

Sample John Sparrow

Six spot-welds made underwater using 3.2mm Hammerhead electrode on 2 x 8.0mm plates in flat position.

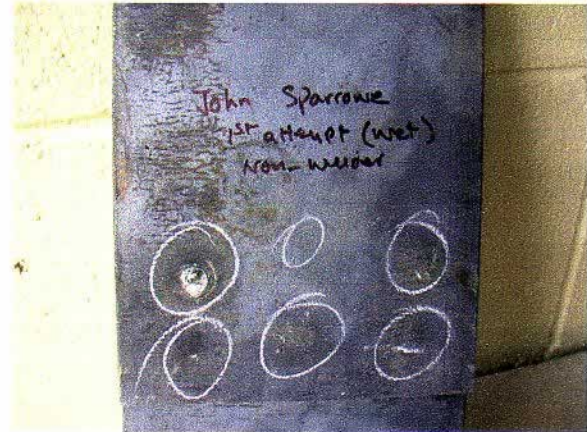
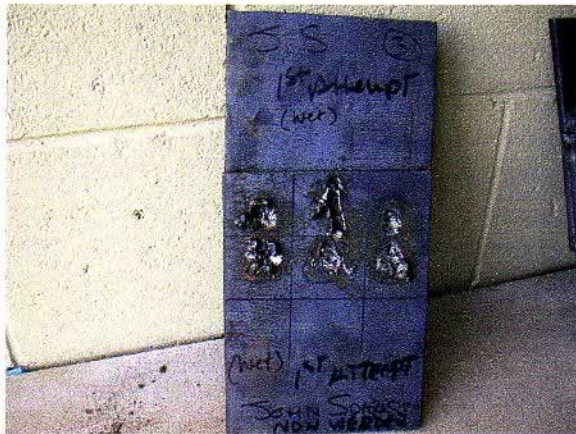


Photo shows general plate set-up for 1st and 2nd attempts (six spot welds) with heat/burn through marks.

The following spot welds were made as described on page two, under evaluation and welding criteria, by Mr. John Sparrowe, in the flat position. John is a non-welder-diver and in making these welds he was not provided with any introduction, not any practice time. He did witness Mr. David Keats making a weld, via the video system and did use the same welding parameters, but welded these plates on his first and second attempt. Visibility at this time was virtually nil, with little more than 5-10cm.

The welding parameters & techniques were as follows.

Amps:	1 st value 250-255	2 nd value 160-165
Timer:	7 seconds for peak (1 st) current value only.	
Volts:	25-35	
Polarity:	DC-Ve electrode	
Electrode Angle:	90° +/- 10o throughout.	
Pressure Applied:	Constant (10-20kgf) until at least 50% of electrode was consumed.	

These welds were subjected to tensile tests, see test report numbers [S402483](#) and [S402484](#) for further details.

NOTE: Winter weather conditions, with typical air temperatures of 0-1°C recorded.

Bodycote Materials Testing Ltd, Sheffield Laboratory, P.O. Box 161, Shepcote Lane, Sheffield, S9 1TR
 Tel: 0114 256 4500, Fax: 0114 256 4509

Test Certificate

SPECIALITY WELDS
 SUITE 18
 MOORLANDS BUSINESS CENTRE
 BALME ROAD
 CLECKHEATON
 BD19 4EW

REF No S402483 : Issue 3
 Ord No SW/0934-SA

 Date Tested 11/03/04
 Date Reported 04/05/04

Attn: DAVID KEATS

Item - SIX SPOT WET WELD ON 8.0 mm PLATE (SIX FUSED)
 JOHN SPARROWE - FIRST ATTEMPT


Specification - Client requirement

Tensile Test - EN 10 002-1								
	Dimensions [mm]	Area [mm ²]	GL [mm]	YS [N/mm ²]	UTS [N/mm ²]	%E1	%RA	Comments
001:Cross Weld	0.00x 0.00	0.00	N/A	N/A	0	N/A	N/A	See Below
UTS calculation is based on Shear Load / Approx cross sectional area of fractured weld 'nugget(s)'. Area =482.71mm ² , Load =155.3kN UTS = 321 MPa, 321 N/mm ² , 46,557 p.s.i. The above data is recorded, as requested by the client, for information only. Due to the nature of the testing and subsequent approximations assumed during post fracture measurement / calculation, the results may be subject to an unquantified level of uncertainty of measurement.								

Certificate Comments

CERTIFICATE CONFORMS TO BSEN 10204 3.1.B
 ORIGINAL TEST COUPON PRESENTED AND IDENTIFIED BY CLIENT.
 SUPPLEMENT TO TEST REPORT S402483 : ISSUE 2
 TEST DETAIL AMENDMENTS AS SPECIFIED BY CLIENT.
 Average diameter of nugget(s); external 'cap' side = NOT MEASURED due to the irregular shape / lack of the remnant weld deposit.
 ----- End of Text -----

Tested by G.SIMPSON



 N.HOLD B.Sc (Hons)
 Director
 For and on behalf of
 Bodycote Materials Testing Ltd

Bodycote Materials Testing Ltd, Sheffield Laboratory, P.O. Box 161, Shepcote Lane, Sheffield, S9 1TR
 Tel: 0114 256 4500, Fax: 0114 256 4509

Test Certificate

SPECIALITY WELDS
 SUITE 18
 MOORLANDS BUSINESS CENTRE
 BALME ROAD
 CLECKHEATON
 BD19 4EW

REF No S402484 : Issue 3
 Ord No SW/0934-SA
 Date Tested 12/03/04
 Date Reported 04/05/04

Attn: DAVID KEATS

Item - SIX SPOT WET WELD ON 8.0 mm PLATE (FIVE FUSED)
JOHN SPARROWE - SECOND ATTEMPT


Specification - Client requirement

Tensile Test - EN 10 002-1								
	Dimensions [mm]	Area [mm ²]	GL [mm]	YS [N/mm ²]	UTS [N/mm ²]	%E1	%RA	Comments
001:Cross Weld	0.00x 0.00	0.00	N/A	N/A	0	N/A	N/A	See Below
UTS calculation is based on Shear Load / Approx cross sectional area of fractured weld 'nugget(s)'. Area =332.97mm ² , Load =116.2kN UTS = 348 MPa, 348 N/mm ² , 50,473 p.s.i. The above data is recorded, as requested by the client, for information only. Due to the nature of the testing and subsequent approximations assumed during post fracture measurement / calculation, the results may be subject to an unquantified level of uncertainty of measurement.								

Certificate Comments

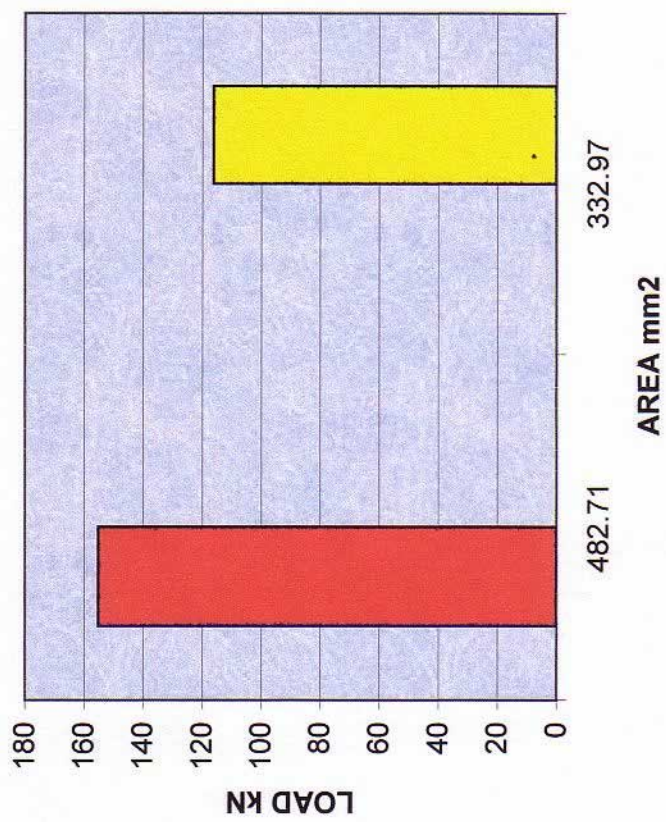
CERTIFICATE CONFORMS TO BSEN 10204 3.1.B
 ORIGINAL TEST COUPON PRESENTED AND IDENTIFIED BY CLIENT.
 SUPPLEMENT TO TEST REPORT S402484 : ISSUE 2
 TEST DETAIL AMENDMENTS AS SPECIFIED BY CLIENT.
 Average diameter of nugget(s); external 'cap' side = NOT MEASURED due to the irregular shape / lack of the remnant weld deposit.
 ----- End of Text -----

Tested by G.SIMPSON



 N.HOLD B.Sc (Hons)
 Director
 For and on behalf of
 Bodycote Materials Testing Ltd

**JOHN SPARROWE SIX SPOT WET WELDS
ON 8mm PLATE**



■ 1st Attempt ■ 2nd Attempt

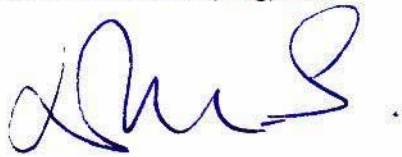
-2-

When you consider that I completed my two plates within approx. 30 minutes start to finish I was impressed with the potential. If I could have had a demo and a practice in air first, I am confident I could have made vast improvements. However, all things considered I was very impressed by the results of the test plates.

I would also like to mention that after speaking with a colleague from the salvage industry he showed an interest in coming to our depot to see your trials taking place on your next visit.

Best of luck for the future.

Yours sincerely
For Northern Divers (Eng) Ltd

A handwritten signature in blue ink, appearing to read 'J Sparrowe', with a small dot at the end.

J Sparrowe
Diving Manager