

MATERIAL DATA SHEET			MDS C01	Rev. 4
TYPE OF MATERIAL: Carbon Steel Type 235				
PRODUCT	STANDARD	GRADE	ACCEPT. CLASS	SUPPL. REQ.
Wrought fittings	ASTM A 234	WPB	-	S3
Welded pipes	ISO 3183 (API 5L)	L245 (B) SAWL	PSL 1	-
Welded pipes	ASTM A 672	C60, C70	t ≤ 19 mm: Cl. 12	-
			t > 19 mm: Cl. 22, 32, 42	-
Seamless pipes	ASTM A 106	B	-	S6
Forgings	ASTM A 105	-	-	S4
Plates	ASTM A 516	60, 70	-	-
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.			
2. HEAT TREATMENT	<i>Forgings to A 105:</i> Normalized. <i>Welded pipes to ISO 3183:</i> Stress relieved when the nominal thickness t ≤ 19 mm.			
3. MANUFACTURING	Valves with nominal size NPS 4 and smaller may be machined from solid forgings in the terminology of ASTM A 788 on the following conditions: <ul style="list-style-type: none"> - Purchasers' acceptance shall be obtained in each case. - Supplementary requirement S55 shall apply to all finished products. 			
4. CHEMICAL COMPOSITION	<i>All products:</i> C ≤ 0.20 %, S ≤ 0.025 %, P ≤ 0.030 %, $CE_{(IIW)} = C + Mn/6 + (Cr + Mo + V)/5 + (Cu + Ni)/15 \leq 0.43.$			
5. MECHANICAL PROPERTIES	<i>All products:</i> Elongation, A > 20%.			
6. TEST SAMPLING	Samples for production testing shall realistically reflect the properties in the actual component.			
7. NON DESTRUCTIVE TESTING	<i>Pipes to ISO 3183:</i> RT of weld seam or RT at ends and US/Eddy Current of the remaining weld. <i>Fittings to A 234:</i> UT is not acceptable as replacement of RT. <i>All products:</i> NDT operators shall be certified in accordance with EN 473 or equivalent.			
8. REPAIR OF DEFECTS	Weld repair of base material is not acceptable.			
9. 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 issued in accordance with EN 10204 Type 3.1, and shall include the following information: <ul style="list-style-type: none"> - Heat treatment condition 			