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Sort Code 40-38-04
V.A.T. No. 172 8037 62
Company Reg. No. 76383

Report Number: 15100722

VR Access Solutions Ltd
1 Swan Courtyard
Charles Edward Road
Birmingham
B26 1BU

Order Number : 10019
Date of Issue: 16/11/2015
Test Date : 09/11/2015
to 13/11/2015

0136

This report details the results of tests carried out on Pressed Swivel Coupler used for connecting steel tubes of 48.3mm outside diameter and of at least 3.2mm nominal wall thickness at a minimum in the construction of working scaffolds and falsework required for the construction, maintenance, repair and demolition of buildings and structures.

Description and Marks on couplings
Pressed Swivel Coupler

Marks : EN74-1 A VRS 0615

Basis of Tests
The couplings have been tested in accordance with the relevant sections and requirements of EN 74-1 :2005.

Information supplied by the customer

Manufactured by:	VR Access Solutions Ltd
Shape:	As per drawings shown at the end of this report
Dimensions:	As per drawings shown at the end of this report
Mass:	As per drawings shown at the end of this report
Material Characteristics:	As per drawings shown at the end of this report

RESULTS

Design
The design of the coupling complied with the requirements of the relevant items in clause 6.2 of the standard.

Dimensions and Material Characteristics
The measured dimensions, mass and material characteristics, of the couplings, were all within the tolerances as specified by the manufacturer. (Drawings are shown at the end of this report)

Marking
The markings satisfy the requirements laid out in EN74-1.

Mass
10 samples were weighed giving an average mass of 0.998kg With a range between 0.992kg and 1.002kg

Results of all tests performed are detailed on the following pages.
All requirements stated are minimum values.

This report consists of the report, appendix A and appendix B

Authorised Signatory
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Operations Manager

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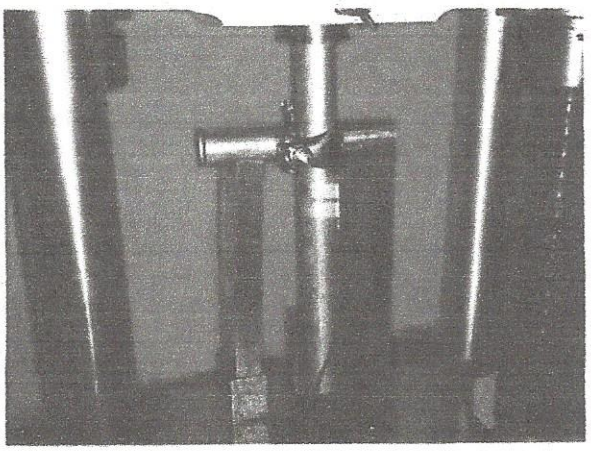
Slipping Force Tests, tested in accordance with Clause 7.2.1

Tested using 3.2mm steel tube (RT_{S1})		
Test Number	$\Delta_1 \leq 7$mm (kN)	$1 \leq \Delta_2 \leq 2$mm (kN)
1	11.39	18.77
2	10.47	15.84
3	11	18.08
4	12.96	23.21
5	10.82	17.17
6	10.95	19.02
7	11.06	21.87
8	10.07	17.19
9	11.5	11.6
10	10.69	17.87
$F_{S5\%}$	**9.60**	**11.97**

Tested using 4.0mm aluminium tube (RT_A)		
Test Number	$\Delta_1 \leq 7$mm	$1 \leq \Delta_2 \leq 2$mm
11	12.27	30
12	10.94	30
13	9.68	30
14	11.65	30
15	10.75	30
$F_{S5\%}$	**8.84**	**30.00**

Photograph of Setup for Slipping Force



The photograph above shows the setup for slipping force but is not necessarily the coupler under test.

The $F_{S5\%}$ figures must be equal to or greater than the requirements stated below.

Requirements from EN 74-1 table 8:

Class B:	$\Delta_1 \leq 7$mm = 10kN Minimum
	$1 \leq \Delta_2 \leq 2$mm = 15kN Minimum
Class A:	$\Delta_1 \leq 7$mm = 7kN Minimum
	$1 \leq \Delta_2 \leq 2$mm = 10kN Minimum

From the results, the prototype is Accepted to Class A for slipping force

Load-displacement curves are shown in Appendix A as charts 1 to 15

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Failure Force, tested in accordance with clause 7.2.2

Tested using solid steel bar (RB)	
Test Number	Maximum Load $P_{f,ult}$ (kN)
16	28
17	28
18	28
19	27.6
20	28

$F_{f,5\%}$	**21.98**

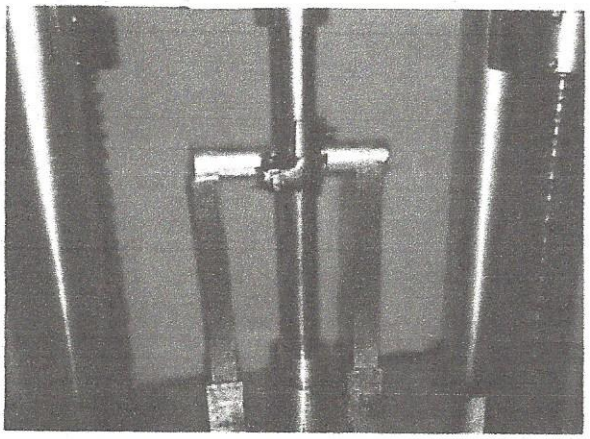
The $F_{f,5\%}$ figures must be equal to or greater than the requirements stated below.

Requirements from EN 74-1 table 8:-
Pf,ult = 20.0kN minimum Right Angle couplers & 14.0kN for Swivel couplers

Load-displacement curves are shown in Appendix B as charts 16 to 20

From the results, the prototype is Accepted to Class A for failure force

Photograph of setup for Failure Force



The photograph above shows the setup for failure force but is not necessarily the coupler under test.

Indentation Check, tested in accordance with clause 7.5

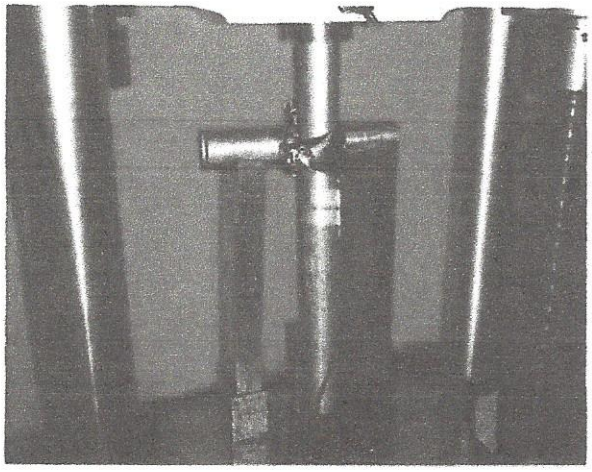
Tested using 2.7mm wall steel tube (RT_{S2})	
Test Number	Maximum Indentation Δ_{10} (mm)
26	0.71
27	0.82
28	0.76
29	0.91
30	0.95

The figures must be equal to or greater than the requirements stated below.

Requirements from EN 74-1 table 8:-
Pind = ≤1.5mm

From the results, the prototype is Accepted to Class A for indentation check

Photograph of setup for Indentation Check



The photograph above shows the setup for indentation check but is not necessarily the coupler under test.

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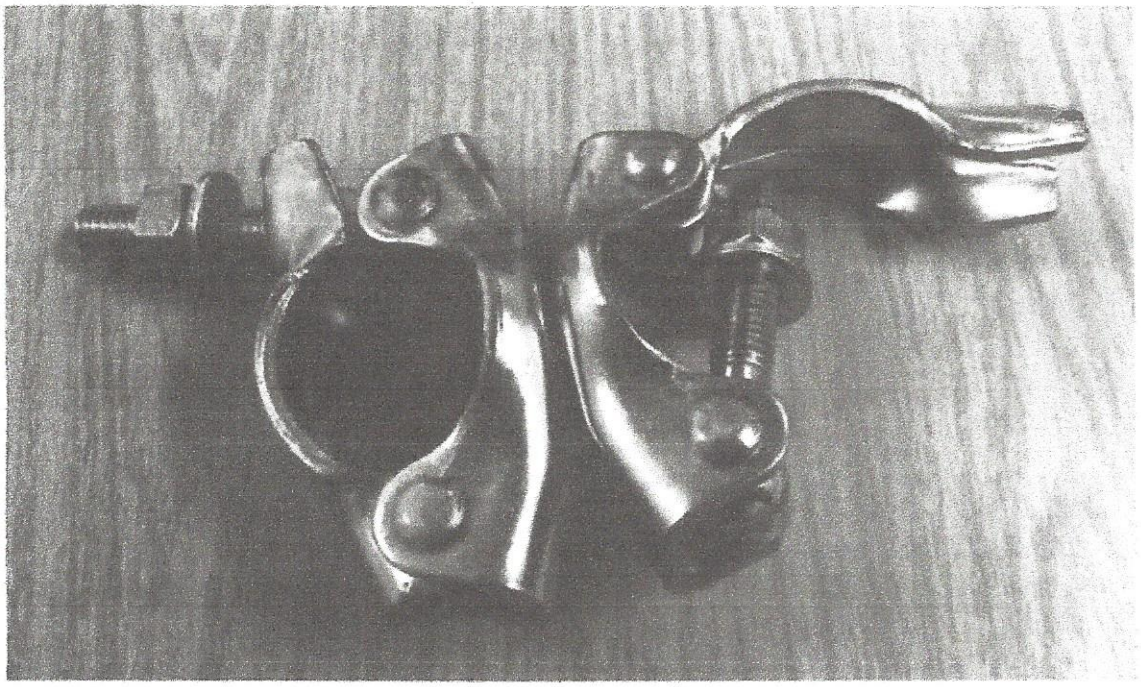
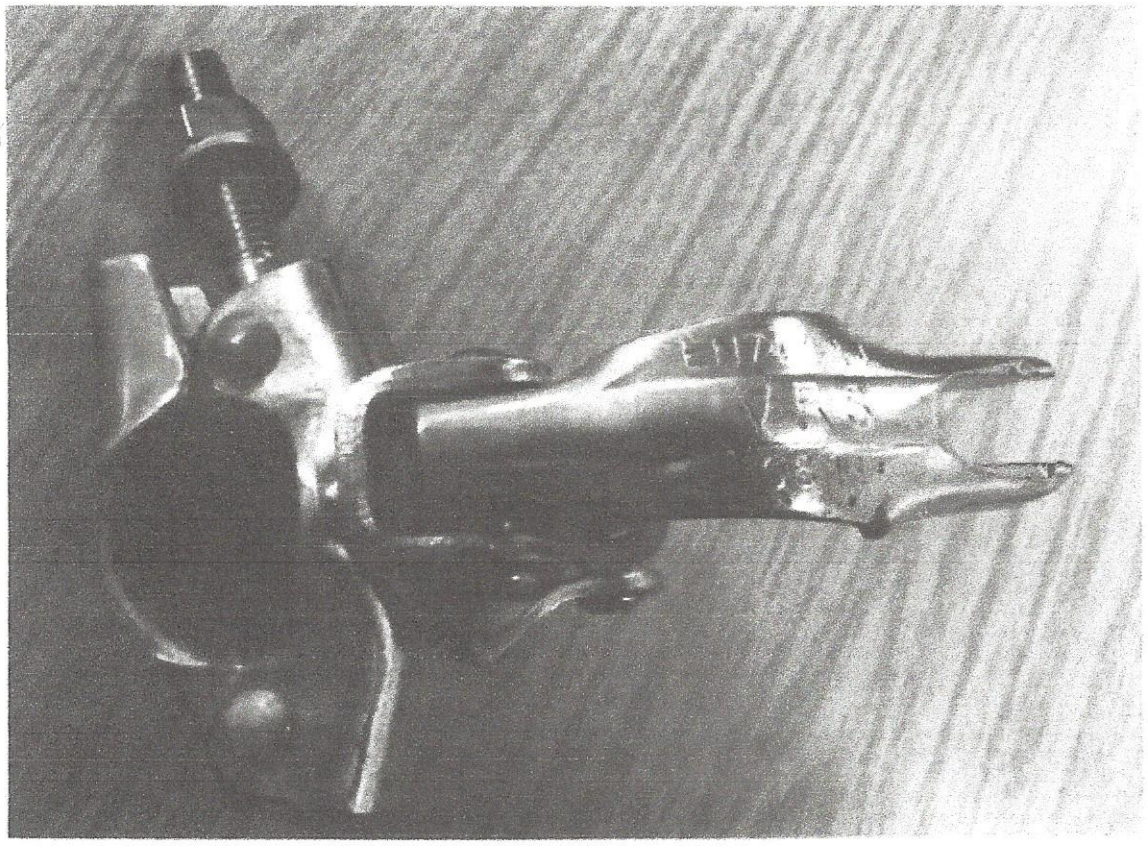
Photograph of coupler under test





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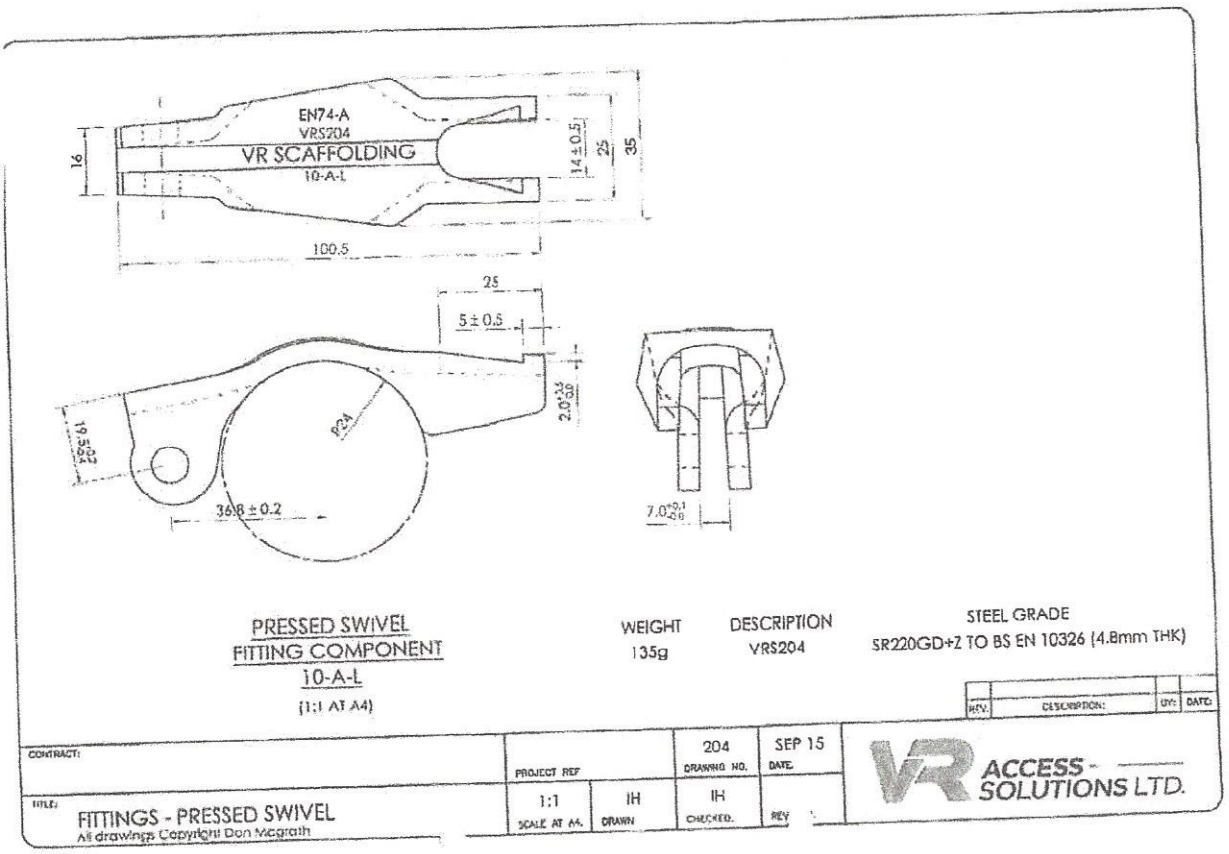
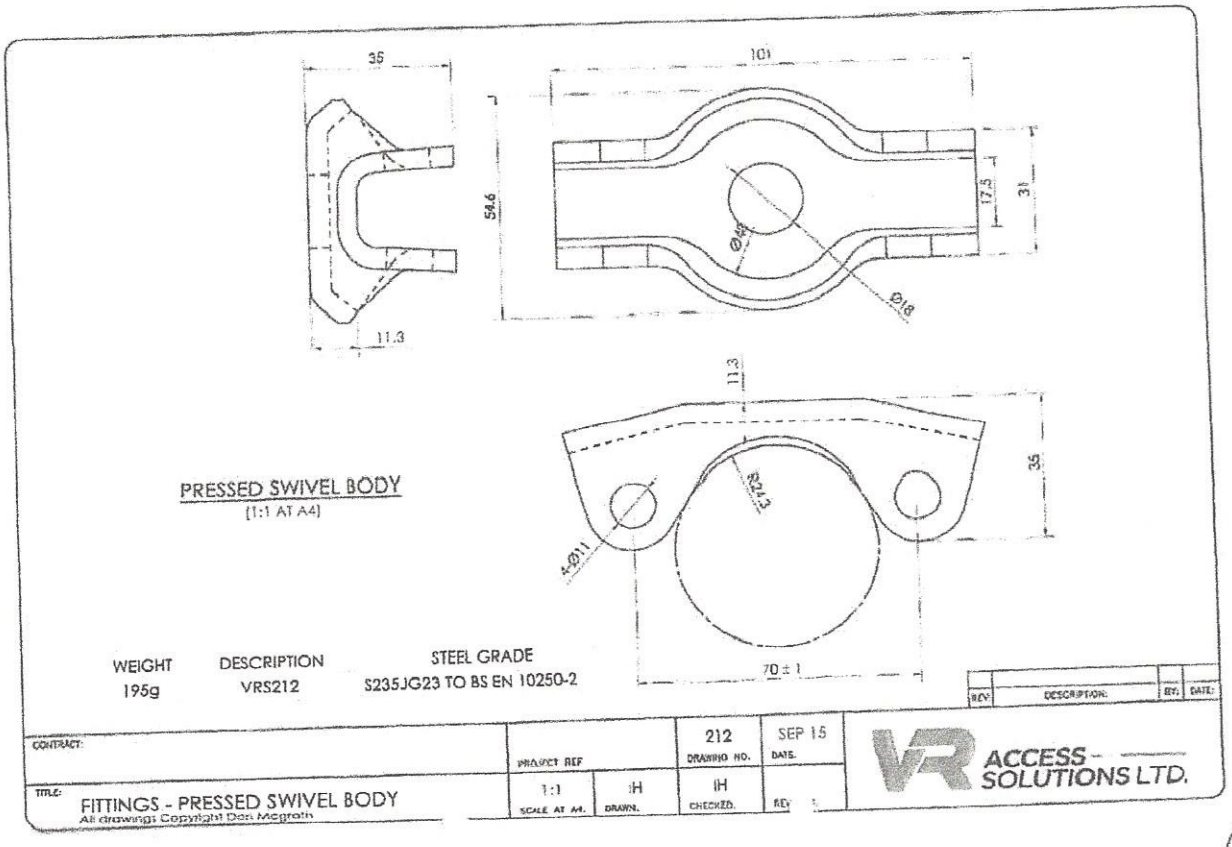
Drawings





End of Report