

ER2553

MIG and TIG wire for superduplex stainless steel

Product name	IABCO ER2553																								
Classification EN ISO	-																								
Classification AWS	A5.9: ER2553																								
Applications	<p>For welding matching ferritic-austenitic superduplex stainless steel base materials containing ~1.5%Cu. The addition of Cu provides enhanced corrosion resistance to sulphuric acid in comparison to other superduplex alloys; the Cu also provides benefits in terms of wear resistance and cavitation resistance.</p> <p>The ER2553 superduplex wire, unlike the ER2594, is not overalloyed with Ni and can therefore, in the as-welded condition, have high ferrite. For this reason for many applications, in particular the welding of castings, the ER2553 weld metal will be subject to a full solution anneal heat treatment.</p> <p>ER2553 superduplex stainless steel finds widespread use in many industries including: offshore, oil & gas, pulp & paper, chemical and petrochemical. Typical applications include pumps, valves, fans, impellers, and fasteners.</p>																								
Base materials	<p>For welding superduplex ferritic-austenitic stainless steels:</p> <p>ASTM: A182 grade F61, A351/A744 grade CD4MCu/CD4MCuN/CD3MCuN, A890 grades 1A/1B/1C. EN: 1.4507, 1.4515, 1.4517. UNS: S32520, S32550, S39552, J93370, J93372, J93373. Proprietary: UR 2507Cu (Arcelor Mittal), Ferralium 255-SD40/255-SD50 (Langley Alloys Ltd).</p>																								
Typical analysis of wire, weight %	<table> <tr> <td>C:</td> <td>0.02</td> <td>Si:</td> <td>0.4</td> <td>Mn:</td> <td>1.1</td> </tr> <tr> <td>Cr:</td> <td>25.1</td> <td>Ni:</td> <td>6.3</td> <td>Mo:</td> <td>3.6</td> </tr> <tr> <td>N:</td> <td>0.23</td> <td>Cu:</td> <td>1.8</td> <td></td> <td></td> </tr> <tr> <td>PREN:</td> <td>40.7</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	C:	0.02	Si:	0.4	Mn:	1.1	Cr:	25.1	Ni:	6.3	Mo:	3.6	N:	0.23	Cu:	1.8			PREN:	40.7				
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Typical weld procedure ⁽¹⁾	<p>Preheat: Not required for thinner material for thick sections 100°C can help resistance to hydrogen cracking.</p> <p>Interpass temperature: 150°C, for thicker sections relaxing this to 200°C can help resistance to hydrogen cracking.</p> <p>PWHT: Not always required but normally solution annealed 1120°C/2 hours and water quenched.</p>																								
Mechanical properties of weld deposit ⁽²⁾	<table> <tr> <td>0.2% proof stress, Rp0.2%:</td> <td>≥550MPa.</td> </tr> <tr> <td>Tensile strength, Rm:</td> <td>≥750MPa.</td> </tr> <tr> <td>Elongation, 4d/5d:</td> <td>≥20%.</td> </tr> <tr> <td>Impact ISO-V, -45°C:</td> <td>≥45J (TIG), ≥27J (MIG).</td> </tr> </table>	0.2% proof stress, Rp0.2%:	≥550MPa.	Tensile strength, Rm:	≥750MPa.	Elongation, 4d/5d:	≥20%.	Impact ISO-V, -45°C:	≥45J (TIG), ≥27J (MIG).																
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Notes (1) Application codes and project specifications should always be referred to for specific requirements.

(2) Actual mechanical properties will be dependent on specific welding procedure (including shielding gas, flux, PWHT etc) and should always be confirmed by approval of an appropriate welding procedure.