



HARLSAN

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Harlsan 4½” Tool Joint Weld Pressure Vessel Rating (AS1210 – 2010 Class 1)

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Summary: A Harlsan 4½” Tool Joint was submitted to external materials testing consultants for evaluation against AS1210 – 2010. The testing performed confirmed a weld joint complying with the requirements of AS1210 – 2010 Class 1.

Keywords: Drill Rods, Pressure Vessel Rating, PVR, Tool Joint Weld,

References:
AS/NZ23992-2015 (AS1210 Class 1.),
AS2205.3.1-2003

Introduction

The drilling industry is always looking for improvements in equipment and techniques for safety, quality, efficiency and cost improvements. Harlsan submitted their 4½” Tool Joint for evaluation to AS1210 – 2010 and was found to be compliant with the requirements of AS1210 – 2010 Class 1.

Product Update

- The Harlsan Industries 4½” drill rod weld has been independently certified to the highly regarded AS1210 - 2010 Class 1 pressure vessel rating by external certifying consultants.
- After performing macro examination, as well as hardness and bend testing, it was found that the weld joint complied with the requirements of AS1210 – 2010 Class 1
- This testing procedure supports customer buying decisions as drill rods from different suppliers can look similar but be worlds apart in terms of safety, quality, toughness and reliability.
- The latest robot welding technology is used in the manufacture of Harlsan drill rods and the improvement in product quality has now been verified.

Macroexamination

Macroexamination was conducted on the tool joint in four locations by sectioning with a water cooled saw, silicon carbide grinding to a P1200 finish and etching with 10% nital.

The macroexamination did not reveal any recordable discontinuities.

Hardness Testing

Hardness testing was performed on two macro sections diametrically opposite to each other on the tool joint.

Traverse 1 Vickers HV10

Parent (X)	208, 207, 211
HAZ	191, 188, 192
Weld	278, 283, 274

Traverse 2 Vickers HV10

Parent (Y)	323, 330, 327
HAZ	294, 302, 293
Weld	270, 271, 280

Bend Testing

Test specification: AS/NZ23992-2015 (AS1210 Class 1.), AS2205.3.1-2003

Specimen	Dimensions (mm)	Former Diameter (mm)	Result	Compliance
SB 1	8 x 10	67	0.2, 0.1mm Fissures	Complies
SB 2	8 x 10	67	0.2mm Fissure	Complies
SB 3	8 x 10	67	No Defects Apparent	Complies
SB 4	8 x 10	67	0.1mm Fissure	Complies

About The Author



Harley Hollier has had extensive experience in the reverse circulation drilling industry as a director of Harlsan Industries.

Harley’s current industry roles incorporate the engineering, research and development of innovative reverse circulation drilling equipment and supporting customers with drilling application and solution development. He can be contacted on Ph. +61 8 9021 1288 (GMT+8) or email: harlsan@halsan.com.au.