PG8:24

Purchasing Guidelines for Ancillary Scaffolding Components

NASC
National Access & Scaffolding Confederation

1. INTRODUCTION

This guide considers ancillary scaffolding components that are widely used in the UK but are not specifically covered by other NASC guidance.

Overview

It is recommended that all components used on scaffolds that could conceivably be expected to carry load are suitably tested and/or calculations carried out to ensure that they are suitable for their intended use. Although some scaffolding components are referred to as “non-load bearing” most, if not all, will be required to support some sort of load, even if this is predominantly wind load (e.g. board clamps or roofing couplers).

This guide aims to provide advice to engineers, buyers and component manufacturers regarding the recommended safe working loads of components and testing requirements, where applicable. The specified data can then be used by scaffold design engineers and NASC contracting members to better ensure that all components incorporated in scaffolding structures are fit for purpose.

Materials

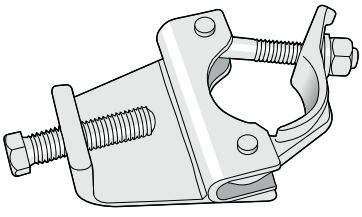
Where components are designed to connect to scaffold tubes, the tube should be TG20 compliant (i.e. BS 1139-1-1:1990, BS EN 39 Type 4 or BS EN 10210-1:2006) and where strength or stiffness is required, the components shall be made from materials specified in BS EN 12811-2:2004 or from steels with equivalent mechanical and chemical properties.

Where castings are used, they shall conform to BS EN 12811-2:2004 section 5.

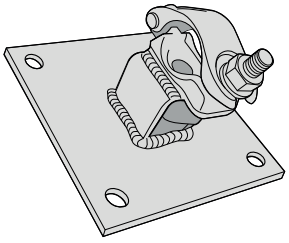
Elements of parts manufactured from ferrous metals shall be protected against corrosion as a minimum by application of zinc coating C2 or C3 according to BS EN 12811-2:2004 section 8.1.

All other materials should be selected to suit their intended use and where appropriate, in accordance with applicable British and European Standards.

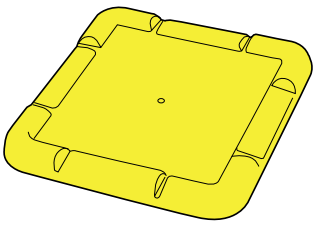
Components



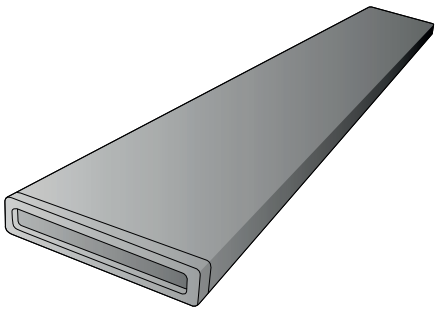
1. Girder Coupler (Flange Clamp)



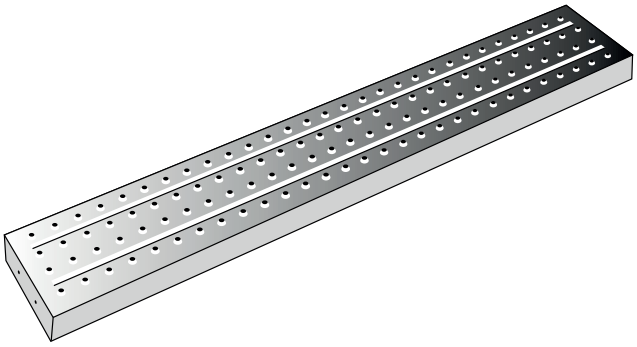
2. Shear Plate



3. Plastic Sole Plate

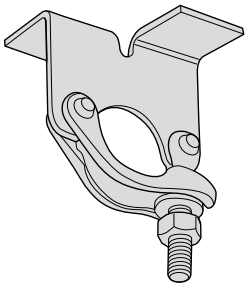


4. Composite (Plastic) Scaffold Board

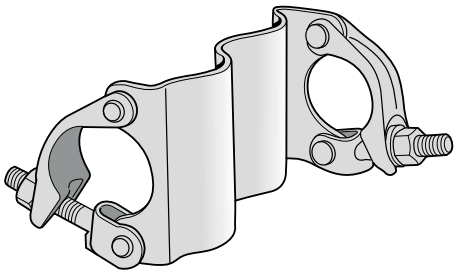


5. Steel Scaffold Board

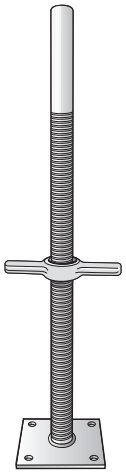
6. Aluminium Scaffold Board



7. Board Retaining Clip/Clamp



8. Roofing Coupler (For Corrugated Metal Sheeting)



9. Adjustable Base Jack

Component	Test Data/SWLs	Notes
1. Girder Couplers, Flange Clamps	SWL in tension ≥ 15.0kN (when used in pairs) (Pair of couplers tested to 30.0 kN which gives FOS of 2.0) SWL along tube ≥ 6.25 kN (when used in pairs) SWL along flange ≥ 6.25 kN (when used in pairs)	Couplers to be certified to AS/NZS 1576.2:2016
2. Shear Plates, Shear Ties	Maximum allowable tension load for weld/coupler (i.e. Perpendicular to wall) ≥ 8kN Maximum allowable shear load for weld/coupler (i.e. Parallel to wall) ≥ 8kN	Note – the safe working load of a shear plate in service is limited by the load bearing capacity of the substrate and the fixings used
3. Plastic Sole Plates	Compressive strength supported on flat base ≥ 30.0 kN Area over which load is to be applied is via BS EN 74-3:2007 150x150 steel base plate as advised by manufacturer (m^2)	Please note that these components are not a substitute for sole boards and their use should be limited as specified in TG20 section 5.1
4. Composite (Plastic) Scaffold Boards	Nominal dimensions – 225mm x 38-45mm Allowable Bending Moment (working moment of resistance) ≥ 468 Nm Target span ≥ 1.2m)	All boards shall have a slip resistant 'working' surface. Fire retardant boards to be suitably marked/coloured to make them readily identifiable. Boards shall be legibly marked to indicate maximum target span. Weight must not exceed 25kg/m2
5. Steel Scaffold Boards	Nominal dimensions – 225mm x 38mm Minimum gauge of steel plate = 1.5mm Allowable Bending Moment (working moment of resistance) ≥ 468 Nm Target span ≥ 1.2m Finish – Galvanised	In conformance with BS EN 12811-1:2003. All boards shall have a slip resistant 'working' surface. Boards shall be legibly marked to indicate maximum target span. Weight must not exceed 25kg/m^2
6. Aluminium Scaffold Boards	Nominal dimensions – 225mm x 38mm Minimum gauge of steel plate = 1.5mm Allowable Bending Moment (working moment of resistance) ≥ 468 Nm Target span ≥ 1.2m	In conformance with BS EN 12811-1:2003. All boards shall have a slip resistant 'working' surface. Boards shall be legibly marked to indicate maximum target span. Weight must not exceed 25kg/m^2
7. Board Retaining Clips/Clamps	Tensile Strength (board uplift) ≥ 0.50 kN Slip resistance of coupler along tube ≥ 0.63 kN	Data sheet or clamps should indicate the thickness, or range of thickness of boards for which they are designed
8. Roofing couplers (for corrugated metal sheeting)	Tensile Strength (corrugated sheet uplift) ≥ 1.75 kN Slip resistance of sheet through coupler ≥ 0.15 kN Slip resistance of coupler along tube ≥ 0.63 kN	Data sheet should indicate thickness of sheeting and pitch of corrugations for which couplers are designed as well as installation requirements

Component	Test Data/SWLs	Notes
9. Adjustable Base Jacks	Nominal Dimensions:- Minimum baseplate area = 225cm^2. Minimum width = 120mm. A data sheet or a certificate of compliance should be obtained from the manufacturer or supplier to verify the baseplate's safe working load (SWL). Note – this will vary due to the amount of the thread extension. Base jacks for use with system scaffolding must be compliant with BS EN 12811-1-2003 and have a minimum factor of safety (FOS) of 1.65. For other uses, base jacks may not be certified to this standard and the FOS may vary. This information should be obtained from the manufacturer or supplier prior to purchase and should be 1.65 or greater.	Jacks may have hollow or solid shafts. Jacks may have trapezoidal or round threads. Threads must be 'crimped' to ensure that the boss remains captive.

Note

For minimum structural properties of prefabricated steel ladder beams, please refer to TG20 Operational Guide, section 4.4.

For minimum structural properties of prefabricated steel unit beams, please refer to TG20 Operational Guide, section 4.4.

For prefabricated aluminium beams, please refer to PG5 'Purchasing Guidelines for Aluminium Beams', where the following details are specified:

- Test Data
- Material certification
- Marking requirements
- User Guide/Data Sheet

Recommended Information to be Obtained by the Purchaser/User

For all the components/accessories listed above, a user guide or data sheet must be supplied with the product, which should detail;

- SWLs (in each direction/position, where applicable).
- Intended use/assembly instructions.
- Guidance on the use and limitations of the product within a scaffold structure, referencing typical uses, TG20 applications where applicable and situations where it should not/must not be used.
- Photos, diagrams or 3D model shots of the item(s) should be included on the datasheet. (This is to alert buyers and users that in some cases component designs may, from time to time, change but the test data from a previous design is still being used).
- Copies of test certificates, where applicable.
- Any further information considered necessary to ensure the safe use of the component or product.

Test Methods – Couplers

From TG20 Design Guide 5.9.1

'If it is intended to use proprietary couplers outside the scope of the relevant standards their structural parameters should be verified by using one of the following procedures:

- In conformance with BS EN 12811-3 using the statistical method of evaluation given therein. Safe working values of forces and moments may then be obtained by dividing the nominal characteristic strength by 1.65.
- Taking the lowest strength result from 5 samples and dividing this by 2.0 to obtain a safe working value.

References, Further Reading and Guidance

AS/NZS 1576.2:2016 Scaffolding – Part 2: Couplers and accessories.

BS EN 12811-1:2003 Temporary works equipment – Part 1: Scaffolds – Performance requirements and general design.

BS EN 12811-2:2004 Temporary works equipment – Part 2: Information on Materials.

BS EN 12811-3:2002 Temporary works equipment – Part 3: Load testing.

TG20 Operational Guide. A comprehensive guide to good practice for tube and fitting scaffolding.

TG20 Design Guide. Technical guidance on the use of BS EN 12811-1.

PG1 Purchasing Guidelines for EN 39:2001 Tube (4.0mm).

PG2 Purchasing Guidelines for EN10219-1:2006 High Tensile Tube (3.2mm).

PG3 Purchasing Guidelines for BS 2482:2009 Timber Boards.

PG4 Purchasing Guidelines for EN74-1 Couplers.

PG5 Purchasing Guidelines for Aluminium Beams.

PG6 Purchasing Guidelines for EN 12810/11 System Scaffolding.

Note

NASC Guidance is updated every 5 years. Always check the website for the latest issue.

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