

DEGERFORS STAINLESS
S-693 81 DEGERFORS, SWEDEN
Ref. QC-Dept. Jörgen Johansson

Date-Datum-Date: 2015-11-04
Your order-the Bestellung-Votre commande: No. LP 1572-15 OUD758

Product-Erzeugnisform-Produit: Stainless steel, hotrolled, peeled bar.
Process annealed according to ASTM A 484 and EN 10088-3, 10272 = Blooms heated in pit furnace at >1050°C / >1.5 h, rolled to intended dimension at > 1010°C and rapid air cooling.
Peeled to dimension tolerance ISO-286-2 k13.

Our order: Unsere Auftrag / Notre commande
48043

Advice of delivery: Lieferschein / Avie d'expédition

Requirements-Prüfgrundlagen-Exigences: Amodil Supplies spec. QAD 49 Rev.1
Latest revision of following standards: EN 10088-3, EN 10272, ASTM A 182 (analysis), 276, 479.
Applicable parts of NACE MR 0103, Applicable parts of NACE MR 0175/ ISO 15156-3: 2003
ISO 286-2 k13.

Purchaser-Besteller-Acheteur: AMODIL SUPPLIES LTD
FOREST PARK, CLEOBURY MORTIMER, NR KIDDERMINSTER, WORCS DY14 9BD
GREAT BRITAIN

Marking-Kennzeichnung-Marquage: Type of steel: Werkstoff Nr. Nuance
Grade 316L/1.4404
316/1.4401, F 316, F 316L
17-11-2L Prodec (Improved machineability)

Brand mark: Herstellerzeichen / Signe du producteur


Inspectors stamp: Abnahmestempel / Poinçon de l'expert


Melting process: Erschmelzungsart / Procédé de fusion
EAF+AOD-Converter refining
CC to bloom 400 x 300

| Item Pos. | Quantity Anzahl | Dimensions Abmessungen, mm | Cast No. Schmelze Nr. / Coulee n. | Lot No. Los Nr. / Lot n. | Test No. Probe Nr. / Eprouvette no | Weight Kg / Gewicht Kg / Poids Kg | Reduction ratio |
|-----------|-----------------|----------------------------|-----------------------------------|--------------------------|------------------------------------|-----------------------------------|-----------------|
| 01-01 | 40 | Round 127 | E151120 | 99230 | 9884-1,2 | 21 287 | 8.38 |

Chemical composition-Chemische Zusammensetzung-Composition Chimique (weight %)

| Cast No. Schmelze Nr. / Coulee no | C | Si | Mn | P | S | Cr | Ni | Mo | N |
|-----------------------------------|-------|------|------|-------|-------|-------|-------|------|-------|
| E151120 | 0.018 | 0.41 | 1.81 | 0.035 | 0.023 | 16.73 | 10.12 | 2.05 | 0.077 |

Mechanical tests - Mechanische Prüfungen - Essais mécaniques
Test results-Prüfergebnisse-Résultats d'essais (L=longitudinal/längs/long, T=transversal/quer/travers)

| Test No./LT | Probe Nr./LT | Eprouvette n./LT | Rp 0.2 | Rp 1.0 | Rm | A5 | Z | HB | Impact test-Kerbschlagbiegeversuch-Résilience | Temp |
|--------------|--------------|------------------|---|--------|---------|-----|-----|-----|---|------|
| | | | MPa | MPa | MPa | % | % | max | J | °C |
| | | | min | min | min | min | min | max | min | min |
| Requirements | | | 205 | 235 | 515-700 | 40 | 50 | 215 | 100 | 20 |
| Sollwerte | | | Requirements according to EN 10088-3, 10272, 1.4401, 1.4404 and ASTM A 276, 479, grade 316, 316L. | | | | | | | |
| Exigences | | | | | | | | | | |
| 9884-1 | L | | 279 | 309 | 605 | 52 | 74 | 157 | 1 | 280 |
| 9884-2 | L | | 273 | 305 | 600 | 53 | 75 | 158 | 2 | 280 |
| | | | | | | | | | 3 | 280 |
| | | | | | | | | | Average | 280 |

Other tests-Sonstige Prüfungen-Autres essais
US-tested according to ASTM A 388, 3mm FBH (DS OFF-228).
Corrosion test according to ISO 3651-2 Method A approved.
Corrosion test according to ASTM A 262 Practice E approved.
Grain size according to ASTM E112 : 9884-1 = 5.5
9884-2 = 5.5

Inspection and gauge measurement-Ausmessung und Beschligung-Contrôle visuel et dimensionnel
PMI-test has been performed on every bar/billet with X-ray spectro, without remarks.
No weld repair performed.
No remarks-Ohne Beanstandung-Pas de remarque

The order requirements stipulated are satisfied

Free from Mercury contamination at time of shipment.
Radioactivity < 0.1 Bq/g (equivalent to Co⁶⁰). Measured on samples of the material using analysis techniques in accordance with guidelines issued by the IAEA.

The material is manufactured according to a Quality System, registered to ISO 9001:2008 and approved by TÜV Nord.
Certificate Registration Number: 44 100 115412.

Outokumpu Stainless AB
Degerfors Stainless

Approved acc. to AD2000-Merkblatt W0 by TÜV Nord Systems
"Certified acc. to Pressure Equipment Directive (97/23/EC) by TÜV CERT-Certification body for pressure equipment of the TÜV NORD; notified body, reg.-no. 0045."
Reg.No.: 556001-8748
V.A.T.No.: SE5560011874801
Registered office: Stockholm, Sweden

FLOW TECHNOLOGY LTD
TEST CERTIFICATE
VERIFIED TRUE
COPY OF ORIGINAL


JÖRGEN JOHANSSON
Section Manager Quality Control