

CERTIFIED MATERIAL TEST REPORT
Hackney Ladish Inc.

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Heat Code Description / Specifications

155ZN	RED-ES-18-12STD	A/SA 234 - 06A WPB (SMLS)
	A106B MIW/9 A22577	NORMALIZED NACE MR0175

Chemical Analysis

Heat Code	Test	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Al
155ZN	M	.190	1.070	.010	.003	.180	.020	.020	.080	.030	

Chemical Analysis (cont.)

Heat Code	N	V	B	Ti	Cb	Sn	W	Pb	Co	CE
155ZN		.000	.0003	.0020	.001					.392

Physical Properties

Heat Code	Tensile KSI	Type	Thickness	Yield KSI	% Elong. (4D)	% RA	Hardness HB
155ZN	74.0	L		56.5	35.0	67.0	123

Charpy Results

Heat Code	Size x 10mm	Type	Temp. (F)	Foot Pounds	Later. Expansion	% Shear
155ZN						

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 ISO 10204 paragraph. 3.1 which replaces type 3.1.B of the 1991 edition of EN 10204. Our ISO9001:2000 certificate number is CERT11763-2007-AQ-HOU-RVA/ANAB. 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.