



C214818

**PrJSC DNIPROSPETSSTAL, YUZHNOYE SHOSSE 81, 69008 ZAPOROZHYE, UKRAINE**

|   |  |   |
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|  | Contract No.: 20002<br>TECHN.PROTOCOL № 390-11 SPEC.№ 8683/PO43415-ED<br>DIN EN 10088-3-05, DIN EN 10272-08, AD 2000-Merkblatt W2; AD 2000-Merkblatt W10; ASTM A182/A182M-10; ASME SA-182/SA-182M-10; ASTM A276-10; ASTM A314-08, ASTM A479/A479M-10; ASME SA-479/SA-479M-10; ASTM A484/A484M-10; AMS-QQ-S-763B-06 Cond. A; AMS 5648K-07; AMS 5653F-07; ASTM A193/A193M-10 GR B8M, CL1 (EXC PAR 7.2); ASME SA-193/SA-193M-10 GR B8, CL 1 (EXC PAR 7.3); NACE MR 0175-03; NACE MR 0103-10 | Sheets: <span style="float: right;">Sheet:</span><br><b>INSPECTION CERTIFICATE EN10204/3.1 Nr. 333373</b><br>PLANT ORDER № 8014908683 |
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|--|--|---|--|
| <br>GMS Certified | <b>CUSTOMER</b><br><b>DSS INTERNATIONAL</b><br><b>SA Switzerland</b> | <b>PRODUCT DESCRIPTION</b><br>Bars and rods of corrosion-resistant (stainless) steel hot rolled, peeled on Landgraf line. Прутки из коррозионностойких (нержавеющих) сталей горячекатаные, обточенные на линии Ландграф.<br><b>STEEL MAKING PROCESS: EAF+AOD.</b><br><b>СПОСОБ ВЫПЛАВКИ:</b> Электродуговая печь+АКР<br>Round 5.000in/127.00 mm L=4.270m/14.000ft L=5.630m/18.459ft<br><b>Grade: 316/316L/1.4401/1.4404</b> | QUANTITY: <span style="float: right;">1bund Q-970 lb/440 kg</span><br>(number of pcs) <span style="float: right;">1bund Q-3845 lb/1744 kg</span> |
|  |  |   | Delivery condition<br>solution annealed :1900 <sup>o</sup> F(1040 <sup>o</sup> C)water 30minutes<br>термообработка:закалка в воду                |


| ANALYSIS, %   | C     | Si    | Mn        | P     | S         | Cr          | Ni          | Mo        | Al   | Cu   | V    | W    | Ti   | Co   | Nb   | N    | Sn   | B     |
|---------------|-------|-------|-----------|-------|-----------|-------------|-------------|-----------|------|------|------|------|------|------|------|------|------|-------|
| REQUIRED      | <.030 | <1,00 | 1.20-2.00 | <.040 | .015-.030 | 16.50-18.00 | 10.00-13.00 | 2.00-2.50 | <.10 | <.40 | <.10 | <.20 | <.15 | <.40 | <.20 | <.10 |      |       |
| CAST № A05902 | .024  | .43   | 1.43      | .040  | .024      | 16.85       | 10.25       | 2.08      | .075 | .26  | .04  | .09  | .005 | .10  | .021 | .029 | .012 | .0026 |

DIN EN 10002-1, ASTM A370-09

| MECHANICAL PROPERTIES | Yield Strength, (N/mm <sup>2</sup> )<br>R0.2% R 1.0% |            | Tensile Strength, Rm, (N/mm <sup>2</sup> ) | Elongation   |                                       | Reduction of area, Z %<br>L | Brinell Hardness HB | Impact strength, KV, J     |   |
|-----------------------|--|------------|--|--------------|---------------------------------------|-----------------------------|---------------------|----------------------------|---|
|                       | L  | Q          |  | A5%          | In 2 inches (50mm) or 4D, min, %<br>L |                             |                     | L                          | Q |
| REQUIRED              | 205  | 240        | 515-690                                    | 40 -         | 40                                    | 50                          | 140-217             | 100                        | - |
| EFFECTIVE             | 300<br>303   | 344<br>346 | 551<br>553                                 | 59 -<br>59 - | 58<br>58                              | 75<br>77                    | 163<br>163          | 212 212 212<br>208 208 208 | - |

**TECHNICAL REQUIREMENTS:**  
 Macrostructure – GOOD  
 GRAIN SIZE : 5 to ASTM E 112-96(2004)  
 Nonmetallic inclusions ASTM E 45-05 (Method A)  
     A        B        C        D  
 thin thick thin thick thin thick thin thick  
 3.0 2.0 2.0 1.0 0.0 0.0 1.0 1.0  
 ICC-ASTM A262-08 (practice E)-test: O.K.  
 Dimension/surface defects test, anti-mixing test – OK  
 We acknowledge that the delivered products conform to the requirements of the order

Mechanical properties tested in state of delivery

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| US - testing  | yes | Results: ASTM A388/A388M-FBH1/8"; EN 10308 type Ia; class 3:OK | Manufacturer: PrJSC DNIPROSPETSSTAL<br>Date: 03.05.18 <b>Manager of quality assurance department - V. Kapaieva</b><br>Signed: <br>Zaporozhye<br>Made in Ukraine. |
| Radiation free; mercury free. No Weld or Weld repair. |     |  |   |

July 22/19

ANS