

CERTIFIED MATERIAL TEST REPORT
Hackney Ladish Inc.

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Heat Code Description / Specifications

ED98BT TEE RED 12 X 8 CED-20 A/SA 234 - 96A WPB (SMLS)
471-D 09/A61077 NACE MR0175

Chemical Analysis

<u>Heat Code</u>	<u>Test</u>	<u>C</u>	<u>Mn</u>	<u>P</u>	<u>S</u>	<u>Si</u>	<u>Cu</u>	<u>Ni</u>	<u>Cr</u>	<u>Mo</u>	<u>Al</u>
ED98BT	M	.170	1.150	.010	.007	.260	.020	.010	.060	.020	.0032

Chemical Analysis (cont.)

<u>Heat Code</u>	<u>N</u>	<u>V</u>	<u>B</u>	<u>Ti</u>	<u>Cb</u>	<u>Sn</u>	<u>W</u>	<u>Pb</u>	<u>Co</u>	<u>CE</u>
ED98BT	.0006	.072	.0000		.002					.39

Physical Properties

<u>Heat Code</u>	<u>Tensile KSI</u>	<u>Type</u>	<u>Thickness</u>	<u>Yield KSI</u>	<u>% Elong. (4D)</u>	<u>% RA</u>	<u>Hardness HB</u>
ED98BT	81.3	L		56.7	44.0		197

Charpy Results

<u>Heat Code</u>	<u>Size x 10mm</u>	<u>Type</u>	<u>Temp. (F)</u>	<u>Foot Pounds</u>	<u>Later. Expansion</u>	<u>% Shear</u>
ED98BT						

Test: M=Mill Product
Type: L=Longitudinal

We certify that the material herein described has been manufactured in accordance with the above standards and specifications and satisfies all the requirements of the editions specified. We certify all materials provided comply with EN 10204 paragraph 3.1. Our ISO 9001:2008 certificate number is CERT-11763-2007-USA-RvA/ANAB. We certify all NACE MR0175 certified material complies with MR0175/ISO 15156. We certify these fittings capable of passing hydrostatic test compatible with their rating. The above figures are correct as contained in the records of the Company. This information has been electronically transmitted to our customer. Stephen Baker / QA Manager