



Customer:
FLOW CONTROL NORWAY AS
 IDRETTSSVEIN 144
 5353 STRAUME NORWAY

Purchase order:
 8524

TEST CERTIFICATE
 Acc.to EN 10204 3.1

N° 2016062

Date: 02/02/2016

Firsa Job: 28/Q

Date: 17/03/2016

Item	Code	Q.ty	Description	Class	Size	Fig. no	Material				Hydraulic test (bar)		Air test (bar)
							Body / Bonnet	Stem	Seat	Wedge	Body	Seat	Seat
60	VS03A04L23	1	GATE 300 RF 4" J92205/F51 HF	300	4"	S103L23	A995 GR4A	S31803	S31803+HF	A995 GR4A +HF	79	57	6

TEST RESULT

* HYDROSTATIC & PNEUMATIC TEST (acc. To API 598, ASME B16.34)
 * VISUAL & DIMENSIONAL TEST (acc. To MSS SP 55, FIRSA dwg.)

CONFORM.....
 CONFORM.....

NOT CONFORM.....
 NOT CONFORM.....

Note

POS 60 GATE 300 RF 4" J92205/F51 HF
 VDS GVBD102R TR2000
 GTFBBD1D1RF100
 Statoil material nr. 03025713

FIRSA QUALITY CONTROL

AZIENDA
 CON SISTEMA QUALITA'
 CERTIFICATO DA BV
 CERT. N. 183993



600-0202
 6D-1454

MATERIAL CERTIFICATE

Description	BODY	BONNET	WEDGE	SEAT	STEM	STUDBOLT	NUT
Supplier	FONDINOX	FONDINOX	FONDINOX	SANDVIK	COGNE	COLOMBO MAGNO	
Material	A995 GR4A	A995 GR4A	A995 GR4A	S31803	S31803	UNS32760	UNS32760
Heat	D7495	N2054	G3455	534351	372622	334317	300383

S/N: 6B045

20089
 4590000536
 0060

Chemical and Ladle Analysis: The reported values are strictly in accordance with original mill certificate.

FIRSA declares that materials used for the manufacture of trim (seat ring, disc, stem) and bolting are in accordance with the physical and mechanical requirements of the materials specifications and the order requirements.

160202-8524-21353

DECLARATION OF CONFORMITY

According to Annex VII of European Directive 68-2014/CE – PED

Hereby FIRSA S.p.A. declares:

Following products have been designed, manufactured and tested according to the essential requirements of the European Directive 68-2014/CE – PED;

Their conformity has been verified with respect to the procedure of conformity assessment described in Module H of the mentioned Directive:

GATE 300 RF 4" J92205/F51 HF

Item	Qty	Firsa Ref.	S/N	Cat.
0060	1	2016062	6B045	III

Customer: **FLOW CONTROL NORWAY AS**
P.o. **8524**

Relevant International Standard: ASMEII, ASME VIII,
ANSI B 16.34, ANSI B 16.5, ANSI B16.10
API 598, MSS SP 55, EN 12266-1
API 600, ISO 14343,

The Quality System of FIRSA S.p.A. has been found to comply with the requirements of the Pressure Equipment Directive by Notified Body Bureau Veritas Italia
CE-1370-PED-H-FIR001-13-ITA

Fluid group 1 Fluid group 2
According to CE N. 1272-2008

Bureau Veritas Italia V.le Monza 2614, 20126 Milano

FIRSA
QUALITY CONTROL
Maghini Gianfranco

17/03/2016

FIRSA[®]
VALVES**Certificato di controllo liquidi penetranti**

Penetrant Test certificate

no. 2016062 HF

Cliente Customer	FLOW CONTROL NORWAY AS	Commessa Job	28/Q	Ordine Purchase order	8524
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Oggetto Object	GATE 300 RF 4" J92205 GR4A / S31803	QTY	1
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Specifica generale Relevant standard	ASME V art.6	Specifica del Cliente Customer ref.spec.	VDS GVBD102R		
Materiale Material	HARDFACED	Descrizione Description	N. 2 SEATS	Materiale Material	S31803+STELL GR.6
			N. 1 WEDGE		A995 J92205+STELL GR.6

Metodo Inspection		Marca Brand		Metodo Inspection	
Pulitura Cleaning	YES	Pulitore Cleaner	ALCOOL	Essiccazione Drying Process	NATURAL EVAPORATION
Applicazione penetrante Penetrant application	SPRAY	Penetrante Penetrant	ARDROX 907 PB	Tempo minimo di penetrazione Penetration minimum time	15'
Rimozione penetrante Removal penetrant	WATER				
Applicazione sviluppatore Developer application	SPRAY	Solvente Remover	/	Tempo minimo sviluppo Developing	20'
Tempo massimo di lettura Checking time	30'	Rivelatore Developer	ARDROX 9D1B	Pulizia dopo controllo Cleaning after inspection	

Metodo di controllo Control method		Contrasto di colore Difference of colour	<input checked="" type="checkbox"/>	Fluorescente Fluorecence	<input type="checkbox"/>
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Solubile in acqua Water washable	<input checked="" type="checkbox"/>	Lunghezza d'onda luce Light wave lenght	1000 lux
Post emulsionante Post emulsificable	<input type="checkbox"/>		
Solubile in solvente Soluble in Remover	<input type="checkbox"/>	Temperatura di prova Testing temperature	20°C.

Note
Notes
Ref : FIRSA QC024
LOTTO 9D1B: 0900051636 EXP. July. 2018
LOTTO 907PB:0900051179 EXP. March. 2018

Note Notes				
Risultato Results	Conforme alla specifica According to specification	<input checked="" type="checkbox"/>	Non conforme alla specifica Not according to specification	<input type="checkbox"/>
Date 09/03/2016	L'operatore FIRSA SpA Fabio Bolzoni II° Liv. SNT TC 1A LP		Collaudatori	



FONDINOX S.p.A.
Via Marconi, 42/48
I - 26010 SERGNANO (CR)
Tel. 0373 45651
Fax 0373 455100
E-mail: fondinox@fondinox.com



QMS No. 160085

Cert. N° 60625

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FEUILLE DE

CERTIFICATO MATERIALI - MATERIAL CERTIFICATE - WERKSTOFF PRUEFZEUGNIS - CERTIFICAT MATIERE

SEC./ACC.TO/NACH/SELON

CLIENTE	ORDINE N.	SEC./ACC.TO/NACH/SELON
CUSTOMER FIRSA	ORDER N. 48/G	EN 10204/2.2
KUNDE	BESTELLUNG N.	EN 10204/3.1
CLIENT	COMMANDE N.	EN 10204/3.2

DESCRIZIONE SPEDIZIONE - DESCRIPTION OF DELIVERY - UMFANG DER LIEFERUNG - DETAILS DU LOT

COLATA N.	QUANTITÀ	DENOMINAZIONE - DESCRIZIONE	GENEAND - ABMESSUNG
HEAT NR	QUANTITY		
SCHMELZE NR.	STUECKZAHL	DESCRIPTION - SIZE	DESIGNATION - DIMENSION
NO. DE COULEE	QUANTITÉ		
D 7495	3	BODY 10304 VS 4" 300	
	3	BONNET 10304A VS 4" 300	
	3	WEDGE 10304BVS 4" 150/300	

ANALISI CHIMICA - CHEMICAL ANALYSIS - CHEMISCHE ZUSAMMENSETZUNG - COMPOSITION CHIMIQUE

LEGA ALLOY	C	Cr	Ni	Mo	Mn	Si	P	S	Cu	N
LEGIERUNG MIN		21,000	4,500	2,500						0,100
ALLIAGE MAX	0,030	23,500	6,600	3,500	1,500	1,000	0,040	0,020	1,000	0,300
A995 GR 4A	0,021	22,041	6,354	3,149	1,054	0,651	0,024	0,002	0,268	0,170

PROPRIETÀ MECCANICHE - MECHANICAL PROPERTIES - MECHANISCHE EIGENSCHAFTEN - ESSAIS MECANIKES

Rp 1% (MPa)	Rp 0.2% (MPa)	Rmn (MPa)	A (%)	Z (%)	HB	Resilienza - Resilience Kerbschlagzähigkeit - Impact			
						T= -46°C			
min =	min = 415	>620	min = 25	min =	<271	KV JOULE	KCU JOULE	DVM JOULE	LE mmq
	445	756	37		240	122			
						119			
						126			

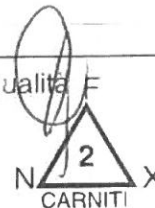
Prove speciali Special tests Spezifische Pruefungen Essais Speciaux	VISUAL EXAMINATION ACC. TO MSS-SP-55 MATERIAL ACC. TO MDS D23 REV.G
Trattamento termico Thermal Treatment Thermische Behandlung Traitement Thermique	SOLUTION TREATMENT 1130°C/WATER
Osservazioni Remarks Bemerkungen Observations	MELTING: ELECTRIC (INDUCTION) F.I.R.S.A. S.p.A. Quality Control

Sergnano... 07/05/09

Resp. laboratorio F

Resp. qualità F

Ente collaudo





Via Marconi, 46/48 - 26010 SERGNANO (CR)
 COD. FISC. 00113860191

TEL. (0373) 455050
 TLX 312277 FONDIL-I
 FAX (0373) 455100

CONTROLLO QUALITA'
QUALITY CONTROL

HT 5733

CERTIFICATO DI TRATTAMENTO TERMICO
HEAT TREATMENT CERTIFICATE

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 PAGE OF

CLIENTE **FIRSA**
 CUSTOMER

ORDINE N. **48/G**
 ORDER No.

COLATA **D 7495**
 HEAT

MATERIALE **A995 GR 4A**
 ALLOY

SP. MAX. mm. **90 mm**
 THCK MAX

FORNO **FERRE'**
 FURNACE

COMBUSTIBILE **GAS**
 FUEL

CICLO **TT2**
 CYCLE

TIPO TRATT. **SOLUTION TREATMENT 1130°C/WATER**
 HEAT TREAT. TYPE

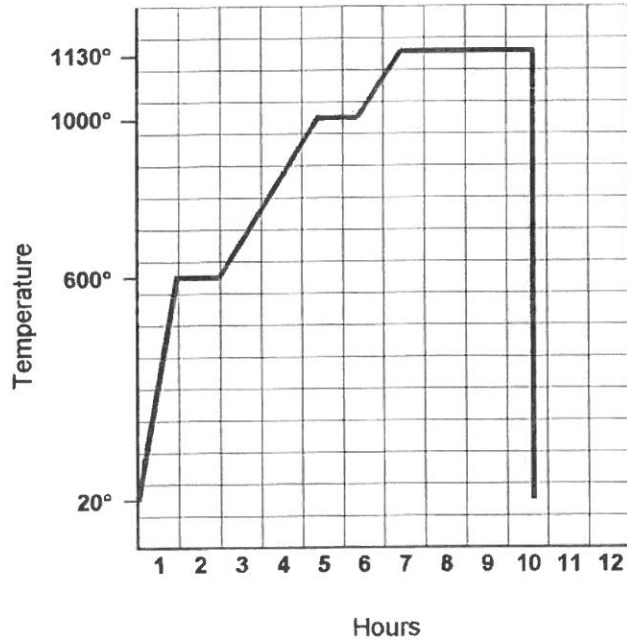
DIAGRAMMA TRATTAMENTO TERMICO
HT DIAGRAM

SPECIFICA **ASTM APPLICABLE**
 SPECIFICATION

RAFFREDDAMENTO IN **RUNNING WATER**
 COOLING MEDIUM

Trattamento N° 2 : 1130 °C/Acqua

CAMPO TEMP. TEMP. RANGE °C	GRAD. SALITA HEATING RATE °C/H MAX	GRAD. DISCESA COOLING RATE °C/H MAX
20-600	600 °C/h	
600	Holding 60'	
600-1000	150 °C/h	
1000	Holding 60'	
1000-1130	90 °C/h	
1130	Holding 180'	



TEMP. DI REGIME **1130**
 HOLDING TEMP.
 °C

PERMANENZA **3**
 HOLDING TIME
 H

TERMOCOPPIE **4**
 THERMOCOUPLES
 TH N°

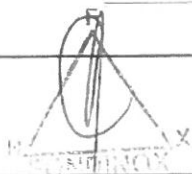
TIPO **PT/PT + RH 10%**
 TYPE

NOTE
 REMARKS

NUMERO DI LOTTO DI TRATTAMENTO TERMICO
 HT LOT NUMBER

SI CERTIFICA CHE IL TRATTAMENTO TERMICO RISULTA IN ACCORDO CON LA SPECIFICA SUMMENZIONATA.
 WE CERTIFY THAT THE HEAT TREATMENT IS ACCORDING TO THE NAMED SPECIFICATION.

QCMgr



DATA
 Date
07/05/09

ENTE ISPETTIVO
 Off. Inspector

DATA
 Date

F.I.R.S.A. S.p.A.
 Quality Control



Via Marconi, 46/48 - 26010 SERGNANO (CR)
 COD. FISC. 00113860191
 TEL. (0373) 455050
 TLX 312277 FONDIL-I
 FAX (0373) 455100

CONTROLLO QUALITA'
QUALITY CONTROL

SM 5424

SCHEDA METALLOGRAFICA
METALLOGRAPHIC CERTIFICATE

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CLIENTE: FIRSA
CUSTOMER

ORDINE N. 48/G
ORDER No.

COLATA: D 7495
HEAT NUMBER

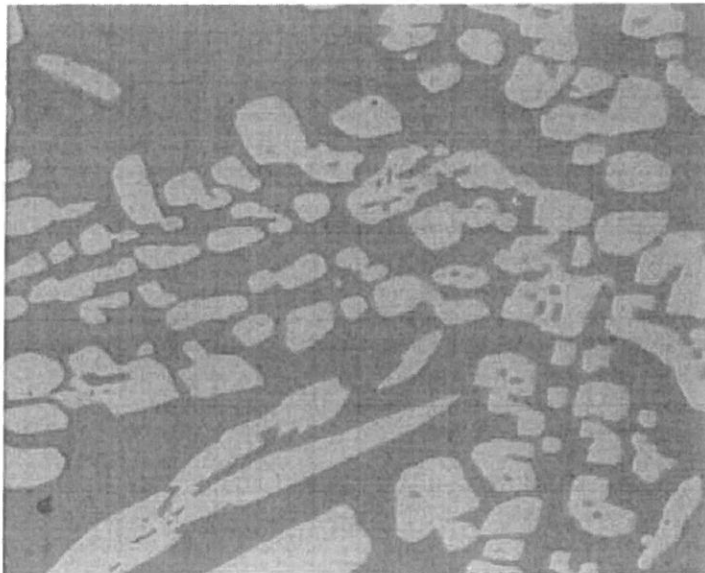
LEGA: A995 GR 4A
ALLOY

TRATTAMENTO: SOLUTION TREATMENT 1130°C/WATER
HEAT TREATED

ATTACCO: NaOH
ETCHANT


TEMP. DI ATTACCO: +25°C
ETCH. TEMPERATURE

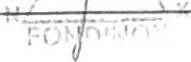
INGRANDIMENTO: 200 X
MAGNIFICATION



COMMENTI:
COMMENTS **CAST STRUCTURE IS FREE FROM GRAIN BOUNDARY CARBIDES, SIGMA AND INTERMETALLIC COMPOUND. FERRITE CONTENT ACC. TO ASTM E562 : 43.91 %**

RISULTATI:
RESULTS **SATISFACTORY**

QCMgr 	DATA Date 07/05/09	ENTE ISPETTIVO Off. Inspector	DATA Date
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FONDINOX S.p.A.
Via Marconi, 42/48
I - 26010 SERGNANO (CR)
Tel. (0373) 45651
Fax (0373) 455100
E-mail: fondinox@fondinox.com



QMS No. 160085

Cert. N° **86295**
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CERTIFICATO MATERIALI - MATERIAL CERTIFICATE - WERKSTOFF PRUEFZEUGNIS - CERTIFICAT MATIERE

SEC./ACC.TO/NACH/SELON

CLIENTE	ORDINE N.	479/P	EN 10204/2.2	<input type="checkbox"/>
CUSTOMER FIRSA	ORDER N.		EN 10204/3.1	<input checked="" type="checkbox"/>
KUNDE	BESTELLUNG N.		EN 10204/3.2	<input type="checkbox"/>
CLIENT	COMMANDE N.			

DESCRIZIONE SPEDIZIONE - DESCRIPTION OF DELIVERY - UMFANG DER LIEFERUNG - DETAILS DU LOT

COLATA N.	QUANTITÀ	DENOMINAZIONE - DESCRIZIONE	GEGENSTAND - ABMESSUNG
HEAT NR	QUANTITY	DESCRIPTION - SIZE	DESIGNATION - DIMENSION
SCHMELZE NR.	STUECKZAHL		
NO. DE COULEEÉ	QUANTITÉ		
N 2054	1	BODY 10303 VS 3" 300 RF	
	1	BODY 10303 VS 3" 300 RF	
	2	BONNET 10303A VS 3" 300	
	2	WEDGE 10303B VS 3" 150/300	
	1	BODY 10304 VS 300 RF 4"	
	3	BONNET 10304A VS 300 4"	
	2	WEDGE 10304B VS 150/300 4"	

ANALISI CHIMICA - CHEMICAL ANALYSIS - HEMISCHE ZUSAMMENSETZUNG - COMPOSITION CHIMIQUE

LEGA ALLOY	C	Cr	Ni	Mo	Mn	Si	P	S	Cu	N				
LEGIERUNG MIN	0,000	21,000	4,500	2,500	0,000	0,000	0,000	0,000	0,000	0,100				
ALLIAGE MAX	0,030	23,500	6,500	3,500	1,500	1,000	0,040	0,015	1,000	0,300				
A995 GR 4A	0,025	22,717	6,247	3,330	1,099	0,542	0,022	0,003	0,233	0,182				
ASME SA995 GR 4A														

PROPRIETA' MECCANICHE - MECHANICAL PROPERTIES - MECHANISCHE EIGENSCHAFTEN - ESSAIS MECANIKES

Rp 1% (MPa)	Rp 0.2% (MPa)	Rmn (MPa)	A (%)	Z (%)	HB	Resilienza - Resilience Kerbschlagzaehigkeit - Impact			
						T = -46°C			
min =	min = 415	min = 620	min = 25	min =		KV JOULE	KCU JOULE	DVM JOULE	LE mmq
	473	669	38		252	120			
						122			
						114			

Prove speciali	VISUAL EXAMINATION ACC. TO MSS-SP-55
Special tests	PRE=36,6
Spezifische Pruefungen	MATERIAL ACC. REQ. NACE MR 01-75
Essais Speciaux	

Trattamento termico	SOLUTION TREATMENT 1130°C/WATER
Heat Treatment	
Termische Behandlung	
Traitement Thermique	

Osservazioni	MELTING: ELECTRIC (INDUCTION)
Remarks	MATERIAL ACCORDING TO NACE MR-01.75 / ISO15156
Bemerkungen	MATERIAL ACC. TO NORSOK MDS D46 REV.5
Observations	

Sergnano... 15/02/2016

Resp. laboratorio

Resp. qualità

Ente collaudo





Via Marconi, 42/48 - 26010 SERGNANO (CR)
 Tel. +39 0373 45651
 Fax +39 0373 455100
 email: fondinox@fondinox.com

**CERTIFICATO CONTROLLO
LIQUIDI PENETRANTI**

FARBEINDRINGUNGSPRUEFUNGSZEUGNISS
 DYE PENETRANTS CERTIFICATE
 CERTIFICAT DE RESSUAGE

PT 5462

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CLIENTE **FIRSA** ORDINE N. **479/P** COMMESSA N. **F16-20**
 BESTELLER - CUSTOMER - CLIENT BESTELL Nr. - ORDER No. - C. DE No. WERKS Nr. - JOB No. - C. DE usine No.

COLATA **N 2054** MATERIALE **A995 GR 4A**
 HEAT ALLOY

OGGETTO **CASTING** N. PEZZI **SEE CERT. 3.1 Nr. 86295** DISEGNO
 BETREFF - SUBJECT - OBJECT Nr. STUECKE - No. PIECES - N. PIECES ZEICHNUNG - DRAWING - PLAN

STADIO DI CONTROLLO **FINAL** SPECIFICA **ASME VIII DIV. 1 APP. 7**
 PRUEFUNGSSTADIUM - INSPECTION PHASES - STADE DU CONTROLE SPEZIFIKATION - SPECIFICATION - SPECIFICATION

CONDIZIONI SUPERFICIALI **ROUGH** MOLATO LAVORATO DI MACCHINA
 OBERFLACHZUSTAND - TEST SURFACE STATUS - ETAT DE SURFACE GESCHLIFFEN BEARBEITET - MACHINED - USINE
 GROUND SBAVATO
 MEULE GEPUTZT - FETTLED - EBARBE

	Solubile in acqua		Post emulsificabile		Soluzione in solvente	
	Visibile	Fluorescente	Visibile	Fluorescente	Visibile	Fluorescente
PULITORE REINIGER CLEANER POLISSEUR	<input checked="" type="checkbox"/> Sichtbar Visible visible	<input type="checkbox"/> Fluoreszierend Fluorescent Fluorescent	<input type="checkbox"/> Sichtbar Visible visible	<input type="checkbox"/> Fluoreszierend Fluorescent Fluorescent	<input type="checkbox"/> Sichtbar Visible visible	<input type="checkbox"/> Fluoreszierend Fluorescent Fluorescent
PENETRANTE FARBEINDRINGUNG PENETRANTI RESSUAGE	SOLVENT					
EMULSIFICATORE EMULSIONIERER EMULSIFIEUR EMULSIONNIFICATEUR	K71B2P					
SOLVENTE LOESUNG SOLVENT SOLVANT	---					
RILEVATORE ENTWICKLER DEVELOPER REVELATEUR	D112A					
MARCA MARK TRADE MARK MARQUE	NDT					

PULITURA **SOLVENT** **ESSICCAZIONE** **IN AIR**
 REINIGUNG - PRECLEANING - POLISSAGE TROCKENZEIT - DRYING - DESSICATION

APPLICAZIONE DEL PENETRANTE **SPRAY** **TEMPO MINIMO DI PENETRAZIONE** **15'**
 VERFAHREN DER FARBEINDRINGUNG MIN. EINDRINGUNGSZEIT
 PENETRANT APPLICATION - APPLICATION DE RESSUAGE MIN. PENETRATION TIME - TEMPS MIN. DE RESSUAGE

RIMOZIONE PENETRANTE **WATER** **APPLICAZIONE EMULSIFICATORE**
 FARBEINDRINGUNGSBESEITIGUNG VERFAHREN EMULSIONIERER
 PENETRANT REMOVAL - ENLEVEMENT DE RESSUAGE EMULSIFICATION - APPLICATION D'EMULSIONNIFICATEUR

APPLICAZIONE SVILUPPATORE **SPRAY** **TEMPO MIN. SVILUPPO** **10'**
 ENTWICKLERVERFAHREN VERFAHREN EMULSIONIERER
 DEVELOPING APPLICATION - DEVELOPPEMENT EMULSIFICATION - APPLICATION D'EMULSIONNIFICATEUR
 MIN. DEVELOPING TIME - TEMPS MIN. DE DEVELOPPEMENT

TEMPO MASSIMO DI LETTURA **30'**
 MAX. ABLESEZEIT - MAX. READING TIME - TEMP. MAX. DE LECTURE

RISULTATI **CONFORME ALLA SPECIFICA** **NON CONFORME ALLA SPECIFICA** **SCARTATO**
 ERGEBNISSE LAUT SPEZIFIKATION NICHT LAUT SPEZIFIKATION AUSSCHUSS
 RESULTS - RESULTATS ACC. TO .SPEC. - SELON SPECIFICATION NOT ACC. TO SPEC. - NON CONFORME A LA SPECIFICATIO REJECTION - REBUT

NOTE: **RESULTS: SATISFACTORY**
 BEMERKUNGEN
 NOTES
 REMARQUES

DATA **15/02/2016** **STADIO DI CONTROLLO** **ENTI COLLAUDATORI** **IL CAPO CONTROLLO QUALITA'**
 DATUM - DATE - DATE PRUEFUNGSSTADIUM ABNAHMEBEHORDE Chef der Beschaffenheitskontrolle
 INSPECTION PHASES INSPECTION AUTHORITIES Chief of quality control
 STADE DU CONTROLE AUTORITES DE RECETTE Le chef du service contrôle qualité

L'OPERATORE **FINALE FDO** Endpruefung FDO
 BEARBEITER - OPERATOR Final FDO - Final FDO
 NOM DE L'OPERATEUR **FINALE UFFICIALE** Endgueltige Endabnahme
 Final official - Final official

DANILO SPADOTTO
 LEV. N. 11517 - 15/02/2016





Via Marconi, 42/48 - 26010 SERGNANO (CR)

Tel. +39 0373 45651

Fax +39 0373 455100

email: fondinox@fondinox.com

**CONTROLLO QUALITA'
QUALITY CONTROL****CERTIFICATO DI TRATTAMENTO TERMICO
HEAT TREATMENT CERTIFICATE**

HT 4128

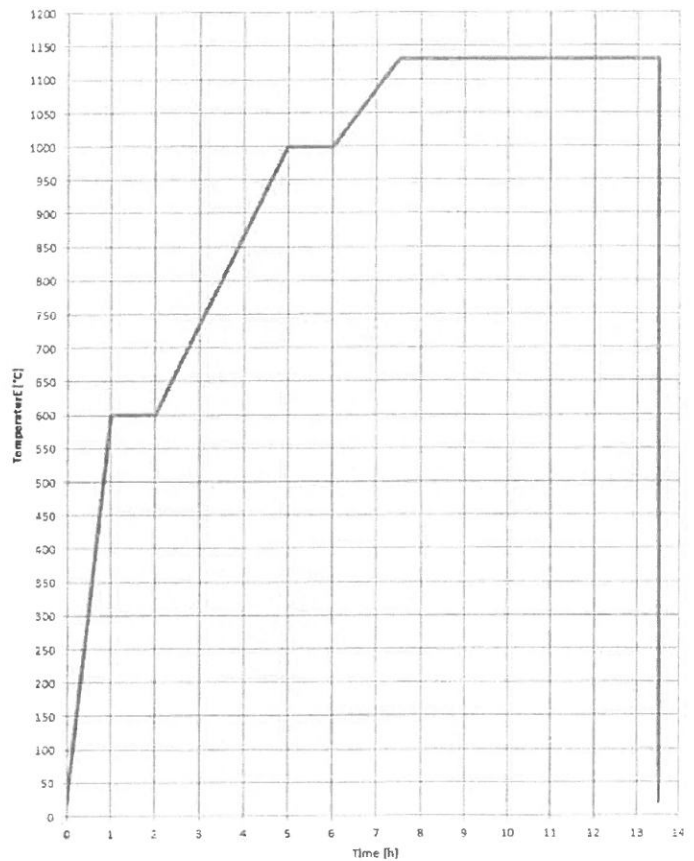
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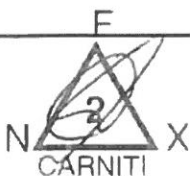
SEE CERT. 3.1 Nr. 86295

CLIENTE **FIRSA**
CUSTOMERORDINE N. **479/P**
ORDER No.COMMESSA N. **F16-20**
JOB No.COLATA **N 2054**
HEATMATERIALE **A995 GR 4A**
ALLOYSP. MAX. mm. **<100 mm**
THCK MAXFORNO **AS BELOW INDICATED**
FURNACECOMBUSTIBILE **GAS**
FUELCICLO **TT02**
CYCLETIPO TRATT. **SOLUTION TREATMENT 1130°C/WATER**
HEAT TREAT. TYPESPECIFICA **ASTM APPLICABLE**
SPECIFICATIONRAFFREDDAMENTO IN **RUNNING WATER**
COOLING MEDIUM

CAMPO TEMP. TEMP. RANGE °C	GRAD. SALITA HEATING RATE °C/H MAX	GRAD. DISCESA COOLING RATE °C/H MAX
20-600	580°C/h	
600	HOLDING 60'	
600-1000	133°C/h	
1000	HOLDING 60'	
1000-1130	87°C/h	
1130	HOLDING 240' MIN	WATER

TEMP. DI REGIME **1130**
HOLDING TEMP.
°CPERMANENZA **7**
HOLDING TIME
HTERMOCOPIE **2**
THERMOCOUPLES
TH N°TIPO **PT/PT + RH 10%**
TYPE**DIAGRAMMA TRATTAMENTO TERMICO
HT DIAGRAM**NOTE
REMARKSNUMERO DI LOTTO DI TRATTAMENTO TERMICO
HT LOT NUMBER **08/02/16FELIND**SI CERTIFICA CHE IL TRATTAMENTO TERMICO RISULTA IN
ACCORDO CON LA SPECIFICA SUMMENZIONATA.
WE CERTIFY THAT THE HEAT TREATMENT IS ACCORDING TO
THE NAMED SPECIFICATION.

QCMgr

DATA
Date

15/02/2016

ENTE ISPETTIVO
Off. InspectorDATA
Date



Via Marconi, 42/48 - 26010 SERGNANO (CR)
 Tel. +39 0373 45651
 Fax +39 0373 455100
 email: fondinox@fondinox.com

CONTROLLO QUALITA'
QUALITY CONTROL

SCHEDA METALLOGRAFICA
 METALLOGRAPHIC CERTIFICATE

SM 2920

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 PAGE OF

CLIENTE: **FIRSA**
 CUSTOMER

ORDINE N. **479/P**
 ORDER No.

COLATA: **N 2054** **SEE CERT. 3.1 Nr. 86295**
 HEAT NUMBER

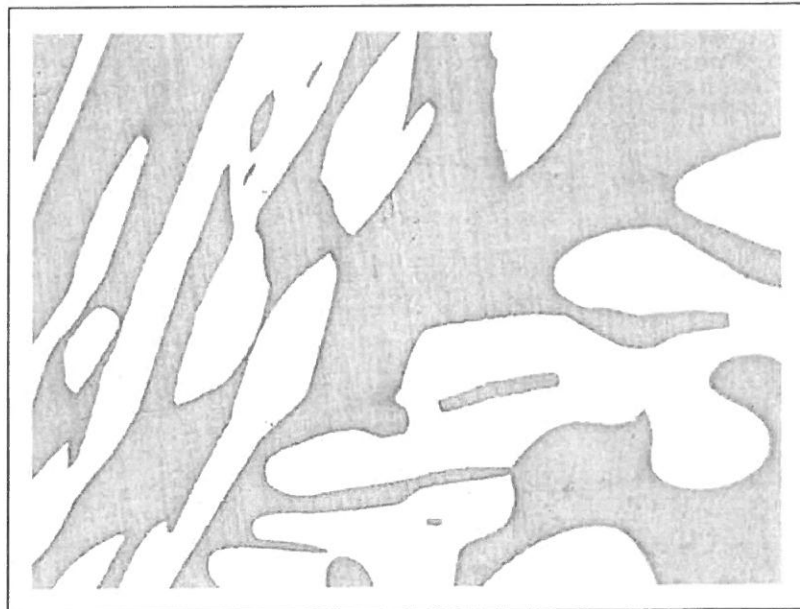
LEGA: **A995 GR 4A**
 ALLOY

TRATTAMENTO: **SOLUTION TREATMENT 1130°C/WATER**
 HEAT TREATED

ATTACCO: **OXALIC ACID 10% + NaOH**
 ETCHANT

TEMP.DI ATTACCO: **+25 °C**
 ETCH. TEMPERATURE

INGRANDIMENTO: **400X T/2**
 MAGNIFICATION



COMMENTI:
 COMMENTS

**CAST STRUCTURE IS FREE FROM GRAIN BOUNDARY CARBIDES, SIGMA AND INTERMETALLIC COMPOUND.
 FERRITE CONTENT ACC. TO ASTM E562 : 46.26%**

RISULTATI:
 RESULTS

RESULTS: SATISFACTORY, ACCORDING TO MDS D46 REV.5

QCMgr



DATA
 Date

15/02/2016

ENTE ISPETTIVO
 Off. Inspector

DATA
 Date



Via Marconi, 42/48 - 26010 SERGNANO (CR)

Tel. +39 0373 45651

Fax +39 0373 455100

email: fondinox@fondinox.com

CONTROLLO QUALITA'
QUALITY CONTROL

SCHEDA METALLOGRAFICA
METALLOGRAPHIC CERTIFICATE

SM 2920/2

FOGLIO DI
PAGE OF

CLIENTE: **FIRSA**
CUSTOMER

ORDINE N. **479/P**
ORDER No.

COLATA: **N 2054**
HEAT NUMBER

SEE CERT. 3.1 Nr. 86295

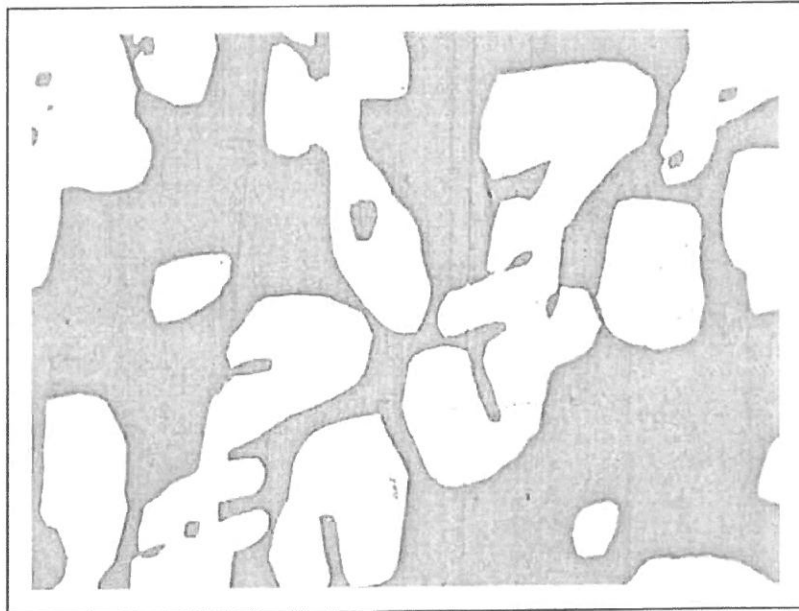
LEGA: **A995 GR 4A**
ALLOY

TRATTAMENTO: **SOLUTION TREATMENT 1130°C/WATER**
HEAT TREATED

ATTACCO: **OXALIC ACID 10% + NaOH**
ETCHANT

TEMP.DI ATTACCO: **+25 °C**
ETCH. TEMPERATURE

INGRANDIMENTO: **400X SU**
MAGNIFICATION



COMMENTI:
COMMENTS

**CAST STRUCTURE IS FREE FROM GRAIN BOUNDARY CARBIDES, SIGMA AND INTERMETALLIC COMPOUND.
FERRITE CONTENT ACC. TO ASTM E562 : 49.21%**

RISULTATI:
RESULTS

RESULTS: SATISFACTORY, ACCORDING TO MDS D46 REV.5

QCMgr



DATA
Date

15/02/2016

ENTE ISPETTIVO
Off. Inspector

DATA
Date



Via Marconi, 42/48 - 26010 SERGNANO (CR)

Tel. +39 0373 45651

Fax +39 0373 455100

email: fondinox@fondinox.com

CONTROLLO QUALITA'
QUALITY CONTROL

CERTIFICATO PROVA DI CORROSIONE
PITTING CORROSION
TEST CERTIFICATE

PCT 2007

FOGLIO DI
PAGE OF

CLIENTE: **FIRSA**
CUSTOMER

ORDINE N. **479/P**
ORDER No.

COLATA: **N 2054**
HEAT NUMBER **SEE CERT. 3.1 Nr. 86295**

LEGA: **A995 GR 4A**
ALLOY

TRATTAMENTO: **SOLUTION TREATMENT 1130°C/WATER**
HEAT TREATED

RIFERIMENTI: **ANSI/ASTM G 48, METHOD A**
REFERENCES **FINISH, 120 GRIT ABRASIVE PAPER**
THERMAL TREATMENT: FULLY SOLUTION TREATED AT
SOLUTION TREATMENT 1130°C/WATER
TEST DURATION: 24 h.
TEST TEMPERATURE: +25°C

PROVINO: **50 x 25 x 5**
SPECIMEN

SOLUZIONE: **AS PER ASTM G 48**
SOLUTION

RISULTATI: **AFTER TEST NO PITTING WAS DETECTED AT 20X**
RESULTS **NO WEIGHT LOSS HAS BEEN DETECTED**

TEST RESULTS ACCOMPLISHE REQUIREMENTS OF
TECHNICAL DOCUMENT

QCMgr



DATA
Date

15/02/2016

ENTE ISPETTIVO
Off. Inspector

DATA
Date



FONDINOX S.p.A.
 Via Marconi, 42/48
 I - 26010 SERGNANO (CR)
 Tel. (0373) 45651
 Fax (0373) 455100
 E-mail: fondinox@fondinox.com



Cert. N° **86063**
 FOGLIO **DI**
 BLATT - PAGE **VON - OF**
 FEUILLE **DE**

CERTIFICATO MATERIALI - MATERIAL CERTIFICATE - WERKSTOFF PRUEFZEUGNIS - CERTIFICAT MATIERE

SEC./ACC.TO/NACH/SELON

CLIENTE	ORDINE N.	453/P	EN 10204/2.2	<input type="checkbox"/>
CUSTOMER FIRSA	ORDER N.		EN 10204/3.1	<input checked="" type="checkbox"/>
KUNDE	BESTELLUNG N.		EN 10204/3.2	<input type="checkbox"/>
CLIENT	COMMANDE N.			

DESCRIZIONE SPEDIZIONE - DESCRIPTION OF DELIVERY - UMFANG DER LIEFERUNG - DETAILS DU LOT

COLATA N. HEAT NR SCHMELZE NR. NO. DE COULEE	QUANTITÀ QUANTITY STUECKZAHL QUANTITÉ	DENOMINAZIONE - DESCRIZIONE DESCRIPTION - SIZE	GEGENSTAND - ABMESSUNG DESIGNATION - DIMENSION
G 3455	20	WEDGE 10103B VS 150 3"	
	5	WEDGE 10104B VS 4" 150/300	
	2	WEDGE 10106B VS 150/300 6"	

ANALISI CHIMICA - CHEMICAL ANALYSIS - HEMISCHE ZUSAMMENSETZUNG - COMPOSITION CHIMIQUE

LEGA ALLOY LEGIERUNG ALLIAGE	MIN MAX	C	Cr	Ni	Mo	Mn	Si	P	S	Cu	N				
A995 GR 4A ASME SA995 GR 4A		0,000	21,000	4,500	2,500	0,000	0,000	0,000	0,000	0,000	0,100				
		0,030	23,500	6,500	3,500	1,500	1,000	0,040	0,015	1,000	0,300				
		0,023	22,526	5,994	3,054	1,055	0,569	0,023	0,003	0,288	0,169				

PROPRIETA' MECCANICHE - MECHANICAL PROPERTIES - MECHANISCHE EIGENSCHAFTEN - ESSAIS MECANQUES

Rp 1% (MPa)	Rp 0.2% (MPa)	Rmn (MPa)	A (%)	Z (%)	HB	Resilienza - Resilience Kerbschlagzaehigkeit - Impact			
min =	min = 415	min = 620	min = 25	min =		T = -46°C			
						KV JOULE	KCU JOULE	DVM JOULE	LE mmq
	462	663	39		242	114			
						123			
						140			

Prove speciali Special tests Spezifische Pruefungen Essais Speciaux	VISUAL EXAMINATION ACC. TO MSS-SP-55 PRE=35,3
Trattamento termico Heat Treatment Termische Behandlung Traitement Thermique	SOLUTION TREATMENT 1130 °C/WATER
Osservazioni Remarks Bemerkungen Observations	MELTING: ELECTRIC (INDUCTION) MATERIAL ACCORDING TO NACE MR-01.75 / ISO15156 MATERIAL ACC. TO NORSOK MDS D46 REV.5

Sergnano... 25/01/2016

Resp. laboratorio

F

 N. CATTANEO X

Resp. qualità

F

 N. CARNITI X

Ente collaudo

F.I.R.S.A S.p.A.
 Quality Control Manager



Via Marconi, 42/48 - 26010 SERGNANO (CR)
 Tel. +39 0373 45651
 Fax +39 0373 455100
 email: fondinox@fondinox.com

CERTIFICATO CONTROLLO
LIQUIDI PENETRANTI

FARBEINDRINGPRUEFUNGSZEUGNISS
 DYE PENETRANTS CERTIFICATE
 CERTIFICAT DE RESSUAGE

PT 5380

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 PAGE OF
 FEUILLE DE

CLIENTE **FIRSA** ORDINE N. **453/P** COMMESSA N. **F15-1035**
 BESTELLER - CUSTOMER - CLIENT BESTELL Nr. - ORDER No. - C.DE No. WERKS Nr. - JOB No. - C.DE usine No.

COLATA **G 3455** MATERIALE **A995 GR 4A**
 HEAT ALLOY

OGGETTO **CASTING** N. PEZZI **SEE CERT. 3.1 Nr. 86063** DISEGNO
 BETREFF - SUBJECT - OBJECT Nr. STUECKE - No. PIECES - N. PIECES ZEICHNUNG - DRAWING - PLAN

STADIO DI CONTROLLO **FINAL** SPECIFICA **ASME VIII DIV. 1 APP. 7**
 PRUEFUNGSPHASE - INSPECTION PHASES - STADE DU CONTROLE SPEZIFIKATION - SPECIFICATION - SPECIFICATION

CONDIZIONI SUPERFICIALI **ROUGH** MOLATO LAVORATO DI MACCHINA
 OBERFLACHZUSTAND - TEST SURFACE STATUS - ETAT DE SURFACE GESCHLIFFEN BEARBEITET - MACHINED - USINE
 GROUND SBAVATO
 MEULE GEPUTZT - FETTLER - EBARBE

	Solubile in acqua <input checked="" type="checkbox"/> Lösbar in Wasser Water Washable Soluble dans l'eau		Post emulsionabile <input type="checkbox"/> Nachträglich emulsionbar Post emulsifiable Post emulsionnable		Soluzione in solvente <input type="checkbox"/> Lösbar in Lösungsmittel Solvent removable Soluble en solvant	
	<input checked="" type="checkbox"/> Sichtbar Visible visible	<input type="checkbox"/> Fluoreszierend Fluorescent Fluorescent	<input type="checkbox"/> Sichtbar Visible visible	<input type="checkbox"/> Fluoreszierend Fluorescent Fluorescent	<input type="checkbox"/> Sichtbar Visible visible	<input type="checkbox"/> Fluoreszierend Fluorescent Fluorescent
PULITORE REINIGER CLEANER POLISSEUR	SOLVENT					
PENETRANTE FARBEINDRINGUNG PENETRANTI RESSUAGE	K71B2P					
EMULSIFICATORE EMULSIONIERER EMULSIFIER EMULSIONNIFICATEUR	---					
SOLVENTE LOESUNG SOLVENT SOLVANT	---					
RILEVATORE ENTWICKLER DEVELOPER REVELEATEUR	D112A					
MARCA MARK TRADE MARK MARQUE	NDT					

PULITURA **SOLVENT** **ESSICCAZIONE** **IN AIR**
 REINIGUNG - PRECLEANING - POLISSAGE TROCKENZEIT - DRYING - DESSICATION
APPLICAZIONE DEL PENETRANTE **SPRAY** **TEMPO MINIMO DI PENETRAZIONE** **15'**
 VERFAHREN DER FARBEINDRINGUNG MIN. EINDRINGUNGSZEIT
 PENETRANT APPLICATION - APPLICATION DE RESSUAGE MIN. PENETRATION TIME - TEMPS MIN. DE RESSUAGE
REMOZIONE PENETRANTE **WATER** **APPLICAZIONE EMULSIFICATORE** ---
 FARBEINDRINGUNGSBESEITIGUNG VERFAHREN EMULSIONIERER
 PENETRANT REMOVAL - ENLEVEMENT DE RESSUAGE EMULSIFICATION - APPLICATION D'EMULSIONNIFICATEUR
APPLICAZIONE SVILUPPATORE **SPRAY** **TEMPO MIN. SVILUPPO** **10'**
 ENTWICKLERVERFAHREN MIN. ENTWICKLUNGSZEIT
 DEVELOPING APPLICATION - DEVELOPPEMENT MIN. DEVELOPING TIME - TEMPS MIN. DE DEVELOPPEMENT

TEMPO MASSIMO DI LETTURA **30'**
 MAX. ABLESEZEIT - MAX. READING TIME - TEMP. MAX. DE LECTURE

RESULTATI **CONFORME ALLA SPECIFICA** **NON CONFORME ALLA SPECIFICA** **SCARTATO**
 ERGEBNISSE LAUT SPEZIFIKATION NICHT LAUT SPEZIFIKATION AUSSCHUSS
 RESULTS - RESULTATS ACC. TO SPEC. - SELON SPECIFICATION NOT ACC. TO SPEC. - NON CONFORME A LA SPECIFICATIO REJECTION - REBUT
NOTE: **RESULTS: SATISFACTORY**
 BEMERKUNGEN
 NOTES
 REMARQUES

DATA 25/01/2016 DATUM - DATE - DATE	STADIO DI CONTROLLO PRUEFUNGSPHASE INSPECTION PHASES STADE DU CONTROLE	ENTI COLLAUDATORI ABNAHMEBEHORDE INSPECTION AUTHORITIES AUTHORITES DE REGETTE	IL CAPO CONTROLLO QUALITA' Chef der Beschaffenheitskontrolle Chief of quality control Le chef du service contrôle qualité
L'OPERATORE BEARBEITER - OPERATOR NOM DE L'OPERATEUR	Finale FDO <input checked="" type="checkbox"/> Endprüfung FDO Final FDO - Final FDO Finale Ufficiale <input type="checkbox"/> Endgültige Endabnahme Final official - Final official		N X CARNITI

F.I.R.S.A S.p.A.
 Quality Control Manager



Via Marconi, 42/48 - 26010 SERGNANO (CR)
 Tel. +39 0373 45651
 Fax +39 0373 455100
 email: fondinox@fondinox.com

CONTROLLO QUALITA'
QUALITY CONTROL
 CERTIFICATO DI TRATTAMENTO TERMICO
 HEAT TREATMENT CERTIFICATE

HT 4071

SEE CERT. 3.1 Nr. 86063

FOGLIO DI
 PAGE OF

CLIENTE **FIRSA**
 CUSTOMER

ORDINE N. **453/P**
 ORDER No.

COMMESSA N. **F15-1035**
 JOB No.

COLATA **G 3455**
 HEAT

MATERIALE **A995 GR 4A**
 ALLOY

SP. MAX. mm. **100mm**
 THCK MAX

FORNO **AS BELOW INDICATED**
 FURNACE

COMBUSTIBILE **GAS**
 FUEL

CICLO **TT02**
 CYCLE

TIPO TRATT. **SOLUTION TREATMENT 1130 °C/WATER**
 HEAT TREAT. TYPE

SPECIFICA **ASTM APPLICABLE**
 SPECIFICATION

RAFFREDDAMENTO IN **RUNNING WATER**
 COOLING MEDIUM

CAMPO TEMP. TEMP. RANGE °C	GRAD. SALITA HEATING RATE °C/H MAX	GRAD. DISCESA COOLING RATE °C/H MAX
20-600	580°C/h	
600	HOLDING 60'	
600-1000	133°C/h	
1000	HOLDING 60'	
1000-1130	87°C/h	
1130	HOLDING 240' MIN	WATER

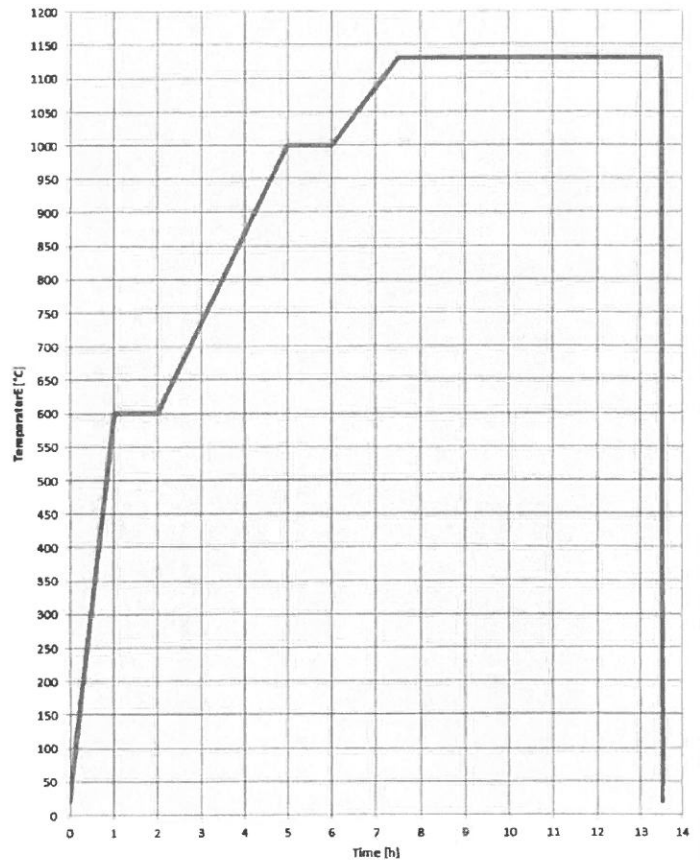
TEMP. DI REGIME **1130**
 HOLDING TEMP.
 °C

PERMANENZA **7**
 HOLDING TIME
 H

TERMOCOPPIE **4**
 THERMOCOUPLES
 TH N°

TIPO **PT/PT + RH 10%**
 TYPE

DIAGRAMMA TRATTAMENTO TERMICO
 HT DIAGRAM



NOTE
 REMARKS

NUMERO DI LOTTO DI TRATTAMENTO TERMICO
 HT LOT NUMBER **19/01/16SOFIND**

SI CERTIFICA CHE IL TRATTAMENTO TERMICO RISULTA IN ACCORDO CON LA SPECIFICA SUMMENZIONATA.
 WE CERTIFY THAT THE HEAT TREATMENT IS ACCORDING TO THE NAMED SPECIFICATION.

QCMgr

 F
 N X
 CARNITI

DATA
 Date
25/01/2016

ENTE ISPETTIVO
 Off. Inspector

DATA
 Date

F.I.R.S.A.
 Quality Control Manager



Via Marconi, 42/48 - 26010 SERGNANO (CR)

Tel. +39 0373 45651

Fax +39 0373 455100

email: fondinox@fondinox.com

CONTROLLO QUALITA'
QUALITY CONTROL

SM 2883

SCHEDA METALLOGRAFICA
METALLOGRAPHIC CERTIFICATE

FOGLIO DI

PAGE OF

CLIENTE: **FIRSA**

CUSTOMER

ORDINE N. **453/P**

ORDER No.

COLATA: **G 3455**

HEAT NUMBER

SEE CERT. 3.1 Nr. 86063

LEGA: **A995 GR 4A**

ALLOY

TRATTAMENTO: **SOLUTION TREATMENT 1130 °C/WATER**

HEAT TREATED

ATTACCO: **OXALIC ACID 10% + NaOH**

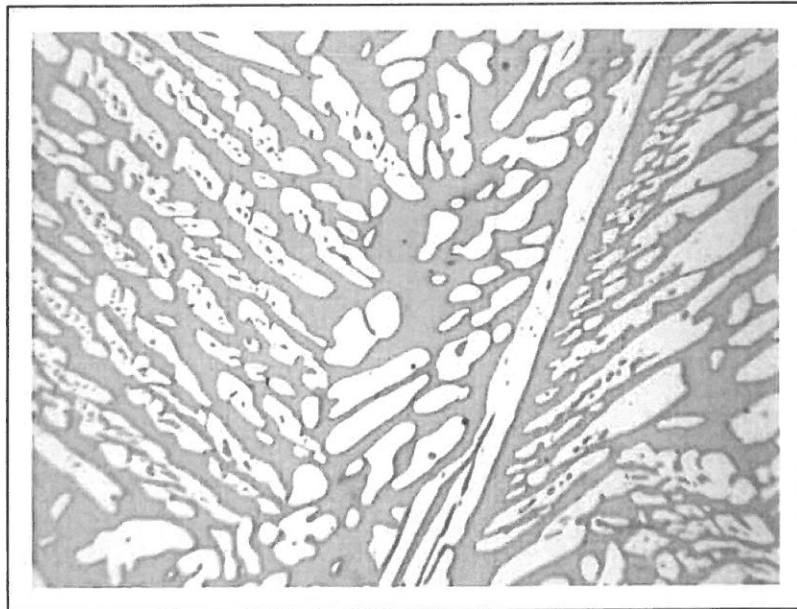
ETCHANT

TEMP.DI ATTACCO: **+25 °C**

ETCH. TEMPERATURE

INGRANDIMENTO: **200X T/2**

MAGNIFICATION



COMMENTI:

COMMENTS

CAST STRUCTURE IS FREE FROM GRAIN BOUNDARY CARBIDES, SIGMA AND INTERMETALLIC COMPOUND.

FERRITE CONTENT ACC. TO ASTM E562 : 45.33%

RISULTATI:

RESULTS

RESULTS: SATISFACTORY, ACCORDING TO MDS D46 REV.5

QCMgr



DATA
Date

25/01/2016

ENTE ISPETTIVO
Off. Inspector

DATA
Date

F.I.R.S.A. S.r.l.
Quality Control Manager



Via Marconi, 42/48 - 26010 SERGNANO (CR)

Tel. +39 0373 45651

Fax +39 0373 455100

email: fondinox@fondinox.com

CONTROLLO QUALITA'
QUALITY CONTROL

SM 2883/2

SCHEDA METALLOGRAFICA
METALLOGRAPHIC CERTIFICATE

FOGLIO DI
PAGE OF

CLIENTE: **FIRSA**

CUSTOMER

ORDINE N. **453/P**

ORDER No.

COLATA: **G 3455** **SEE CERT. 3.1 Nr. 86063**
HEAT NUMBER

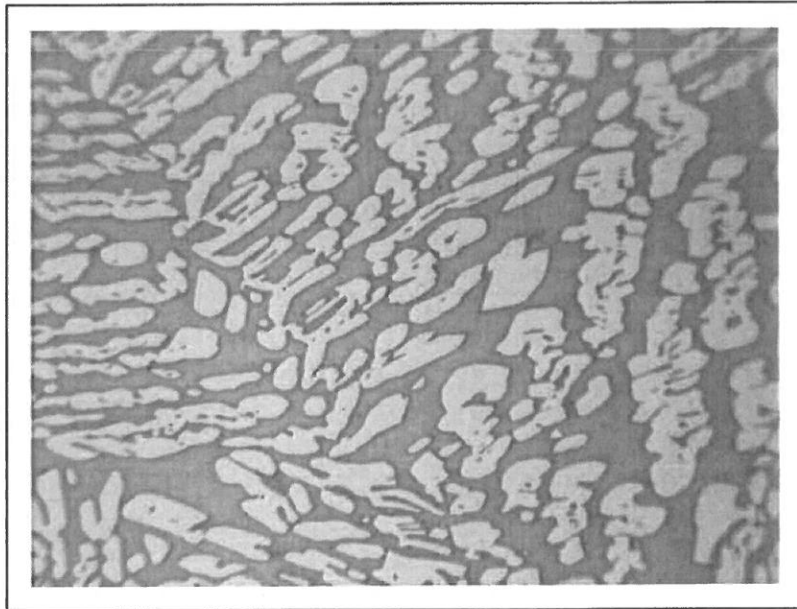
LEGA: **A995 GR 4A**
ALLOY

TRATTAMENTO: **SOLUTION TREATMENT 1130 °C/WATER**
HEAT TREATED

ATTACCO: **OXALIC ACID 10% + NaOH**
ETCHANT

TEMP.DI ATTACCO: **+25 °C**
ETCH. TEMPERATURE

INGRANDIMENTO: **200X SU**
MAGNIFICATION



COMMENTI:

COMMENTS

CAST STRUCTURE IS FREE FROM GRAIN BOUNDARY CARBIDES, SIGMA AND INTERMETALLIC COMPOUND.
FERRITE CONTENT ACC. TO ASTM E562 : 46.12%

RISULTATI:

RESULTS

RESULTS: SATISFACTORY, ACCORDING TO MDS D46 REV.5

QCMgr



DATA
Date

25/01/2016

ENTE ISPETTIVO
Off. Inspector

DATA
Date

F.I.R.S.A S.p.A
Quality Control Manager



Via Marconi, 42/48 - 26010 SERGNANO (CR)
 Tel. +39 0373 45651
 Fax +39 0373 455100
 email: fondinox@fondinox.com

CONTROLLO QUALITA'
QUALITY CONTROL

CERTIFICATO PROVA DI CORROSIONE
PITTING CORROSION
TEST CERTIFICATE

PCT 1974

FOGLIO DI
 PAGE OF

CLIENTE: **FIRSA**
 CUSTOMER

ORDINE N. **453/P**
 ORDER No.

COLATA: **G 3455**
 HEAT NUMBER **SEE CERT. 3.1 Nr. 86063**

LEGA: **A995 GR 4A**
 ALLOY

TRATTAMENTO: **SOLUTION TREATMENT 1130 °C/WATER**
 HEAT TREATED

RIFERIMENTI: **ANSI/ASTM G 48, METHOD A**
 REFERENCES **FINISH, 120 GRIT ABRASIVE PAPER**
THERMAL TREATMENT: FULLY SOLUTION TREATED AT
SOLUTION TREATMENT 1130 °C/WATER
TEST DURATION: 24 h.
TEST TEMPERATURE: +25°C

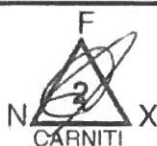
PROVINO: **50 x 25 x 5**
 SPECIMEN

SOLUZIONE: **AS PER ASTM G 48**
 SOLUTION

RISULTATI: **AFTER TEST NO PITTING WAS DETECTED AT 20X**
 RESULTS **WEIGHT LOSS : 0,46 gr/m2/day**

TEST RESULTS ACCOMPLISHE REQUIREMENTS OF
TECHNICAL DOCUMENT

QCMgr



DATA
 Date **25/01/2016**

ENTE ISPETTIVO
 Off. Inspector

DATA
 Date

F.I.R.S.A S.p.A
 Quality Control Manager



CERTIFICATE

No. A/13-341043 Rev 00
Date 2013-06-10 Page 1/2

INSPECTION CERTIFICATE acc to
EN 10 204 3.1

F.I.R.S.A. SPA
VIA A.GRANDI 12 - Z.I.
20017 MAZZO DI RHO MI

INSPECTION STAMP
QA-TUBE

Customer References	Customer order 2013-05-30	Sandvik References	Order No. 285026 Subs No. 29610 ABSMT No. 300-86686 Dispatch note 01279/54 C.Code 26
264/M			
250-00991 FIRSA			

Material description STAINLESS HOT FINISHED HOLLOW BAR	Steel/material Designations Sandvik UNS SANMAC 2205 S32205/S31803 EN no 1.4462
Steel making process E + AOD	

Technical requirements
 PED 97/23/EC EN 10216-5 TC1, EN 10294-2, EN 10297-2,
 NORSOK M-630 ED.5, NORSOK MDS D41 Rev.4, ASTM A-790-11
 NACE MR0175/ISO 15156-3:2009

EXTENT OF DELIVERY

It	Product designation	Heat	Lot	Pieces	Kg
03	THB-SANMAC2205-125-90 125.00 X 17.50 FL-1-2000-	534351	53036	1	97.0
				Total	1 97.0

TEST RESULTS

Chemical composition (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
534351	0.018	0.45	1.00	0.024	0.0042	22.35	5.49	3.13
	N							
534351	0.17							

Chemical composition, product (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
534351	0.020	0.47	1.00	0.025	0.003	22.29	5.56	3.13
	N							
534351	0.17							

F.I.R.S.A.S.p.A.
Quality Control Manager



Quality assurance - Helen Jämtemyr / QA-manager
MTC Service / Certificates

Tensile test at room temperature

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	MPa	MPa	MPa	A	2"
53036	Rp0.2 572	Rp1.0 638	Rm 772	36	36

Hydrostatic test

Lot	Sec	Mpa
53036	5	19.3

Hardness test

Lot	Min	Max
	HRC	HRC
53036	19	22

Impact test, J, -46 degrees C

Lot	Single values			Average
	Joule	Joule	Joule	Joule
53036	291	282	293	289

Ferrite acc to ASTM E-562

Lot	%
53036	51.9

Following controls/tests have been satisfactorily performed:

- Flattening test.
- PMI-test.
- The structure, examined at 400x magnifications is free from harmful amounts of intermetallic phases and precipitates.
- Corrosion test acc to ASTM G48A, 25 degrees C/24H
- Visual inspection and dimensional control.

Heat Treatment:

Solution annealed and quenched.

Marking:

SANDVIK SANMAC 2205 EN 10216-5 EN 10294-2 EN 10297-2 ASTM A-790 EN 1.4462 HFD
TC1 125.00 X 90.00 MM HT 534351 SS LOT 53036 UNS S31803 UNS S32205 *QA-TUBE*

The raw material is free from radioactive contamination.

Material free from mercury contamination.

Approved acc. AD 2000-Merkblatt W0 and certified acc. to
Pressure Equipment Directive (97/23/EC) by
TUEV NORD; notified body, reg.no. 0045.

The number of tests are based on the size of the manufacturing lot
before cutting to finished lengths.

The delivered products comply with the specifications and
requirements of the order.

The material is manufactured according to a Quality system,
approved and registered to ISO 9001:2008.

The certificate is produced with EDP and valid without signature.

F.I.F.S.A. S.p.A.
Quality Control Manager



11100 AOSTA - VIA PARAVERA
 TEL +39 0165 3021 - FAX +39 0165 302296
 CAP. SOC. 100.000.000 EUR IN. VERS.
 C.F. 02187360967
 VAT: IT00571320076 - R.E.A. n. AO-50474

Company with management systems IGG
 approved and certified according to ISO 9001.
 ISO/TS 16949 e ISO 14001.

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)
 (A03) DOCUMENT NUMBER 2014054597
 PAGE 1/3

(A06) CUSTOMER : FIRSA S.P.A
 (A07) CUSTOMER'S ORDER : 401/N
 (A01) MANUFACTURER'S WORKS : AOSTA, VIA PARAVERA 16 - ITALY
 (A05) PRODUCER OF THE DOC: QUALITY DEPARTMENT
 (A08) MANUFACTURER'S WORKS ORDER NO: 1078224 /10 (A04) MARK OF THE MANUFACTURER : COGNE
 (A09) DISPATCH NOTE : 80926684 /10 (B14) WEIGHT : 46,00

THE CERTIFIED PRODUCTS ARE COMPLYING TO THE PURCHASE ORDER
 INTERNAL SPEC. : STOCKBARRE TECHNICAL RULE :
 (B01) PRODUCT : 680 PEL PEELED ROUND BARS TOLERANCE : ISOK11
 (B03) SURFACE FINISH : 2B Cold Finished
 (B04) PRODUCT DELIVERY CONDITION: RS SOLUTION ANNEALED
 (B09) PRODUCT DIMENSIONS (mm): 35,000 (B10) LENGTH (mm) 06000 /06200
 (B02) GRADE : F51 UNSS31803/S32205 1.4462 INTERNAL GRADE : 329A 1
 (B07) IDENTIFICATION HEAT NO: 372622 (B07) IDENTIFICATION LOT NO.: 503730
 (B06) MARKING OF THE PRODUCT : 1.4462 TEST PIECE N. : 373

REFERENCE NORMS: EN 10088-3(05), EN 10272(07), ASTM A276(08)/ASME SA276(10) (UNSS31803), ASTM A479(11)/ASME SA479(10),
 ISO15156-3/NACE MR0175(09), NACE MR0103(10), API 6A(09)-PSL3 65K, NORSOK M-650 REV.3/M-630 MDS D47 REV.3 E STATOIL D22(05).
 REFERENCE NORMS FOR CHEMICAL COMPOSITION ONLY: EN 10222-5(02), ASTM A182(09)/ASME SA182(10), ASTM A484(08)
 ASTM A484 DOES NOT APPLY FOR SIZE AND LENGTH TOLERANCES.
 STEELMAKING AEF + AOD + CONTINUOUS CASTING
 HEAT TREATMENT: SOLUTION ANNEALING AT 1040-1080°C + WATER QUENCHING DOWN TO 260°C.MIN.SOAKING TIME 1 Min./mm THICKNESS.
 HOT ROLLED
 REDUCTION RATIO 24,5

(C71) CHEM. COMP. - LADLE ANALYSIS ACCORDING ASTM E1019-A751-E1086-E415-A580
 Control lot No. - Weight : 020000500855 - 85.600 KG

ELEMENTS OBTAINED	C	Si	Mn	P	S	N	Cr	Mo	Ni	Cu
ELEMENTS OBTAINED	0,024	0,54	1,25	0,019	0,0005	0,16	22,34	3,14	5,57	0,13
ELEMENTS OBTAINED	W	Co	CV_F8							
CV_F8 =	0,030	0,07	-35							

 CV_F8 = CR+3.3*(MO+W)+16*N2

HARDNESS TEST IN AS DELIVERED CONDITION
 Control lot No. - Weight : 020000501572 - 2.454 KG
 SPECIFICATION ENISO6506 HARDNESS TEST HB TESTING METHOD : 10/3000
 OBTAINED 211

IMPACT TEST IN AS DELIVERY CONDITION
 Control lot No. - Weight : 020000501572 - 2.454 KG
 SPECIFICATION EN ISO 148-1-KV2 (C02) DIRECTION OF THE TEST PIECE: L
 (C40) TYPE OF TEST PIECE KV
 (C03) TEST TEMPERATURE °C 20
 MEASUREMENT UNIT J
 OBTAINED 299 298 299

F.I. S.p.A.
 Quality Control Manager



COGNE (UGOR) SPECIALI Sp. R.

11100 AGOSTA - VIA PARAVEP
TEL. +39 0185.3021 - FAX +39 0185.302296
CAP. SOC. 100.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: 020571320076 - R.E.A. n. AD-50474

Company with management systems IGO
approved and certified according to ISO 9001,
ISO/TS 16949 e ISO 14001.

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)
(A03) DOCUMENT NUMBER 2014054597
PAGE 2/3

TENSILE TEST IN AS DELIVERY CONDITION
Control lot No. - Weight :020000501572 -
SPECIFICATION

EN-ISO6892-1 2.454 KG

(C02) DIRECTION OF THE TEST PIECE: L

MEASUREMENT UNIT

Rm	Rp02%	A	Z
MPA	MPA	%	%
721	455	5.0 D 38,5	79,0

OBTAINED

CORROSION

Control lot No. - Weight :020000501572 -
SPECIFICATION
OBTAINED

2.454 KG
ASTM G48 A

0,08

FERRITE %

Control lot No. - Weight :020000501572 -
SPECIFICATION
OBTAINED

2.454 KG
ASTME562 --

46,04

CORROSION TEST ACCORDING TO ASTM A262 Practice E EN ISO 3651-2: SATISFACTORY.
IMPACT TEST VALUES AT -46°C ARE NOT LESS THAN THOSE AT -50°C HERE STATED.

IMPACT TEST

Control lot No. - Weight :020000501572 -
SPECIFICATION
(C40) TYPE OF TEST PIECE

2.454 KG
ASTM A370-E23 TYPE A
KV

(C02) DIRECTION OF THE TEST PIECE: L

(C03) TEST TEMPERATURE °C

50-

MEASUREMENT UNIT

J	J	J
298	296	292

TENSILE TEST

Control lot No. - Weight :020000501572 -
SPECIFICATION

2.454 KG
ASTMA370-E8-0.5"SPEC

(C02) DIRECTION OF THE TEST PIECE: L

MEASUREMENT UNIT

T.S	Y.S02	RA	EL
KSI	KSI	%	%
104	66	79,2	4,0 D 41,8

OBTAINED

ASTM G48 A/ASTM A923 C TESTING CONDITIONS: Sample surface 120 GRIT, Solution 100g FeCl3.6H2O+900ml H2O, T 35°C, 24h, no pitting at 20X.

ROTARY HEAD EDDY CURRENT AND VISUAL INSPECTION OF SURFACE ACCORDING TO EN 10277-1 Class4: SATISFACTORY.

DIMENSIONAL CONTROL ACCORDING TO EN 10278 :SATISFACTORY.

ULTRASONIC TEST ACCORDING TO EN 10308 AND API6A CLASS 3, EQUIVALENT TO SEP 1920 GROUP 3 CLASS C (CLASS B FOR SIZES > 75 MM) AND ASTM A388 FBH 5(ONLY FOR SIZES > 100 MM): SATISFACTORY.

ANTIMIX TEST WITH PORTABLE SPECTROMETER: SATISFACTORY.

NO WELDING REPAIR ON THE MATERIAL.

THE PRODUCT SATISFIES CE DIRECTIVES: 2011/65 - 2000/53 2002/95(RoHS) 2003/11 - 2005/618 AND PED 97/23/EC.



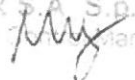
COGNE ACCIAI SPECIALI S.p.a.

11100 AOSTA - VIA PARAVER
TEL +39.0165.3021 - FAX +39.0165.302296
CAP SOC. 100.000.000 EUR INT. VERS.
C.F. 02187360967
VAT: IT00571320076 - R.E.A. n. AD-50474

Company with management systems IGO
approved and certified according to ISO 9001,
ISO/TS 16949 e ISO 14001.

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)
(A03) DOCUMENT NUMBER 2014054597
PAGE 3/3

MARKING: PRODUCER LOGO, MATERIAL NO, HEAT NO, LOT NR.
QUALITY SYSTEM CERTIFIED BY I.G.Q ACCORDING TO UNI EN ISO
9001:2008 - ISO/TS 16949:2009 (THE LAST ONE ONLY FOR HOT ROLLED-PEELED-GROUND, STAINLESS STEEL BARS AND ATOMIZED METALLIC POWDERS).
ALL THE NORMS MENTIONED ARE INTENDED IN THEIR LATEST REVISION AT THE DATE OF ISSUE OF THIS DOCUMENT.
MATERIAL IS FREE FROM MERCURY CONTAMINATION
METALLOGRAPHIC INSPECTION ACCORDING TO ASTM A923 METHOD A: SATISFACTORY.

F.I.R.S.A. S.p.A.
Quality Manager 



COGNE ACCIAI SPECIALI S.p.a.
Via Paravera, 16
I-11100 AOSTA

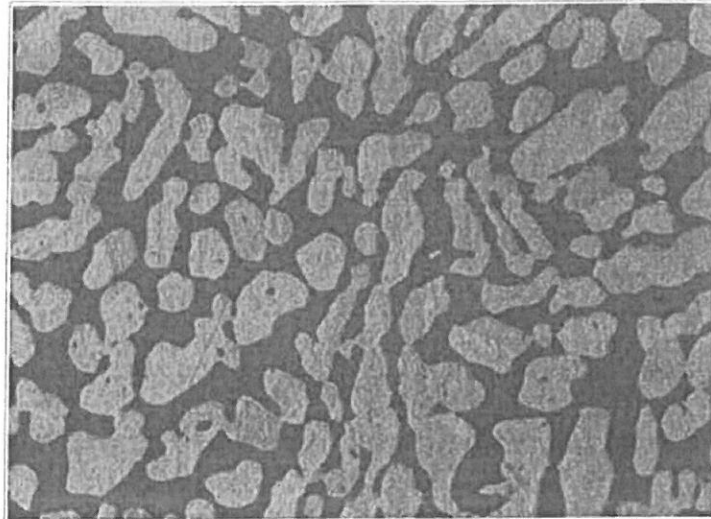
MICRO PHOTO

All.N°1

MARCA NUANCES WERKSTOFF GRADE	329 A 1	LOTTO DI CONTROLLO LOT DE CONTRÔLE LAUFKARTE CONTROL LOT	020000501572
COLATA COULEE SCHMELZE HEAT	372622	REAGENTE RÉACTIF REAGENS ETCHANT	Etchant #212 ASTM E407
TIPO DI APPARECCHIO TYPE D'APPAREIL PRUEFGERAT TYP INSTRUMENT TYPE	MICROSCOPE - LEICA MEF4M		
INGRANDIMENTO AGRANDISSEMENT VERGROSSERUNG ENLARGEMENT	X 500		
DIREZIONE D'ESAME DIRECTION D'EXAMEN PRUEFRICHTUNG SCANNING DIRECTION	<input type="checkbox"/> LONGITUDINALE - LONGITUDINAL <input checked="" type="checkbox"/> TRASVERSALE - TRANSVERSAL - KREUZEND		

PHOTO (ELECTRONIC IMAGE)

RISULTATO
DELL'ESAME
RESULTAT DE L'
ESSAI
PRUEFERGERBNISS
RESULT OF THE
TEST



NOTE:
" Free from Intermetallic Phases and Precipitates"

FIRMA
SIGNATURE
Luca Cantelli

UNTERSCHRIFT
SIGNATURE

DATA
DATE

DATUM
DATE

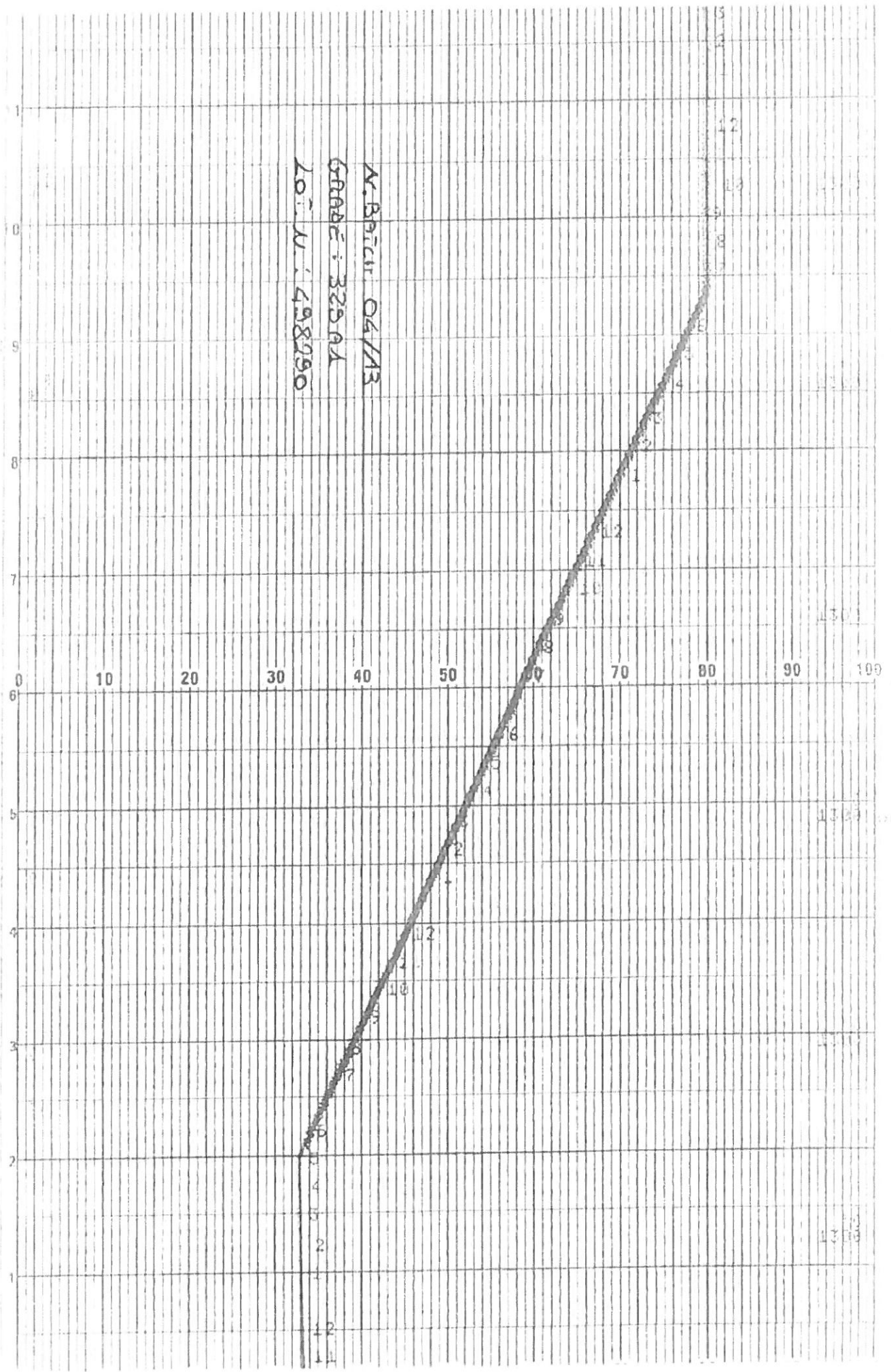
03/04/2014

F.I.R.S.A. S.p.A.
Quality Manager
Mod. Micro Rev.2

FINA S.M.B. P.A.
OWNER'S REPRESENTATIVE

CHINO CHART NO. EH 01001

N. BRICK 04/13
GRADE: 325.91
Lot N: 4988990





N.US.1286/14

CERTIFICATO DI COLLAUDO ULTRASUONI
CERTIFICAT DE CONTROLE PAR ULTRASONS
ULTRASCHALL PRUEFZEUGNIS
REPORT OF ULTRASONIC INSPECTION

COGNE ACCIAI SPECIALI s.r.l.

CLIENTE CLIENTS/GG BESTELLER CUSTOMER		CONFERMA CONFIRMATION AUFTRAGSBESTRAKTIGUNG CONFIRMATION	
MARCA NUANCES WERKESTOFF GRADE	329A 1 W.No 1.4462	ORDINE COMMANDE AUFTRAG ORDER	
SPECIFICA SPECIFICATION PRUEFVORSCHRIFT SPECIFICATION	EN 10308 CI 3	COLATA COULEE SCHMELZE HEAT	SCHEDA LOT LAUFKARTE LOT
PRODOTTO PRODUIT ERZEUGNISFORM PRODUCT	Bars Ø 35 mm	STATO DI LAVORAZIONE STADE DU PRODUIT LIEFERZUSTAND WORKING STEP	
TIPO DI APPARECCHIO TIPE D'APPAREIL/PARUS PRUEFGERAT TYP INSTRUMENT TYPE	USN 58	COSTRUTTORE CONSTRUCTEUR BAUART MAKE	
TIPO DI SONDA TIPE DE PALPEUR PRUFKOPT PROBETYPE	DL4R	FREQUENZA FREQUENCE FREQUENZ FREQUENCY	
DIREZIONE D'ESAME DIRECTION D'EXAMEN PRUEFRICHTUNG SCANNING DIRECTION			
<input checked="" type="checkbox"/> RADIALE - RADIAL <input type="checkbox"/> ASSIALE - AXIAL - ACHSIAL - AXIAL-(ANGLE) <input type="checkbox"/> CIRCONFERENZIALE - CIRCOFERENTIAL - CREISLINIE - CIRCUMFERENTIAL			
<input type="checkbox"/> MATRICOLA BLOCCO CAMPIONE IDENTIFICATION BLOC DE REFERENCE MUSTER BLOCK MUSTER BLOCK TEST BLOCK NR			
<input type="checkbox"/> AVG SCALE ECRANS ABAQUES AVG AVG SKALEN AVG SCALE			
<input checked="" type="checkbox"/> AVG DIAGRAMMI DIAGRAMMES AVG AVG DIAGRAMM AVG DIAGRAM			
<input checked="" type="checkbox"/> V1 <input type="checkbox"/> V2			
RISULTATO DELL'ESAME RESULTAT DE L'ESSAI PRUEFERGERBNISS RESULT OF THE TEST		EXAM DATA: 01/10/2014 INSPECTED NO 7 BARS NO DEFECTS HAVE BEEN DETECTED THE MATERIAL IS IN ACCORDANCE TO THE FOLLOWING SPECIFICATIONS: EN 10308 CI 3	
L'ISPETTORE CND L'INSPECTEUR CND	ZUSTANDIGER CND CND INSPECTOR	III LIV.CND OLIVERO DIMITRI Liv.III - EN473 N° Cert.23340/PND/C	DATA DATE 02/10/2014
BAISOTTI MARCO Liv.II - EN473 N° Cert.20741/PND/C			

(Mod Certus Rev. 3)

F.I.R.S.A. S.p.A.
 Technical Manager

Customer : F.I.R.S.A. SPA
VIA A. GRANDI 12 RHO(MI)

Your order nr. : 56/Q-REV.1
Date : 02/02/2016

Certificate nr. : 001358/2016 Pag.: 03
Date : 11/03/2016

Material : UNS S32760 (F55)		Chemical composition:											Finish	Pos.		
Quantity	Product Description	Heat Nr.	Required Value	Min:	% C	% Mn	% Si	% Cr	% Ni	% Mo	% S	% P			% N	% Cu
			Max:		0,030	1,000	1,000	26,000	8,000	4,000	0,010	0,030	0,300	1,000	1,000	
6,00	OCCHIOLI 1/2X90	334697			0,022	0,610	0,430	25,980	7,420	3,560	0,002	0,021	0,246	0,600	0,565	0060
10,00	OCCHIOLI 1/2X90	334697			0,022	0,610	0,430	25,980	7,420	3,560	0,002	0,021	0,246	0,600	0,565	0120
16,00	TIRANTI 5/8X105	334317			0,027	0,600	0,390	25,600	6,420	3,640	0,002	0,025	0,265	0,910	0,550	0010
8,00	TIRANTI 5/8X105	334317			0,027	0,600	0,390	25,600	6,420	3,640	0,002	0,025	0,265	0,910	0,550	0070
8,00	TIRANTI 5/8X105	334317			0,027	0,600	0,390	25,600	6,420	3,640	0,002	0,025	0,265	0,910	0,550	0130

Material : UNS S32760 (F55)		Mechanical requirements:			Hardness Test	
Quantity	Product Description	Heat Nr.	R	Rs	A %	HB - max
			750 min	550 min	25 min	290
			R.Tens.Str.	Rs.Yeld Str.	A %	
			N/mm2 (MPa)	N/mm2 (MPa)	Elongation	
6,00	OCCHIOLI 1/2X90	334697	831	552	46,0	258-
10,00	OCCHIOLI 1/2X90	334697	831	552	46,0	258-
16,00	TIRANTI 5/8X105	334317	832	609	45,0	256-
8,00	TIRANTI 5/8X105	334317	832	609	45,0	256-
8,00	TIRANTI 5/8X105	334317	832	609	45,0	256-

ASTM A276 condition A

Heat treatment: solution annealed

We certify that the material is in accordance with the specification of your order

Pos.20-50-80-110-140 marking:"B" / Pos.40-100 marking:"C" / Pos.10-70-130 marking:"A"

Heat nr : 334697 Certificate nr : 295537 date : 08/07/2009
Heat nr : 334317 Certificate nr : 291234 date : 03/03/2009

Riferimento DDT numero : 000252 del : 11/03/2016

F.I.R.S.A S.p.A.
Quality Control Manager



Quality Control
GIUSEPPE COLOMBO

Inspection Agency



CONFORME

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital

BGH Edelstahlwerke GmbH

Am Stahlwerk 1

01705 Freital
DeutschlandKunden-Bestell-Nr. 08177300100
Customer order no.
Cde. no. du client SI:081773_001BGH-Auftrags-Nr. 43963501/105669
BGH works no.
BGH référenceZeugnis-Nr. 291234
Certificate no.
No. de certificatBescheinigung über Werkstoffprüfung nach DIN EN 10204
Certificate of material tests according to DIN EN 10204 3.1
Certificat des essais des matériaux selon DIN EN 10204Die Lieferung entspricht den vereinbarten Lieferbedingungen.
Delivery in accordance with the agreed terms of delivery.
La livraison correspond aux conditions de livraison convenues.Zeichen des Lieferwerkes Stempel des Werksechverständigen
Trade mark Inspector's stamp
Signe du fournisseur Poinçon de l'inspecteur

Erzeugnisform Product		Stab, rund, geschält Round bars, peeled										
Werkstoff / Quality		1.4501 X 2 CrNiMoCuWN 25-7-4										
Anforderungen Requirements		DIN EN 10088 03 09/05 1.4501 UNS S32760 NACE MR 01 75 ISO15156-1 2004 1.4501 UNS S32760 NORSOK MDS - D 57 Rev. 3 UNS S3 2760 ASTM A 479 /A479M 2006a UNS S3 2760 - F55 ASTM A 182 /A 182M - 08a UNS S3 2760 ASTM A 276 - 08										
Besichtigung und Maßnachprüfung Inspection and dimensional control Inspection et contrôle de dimension ohne Beanstandung without objection				Erschmelzung/Nachbehandlung Meltingprocess/secondary refining Mode d'élaboration/traitement ultérieur E - VOD				Verwechslungsprüfung (spectroanalytisch) Identification test (spectral-analysis) examination d'identification (analyse spectrale) ohne Beanstandung without objection				
Pos. Item	Anzahl Quantity	Abmessung Dimension							Gewicht Weight	kg	Schmelz-Nr. Heat-No.	
1	4Bd.	15,88 RD							4448		334317	
Schmelze Heat %	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	N2	W	PRE
334317	0,027	0,39	0,60	0,025	0,0020	25,60	3,64	6,42	0,91	0,2650	0,550	41,852
Wärmebehandlungszustand Condition of heat treat		lösungsgeglüht solution annealed										
Probe-Nr. Test-No.	Lage	Temp. °C	Rp0,2 N/mm ²	Rm N/mm ²	A4 %	Z %	Kerbschlagarbeit Impact value J			Probenform Shape of test piece Charpy-V °C	Härte Hardness HBW/HRC	
Soll/Req.	L	RT	>=550	>=750	>=25	>=45	>=100			RT		
	L	RT		<=895			>=45			-46	<=290 <=32	
066BE1	L	RT	609	832	45	79	261	264	257	RT	256	26
066BE1	L						262	254	260	-46		
066BE2	L	RT	632	837	45	82	260	254	265	RT	262	25
066BE2	L						270	258	264	-46		
Deltaferrit/ferrite delta ASTM E 562: 53%												
Korros.-Test ASTM G48 Meth.A: 50°C/24h: kein Lochfraß/no pitting is observed corrosion test Meth.A: Gewichtsverlust/weight loss: 0,039 g/m ²												
Material free from grain boundary carbides and precipitates phases.												
Anlagen End. Annexa	US-certificate / Protokoll Glühbesch./Heat treatment cer. Gefügeaufnahme/micrograph				Freital, den Place and date Lieu et date 03.03.2009				Abnahmebeauftragter Inspector representative Inspecteur de réception MUELLER			
Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.							This certificate was generated by data system It must not be signed for validity as well. Ce certificat a été établi sur système informatique et est valable sans signature aussi.					



BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01705 Freital

BGH Edelstahlwerke GmbH

Am Stahlwerk 1

01705 Freital
Deutschland

Kunden-Bestell-Nr. 08177300100
Customer order no.
Cde. no. du client SI:081773_001

BGH-Auftrags-Nr. 43963501/105669
BGH works no.
BGH référence

Zeugnis-Nr. 291234
Certificate no.
No. de certificat

Beschneigung über Werkstoffprüfung nach DIN EN 10204
Certificate of material tests according to DIN EN 10204 3.1
Certificat des essais des matériaux selon DIN EN 10204

Die Lieferung entspricht den vereinbarten Lieferbedingungen.
Delivery in accordance with the agreed terms of delivery.
La livraison correspond aux conditions de livraison convenues.

Zeichen des Lieferwerkes Stempel des Werksachverständigen
Trade mark Inspector's stamp
Signe du fournisseur Poinçon de l'inspecteur



Test pieces taken at mid thickness and taken at bar prolongation.

Material no weld repair.

Anlagen US-certificate / Protokoll
Encl. Glühbesch./Heat treatment cer.
Annexe Gefügeaufnahme/micrograph

Freital, den
Place and date
Lieu et date
03.03.2009

Abnahmebeauftragter
Inspector representative
Inspecteur de réception
MUELLER

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.

This certificate was generated by data system it must not be signed for validity as well.
Ce certificat a été établi sur système informatique et est valable sans signature aussi.


BGH Edelstahl Freital GmbH

 Kunden-Bestell-Nr. **08177300100**
 Customer order no.
 Cde. no. du client **SI:081773_001**

 BGH-Auftrags-Nr. **439635-01**
 BGH works no.
 BGH référence

 Zeugnis-Nr. **291234**
 Certificate no.
 No. de certificat

Erzeugnisform	: Stab, rund, geschält
Product	: Round bars, peeled
Werkstoff/Quality	: 1.4501 X 2 CrNiMoCuWN 25-7-4 charge: 334317
Abmessung/Dimension	: 15,88 RD
Anzahl/Quantity	: 4Bd. Gewicht /Weight : 4448 kg
Wärmebehandlungszustand	: lösungsgeglüht
Condition of heat treat	: solution annealed
Prüfrichtlinie	
Specification	
US: nach ASTM/ASME A 388 (max. 3 mm KSR/FBH)	
Bearbeitungszustand	: geschält
Machining condition	peeled
Prüfgerät	: Krautkrämer ROWA PAT 160 VIS
Test equipment	
Prüfkopf	: 4Arrays á 90° - Radius: 32,5 mm 16 Elemente - 10 MHz
Probe	
Kopplungsmittel	: Wasser
Coupling medium	water
Prüfumfang	: vollständig
Extent of examination	completely
Einschallrichtung	: senkrecht und in Winkeleinschallung 40°
Direction of incidence	perpendiculair and oblique incidence 40°
Registriergrenze	: Prüfung und Justierung erfolgten gemäß obiger Spezifikation. Spezifikation.
Registration level	Test and adjustment acc. to a. m. specification.
Befund	: Es wurden keine registrierpflichtigen Anzeigen ermittelt.
Result	There have not been found any reportable indications
Prüfdatum	: 25.02.2009
examination date	

 Freital, den
 Place and date
 Lieu et date
 04.03.09

 Prüfer
 Testing operator
 Opérateur
 Gefreiter
 Stufe 1 EN 473

 Abnahmebeauftragter
 Inspector representative
 Inspecteur de réception

 JUNGKUNZ
 Level III SNT-TC 1A

 Überwacher
 Supervisor
 Surveillleur

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.

 This certificate was generated by data system it must not be signed for validity as well.
 Ce certificat a été établi sur système informatique et est valable sans signature aussi.

WärmebehandlungsbescheinigungHeat treatment certificate
Attestation de traitement thermique

BGH Edelstahl Freital GmbH

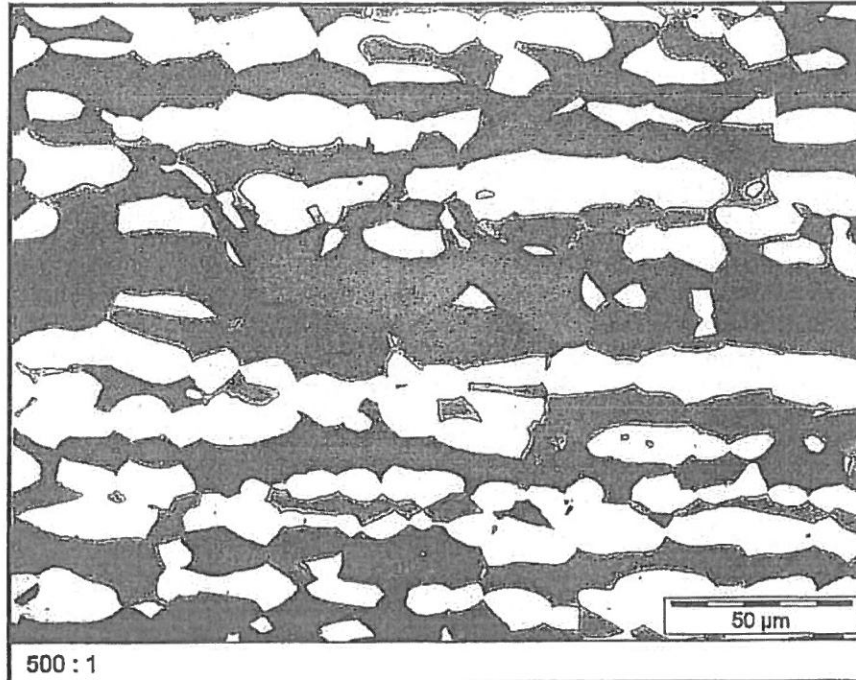
Kunden-Bestell-Nr. 08177300100
Customer order no.
Cde. no. du client SI:081773_001BGH-Auftrags-Nr. 43963501
BGH works no.
BGH référenceZeugnis-Nr. 291234
Certificate no.
No. de certificatWärmebehandlungszustand: **lösungsgeglüht**
Condition of heat treatment: **solution annealed**
État de traitement thermique: **recuit de mise en solution**Datum:
Date: 11.02.2009
Date:Ofen-Nr.:
Furnace no.: 474
No. du four:Aufheizzeit:
Heating up time: 4 h
Temps de montée en température:Haltetemperatur:
Holding temperature: 1100 °C
Température de maintien:Haltezeit:
Holding time: 1,5 h
Temps de maintienAbkühlmedium:
Quenching medium: Wasser / water / eau
Moyen de refroidissement:Datum:
Date:
Date:Ofen-Nr.:
Furnace no.:
No. du four:Haltezeit:
Holding time:
Temps de maintien:Abkühlmedium:
Quenching medium:
Moyen de refroidissement:Wärmebehandlungs-Nr.: 474/2339 (066BE)
Heat treatment lot no.:
No. du lot de traitement thermique:Diagramm:
Diagram:
Diagramme:Datum:
Date: 04.03.2009
Date:Abnahmebeauftragter
Inspector representative
Inspecteur de réception
JUNGKUNZ

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.

This certificate was generated by data system it must not be signed for validity as well.
Ce certificat a été établi sur système informatique et est valable sans signature aussi.

Zeugnis-Nr. 291234
Certificate no.
No. de certificate

BGH-Auftrags-Nr. **43963501**
BGH works no.
BGH référence



Probe - Nr. / Test - No. 066BE01



BGH Edelstahl Siegen GmbH

BGH Edelstahl Siegen GmbH, Industriest. 9, 57076 Siegen

Officina Meccanica Colombo
Magno Srl

Beschneigung zur Materialidentität 115087
Certificate of material identity
Certificat d'identité du matériel

Via Umbria nr. 9

20025 Legnano (MI)

Kunden-Bestell-Nr. 151/09
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 167529 1/717213_001
BGH works no.
BGH référence

Erzeugnisform Product		Stab, rund, gewalzt, geschält Round bars, rolled, peeled		
Werkstoff / Quality		1.4501 UNS S32760		
Anforderungen Requirements		NACE MR0175/ISO15156 ASTM A182/182M - 08a DIN EN 10088-3 9/05 MDS - D 57 Rev.3		
Wärmebehandlungszustand Condition of heat treat		Lösungsgeglüht solution annealed		
Pos. Item	Anzahl Quantity	Abmessung Dimension	Gewicht kg Weight kg	Schmelz-Nr. Heat-No.
1	0	15,88 RD	100	334317
<p>Das Material entspricht dem beigefügten Zeugnis, sowie Ihrer Bestellung und ist eine Teilmenge aus dem Lagerbestand.</p> <p>The material is part of our stock quantity and according to the attached test certificate.</p>				
Anlagen Kopie Zeugnis Nr. 291234 Encl. Annexe		Siegen, den Place and date Lieu et date 06.05.2009	verantwortlich für Materialentnahme responsible for disposition of material responsable pour la disposition du matériel HAUKE	
Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.			This certificate was generated by data system. It must not be signed for validity as well. Ce certificat a été établi sur système informatique et est valable sans signature aussi.	

Customer : F.I.R.S.A. SPA
 VIA A. GRANDI 12 RHO(MI)

Your order nr. : 56/3-REV.1
 Date : 02/02/2016

Certificate nr. : 001359/2016
 Date : 11/03/2016
 Pag. : 03

Quantity	Product Description	Heat Nr.	Max:	% C	% Mn	% Si	% Cr	% Ni	% Mo	% S	% P	% N	% Cu	% W	Pos.
10,00	DADI 1/2	760941		0,025	0,600	0,400	25,700	6,100	3,600	0,001	0,025	0,245	0,850	0,580	0125
2,00	DADI 1/2	760941		0,025	0,600	0,400	25,700	6,100	3,600	0,001	0,025	0,245	0,850	0,580	0155
32,00	DADI 5/8	300383		0,020	0,650	0,400	25,650	7,380	3,640	0,001	0,022	0,239	0,580	0,561	0015
16,00	DADI 5/8	300383		0,020	0,650	0,400	25,650	7,380	3,640	0,001	0,022	0,239	0,580	0,561	0075
16,00	DADI 5/8	300383		0,020	0,650	0,400	25,650	7,380	3,640	0,001	0,022	0,239	0,580	0,561	0135

Material :	UNS S32760 (F55)	Mechanical requirements:	R	RS	A %	Hardness Test
			750 min	550 min	25 min	HB - max
			R. Tens. Str.	Rs. Yeld Str.	A %	290
Quantity	Product Description	Heat Nr.	N/mm2 (MPa)	N/mm2 (MPa)	Elongation	
10,00	DADI 1/2	760941	813	590	40,0	245-252
2,00	DADI 1/2	760941	813	590	40,0	245-252
32,00	DADI 5/8	300383	833	612	41,0	257-
16,00	DADI 5/8	300383	833	612	41,0	257-
16,00	DADI 5/8	300383	833	612	41,0	257-

ASTM A276 condition A - Heavy hex nuts ANSI B19.2.2
 Heat treatment: solution annealed
 We certify that the material is in accordance with the specification of your order

Pos. 25-55-85-115-145 marking: "E" / Pos. 45-105 marking: "F" / Pos. 15-75-135 marking: "D"
 Heat nr : 760941 Certificate nr : 201325 date : 30/03/2005
 Heat nr : 300383 Certificate nr : 302332 date : 22/01/2010
 Riferimento DDT numero : 000252 del : 11/03/2016



Quality Control
 GIUSEPPE COLOMBO

F.I.R.S.A. S.p.A.
 Quality Control Manager

Inspection Agency



CONFORME

BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH, Am Stehgraben 1, 03705 Freital

CHUN & VOLLERIN SRL
VIA VENETO, 11
BUCCINASCO (MI)

Zeugnis-Nr. 302332
Certificate no.
No. de certificat

Bescheinigung über Werkstoffprüfung nach DIN EN 10204
Certificate of material tests according to DIN EN 10204 3.1
Certificat des essais des matériaux selon DIN EN 10204

Die Lieferung entspricht den vereinbarten Lieferbedingungen.
Delivery in accordance with the agreed terms of delivery.
La livraison correspond aux conditions de livraison convenues.

Zeichen des Lieferanten Trade mark Signe du fournisseur
Stempel des Werkstoffprüfenden Inspector's stamp Poinçon de l'inspecteur

Kunden-Bestell-Nr. 08296500100
Customer order no.
Cdo. no. du client

BGH-Auftrags-Nr. 082965-001
BGH works no.
BGH référence



Erzeugnisform Product		Stab, rund, geschält Round bars, peeled										
Werkstoff / Quality		1.4501 X 2 CrNiMoCuWN 25-7-4										
Anforderungen Requirements		DIN EN 10088 03 09/05 UNS S32760 NACE MR 01 75 ISO15155-1 2004 UNS S32760 NORSOK MDS - D 57 Rev. 3 UNS S32760 ASTM A 276 - 08a UNS S32760 ASTM A 479 /A479M - 08 UNS S32760 - F55 ASTM A 182 /A 182M - 09										
Bestätigung und Maßkontrolle Inspection and dimension control inspection et contrôle de dimension ohne Beanstandung without objection				Erschmelzung/Nachbehandlung Melting process/secondary refining Mots d'élaboration/traitement ultérieur E - VOD				Verwechslungsprüfung (spektralanalytisch) Identification test (spectral analysis) examen de confirmation (analyse spectrale) ohne Beanstandung without objection				
Pos. Item	Anzahl Quantity	Abmessung Dimension		Gewicht Weight		kg		Schmelz-Nr. Heat-No.				
1	1Bd	31,75 RD		1492				300383				
Schmelz- Heat %	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Nb	V	Ti
300383	0,020	0,40	0,65	0,022	0,0010	25,65	3,64	7,38	0,58	0,015	0,064	0,003
	A1	N2	W	PRE								
	0,003	0,2390	0,561	41,486								
Wärmebehandlungszustand Condition of heat treat		Lösungsgeglüht solution annealed										
Prob-Nr Test-No	Lage L	Temp °C	Rp0,2 N/mm ²	Rm N/mm ²	A4 %	Z %	Kerbschlagenergie Impact value J	Probenform Shape of test piece Charpy-V °C	Härte Hardness HRC / HB			
Soll/Req.	L		>=550	>=750 <=895	>=25	>=45	>=100 >=45	RT °C -46 °C	<=32			
011LE1	L						300 300 300	RT	22		257	
011LE1	L						268 251 260	-46				
011LE2	L						300 300 300	RT	23		261	
011LE2	L						254 270 262	-46				
011LE3	L	RT	612	833	41	79						
011LE4	L	RT	614	836	40	79						
Material free from grain boundary carbides and precipitates phases. Test pieces taken at mid thickness and taken at bar prolongation. Material no weld repair.												
Anlagen Encl. Annexe	US-certificate / Protokoll GIDHbesch./Heat treatment cer. Gefügebefnahme/micrograph				Freitrag, den Place and date Lieu et date 22.01.2010				Abnahmebeauftragter Inspector representative Inspecteur de réception BERNDT			
Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.							This certificate was generated by data system & must not be signed for validity as well. Ce certificat a été établi sur système informatique et est valable sans signature aussi.					

COPIA CONFORME ALL'ORIGINALE
CHUN & VOLLERIN s.r.l.
Via Veneto 11 - 20090 BUCCINASCO



BGH Edelstahl Freital GmbH

BGH Edelstahl Freital GmbH Am Stahlwerk 1 01765 Freital

CHUN & VOLLERIN SRL
VIA VENETO, 11
BUCCINASCO (MI)

Zeugnis-Nr. 302332
Certificate no.
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Die Lieferung entspricht den vereinbarten Lieferbedingungen.
Delivery in accordance with the agreed terms of delivery.
La livraison correspond aux conditions de livraison convenues.

Zeichen des Lieferanten: Stempel des Werkstoffverständigen
Trade mark: Inspector's stamp
Signe du fournisseur: Poinçon de l'inspecteur

Kunden-Bestell-Nr. 08296500100
Customer order no.
Cde. no. du client

BGH-Auftrags-Nr. 082965-001
BGH works no.
BGH référence



Korros.-Test ASTM G48 Meth.A: 50°C/24h: kein Lochfraß- no pitting is observed
corrosion test Meth.A: Gewichtsverlust/weight loss: 0,029 g/m²

Deltaferrit - ferrite delta ASTM E 562: 52 %

Anlagen US-certificate / Protokoll Enc. Glühbesch./Heat treatment cer. Annex Gefügebild/micrograph	Freital, den Place and date Lieu et date 22.01.2010	Abnahmebeauftragter Inspector representative Inspecteur de réception BERNDT
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Wärmebehandlungsbescheinigung
Heat treatment certificate
Attestation de traitement thermique



BGH Edelstahl Freital GmbH

Kunden-Bestell-Nr. **08296500100**
Customer order no.
Cda. no. du client **SI:082965_001**

BGH-Auftrags-Nr. **77787501**
BGH works no.
BGH référence

Zeugnis-Nr. **302332**
Certificate no.
No. de certificat

Wärmebehandlungszustand: **lösungsgeglüht**
Condition of heat treatment: **solution annealed**
État de traitement thermique: **recuit de mise en solution**

Datum:
Date: **03.11.2009**
Date:

Ofen-Nr.:
Furnace no.: **474**
No. du four:

Aufheizzeit:
Heating up time: **4 h**
Temps de montée en température:

Haltemperatur:
Holding temperature: **1100 °C**
Température de maintien:

Haltezeit:
Holding time: **1,5 h**
Temps de maintien

Abkühlmedium:
Quenching medium: **Wasser / water / eau**
Moyen de refroidissement:

Datum:
Date:
Date:

Ofen-Nr.:
Furnace no.:
No. du four:

Haltezeit:
Holding time:
Temps de maintien:

Abkühlmedium:
Quenching medium:
Moyen de refroidissement:

Wärmebehandlungs-Nr.: **474/5499 (011LE)**
Heat treatment lot no.:
No. du lot de traitement thermique:
(von 440009/01)

Diagramm:
Diagram:
Diagramme:

Datum:
Date: **22.01.2010**
Date:

Abnahmebeauftragter
Inspector representative
Inspecteur de réception
KADNER

BGH
Q473

Das Zeugnis wurde maschinell erstellt und ist auch ohne Unterschrift gültig.

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BGH Edelstahl Freital GmbH

Kunden-Bestell-Nr. 08296500100
Customer order no.
Cdo. no. du client SI:082965_001

BGH-Auftrags-Nr. 777875-01
BGH works no.
BGH référence

Zeugnis-Nr. 302332
Certificate no.
No. de certificat

Erzeugnisform : Stab, rund, geschält
Product : Round bars, peeled

Werkstoff/Quality : 1.4501 X 2 CrNiMoCuWN 25-7-4 charge: 300383
Abmessung/Dimension : 31,75 RD
Anzahl/Quantity : 1Bd Gewicht /Weight : 1492 kg

Wärmebehandlungszustand : lösungsgeglüht
Condition of heat treat : solution annealed

Prüfrichtlinie
Specification
US: nach ASTM/ASME A 388
(max. 3 mm KSR/FBH)

Bearbeitungszustand : geschält
Machining condition : peeled

Prüfgerät : Krautkrämer ROWA PAT 160 VIS
Test equipment

Prüfkopf : 4 Arrays á 90° - Radius: 32,5mm
16 Elemente - 10 MHz

Probe

Kopplungsmittel : Wasser
Coupling medium : water

Prüfumfang : vollständig
Extent of examination : completely

Einschallrichtung : senkrecht und in Winkelschallung 40°
Direction of incidence : perpendiculaire et oblique incidence 40°

Registriergrenze : Prüfung und Justierung erfolgten gemäß obiger Spezifikation.
Test and adjustment acc. to a. m. specification.

Registration level : keine registrierpflichtigen Anzeigen
Result : no reportable indications

Befund :
Prüfdatum : 21.01.2010
examination date

Freital, den
Place and date
Lieu et date
22.01.10

Prüfer
Testing operator
Opérateur
Fleischer
Stufe 2 EN 473

Abnahmebeauftragter
Inspector representative
Inspecteur de réception
SEIFERT M.
Stufe 2 DIN EN 473



Überwacher
Supervisor
Surveilleur

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