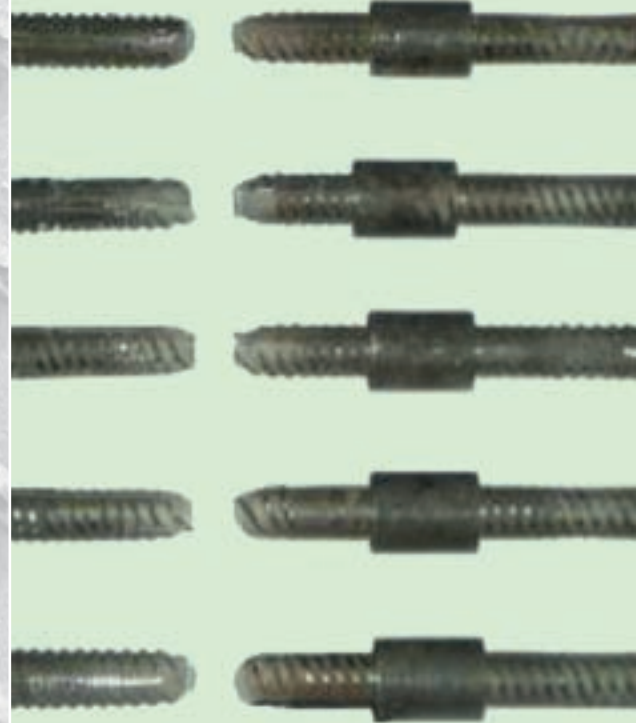


CARES Technical Approval Report TA1-B 5033



G Tech Splicing Pvt. Ltd.
Spliceman Couplers

Assessment of the
Spliceman Coupler
Product and
Quality System
for Production



Product

Spliceman Couplers
for reinforcing steel.

Produced by:

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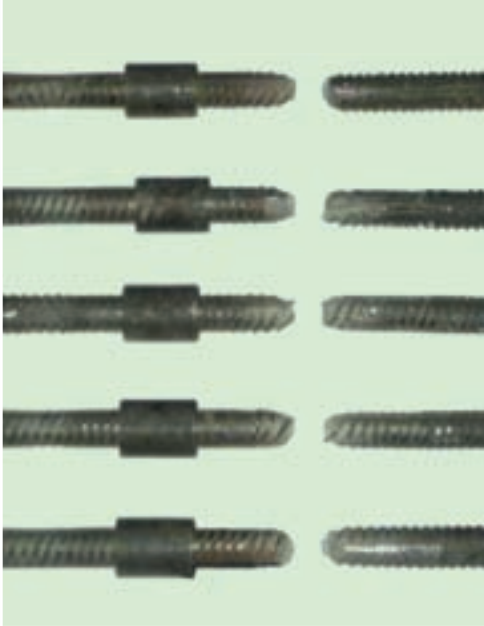
1 Product Summary

Spliceman Couplers in the size range 12mm – 40mm are for the mechanical connection of deformed high-yield carbon steel bars for the reinforcement of concrete complying with the requirements of BS4449 Grade B500B & B500C.

1.1 Scope of Application

Spliceman couplers in the size range 12mm – 40mm have been evaluated for use as follows:

- a) 12mm to 40mm Spliceman Standard Couplers for static BS8110 applications in tension only in accordance with CARES Appendix TA1-B.
- b) 12mm to 40mm Spliceman Position Couplers for static BS8110 applications in tension only in accordance with CARES Appendix TA1-B.
- c) 12mm to 40mm Spliceman Reducer Couplers for static BS8110 applications in tension only in accordance with CARES Appendix TA1-B.



1.2 Design Considerations

BS 8110 Clause 3.12.8.9 *Laps and Joints* states "Connections transferring stress may be lapped, welded or joined with mechanical devices. They should be placed, if possible, away from points of high stress and should preferably be staggered. However, BS 8110 Clause 3.12.8.16.2 *Bars in tension* states "The only acceptable form of full strength butt joint for a bar in tension comprises a mechanical coupler" satisfying specified slip and tensile strength criteria.

1.3 Conclusion

It is the opinion of CARES that Spliceman Couplers in the size range 12mm – 40mm are satisfactory for use within the limits stated in paragraph 1.1 when applied and used in accordance with the manufacturer's instructions and the requirements of this certificate.

A handwritten signature in blue ink, appearing to read 'B. Bowsher'.

B. Bowsher
Executive Director

December 2010



2 Technical Specification

2.1 General

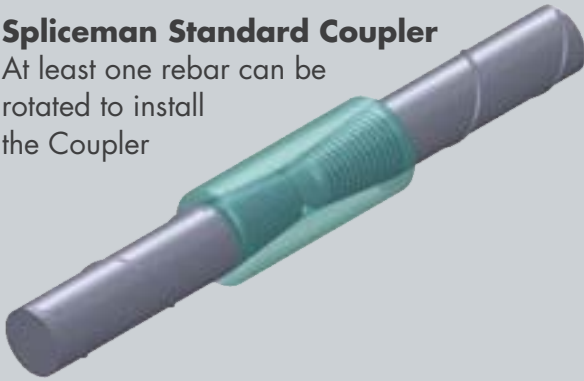
The function of Spliceman mechanical couplers is to positively connect deformed steel reinforcing bars complying with BS 4449 Grade B500B & B500C and thereby create structural continuity in the reinforcing system.

2.2 Spliceman Couplers

Spliceman Couplers are self locking taper threaded couplers used to mechanically splice rebars. These are also known as Type I couplers.

Spliceman Standard Coupler

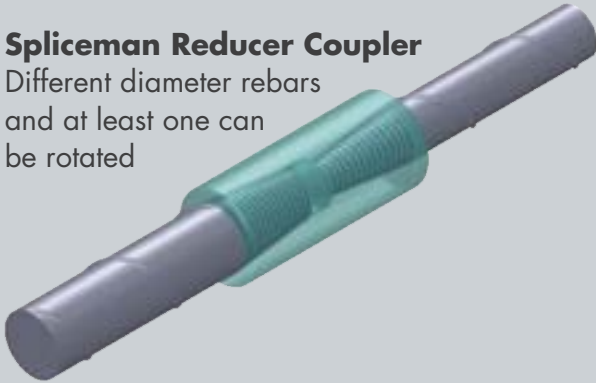
At least one rebar can be rotated to install the Coupler



Part Number	Rebar Diameter	Length
ST12	12	50
ST16	16	55
ST20	20	60
ST25	25	80
ST32	32	100
ST40	40	115

Spliceman Reducer Coupler

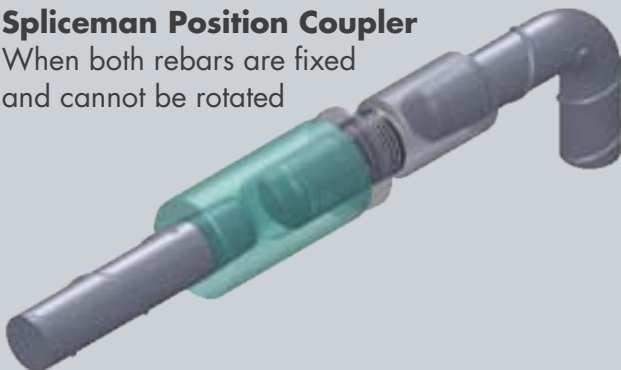
Different diameter rebars and at least one can be rotated



Part Number	Rebar Diameter	Length
RT16/12	16 - 12	50
RT20/16	20 - 16	55
RT25/20	25 - 20	70
RT32/25	32 - 25	90
RT40/32	40 - 32	108

Spliceman Position Coupler

When both rebars are fixed and cannot be rotated



Part Number	Rebar Diameter	Length
PT12	12	102
PT16	16	122
PT20	20	130
PT25	25	175
PT32	32	230
PT40	40	270

3 Product Performance and Characteristics

3.1 Material Properties

Full destructive tests have been carried out to demonstrate compliance with the performance requirements defined in CARES Appendix TA1-B including the performance requirements of BS8110 when used with reinforcing bars to BS 4449 Grade B500B & B500C:

CARES APPENDIX TA1-B tensile strength requirements

- Permanent deformation is less than 0.1 mm after load in tension to $0.6f_y$ with both grade B500B & B500C reinforcement.
- Minimum tensile strength of 540MPa with grade B500B reinforcement and 575MPa with grade B500C reinforcement.

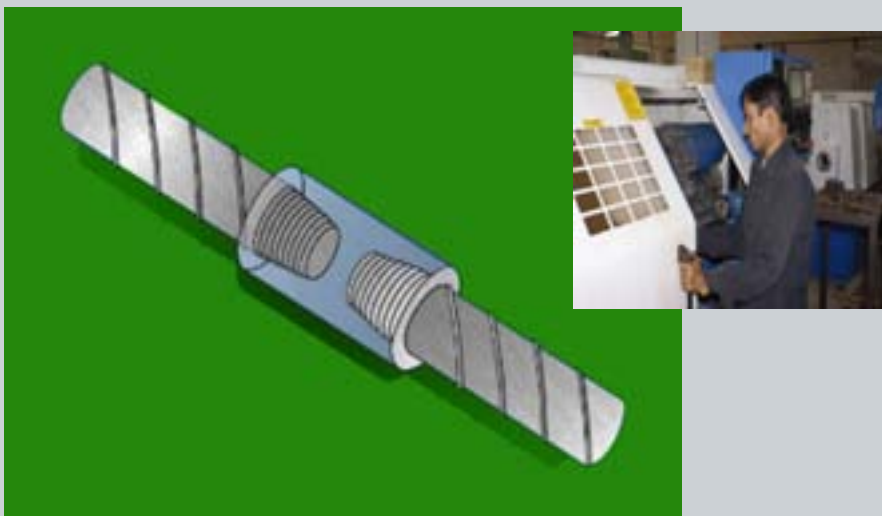
4 Installation

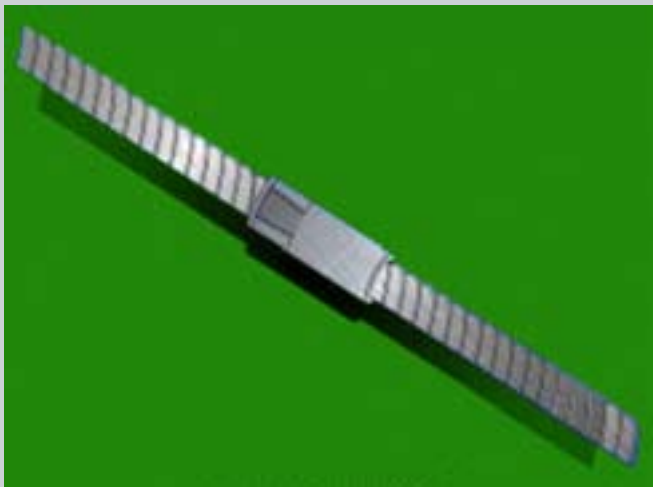
Rebar Preparation

Reinforcement steel bars are cut to the desired length and shifted on the work stations where the rebar is threaded.

The threading of re-bars is performed by trained threading operators. After the bars are threaded, protective caps are installed on the threaded ends to avoid damage to the threads. Bars can then be moved to the bending yard. All the threaded bars should be stacked properly size wise and diameter wise.

For detailed installation instructions please refer to document Gtech/MS/UK001





Coupler gauge

Coupler Installation (tightening and fixing)

- 1** Ensure couplers used are of correct size. Always keep inner threads of couplers clean and free from grease.
- 2** Screw couplers onto threaded bar by hand. Complete tightening by using pipe wrench to achieve full tightening of joints. The minimum Torque value is given on Table 1.
- 3** Remove plastic screw cap from the other end of coupler and lower self-aligning bar into coupler and tighten the bar as per step 2.

For detailed installation instructions please refer to document Gtech/MS/UK001.

Size (mm)	12	16	20	25	32	40
Torque (Kg.-cm)	900	900	900	1,800	1,800	1,800

Table 1 - Required Minimum Torque for Coupler Joint

5 Safety Considerations

Pre-work briefing is to be given to all workers engaged in the factory. All persons engaged in cutting and threading work are to be provided safety protective aids and they should wear the same at all times inside the factory and while carrying out the threading operations. Only authorized trained operators should be allowed to use and work-on the machines. Due Care must be taken while handling and installing the couplers. Couplers are packed in heavy boxes approximately 24 KG in weight..

6 Product Testing and Evaluation

Spliceman Couplers have been tested to satisfy the requirement of CARES Appendix TA1-B for couplers with reinforcing bars to BS4449 both for Grade B500B & B500C. The testing comprised the following elements:

- Tensile Strength
- Permanent Deformation

The products are subject to a programme of periodic testing to ensure that they remain within the performance limits of this technical approval.

7 Quality Assurance

Spliceman Couplers are produced under an ISO9001 quality management system certified by CARES. The quality management system scheme monitors the production of the couplers and ensures that materials and geometry remain within the limits of this technical approval.



8 Building Regulations

8.1 The Building Regulations (England and Wales)

Structure, Approved Document A

Spliceman Couplers, when used in BS8110 based designs using the data contained within this technical approval, satisfy the relevant requirements of The Building Regulations (England and Wales), Approved Document A.

Materials and Workmanship, Approved Document, to support regulation 7

This technical approval gives assurance that the Spliceman Couplers comply with the material requirements of BS8110.

8.2 The Building Regulations (Northern Ireland)

Part B, Materials and Workmanship

This technical approval gives assurance that Spliceman Couplers comply with the material requirements of BS8110 by virtue of regulation B3, *Deemed to satisfy provisions regarding the fitness of materials and workmanship*.

8.3 The Building Standards (Scotland) Regulations

Part B, Fitness of Materials

This technical approval gives assurance that Spliceman Couplers comply with the material requirements of BS8110 by virtue of *Clause B2.1*.

Part C, Structure

Spliceman Couplers, when used in BS8110 based designs using the data contained within this technical approval, satisfy the requirements of *The Building Standards (Scotland) Regulations 1990, Part C, C2.1 clause b. construction,ii*.

9 References

- BS 4449: 2005: Steel for the reinforcement of concrete - Weldable reinforcing steel - Bar, coil and decoiled product - Specification.
- BS8110: Part 1: 1997 (Revised 2005): Structural Use of Concrete, Code of Practice for Design and Construction.
- BS EN ISO 9001: 2008: Quality management systems - Requirements.
- CARES Appendix TA1-B; Quality and Operations Schedule for the Technical Approval of Couplers for Reinforcing Steel For BS8110 Applications for Static Tension or Static Compression.



10 Conditions

1. The quality of the materials and method of manufacture have been examined by CARES and found to be satisfactory. This Technical Approval will remain valid provided that:
 - a. The product design and specification are unchanged.
 - b) The materials and method of manufacture are unchanged.
 - c) The manufacturer complies with CARES regulations for Technical Approvals.
 - d) The manufacturer holds a valid CARES Certificate of Product Assessment.
 - e) The product is installed and used as described in this report.
2. CARES make no representation as to the presence or absence of patent rights subsisting in the product and/or the legal right of G. Tech to market the product.
3. Any references to standards, codes or legislation are those which are in force at the date of this certificate.
4. Any recommendations relating to the safe use of this product are the minimum standards required when the product is used. These requirements do not purport to satisfy the requirements of the Health and Safety at Work etc Act 1974 or any other relevant safety legislation.
5. CARES does not accept any responsibility for any loss or injury arising as a direct or indirect result of the use of this product.
6. This Technical Approval Report should be read in conjunction with CARES Certificate of Product Assessment No 5033. Confirmation that this technical approval is current can be obtained from UK CARES.



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