

MARK WESTERHOF C9103RV
DOCUMENT NO.
HI-2627.

Hy-Tek (ENGINEERING SERVICES) LTD.

TOOLMAKERS—INSTRUMENT MANUFACTURERS AND PRECISION ENGINEERS
MANUFACTURERS OF SPECIAL PURPOSE MACHINERY
WELDING AND FABRICATION

Telephone: (0493) 855345

Fax: (0493) 854907

Registered Office and Works:
MAIN CROSS ROAD
GREAT YARMOUTH
NORFOLK NR30 3PD

CONTRACT NO.: 9545
CONSIGNEE: S.M.D.-HYDROVISION LIMITED
ADDRESS: WINCOMBLEE RD, WALKER, NEWCASTLE-UPON-TYNE
ORDER NO.: 59126

Certificate of Conformance

DESCRIPTION	QTY	SPEC/DRG. NUMBER & ISSUE NUMBER	IDENTIFICATION SERIAL Nos.	BATCH No.	CAST No.	TEST REPORT Name
BALE ARM-ROV RECOVERY.	1.	AB5475, 1SS.O.				T19029 T19031 T19030
CONDITIONS OF MATERIALS AS DESPATCHED MTL & DYE-PEN CERT'S ENCLOSED.						
DETAILED RECOMMENDATIONS FOR SUBSEQUENT HEAT TREATMENT(S) WHERE SUCH IS NOT STIPULATED IN THE RELEVANT SPECIFICATION						
DEVIATIONS (EG. MAJOR CONCESSIONS OR PRODUCTION PERMITS).						

THE ITEMS ON DELIVERY NOTE No. Y.34112... HAVE BEEN INSPECTED AND TESTED TO THE DRAWING/PART AND/OR SPECIFICATION NUMBER LISTED ABOVE AND HAVE BEEN FOUND TO CONFORM IN ALL RESPECTS TO THE REQUIREMENTS OF THE ORDER. FURTHERMORE, THE RAW MATERIALS AND/OR PARTS HAVE BEEN OBTAINED FROM THE APPROVED SOURCES SUPPORTED BY RELEASE NOTES/APPROVED CERTIFICATES WHEN REQUIRED.

SIGNED: A.V. Smith

POSITION: INSPECTOR

FOR & ON BEHALF OF: HY-TEK(ENG. SERVICES) LTD

DATE: 26-11-07

DISTRIBUTION:—

119029

TO - CD - COR

DEMANDEUR
Execution order from.
Antragsteller

ROLLED ALLOYS LTD

CLIENT
Customer
Besteller

REF C. L. I : 621 2227

NUANCE
Grade
Grade
UNS S 31803
UNS S 32205
COULEE
Heat
Schmelze
F 3522
TOLE
Plate
Blech
X 28291 P (ep 8 mm)

MESURE DE FERRITE SELON ASTM E 562.89
Ferrite content according to ASTM E 562.89
Ferrite Gehalt gemäss ASTM E 562.89

REACTIF D'ATTAQUE		GROSSISSEMENT	
Etched in Ätzmittel		Magnification Vergrösserung	
NAOH 10 N		580	
NB DE CHAMPS Number of fields Messbereichzahl		NB DE POINTS Grid size Messstellezahl	
30		50	
48 % FERRITE (95 % C.I ± 1,96)			

ABSENCE DE PHASES INTERMETALLIQUES
ET DE CARBURES DE CHROME SELON ASTM 923-94 METHODE A
NO PRESENCE OF SIGMA PHASE AND CHROMIUM CARBIDES
ACCORDING TO ASTM 923-94 METHOD A
KEINE SIGMA PHASEN UND CHROM KARBID GEMAESS ASTM 923-94 METHODE A

DESTINATAIRES MM PERKAUDIN, PERRUCHOT

COPIE S36
Copy
Kopie
Für
To

REDACTEUR
Operateur
Prüfer
G. RICHARD

DATE
21/11/2003
DATUM

36/I/03/C297

9Z504.24

NOVEMBRE 2003

800/03/008

119029

119029

NUANCE
Grade
Stahl

UNS S 31803
UNS S 32205

COULEE
Heat
Schmelze

F 3522

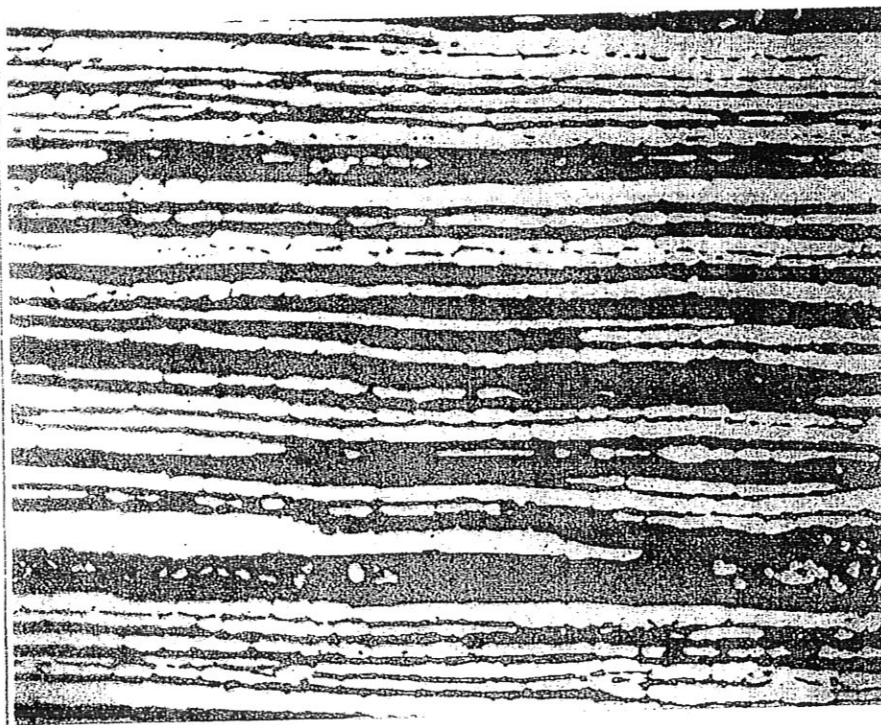
TOLE
Plate
Blech

X 28291 P (ep 8 mm)

REACTIF D'ATTAQUE: NaOH 10N

Etched in

Beizlösung



X 400

copy of the
original
[Signature]

T19029

Bodycote MATERIALS TESTING

Bodycote Testing Ltd, North West Laboratory, Jefferson House, 5 Washington Centre, Broadway, Salford, M50 2UW
Tel: 0161 876 0277, Fax: 0161 876 0279



Test Certificate

P.P. Plasma Ltd.,
Vere Street
Salford
Manchester

M50 2GQ

Attn: Pete

REF No
Ord No

N601931 : Issue 1
14722

Date Tested
Date Reported

15/03/06
15/03/06

Item - 8mm Thick Plate Section. Cast No. F3522
Material: UNS S31803

Specification - MDS P-01

Charpy Test - ASTM A370							
	Position	Dimensions [mm]	Denomination	Test Temp [°C]	Energy Absorbed [Joules]	Average [Joules]	Comments
001: Longitudinal	N/A	10x7.5x2V	N/A	-50.0	149, 171, 166	162	N11

Certificate Comments

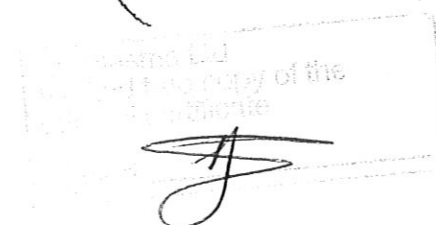
Above testing was conducted in accordance with client's instructions.

This report is based on a test programme modified with respect to the test method/specification.

----- End of Text -----

Tested by Ashley Griffiths

for and on behalf of
Bodycote Testing Ltd



OUTOKUMPUAvesta Works
qcm. Hans Pernäng

Your order - Ihre Bestellung - Votre commande

M01021919

Purchaser - Besteller - Acheteur

Dest.

Product - Erzeugnisform - Produit

Stainless Steel Cold Rolled, Coil-Plate
finish 2E, pickled, cut edge

Grade - Werkstoff - Nuance

Outokumpu 2205
UNS S32205/UNS S31803/1.4462Brand mark
Herstellerzeichen
Signe du producteur**OUTOKUMPU**Inspectors stamp
Abname - Stempel
Estamp de l'expertAJA
AMelting process
Erschmelzungsart
Procédé de fusion

E+AOD

Extent of delivery - Lieferumfang - Etendue de livre

Item	Pcs	Dimensions	Abmessungen	Dimensions
Pos	Anzahl	kg	mm	
1	29	3020	3.00	1500 3000

Heat No	Lot No
Schmelze Nr	Los Nr
Coulée No	Lot Nr
463454	- 003

Chemical composition - Chemische Zusammensetzung - Composition chimique

	C	Si	Mn	P	S	Cr	Ni	Mo	Nb	Cu	Co	N
Heat	.017	.48	1.41	.019	.001	22.38	5.73	3.19	.008	.27	.14	.171

Radioactive contamination check acc. IAEA recommendations: Satisfactory

Test results - Prüfergebnisse - Résultats des essais (1N/mm² = 1 MPa) F = Front - Anfang - Debut B = Back - Ende - Fin T = Transverse - Quer - Travers

Test Ref	Temp	RP 0.2	RP 1.0	RM	A5	2"	HB	PEH
Probe Ref								
Eprouv Ref	°C	N/MM2	N/MM2	N/MM2	%	%	HB	%
Min	+20	500		700	25	25		35.0
Max				950			271	55.0
F T	+20	653	731	835	28	27	246	51.0
B T		666	736	835	27	26	246	

PRE: Cr + 3.3Mo + 16N = 35.6

Material conforms to NACE MR0175 in supplied condition

Microstructure acc to ASTM A 923-A: Satisfactory

Microstructure acc to MDS-D45, free from Sigma Phase: Satisfactory

Corrosion acc. ASTM A 923-C/ASTM G 48-A, 30 Cel - 24H: Satisfactory

Corrosion acc. EN ISO 3651-2C: Satisfactory

Heat treatment: Material temperature 1100 cel / Quenched (forced air + water)

Steel grade verification (PMI-spectroscopic): OK

Insp. and gauge measurement: Satisfactory

Certified acc. Pressure Equipment Directive (97/23/EC) by TÜV CERT-Certification body for pressure equipment of the TÜV NORD GROUP; notified body, reg-no. 0045.

Verified true copy of the original certificate

Signature



0129007

Outokumpu Stainless AB

Avesta Works

BOX 74

S-774 22 AVESTA

SWEDEN

Regoffice: Stockholm Sweden, Regno: 556001-8748

Telephone : + 46 (0)226 813 57

Fax : + 46 (0)226 813 16

V.A.T no : SE556001874801

This material is found to comply with order requirements



Authorized Inspector



T19030

ABNAHMEPRÜFZEUGNIS 3.1

INSPECTION CERTIFICATE 3.1

- nach/according to EN 10204 -



www.Bohler-Bleche.com

Attest Nr./Certificate No: 310691 - 000 dtd. 18.01.2007

Seite/Sheet: 1 von/of 3

Besteller / Purchaser
Metals UK Limited
Whitebirk Industrial Estate
Lower Philips Road
BLACKBURN, LANCASHIRE
BB51 5UD
GROSSBRITANNIEN

Bestell-Nr. / Purchaser's Order No.
vom 10.10.2006

Auftrags-Nr. / Works Order No.
168493 dtd. 11.10.2006

Lieferschein / Dispatch note
80098976 vom 17.01.2007

Erzeugnis / Product

Plates in grade

"BOHLER Antinit A 903", 1.4462, UNS S31803 and S32205 acc. to ASTM A240/ ASME SA 240,
NACE MR-01-75, Norsok MDS D45 Rev. 3, Charpy - V acc. to Shell Spec.ES247/01
hot rolled, solution annealed, pickled, Finish No.1 to ASTM A480M

Lieferung / Delivery

Pos	Umfang der Lieferung	Stück	Gewicht kg	Schmelze	Prüf-Nr
Item	Description Pos	Pcs.	Weight kg	Heat No.	Test No.
30	6000 x 2000 x 8,00 mm Lot no. 223640 / plate no. 1	1	772	N73436	223640
40	6000 x 2000 x 10,00 mm Lot no. 222033 / plate no. 3	1	980	N72844	222033

Chemische Zusammensetzung / Chemical Composition (%)**Schmelze**

Heat No.	C	SI	MN	P	S	CR	MO	NI	N	PREN
N72844	0,023	0,59	1,24	0,021	0,0006	22,49	3,17	5,69	0,1580	35,48
N73436	0,021	0,59	1,17	0,019	0,0008	22,76	3,16	5,67	0,1770	36,02

Erschmelzungsart / Steelmaking Process: EAF**Mechanische Eigenschaften / Mechanical Properties**

Prüf-Nr	HRC
	Rockwell
Max	28,0
222033/1	22,3
223640/1	23,0

Verified True Copy of the
original certificate

Verified True Copy

I. Jansen
Metals UK Ltd Certify that this is a true
copy of the original test certificate.



certified to EN 9100
and EN ISO 9001:2000

BÖHLER BLECHE GMBH
Bleckmannngasse 10, 8680 Mürtzzuschlag

Buol

(ABNAHMEBEAUFTRAGTE)
(INSPECTION REPRESENTATIVE)

T19031

ABNAHMEPRÜFZEUGNIS 3.1
INSPECTION CERTIFICATE 3.1

- nach/according to EN 10204 -



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Attest Nr./Certificate No: 310691 - 000 dtd. 18.01.2007

Seite/Sheet: 2 von/of 3

Charpy - V at -50°C (10 x 7,5 mm)

Prüf-Nr	ISO-V Joule
Min	37
222033/1	142
222033/2	144
222033/3	126
223640/1	150
223640/2	148
223640/3	162

Tension test at room temperature:

Prüf-Nr	RP0,2 N/mm2	RM N/mm2	A50 %
Min	460	640	25,0
222033/1	573	771	35,0
223640/1	569	776	31,5

Prüf-Nr	HBW Brinell
Max	290
222033/1	247
223640/1	247

Ferrite content: 50-55 %

Pitting corrosion test acc. to ASTM G48 methode A: 30 ° C/24 h: no pitting visible / no weight loss dedectable

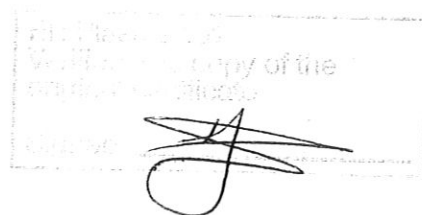
Microstructure: Free from harmful intermetallic phases and precipitates: see enclosure

Spectrographic test was made: satisfactory

Heat treatment:

Lot no. 223640: solution annealed at 1080°C / 14,4 min / water

Lot no. 222033: solution annealed at 1080°C / 16,2 min / water



The surfaces and edges of all sheets have been visual checked: satisfactory



certified to EN 9100
and EN ISO 9001:2000

BÖHLER BLECHE GMBH
Bleckmannngasse 10, 8680 Müzzzuschlag

Buol

(ABNAHMEBEAUFTRAGTE)
(INSPECTION REPRESENTATIVE)

119031

119031

ABNAHMEPRÜFZEUGNIS 3.1
INSPECTION CERTIFICATE 3.1

- nach/according to EN 10204 -



www.Bohler-Bleche.com

Attest Nr./Certificate No: 310691 - 000 dtd. 18.01.2007

Seite/Sheet: 3 von/of 3

Kennzeichnung / Marking

Markenbezeichnung/Grade	X
Werkstoff Nr./Material No.	-
Schmelze/Heat No.	X
Los Nr./Lot No. = Prüf-Nr./Test No.:	X
UNS S31803, dimension, plate no.	X

Besichtigung und Nachmessung: in Ordnung
Ergebnis der Prüfungen:
Die gestellten Anforderungen sind erfüllt:

Inspection and checking: satisfactory

Test results:

The material has been furnished in according with the requirements.

Zeichen des Lieferwerkes:

Brand of Manufacturer:

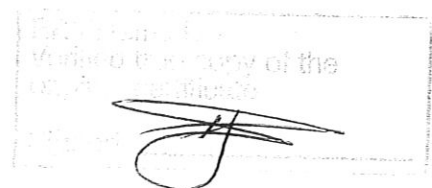


Zeichen des Prüfers:

Symbol of Inspector:



BÖHLER BLECHE GMBH



certified to EN 9103
and EN ISO 9001:2000

BÖHLER BLECHE GMBH
Bleckmannngasse 10, 8680 Müzzzuschlag

Buoch

(ABNAHMEBEAUFTRAGTE)
(INSPECTION REPRESENTATIVE)

T19031

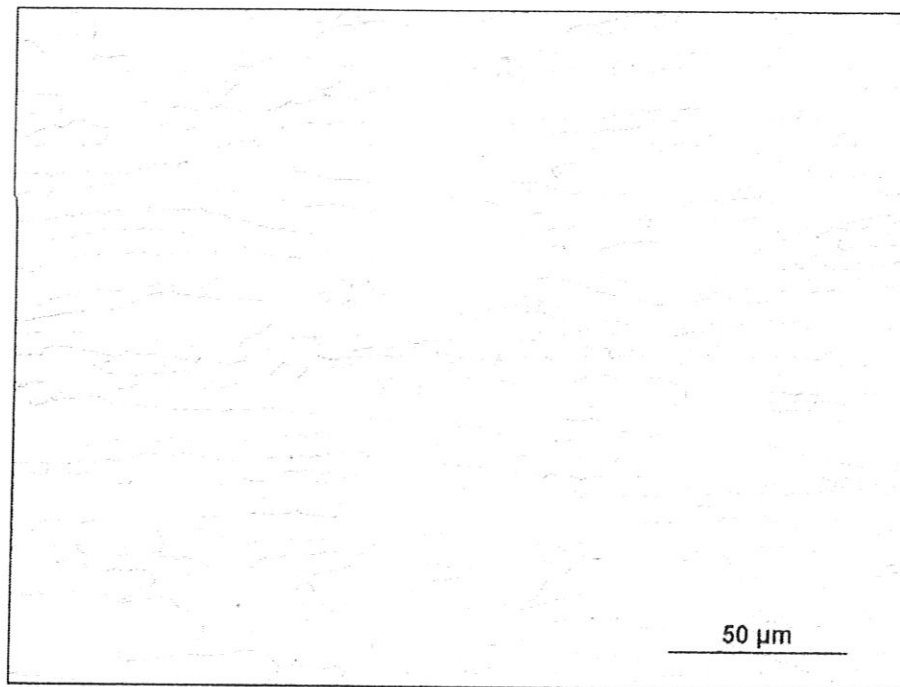
T19031

T19031

0

Lot No.: 222033
A903 N72844 10,00 mm

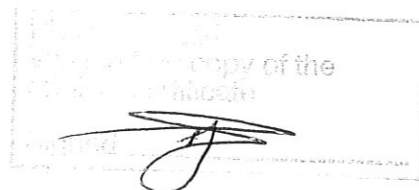
picture 1: microstructure



V₂ A

34010

500x



T19031

BLUELIMIT SURVEYS LTD

INTERNATIONAL INSPECTION SERVICES

Unit 6 Riverside Road, Gorleston-on-Sea, Norfolk, NR31 6PU

Tel: 01493 653900 Fax: 01493 442774



DYE PENETRANT REPORT

Report No: **76832**

Customer:	HY-TEK [ENGINEERING SERVICES] LTD	File Ref:	13235
Location of test:	Bluelimit Base	Date of test	13/11/2007
Specification:	AS LISTED	Acceptance Criteria	AS LISTED
Procedure:	BL001		
Soaking Time	30 mins		
Developing Time	10 mins		
Penetrant	JAP		
Developer	JAD		
Remover	JAC		

Item Under Test

ORDER No: Y49105
REF No: 9545

Results and Comments

THE ITEM AS LISTED BELOW WAS SUBJECTED TO A 100% DYE PENETRANT INSPECTION.

ITEM	QTY	DESCRIPTION
1	1	AB 5475 Iss. 0 BALE ARM-ROV ASSEMBLY

NO VISIBLE DEFECTS NOTED AT TIME OF INSPECTION

ACCEPTABLE TO SPECIFICATION

SPECIFICATION: BS EN 571-1

ACCEPTANCE: SMDW002.1511 Appendix D & E

Technician

N Coburn PCN Level II DPI

BLUELIMIT SURVEYS LTD

CONTRACTOR

CLIENT

VERIFICATION
ACCEPTANCE

DATE

13/11/07

DATE

14-11-07

DATE

DATE