



CERTIFICATE NUMBER E25124/2

Telephone: (01429) 850926
Fax: (01429) 850925

Material Test Certificate

CUSTOMER CLEVELAND STEEL & TUBES LTD DALTON THIRSK NORTH YORKSHIRE YO7 3JN	CUSTOMER ORDER NO.	Date Items Received	29.6.05
	116598 (17)	Date Items Tested	15-25.7.05
	REFERENCE	QUANTITY	
	67157/JS (SAW MAT'L)		
SAMPLES SUBMITTED ON BEHALF OF :-	CAST NO./CAST CODE	BATCH NO.	
	HEAT TREATMENT NO.	MATERIAL SUPPLIED	1 TEST PIECE
INSPECTION	DESCRIPTION		
DNV	508 OD x 22.2mm WT		
SPECIFICATION			
BS EN10225:2000 S355G13+N(DATASHEET MDS-Y28 REV.2)			

MECHANICAL TESTS (Test Proc: BS EN10002-1:2001, BS EN910:1996)

SPECIMEN REF	Test Piece Dimensions mm			Stress N/mm ²		RED of AREA %	ELONG % in 92mm	IMPACT TESTS	BEND 3T DIA FORMER
	WIDTH	DIAM or THICK	AREA	MAX TENSILE	YIELD				
70893									
CROSS WELD TENSILE	12.50	21.20	265.0	645*				FRACTURED IN PARENT MATERIAL	
BASE TENSILE (TRANS)	12.50	21.20	265.0	646*	455		23		
BEND TEST CROSS WELD									180° BEND SATISFACTORY
SPECIFICATION				460-620	355 MIN		22 MIN		

OTHER TESTS (Test Proc: BS EN ISO6507-1:1997, MSP44)

HARDNESS SURVEY (FULL WELD SECTION) - REF CERT E25124/2B

MICROSTRUCTURE - SAMPLE SHOWS FERRITE/PEARLITE STRUCTURE CONSISTANT WITH A NORMALISING/CONTROLLED COOLING TYPE PROCESS.

CHEMICAL ANALYSIS (Test Proc: MSP 15)

SPECIMEN	C%	Si%	Mn%	S%	P%	Ni%	Cr%	Mo%	Cu%	Sn%	Nb%	V%	N%	Ti	Al
70893															
BASE	0.10	0.25	1.49	<0.005	0.011	0.05	0.07	0.05	0.01	<0.03	0.046	0.010	0.002	0.016	<0.010
WELD	0.09	0.27	1.42	<0.005	0.010	0.20	0.07	0.17*	0.04	<0.03	0.022	0.012	0.008	0.027	0.013
													(S)		

The Results Relate Only To Test Items Supplied

COMMENTS

CE (BASE) = 0.38 PCM (BASE) = 0.19

* THE RESULTS OF THE ABOVE TESTS CONFORM TO BS EN10225:2000 S355G13+N (DATASHEET MDS-Y28 REV.2)

AS PER CUSTOMER MODIFICATIONS

DATE CERTIFIED 3.8.06

FOR CLYDESDALE METALAB

(S) - SUBCONTRACTED TO UKAS APPROVED LABORATORY

ROB WATERS
TEST ENGINEER

A division of Clydesdale Forge Co.
Registered Office: Brenda Road, Hartlepool TS25 2BP
Registered in London No. 236485

Clydesdale Metalab

MATERIALS TESTING LABORATORIES

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BRENDA ROAD
HARTLEPOOL
CLEVELAND
TS25 2BP

CERTIFICATE NUMBER E25124/2A

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	116598 (17)	Date Items Tested	25.7.05
	REFERENCE 67157/JS (SAW MAT'L)	QUANTITY	
	CAST NO./CAST CODE	BATCH NO.	
SAMPLES SUBMITTED ON BEHALF OF :-	HEAT TREATMENT NO.	MATERIAL SUPPLIED	1 TEST PIECE
INSPECTION DNV	DESCRIPTION 508mm OD X 22.2mm WT		
SPECIFICATION BS EN10225:2000 S355G13+N(DATASHEET MDS-Y28 REV.2)			

MECHANICAL TESTS (Test Proc: BS EN10045-1:1990)

SPECIMEN REF	Test Piece Dimensions mm			Stress N/mm ²		RED of AREA %	ELONG % in	IMPACT TESTS CHARPY 300J 10X10X55mm 2mm V NOTCH TEST TEMP -40°C (JOULES)		BEND 3T DIA FORMER
	WIDTH	DIAM or THICK	AREA	MAX TENSILE	YIELD					
70893										
BASE TRANS								121 - 259 - 275		
WELD								164 - 158 - 158		
FL								80 - 37 - 135		
FL + 2								116 - 60 - 154		
FL + 5								144 - 273 - 120		
SPECIFICATION (BASE)								50J MIN AVE 35J MIN IND		
(FL)								36J MIN AVE 26J MIN IND		

OTHER TESTS (Test Proc:

CHEMICAL ANALYSIS (Test Proc: MSP 15)

SPECIMEN	C%	Si%	Mn%	S%	P%	Ni%	Cr%	Mo%	Cu%	Sn%	Nb%	V%		

The Results Obtained Conform To Specification. The Results Relate Only To Test Items Supplied

COMMENTS

THE RESULTS OF THE ABOVE TESTS CONFORM TO BS EN10225:2000 S355G13+N (DATASHEET MDS-Y28 REV.2)

DATE CERTIFIED 3.8.06

FOR CLYDESDALE METALAB

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TEST ENGINEER

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TEST CERTIFICATE NO. : E25124/2B

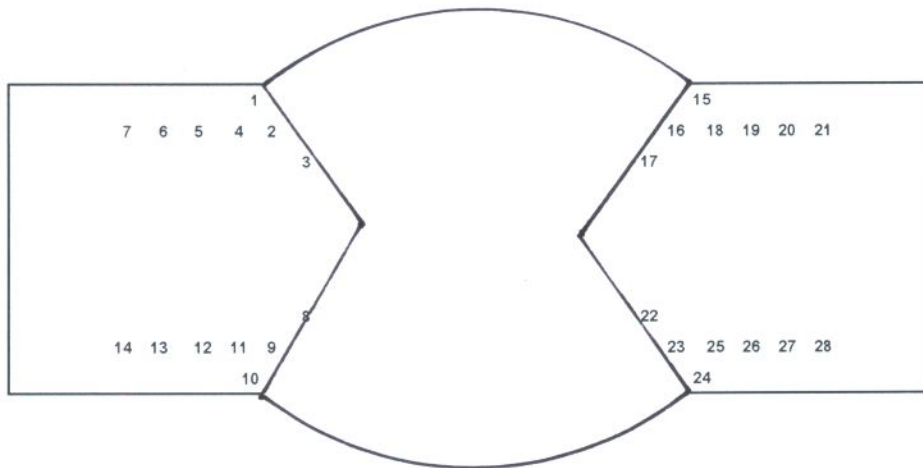
ORDER NUMBER : 116598 (17) REFERENCE : 67157/JS (SAW MAT'L)

CUSTOMER : CLEVELAND STEEL & TUBES LTD, DALTON,
: THIRSK, NORTH YORKSHIRE. YO7 3JN

DESCRIPTION : 508mm OD x 22.2mm WT (70893)

MATERIAL SPEC. : BS EN10225:2000 S355G13+N (MDS-Y28 REV.2)

HARDNESS TRAVERSE (VICKERS HV10)



LOCATION	HV10	LOCATION	HV10	LOCATION	HV10	LOCATION	HV10
1	210	8	207	15	202	22	213
2	212	9	215	16	210	23	209
3	216	10	218	17	210	24	207
4	219	11	224	18	216	25	207
5	224	12	224	19	218	26	206
6	222	13	222	20	224	27	219
7	209	14	216	21	218	28	216

For CLYDESDALE METALAB

Witness By:

Signed:

ROB WATERS
TEST ENGINEER

Date: 3.8.06