

<b>MATERIAL DATA SHEET</b>		<b>MDS D45</b>	<b>Rev. 4</b>	
<b>TYPE OF MATERIAL:</b> Ferritic / Austenitic Stainless Steel, Type 22Cr duplex				
<b>PRODUCT</b>	<b>STANDARD</b>	<b>GRADE</b>	<b>ACCEPT. CLASS</b>	<b>SUPPL. REQ.</b>
Plates	ASTM A 240	UNS S31803 UNS S32205	-	S1
<b>1. SCOPE</b>	This MDS specifies the selected options in the referred standard and additional requirements which shall be added or supersede the corresponding requirements in the referred standard.			
<b>2. QUALIFICATION</b>	Manufacturers and the manufacturing process used for manufacturing of product to this MDS shall be qualified in accordance with NORSOK Standard M-650.			
<b>3. MANUFACTURING PROCESS</b>	The manufacturing of products according to this MDS shall be carried out according to the M-650 qualified Manufacturing Procedure.			
<b>4. STEEL MAKING</b>	The steel melt shall be refined with AOD or equivalent.			
<b>5. HEAT TREATMENT</b>	The plates shall be solution annealed followed by water quenching.			
<b>6. CHEMICAL COMPOSITION</b>	UNS S 31803: N = 0.14 - 0.20 %			
<b>7. IMPACT TESTING</b>	Charpy V-notch testing according to ASTM A 370 at - 46 °C is required for the thickness $\geq$ 6 mm. The minimum absorbed energy shall satisfy 45 J average and 35 J single. Reduction factors for sub-size specimens shall be: 7.5 mm - 5/6 and 5 mm - 2/3.			
<b>8. MICROGRAPHIC EXAMINATION</b>	The micrographic examination shall cover the near surfaces and mid-thickness region. The ferrite content shall be determined according to ASTM E 562 or equivalent and shall be within 35 -55 %. The microstructure, as examined at minimum 400 X magnification on a suitably etched specimen, shall be free from intermetallic phases and precipitates.			
<b>9. EXTENT OF TESTING</b>	Impact test, tensile test, hardness test and micrographic examination shall be carried out for each heat, nominal thickness and heat treatment load. For heat treatment in continuous furnace a heat treatment load is defined as all plates heat treated continuously in the same furnace, of the same heat and nominal thickness.			
<b>10. TEST SAMPLING</b>	Samples for production testing shall realistically reflect the properties in the actual components. Tensile test specimen shall be sampled in transverse direction in accordance with ASTM E 8. Impact specimens shall be taken at mid-thickness position in transverse direction.			
<b>11. SURFACE FINISH</b>	White pickled.			
<b>12. REPAIR OF DEFECTS</b>	Weld repair is not acceptable.			
<b>13. MARKING</b>	The component shall be marked to ensure full traceability to melt and heat treatment lot.			
<b>14. CERTIFICATION</b>	The material manufacturer shall have a quality system certified in accordance with ISO 9001 and the system shall have undergone a specific assessment for the relevant materials. The material certificate shall be in accordance with EN 10204 Type 3.1, and shall include the following information: - Steel manufacturer, melting and refining practice. - Heat treatment condition (Solution annealing temperature and holding time shall be stated.)			