**  
**DESP 97/23/CE (An.1 §4.3)**

**COMPOSITION CHIMIQUE / CHEMICAL ANALYSIS**

Item	Qte/Qty	Désignation	N° Coulee/Heat Number	Identification	C %	Si %	Mn %	P %	S %	Ni %	Cr %	Mo %	N %
mini					0.030	1.000	2.000	0.045	0.030	10.00	16.00	2.000	
maxi					0.020	0.440	1.720	0.034	0.028	10.05	16.55	2.070	0.028
59	20	TEE 3/4" NPT 3M F316L	330530	EEY	0.021	0.350	0.930	0.035	0.005	10.18	16.51	2.080	0.042
76	100	90° ELBOW 1/2" SW 3M F316L	5A2601	T120	0.022	0.343	1.361	0.032	0.022	10.56	16.83	2.061	0.042
1	5	UNION FF 1 1/2" NPT 3M F316L	V2M4	APV	0.008	0.600	1.540	0.029	0.030	10.25	16.86	2.020	0.060
2	8	UNION FF 1" NPT 3M F316L	424851	424851	0.023	0.520	1.340	0.031	0.024	11.01	16.71	2.030	<= 0.100
3	60	UNION FF 1/2" NPT 3M F316L	949069	ABG	0.023	0.493	0.832	0.044	0.004	10.09	16.25	2.070	0.039
9	10	90° ELBOW FF 1 1/2" NPT 3M F316L	RY101134	T89	0.018	0.320	1.620	0.026	0.001	11.17	16.62	2.020	0.050
14	30	STREET ELBOW 3/4" NPT 3M F316L	11A1906	T115	0.021	0.357	1.325	0.032	0.030	10.08	16.63	2.033	0.041
15	50	COUPLING 1" NPT 3M F316L	134254	CCL	0.018	0.422	1.322	0.026	0.030	10.15	16.61	2.064	0.040
22	5	HALF COUPLING 3/4" NPT 3M F316L	143143	CCK	0.020	0.481	1.320	0.024	0.030	10.11	16.58	2.052	0.039
29	400	HEX. NIPPLE 1/4" NPT 3M F316L	137102	DFN	0.011	0.373	1.322	0.033	0.030	10.10	16.56	2.033	0.040
30	600	HEX. NIPPLE 1/2" NPT 3M F316L	129137	DES	0.020	0.449	1.308	0.029	0.027	10.14	16.63	2.033	0.037
33	90	RED HEX NIP 1/2" X 1/4" NPT 3M F316L	146066	CCR	0.018	0.343	1.345	0.026	0.028	10.07	16.63	2.063	0.040
37	10	RED HEX NIP 3/4" X 1/2" NPT 3M F316L	142041	DET	0.023	0.369	1.350	0.030	0.029	10.10	16.60	2.045	0.039
41	24	BUSH MF 1" X 1/2" NPT 6M F316L	134246	AZK									

**ESSAIS MECANQUES / MECHANICAL TEST**

Item	Re (0,2%) N/mm²	Rm N/mm²	A %	Z % Red. of Area	Dureté Hardness	Spécification dimensionnelle Dimensional specification	Forgeron Forgemaster	Acieriste Steel Producer	Négociant Supplier
mini	170.0	485.0	30.00	50.00					
maxi									
59	269.0	571.0	59.00	72.00	156HBW	ASME B16.11/05-ANSI/ASME B1.20.1/92	EVASI	OLARRA	EVASI
76	358.0	662.0	53.40	77.70	163HB	ASME B16.11/2005			
1	315.0	601.0	54.00	70.00	177.5HB	ANSI/ASME B1.20.1/1992	BARRE CAPPELLETTI F DE ITON	THYSEN	BARRE CAPPELLETTI F DE ITON
2	322.0	634.0	52.00	66.00	175HB	ANSI/ASME B1.20.1/1992		UGITECH	
3	268.0	553.0	56.00	76.00	158HB	ANSI/ASME B1.20.1/1992			
9	274.4	583.3	57.20	79.80	162.5HB	ASME B16.11/05-ANSI/ASME B1.20.1/92			
14	300.0	613.0	55.00	78.50	165.5HB	ANSI/ASME B1.20.1/1992			
15	216.0	545.0	58.00	78.00	157HB	ASME B16.11/05-ANSI/ASME B1.20.1/92		UGITECH	UGITECH
22	216.0	545.0	58.00	78.00	157HB	ASME B16.11/05-ANSI/ASME B1.20.1/92		UGITECH	UGITECH
29	579.0	743.0	31.00	65.00	232HBW	BSI BS3799/74-ANSI/ASME B1.20.1/92		UGITECH	UGITECH
30	494.0	682.0	34.00	66.00	18HRC	BSI BS3799/74-ANSI/ASME B1.20.1/92		UGITECH	UGITECH
33	537.0	710.0	35.00	67.00	19HRC	BSI BS3799/74-ANSI/ASME B1.20.1/92		UGITECH	UGITECH
37	464.0	648.0	36.00	68.00	18HRC	BSI BS3799/74-ANSI/ASME B1.20.1/92		UGITECH	UGITECH
41	504.0	673.0	38.00	69.00	96HRC	ASME B16.11/05-ANSI/ASME B1.20.1/92		UGITECH	UGITECH

Others  
- PMI PERFORMED AT 100% ON RAW MATERIAL - - MATERIAL ACCORDING TO NACE MR01.75 - MR01.03 -

Les valeurs reprises sur ce certificat sont celles données par notre fournisseur / The values mentioned on this test certificate are those given by the supplier

Nous certifions que les produits énumérés ci-dessous sont conformes aux prescriptions de la commande et des spécifications et ont subi, sans objection, les contrôles d'aspect et de dimensions.  
We hereby certify that above mentioned products are in accordance with the requirements of the order and specifications and have been checked without objection for surface and dimensional control.

**DELTINOX**  
**Vu par : MT LAITAT**

Le :

Visa :

**Contrôle QUALITE**

**DELTINOX**  
**STAINLESS - STEEL FITTINGS**  
**RACCORDS ACIER INOXYDABLE**  
**BP 597 59605 MAUBEUGE CEDEX FRANCE**



Plant : ZI des Longues Royes  
 24 Rue Paul Eluard - 59750 FEIGNIES  
 Tél : 03.27.65.28.28 - Fax : 03.27.64.03.94

**CERTIFICAT DE RECEPTION - ACCEPTANCE CERTIFICATE (EN 10204 : 2004 3.1)**

Client / Customer

**R.T.I. S.p.A.**  
 VIA AMBROSOLI, 2/A  
 RODANO MILLEPINI  
 20090 ITALIE

N° Certificat / Certificate n°

DEL/29674/09/212 / 1

11/09/2012

Commande / Order

39040/10

Bordereau / Dispatch note

DEL/29674/09/212

10/09/2012

Traitement thermique / Heat Treatment

**HYPERTREMPE 1040°C MIN**

**SOLUTION TREAT 1040°C MIN**

Divers / Others

Spécification matière / Material Specification

**ASTM A 182/A 182M-11a F316L/ASME SA 182/SA182M Sect II Part A**  
**DESP 97/23/CE (An.1 §4.3)**

**COMPOSITION CHIMIQUE / CHEMICAL ANALYSIS**

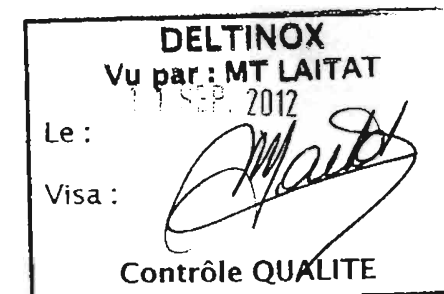
Item	Qte/Qty	Désignation	N° Coulée / Heat Number	Identification	C %	Si %	Mn %	P %	S %	Ni %	Cr %	Mo %	N %
mini										10.00	16.00	2.000	
maxi					0.030	1.000	2.000	0.045	0.030	15.00	18.00	3.000	0.100
1	1 000	HEX. HEAD PLUG 1/4" NPT 6M F316L	149153	DKP	0.017	0.399	1.307	0.027	0.029	10.10	16.57	2.039	0.039

**ESSAIS MECANQUES / MECHANICAL TEST**

Item	Re (0,2%) N/mm²	Rm N/mm²	A %	Z % Red. of Area	Dureté Hardness	Spécification dimensionnelle Dimensional specification	Forgeron Forgemaster	Acieriste Steel Producer	Négociant Supplier
mini	170.0	485.0	30.00	50.00					
maxi									
1	512.0	728.0	30.00	63.00	228HBW	ASME B16.11/05-ANSI/ASME B1.20.1/92		UGITECH	UGITECH

Others

- PMI PERFORMED AT 100% ON RAW MATERIAL - - MATERIAL ACCORDING TO NACE MR01.75/ISO 15156 ED.2009 - MR01.03 -



Les valeurs reprises sur ce certificat sont celles données par notre fournisseur / The values mentioned on this test certificate are those given by the supplier

Nous certifions que les produits énumérés ci-dessous sont conformes aux prescriptions de la commande et des spécifications et ont subi, sans objection, les contrôles d'aspect et de dimensions.  
 We hereby certify that above mentioned products are in accordance with the requirements of the order and specifications and have been checked without objection for surface and dimensionnal control.





# CHEMICAL ANALYSIS AND MECHANICAL TEST CERTIFICATE TO: DIN 50049 3.1 - EN 10204/3.1

Messrs. R.T.I. SPA VIA AMBROSOLI 2/A 20090 RODANO MILLEPINI MI	ORDER: 37744/10 DATE : 24/04/2012 JOB : 12/91 /01432
---	--



**omsa** S.R.L.

OFFICINE MECCANICHE SOLBIATE ARNO

Sede e Stabilimento: 21048 SOLBIATE ARNO (Varese)  
Via Caronno Varesino  
Tel. +39.0331.994.216 - Fax +39.0331.991.796  
web: http://www.omsafitting.it - e-mail: info@omsafittings.it



ITEM	Q.TY	DESCRIPTION	MATERIAL	HEAT CODE	STEEL MILL	MILL CERT	HEAT N.
1	1,00	SWAGE XS 1"X1/2" NPT F316L	SA182F316/316L	L05	ACC. VALBRUNA	157729	256155
2	2,00	SWAGE XS 1"X1/2" NPT/PE F316L	SA182F316/316L	L05	ACC. VALBRUNA	157729	256155
3	1,00	SWAGE XS 1.1/2"X1/2" NPT/PE F316L	SA182F316/316L	E67	ACC. VALBRUNA	802709/2009	423038
5	33,00	TEE S.3000 1/2" NPT ZINC. A105	SA-A105N	G72	RIVA	41540	10/74409
6	530,00	N. TUBO XS 1/2"X100 NPT ZINC. A106/B	SA-A106/B	E80	ZELEZIARNE	32931/1/2009	91658
7	23,00	N. TUBO XS 2"X100 NPT ZINC. A106/B	SA-A106/B	M698	ZELEZIARNE	1951/1/2012	16508
8	407,00	MANICOTTO 3000 1/2" NPT ZINC. A105	SA-A105N	H80	RIVA	41580	79505

## CHEMICAL ANALYSIS

HEAT CODE	C %	Mn %	Si %	P %	S %	Ni %	Cr %	Mo %	Ti %	Al %	V %	Cu %	Nb %	N %	C.E. %	NOTE
L05	0,012	1,540	0,500	0,030	0,030	10,000	16,760	2,070	0,000	0,000	0,000	0,000	0,000	0,060	0,000	
L05	0,012	1,540	0,500	0,030	0,030	10,000	16,760	2,070	0,000	0,000	0,000	0,000	0,000	0,060	0,000	
E67	0,017	1,440	0,580	0,025	0,030	10,130	16,650	2,040	0,000	0,000	0,000	0,460	0,000	0,059	0,000	
G72	0,180	0,890	0,210	0,013	0,009	0,060	0,120	0,020	0,020	0,029	0,017	0,180	0,002	0,000	0,000	
E80	0,130	0,650	0,220	0,013	0,008	0,070	0,040	0,020	0,002	0,013	0,004	0,250	0,001	0,000	0,000	
M698	0,150	0,480	0,200	0,008	0,008	0,050	0,030	0,010	0,001	0,022	0,007	0,170	0,000	0,000	0,000	
H80	0,195	0,900	0,240	0,012	0,010	0,050	0,130	0,010	0,021	0,024	0,016	0,130	0,001	0,000	0,000	

## MECHANICAL TEST

HEAT CODE	R N/mm <sup>2</sup>	S N/mm <sup>2</sup>	A %	C %	Bending Test	Flattening g	Hydraulic Test	HARDNESS HB	IMPACT TEST J - °C	HEAT TREATMENT - °C	NOTE
L05	627,0	321,0	45,0	71,0				184 184	240 229 239 20	SOLUTION AT 1050	
L05	627,0	321,0	45,0	71,0				184 184	240 229 239 20	SOLUTION AT 1050	
E67	645,0	370,0	48,0	73,0				178 178	211 217 223 20	SOLUTION AT 1050	
G72	500,0	311,0	33,3	58,3				150 150	70 67 69 0		
E80	474,0	407,0	48,0					147 148	114 121 120 0		
M698	476,0	383,0	28,9					147 148	130 131 133 -10		
H80	513,0	318,0	32,6	56,9				151 152	58 59 56 -10		

WE HEREBY CERTIFY THAT THE ABOVE IS IN ACCORDANCE WITH THE ORIGINAL CERTIFICATE WHICH IS HELD BY US.  
SPECIMEN FOR ELONGATION: STANDARD ROUND. FITTINGS MEET ANSI B16.11 & BS3799 REQUIREMENTS. UNIONS GROUND JOINT, STEEL TO STEEL  
FITTINGS ARE DIMENSIONAL AND SURFACE CHECKED WITHOUT OBJECTION. C/SWAGES TO MSS SP95, PIPE NIPPLES TO B36.10 : SEAMLESS.  
MATERIAL TO ASME Sec.II Part A Ed.2010 - ASTM 01.01 NACE MR01.75 MR01.03 LATEST EDITION. A105N NORMALISED AT 890 C.  
IN ACCORDANCE WITH PED 97/23/EC ANNEX 1 SECT. 4.3. WHERE REQUIRED EDDY CURRENT OR HYDROSTATIC TEST WITHOUT OBJECTIONS.  
ASTM A182 F11 NORM. AT 920 C. O'LET TO MSS SP97. F304/L+F316/L QUENCHING COOL BELOW 260 C

INSPECTION	O.M.S.A. S.R.L. Quality Control (Paolo Micheletti)	CERTIFICATE N° 01013/001	DATE 24/05/2012
------------	--	-----------------------------	--------------------

ADDRESS Via Arno, 3  
20029 TURBIGO (MI) ITALIA  
PHONE 0331 871111 (3 linee r.a.)  
FAX 0331 871468  
WEB SITE www.turozzi.it  
E-MAIL turozzi@turozzi.it

AZIENDA CON  
SISTEMA QUALITÀ  
CERTIFICATO



COMPANY WITH  
QUALITY SYSTEM  
CERTIFIED

turozzi  
fratelli

Raccordi in acciaio per impianti ad alta pressione  
Steel fittings for high pressure plants

CLIENTE / Purchaser <b>R.T.I. S.p.A.</b>	CERTIFICATO DI COLLAUDO Works certificate <b>EN 10204 3.1</b>	FOGLIO Sheet <b>1/1</b>
ORDINE / Order <b>37790/10</b>	<b>ns.DdT 802</b>	N. <b>49611</b> DEL / OF <b>04/06/2012</b>

ITEM Item	QUANTITÀ Quantity	DESCRIZIONE / Description	COLATA Heat	MATERIALE Material	CERTIF. ORIG. Mill certif.	ACCIAIERIA / FORNITORE Steel plant / Supplier
		<b>VS.ORD. 37790/10 DEL 27/04/2012</b>				
1	50	N.T.R. 1x3/4 S.40 Fx F WPB	12278	A106/B	78458.9PR	PIETRA
2	50	N.T.R. 1x1/2 S.40 Fx F WPB	12278	A106/B	78458.9PR	PIETRA
3	100	WIPLO/T. 1x150 S.40 Fx F WPB	56078	A106/B	2743/846.4	Z. POOBREZOVA
4	60	MANICOTTO 1/2 3000 NPT A105	7738	A105	7063/1092.1	RIVA
		<b>AGG. DEL 17/05/12</b>				
5	2	SONITO M/F 1.1/4 3000 NPT F316L	992453	A182 F316L/316	43589/3015	OLARRA

#### ANALISI CHIMICA - Chemical Analysis

COLATA Heat	C %	Mn %	Si %	P %	S %	Ni %	Cr %	Mo %	Ti %	V %	Cu %	Al %	Nb %	N %	%	%	C.E. %
12278	0,154	0,650	0,230	0,010	0,004	0,100	0,080	0,022		0,001	0,229	0,027					0,305
12278	0,154	0,650	0,230	0,010	0,004	0,100	0,080	0,022		0,001	0,229	0,027					0,305
56078	0,140	0,620	0,210	0,009	0,012	0,060	0,140	0,020		0,008	0,180						0,293
7738	0,185	0,920	0,240	0,014	0,006	0,080	0,140	0,020		0,017	0,180	0,026	0,002				0,391
992453	0,019	1,760	0,380	0,030	0,029	10,150	16,550	2,060						0,045			

#### CARATTERISTICHE MECCANICHE - Mechanical Test

COLATA Heat	R Tensile Strength N/mm <sup>2</sup>	S Yield Point N/mm <sup>2</sup>	A: 2" Elongation %	C Reduction of area %	Bending Test	Flattening Test	Hydraulic Test	HB Hardness test	Kv Impact test J	Temp. °C	STATO DI FORNIT. (TRATT. TERM.) Supply cond. (heat treatment)	TEMP. °C	NOTE Remarks
12278	494	354	40,0		OK		2500PSI	145 147					
12278	494	354	40,0		OK		2500PSI	145 147					
56078	491	402	30,4		OK		17.2MPa	147 149					
7738	508	315	32,9	57,5				151 154					
992453	565	266	57,0	76,0							SOLUT. ANNEALED	1050	

NATURA DEL MATERIALE / Kind of material	NORMA DI RIFERIMENTO Referenced standard	NOTE / Remarks
Acciaio elaborato al forno elettrico Steel made by electric furnace	ASTM ultima edizione ASTM latest edition	

COLLAUDI INTERNI / Works inspection	RISULT. Result	COLLAUDI SUPPLEMENTARI / Supplementary tests	RISULT. Result
Dimensionale/Visivo Dimensional/Visual	OK OK		

RESPONSABILE QUALITÀ / Quality Manager	ENTE COLLAUDATORE / Inspection agency	turozzi fratelli



RACCORDERIA FORGIATA / FORGED STEEL FITTINGS  
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Tel. +39 0523 658907 - Fax +39 0523 650843 - [info@cheropiping.com](mailto:info@cheropiping.com)

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R.T.I. S.P.A.

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TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY

POS.	TEST NO.	HEAT CODE	HEAT NUMBER	Q.TY	DESCRIPTION	MAT.REQUISITION / TAG N° / ITEM CODE / COMPUTER CODE / UB	ENCLOSURE / NOTES
1	34760/2012	FM-CL	10/74888	25	GOMITI 45 SW S/3000 A105 1/2"	RF350003	
2	34477/2010	M5	11/79165	10	GOMITI 45 SW S/3000 A105 3/4"	RF350004	
3	34583/2011	M6	11/79166	30	GOMITI 45 SW S/3000 A105 1"	RF350005	
4	34602/2011	L901	11/78156	10	GOMITI 45 SW S/3000 A105 11/2"	RF350007	
5	35067/2012	FM-CS	11/79741	150	GOMITI 90 SW S/3000 A105 1/2"	RF352003	
6	34773/2012	M8	11/79166	50	GOMITI 90 SW S/3000 A105 3/4"	RF352004	
7	34867/2012	M9	11/79166	150	GOMITI 90 SW S/3000 A105 1"	RF352005	
9	34973/2012	B01C	11/79886	20	GOMITI 90 SW S/3000 A105 2"	RF352008	
10	32320/2010	FC-IO	5110	5	GOMITI 90 SW S/3000 A105 3"	RF352010	
11	34324/2011	FM-DA	11/78584	10	TEE SW S/3000 A105 3/4"	RF354004	
12	35060/2012	M15	11/78587	40	TEE SW S/3000 A105 1"	RF354005	
13	34532/2011	I77B	P410104545	10	TEE SW S/3000 A105 11/2"	RF354007	
14	31835/2010	E-OY	10/70778	2	TEE SW S/3000 A105 2"	RF354008	
15	35060/2012	M15	11/78587	6	TEE RID. SW S/3000 A105 1"X3/4"	RF355191	
16	34173/2011	B46B	11/37526	10	TEE RID. SW S/3000 A105 11/2"X3/4"	RF355202	
17	31246/2010	E-NC	09/78538	5	TEE RID. SW S/3000 A105 11/2"X1/2"	RF355203	
18	34221/2011	11/78768	11/78768	40	MANICOTTI SW S/3000 A105 1/2"	RF362003	
19	34823/2012	11/79679	11/79679	30	MANICOTTI SW S/3000 A105 3/4"	RF362004	
20	34769/2012	205813	205813	50	MANICOTTI SW S/3000 A105 1"	RF362005	
21	34393/2011	11/78825	11/78825	10	MANICOTTI SW S/3000 A105 11/2"	RF362007	
22	34380/2011	11/77260	11/77260	20	MEZZI MANICOTTI SW S/3000 A105 3/4"	RF366004	
23	32579/2010	ML-FW	AD1214	20	BOCCHEITTONI SW S/3000 A105 1/2"	RF372003	
24	33171/2011	ML-FX	AD1814	5	BOCCHEITTONI SW S/3000 A105 1"	RF372005	
25	30474/2009	188976	188976	5	WELDOLET BW SCH XS/XS A105 1/2"X3"-8"	RF374003/5	
26	33952/2011	I58B	11/77260	5	WELDOLET BW SCH XS/XS A105 3/4"X2"-21/2"	RF374004/3	
27	35037/2011	I25C	11/39406	4	WELDOLET BW SCH XS/XS A105 2"X6"	RF374008/6	
29	30474/2009	188976	188976	20	SOCKOLET SW S/3000 A105 1/2"X2"-21/2"	RF376003/4	
30	30474/2009	188976	188976	5	SOCKOLET SW S/3000 A105 1/2"X3"-8"	RF376003/5	
35	32655/2010	I62A	10/71002	5	SOCKOLET SW S/3000 A105 1"X3"-31/2"	RF376005/5	
37	34761/2012	IB8	11/79739	5	SOCKOLET SW S/3000 A105 11/2"X2"	RF376007/1	
38	34761/2012	IB8	11/79739	5	SOCKOLET SW S/3000 A105 11/2"X3"	RF376007/3	

THIRD PARTS	CUSTOMER INSPECTOR	QUALITY CONTROL
NOTES		
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VISUAL, DIMENSIONAL AND MARKING CHECK HAVE BEEN CARRIED OUT WITH SATISFACTORY RESULTS. MATERIAL ACC. WITH PED 97/23/EC.		
DOMENICO GUARNIERI CHERO PIPING S.P.A.		



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TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY

POS.	TEST NO.	HEAT CODE	HEAT NUMBER	Q.TY	DESCRIPTION	MAT.REQUISITION / TAG N° / ITEM CODE / COMPUTER CODE / UB	ENCLOSURE / NOTES
39	34761/2012	IB8	11/79739	5	SOCKET SW 3000 A105 11/2"x31/2"-4"	RF376007/4	
40	33422/2011	10/74446	10/74446	5	INSERTI SW S/3000 A105 11/2"x1"	RF378201	
41	31588/2010	10/38918	10/38918	2	INSERTI SW S/3000 A105 11/2"x3/4"	RF378202	
42	33422/2011	10/74446	10/74446	4	INSERTI SW S/3000 A105 11/2"x1/2"	RF378203	
43	34725/2012	11/79470	11/79470	5	INSERTI SW S/3000 A105 2"x1"	RF378208	
44	33107/2011	FM-AS	10/74258	20	GOMITI 45 ZC NPT S/3000 A105 1/2"	RF4012003	
45	34212/2011	L99	11/76494	10	GOMITI 45 ZC NPT S/3000 A105 3/4"	RF4012004	
46	34476/2010	M4	11/76175	15	GOMITI 45 ZC NPT S/3000 A105 1"	RF4012005	
47	34145/2011	E-ST	11/75717	5	GOMITI 45 ZC NPT S/3000 A105 2"	RF4012008	
48	34799/2011	M13	11/78587	50	GOMITI 90 NPT S/3000 A105 1/2"	RF404003	
49	34486/2011	M2	11/76494	10	GOMITI 90 NPT S/3000 A105 3/4"	RF404004	
50	34976/2012	M21	11/79799	25	GOMITI 90 NPT S/3000 A105 1"	RF404005	
51	34939/2012	E-TE	11/77566	15	GOMITI 90 NPT S/3000 A105 11/4"	RF404006	
52	34584/2011	M7	11/79166	100	GOMITI 90 ZC NPT S/3000 A105 1/2"	RF4042003	
54	34894/2012	IL9C	11/79888	50	GOMITI 90 ZC NPT S/3000 A105 1"	RF4042005	
55	34774/2012	E-TC	11/37397	50	GOMITI 90 ZC NPT S/3000 A105 11/2"	RF4042007	
57	33997/2011	FM-CO	11/77383	100	TEE NPT S/3000 A105 1/2"	RF407003	
58	35158/2012	M23	12/70536	10	TEE NPT S/3000 A105 1"	RF407005	
59	34278/2011	B53B	11/78586	50	TEE ZC NPT S/3000 A105 1/2"	RF4072003	
60	33695/2011	FM-CF	11/76495	10	TEE ZC NPT S/3000 A105 3/4"	RF4072004	
61	34798/2011	M12	11/76175	30	TEE ZC NPT S/3000 A105 1"	RF4072005	
62	34717/2012	E-TA	11/37397	10	TEE ZC NPT S/3000 A105 11/2"	RF4072007	
63	33739/2011	FC-NS	1146810	10	TEE ZC NPT S/3000 A105 2"	RF4072008	
65	33482/2011	L87	11/76133	5	TEE RID.NPT S/3000 A105 1"x3/4"	RF409191	
66	24359/2006	E-HV	05/78268	5	TEE RID.NPT S/3000 A105 1"x1/2"	RF409192	
67	32577/2010	I75A	09/78562	5	TEE RID.NPT S/3000 A105 11/4"x3/4"	RF409196	
68	34798/2011	M12	11/76175	10	TEE RID.ZC NPT S/3000 A105 1"x3/4"	RF4092191	
69	34798/2011	M12	11/76175	5	TEE RID.ZC NPT S/3000 A105 1"x1/2"	RF4092192	
72	34916/2012	E-TD	12/79921	10	TEE RID.ZC NPT S/3000 A105 2"x1"	RF4092208	
73	34461/2011	E-SW	11/78826	10	TEE RID.ZC NPT S/3000 A105 2"x1/2"	RF4092210	
76	27230/2007	E85	76106	3	CROCI NPT S/3000 A105 3/4"	RF413004	

NOTES	THIRD PARTS	CUSTOMER INSPECTOR	QUALITY CONTROL
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5p.4.  
RACCORDERIA FORGIATA / FORGED STEEL FITTINGS  
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TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY

POS.	TEST NO.	HEAT CODE	HEAT NUMBER	Q.TY	DESCRIPTION	MAT.REQUISITION / TAG N° / ITEM CODE / COMPUTER CODE / UB	ENCLOSURE / NOTES
77	34266/2011	11/78769	11/78769	50	MANICOTTI NPT S/3000 A105 1/2"	RF415003	
78	33895/2011	11/76173	11/76173	5	MANICOTTI NPT S/3000 A105 3/4"	RF415004	
79	34667/2012	11/79167	11/79167	5	MANICOTTI NPT S/3000 A105 1"	RF415005	
80	32814/2010	10/73674	10/73674	5	MANICOTTI NPT S/3000 A105 11/4"	RF415006	
81	34393/2011	11/78825	11/78825	20	MANICOTTI NPT S/3000 A105 11/2"	RF415007	
83	33976/2011	11/77738	11/77738	70	MANICOTTI ZC NPT S/3000 A105 1/2"	RF4152003	
84	32397/2010	09/79986	09/79986	20	MANICOTTI ZC NPT S/3000 A105 3/4"	RF4152004	
85	34667/2012	11/79167	11/79167	20	MANICOTTI ZC NPT S/3000 A105 1"	RF4152005	
86	34839/2012	11/38303	11/38303	20	MANICOTTI ZC NPT S/3000 A105 11/2"	RF4152007	
87	34840/2012	11/78824	11/78824	10	MANICOTTI ZC NPT S/3000 A105 2"	RF4152008	
88	34944/2012	11/79740	11/79740	10	MANICOTTI NPT S/6000 A105 3/4"	RF416004	
89	34725/2012	11/79470	11/79470	10	MANICOTTI NPT S/6000 A105 1"	RF416005	
90	33640/2011	11/76367	11/76367	10	MEZZI MANICOTTI NPT S/3000 A105 1"	RF419005	
91	32125/2010	10/30366	10/30366	5	MEZZI MANICOTTI NPT S/3000 A105 2"	RF419008	
92	34266/2011	11/78769	11/78769	30	TAPPI FEMMINA NPT S/3000 A105 1/2"	RF421003	
93	34192/2011	11/78481	11/78481	30	TAPPI FEMMINA NPT S/3000 A105 3/4"	RF421004	
94	34839/2012	11/38303	11/38303	10	TAPPI FEMMINA NPT S/3000 A105 11/2"	RF421007	
95	34840/2012	11/78824	11/78824	5	TAPPI FEMMINA NPT S/3000 A105 2"	RF421008	
96	33624/2011	10/32876	10/32876	5	TAPPI FEMMINA NPT S/3000 A105 3"	RF421010	
97	33976/2011	11/77738	11/77738	50	TAPPI F.ZC NPT S/3000 A105 1/2"	RF4212003	
98	34192/2011	11/78481	11/78481	20	TAPPI F.ZC NPT S/3000 A105 3/4"	RF4212004	
99	32499/2010	10/72870	10/72870	20	TAPPI F.ZC NPT S/3000 A105 1"	RF4212005	
101	32579/2010	ML-EW	AD1214	100	BOCCH.FF.ZC NPT S/3000 A105 1/2"	RF4252003	
102	31489/2010	ML-FS	04/72295	40	BOCCH.FF.ZC NPT S/3000 A105 3/4"	RF4252004	
105	28265/2008	CM	07/77093	10	BOCCH.FF.ZC NPT S/3000 A105 2"	RF4252008	
106	31602/2010	ML-FU	06/74668	10	BOCCH.M/F ZC NPT S/3000 A105 1/2"	RF4262003	
107	31602/2010	ML-FU	06/74668	10	BOCCH.M/F ZC NPT S/3000 A105 3/4"	RF4262004	
108	33171/2011	ML-FX	AD1814	10	BOCCH.M/F ZC NPT S/3000 A105 1"	RF4262005	
109	34994/2012	L727	76820	5	BOCCH.M/F ZC NPT S/3000 A105 11/2"	RF4262007	
110	33413/2011	L819	38919	5	BOCCH.M/F ZC NPT S/3000 A105 2"	RF4262008	
111	34057/2011	G79604	G79604	50	TAPPI T.E.NPT S/3000 A105 1/8"	RF428000	

NOTES

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THIRD PARTS

CUSTOMER INSPECTOR

QUALITY CONTROL

DOMENICO GUARNIERI  
CHERO PIPING S.P.A.

CUSTOMER

R.T.I. S.P.A.

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TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY									
POS.	TEST NO.	HEAT CODE	HEAT NUMBER	Q.TY	DESCRIPTION	MAT.REQUISITION / TAG N° / ITEM CODE / COMPUTER CODE / UB	ENCLOSURE / NOTES		
112	J	G79604	G79604	50	TAPPI T.E.NPT S/3000 A105 1/4"	RF428001			
113	J	21284/2003	G99865	150	TAPPI T.E.NPT S/3000 A105 1/2"	RF428003			
114	J	32719/2010	AC1675	50	TAPPI T.E.NPT S/3000 A105 3/4"	RF428004			
115	J	33660/2011	AG1434	35	TAPPI T.E.NPT S/3000 A105 1"	RF428005			
116	J	34005/2011	L5511	42099	TAPPI T.E.NPT S/3000 A105 1 1/4"	RF428006			
117	J	33998/2011	FM-CN	20	TAPPI T.E.NPT S/3000 A105 1 1/2"	RF428007			
118	J	35038/2012	FM-CN	11/75388	TAPPI T.E.NPT S/3000 A105 2"	RF428008			
119	J	34057/2011	G79604	10	TAPPI T.E.ZC NPT S/3000 A105 1/4"	RF4282001			
120	J	34381/2011	AG4282	60	TAPPI T.E.ZC NPT S/3000 A105 1/2"	RF4282003			
121	J	32562/2010	AF3036	10	TAPPI T.E.ZC NPT S/3000 A105 3/4"	RF4282004			
122	J	34197/2011	AG4281	10	TAPPI T.E.ZC NPT S/3000 A105 1"	RF4282005			
122	Z	32969/2011	AF6198	10	TAPPI T.E.ZC NPT S/3000 A105 1"	RF4282005			
123	J	33660/2011	AG1434	10	RIDUZ.M/F NPT S/3000 A105 1"x1/2"	RF431192			
124	J	24466/2006	I31	5	RIDUZ.M/F NPT S/3000 A105 1 1/2"x3/4"	RF431202			
125	J	32562/2010	AF3036	10	RIDUZ.M/F ZC NPT S/3000 A105 3/4"x1/2"	RF4312188			
126	J	33660/2011	AG1434	20	RIDUZ.M/F ZC NPT S/3000 A105 1"x1/2"	RF4312192			
127	J	33005/2011	FM-AN	30	RIDUZ.M/F ZC NPT S/3000 A105 1 1/2"x1"	RF4312201			
128	J	26428/2007	I82	5	RIDUZ.M/F ZC NPT S/3000 A105 1 1/2"x3/4"	RF4312202			
129	J	26428/2007	I82	5	RIDUZ.M/F ZC NPT S/3000 A105 1 1/2"x1/2"	RF4312203			
130	J	33006/2011	FM-AL	10	RIDUZ.M/F ZC NPT S/3000 A105 2"x1 1/2"	RF4312206			
131	J	30850/2009	E-NL	10	RIDUZ.M/F ZC NPT S/3000 A105 2"x1"	RF4312208			
132	J	31792/2010	AE0436	10	NIPPLI ES.NPT S/3000 A105 3/4"	RF432004			
133	J	34057/2011	G79604	7	NIPPLI ES.ZC NPT S/3000 A105 1/4"	RF4322001			
134	J	33978/2011	AG1434	9	NIPPLI ES.ZC NPT S/3000 A105 1/2"	RF4322003			
135	J	32857/2010	10/31777	5	NIPPLI ES.ZC NPT S/3000 A105 2"	RF4322008			
136	J	34381/2011	AG4282	3	NIPPLI ES.R. NPT S/3000 A105 1/2"x1/4"	RF434187			
137	J	30292/2009	G73995	5	NIPPLI ES.R.ZC NPT S/3000 A105 3/4"x1/2"	RF4342188			
138	J	30474/2009	188976	5	THREAOLETT NPT S/3000 A105 1/2"x2"-21/2"	RF436003/4			
139	J	30475/2009	187441	5	THREAOLETT NPT S/3000 A105 1/2"x3"-8"	RF436003/5			
140	J	30480/2009	188835	2	THREAOLETT S/3000 A105 3/4"x1 1/4"-11/2"	RF436004/2			
141	J	30480/2009	188835	2	THREAOLETT NPT S/3000 A105 3/4"x2-21/2"	RF436004/3			
NOTES					THIRD PARTS		CUSTOMER INSPECTOR		QUALITY CONTROL
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TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY

POS.	TEST NO.	HEAT CODE	HEAT NUMBER	Q.TY	DESCRIPTION	MAT.REQUISITION / TAG N° / ITEM CODE / COMPUTER CODE / UB	ENCLOSURE / NOTES
142	30480/2009	188835	188835	2	THREDOLETT NPT S/3000 A105 3/4"x3"-5"	RF436004/4	
143	34535/2010	11/78291	11/78291	2	THREDOLETT NPT S/3000 A105 1X11/2	RF436005/2	
144	34535/2010	11/78291	11/78291	2	THREDOLETT NPT S/3000 A105 1"x2"	RF436005/3	
145	32952/2011	93076	93076	5	SWAGE CONC.FXF SCH.80 WPB 3/4"x11/2"	RF442188	
146	34809/2012	105731	105731	5	SWAGE CONC.FXF SCH.80 WPB 1.1/2"x3/4"	RF442202	
148	22253/2004	83267	83267	3	SWAGE CONC.FXF SCH.160 WPB 1"x1/2"	RF446192	
149	31669/2010	91555	91555	3	SWAGE CONC.FXF SCH.160 WPB 1.1/2"x3/4"	RF446202	
150	32358/2010	239	239	3	SWAGE CONC.2C FXP SCH.160 WPB 3/4"x1/2"	RF4462188	
152	24897/2006	92477	92477	3	SWAGE CONC.2C FXP SCH.160 WPB 1"x1/2"	RF4462192	
153	34042/2011	93249	93249	5	SWAGE CONC.FXP SCH.160 WPB 3/4"x1/2"	RF447188	
154	35103/2012	16755	16755	5	SWAGE CONC.FXP SCH.160 WPB 2"x11/4"	RF447207	
155	35103/2012	16755	16755	5	SWAGE CONC.FXP SCH.160 WPB 2"x1"	RF447208	
156	35130/2012	108096	108096	5	SWAGE CONC.FXP SCH.160 WPB 3/4"x1/2"	RF448188	
157	35103/2012	16755	16755	3	SWAGE CONC.FXP SCH.160 WPB 2"x1.1/2"	RF448206	
158	35105/2012	109490	109490	3	SWAGE CONC.FXP SCH.160 WPB 1"x3/4"	RF449191	
159	31669/2010	91555	91555	2	SWAGE CONC.FXP SCH.160 WPB 1.1/2"x1"	RF449201	
160	31669/2010	91555	91555	2	SWAGE CONC.FXP SCH.160 WPB 1.1/2"x3/4"	RF449202	
161	31641/2010	239	239	3	SWAGE CONC.FXP SCH.160 WPB 2"x1"	RF449208	
162	34662/2012	4408	4408	3	SWAGE CONC.FXP SCH.160 WPB 2"x3/4"	RF449209	
163	33437/2011	10964	10964	3	NIPPLI TUBO FXP S80 A106/B 3/4 L50	RF454004	
164	34768/2012	32012	32012	3	NIPPLI TUBO FXP S80 A106/B 1"L50	RF454005	
165	33080/2011	702074	702074	3	NIPPLI TUBO ZC FXP S80 A106B 1/2"L50	RF4542003	
166	25890/2006	50359	50359	10	NIPPLI TUBO FXP S40 A106/B 1/2" L100	RF4574003	
167	27775/2008	73686	73686	10	NIPPLI TUBO FXP S40 A106/B 3/4" L100	RF4574004	
168	34891/2012	14898	14898	100	NIPPLI TUBO FXP S80 A106/B 1/2" L100	RF457003	
169	32404/2010	2088	2088	48	NIPPLI TUBO ZC FXP S80 A106B 1/2" L100	RF4572003	
170	35034/2012	32024	32024	50	NIPPLI TUBO FXP S80 A106/B 1/2" L100	RF458003	
172	34768/2012	32012	32012	10	NIPPLI TUBO FXP S80 A106/B 1" L100	RF458005	
173	18248/2000	91248	91248	5	NIPPLI TUBO FXP S80 A106/B 11/4" L100	RF458006	
174	24085/2005	10274	10274	5	NIPPLI TUBO FXP S40 A106/B 1/2"L150	RF4604003	
175	34594/2011	557171	557171	100	NIPPLI TUBO FXP S160 A106/B 1/2" L100	RF466003	

NOTES			THIRD PARTS	CUSTOMER INSPECTOR	QUALITY CONTROL
THIS IS TO CERTIFY THAT MATERIAL REQUIREMENTS ARE ACCORDING TO ORDER SPECIFICATIONS. MATERIAL ACC.TO NACE MR 01.75 ED.2007 + ASME SECTION II ED.2010. VISUAL, DIMENSIONAL AND MARKING CHECK HAVE BEEN CARRIED OUT WITH SATISFACTORY RESULTS. MATERIAL ACC. WITH PED 97/23/EC.					<b>DOMENICO GUARNIERI</b> CHERO PIPING S.P.A.

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TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY

POS.	TEST NO.	HEAT CODE	HEAT NUMBER	Q.TY	DESCRIPTION	MAT.REQUISITION / TAG N° / ITEM CODE / COMPUTER CODE / UB	ENCLOSURE / NOTES
176	31453/2010	104041	104041	20	NIPPLI TUBO EXF S160 A106/B 3/4" L100	RF466004	
177	33607/2011	2435	2435	5	NIPPLI TUBO ZC EXF S160 A106B 1/2" L100	RF4662003	
178	33576/2011	105867	105867	5	NIPPLI TUBO ZC EXF S160 A106B 3/4" L100	RF4662004	
179	33983/2011	105953	105953	5	NIPPLI TUBO ZC EXF S160 A106B 1" L100	RF4662005	
180	34594/2011	557171	557171	20	NIPPLI TUBO EXF S160 A106/B 1/2" L100	RF467003	
181	33632/2011	107138	107138	10	NIPPLI TUBO EXF S160 A106/B 3/4" L100	RF467004	
182	33607/2011	2435	2435	20	NIPPLI TUBO EXP S160 A106/B 1/2" L100	RF468003	
183	31453/2010	104041	104041	20	NIPPLI TUBO EXP S160 A106/B 3/4" L100	RF468004	
184	34539/2010	86554	86554	10	NIPPLI TUBO EXP S160 A106/B 1" L100	RF468005	

NOTES		THIRD PARTS	CUSTOMER INSPECTOR	QUALITY CONTROL
THIS IS TO CERTIFY THAT MATERIAL REQUIREMENTS ARE ACCORDING TO ORDER SPECIFICATIONS. MATERIAL ACC.TO NACE MR 01.75 ED.2007 + ASME SECTION II ED.2010. VISUAL, DIMENSIONAL AND MARKING CHECK HAVE BEEN CARRIED OUT WITH SATISFACTORY RESULTS. MATERIAL ACC. WITH PED 97/23/EC.				<b>DOMENICO GUARNIERI</b> CHERO PIPING S.P.A.



S.p.A.

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TEST.N°	MATERIAL SPECIFICATION AND GRADE	HEAT NUMBER	LADLE ANALYSIS (%)																										
			C	Mn	Si	P	S	Cr	Mo	Ni	Ti	Cu	V	Fe	Al	Co	N	W	Zn	Pb	Sn	As	Sb	Ca	O	B	H	C.E.	
34760/2012	ASTM A105	1077688	0,185	0,950	0,200	0,014	0,015	0,110	0,010	0,050		0,150	0,026		0,003														0,365
34477/2010	ASTM A105	1179165	0,180	0,890	0,210	0,011	0,009	0,090	0,020	0,060		0,160	0,015		0,001														0,366
34583/2011	ASTM A105	1179166	0,185	0,950	0,210	0,010	0,010	0,090	0,010	0,060		0,160	0,018		0,001														0,371
34602/2011	ASTM A105	1179156	0,185	0,890	0,170	0,014	0,010	0,150	0,020	0,070		0,180	0,018		0,002														0,387
35067/2012	ASTM A105	1179741	0,180	0,890	0,230	0,011	0,008	0,090	0,020	0,070		0,170	0,018		0,003														0,368
34773/2012	ASTM A105	1179166	0,185	0,890	0,210	0,010	0,010	0,090	0,010	0,060		0,160	0,018		0,001														0,371
34867/2012	ASTM A105	1179166	0,185	0,890	0,210	0,010	0,010	0,090	0,010	0,060		0,160	0,018		0,001														0,371
34873/2012	ASTM A105	1179886	0,185	0,930	0,200	0,010	0,010	0,090	0,020	0,060		0,140	0,017		0,003														0,378
32320/2010	ASTM A105	5110	0,176	1,160	0,226	0,004	0,008	0,100	0,030	0,090		0,110	0,000		0,000														0,408
34324/2011	ASTM A105	1178594	0,200	0,920	0,210	0,014	0,010	0,100	0,010	0,060		0,180	0,016		0,001														0,394

TEST.N°	TENSILE TEST [ Mpa ]				IMPACT TEST [ Joule ]				HARDNESS TEST		FLARING TEST	BENDING TEST		FLATTENING TEST	EDDY CURRENT	REFEREMENTS
	Temp. °C	Tensile Strength	Elongation	Reduction of Area	Temp. °C	Charpy Energy	Type	Specimen Size	Value	Scale		Dir.	Radius			
34760/2012	+ 20 °C	518	318	33,50	57,00				155,0	HB						
34477/2010	+ 20 °C	490	301	34,80	59,70				149,0	HB						
34583/2011	+ 20 °C	501	300	34,30	58,20				152,0	HB						
34602/2011	+ 20 °C	501	300	34,50	58,60				150,0	HB						
35067/2012	+ 20 °C	491	302	34,00	59,10				151,0	HB						
34773/2012	+ 20 °C	500	300	34,30	58,50				152,0	HB						
34867/2012	+ 20 °C	492	301	34,20	59,20				150,0	HB						
34873/2012	+ 20 °C	507	311	33,80	58,00				157,0	HB						
32320/2010	+ 20 °C	549	378	27,50	55,20				162,0	HB						
34324/2011	+ 20 °C	512	318	34,40	57,20				158,0	HB						

TEST.N°	SCALI				H.T. (1)	COOLING MEDIA	H.T. (2)	SCALE	MAX. T	BELOW TO	BELOW TO	HEAT TREATMENTS REFEREMENTS	BASE MATERIAL CERTIFIC. REF.		STEEL WORKS
	°C	°C	°C	°C									35810	RIVA	
34760/2012	NORMAL.	920	900	920		AIR							40912	RIVA	
34583/2011	NORMAL.	920	920	920		AIR							40074	RIVA	
34602/2011	NORMAL.	920	920	920		AIR							30350	RIVA	
35067/2012	NORMAL.	920	920	920		AIR							43733	RIVA	
34773/2012	NORMAL.	920	920	920		AIR							40074	RIVA	
34867/2012	NORMAL.	920	920	920		AIR							550	RIVA	
34873/2012	NORMAL.	920	920	920		AIR							212	RIVA	
32320/2010	NORMAL.	920	920	920		AIR							ACF00657/2009	OLIVER-ACP	
34324/2011	NORMAL.	920	920	920		AIR							34737	RIVA	

NOTES		THIRD PARTS	CUSTOMER INSPECTOR	QUALITY CONTROL
(7) V+Nb+Ti<0,10%; Cu+Ni+Cr+Mo<1%; B<0,0001 C.E.=C+Mn/6+(Cr+Mo+V)/5+(Cu+ Ni)/15				

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TEST. N°	MATERIAL SPECIFICATION AND GRADE	HEAT NUMBER	LADLE ANALYSIS (%)																										
			C	Mn	Si	P	S	Cr	Mo	Ni	Ti	Cu	V	Fe	Al	Co	N	W	Zn	Pb	Sn	As	Sb	Ca	O	B	H	C.E.	
35060/2012	ASTM A105	11/78587	0,180	0,880	0,200	0,012	0,008	0,100	0,010	0,050		0,170	0,018			0,001												0,366	(7)
34532/2011	ASTM A105	P4101045454	0,180	1,080	0,205	0,015	0,005	0,125	0,008	0,026		0,037	0,000			0,000												0,392	(7)
31835/2010	ASTM A105	10/70778	0,180	0,870	0,250	0,009	0,010	0,090	0,010	0,050		0,180	0,017			0,002												0,393	(7)
34173/2011	ASTM A105	11/37526	0,200	0,970	0,230	0,008	0,010	0,110	0,010	0,060		0,180	0,000			0,000												0,401	(7)
31246/2010	ASTM A105	98/78538	0,195	0,900	0,220	0,008	0,008	0,070	0,010	0,040		0,130	0,022			0,001												0,376	(7)
34221/2011	ASTM A105	11/78768	0,185	0,880	0,250	0,009	0,010	0,090	0,010	0,040		0,140	0,022			0,001												0,372	(7)
34823/2012	ASTM A105	11/79679	0,180	0,900	0,180	0,011	0,010	0,090	0,010	0,060		0,140	0,019			0,002												0,376	(7)
34769/2012	ASTM A105	205813	0,180	1,204	0,229	0,009	0,007	0,080	0,018	0,111		0,155	0,002			0,000												0,398	(7)
34393/2011	ASTM A105	11/78825	0,180	0,870	0,230	0,013	0,009	0,130	0,020	0,100		0,180	0,016			0,001												0,376	(7)
34380/2011	ASTM A105	11/77260	0,180	0,880	0,220	0,010	0,010	0,110	0,020	0,070		0,180	0,016			0,001												0,374	(7)

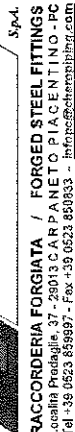
TEST. N°	TENSILE TEST [Mpa]				IMPACT TEST [Joule]				HARDNESS TEST		FLARING TEST	BENDING TEST		FLATTENING TEST	Eddy Current	REFERENCES
	Test Temperature	Yield strength	Tensile strength	Elongation %	Reduction Area %	Test Temperature	Ascribed Energy	Type	Specimen Size	Dir.		Dir.	Manifold Size			
35060/2012	+ 20 °C	493	305	34,30	59,10											
34532/2011	+ 20 °C	506	349	33,50	68,40											
31835/2010	+ 20 °C	493	302	31,40	56,20											
34173/2011	+ 20 °C	520	362	28,10	58,60											
31246/2010	+ 20 °C	515	317	33,70	57,80											
34221/2011	+ 20 °C	510	316	32,80	57,30											
34823/2012	+ 20 °C	509	316	32,80	57,30											
34769/2012	+ 20 °C	528	376	26,00	65,00											
34393/2011	+ 20 °C	497	309	33,50	58,60											
34380/2011	+ 20 °C	500	311	33,40	58,20											

TEST. N°	H.T. (1)	SCALI	MAX. T	h	o/h	BELOW TO	COOLING MEDIA	H.T. (2)	SCALE	MAX. T	h	o/h	BELOW TO	COOLING MEDIA	HEAT TREATMENTS REFERENCES	BASE MATERIAL CERTIFIC. REF.	STEEL WORKS
35060/2012	NORMAL.	°C	920				AIR									79	RIVA
34532/2011	NORMAL.	°C	920				AIR									2010 13544	IUCCHINI
31835/2010	NORMAL.	°C	900				AIR									7028	RIVA
34173/2011	NORMAL.	°C	910				AIR									38249	RIVA
31246/2010	NORMAL.	°C	900				AIR									12885	RIVA
34221/2011	NORMAL.	°C	910				AIR									35473	RIVA
34823/2012	NORMAL.	°C	920				AIR									43721	RIVA
34769/2012	NORMAL.	°C	920				AIR									042842	CIA - CENTRO ITALIANO ACCIAI
34393/2011	NORMAL.	°C	920				AIR									38682	RIVA
34380/2011	NORMAL.	°C	920				AIR									23984	RIVA

NOTES			THIRD PARTS	CUSTOMER INSPECTOR	QUALITY CONTROL
(7)	V+Nb+Ti<0,10%; Cu+Ni+Cr+Mo<1%; B≤0,0001 C.E.=C+Mn/6+(Cr+Mo+V)/5+(Cu+ Ni)/15				
<div>DOMENICO GUARNIERI</div> <div><i>Swan</i></div> <div>CHERO PIPING S.P.A.</div>					







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[illegible]

TEST N°	TENSILE TEST [ Mpa ]				IMPACT TEST [ Joule ]			HARDNESS TEST			FLARING TEST	BENDING TEST		FLATTENING TEST	Eddy Current	REMARKS			
	Test Temperature	Tensile Strength	Yield Strength	Elongation %	Reduction Area %	Test Temperature	Absorbed Energy	Type	Specimen Size	Dir.		Value	Scale				Dir.	Maximal Ø mm	Angle
331072011	+ 20 °C	504	313	33,10	58,30	- 46 °C	65	66	61	KV	10 X 10,0 L	157,0	HB						
342122011	+ 20 °C	500	312	33,80	58,10							148,0	HB						
344762010	+ 20 °C	500	312	33,30	58,30							151,0	HB						
341452011	+ 20 °C	514	318	32,70	56,80							159,0	HB						
347992011	+ 20 °C	492	307	34,40	59,30							149,0	HB						
344862011	+ 20 °C	500	302	35,10	59,20	153,0	HB					151,0	HB						
349762012	+ 20 °C	500	307	33,40	57,90	151,0	HB					157,0	HB						
349392012	+ 20 °C	492	301	33,90	59,20	152,0	HB					153,0	HB						
345842011	+ 20 °C	503	304	34,00	57,50														
348942012	+ 20 °C	511	312	33,00	57,00														

[illegible]

## NOTES

	NOTES	
17)	V+Nb+Ti<0,10%; Cu+Ni+Cr+Mo<1%; B<0,0001 C.E.=C+Mn/6+(Cr+Mo+V)/5+(Cu+Ni)/15	

**CUSTOMER INSPECTOR**

### THIRD PARTS

## QUALITY CONTROL

**DOMENICO GUARNIERI**  
*Guarnieri*  
**CHERO PIPING S.P.A.**



S.p.A.

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TEST. N°	MATERIAL SPECIFICATION AND GRADE	HEAT NUMBER	LADLE ANALYSIS (%)																							C.E.		
			C	Mn	Si	P	S	Cr	Mo	Ni	Ti	Cu	V	Fe	Al	Co	N	W	Zn	Pb	Sn	As	Sb	Ca	O		B	H
34774/2012	ASTM A105	1157387	0,175	0,830	0,220	0,010	0,009	0,110	0,010	0,050		0,150	0,014		0,000													0,370
33997/2011	ASTM A105	1177383	0,190	0,880	0,250	0,015	0,010	0,110	0,010	0,050		0,140	0,000		0,000													0,373
35158/2012	ASTM A105	12770536	0,200	0,900	0,200	0,011	0,009	0,090	0,090	0,040		0,110	0,018		0,002													0,381
34278/2011	ASTM A105	1178586	0,190	0,890	0,220	0,012	0,010	0,110	0,010	0,040		0,120	0,005		0,001													0,373
33985/2011	ASTM A105	1178485	0,185	0,830	0,220	0,008	0,008	0,110	0,020	0,050		0,180	0,000		0,002													0,381
34798/2011	ASTM A105	1178175	0,200	0,870	0,200	0,009	0,008	0,100	0,010	0,050		0,170	0,000		0,000													0,381
34717/2012	ASTM A105	1157387	0,175	0,830	0,220	0,010	0,009	0,110	0,010	0,050		0,150	0,014		0,000													0,370
33738/2011	ASTM A105	1146810	0,185	1,100	0,225	0,012	0,005	0,133	0,005	0,025		0,040	0,000		0,000													0,400
33482/2011	ASTM A105	1178133	0,190	0,890	0,220	0,012	0,010	0,080	0,100	0,050		0,130	0,000		0,002													0,368
24359/2006	ASTM A105	0578268	0,190	0,940	0,180	0,011	0,010	0,070	0,100	0,050		0,130	0,017		0,001													0,378

TEST. N°	TENSILE TEST [ Mpa ]				IMPACT TEST [ Joule ]			HARDNESS TEST		HYDROSTATIC TEST [ bar ]	FLARING TEST	BENDING TEST			FLATTENING TEST	Eddy Current	REFEREMENTS
	Test Temperature	Tensile Strength	Yield Strength	Elongation %	Reduction Area %	Test Temperature	Absorbed Energy	Type	Specimen Size			Dir.	Value	Scale			
34774/2012	+ 20 °C	502	339	30,00	57,50												
33997/2011	+ 20 °C	500	307	33,80	58,20												
35158/2012	+ 20 °C	505	309	33,00	57,20												
34278/2011	+ 20 °C	501	309	33,60	59,10												
33985/2011	+ 20 °C	495	310	33,00	58,10												
34798/2011	+ 20 °C	502	312	33,70	57,20												
34717/2012	+ 20 °C	490	332	31,50	58,00												
33738/2011	+ 20 °C	520	371	31,00	65,90												
33482/2011	+ 20 °C	500	307	34,10	58,20												
24359/2006	+ 20 °C	525	330	33,40	57,80												

TEST. N°	SCALI				MAX. T		H.T.	SCALE	MAX. T	BELOW TO	COOLING MEDIA		HEAT TREATMENTS REFERENCES	BASE MATERIAL CERTIFIC. REF.		STEEL WORKS	
	H.T. (1)	°C	°C	°C	°C	°C					TO						
34774/2012	NORMAL.	°C	920								AIR			39371	RIVA		
33997/2011	NORMAL.	°C	910								AIR			24454	RIVA		
35158/2012	NORMAL.	°C	920								AIR			3927	RIVA		
34278/2011	NORMAL.	°C	920								AIR			33716	RIVA		
33985/2011	NORMAL.	°C	910								AIR			16112	RIVA		
34798/2011	NORMAL.	°C	920								AIR			14237	RIVA		
34717/2012	NORMAL.	°C	920								AIR			39371	RIVA		
33738/2011	NORMAL.	°C	920								AIR			2011100000024294	LOCCHINI		
33482/2011	NORMAL.	°C	920								AIR			13597	RIVA		
24359/2006	NORMAL.	°C	900								AIR			52328	RIVA		

NOTES		THIRD PARTS		CUSTOMER INSPECTOR		QUALITY CONTROL	
(7) V=Nb+Ti<0,10%; Cu+Ni+Cr+Mo<1%; B<0,0001 C.E.=C+Mn/6+(Cr+Mo+V)/5+(Cu+Ni)/15							



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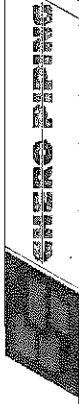
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TEST.N°	MATERIAL SPECIFICATION AND GRADE	HEAT NUMBER	LADLE ANALYSIS (%)																										
			C	Mn	Si	P	S	Cr	Mo	Ni	Ti	Cu	V	Fe	Al	Co	N	W	Zn	Pb	Sn	As	Sb	Ca	O	B	H	C.E.	
34839/2012	ASTM A105	11708303	0,200	0,980	0,240	0,010	0,009	0,090	0,010	0,060		0,180	0,018		0,001														0,398 (7)
34840/2012	ASTM A105	1170824	0,185	0,880	0,240	0,011	0,010	0,100	0,020	0,060		0,150	0,020		0,001														0,370 (7)
34844/2012	ASTM A105	1170740	0,180	0,870	0,240	0,012	0,010	0,100	0,020	0,060		0,180	0,017																0,368 (7)
33640/2011	ASTM A105	11705367	0,195	0,850	0,240	0,014	0,010	0,150	0,010	0,060		0,180	0,000		0,001														0,384 (7)
32125/2010	ASTM A105	1030366	0,195	0,940	0,220	0,011	0,010	0,090	0,010	0,050		0,140	0,000		0,002														0,384 (7)
34192/2011	ASTM A105	1170481	0,180	0,880	0,220	0,013	0,003	0,140	0,010	0,050		0,150	0,000		0,000														0,369 (7)
33624/2011	ASTM A105	1032876	0,195	0,970	0,210	0,012	0,008	0,110	0,010	0,060		0,130	0,014		0,000														0,395 (7)
32499/2010	ASTM A105	1072870	0,185	0,960	0,210	0,009	0,009	0,070	0,010	0,060		0,160	0,018		0,002														0,378 (7)
31489/2010	ASTM A105	0477236	0,200	0,900	0,240	0,017	0,026	0,100	0,010	0,050		0,200	0,002		0,000														0,369 (7)
28265/2008	ASTM A105	0777093	0,190	0,900	0,250	0,009	0,008	0,070	0,010	0,040		0,140	0,018		0,000														0,371 (7)

TEST.N°	TENSILE TEST [ Mpa ]				IMPACT TEST [ Joule ]				HARDNESS TEST		HYDROSTATIC TEST [ bar ]	FLARING TEST	BENDING TEST		FLATTENING TEST	Eddy Current	REFEREMENTS
	Test Temperature	Tensile Strength	Yield Strength	Elongation %	Reduction Area %	Test Temperature	Asiatic Energy	Type	Specimen Size	Dir.			Dir.	Mineral	Angle		
34839/2012	+ 20 °C	515	354	28,80	56,20	- 46 °C	49	50	48	KV							
34840/2012	+ 20 °C	500	311	33,30	58,30												
34844/2012	+ 20 °C	494	307	33,70	59,00												
33640/2011	+ 20 °C	506	315	33,00	56,60					10 X 10,0 L							
32125/2010	+ 20 °C	505	343	29,80	57,10												
34192/2011	+ 20 °C	499	310	33,40	58,20												
33624/2011	+ 20 °C	508	359	28,40	58,50												
32499/2010	+ 20 °C	514	319	32,50	56,80												
31489/2010	+ 20 °C	517	320	32,40	56,50												
28265/2008	+ 20 °C	509	316	32,80	57,30												

TEST.N°	H.T. (1)	SCALI	MAX. T	H.T. (2)	SCALE	MAX. T	BELOW TO	COOLING MEDIA	BELOW TO	COOLING MEDIA	HEAT TREATMENTS REFEREMENTS	BASE MATERIAL CERTIFIC.REF.		STEEL WORKS
34839/2012	NORMAL.	°C	920					AIR				45031	RIVA	
34840/2012	NORMAL.	°C	920					AIR				41055	RIVA	
34844/2012	NORMAL.	°C	920					AIR				43310	RIVA	
33640/2011	NORMAL.	°C	910					AIR				15312	RIVA	
32125/2010	NORMAL.	°C	900					AIR				32970	RIVA	
34192/2011	NORMAL.	°C	910					AIR				32602	RIVA	
33624/2011	NORMAL.	°C	910					AIR				12879	RIVA	
32499/2010	NORMAL.	°C	900					AIR				31641	RIVA	
31489/2010	NORMAL.	°C	900					AIR				2869	RIVA	
28265/2008	NORMAL.	°C	900					AIR				20827	RIVA	

NOTES		THIRD PARTS		CUSTOMER INSPECTOR		QUALITY CONTROL	
(7) V=Nb+Ti<0,10%; Cu+Ni+Cr+Mo<1%; B<0,0001 C.E.=C+Mn/6+(Cr+Mo+V)/5+(Cu+ Ni)/15							



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S.p.A.

CERTIFICATE N°

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CUSTOMER

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TEST.N°	MATERIAL SPECIFICATION AND GRADE	HEAT NUMBER	LADLE ANALYSIS (%)																											
			C	Mn	Si	P	S	Cr	Mo	Ni	Ti	Cu	V	Fe	Al	Ch	Ta	Co	N	W	Zn	Pb	Sn	As	Sb	Ca	O	B	H	C.E.
31602/2010	ASTM A105	0674668	0,195	0,920	0,210	0,009	0,013	0,070	0,010	0,060		0,160	0,001			0,000														0,379
34984/2012	ASTM A105	76920	0,185	0,920	0,180	0,014	0,005	0,150	0,020	0,070		0,180	0,000			0,000														0,398
33113/2011	ASTM A105	38919	0,190	1,000	0,230	0,012	0,008	0,100	0,010	0,060		0,150	0,012			0,001														0,395
34057/2011	ASTM A105	G79604	0,180	0,840	0,180	0,011	0,009	0,080	0,000	0,060		0,100	0,000			0,000														0,346
21284/2003	ASTM A105	G98665	0,194	0,858	0,204	0,009	0,008	0,100	0,014	0,050		0,083	0,000			0,000														0,368
32719/2010	ASTM A105	AC1675	0,200	0,940	0,270	0,009	0,022	0,110	0,020	0,080		0,110	0,002			0,000														0,395
33560/2011	ASTM A105	AC1434	0,180	0,890	0,250	0,011	0,023	0,150	0,030	0,090		0,150	0,000			0,000														0,399
34005/2011	ASTM A105	42099	0,200	0,920	0,190	0,011	0,012	0,070	0,010	0,080		0,200	0,000			0,000														0,387
33998/2011	ASTM A105	1074408	0,195	0,910	0,220	0,022	0,008	0,140	0,020	0,060		0,160	0,005			0,002														0,394
35038/2012	ASTM A105	1175388	0,190	0,870	0,200	0,012	0,010	0,100	0,020	0,040		0,150	0,000			0,001														0,381

TEST.N°	TENSILE TEST [Mpa]				IMPACT TEST [Joule]				HARDNESS TEST		HYDROSTATIC TEST [bar]	FLARING TEST	BENDING TEST		FLATTENING TEST	EDDY CURRENT	REFERENCES
	Test Temperature	Yield Strength	Tensile Strength	Elongation	Yield Temperature	Absorbed Energy	Type	Specimen Size	Dir.	Value			Dir.	Maximal			
31602/2010	+ 20 °C	512	315	34,00	58,00					150,0	HB						
34994/2012	+ 20 °C	508	315	32,90	57,40					151,0	HB						
33113/2011	+ 20 °C	507	368	27,50	57,50					158,0	HB						
34057/2011	+ 20 °C	503	328	28,00	65,00					155,0	HB						
21284/2003	+ 20 °C	511	356	34,00	69,00					149,0	HB						
32719/2010	+ 20 °C	554	348	22,60	52,50					183,0	HB						
33560/2011	+ 20 °C	622	569	32,00	51,40					192,0	HB						
34005/2011	+ 20 °C	530	350	31,80	58,90					160,0	HB						
33996/2011	+ 20 °C	500	312	33,10	57,10					150,0	HB						
35038/2012	+ 20 °C	491	303	34,30	59,00					150,0	HB						

TEST.N°	H.T. (1)	SCALI	MAX. T	H.T. (2)	SCALE	MAX. T	BELOW TO	COOLING MEDIA	HEAT TREATMENTS REFERENCES	BASE MATERIAL CERTIFIC. REF.		STEEL WORKS
31602/2010	NORMAL.	°C	920					AIR		5689	RIVA	
34994/2012	NORMAL.	°C	920					AIR		18959	RIVA	
33113/2011	NORMAL.	°C	900					AIR		10611	RIVA	
34057/2011	NORMAL.	°C	920					AIR		6850	INTERACCIAI	
21284/2003	NORMAL.	°C	900					AIR		1.017897/20	STILMA	
32719/2010	NORMAL.	°C	900					AIR		03839/1	RODACCIAI	
33560/2011	NORMAL.	°C	910					AIR		039552	RODACCIAI	
34005/2011	NORMAL.	°C	900					AIR		16144HL	HES HENNINGSDORFER	
33996/2011	NORMAL.	°C	910					AIR		41140	RIVA	
35038/2012	NORMAL.	°C	920					AIR		3700	RIVA	

NOTES

(7) V+Nb+Ti<0,10%; Cu+Ni+Cr+Mo<1%; B<0,0001 C.E.=C+Mn/6+(Cr+Mo+V)/5+(Cu+Ni)/15






QUALITY CONTROL


CUSTOMER INSPECTOR

THIRD PARTS

DOMENICO GUARNIERI  
CHERO PIPING S.P.A.

[illegible][illegible]

TEST N°	H.T. ①	SCALE	 $t_{ch}$	MAX. T	 $t_h$	 $t_{ch}$	BELOW TO	COOLING MEDIA	H.T. ②	SCALE	MAX. T	 $t_h$	 $t_{ch}$	BELOW TO	COOLING MEDIA	HEAT TREATMENTS REFERENCEMENTS	BASE MATERIAL CERTIFIC. REF.	STEEL WORKS
3438/2011	NORMAL.	°C		920				AIR									068531	RODACCIAI
3256/2010	NORMAL.	°C		900				AIR									05837/1	RODACCIAI
3418/2011	NORMAL.	°C		910				AIR									066302	RODACCIAI
32989/2011	NORMAL.	°C		900				AIR									001519	RODACCIAI
24466/2006	NORMAL.	°C		900				AIR									10191	RIVA
33005/2011	NORMAL.	°C		900				AIR									40216	RIVA
28428/2007	NORMAL.	°C		900				AIR									22901	RIVA
33006/2011	NORMAL.	°C		900				AIR									31815	RIVA
30850/2008	NORMAL.	°C		900				AIR									14567	RIVA
31792/2010	NORMAL.	°C		900				AIR									014491	RODACCIAI

NOTES	THIRD PARTS	CUSTOMER INSPECTOR	QUALITY CONTROL
(7) V+Nb+Ti<0,10%; Cu+Ni+Cr+Mo<1%; B%<0,0001 C.E.=C+Mn/6+(Cr+Mo+V)/5+(Cu+ Ni)/15			 <b>DOMENICO GUARNIERI</b> CHERO FIPING S.P.A.



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S.p.A.

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CUSTOMER  
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TEST.N°	MATERIAL SPECIFICATION AND GRADE	HEAT NUMBER	LADLE ANALYSIS (%)																										
			C	Mn	Si	P	S	Cr	Mo	Ni	Ti	Cu	V	Fe	Al	Co	N	W	Zn	Pb	Sn	As	Sb	Ca	O	B	H	C.E.	
33978/2011	ASTM A105	AG1434	0,180	0,950	0,250	0,011	0,023	0,160	0,030	0,090		0,150	0,000		0,000														0,389
32857/2010	ASTM A105	1031777	0,180	0,950	0,240	0,009	0,010	0,150	0,010	0,040		0,130	0,012		0,002														0,304
30292/2009	ASTM A105	G73966	0,180	0,850	0,220	0,013	0,005	0,070	0,020	0,060		0,090	0,000		0,000														0,349
30475/2009	ASTM A105	187441	0,156	1,127	0,233	0,014	0,008	0,149	0,035	0,166		0,243	0,002		0,003														0,408
30480/2009	ASTM A105	188835	0,174	1,026	0,280	0,007	0,002	0,135	0,028	0,118		0,267	0,002		0,001														0,403
34535/2010	ASTM A105	1178291	0,190	0,880	0,220	0,014	0,006	0,150	0,020	0,070		0,180	0,020		0,001														0,391
32562/2011	ASTM A234 GR. WPB	93076	0,140	0,860	0,250	0,012	0,009	0,040	0,020	0,070		0,190	0,004		0,000														0,280
34609/2012	ASTM A234 GR. WPB	105731	0,160	0,890	0,230	0,011	0,001	0,060	0,050	0,080		0,220	0,003		0,001														0,355
22253/2004	ASTM A234 GR. WPB	83267	0,160	0,840	0,240	0,013	0,008	0,090	0,010	0,090		0,230	0,000		0,000														0,307
31669/2010	ASTM A234 GR. WPB	91555	0,120	0,850	0,230	0,012	0,006	0,040	0,020	0,060		0,190	0,005		0,000														0,257

TEST.N°	TENSILE TEST [Mpa]				IMPACT TEST [Joule]				HARDNESS TEST		HYDROSTATIC TEST		FLARING TEST		BENDING TEST		FLATTENING TEST		EDDY CURRENT		REFERENCES	
	Test Temperature	Yield Strength	Tensile Strength	Elongation	Test Temperature	Absorbed Energy	Type	Specimen	Value	Scale	Pressure	Value	Dir.	Angle	Dir.	Angle	Test	Test	Current	Current	Ref.	Ref.
33978/2011	+ 20 °C	632	579	31,50	57,50				182,0	HB												
32857/2010	+ 20 °C	493	349	29,40	58,10				155,0	HB												
30292/2009	+ 20 °C	507	366	31,00	62,00				187,0	HB												
30475/2009	+ 20 °C	581	385	32,00	69,00				151,0	HB												
30480/2009	+ 20 °C	494	354	32,20	65,10				158,0	HB												
34535/2010	+ 20 °C	506	313	33,90	58,10				161,0	HB												
32562/2011	+ 20 °C	510	408	41,40					195,0	HB												
34609/2012	+ 20 °C	506	308	38,00					139,0	HB												
22253/2004	+ 20 °C	515	349	39,00					150,0	HB												
31669/2010	+ 20 °C	453	342	34,40					170,0	HB												

TEST.N°	H.T. ①	SCALI	 $\tau_{ch}$	MAX. T	 $\tau_h$	 $\psi_{ch}$	BELOW TO	COOLING MEDIA	H.T. ②	SCALE	MAX. T	 $\tau_h$	 $\psi_{ch}$	BELOW TO	COOLING MEDIA	HEAT TREATMENTS REFERENCES	BASE MATERIAL CERTIFIC.REF.	STEEL WORKS
33578/2011	NORMAL.	°C		910				AIR									024740	RODACCIAI
32857/2010	NORMAL.	°C		900				AIR									48195	RIVA
30292/2009	NORMAL.	°C		910				AIR									2418	INTERACCIAI
30475/2009	NORMAL.	°C		900				AIR									129188	ACCIAIERIE VENETE
30480/2009	NORMAL.	°C		900				AIR									130454	ACCIAIERIE VENETE
34535/2010	NORMAL.	°C		900				AIR									32522	RIVA
32852/2011	NORMAL.	°C		900				AIR									35377/1/2009	ZELEZARNE-FOREZEVOA
34609/2012	NORMAL.	°C		920				AIR									0000210792	TUBOS REUNIDOS
22253/2004	NORMAL.	°C		920				AIR									84275	PIETRA
31669/2010	NORMAL.	°C		900				AIR									19087/1/2009	ZELEZARNE-FOREZEVOA

NOTES		THIRD PARTS	CUSTOMER INSPECTOR	QUALITY CONTROL
(7) V+Nb+Ti<0,10%; Cu+Ni+Cr+Mo<1%; B<0,0001 C.E.=C+Mn/6+(Cr+Mo+V)/5+(Cu+ Ni)/15				<div>DOMENICO GUARNIERI</div> <div></div> <div>CHERO PIPING S.P.A.</div>



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TEST.N°	MATERIAL SPECIFICATION AND GRADE	HEAT NUMBER	LADLE ANALYSIS (%)															
			C	Mn	Si	P	S	Cr	Mo	Ni	Ti	Cu	V	Fe	Al	Co	Ta	Nb
32358/2010	ASTM A234 GR. WPB	239	0,130	0,630	0,250	0,011	0,009	0,080	0,020	0,060		0,200	0,005					
24897/2008	ASTM A234 GR. WPB	92477	0,140	0,630	0,240	0,009	0,008	0,110	0,010	0,060		0,140	0,000					
3404/2011	ASTM A234 GR. WPB	93249	0,130	0,640	0,230	0,016	0,006	0,070	0,020	0,060		0,180	0,000					
35/03/2012	ASTM A234 GR. WPB	16755	0,140	0,660	0,200	0,007	0,005	0,060	0,010	0,050		0,150	0,007					
35/10/2012	ASTM A234 GR. WPB	108096	0,160	0,810	0,260	0,012	0,003	0,100	0,040	0,090		0,210	0,000					
35/05/2012	ASTM A234 GR. WPB	109490	0,160	0,840	0,230	0,015	0,001	0,060	0,050	0,110		0,210	0,004					
3164/2010	ASTM A234 GR. WPB	239	0,130	0,630	0,260	0,011	0,009	0,080	0,020	0,060		0,230	0,005					
34662/2012	ASTM A234 GR. WPB	4408	0,140	0,670	0,250	0,011	0,009	0,060	0,020	0,080		0,250	0,002					
33437/2011	ASTM A106 GR. B	10964	0,140	0,460	0,210	0,007	0,008	0,030	0,000	0,040		0,150	0,000					
34768/2012	ASTM A106 GR. B	32012	0,170	1,200	0,240	0,010	0,003	0,040	0,010	0,080		0,170	0,003					

TEST. N°	TENSILE TEST [ Mpa ]				IMPACT TEST [ Joule ]			HARDNESS TEST		FLARING TEST	BENDING TEST			FLATTENING TEST	Eddy Current	REFERENCES
	Test Temperature	Tensile Strength	Yield Strength	Elongation %	Test Temperature	Absorbed Energy	Type	Specimen Size	Dir.		Value	Scale	Dir.			
32358/2010	+ 20 °C	469	335	38,00	- 50 °C	50	51	55 KV	10 X 10,0 L	Dir.	152,0	HB	OK	OK	OK	
24897/2009	+ 20 °C	456	320	41,00		50	60	55 KV	10 X 5,0 L	L	160,0	HB				
3404/2011	+ 20 °C	470	331	38,00	- 50 °C	50	55 KV	55 KV	10 X 5,0 L		155,0	HB	OK	OK	OK	
35/03/2012	+ 20 °C	477	352	26,30							149,0	HB				
35/10/2012	+ 20 °C	490	322	42,00							143,0	HB				
35/05/2012	+ 20 °C	491	322	40,00							143,0	HB				
3164/2010	+ 20 °C	460	332	34,00							160,0	HB	OK		OK	
34662/2012	+ 20 °C	480	320	38,00							144,0	HB				
33437/2011	+ 20 °C	492	398	38,30							169,0	HB	X	OK	OK	OK
	34768/2012	+ 20 °C	506	391							33,00	153,0				

TEST.N°	H.T. (1)	SCALI	MAX. T	H.T. (2)	SCALE	MAX. T	BELOW TO	COOLING MEDIA	BELOW TO	HEAT TREATMENTS REFERENCES	BASE MATERIAL CERTIFIC. REF.		STEEL WORKS
32358/2010	NORMAL.	°C	900					AIR			9058/1/2010		ZELEZARNE-PODRZEZOVA
24897/2008	NORMAL.	°C	900					AIR			7522		PIETRA
3404/2011	NORMAL.	°C	920					AIR			15410/1/2010		ZELEZARNE-PODRZEZOVA
35/03/2012	NORMAL.	°C	920					AIR			3469/1		ZELEZARNE-PODRZEZOVA
35/10/2012	NORMAL.	°C	920					AIR			000307797/1		TUBOS REUNIDOS INDUSTRIAL
35/05/2012	NORMAL.	°C	920					AIR			9317/1/2010		TUBOS REUNIDOS INDUSTRIAL
3164/2010	NORMAL.	°C	900					AIR			1322/1/2011		ZELEZARNE-PODRZEZOVA
34662/2012	NORMAL.	°C	920					AIR			18429/1/2011		ZELEZARNE-PODRZEZOVA
33437/2011	NORMAL.	°C	920					AIR			9053		ANTONI S.A.
34768/2012	NORMAL.	°C	920					AIR					

NOTES			THIRD PARTS	CUSTOMER INSPECTOR	QUALITY CONTROL
(7)	V+Nb+Ti<0,10%; Cu+Ni+Cr+Mo<1%; B≤0,0001 C.E.=C+Mn/6+ (Cr+Mo+V)/5+ (Cu+ Ni)/15				
(2)	FULLY KILLED CARBON STEEL - FINE GRAIN ACCORDING TO ASTM E112 = 7				
<div><div>DOMENICO GUARNIERI</div><div></div><div>CHERO PIPING S.P.A.</div></div>					





**SHEET**

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LADLE ANALYSIS (%)TENSILE TEST (Mpa)STEEL WORKS

## QUALITY CONTROL

(2) FULLY KILLED CARBON STEEL - FINE GRAIN ACCORDING TO ASTM E112 = 7

**DOMENICO GUARNIERI**  
CHERO PIPING S.P.A.

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TEST.N°	MATERIAL SPECIFICATION AND GRADE	HEAT NUMBER	LADLE ANALYSIS (%)																											
			C	Mn	Si	P	S	Cr	Mo	Ni	Ti	Cu	V	Fe	Al	Cb	Ta	Co	N	W	Zn	Pb	Sn	As	Sb	Ca	O	B	H	C.E.
33607/2011	ASTM A106 GR. B	2435	0,140	1,010	0,230	0,006	0,001	0,050	0,020	0,080		0,210	0,000			0,001														0,341
33576/2011	ASTM A106 GR. B	105867	0,160	0,800	0,240	0,009	0,006	0,080	0,040	0,100		0,280	0,000			0,001														0,342
33983/2011	ASTM A106 GR. B	105953	0,140	0,720	0,230	0,008	0,006	0,100	0,060	0,100		0,260	0,000			0,000														0,316
33632/2011	ASTM A106 GR. B	107138	0,170	0,820	0,210	0,008	0,003	0,070	0,030	0,090		0,200	0,000			0,000														0,345
34539/2010	ASTM A106 GR. B	86554	0,160	0,730	0,200	0,009	0,004	0,001	0,020	0,070		0,200	0,001			0,007														0,294

TEST.N°	TENSILE TEST [ Mpa ]					IMPACT TEST [ Joule ]			HARDNESS TEST			HYDROSTATIC TEST [ bar ]	FLARING TEST	BENDING TEST		FLATTENING TEST	Eddy Current	REFERENCES	
	Test Temperature	Tensile Strength	Yield Strength	Elongation %	Reduction Area %	Test Temperature	Absorbed Energy	Type	Specimen Size	Dir.	Value			Scale	Dir.				Marked g/mm
33607/2011	+ 20 °C	497	350	38,00							145,0	HB		204		OK		OK	
33576/2011	+ 20 °C	511	337	40,00							150,0	HB		172		OK			
33983/2011	+ 20 °C	462	309	42,00							160,0	HB		172		OK			
33632/2011	+ 20 °C	489	319	30,00							145,0	HB		207		OK		OK	
34539/2010	+ 20 °C	415	240	30,00							154,0	HB		207				OK	

TEST.N°	H.T.		SCALI	MAX. T	H.T.	COOLING MEDIA	H.T.	SCALE	MAX. T	BELOW TO	COOLING MEDIA	HEAT TREATMENTS REFERENCES		BASE MATERIAL CERTIFIC. REF.		STEEL WORKS	
	(1)	(2)															
33607/2011	NORMAL.		°C	900		AIR								1259		ASTROM S.A.	
33576/2011	NORMAL.		°C	920		AIR								211492		TUBOS REUNIDOS	
33983/2011	NORMAL.		°C	920		AIR								213530		TUBOS REUNIDOS S.A.	
33632/2011	NORMAL.		°C	910		AIR								301969/1		TUBOS REUNIDOS S.A.	
34539/2010	NORMAL.		°C	920		AIR								169573		TUBOS REUNIDOS S.A.	

NOTES		THIRD PARTS		CUSTOMER INSPECTOR		QUALITY CONTROL	
(2) FULLY KILLED CARBON STEEL - FINE GRAIN ACCORDING TO ASTM E112 - 7						DOMENICO GUARNIERI CHERO PIPING S.P.A.	

Spett.le / Messrs

R.T.I. SPA

VIA AMBROSOLI 2VA  
20090 RODANO MILLEPINI MI

**Certificato di Analisi**  
**Certificate of Analysis**

**No. 20122035 EN 10204:2005 3.1**  
**ASTM A105-09**

pagina/page  
14/19

Item	Po No.	Descrizione prodotto/Description	qtà/qty	sigla/heat code colata/heat	Mill Cert.	Origin	Our Job No
0	39248	<b>TAPPI ESAGONALI 1/4" NPT A105</b> HEX PLUG - Dimensions according to ASME B16.11 - last edition/Class 3/6000 - ZINCATI	20	G79	10015	INTER	43200
0	39248	<b>NIPPLI ESAGONALI 1/4" 3000 NPT A105</b> HEX NIPPLES - Dimensions according to BS 3799 - last edition - ZINCATI	20	G79	10015	INTER	43200

### ANALISI CHIMICA / CHEMICAL ANALYSIS

Colata Heat No.	C %	Mn %	Si %	P %	S %	Ni %	Cr %	Mo %	Ti %	V %	Cu %	Al %	Nb %	N %	Sn %	C.E. %
G79	0,35 max	0,60-1,05	0,10-0,35	0,035 max	0,040 max	0,40 max	0,30 max	0,12 max								0,35

### CARATTERISTICHE MECCANICHE / MECHANICAL PROPERTIES

Colata Heat No.	Dim. provino Spec. Dim mm.	Area Sez. area section mm <sup>2</sup>	Lunghezza Gauge Length mm	Lunghezza Utile Gauge Length mm	Senso provino Roll Direct.	Temp. Prova Temp. Test °C	R Tensile N/mm <sup>2</sup>	S Yield point N/mm <sup>2</sup>	A:2" Elongation %	C Reduction of area %	KV Impact Test Joule	Temp. °C	Senso Prov. Roll direction	HB Hardness Test
G79						20	503	328	28	65			L	158 158

Normalized at 900°- 920° / AIR Cooling

Steel made by electric furnace Fully Killed Steel

MATERIAL MANUFACTURED ACCORDING TO PED 97/23/CE Annex 1 Art.4 - Material according to ASTM A105M and ASME SA105M - (Sez II Part A Ed.2010) .  
THE QUALITY MANAGEMENT SYSTEM SUPPORTS THE REQUIREMENTS OF ANNEX I, SECT. 4.3 OF PRESSURE EQUIPMENT DIRECTIVE (PED)

97/23/EC.CERTIFICATE 2009 Mi PP 60 Notify Body Rina Service S.p.A.

MATERIAL ACCORDING TO NACE MR0175 - MR0103 Last Edition (Hardness Only)

Visual and dimensional check according to ASME B16.11 - last edition/Class 3/6000 : satisfactory

Issued by Quality Manager:

**NEWMEC**

**Paolo Macchi**  
Cavaria, 13/10/12

Approved by Customer

Date

Collaudatore /Inspector

Date

Certificate generated by computer to be considered valid without signature.

Tel. +39 0331 219950 - Fax. +39 0331 219950 -217214 Email [info@newmecfittings.it](mailto:info@newmecfittings.it) web: [www.newmecfittings.it](http://www.newmecfittings.it)  
CODICE FISCALE P.IVA 02185610025

CUSTOMER  
 R.T.I. S.P.A.

CERTIFICATE N° 2582/2012      DATE 25/10/2012      SHEET 1

INTERNAL ORDER NUMBER 1326/2012      DATE 24/09/2012

 CUSTOMER ORDER REF.  
 39249/10+REV.1 - 12/09/2012

## TEST CERTIFICATE ACCORDING TO EN 10204 3.1 - EXTENT OF MATERIAL DELIVERY

POS.	TEST NO.	HEAT CODE	HEAT NUMBER	Q.TY	DESCRIPTION	MAT.REQUISITION / TAG N° / ITEM CODE / COMPUTER CODE / UB	ENCLOSURE / NOTES
1 1	35025/2012	M20	11/78665	50	GOMITI 45 SW S/3000 A105 1"		
2 1	33929/2011	41857	41857	5	SOCKOLET SW S/3000 A105 1/2"x3"-8"		
3 1	33422/2011	10/74446	10/74446	4	INSERTI SW S/3000 A105 11/2"x1"		
4 1	31277/2010	G79	G79604	30	H.H.PLUG NPT S/3000 A105 1/4"		
5 1	33903/2011	FM-CL	11/76495	5	TAPPI T.E.NPT S/3000 A105 2"		
6 1	35008/2012	AH0	AH0309	4	NIPPLI ES.NPT S/3000 A105 1/2"		
7 1	34882/2012	I15C	11/78291	4	THREDOLET NPT S/3000 A105 1"x2"		
8 1	33646/2011	AF5859	AF5859	4	THREDOLET NPT S/3000 A105 2"x3"		
9 1	20151/2002	12278	12278	10	SWAGE CONC.FXF SCH.40 A234WPB 1"x1/2"		
10 1	31277/2010	G79	G79604	20	TAPPI T.E.NPT S/3000 A105 1/4"		



## NOTES

THIS IS TO CERTIFY THAT MATERIAL REQUIREMENTS ARE ACCORDING TO ORDER SPECIFICATIONS.

MATERIAL ACC.TO NACE MR 01.75 ED.2007 + ASME SECTION II ED.2010.

VISUAL, DIMENSIONAL AND MARKING CHECK HAVE BEEN CARRIED OUT WITH SATISFACTORY RESULTS. MATERIAL ACC. WITH PED 97/23/EC.

## THIRD PARTS

## CUSTOMER INSPECTOR

## QUALITY CONTROL

**DOMENICO GUARNIERI**  
  
 CHERO PIPING S.P.A.



**RACCORDERIA FORGIATA / FORGED STEEL FITTINGS**  
Località Pradaglie, 37 - 29013 CARPANETO PIACENTINO - PC  
Tel +39 0523 859997 - Fax +39 0523 850833 - [infopc@cheropiping.com](mailto:infopc@cheropiping.com)

**CUSTOMER**  
R.T.I. S.P.A.

**CERTIFICATE N°**

2582/2012

DATE \_\_\_\_\_

25/10/2012

**SHEET**

INTERNAL ORDER NUMBER

1326/2012

DATE \_\_\_\_\_

24/09/2012


CUSTOMER ORDER REF.

39249/10+REV.1 - 12/09/2012

[illegible]

TEST.N°	TENSILE TEST [ Mpa ]					IMPACT TEST [ Joule ]					HARDNESS TEST		HYDROSTATIC TEST [ bar ]	FLARING TEST	BENDING TEST			FLATTENING TEST	Eddy Current	REFEREMENTS
	Test Temperature	Tensile Strength	Yeld Strength	Elongation %	Reduction Area %	Test Temperature	Absorbed Energy	Type	Specimen Size	Dir.	Value	Scale			Dir.	Mandrel Ø mm	Angle			
35025/2012	+ 20 °C	501	308	34,00	58,90						149,0	HB								
33929/2011	+ 20 °C	555	400	29,20	67,20						150,0	HB								
33422/2011	+ 20 °C	516	321	32,10	56,50						153,0	HB								
31277/2010	+ 20 °C	503	328	28,00	65,00						162,0	HB								
33903/2011	+ 20 °C	507	308	33,00	57,80						155,0	HB								
35008/2012	+ 20 °C	642	358	21,70	56,40						190,0	HB								
34882/2012	+ 20 °C	501	307	34,00	58,10						151,0	HB								
33646/2011	+ 20 °C	500	360	20,00	45,00						155,0	HB								
20151/2002	+ 20 °C	494	352	40,00							150,0	HB								

[illegible]

NOTES	THIRD PARTS	CUSTOMER INSPECTOR	QUALITY CONTROL
(7) $V+Nb+Ti < 0,10\%$ ; $Cu+Ni+Cr+Mo < 1\%$ ; $B < 0,0001$ C.E.= $C+Mn/6+(Cr+Mo+V)/5+(Cu+Ni)/15$			 DOMENICO GUARNIERI CHERO PIPING S.P.A.

**CHEMICAL ANALYSIS AND MECHANICAL TEST CERTIFICATE TO: DIN 50049 3.1 - EN 10204/3.1**



OFFICINE MECCANICHE SOLBIATE ARNO

Sede e Stabilimento: 21048 SOLBIATE ARNO (Varese)  
Via Caronno Varesino  
Tel. +39.0331.994.216 - Fax +39.0331.991.796  
web: <http://www.omsafitting.it> - e-mail: [info@omsafittings.it](mailto:info@omsafittings.it)



Messrs. R.T.I. SPA VIA AMBROSOLI 2/A 20090 RODANO MILLEPINI MI	ORDER: 39292/10 DATE : 17/09/2012 JOB : 12/91 /03102
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ITEM	Q.TY	DESCRIPTION	MATERIAL	HEAT CODE	STEEL MILL	MILL CERT	HEAT N.
17	49,00	MANICOTTO 3000 1/2" NPT F316L	SA182F316/316L	L03	ACC. VALBRUNA	157727/2012	254515
18	1,00	NIPPLO ES. 3000 1/2"X1/4"NPT ZINC.A105	SA-A105N	H07	RODACCIAI	02268/1	AG1434

**CHEMICAL ANALYSIS**

HEAT CODE	C %	Mn %	Si %	P %	S %	Ni %	Cr %	Mo %	Ti %	Al %	V %	Cu %	Nb %	N %			C.E. %	NOTE
L03	0,017	1,470	0,430	0,030	0,029	10,060	16,820	2,030	0,000	0,000	0,000	0,500	0,000	0,062	0,000	0,000	0,000	
H07	0,180	0,990	0,250	0,011	0,023	0,090	0,160	0,030	0,000	0,022	0,002	0,150	0,000	0,000	0,000	0,000	0,399	

**MECHANICAL TEST**

HEAT CODE	R N/mm <sup>2</sup>	S N/mm <sup>2</sup>	A %	C %	Bending Test	Flattenin g	Hydraulic Test	HARDNESS HB	IMPACT TEST J - °C	HEAT TREATMENT - °C	NOTE
L03	679,0	449,0	45,0	69,0				228 229	185 190 197 20	SOLUTION AT 1050	
H07	636,6	354,0	37,0	66,0				178 181	37 49 61 -10		

WE HEREBY CERTIFY THAT THE ABOVE IS IN ACCORDANCE WITH THE ORIGINAL CERTIFICATE WHICH IS HELD BY US.

SPECIMEN FOR ELONGATION: STANDARD ROUND. FITTINGS MEET ANSI B16.11 & BS3799 REQUIREMENTS.UNIONS GROUND JOINT, STEEL TO STEEL

FITTINGS ARE DIMENSIONAL AND SURFACE CHECKED WITHOUT OBJECTION. C/SWAGES TO MSS SP95, PIPE NIPPLES TO B36.10 : SEAMLESS.

MATERIAL TO ASME Sec.II Part A Ed.2010 - ASTM 01.01 NACE MR01.75 MR01.03 LATEST EDITION. A105N NORMALISED AT 890 C.

IN ACCORDANCE WITH PED 97/23/EC ANNEX 1 SECT. 4.3. WHERE REQUIRED EDDY CURRENT OR HYDROSTATIC TEST WITHOUT OBJECTIONS.

ASTM A182 F11 NORM. AT 920 C. O'LET TO MSS SP97.

F304/L+F316/L QUENCHING COOL BELOW 260 C

INSPECTION	O.M.S.A. S.R.L. Quality Control (Paolo Micheletti)	CERTIFICATE N°  01926/004	DATE  01/10/2012
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# CHEMICAL ANALYSIS AND MECHANICAL TEST CERTIFICATE TO: DIN 50049 3.1 - EN 10204/3.1



**omsa** S.R.L.

OFFICINE MECCANICHE SOLBIATE ARNO

Sede e Stabilimento: 21048 SOLBIATE ARNO (Varese)

Via Caronno Varesino

Tel. +39.0331.994.216 - Fax +39.0331.991.796

web: <http://www.omsafitting.it> - e-mail: [info@omsafittings.it](mailto:info@omsafittings.it)



Messrs. R.T.I. SPA	ORDER: 39956/10
VIA AMBROSOLI 2/A	DATE : 11/11/2012
20090 RODANO MILLEPINI MI	JOB : 12/91 /03790

ITEM	Q.TY	DESCRIPTION	MATERIAL	HEAT CODE	STEEL MILL	MILL CERT	HEAT N.
1	6,00	BOCCHETTONE FF 3000 1" NPT Z.CAL.A105	SA-A105N	ML-GA	RIVA	3742	75254
2	4,00	BOCCHETTONE FF 3000 1/2"NPT Z.CAL A105	SA-A105N	ML-GB	RIVA	14886	77593
3	7,00	GOMITO 45 S.3000 1" NPT Z.CAL.A105	SA-A105N	D06	RIVA	42904	08/76567
4	3,00	GOMITO 90 S.3000 1/2" NPT Z.CAL A105	SA-A105N	N57	RIVA	12903	71647
5	16,00	GOMITO 90 S.3000 1" NPT ZIN. CALDO A105	SA-A105N	M752	RIVA	24106	72745
6	4,00	N. TUBO XS 1/2"X100 NPT ZIN.CALD.A106/B	SA-A106/B	E80	ZELEZIARNE	32931/1/2009	91658
7	6,00	N. TUBO XS 1"X100 NPT Z.CAL A106/B	SA-A106/B	E82	ZELEZIARNE	29034/1/2009	92634

## CHEMICAL ANALYSIS

HEAT CODE	C %	Mn %	Si %	P %	S %	Ni %	Cr %	Mo %	Ti %	Al %	V %	Cu %	Nb %	N %	C.E. %	NOTE
ML-GA	0,195	0,900	0,210	0,014	0,009	0,070	0,110	0,010	0,015	0,023	0,018	0,170	0,002	0,000	0,000	0,380
ML-GB	0,185	0,920	0,200	0,015	0,023	0,050	0,090	0,010	0,007	0,005	0,003	0,140	0,001	0,000	0,000	0,370
D06	0,200	0,910	0,210	0,012	0,010	0,050	0,070	0,010	0,015	0,021	0,019	0,110	0,001	0,000	0,000	0,380
N57	0,180	0,850	0,220	0,011	0,007	0,040	0,070	0,010	0,018	0,022	0,019	0,150	0,001	0,000	0,000	0,350
M752	0,190	0,860	0,250	0,015	0,007	0,050	0,110	0,010	0,016	0,022	0,017	0,180	0,002	0,000	0,000	0,370
E80	0,130	0,650	0,220	0,013	0,008	0,070	0,040	0,020	0,002	0,013	0,004	0,250	0,001	0,000	0,000	0,272
E82	0,140	0,670	0,230	0,013	0,007	0,080	0,050	0,020	0,001	0,012	0,005	0,230	0,001	0,000	0,000	0,290

## MECHANICAL TEST

HEAT CODE	R N/mm <sup>2</sup>	S N/mm <sup>2</sup>	A %	C %	Bending Test	Flattenin g	Hydraulic Test	HARDNESS HB	IMPACT TEST J - °C	HEAT TREATMENT - °C	NOTE
ML-GA	514,0	319,0	32,5	56,8				154 167	58 61 59 -10		
ML-GB	508,0	315,0	32,9	57,5				151 157	60 61 67 -10		
D06	518,0	321,0	32,3	56,5				153 153	55 58 54 -10		
N57	497,0	306,0	33,9	59,7				145 146	71 68 70 -10		
M752	505,0	308,0	35,2	59,0				147 148	61 58 57 -10		
E80	474,0	407,0	48,0					147 148	114 89 96 -10		
E82	515,0	387,0	49,3					150 153	110 113 119 0		

WE HEREBY CERTIFY THAT THE ABOVE IS IN ACCORDANCE WITH THE ORIGINAL CERTIFICATE WHICH IS HELD BY US.

SPECIMEN FOR ELONGATION: STANDARD ROUND. FITTINGS MEET ANSI B16.11 & BS3799 REQUIREMENTS.UNIONS GROUND JOINT, STEEL TO STEEL

FITTINGS ARE DIMENSIONAL AND SURFACE CHECKED WITHOUT OBJECTION. C/SWAGES TO MSS SP95, PIPE NIPPLES TO B36.10 : SEAMLESS.

MATERIAL TO ASME Sec.II Part A Ed.2010 - ASTM 01.01 NACE MR01.75 MR01.03 LATEST EDITION. A105N NORMALISED AT 890 C.

IN ACCORDANCE WITH PED 97/23/EC ANNEX 1 SECT. 4.3. WHERE REQUIRED EDDY CURRENT OR HYDROSTATIC TEST WITHOUT OBJECTIONS.

ASTM A182 F11 NORM. AT 920 C. O'LET TO MSS SP97.

F304/L+F316/L QUENCHING COOL BELOW 260 C

INSPECTION	O.M.S.A. S.R.L. Quality Control (Paolo Micheletti)	CERTIFICATE N° 02457/003	DATE 03/12/2012
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**CERTIFICAT DE RECEPTION - ACCEPTANCE CERTIFICATE EN 10204 3.1 (Ex EN 10204 3.1.b)**

Customer : **R.T.I. S.P.A.**

VIA AMBROSOLI, 2/A  
20090 RODANO MILLEPINI (MI)  
ITALIA

Order : **39250/10**

Certificate n° : **174230 / 4**

26/09/2012

Dispatch note **174230**

25/09/2012

Material specification

**ASTM A106 GR.B/08 - CONFORMITY NACE MR 0175-09**

Heat Treatment

**HOT FINISHED T°C MINI 620°C-MAXI 980°C- COOLED IN STILL AIR**

**DESCRIPTION**

Item	Qty	Designation	Heat N°	Identification	Spec dimension				Localisation
8	3	NIPPLE S80 TBE 3/4" X 2"	278293	MKA	A733/93				11/08 22062
9	3	NIPPLE S80 TBE 1" X 2"	33579	NMD	A733/93				10/11 26404
10	100	NIPPLE S80 TBE 1/2" X 4"	33955	NPA	A733/93				01/12 27221

**CHEMICAL ANALYSIS**

Item	Identif.	C %	Si%	Mn%	P%	S%	Cr%	Mo%	V%	Ni%	Cu%	Ce%		
mini			0.100	0.290										
maxi		0.250	1.350	0.035	0.035									
8	MKA	0.190	0.240	0.520	0.008	0.001	0.040	0.010	< 0.004	0.020	0.020	0.29		
9	NMD	0.150	0.240	0.550	0.009	0.002	0.040	0.020	0.002	0.080	0.200	0.27		
10	NPA	0.140	0.220	0.550	0.010	0.003	0.030	0.010	0.001	0.070	0.150	0.26		

**MECHANICAL TESTS**

Item	Identif.	Re 0.2% N/mm²	Rm N/mm²	A%	HB				
mini		240.0	415.0						
maxi				237					
8	MKA	346.0	496.0	45.7	147 - 150				
9	NMD	344.0	468.0	33.0	137 - 139				
10	NPA	329.0	440.0	35.0	135 - 137				

Nous certifions que les produits énumérés ci-dessous sont conformes aux prescriptions de la commande et des spécifications et ont subi, sans objection, les contrôles d'aspect et de dimensions.  
We hereby certify that above mentioned products are in accordance with the requirements of the order and specifications and have been checked without objection for surface and dimensionnel control.

Quality département





## MILL TEST CERTIFICATE - EN 10204: 2004 / 3.1

No.: 12407-1 Date: 03.01.2010	Manufacturer's mark :	Customer Order No.: 2095793	PL: 14609
<b>CUSTOMER : ARTIGIANTUBI S.r.l.</b> Via Pio la Torre, 10/12 I - 20056 Trezzo sull'Adda (MI) V.A.T. nr. IT 11718280156			
Specifications: ASTM A106-08; ASME SA 106-07; ASTM A53-07; ASME SA53-07; API 5L/ISO3183-08; PED 97/23/EC+EN 10216-2: 02+A2:07		Dimensions: 21.3 x 3.73 x 6 000+100/-0 mm Steel : Gr. B/X42 PSL1/P265GH TC1	
Description: Hot rolled seamless steel pipes with bevelled ends; marking by painting: T.M.K.-ARTROM, standard, dimensions, steel grade, 1.62Kg/m, LENGTH, (m), 2970 PSI, SMLS, heat no., LOT, mill inspector no. 5, technical control sign,			
Heat No.: 27952			
Quantity	Pcs	Length m	Theoretical Weight kg
	957	5742.0	9420

## Ladle Chemical Analyse

C	Mn	S	P	Si	Ni	Cr	Mo	Cu	Al	Nb	Ti	N	V
0.11	0.45	0.006	0.008	0.21	0.07	0.03	0.01	0.17	0.030	0.001	0.001	0.009	0.001
Cr+Cu+Mo+Ni: 0.28				Nb+V: 0.002				V+Nb+Ti: 0.003					

## Product Chemical Analyse

C	Mn	S	P	Si	Ni	Cr	Mo	Cu	Al	Nb	Ti	N	V
0.10	0.44	0.005	0.010	0.21	0.09	0.03	0.01	0.16	0.034	0.002	0.002	0.009	0.001
0.11	0.43	0.005	0.011	0.22	0.09	0.03	0.01	0.16	0.033	0.002	0.002	0.009	0.001

## Mechanical Properties

TENSILE TEST (ASTM A370-05) at room temperature Test Specimen Full section	Yield strength 0.5% EUL MPa	UTS MPa	Elongation %
Dimension - Specimen (mm) 1. 21.3 x 3.7 / 2. 21.35 x 3.70 / 3. 21.3 x 1.75	1 379	482	32
Section - Specimen (So) (mm <sup>2</sup> ) 1. 204.5 / 2. 205.05 / 3. 206.6	2 374	472	33
Length - Specimen (Lo) (mm) 1. 50.8 / 2. 50.8 / 3. 50.8	3 370	474	34

Heat treatment: normalised during hot rolling process Hydraulic test pressure (ASTM A530): 2970 PSI for 5 sec Bending test (ASTM A106 point II): OK Flattening test (EN ISO 8492): OK Drift expanding test (EN ISO 8493): OK	Charpy V- Notch (ASTM A 370) Longitudinal 2.5 x10 [mm] 1. 30 ( 28; 32; 30 ) J (-15°C) 2. 27 ( 26; 26; 28 ) J (-15°C) 3. 29 ( 28; 30; 28 ) J (-15°C)	Process of melting- electric arc furnace Hardness HRB: 1. 77-78-78-77 / 2. 76-77-77-76 3. 77-78-77-77 Hardness HRC max 22 (acc to NACE MR01.75) Grain size ASTM E 112 : 8.5
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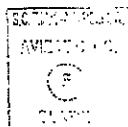
Visual inspection and dimensional check : OK

QC &amp; LABORATORIES CHIEF

Dipl. Eng. Silviu Barbulescu

MILL INSPECTOR

Eng. Marius Burlacu



This revision replace the MTC no. 12407/16.12.2009

THIS IS FOR CERTIFY THAT THE MATERIAL HEREIN DESCRIBED HAS BEEN MANUFACTURED WITH THE ORDERED SPECIFICATION AND THAT INFORMATION IS CORRECT, THEY MEET THE SPECIFICATION'S REQUIREMENTS AND CONTAINED THE RECORDS OF THE COMPANY.

Il presente certificato si intende copia  
conforme all'originale ed è valido per:

CLIENTE: RTI ORD 36652/10

D.d.f. N° Dal

Trezzo s/Adda li 31/1/12

ARTIGIANTUBI S.R.L.

Pos 4-7

A02 Inspection certificate "3.1" (EN 10 204)

A03 Document No.: 50782/08

A07	Customer's Order (P.O.) No./Item No.: 6700006907+6700006953	A08	Manufacturer's Works Order No.: 40253/0/07																																																												
A11	Supplier's Order No.: NH 3150020295	A10	Advice - Note No.: 910407																																																												
B06 B12/B13	Quantity delivered <table border="1"> <tr> <th>pcs</th> <th>mts</th> <th>kgs</th> </tr> <tr> <th>bols</th> <th>feet</th> <th>lbs</th> </tr> <tr> <td>1477</td> <td>8940.000</td> <td>14390</td> </tr> </table>	pcs	mts	kgs	bols	feet	lbs	1477	8940.000	14390	A06	Customer / Consignee:																																																			
pcs	mts	kgs																																																													
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1477	8940.000	14390																																																													
B09-11	Dimensions: 1/2" X 3.70 mm	<div style="border: 1px solid black; width: 100px; height: 100px; margin: 0 auto;"></div>																																																													
B02	Steel designation: BPSL1																																																														
B01 B03 B04	Product, conditions and terms of delivery: Seamless steel pipes, acc. to API 6L-43rd edit.2004-PSL1, ASTM A106/A106M-04, ASME SA 106-04, PED 97/23/EC Annex I par.4.3, NACE MR 0175/ISO 15156-03. Hot rolled - as rolled.																																																														
A04 B05	Marking: Manufacturer's mark, mill inspector's stamp MITTAL STEEL OSTRAVA A.S. <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; text-align: center; line-height: 30px;">2</div> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; text-align: center; line-height: 30px;">3</div> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; text-align: center; line-height: 30px;">4</div> </div>																																																														
C71-82 B07	Heat chemical analysis (%) <table border="1"> <thead> <tr> <th>Heat No.:</th> <th>C</th> <th>MN</th> <th>P</th> <th>S</th> <th>MO</th> <th>V</th> <th>TI</th> <th>SI</th> <th>CU</th> <th>NI</th> <th>CR</th> </tr> </thead> <tbody> <tr> <td>74129K</td> <td>0.17</td> <td>0.61</td> <td>0.003</td> <td>0.007</td> <td>0.004</td> <td>&lt;0.003</td> <td>&lt;0.003</td> <td>0.208</td> <td>0.08</td> <td>0.04</td> <td>0.04</td> </tr> <tr> <td>74239K</td> <td>0.17</td> <td>0.59</td> <td>0.003</td> <td>0.007</td> <td>0.004</td> <td>&lt;0.003</td> <td>&lt;0.003</td> <td>0.215</td> <td>0.09</td> <td>0.03</td> <td>0.04</td> </tr> <tr> <td>74850K</td> <td>0.17</td> <td>0.63</td> <td>0.012</td> <td>0.003</td> <td>0.006</td> <td>&lt;0.003</td> <td>&lt;0.003</td> <td>0.214</td> <td>0.09</td> <td>0.04</td> <td>0.06</td> </tr> <tr> <td>76318K</td> <td>0.17</td> <td>0.60</td> <td>0.015</td> <td>0.006</td> <td>0.007</td> <td>0.006</td> <td>&lt;0.003</td> <td>0.200</td> <td>0.11</td> <td>0.03</td> <td>0.07</td> </tr> </tbody> </table>			Heat No.:	C	MN	P	S	MO	V	TI	SI	CU	NI	CR	74129K	0.17	0.61	0.003	0.007	0.004	<0.003	<0.003	0.208	0.08	0.04	0.04	74239K	0.17	0.59	0.003	0.007	0.004	<0.003	<0.003	0.215	0.09	0.03	0.04	74850K	0.17	0.63	0.012	0.003	0.006	<0.003	<0.003	0.214	0.09	0.04	0.06	76318K	0.17	0.60	0.015	0.006	0.007	0.006	<0.003	0.200	0.11	0.03	0.07
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Z99	continues on appendix																																																														
B07 C04	Test results:	MPa	MPa	% 2"	J °C	HRB																																																									
	Heat No. ccc Specimen No. Requirements: BPSL1	c11 Yield Point min. 241	c12 Tensile Strength min. 414	c13 Elongation min. 25	c40-43 Impact test min	c30-32 Hardness max. 99																																																									
	74129K	314	485	35.8		77																																																									
	74239K	299	469	43.5		73																																																									
	74850K	282	485	40.2		72																																																									
	76318K	330	486	36.8		74																																																									
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C01	Visual and dimensional inspection with satisfactory results	X	C01	Hydraulic test - min. test pressure MPa / s	5.9 / 5																																																										
C50	Flattening test - satisfactory		C02	The pipes tested on tightness by NDT																																																											
C51	Expanding test - satisfactory			in acc. to																																																											
C52	Bending test - satisfactory	X																																																													
C53	Ring expanding test (DIN EN 10236) - satisfactory		C03	Nondestructive Elektromagnetic Testing																																																											
C54	Ring tensile test (DIN EN 10237) - satisfactory			eddy - current		X																																																									
22HRC=99HRBmax. add.D03) acc.to ASTM A106-Drilled hole aver.1.0 mm																																																															

Z01 All pipes conform to the above mentioned standards and ordering requirements.  
 Z02 Date of issue 24.1.2008/Vo

Tel: +420 585833644 / Fax: +420 585832052

ArcelorMittal Tubular Products Ostrava s.r.o.  
 Vřetřimovská 689, 707 02 Ostrava 7  
 Řešov Jihlavský

A01 ArcelorMittal Tubular Products Ostrava s.r.o.  
 A05 QA Department  
 Vřetřimovská 689  
 707 02 Ostrava-Kunčice  
 Czech Republic

Il presente certificato si intende copia  
 conforme all'originale ed è valido per  
 CLIENTE: RTI - CRN 29502  
 D.d.t. N° 133 Del 19/01/12  
 Trezzo s/Adige 25/01/12

Work's Inspector  
 202 Validation

E s. 25741613/P