

## ER2209

### MIG, TIG and sub-arc wire for 22%Cr duplex stainless steel

Product name	IABCO ER2209																		
Classification EN ISO	14343-A: G/W/S 22 9 3 N L																		
Classification AWS	A5.9: ER2209																		
Applications	<p>For welding 22%Cr ferritic-austenitic duplex stainless steel base materials, commonly called 2205. The welding wire is over-alloyed with nickel compared to the base material to ensure the optimum combination of microstructure, mechanical properties and corrosion resistance. Normal service temperature range is -50°C to +250°C.</p> <p>The duplex stainless steel base materials have a microstructure consisting of nominally 50% austenite in a ferrite matrix. Duplex stainless steels combine higher strength than standard austenitic stainless steels with good corrosion properties, particularly resistance to pitting in chloride environments and resistance to stress corrosion cracking (SCC).</p> <p>Duplex stainless steels find widespread use in many industries including: offshore, pressure vessel, pulp &amp; paper, chemical, petrochemical and structural applications.</p>																		
Base materials	<p>For 22%Cr duplex ferritic-austenitic stainless steels: ASTM: A182 grade F51, A890 grade 4A. EN: 1.4462, X2CrNiMoN 22-5-3. UNS: S31803, S32205, J92205. Also suitable for lean duplex stainless steels: EN: 1.4162, 1.4362, X2CrNiN 23-4, X2CrMnNiN 21-5-1. UNS: S32001, S32101, S32304.</p>																		
Typical analysis of wire, weight %	<table> <tr> <td>C:</td> <td>0.01</td> <td>Si:</td> <td>0.55</td> <td>Mn:</td> <td>1.60</td> </tr> <tr> <td>Cr:</td> <td>22.8</td> <td>Ni:</td> <td>8.6</td> <td>Mo:</td> <td>3.10</td> </tr> <tr> <td>N:</td> <td>0.16</td> <td>Cu:</td> <td>0.05</td> <td>PREN:</td> <td>35.5</td> </tr> </table>	C:	0.01	Si:	0.55	Mn:	1.60	Cr:	22.8	Ni:	8.6	Mo:	3.10	N:	0.16	Cu:	0.05	PREN:	35.5
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Typical weld procedure <sup>(1)</sup>	<p>Preheat: Not normally required. Interpass temperature: 150°C. Heat input: Recommended range 0.75-1.75 kJ/mm. For thicker components values up to 2.5 kJ/mm may be acceptable. PWHT: None.</p>																		
Mechanical properties of weld deposit <sup>(2)</sup>	<table> <tr> <td>0.2% proof stress, Rp0.2%:</td> <td>≥450MPa.</td> </tr> <tr> <td>Tensile strength, Rm:</td> <td>≥690MPa.</td> </tr> <tr> <td>Elongation, 4d/5d:</td> <td>≥25%.</td> </tr> <tr> <td>Impact ISO-V, -50°C:</td> <td>≥125J (TIG), ≥35J (MIG &amp; SAW).</td> </tr> </table>	0.2% proof stress, Rp0.2%:	≥450MPa.	Tensile strength, Rm:	≥690MPa.	Elongation, 4d/5d:	≥25%.	Impact ISO-V, -50°C:	≥125J (TIG), ≥35J (MIG & SAW).										
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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.