

Inspection Certificate for 5 mm Plates

saarschmiede

Freiformschmiede

EFDA material

Völklingen-Saar, Dat.: 25.01.2004

SAARSCHMIEDE GMBH-Freiformschmiede · D-66330 Völklingen

European Fusion Development Agreement

Close Support Unit - Garching
c/o Max Planck-Institut für Plasmaphysik

D - 85748 Garching

Abnahmeprüfzeugnis
gemäß EN10204-3.1B
Certificat de réception
Inspection certificate

Nr.: 6427

Bestell-Nr. / Order-No. / No. de Com.	Lieferbedingungen / Specifications: Verfahrensplan 283/02 EFDA 02/937	
FV05CT2002-0123 (EFDA02-937) vom 28.11.02		
Auftrags-Nr. / Order-No. / No. de Com.	Werkstoff / Quality / Nuance VIM+VAR 1.4914 X3 EUROFER 97-2	Zeichn.-No. / Draw.-No. / No. ds. plan:
6186734		
Gegenstand / Item / Product: Bleche / sheets Dicke : 3,0 - 5,0 - 8,0 - 14,0 - 25 mm	Schmelz-Nr. / Heat-No. / No. de Coulée: 993391, 993393, 993394, 993402	St.-Nr. / Kenn-Nr. / Ident. No. / IP -No.:

PRÜFERGEBNISSE ENTSPRECHEND DEN ANFORDERUNGEN DER OBEN ANGEGEBENEN LIEFERBEDINGUNGEN

TEST RESULTS ACCORDING TO THE REQUIREMENTS OF THE ABOVE MENTIONED SPECIFICATIONS

Anlage Nr.
Annex No.

- | | |
|---|---|
| 1 | Chemische Zusammensetzung, Erschmelzungsart
Chemical Composition, Melting Practice |
| 2 | Werkprüfzeugnisse von Fa. Böhler
Certificate from Fa. Böhler |

Es wird bestätigt, daß die Lieferung den Anforderungen der oben genannten Lieferbedingungen entspricht.

We herewith certify, that the material delivered corresponds to the above-mentioned specifications

Nous certifions avoir exécuté la fourniture conformément aux spécifications ci-dessus

saarschmiede
Güteüberwachung/Qualitätssicherung

[Signature]

Sachbearbeiter
Employee in Charge
Employé Compétent

[Signature]

Betriebsleitung (Werksachverständiger)
Department Manager Quality Control
Le Chef du Contrôle

SSF012

ABNAHMEPRÜFZEUGNIS 3.1.B
INSPECTION CERTIFICATE 3.1.B
CERTIFICAT DE RECEPTION 3.1.B

nach/according to/selon EN 10204
 Blatt/Sheet/Feuille 1 von/of/de 3



Attest Nr./Certificate No: 201308_vom 11.12.2003
 Rev.1 vom 18.12.2003

Besteller/Purchaser/Commandant

Firina Saarschmiede
 Bismarckstraße 57-59
 D 66333 Völklingen
 Germany

Bestell-Nr./Purchaser's order No./No. de commande

831 831/03-734 dtd. 22.04.2003

Auftrags-Nr./Works Order No./No. de commande d'usine

144550 dtd. 29.04.2003

Anforderungen/Requirements/Exigence

Annex A, Technical Specification to contract no. EFDA 02/937,

Erzeugnis/Product/Produit

Hire rolling of forged slabs

Material Type 9 CrWtAV (EUROFER 97-2)

hotrolled, heat treated, pickled,

Lieferschein/Dispatch note/Avis d'expédition

<u>Umfang der Lieferung/Description/Liste descriptive</u>		<u>Stk/Pcs</u>	<u>Gewicht kg</u> Weight/Poids kg	<u>Schmelze</u> Heat/Coulee No.	<u>Prüf-Nr.</u> Test/eprouvette
10	2000 x 1000 x 3,0 mm Tfl.Nr. C2, C2/A, C3, C3/A	4	350,00	993394	C2/41
20	1820 - 2250 x 1000 x 5,0 mm Tfl.Nr. A1 - A5, B1 - B5	10	958,00	993391	A1/45
30	2350 - 2550 x 1000 x 8,0 mm Tfl.Nr. A1 - A3, B1 - B3, C1	7	1264,00	993394	A1/43
40	2230 - 2330 x 1000 x 14,0 mm Tfl.Nr. A1-A2, B1-B2, C1-C2	6	1662,00	993393	A1/47
50	2200 x 1000 x 25,0 mm Tfl.Nr. C1 - D1	2	936,00	993391	C1/51
50	2150 - 2300 x 1000 x 25,0 mm Tfl.Nr. A1, B1, C1, D1	4	1900,00	993402	C1/49

Grain size acc. to ASTM E112-88:

Test no.	Grain size	Sporadic
C2/41	11 - 12	8 - 9
A1/45	11 - 12	8 - 9
A1/43	11 - 12	6 - 7+
A1/47	10 - 11	5 - 6+
C1/51	6 - 11	2 - 11+
C1/49	6 - 11	3 - 11+

Non metallic inclusions acc. to ASTM E45-87:

Test no.	A		B		C		D	
	thin	thick	thin	thick	thin	thick	thin	thick
C2/41							0,5	
A1/45							0,5	
A1/43			0,5	1,0			0,5	
A1/47			1,5++		1,5++		0,5	
C1/51			0,5				0,5	
C1/49			1,5++	1,5++			0,5	

+ Values are not within the specification - Böhler Bleche GmbH has only limited influence of these values during rolling.

++ Values are not within the specification - Böhler Bleche GmbH has no influence of these values during rolling.



BÖHLER
BLECHE GMBH
Labacine
 (DER WERKSACHVERSTÄNDIGE)
 (WORKS INSPECTOR/L'EXPERT DE L'USINE)

21/0/23

for re-rolling
 conversion?

14 Nov

in service!

DIC

W205

april?

THR takes

WUE2?

Lindau, Rainer (IAM)

Von: Gorley, Mike <Mike.Gorley@ccfe.ac.uk>
Gesendet: Dienstag, 5. Mai 2015 18:21
An: Lindau, Rainer (IAM)
Betreff: RE: Eurofer 97 off cut

Dear Rainer,

Good to hear from you as well, I hope all is well at KIT.

If it is available then a 500x1000 mm**2 x 5mm thick plate sample would be fantastic to have at CCFE. The type of experiments we are looking at range from microstructural analysis, through micro-mechanical testing to potential laser welding with the remote maintenance group. The sample sizes would be very acceptable to work with and would be highly valuable for comparative research and for a few smaller projects.

I fully understand that the batch and product form of the Eurofer 97 makes a difference in the final microstructure and this would be taken into account accordingly, thanks for the advance notice of the variation in grain size.

If you could let me know what I would need to do to get the samples I would be applicative. If it's as simple as posting them to CCFE I would be grateful if you could send them to me at:

Dr Michael Gorley
Culham Centre for Fusion Energy
Building D3, Room 1.45
Culham Science Centre, Abingdon,
Oxfordshire, OX14 3DB, UK

FYI: Any academic papers arising from this research would have acknowledgments to KIT and where possible we could look to collaborate on the work and jointly publish if we find areas of mutual interest (I would always keep you informed of any notable developments). Overall the planned works would be focusing on developments within remote maintenance on the use of Eurofer 97 for DEMO so having the samples at CCFE will be a big benefit in the future utilisation of Eurofer.

Best Regards,

Mike

Dr Michael Gorley
Materials Technologist
Culham Centre for Fusion Energy, Technology Program
D3, Culham Science Centre, Abingdon, Oxfordshire, OX14 3DB, UK
W: www.ccfe.ac.uk
E: Mike.Gorley@ccfe.ac.uk
T: +44 1235 466669

From: Lindau, Rainer (IAM) [mailto:rainer.lindau@kit.edu]
Sent: 05 May 2015 17:04
To: Gorley, Mike
Cc: Walter, Mario (IAM)
Subject: RE: Eurofer 97 off cut

Best regards,

Mario

Dr.-Ing. Mario Walter

**Karlsruher Institut für Technologie (KIT)
Institut für Angewandte Materialien
Werkstoff- und Biomechanik (IAM-WBM)**

Tel: 0721 - 608 23753

Fax: 0721 - 608 24566

e-mail: mario.walter@kit.edu

www.kit.edu

KIT - Universität des Landes Baden-Württemberg und nationales Forschungszentrum in der Helmholtz-Gemeinschaft

Von: Gorley, Mike [<mailto:Mike.Gorley@ccfe.ac.uk>]

Gesendet: Donnerstag, 23. April 2015 18:06

An: Walter, Mario (IAM)

Betreff: Eurofer 97 off cut

Dear Mario,

This is Mike Gorley from CCFE and I'm contacting you in regards to obtaining some Eurofer 97 for basic evaluations.

Specifically I have been asked from the DEMO remote maintenance team at CCFE if CCFE have any Eurofer that we could perform basic characterisation on (this is in regards to comparisons with P91/92 steel and the HAZ from laser welding trials). However currently CCFE doesn't have any Eurofer 97 available for even basic microstructural analysis in-house.

Although I'm aware of the substantial literature available on Eurofer 97 it would be very advantageous for CCFE to hold a small stock of Eurofer 97 for analysis and I was hoping that you have access to, or knew who I should contact about obtaining, a small off cut or sample of Eurofer 97 plate?

Many thanks if you can help and if you have any questions please let me know,

Mike

P.S. Please note that this e-mail is not related to EDDI interactions.

Dr Michael Gorley
Materials Technologist
Culham Centre for Fusion Energy, Technology Program
D3, Culham Science Centre, Abingdon, Oxfordshire, OX14 3DB, UK
W: www.ccfe.ac.uk
E: Mike.Gorley@ccfe.ac.uk
T: +44 1235 466669

--
This message has been scanned for viruses and dangerous content by **MailScanner**, and is believed to be clean.

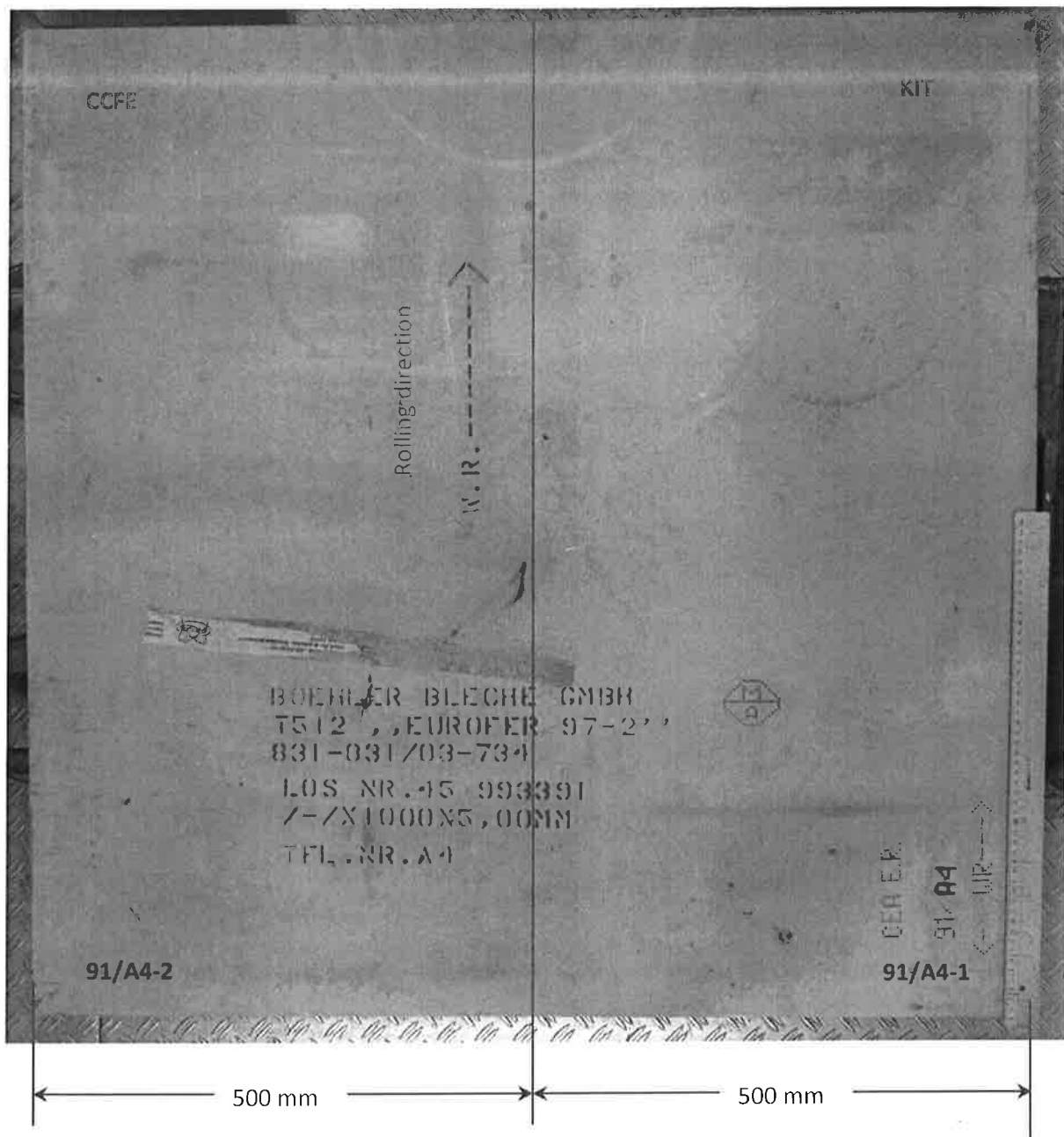


Plate 1000x1000 mm cut into 2 pieced 500x1000 mm

Rolling direction as indicated;

Renaming after cutting:

91/A4 → 91/A4-1 and → 91/A4-2

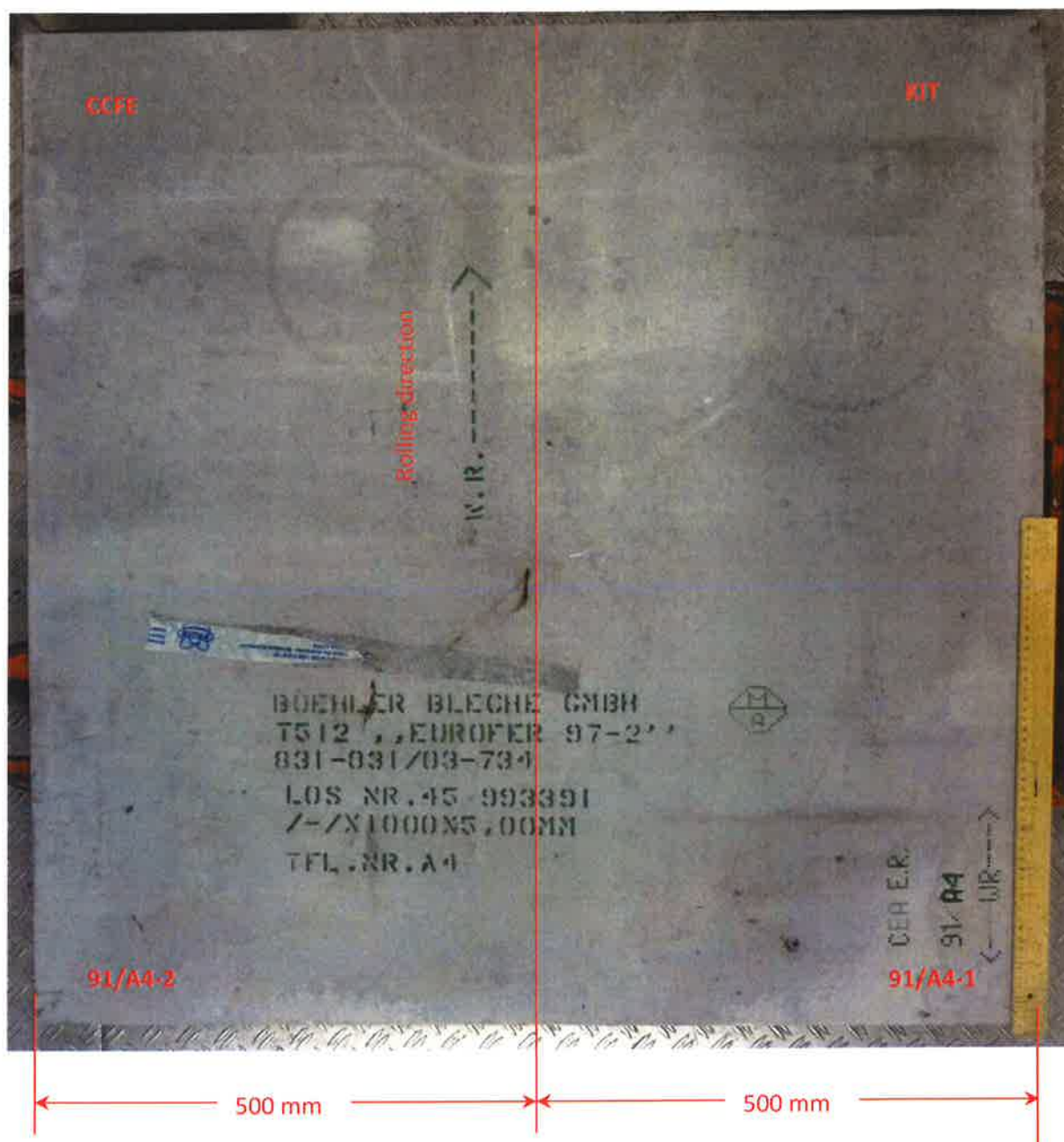


Plate 1000x1000 mm cut into 2 pieces 500x1000 mm

Rolling direction as indicated;

Renaming after cutting:

91/A4 → 91/A4-1 and → 91/A4-2