




97128

C 049553

PJSC DNIPROSPETSSTAL, YUZHNOYE SHOSSE 81, 69008 ZAPOROZHYE, UKRAINE																																																																										
	Contract No.: 50005 TECHN.PROTOCOL № 210-11 SPEC.№4515/P025498-ED 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 ;ASME SA-193/SA-193M-10GR B8M,CL1;ASTM 320/A320M-08GR B8M,CL 1;ASME SA-320/SA-320M-10 GR B8M,CL 1;NACE MR 0175-03;NACE MR 0103-10												Sheets:8 Sheet: 4 QUALITY CERTIFICATE EN10204/3.1 Nr.255465 PLANT ORDER № 8014904515																																																													
	 GMS Certified	CUSTOMER DSS INTERNATIONAL SA Switzerland			PRODUCT DESCRIPTION Bars and rods of corrosion-resistant (stainless) steel forged, peeled .Прутки из коррозионностойких (нержавеющих) сталей кованные, обточенные. STEEL MAKING PROCESS: EAF+AOD СПОСОБ ВЫПЛАВКИ: Электродуговая печь+АКР Round 10.000in/254.00 mm L=4.120m/13.508ft L=5.320m/17.443ft Grade: 316/F316/316L/F316L									QUANTITY: 1bund Q-3779 lb/1714 kg (number of pcs) 1bund Q-4861 lb/2205 kg																																																												
Delivery condition solution annealed :1922 ^o F(1050 ^o C)/water 18 minutes термообработка:откалка в воду																																																																										
ANALYSIS, % <table border="1"> <thead> <tr> <th></th> <th>C</th> <th>Si</th> <th>Mn</th> <th>P</th> <th>S</th> <th>Cr</th> <th>Ni</th> <th>Mo</th> <th>Al</th> <th>Cu</th> <th>V</th> <th>W</th> <th>Ti</th> <th>Co</th> <th>Nb</th> <th>N₂</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>REQUIRED</td> <td><.030</td> <td><1,00</td> <td>1.25-2.00</td> <td><.040</td> <td>.020-.030</td> <td>16.00-18.00</td> <td>10.00-14.00</td> <td>2.00-3.00</td> <td><.10</td> <td><.40</td> <td><.10</td> <td><.20</td> <td><.15</td> <td><.40</td> <td><.20</td> <td><.10</td> <td></td> <td></td> </tr> <tr> <td>CAST № 97128</td> <td>.020</td> <td>.26</td> <td>1.43</td> <td>.032</td> <td>.027</td> <td>16,66</td> <td>10.18</td> <td>2.05</td> <td>.067</td> <td>.26</td> <td>.05</td> <td>.06</td> <td>.100</td> <td>.09</td> <td>.01</td> <td>.0380</td> <td></td> <td></td> </tr> </tbody> </table>																			C	Si	Mn	P	S	Cr	Ni	Mo	Al	Cu	V	W	Ti	Co	Nb	N ₂			REQUIRED	<.030	<1,00	1.25-2.00	<.040	.020-.030	16.00-18.00	10.00-14.00	2.00-3.00	<.10	<.40	<.10	<.20	<.15	<.40	<.20	<.10			CAST № 97128	.020	.26	1.43	.032	.027	16,66	10.18	2.05	.067	.26	.05	.06	.100	.09	.01	.0380		
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MECHANICAL PROPERTIES <table border="1"> <thead> <tr> <th></th> <th>Yield Strength, Ksi(N/mm²) Re (R_{eL})</th> <th>Tensile Strength, Rm,ksi (N /mm²)</th> <th>Elongation A₅ %</th> <th>Reduction of area, Z %</th> <th>Brinell Hardness HB</th> <th>Impact strength, KV, J</th> </tr> </thead> <tbody> <tr> <td>REQUIRED</td> <td>36(248)</td> <td>75 (515)</td> <td>45</td> <td>50</td> <td>140-223</td> <td>100</td> </tr> <tr> <td>EFFECTIVE</td> <td>41.9(285)</td> <td>84.2(574)</td> <td>60</td> <td>75</td> <td>167</td> <td>227</td> </tr> </tbody> </table>								Yield Strength, Ksi(N/mm ²) Re (R _{eL})	Tensile Strength, Rm,ksi (N /mm ²)	Elongation A ₅ %	Reduction of area, Z %	Brinell Hardness HB	Impact strength, KV, J	REQUIRED	36(248)	75 (515)	45	50	140-223	100	EFFECTIVE	41.9(285)	84.2(574)	60	75	167	227	TECHNICAL REQUIREMENTS: Macrostructure – GOOD GRAIN SIZE : 5 to ASTM E 112-96(2004) Nonmetallic inclusions ASTM E 45-05 (Method A) <table border="1"> <thead> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>thin</td> <td>thick</td> <td>thin</td> <td>thick</td> </tr> <tr> <td>3.0</td> <td>2.0</td> <td>2.5</td> <td>2.0</td> </tr> <tr> <td>0.0</td> <td>0.0</td> <td>1.0</td> <td>1.0</td> </tr> </tbody> </table> ICC-ASTM A262-08 (practice E)-test: O.K. Dimension/surface defects test, anti-mixing test – OK											A	B	C	D	thin	thick	thin	thick	3.0	2.0	2.5	2.0	0.0	0.0	1.0	1.0																				
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US - testing		yes		Results: «ASTM A388 FBH 1/5 “»																																																																						
Radiation free; mercury free. No Weld or Weld repair.																																																																										
Manufacturer: PJSC DNIPROSPETSSTAL Date: 29.11.11 Manager of quality assurance department - V. Kapaieva Signed:  Zaporozhye Made in Ukraine.																																																																										