MATERIAL DATA SHEET		MDS D55	Rev. 4
TYPE OF MATERIAL: Ferritic/Austenitic Stainless Steel, Type 25Cr duplex			
PRODUCT	***STANDARD***	***GRADE***	***ACCEPT. CLASS***	***SUPPL. REQ.***
Plates	ASTM A 240	UNS S32550 UNS S32750 UNS S32760	-	-

1. SCOPE	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. This MDS is based on the mechanical properties of UNS S32760.
2. QUALIFICATION	Manufacturers and the manufacturing process used for manufacturing of product to this MDS shall be qualified in accordance with NORSOK Standard M-650.
3. MANUFACTURING PROCESS	The manufacturing of products according to this MDS shall be carried out according to the M-650 qualified manufacturing procedure.
4. STEEL MAKING	The steel melt shall be refined with AOD or equivalent.
5. HEAT TREATMENT	Solution annealing followed by water quenching.
6. CHEMICAL COMPOSITION	PREN = %Cr + 3.3 % Mo + 16 % N ≥ 40.0.
7. TENSILE TESTING	$R_{p0.2} \geq 550$ MPa; $R_m \geq 750$ MPa; A ≥ 25%.
8. IMPACT TESTING	Charpy V-notch testing according to ASTM A 370 at - 46 °C is required for thickness ≥ 6mm. The minimum absorbed energy shall satisfy 45 J average / 35 J single. Reduction factors for sub-size specimens shall be: 7.5 mm - 5/6 and 5 mm - 2/3.
9. MICROGRAPHIC EXAMINATION	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.
10. CORROSION TEST	Corrosion test according to ASTM G 48 Method A is required. Test temperature shall be 50 °C and the exposure time 24 hours. The test shall expose both surfaces and a cross section in full wall thickness. Cut edges shall be prepared according to ASTM G 48. The whole specimen shall be pickled before being weighed and tested. Pickling may be performed for 5 minutes at 60 °C in a solution of 20 % HNO3 + 5 % HF. The acceptance criteria are: - No pitting at 20 X magnification. - The weight loss shall be less than 4.0 g/m^2.
11. EXTENT OF TESTING	Test samples for impact testing, microstructure, hardness, corrosion and tensile testing shall be carried out for each heat and heat treatment lot.
12. TEST SAMPLING	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 from mid-thickness position in transverse direction.
13. SURFACE FINISH	White pickled.
14. REPAIR OF DEFECTS	Repair welding is not acceptable.
15. MARKING	The component shall be marked to ensure full traceability to melt and heat treatment lot.
16. CERTIFICATION	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 practice and refining method. - Heat treatment condition (Solution annealing temperature and holding time shall be stated.)