

# CERTIFICATE OF TEST



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MATERIALS TESTING  
DEPARTMENT

This report details the results of tests carried out on prototype swivel couplers 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.

Submitted for test by :- Presco Scaffolding Limited  
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## Description and Marks on couplings.

A galvanised drop forged steel swivel coupling, manufactured to drawing part No. 1008 (Appendix 2).

Marks on covers :- MADE IN ENGLAND

## Basis of Tests.

The couplings have been tested in accordance with the requirements of BS 1139 : Section 2.1 : 1991 - EN 74 : 1988.

For the following :-  
Design Requirements  
Behaviour under load.  
Determination of the ultimate load.

The couplers submitted for test were selected at random from a batch of at least 500.

## RESULTS

### Design Requirements

1. The design of the coupling complied with the requirements of the relevant items in clause 5 of the standard.
2. The measured dimensions of the couplings satisfied the requirements of the standard.
3. The average measured mass of each couplings was :- 1.15kg

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Certified .....

Authorised Signatory

D R TAME DIRECTOR

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## Testing of behaviour under load of swivel couplers

Tightening torque on screw - 60 N.m

### Assessment of results using the variables method

Formulae  $z(\Delta_1) = \bar{x}(\Delta_1) - k_s \cdot s(\Delta_1)$  and  
 $z(\Delta_2) = \bar{x}(\Delta_2) - k_s \cdot s(\Delta_2)$

Where  $z(\Delta_1)$  = test value of series of measurements of  $P_{\max}(\Delta_1)$   
 $z(\Delta_2)$  = test value of series of measurements of  $P_{\max}(\Delta_2)$   
 $\bar{x}(\Delta_1)$  = mean load in kN for series of measurements of  $P_{\max}(\Delta_1)$   
 $\bar{x}(\Delta_2)$  = mean load in kN for series of measurements of  $P_{\max}(\Delta_2)$   
 $k_s = 1.65$  for a sample size of 50  
 $s(\Delta_1)$  = estimate of the standard deviation from a series of measurements  
for  $P_{\max}(\Delta_1)$   
 $s(\Delta_2)$  = estimate of the standard deviation from a series of measurements  
for  $P_{\max}(\Delta_2)$

From test results :-  $\bar{x}(\Delta_1) = 10.13$  kN  
 $\bar{x}(\Delta_2) = 16.69$  kN  
 $s(\Delta_1) = 2.32$  kN  
 $s(\Delta_2) = 2.42$  kN

$z(\Delta_1) = \underline{6.30}$  kN and  $z(\Delta_2) = \underline{12.70}$  kN

Acceptance criteria :-

If  $z(\Delta_1) \geq L(\Delta_1)$  and  $z(\Delta_2) \geq L(\Delta_2)$ , the prototype is accepted.

If  $z(\Delta_1) < L(\Delta_1)$  and  $z(\Delta_2) < L(\Delta_2)$ , the prototype is rejected.

Requirements from BS 1139 - EN 74 table 1, columns 5 and 6 for couplers :-

Class A

$L(\Delta_1) = 6$  kN

$L(\Delta_2) = 8.5$  kN

***From the results, the prototype is accepted for Class A for behaviour under load***

Measured values and five load-displacement curves are detailed in Appendix 1.

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## Determination of the ultimate load for swivel couplers

Results of tests :-

| Test Number | Maximum Load kN |
|-------------|-----------------|
| 1           | 31.38           |
| 2           | 21.86           |
| 3           | 27.94           |
| 4           | 18.58           |
| 5           | 29.82           |
| 6           | 19.76           |
| 7           | 17.80           |
| 8           | 31.22           |
| 9           | 34.02           |
| 10          | 19.32           |

Acceptance criteria for minimum bearing load (L)

Class A = 17.0 kN

*From the results, the prototype is accepted for Class A for ultimate bearing load.*