

|                                                                                   |                       |                                        |
|-----------------------------------------------------------------------------------|-----------------------|----------------------------------------|
|  | Quality documentation | KENNWORT/ CODE<br><b>KOSBOOST</b>      |
|                                                                                   | OIL UNIT SIZE 400     | AUFTRAG-NR / ORDER-NO<br><b>312410</b> |
|                                                                                   |                       | PSP-ELEMENT<br><b>312411.10.8802</b>   |

## 23 SINGLE OIL COOLER

23.1 MATERIAL CERTIFICATION

23.2 HYDROSTATIC PRESSURE TEST

23.3 CERTIFICATE OF CONFORMITY

# Werkstoffnachweis-Liste / Material list

Anlage zur Bescheinigung über die Bau- und Wasserdrukprüfung / Enclosure for attestation about building- and water-pressure-test

Hersteller / Producer:

E. Prang & Co.  
Apparatebau  
Am Böttcherberg 20 - 28  
51427 Bergisch Gladbach

Kom.-Nr./ Com. No.: 10965

Fabrik-Nr./ Serial No.: 42279

Baujahr / Year of constr.: 2005

Gegenstand/Object: Ölkühler/oil cooler 42,0m²

Zeichnung Nr./Drawing No.: 5301

Besteller/Purchaser: ROCKFIN sp.z.o.o

Vorgeprüft/Previous examination: ---

Bestell Nr./Order No.: S-0249/04P/33R

Vorprüf-Nr. / Previous ex. No.: ---

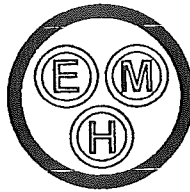
| Pos. Item   | Benennung<br>Name           | Abmessung<br>Dimension | Werkstoff<br>Material | Werkstoff-<br>Hersteller<br>Material-Prod. | Schmelze Nr.<br>Heat No. | Probe Nr.<br>Test No. | Werkstoff-<br>Zeugnis/Cert.<br>DIN EN 10204 | Werks-Prüfzeugnis/Test - Cert.<br>Nr./No. | Datum/Date |
|-------------|-----------------------------|------------------------|-----------------------|--------------------------------------------|--------------------------|-----------------------|---------------------------------------------|-------------------------------------------|------------|
| 1(11464)    | Rohr/tube                   | Ø10 x 1                | CuNi10Fe              | Emil Müller                                | 021204                   | 1                     | 3.1B                                        | 6672                                      | 23.03.05   |
| 2(11541)    | Rohrplatte/tube plate       | Ø423x25                | CuZn38SnAl            | MKM Mansfelder                             | 2701                     | 0087                  | 3.1B                                        | 672230                                    | 30.03.05   |
| 3(11542)    | Rohrplatte/tube plate       | Ø390x40                | CuZn38SnAl            | MKM Mansfelder                             | 2700                     | 0024                  | 3.1B                                        | 672231                                    | 30.03.05   |
| 6(11391)    | Mantelring/jacketring       | Ø490/394x32            | P265GH                | Corus                                      | S716672                  | H297                  | 3.1B                                        | 765537                                    | 02.03.05   |
| 7(11360)    | Mantelring/jacketring       | Ø490/394x35            | P265GH                | Corus                                      | S717919                  | H351                  | 3.1B                                        | 767868                                    | 23.03.05   |
| 8(10406)    | ManteIrohr/tube             | Ø406,4x6,3             | St37.0                | Huta Ferrum                                | 28348E                   | 1                     | 3.1B                                        | 502/2004_3                                | 21.07.04   |
| 15(11391)   | Zwischenring/intermediating | Ø490/392x30            | P265GH                | Corus                                      | S716672                  | H297                  | 3.1B                                        | 765537                                    | 02.03.05   |
| 1621(11390) | Haubenring/covering         | Ø490/392x35            | P265GH                | Corus                                      | 82840                    | DC239-1               | 3.1B                                        | 73500                                     | 06.01.05   |
| 17(11496)   | Klöpferboden/head           | Ø406,4x6,0             | P265GH                | Dunaferr                                   | 600613                   | 850670                | 3.1B                                        | 526897                                    | 11.08.04   |
| 22(10406)   | Haubenrohr/coverture        | Ø406,4x6,3             | St37.0                | Huta Ferrum                                | 28348E                   | 1                     | 3.1B                                        | 502/2004-3                                | 21.07.04   |
| 23(11254)   | Ronde/plate                 | Ø406x24                | P265GH                | Corus                                      | 79237                    | CL471-1               | 3.1B                                        | 41977                                     | 11.10.04   |

Bemerkung: 1) nicht mit dem Originalstempel versehene Teile sind mit dem  gestempelt  
parts, which have no original stamp, are stamped with a  
Remark: 2) nicht aufgeführte Kleinteile entsprechen den Abnahmebedingungen der  
vorgeprüften Zeichnung. Nachweise liegen beim Hersteller vor.  
not mentioned small-parts correspond with the classification-conditions of  
the drawing checked before. Proofs are laying by the manufacturer.

\*nach DIN 10204/ according to DIN 10204

51427 Bergisch Gladbach, den 26.04.05

# EMIL MÜLLER GmbH METALLWERK



Herstellung von nahtlosen  
NE-Metall-Rohren  
Messing-Kupfer-Legierungen

Emil Müller GmbH · An der Autobahn 1 · D-51580 Reichshof-Hespert

Firma  
E. Prang & Co.



An der Autobahn 1  
D-51580 REICHSHOF-HESPERT  
Telefon 02265 / 993-0  
Telefax 02265 / 993 399

Postfach 100460  
51404 Bergisch-Gladbach  
Deutschland

QS-Nr.: 6672

Abnahmeprüfzeugnis nach EN 10204 / 3.1 B  
Inspection Certificate acc. to EN 10204 / 3.1 B  
Certificat de Verification de l'usine selon EN 10204 / 3.1 B

| Poz. / Rem. / Article | Gewicht / Weight / Poids | Abmessung / Dimension / dimensions | Datum / Date |
|-----------------------|--------------------------|------------------------------------|--------------|
| 1                     | 608 kg                   | 10 x 1 mm<br>HL. ca. 6 m           | 23.03.2005   |

|                                                           |
|-----------------------------------------------------------|
| Ihre Bestell-Nr. / Your order no. / Votre no. de commande |
| 24.02.2005                                                |
| Unsere Anfrage-Nr. / Our order no. / Notre commission no. |
| 2050399                                                   |
| Charge Nr. / No.                                          |
| XA10/4010002968/1/021204                                  |
| Werkstoff / Material / Matériau                           |
| CuNi10Fe1Mn                                               |
| Lieferzustand / Temper / Nusance                          |
| R290                                                      |
| Anforderungen / Requirements / Exigende                   |
| EN 12451 nach AD2000-W 6/2                                |
| Verpackung / packing / emballage                          |
| Kiste(n) - leihweise                                      |

Chemische Zusammensetzung / chem. composition / Composition chim. (%)

| Cu       | Zn     | Ni      | Al    | Sn | Fe    | Mn | P | Si | Pb     |
|----------|--------|---------|-------|----|-------|----|---|----|--------|
| >87,6892 | 0,0437 | 10,2987 |       |    | 1,283 |    |   |    | 0,0077 |
| Cr       | Co     | S       | C     | As | Zr    |    |   |    |        |
|          |        | 0,0041  | <0,01 |    |       |    |   |    |        |

Mechanische Eigenschaften / mechanical properties / caractéristiques mécaniques

| Zugfestigkeit<br>Tensile strength<br>R <sub>m</sub> à la traction<br>R <sub>m</sub> (N/mm <sup>2</sup> ) | Dehngrenze 0,2<br>Yield strength<br>limite à élasticité<br>Rp 0,2 (N/mm <sup>2</sup> ) | Dehngrenze 1,0<br>Yield strength<br>limite à élasticité<br>Rp 1,0 (N/mm <sup>2</sup> ) | Bruchdehnung<br>Elongation<br>Allong à la ryl.<br>A 5 (%) | Härte<br>Hardness<br>Dureté | Korngröße<br>Average grain size<br>Diam. moyen du grain<br>(0,001 mm) | Bemerkung<br>Remark<br>Remarque |
|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------|---------------------------------|
| 364                                                                                                      | 223                                                                                    |                                                                                        | 35                                                        |                             | 28                                                                    |                                 |
| 365                                                                                                      | 223                                                                                    |                                                                                        | 33                                                        |                             |                                                                       |                                 |
| 364                                                                                                      | 224                                                                                    |                                                                                        | 36                                                        |                             |                                                                       |                                 |

☒ Kennzeichnung / Marking / Marquage \* Legierung / Festigkeit / Abmessung / Charge

Technologische Prüfungen / Technical examinations / Essais et propriétés technologiques

- ☒ Maße und äußere Beschaffenheit / Dimensional and visual inspection / Controle de dimension et surface
- ☐ Spannungsrißprüfung / Tension-crack-test / Essai de corrosion fissurante
- ☐ Öl- und Fettfrei / Free of oil and grease / Deshuilé et dégraissé
- ☒ Wirbelstromprüfung / Eddy-Current-Testing / Essai par Courants de Foucault
- ☒ Aufweitversuch / Drift-expanding-test / Essai de évasement

Die markierten Prüfungen wurden ohne Beanstandung durchgeführt.  
The marked tests have been carried out without any claim.  
Les essais indiqués on été effectués sans remarque.

Es wird bestätigt, daß die Lieferung der Bestellung entspricht.  
We hereby confirm, that the delivered material is confirm to the order.  
Il est confirmé que la livraison est conforme à la commandé.



Zertifiziert nach DRG 97/23/EG Anh. 1, Kap. 4.3 und nach AD 2000-WO  
Certified in accordance with DGR 97 / 23 / EG, annex 1. Par. 4.4, and according to AD 2000-WO  
Eprouvé selon DGR 97 / 23 / EG annexe 1, chap. 4.3 et selon AD 2000-WO



Werkstoffverständiger  
Works inspector  
L'expert de l'usine

# ABNAHMEPRÜFZEUGNIS INSPECTION CERTIFICATE

EN 10204-3.1.B

MKM



Besteller / Purchaser Manfred J.C.Niemann  
Nederland B.V.

Mansfelder Kupfer und Messing GmbH

PB 311  
3800 AH Amersfoort  
NL



MANFRED J.C. NIEMANN NEDERLAND B.V.  
Postbus 311 - NL-3800 AH Amersfoort  
Tel. +31 (0)33 4508200  
Fax +31 (0)33 4560541

|                                       |                        |                          |              |                                      |
|---------------------------------------|------------------------|--------------------------|--------------|--------------------------------------|
| Auftragsnr./Pos. / Contract-No./Item  | Bestellnr. / Order no. | Kundenmat.-Nr.           | Datum / date | Lieferschein-Nr. / Delivery note No. |
| 0000704290/000006                     | 45203963-31201         | 210998                   | 30.03.2005   | 0000672230                           |
| Erzeugnis / Product                   |                        | Werkstoff / Material     |              |                                      |
| Rohrboden CuZn38SnAl 430 x 25mm       |                        | CuZn38SnAlDIN17660/12.83 |              |                                      |
| Abmessung / Dimension                 |                        | Lieferzustand / Temper   |              |                                      |
| 25 * 430 mm                           |                        | F39AD-2000W6/2/10.00     |              |                                      |
| Lieferbedingungen / Terms of delivery |                        |                          |              |                                      |

## Verpackung / shipping units

|                |   |
|----------------|---|
| Charge / Batch |   |
| Colli          |   |
| Stück / Pieces | 1 |
| Masse / Weight |   |

Gesamtgewicht: / Weight total: 32 kg

## Mechanische Anforderungen / mechanical properties

|                       |          |
|-----------------------|----------|
| Charge / Batch        | 2701     |
| Probendatum / Date    | 20050329 |
| Probe / Sample        | 0087     |
| Rm min. 390 N/mm²     | 435      |
| Rp 0,2 min. 140 N/mm² | 202      |
| Rp 1,0 min. 180 N/mm² | 229      |
| A 5 min. 25 %         | 47       |
| HB                    | 108      |

## Chemische Anforderungen / chemical properties

|                |       |
|----------------|-------|
| Charge / Batch | 2701  |
| Cu 59,0 - 60,7 | 59,9  |
| Zn -           | Rest  |
| Al 0,10 - 0,50 | 0,16  |
| As max. 0,050  | 0,039 |
| Fe 0,10 - 0,40 | 0,27  |
| Ni 0,20 - 0,50 | 0,29  |
| Sn 0,30 - 0,60 | 0,39  |
| Pb 0,30 - 0,70 | 0,43  |

Die Maß- und Formtoleranzen entsprechen den Bestellvorgaben. Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht.

MKM Mansfelder Kupfer und Messing GmbH

The dimensional- and shapetolerances conform to the requirements. We hereby certify, that the material described above has been tested and complies with the terms of the order contract.

Werkstoffverständiger / Quality Inspection Manager



# ABNAHMEPRÜFZEUGNIS INSPECTION CERTIFICATE

EN 10204-3.1.B

M K M



70965

711542

Besteller / Purchaser Manfred J.C.Niemann  
Nederland B.V.

Mansfelder Kupfer und Messing GmbH

PB 311  
3800 AH Amersfoort  
NL



MANFRED J.C. NIEMANN NEDERLAND B.V.  
Postbus 311 - NL-3800 AH Amersfoort  
Tel. +31 (0)33 4508200  
Fax +31 (0)33 4560541

|                                       |                        |                          |              |                                      |
|---------------------------------------|------------------------|--------------------------|--------------|--------------------------------------|
| Auftragsnr./Pos. / Contract-No./Item  | Bestellnr. / Order no. | Kundenmat.-Nr.           | Datum / date | Lieferschein-Nr. / Delivery note No. |
| 0000704290/000007                     | 45203963-31201         | 210998                   | 30.03.2005   | 0000672231                           |
| Erzeugnis / Product                   |                        | Werkstoff / Material     |              |                                      |
| Rohrboden CuZn38SnAl 395 x 45mm       |                        | CuZn38SnAlDIN17660/12.83 |              |                                      |
| Abmessung / Dimension                 |                        | Lieferzustand / Temper   |              |                                      |
| 45 * 395 mm                           |                        | F39AD-2000W6/2/10.00     |              |                                      |
| Lieferbedingungen / Terms of delivery |                        |                          |              |                                      |

## Verpackung / shipping units

|                                  |   |
|----------------------------------|---|
| Charge / Batch<br>Coll           |   |
| Stück / Pieces<br>Masse / Weight | 1 |

Gesamtgewicht: / Weight total: 48 kg

## Mechanische Anforderungen / mechanical properties

|                       |          |
|-----------------------|----------|
| Charge / Batch        | 2700     |
| Probendatum / Date    | 20050330 |
| Probe / Sample        | 0024     |
| Rm min. 390 N/mm²     | 448      |
| Rp 0,2 min. 140 N/mm² | 288      |
| Rp 1,0 min. 180 N/mm² | 327      |
| A 5 min. 25 %         | 35       |
| HB                    | 143      |

## Chemische Anforderungen / chemical properties

|                |       |
|----------------|-------|
| Charge / Batch | 2700  |
| Cu 59,0 - 60,7 | 60,0  |
| Zn             | Rest  |
| Al 0,10 - 0,50 | 0,18  |
| As max. 0,050  | 0,040 |
| Fe 0,10 - 0,40 | 0,27  |
| Ni 0,20 - 0,50 | 0,29  |
| Sn 0,30 - 0,60 | 0,40  |
| Pb 0,30 - 0,70 | 0,43  |

Die Maß- und Formtoleranzen entsprechen den Bestellvorgaben. Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht.

MKM Mansfelder Kupfer und Messing GmbH

The dimensional and shapetolerances conform to the requirements. We hereby certify, that the material described above has been tested and complies with the terms of the order contract.

Werkstoffverständiger / Quality Inspection Manager

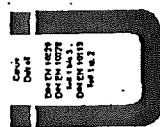
1 von 1

*Geiler*



**Besteller**  
BLUME•STAHLSERVICE GMBH  
(DELA GMBH)  
UMSCHLAG 10  
45478 MUELHEIM/RUHR  
MULHEIM GERMANY

**Confignee BLUME STAHLSERVICE GMBH  
(DELA GMBH)  
LOESCHSTELLE  
MULHEIM-SPELDORF  
MULHEIM GERMANY**



ALL

## Abnahmegesellschaft

| Corus Kennzeichen. | A8 | Works Nr. |
|--------------------|----|-----------|
|                    |    |           |

634780

**Kundenbestell Nr.**

Contract No.: - 4/023

**INTRODUCTION.**

461192/002

Werkstofflieferbedingungen  
EN10028-2:2003 P265GH/ASME/ASTM(S)A516/516M:2001 60/415  
To A.D. 2000 Merkblatt W.1 + TRD.101/TRB.100

STEEL PLATE 6.000m X 2.500m X 32.00mm  
 "N" - Normalised at +910C for 48 mins.  
 Piece Weight 3.839Tonnes

**ORDER MARKS :- DIMS/EO452947-1/MULHEIM**

B6/A10

[illegible]

Ausgestellt im einvernehmen mit dem RW TUV Essen laut zustimmungsschreiben des RW TUV Essen vom 26.04.78, G-NR. 11-3-6-155/74 wird auf die gegenzeichnung verzichtet. Ergebnis der besichtigung und massprüfung : keine beanstandung.  
SAS16/SA20 ASME SECT II PART A ED 2001 ADD 2002

In Namen von Corvus UK Limited.  
Die Ergebnisse werden von Corvus UK Limited bescheinigt und  
entsprechen den Anforderungen gemäss Produktbeschreibung.

MS Hayek

**M.D.Houghton, Chef der Abnahme,**

**Alle ursprünglich Prüfbescheinigungen, die Cornus UK Limited ausgibt, enthalten ein erhabenes Siegel, versehen mit impragniertem Cornus U erhaben geprägtem Cornus UK Limited Siegel sollte sichergestellt werden dass es sich um eine echte und genaue Reproduktion des Originals handelt.**

AS

|                                                                                                                                        |  |                                                                                                                                         |  |                             |  |    |  |    |  |                         |  |
|----------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------|--|----|--|----|--|-------------------------|--|
| Besteller<br>BLUME STAHLSERVICE GMBH<br>(DELA GMBH)<br>UNSCHLAG 10<br>45478 MUELHEIM/RUHR<br>MULHEIM GERMANY                           |  | Management System<br><br>Abnahme-gesellschaft<br>OWN |  | Corus Kennzeichen<br>634780 |  | A8 |  | A3 |  | Werkz.Nr.<br>461192/003 |  |
| Consignee BLUME STAHLSERVICE GMBH<br>(DELA GMBH)<br>LOESCHSTELLE<br>MULHEIM-SPELDORF<br>MULHEIM GERMANY                                |  | Kundenbestell.Nr.<br>E0452947/1                                                                                                         |  | Contract No.:- 4/023        |  |    |  |    |  |                         |  |
| Werkstoff/Lieferbedingungen<br>EN10028-2:2003 P265GH/ASME/ASTM(S)A516/516M:2001 60/415<br>To A.D. 2000 Merkblatt W.1 + TRD.101/TRB.100 |  | Werkstoff/Lieferbedingungen<br>EN10028-2:2003 P265GH/ASME/ASTM(S)A516/516M:2001 60/415<br>To A.D. 2000 Merkblatt W.1 + TRD.101/TRB.100  |  | Contract No.:- 4/023        |  |    |  |    |  |                         |  |
| STEEL PLATE 6.000m X 2.500m X 35.00mm<br>"N"- Normalized at +930C for 54 mins.                                                         |  | STEEL PLATE 6.000m X 2.500m X 35.00mm<br>"N"- Normalized at +930C for 54 mins.                                                          |  | Contract No.:- 4/023        |  |    |  |    |  |                         |  |

ORDER MARKS :- DIMS/E0452947-1/MULHEIM

| L=Lage |             | T=Quer    | Z=Senkrecht |                    | S=Oberfläche            |                          | M=Dickenmitte |                    |                   | Q=1/4 Blechdicke   |                                       | TH=1/8 Blechdicke | BS=Unterseite | A=Supply Condition | N=Normalisiert | SR=Spannungsgewinn | SA=Geallert                                     |     |
|--------|-------------|-----------|-------------|--------------------|-------------------------|--------------------------|---------------|--------------------|-------------------|--------------------|---------------------------------------|-------------------|---------------|--------------------|----------------|--------------------|-------------------------------------------------|-----|
| B10    | B8          | B7        | C00         | C2                 | B5                      | C11                      | C12           | C14                | C13               | C2                 | C1                                    | B5                | C40           | Erweichung         |                |                    | Vacuum Degassed. Continuously cast st<br>B.O.S. | C86 |
| Anzahl | Schmelz Nr. | Blech Nr. | Probe Nr.   | Proben-<br>zustand | Strech-<br>grenze<br>Re | Zugfest-<br>igkeit<br>Rm | Re<br>%       | Lo=<br>5.65/<br>Rm | Dehnung<br>R<br>% | Proben-<br>zustand | Charpy-Kerbschlagarbeit<br>10x10x2mmV | Einheiten         | Joules        | C42                | C43<br>Av.     |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
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|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
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|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
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|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
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|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |
|        |             |           |             |                    |                         |                          |               |                    |                   |                    |                                       |                   |               |                    |                |                    |                                                 |     |

Ausgestellt im einvernehmen mit dem RW TUV Essen laut zustimmungsschreiben des RW TUV Essen vom 26.04.78. G-NR.  
11-3-6-155/74 wird auf die gegenzeichnung verzichtet. Ergebnis der besichtigung und massprüfung : keine beanspruchung.  
SA516/SA20 ASME SECT II PART A ED 2001 ADD 2002

In Namen von Corus UK Limited.  
Die Ergebnisse werden von Corus UK Limited bescheinigt.  
entsprechen den Anforderungen gemass Produktbeschreibung

*M. Hayler*

M.D. Houghton, Chef der Abnahme, Scunthorpe  
A5

Alle ursprünglich Prüfbescheinigungen, die Corus UK Limited ausstellt, enthalten ein erhabenes Siegel, versehen mit imprantiertem Corus UK Limited Wasserzeichen, oder eine Kombination von beiden. Jeder Empfänger einer Kopie eines Werkzeugzeugnisses ohne

1152351

10406

**HUTA**  
**ferrum** S.A.  
KATOWICE

A04/A01

# ŚWIADECTWO ODBIORU 3.1.B

40-241 Katowice  
ul. Hutnicza 3  
POLAND, POLEN  
KRS 0000063239  
Tel.: + 48 (32) 255 56 77  
Fax: + 48 (32) 255 41 50  
Tlx: 315540  
e-mail: huta@ferrum.com.pl  
http://www.ferrum.katowice.pl/

Abnahmeprüfzeugnis / Inspection certificate  
PN-EN 10204+A1/DIN 50 049/EN 10204  
Data/Datum/Date

Nr/No.

502/2004\_3

04-07-21

A03

HUTA FERRUM S.A. POSIADA CERTYFIKAT NA SYSTEM ZAPEWNIENIA JAKOŚCI WG NORMY ISO 9001  
HUTA FERRUM S.A. BESITZT EIN ZERTIFIKAT DES QUALITÄTS-SICHERUNGS-SYSTEMS GEMÄSS DER NORM ISO 9001  
HUTA FERRUM S.A. POSSES THE CERTIFICATE FOR QUALITY ASSURANCE SYSTEM ACC. TO ISO 9001 STANDARD.

|                                                      |  |        |                                                                                                                          |  |     |
|------------------------------------------------------|--|--------|--------------------------------------------------------------------------------------------------------------------------|--|-----|
| Zamawiający /Besteller/Purchaser                     |  | A06    | Zamówienie Nr /Bestellung Nr./Order No                                                                                   |  | A07 |
|                                                      |  |        | 27.10.2003.                                                                                                              |  |     |
| Awizo Nr /Aviso Nr./Advice No                        |  | A09    | Nr zlecenia /Auftrag Nr./Contract No                                                                                     |  | A08 |
|                                                      |  |        | PL272581760/03/0043/E                                                                                                    |  |     |
| Wagon Nr / Waggon Nr./Car No                         |  | A10-99 |                                                                                                                          |  |     |
| OP 23981, ODW 0777                                   |  |        |                                                                                                                          |  |     |
| Produkt/ Erzeugnis/ Product                          |  | B01    | Wykonano wg norm i WT/ Lieferbedingungen und/ Oder amtliche Vorschriften/ Terms of delivery and /Or official regulations |  | B03 |
| HFI - welded steel pipes                             |  |        | API Spec 5L edition 42 January 2000 PSL 1<br>ASTM A53-98; DIN 1626-1984                                                  |  |     |
| Stan dostawy / Lieferzustand / Condition of delivery |  | B04    | Oznaczenie stali/ Stahlsorte/ Steel grade                                                                                |  | B02 |
|                                                      |  |        | Grade B                                                                                                                  |  |     |

Izolacja / Ummantelung/ Coating: Bare without anticorrosive protection.

B03

Wymagania dodatkowe / Zusätzliche Forderungen/Additional Requirements: Ends bevelled 30° -0°/+5° acc. to DIN 1626 pkt 4.10.5

B03

| Poz.<br>Pos.<br>Item   | Wymiary/Abmessungen/<br>Dimensions<br>(mm) | B11+B13 | Wytop Nr/ Schmelze-Nr./Heat No<br>Próba Nr/Probe-Nr./Test No | B08<br>B07 | Sztuk/<br>Stück/<br>Pieces | B10 | Diugość/<br>Länge/Lenght<br>(m) | B13 | Masa/Gewicht/<br>Weight<br>(kg) | B14 |
|------------------------|--------------------------------------------|---------|--------------------------------------------------------------|------------|----------------------------|-----|---------------------------------|-----|---------------------------------|-----|
| 1                      | 406,4 x 6,3 (6000+6050)                    |         | 28348E                                                       |            | 40                         |     |                                 |     |                                 |     |
| RAZEM:ZUSAMMEN:/TOTAL: |                                            |         |                                                              |            | 40                         |     | 240,26                          |     | 14944                           |     |

## ANALIZA WYTOPOWA / SCHMELZENANALYSE / HEAT ANALYSIS (1)

C71-C92

## Analiza kontrolna / Stückanalyse / Product analysis (2)

wg atestów Huty / gemäss Hüttenateste / acc. to works certificates:

| Poz.<br>Pos.<br>Item | Wytop Nr/<br>Schmelze-Nr./<br>Heat No | % C  | % Mn | % Si | % P   | % S   | % Cr | % Ni | % Cu | % Mo | % V  | % Nb  |  |  | % Ti   | % CE |
|----------------------|---------------------------------------|------|------|------|-------|-------|------|------|------|------|------|-------|--|--|--------|------|
| 1                    | 28348E                                | 0,15 | 0,89 |      | 0,015 | 0,007 |      |      |      |      |      |       |  |  |        |      |
| 2                    | 28348E                                | 0,16 | 0,86 | 0,25 | 0,017 | 0,008 | 0,06 | 0,03 | 0,11 | 0,01 | 0,01 | 0,005 |  |  | 0,0005 | 0,33 |
| 2                    | 28348E                                | 0,16 | 0,86 | 0,25 | 0,017 | 0,008 | 0,06 | 0,03 | 0,11 | 0,01 | 0,01 | 0,005 |  |  | 0,0004 | 0,33 |

Świadectwo odbioru ważne jest tylko w oryginale.

Das Abnahmeprüfzeugnis ist nur im Original gültig / Inspection Certificate is valid only in original.

# BADANIA MECHANICZNE / MECHANISCHE PRÜFUNGEN / MECHANICAL TESTS

| BADANIA MECHANICZNE / MECHANISCHE PRÜFUNGEN / MECHANICAL TESTS   |                                                                                                            |                                                                                  |          |      |                                                                       |                                                                                                                 |  |     |  |                            |  |     |  |                                                               |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------|------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--|-----|--|----------------------------|--|-----|--|---------------------------------------------------------------|
| C00<br>Nr wytopu/ próby<br>Schmelze/ Probe Nr.<br>Heat/ Test No. | C11<br>Granica plastyczności<br>Streckgrenze/<br>Yield Strength/<br>Yield point<br>R <sub>0,2</sub><br>MPa | C12<br>Wytrzymałość na rozciąganie<br>Zugfestigkeit /<br>Tensile strenght<br>MPa |          | R/Rm | C13<br>Wydłużenie/<br>Bruchdehnung/<br>Elongation<br>A <sub>5</sub> % | C40+ C49<br>Udarosć / Kerbschlagfestigkeit/ Impact Value<br>W temperaturze / in der Temperatur / In temperature |  |     |  |                            |  |     |  | C50+ C59<br>Próba spawazania<br>Ringversuch /<br>Flaring test |
|                                                                  |                                                                                                            |                                                                                  |          |      |                                                                       | 1                                                                                                               |  |     |  | 2                          |  |     |  |                                                               |
|                                                                  |                                                                                                            |                                                                                  |          |      |                                                                       | C42                                                                                                             |  | C43 |  | C42                        |  | C43 |  |                                                               |
|                                                                  |                                                                                                            |                                                                                  |          |      |                                                                       | Einheitswert/ Single value                                                                                      |  | Σ/  |  | Einheitswert/ Single value |  | Σ/  |  |                                                               |
| C01<br>Wymagane/ Erfordernis/ Requirements min. 241              |                                                                                                            | min. 414                                                                         | min. 414 |      | min. 26,0                                                             |                                                                                                                 |  |     |  |                            |  |     |  |                                                               |
| 28348E/289T                                                      |                                                                                                            | 305                                                                              | 471      | 503  |                                                                       | 36,2                                                                                                            |  |     |  |                            |  |     |  | positive                                                      |
| 28348E/289L                                                      |                                                                                                            | 331                                                                              | 473      |      |                                                                       | 36,7                                                                                                            |  |     |  |                            |  |     |  | positive                                                      |
| 28348E/292                                                       |                                                                                                            | 329                                                                              | 491      | 520  |                                                                       | 35,6                                                                                                            |  |     |  |                            |  |     |  | positive                                                      |
| 28348E/291T                                                      |                                                                                                            | 319                                                                              | 474      | 498  |                                                                       | 36,0                                                                                                            |  |     |  |                            |  |     |  |                                                               |

**T- cross to rolling direction L- along rolling direction**

Wyżej wymienione badania mechaniczne wykonano w „Huta Ferum” S.A. z materiału podstawowego i połączeń spawanych z gotowej partii rur.  
 Wyniki badań dotyczą partii i numerów rur wymienionych poniżej.  
 Die o/g mechanische Prüfungen wurden in „Huta Ferum” S.A. aus Grundmaterial und Schweißverbindungen von einer Fertigen Rohrpartie hergestellt.  
 Prüfungsergebnisse betreffen die Rohrpartien und Rohrnummern, welche unten genannt sind.  
 All mechanical tests were carried out in „Huta Ferum” S.A. on base material and welds taken from finished lot of pipes. Results concern lots and numbers of pipes mentioned below.

1- Materiał podstawowy / Grundmaterial / Base material 2- Złącze spawane / Schweißnaht / Weld

## WYNIKI BADAN / ERGEBNIS DER PRÜFUNGEN / TEST RESULTS

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Oględziny i pomiary /<br>Basichtigung und Messungen /<br>Visual and dimensional inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | D01     | 100% rur – wynik pozytywny / 100 % pipes - result positive                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Inne badania /<br>Andere Prüfungen /<br>Other tests                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | D02+D99 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Badania nieniszczące /<br>Zerstörungsfreie Prüfungen /<br>NDT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | D02+D99 | Seams were subjected to 100% NDT testing acc. to API Spec 5L N10. Test's result - positive                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Próba szczelności /<br>Dichtheitsprobe /<br>Leak - proof test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | D02+D99 | Water Test - 5 MPa - 10 sec. Test's result - positive 100% pipes                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Wytop - Nr.<br>Schmelze - Nr.<br>Heat - No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | B08     | Nr rury / Rohr Nr. / Pipe No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 28348E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         | 104-1-280604, 507-1-280604, 516-2-280604, 16-2-280604, 515-2-280604, 15-2-280604, 515-3-280604, 15-3-280604, 513-3-280604, 14-3-280604, 514-3-280604, 1-3-280604, 13-3-280604, 17-7-280604, 16-7-280604, 2-7-280604, 101-7-280604, 15-7-280604, 21-7-280604, 4-7-280604, 5-7-280604, 25-7-280604, 12-7-280604, 47-8-280604, 48-8-280604, 38-8-280604, 49-8-280604, 39-8-280604, 36-8-280604, 37-8-280604, 35-8-280604, 51-8-280604, 52-8-280604, 53-8-280604, 54-8-280604, 58-8-280604, 28-8-280604, 57-8-280604, 56-8-280604, 55-8-280604, |
| Materiał oznaczono: Znak wytwórcy HF, numer wytopu, pozycja rury, stempel KJB, S137.0 GWB PSL1 B A53 S235JRH<br>Das Material wurde bezeichnet: Zeichen des Produzenten HF, Schmelze - Nr., Rohrposition, Stempel der Qualitätskontrolle KJB, S137.0 GWB PSL1 B A53 S235JRH<br>Material was marked: Symbol of the producer HF, heat - no., pipe item, Quality Control Stamp KJB, S137.0 GWB PSL1 B A53 S235JRH<br>NINIEJSZYM POTWIERDZAMY, ŻE WYŻEJ WYMIENIONY MATERIAŁ ZOSTAŁ ZBADANY I SPEŁNIA WARUNKI POTWIERDZENIA ZAMÓWIENIA.<br>ES WIRD BESTÄTIGT, DASS DIE LIEFERUNG GEPRÜFT WURDE UND DEN VEREINBARUNGEN BEI DER BESTELLUNG ENTSPRICH.<br>WE HEREBY CERTIFY THAT THE ABOVE DESCRIBED PRODUCTS HAVE BEEN TESTED AND CONFORM WITH THE TERMS OF THE ORDER CONFIRMATION |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Kontrola jakości / Qualitätskontrolle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Z01     | Kontrola jakości / Qualitätskontrolle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Quality Control                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         | Quality Control                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| HUTA FERUM S.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         | HUTA FERUM S.A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| DZIAŁ KONTROLI JAKOŚCI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         | RZECZOZNAWCA D/S JAKOŚCI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         | inż. Zdzisław Maczka                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         | Katowice, dnia 04-07-21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         | Przedstawiciel zamawiającego / Vertreter des Besteller                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         | Purchaser's representative                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |



1411/2004

Nr./Datum:  
526897/11.08.2004.  
1.Selste(4.)

H - 2400 Dunaújváros  
Fax: (25)584-781

BESTELLER: TORUS KFT  
KISKUNFÉLEGYHÁZA

**KENNZEICHNUNG**

|                                                                                                                                         |                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Herstellerzeichen  | Auftrags Nr.: 222141                                             |
| <input checked="" type="checkbox"/> Werkstoff (Y)                                                                                       | Erzeugnisform: warmgewalztes Grobblech (Normalisierendes Walzen) |
| <input checked="" type="checkbox"/> Schmelzen-Nr.                                                                                       | Abmessungen: 1488X6,4X5952                                       |
| <input checked="" type="checkbox"/> Coll-Nr./Band-Nr.                                                                                   | Schmelzen Nr./Coll-Nr./Band-Nr.:                                 |
| <input type="checkbox"/> Stempel des WSV                                                                                                | 600613 850670                                                    |
| <input checked="" type="checkbox"/> Probe Nr.          |                                                                  |

**Quality/Anforderungen/Specification**

H II DIN 17155-83 AD 2000-W1; TRbF 121/221  
 P265 GH EN 10028-2-93 MSZ EN 10051-94  
 P 265 S EN 10207  
 A42AP NFA 36-205  
 A42CP NFA36-205

| Pos.Nr.<br>/ ITEM | BAND NR. /<br>BAND-NO. | PROBE NR. /<br>TEST-NO. | ABMESSUNGEN / DIMENSIONS<br>(MM) | MASSE / WEIGHT<br>(kg) | BAND<br>STÜCK | STÜCK /<br>BAND |
|-------------------|------------------------|-------------------------|----------------------------------|------------------------|---------------|-----------------|
| 1.                | 850670003              | 193886                  | 1488x6,4x5952                    | 4910                   | 1             | 11              |

Besichtigung und Maßkontrolle: ohne Beanstandung

Es wird bestätigt, daß die Lieferung den Vereinbarungen in der Bestellung entspricht.

We hereby certify, the material described above has been tested and complites with the terms of order contract.

Im Einvernehmen mit dem TÜV Bayern (03.74). Gegenzeichnungsverzicht durch TÜV Bayern - Schreiben vom 21.07.89. Walzung mit geregelter Temperatur ist vom TÜV anerkannt worden 21.04.93.

Der Hersteller wurde nach ISO 9001-2000 zertifiziert.

The Works has been certified according to ISO 9001-2000.

Die Prüfungen wurden von der Qualitest GmbH durchgeführt.

1411/2 004

 Nr./Datum:  
 526897/11.08.2004.  
 1. Seite(4.)

 H - 2400 Dunaújváros  
 Fax: (25) 584-781

| Position Nr.<br>(ITEM) /<br>Schmelz Nr.<br>(Cast No) | CHEMISCHE ZUSAMMENSETZUNG in Gew. / Chem. Composition of Cast % |              |            |            |                          |            |            |            |                             |            |            |            |            |                 |
|------------------------------------------------------|-----------------------------------------------------------------|--------------|------------|------------|--------------------------|------------|------------|------------|-----------------------------|------------|------------|------------|------------|-----------------|
|                                                      | C                                                               | Mn           | Si         | P          | S                        | Al         | Cu         | Cr         | Ni                          | V          | Nb         | Ti         | Mo         | C <sub>eq</sub> |
|                                                      | 0,                                                              |              | 0,         | 0,0        | 0,0                      | 0,0        | 0,         | 0,         | 0,                          | 0,0        | 0,0        | 0,0        | 0,0        | 0,              |
| Anforde-<br>RUNGEN                                   | Max:<br>20                                                      | 0,50<br>1,30 | Max:<br>35 | Max:<br>35 | Max:<br>30               | Min:<br>20 | Max:<br>30 | Max:<br>30 | Max:<br>30                  | Max:<br>30 | Max:<br>10 | Max:<br>30 | Max:<br>80 | Max:<br>41      |
|                                                      | Cu+6Sn≤0,33<br>(A42AP)                                          |              |            |            | Cu+Cr+Ni+Mo:<br>Max:0,70 |            |            |            | Sn: Schm0,005<br>Stck:0,004 |            |            |            |            |                 |
| A42CP                                                | Max:<br>18                                                      | Min:<br>0,60 | Max:<br>30 | Max:<br>35 | Max:<br>30               | Min:<br>20 | Max:<br>30 | Max:<br>25 | Max:<br>30                  | Max:<br>20 | Max:<br>15 |            | Max:<br>70 |                 |
| *                                                    | Max:<br>10                                                      |              | 15<br>25   | Max:<br>30 | Max:<br>10               |            |            |            |                             |            |            |            |            |                 |
| 600613<br>1. Stck.                                   | 09<br>09                                                        | 0,96<br>0,98 | 20<br>20   | 14<br>14   | 09<br>08                 | 37<br>37   | 09<br>09   | 05<br>05   | 03<br>03                    | 04<br>04   | 04<br>04   | 02<br>02   | 02<br>02   | 27              |

| Position<br>Nr. /<br>Item | Prob.<br>lage /<br>Pos. of<br>sample<br>1.) | STRECK-<br>GRENZE /<br>Yield<br>STRESS<br>N/mm <sup>2</sup> | ZUGFES-<br>TIGKEIT /<br>Tensile<br>STREIGHT | DEHNUNG<br>/ ELON-<br>GATION-<br>A <sub>5</sub><br>% | FALT<br>PROBE/<br>BEND<br>TEST | WARMSTRECK-<br>GRENZE /<br>WARM<br>Yield STRESS |     | Prob.<br>lage /<br>Pos. of<br>sample<br>1.) | ISO-KV 5/300.....KERBSCHLAGZÄHIGKEIT/<br>Arbeit / Impact Value |             |     |                 | BEMER-<br>KUNG /<br>REMARKS |            |
|---------------------------|---------------------------------------------|-------------------------------------------------------------|---------------------------------------------|------------------------------------------------------|--------------------------------|-------------------------------------------------|-----|---------------------------------------------|----------------------------------------------------------------|-------------|-----|-----------------|-----------------------------|------------|
|                           |                                             |                                                             |                                             |                                                      |                                | N/mm <sup>2</sup>                               | °C  |                                             | Prüf-<br>TEMP.<br>°C                                           | Einzelwerte |     | MITTEL-<br>WERT |                             |            |
|                           |                                             |                                                             |                                             |                                                      |                                |                                                 |     |                                             |                                                                | J           |     |                 |                             |            |
| ANFORDERUNGEN             | q                                           | Min:<br>265                                                 | 410-<br>530                                 | Min:<br>22                                           |                                | Min:<br>155                                     | 300 | q                                           | 0                                                              |             |     |                 | Min:<br>15,5                |            |
| A42AP                     | q                                           | Min:<br>245                                                 | 410<br>490                                  | Min:<br>27                                           |                                |                                                 |     | q                                           | -20                                                            |             |     |                 | Min:<br>9,6                 |            |
|                           |                                             |                                                             |                                             | A <sub>50</sub>                                      |                                |                                                 |     | l                                           | -20                                                            |             |     |                 | Min:<br>14                  | SPH<br>265 |
| *                         | q                                           | Min:<br>265                                                 | 410<br>490                                  | Min:<br>23                                           |                                |                                                 |     |                                             |                                                                |             |     |                 |                             |            |
| 1.                        | Aq                                          | 359                                                         | 451                                         | 37,7                                                 | o.B.<br>o.B.                   | 228                                             | 300 | Aq                                          | 0                                                              | 75          | 77  | 78              | 77                          |            |
|                           | Eq                                          | 313                                                         | 420                                         | 40,6                                                 |                                |                                                 |     | Eq                                          | 0                                                              | 68          | 79  | 70              | 72                          |            |
|                           |                                             |                                                             |                                             | A <sub>50</sub>                                      |                                |                                                 |     | Aq                                          | -20                                                            | 69          | 76  | 78              | 74                          |            |
|                           | Aq                                          |                                                             |                                             | 43,4                                                 |                                |                                                 |     | Eq                                          | -20                                                            | 80          | 81  | 67              | 76                          |            |
|                           | Eq                                          |                                                             |                                             | 43,0                                                 |                                |                                                 |     | Al                                          | -20                                                            | 109         | 109 | 100             | 106                         |            |
|                           |                                             |                                                             |                                             |                                                      |                                |                                                 |     | El                                          | -20                                                            | 106         | 109 | 109             | 108                         |            |

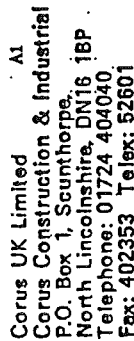
EK-12aDAM/98 Rev.10.

\*: Anlegen des Kunden

- 1.) A: Anfang / Beginning, E: Ende / End, l: längs / longitudinal,  
 q: quer / transverse, t: tangential, z: senkrecht / vertical.

Der Werkssachverständige / Works Inspector

 SZAKEMBERKÉRT  
 SZAKEMBERKÉRT  
 Minőség- és Környezetirányítás  
 Management



# INSPECTION CERTIFICATE

In Accordance with DIN.50049/EN10204 3.1B

|          |                     |    |
|----------|---------------------|----|
| Date     | 11/10/04            | Z1 |
| Cart No. | SPLA/04/0004 1977/1 |    |
|          | A3                  |    |

|                                                                                                            |    |                                                                                                          |                                                                                     |                                                                                                                                                           |                                                |             |
|------------------------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------|
| <b>Customer</b>                                                                                            | A6 | Management System<br> |  | <b>Cover Ref. No.</b><br>63590/ 16                                                                                                                        | <b>A8</b><br>Works Order/Dam No.<br>49/ 173/ 1 | <b>A8</b>   |
| <b>BLUME STAHLSERVICE GMBH<br/>(DELA GMBH)<br/>UNSCHLAG 10<br/>45478 MUELHEIM/RUHR<br/>MULHEIM GERMANY</b> |    | <b>Inspection<br/>WORKS INSPECTION</b>                                                                   | <b>All</b>                                                                          | <b>Customers Order No.</b><br>EO466814/1                                                                                                                  |                                                | <b>A7</b>   |
|                                                                                                            |    |                                                                                                          |                                                                                     | <b>Serification/Product</b><br>ENT0028-2:2003 P265GH<br>To A.D. 2000 Merkblatt W.1 + TRD.101/TRB.100                                                      | <b>ASME/ASTM SA516M-2001 60/415</b>            | <b>BUB2</b> |
|                                                                                                            |    |                                                                                                          |                                                                                     | <b>Plate 6000 X 2500 X 25.00mm Piece weight 2943.8Kg</b><br><b>"N"- Normalised at 890/930 Degrees C for a minimum of 1.5 minutes per mm of thickness.</b> |                                                |             |

8/A10 DIMS/EO146614-1/MULHEIM

SPLASH WHITE AT FRONT CORNERS

[illegible]

IV: Essen vom 26.04.78, G-NR.:

On behalf of Corvus UK Limited, the manufacturer.  
These results are certified by Corvus UK Limited and comply with the requirements of the Product Description.

2.3.6. -155/74 wird auf die gegenzeichnung verzichtet. Das oben beschriebene material ist nach. Ausgestrichte im einvernehmen mit dem ausstreichenden aus der gegenzeichnung gestrichen. Ausgestrichte im einvernehmen mit dem ausstreichenden aus der gegenzeichnung gestrichen. Ausgestrichte im einvernehmen mit dem ausstreichenden aus der gegenzeichnung gestrichen.

20th

72

All original Inspection Certificates issued by Corus UK Limited will contain either an embossed seal, or be impregnated with a Corus UK Limited security thread.

**R.D.Longbottom, Test House Manager, Scunthorpe**  
**UK Limited Inspection Certificate A5**

018012

# Herstellerbescheinigung

Manufacturer Certificat

## Bescheinigung über die Bau-und Druckprüfung

Certificate on construction and hydraulik pressure test



|                     |   |
|---------------------|---|
| DGRL / PED 97/23/EG |   |
| EN 10204 3.1B       | X |

E. PRANG & CO.

AM BÖTTCHERBERG 20-28  
51427 BERG. GLADBACH  
TELEFON (0 22 04) 6 70 07-8  
TELEFAX: NAT. (0 22 04) 2 20 32  
INT. (49 22 04) 2 20 32

Besteller : **Rockfin sp.Z.o.o**

customer : .....

Bestellnummer : **S-0249/04p/33R** Kommission : **10965**

customer's number : ..... commission:.....

Bezeichnung : **Ölkühler / oil cooler**

description : .....

Fläche / Inhalt : **42,0 m²** Zeichnung-Nr. : **5301 C**

surface / capacity : ..... drawing No. : .....

Werkstoffe : Mantel : **St37.0** Vorlagen : **P265GH/St37.0**

material case : ..... covers : .....

Rohre : **CuNi10Fe** Rohrböden : **CuZn38SnAl**

tube : ..... tubeplate .....

### Angaben auf Fabrikschild / Informations on Nameplate

|                                      |               |              |
|--------------------------------------|---------------|--------------|
| Fabr. Nr. <b>42279</b>               | in den Rohren | um die Rohre |
| Serial No. :                         | tube side     | shell side   |
| Zulässiger Betriebsüberdruck         | <b>10</b>     | <b>8</b>     |
| max. allowed working pressure bar    |               |              |
| zulässige Betriebstemperatur         | <b>80</b>     | <b>100</b>   |
| max.. allowed working temperature °C |               |              |
| Inhalt                               | <b>114</b>    | <b>128</b>   |
| volume L                             |               |              |
| Gewicht                              | Leer          | Betrieb      |
| weight Kg empty                      | <b>690</b>    | Operating    |
|                                      |               | <b>913</b>   |

Vorprüfung durch : -----

design-approval by : .....

Schlussprüfung : **20.04.05**

constructions test : .....

Der Druckbehälter wurde den gültigen Regeln entsprechend hergestellt und einer

Druckprüfung unterzogen :

The pressure vessel has been manufactured in according to the valid rules and a pressure test has been carried out :

|                            |                    |                    |
|----------------------------|--------------------|--------------------|
|                            | in den Rohren      | um die Rohre       |
|                            | tube side          | shell side         |
| Medium / fluid             | Wasser/ water      | Wasser/water       |
| Probedruck / test pressure | <b>14,3 bar</b>    | <b>11,5 bar</b>    |
|                            | Haltezeit 1 Stunde | Haltezeit 1 Stunde |

Der Druckbehälter entspricht den gestellten Anforderungen .

The pressure vessel was build in accordance with the valid standards ..

Bergisch Gladbach , **21.04.05**

.....

E. PRANG & CO