




C240609

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

|  |       |  |  |             |                                     |                             |                     |                        |           |   |       |  |       |  |       |      |       |       |       |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|--|-------|--|--|-------------|-------------------------------------|-----------------------------|---------------------|------------------------|-----------|---|-------|--|-------|--|-------|------|-------|-------|-------|-----|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                   |       | Contract No.: 20002<br>TECHN.PROTOCOL № 390-11 SPEC.№1897/PO45605<br>DIN EN 10088-3-05,DIN EN 10272-08,DIN EN 10222-5-00,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<br>Cond.A;AMS 5648K-07;AMS 5653F-07;ASTM A193/A193M-10GR B8M,CL1; ASME SA-193/SA-193M-10 GR B8,CL 1;ASTM A320/A320M-08 GR B8M,CL 1;ASME SA-320/SA-320M-10 GR B8,CL1;NACE MR 0175-03;NACE MR 0103-10 |  |             |                                     |                             |                     |                        |           |   |       | Sheets:7<br>Sheet: 2<br><b>INSPECTION CERTIFICATE EN10204/3.1 Nr.344691</b><br>PLANT ORDER № 8014901897  |       |  |       |      |       |       |       |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <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 forged, peeled.Прутки из коррозионностойких (нержавеющих) сталей кованные, обточенные.<br><b>STEEL MAKING PROCESS: EAF+AOD</b><br><b>СПОСОБ ВЫПЛАВКИ:</b> Электродуговая печь+АКР<br>Round 18.750in/476.25 mm L=4.902 ft/1.495m L=5.082 ft/1.550m<br><b>Grade: 316/316L/1.4401/1.4404</b> |       | <b>QUANTITY:</b><br>(number of pcs) <b>1bund Q-4802 lb/2178 kg</b><br><b>1bund Q-4969 lb/2254 kg</b> |       |      |       |       |       |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>ANALYSIS, %</b>   |       | C  | Si   | Mn          | P                                   | S                           | Cr                  | Ni                     | Mo        | Al  | Cu    | V  | W     | Ti   | Co    | Nb   | N     | Sn    | B     |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>REQUIRED</b>  |       | <.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  |       |       |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>CAST</b><br><b>№ A06949</b>   |       | .019   | .42  | 1.33        | .037                                | .028                        | 16,95               | 10.43                  | 2.07      | .054  | .32   | .06  | .03   | .005   | .14   | .01  | .026  | .0094 | .0023 |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| DIN EN 10002-1,ASTM A370-09  |       |  |  |             |                                     |                             |                     |                        |           |   |       |  |       |  |       |      |       |       |       |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>MECHANICAL PROPERTIES</b>   |       | 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 |           |   |       |  |       |  |       |      |       |       |       |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|  |       |  |  | A5 %<br>L Q | In 2 inches (50mm) or 4D,min,%<br>L |                             |                     | L                      | Q         |   |       |  |       |  |       |      |       |       |       |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>REQUIRED</b>  |       | 205  | 240  | 45 35       | 40                                  | 50                          | 140-217             | 100                    | 60        |   |       |  |       |  |       |      |       |       |       |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| <b>EFFECTIVE</b>   |       | 284  | 317  | 61 56       | 59                                  | 75                          | 167                 | 180 180 180            | 61 61 61  |   |       |  |       |  |       |      |       |       |       |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Mechanical properties tested in state of delivery  |       |  |  |             |                                     |                             |                     |                        |           |   |       |  |       |  |       |      |       |       |       |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| US - testing   |       | yes  | Results: ASTM A388/A388M-FBH1/5";EN 10228-4 type 1a;class 3:OK |             |                                     |                             |                     |                        |           |   |       |  |       |  |       |      |       |       |       |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Radiation free; mercury free. No Weld or Weld repair.  |       |  |  |             |                                     |                             |                     |                        |           |   |       |  |       |  |       |      |       |       |       |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|  |       |  |  |             |                                     |                             |                     |                        |           | <b>TECHNICAL REQUIREMENTS:</b><br>Macrostructure – GOOD<br>GRAIN SIZE : 5 to ASTM E 112-96(2004)<br>Nonmetallic inclusions ASTM E 45-05 (Method A)<br><table border="0" style="width: 100%;"> <tr> <td style="text-align: center;">A</td> <td style="text-align: center;">B</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">thin</td> <td style="text-align: center;">thick</td> <td style="text-align: center;">thin</td> <td style="text-align: center;">thick</td> <td style="text-align: center;">thin</td> <td style="text-align: center;">thick</td> <td style="text-align: center;">thin</td> <td style="text-align: center;">thick</td> <td style="text-align: center;">thin</td> <td style="text-align: center;">thick</td> <td style="text-align: center;">thin</td> <td style="text-align: center;">thick</td> <td style="text-align: center;">thin</td> <td style="text-align: center;">thick</td> <td style="text-align: center;">thin</td> <td style="text-align: center;">thick</td> <td style="text-align: center;">thin</td> <td style="text-align: center;">thick</td> <td style="text-align: center;">thin</td> <td style="text-align: center;">thick</td> </tr> <tr> <td style="text-align: center;">3.0</td> <td style="text-align: center;">2.0</td> <td style="text-align: center;">2.0</td> <td style="text-align: center;">1.0</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">1.0</td> <td style="text-align: center;">1.0</td> <td style="text-align: center;">3.0</td> <td style="text-align: center;">2.0</td> <td style="text-align: center;">2.0</td> <td style="text-align: center;">1.0</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">1.0</td> <td style="text-align: center;">1.0</td> <td style="text-align: center;">3.0</td> <td style="text-align: center;">2.0</td> <td style="text-align: center;">2.0</td> <td style="text-align: center;">1.0</td> <td style="text-align: center;">0.0</td> </tr> </table> ICC-ASTM A262-08 (practice E)-test: O.K.<br>Dimension/surface defects test, anti-mixing test – OK<br>We acknowledge that the delivered products conform to the requirements of the order/Подтверждаем, что поставленная продукция соответствует требованиям заказа<br>Ratio of reduction-7.5:1<br>Manufacturer:PrJSC DNIPROSPETSSTAL<br>Date: 23.04.19<br>Manager of quality assurance department - V. Kapaieva<br>Signed: <br>Zaporozhye<br>Made in Ukraine. |       |  |       |  |       |      |       |       |       | A   | B | C | D |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | thin | thick | thin | thick | thin | thick | thin | thick | thin | thick | thin | thick | thin | thick | thin | thick | thin | thick | thin | thick | 3.0 | 2.0 | 2.0 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 3.0 | 2.0 | 2.0 | 1.0 | 0.0 | 0.0 | 1.0 | 1.0 | 3.0 | 2.0 | 2.0 | 1.0 | 0.0 |
| A  | B     | C  | D  |             |                                     |                             |                     |                        |           |   |       |  |       |  |       |      |       |       |       |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| thin   | thick | thin   | thick  | thin        | thick                               | thin                        | thick               | thin                   | thick     | thin  | thick | thin   | thick | thin   | thick | thin | thick | thin  | thick |     |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 3.0  | 2.0   | 2.0  | 1.0  | 0.0         | 0.0                                 | 1.0                         | 1.0                 | 3.0                    | 2.0       | 2.0   | 1.0   | 0.0  | 0.0   | 1.0  | 1.0   | 3.0  | 2.0   | 2.0   | 1.0   | 0.0 |   |   |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |      |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

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