

**Report Number: 15100722**

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1 Swan Courtyard
Charles Edward Road
Birmingham
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Order Number: 10019
Date of Issue: 16/11/2015
Test Date: 09/11/2015
to 13/11/2015



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
L Mangham
Operations Manager

Where appropriate, the results reported herein provide traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. Any opinions or interpretations given herein fall outside the scope of our schedule of accredited testing. If, upon reproduction, only part of this report is copied, Element will not bear any responsibility for content, purport and conclusions of that reproduction. Original reports issued by Element, either in electronic or physical form have legal value only when furnished with an authorised signature. Any subsequent digital or physical copies of this report have no legal value unless authorised by Element. The Terms & Conditions of Element, available upon request, are applicable on all services provided by Element. NB: Results given in this report relate only to the items received and tested.



Slipping Force Tests, tested in accordance with Clause 7.2.1

Tested using 3.2mm steel tube (RT _{S1})		
Test Number	$\Delta_1 \leq 7\text{mm}$ (kN)	$1 \leq \Delta_2 \leq 2\text{mm}$ (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	$\Delta_1 \leq 7\text{mm}$	$1 \leq \Delta_2 \leq 2\text{mm}$
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

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

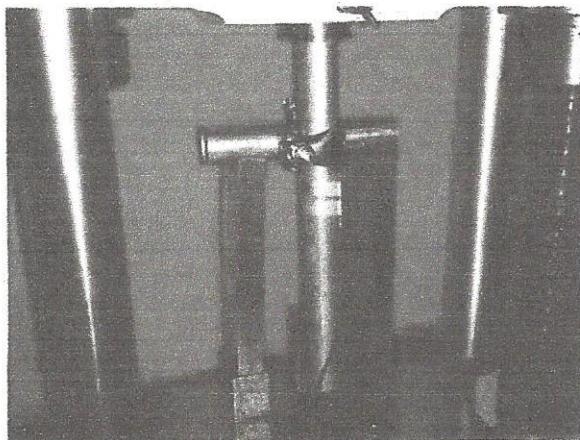
Requirements from EN 74-1 table 8:

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

Photograph of Setup for Slipping Force



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



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.

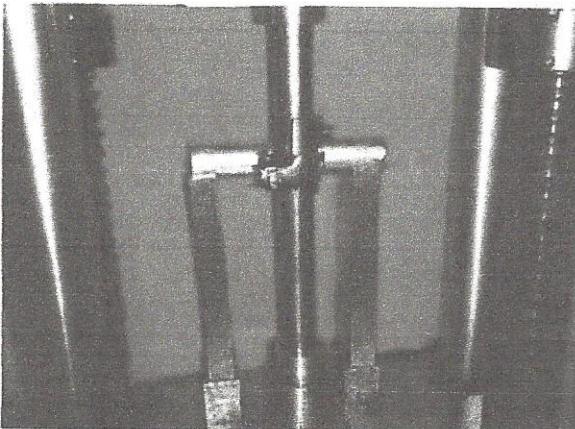
Requirements from EN 74-1 table 8:-

$P_{f,ult} = 20.0\text{kN}$ 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

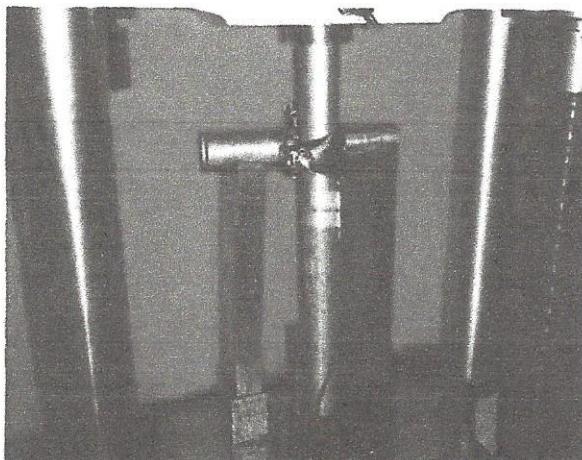
The figures must be equal to or greater than the requirements stated below.

Requirements from EN 74-1 table 8:-

$P_{ind} = \leq 1.5\text{mm}$

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.



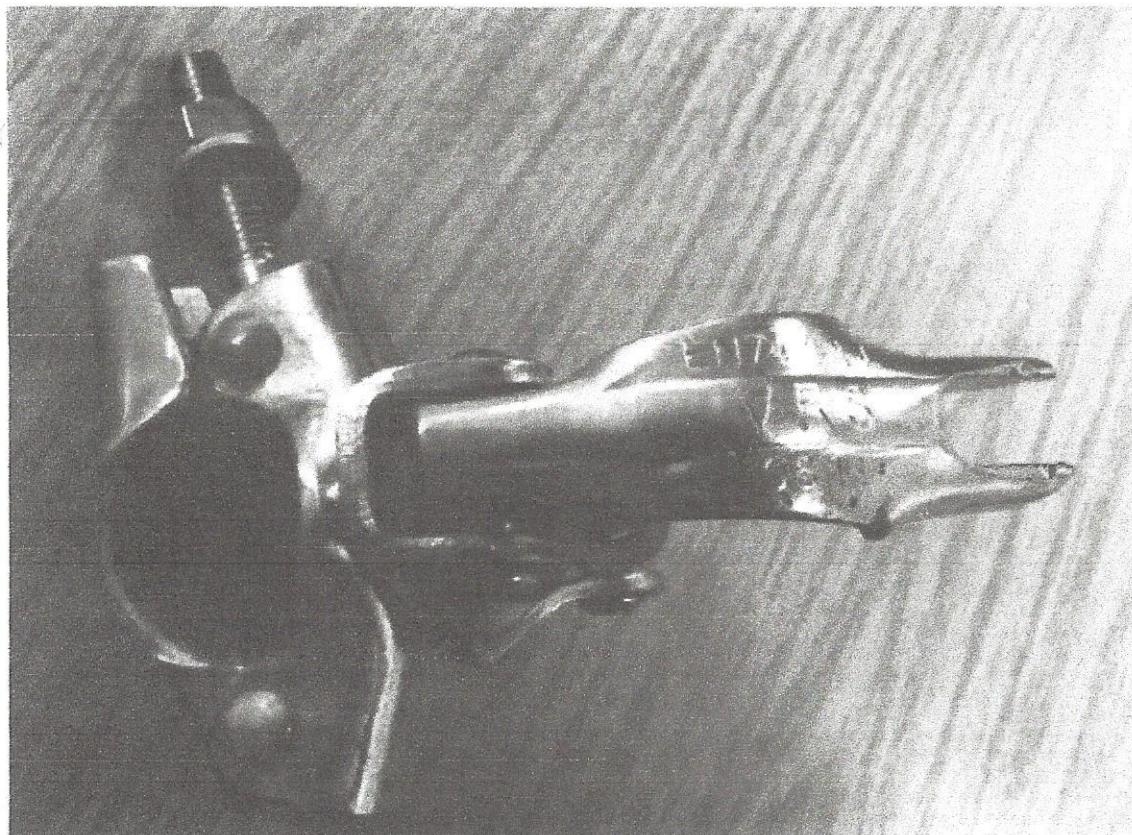
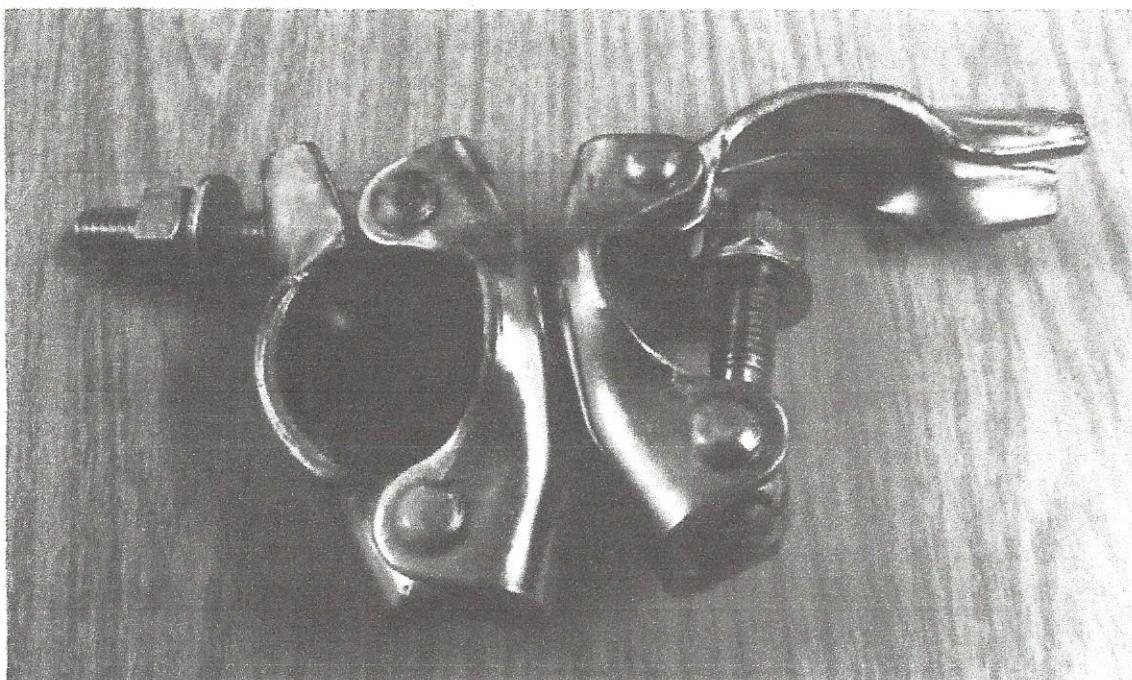
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Photograph of coupler under test

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1

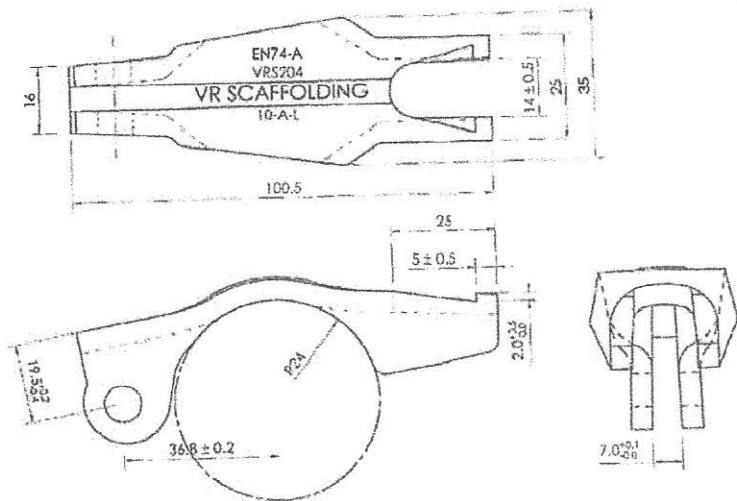


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Drawings

Element Materials Technology
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PRESSED SWIVEL
FITTING COMPONENT
10-A-L
(1:1 AT A4)

WEIGHT
135g

DESCRIPTION
VRS204

STEEL GRADE
SR220GD+Z TO BS EN 10326 (4.8mm THK)

REV	DESCRIPTION	BY	DATE

CONTRACT	PROJECT REF	204	SEP 15	
TITLE	SCALE AT A4	DRAWING NO.	DATE	
FITTINGS - PRESSED SWIVEL	1:1	IH	IH	REV 1
All drawings Copyright Don McGrath	DRAWN	CHECKED	REV	

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PRESSED SWIVEL BODY
(1:1 AT A4)

WEIGHT
195g

DESCRIPTION
VRS212

STEEL GRADE
S235JG23 TO BS EN 10250-2

CONTRACT	PROJECT REF	212	SEP 15	
TITLE	SCALE AT A4	DRAWING NO.	DATE	
FITTINGS - PRESSED SWIVEL BODY	1:1	IH	IH	REV 1
All drawings Copyright Don McGrath	DRAWN	CHECKED	REV	

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End of Report

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