



**KOMO®**  
Product certificate  
**K21098/13**



Issued 2018-07-20 Replaces K21098/12  
Valid until Indefinite Dated 2014-09-16  
Pagina 1 van 4

**Mechanical Connections for Reinforcement Steel:  
Category 1, Ductility Class B  
Type PSA/PSE, PSAD, PSA/PSC, TSE, ALC en PSA rvs**

**Terwa B.V.**

**VERKLARING VAN KIWA**

This product certificate is issued on the basis of BRL " Mechanical Connections for Reinforcement Steel " issued on 2012-11-08 in accordance with the Kiwa Regulations for Product Certification.

The quality system and product characteristics associated with it are checked periodically.

On this basis, Kiwa declares that there is justifiable confidence that the delivered by the certificate holder on delivery meet:

- The technical specification laid down in this product certificate,
- The product requirements laid down in this product certificate and in the BRL provided it is provided with the KOMO® brand in a manner as indicated in this product certificate;

Luc Leroy  
Kiwa

The certificate is included in the summary on the website of KOMO: [www.komo.nl](http://www.komo.nl).  
Advice: consult [www.kiwa.nl](http://www.kiwa.nl) in order to ensure that this certificate is still valid

*Disclosure of the certificate is permitted.*

**Kiwa Nederland B.V.**  
Sir Winston Churchillaan 273  
Postbus 70  
2280 AB RIJSWIJK  
Tel. +31 (0)88 998 44 00  
Fax +31 (0)88 998 44 20  
[info@kiwa.nl](mailto:info@kiwa.nl)  
[www.kiwa.nl](http://www.kiwa.nl)

**Holder of Certificate**  
Terwa B.V.  
Kamerlingh Onneslaan 1-3  
3401 MZ IJSSELSTEIN  
Tel. +31 (0)30 699 13 29  
[info@terwa.nl](mailto:info@terwa.nl)  
[www.terwa.nl](http://www.terwa.nl)

**Production location**  
Cristian, Brasov Romania



Evaluated is:  
quality system  
product  
Periodic inspection

**TECHNICAL SPECIFICATION****Product specification****General**

Mechanical connections for reinforcement steel meet the requirements of section 2 of BRL 0504. Cutting and bending of the rebar ends and rebar anchors meet the requirements of BRL 0503 "Cutting, bending and tack welded (prefab) reinforcing steel structures". The reinforcement steel of these couplers in the grade B500B meet the requirements of BRL 0501 "Reinforcement Steel" and, therefore of table 1 "performance requirements" of NEN 6008.

Only complete mechanical rebar connections made from the rebar anchors and rebar ends mentioned under "additional information" are covered by this KOMO product certificate.

**Further specification****Scope**

The products are intended to make mechanical connections with KOMO-certified reinforcement steel, quality B500B according to NEN6008, and to be applied in predominantly statically loaded structures in accordance with NEN-EN 1992-1-1+C2: 2011/NB: 2011.

**Category 1**

For the mechanical connection, category 1, applies a fatigue strength (stress amplitude  $2\sigma_a$ ) of 60 MPa to  $2 \times 10^6$  load cycles, resulting from predominantly in the static loaded structure.

**Slip of the mechanical connection**

For the connection type PSAD, a maximum of 0.10 mm applies to the slip over the entire connection.

**Reinforcement steel diameter**

Product are manufactured of reinforcement steel grade B500B (hot rolled) with diameter:

Ø12, 14, 16, 20, 25, 32 en 40 mm	-	-	PSE
Ø12, 14, 16, 20, 25, 32 en 40 mm	-	-	PSA
Ø12, 14, 16, 20 mm.	-	-	PSA rvs
Ø12, 14, 16, 20, 25 en 32 mm.	-	-	TSE
Ø12, 14, 16, 20 en 25 mm.	-	-	PSAD
Ø10, 12, 14, 16, 20, 25, 28, 32 en 40 mm	-	-	ALC
Ø12, 14, 16, 20, 25, 32 en 40 mm	-	-	PSA with PSC

**Reinforcement steel Grade**

The reinforcement steel is supplied in the grade B500B. (hot rolled).

The reinforcement steel can be supplied in any required length.

The reinforcement steel can be supplied as straight and bent rods where the bending mandrel must meet the requirements of section 4.3.2 of BRL 0503 "Cutting, bending and tack welded (prefab) reinforcing steel structures".

**Production location**

Production takes place at Terwa, Romania.

**Markings**

The products are provided with a label on which at least the following information is specified clearly and indelibly:

- KOMO<sup>®</sup> logo;
- certificate number;
- name or logo supplier;
- coupler type;
- ductility class;
- category number.

**Marking on the product:**

The connecting piece is provided with the following brands:

- certificate holder code: TW
- thread size: M16
- code producer.

The total can look as follows: TW M48 EV.

For PSA rvs, the marking on the connecting piece is supplemented with: "SS2" or "SS4" (eg TW SS2 M16)

For anchor ends TSE: are on the end face of the reinforcing bar at the location of threading marked with "T".

For anchor ends PSA / PSC: on the head side. the thread marked with "TW".

For more details, see the documentation and processing instructions of the certificate holder.

**TIPS FOR THE USER**

Inspect the following upon delivery:

- That what has been agreed has been delivered;
- The mark and marking method are correct;
- The products do not exhibit any damage or defect as a result of transport or handling.

If you decide to reject the product(s) based on the above, contact:

- Terwa B.V.
- and, if required,
- Kiwa Nederland B.V.

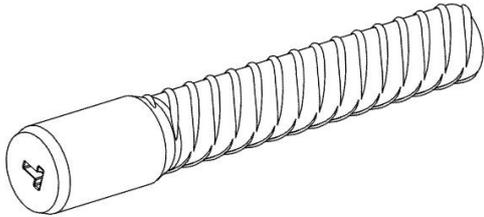
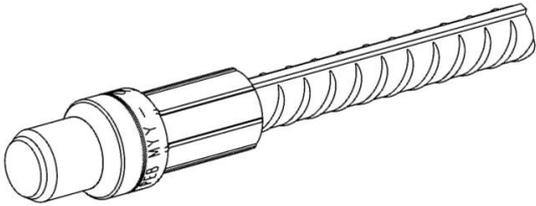
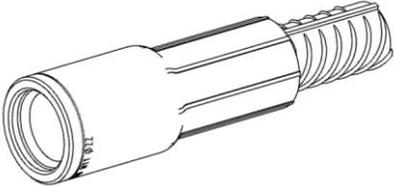
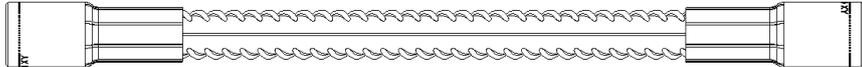
For the proper handling of the product, refer to the installation instructions of the manufacturer.

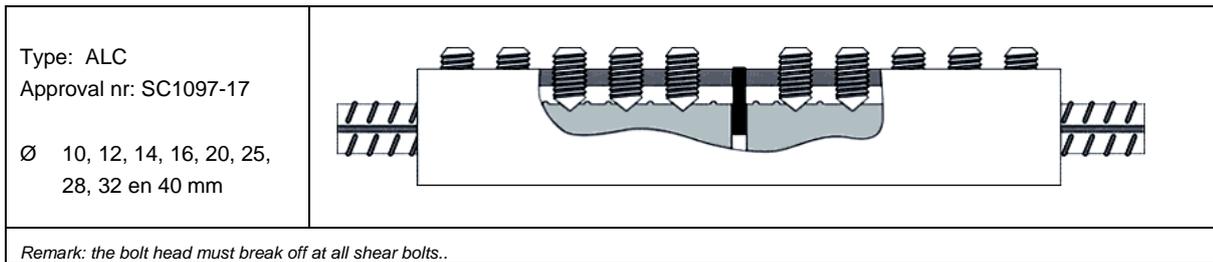
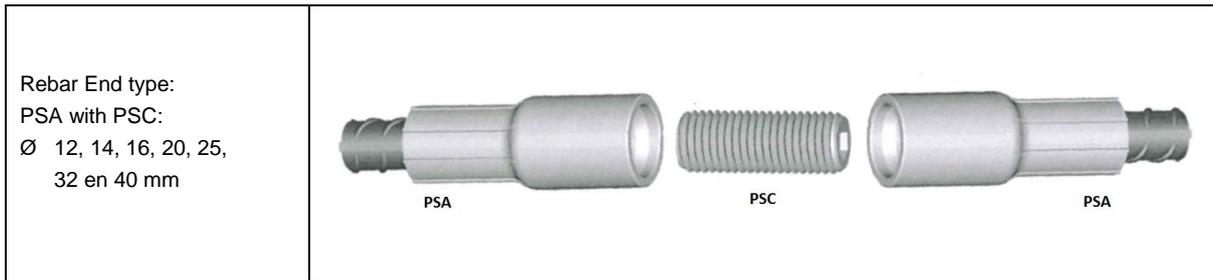
**LIST OF DOCUMENTS MENTIONED\***

NEN-EN 1992-1-1	Eurocode 2: Design of concrete structures – Part 1-1: General rules and rules for buildings
+C2+NB	+ National Annex
NEN 6008	Reinforcement Steel
BRL 0501	Reinforcement Steel
BRL 0503	“Cutting, bending and tack welded (prefab) reinforcing steel structures”

\* For the correct version of the specified standards please refer to the last change sheet with BRL 0504.

**ADDITIONAL INFORMATION**

Rebar End type: TSE  Ø 12, 14, 16, 20, 25 en 32 mm	
Rebar End type: PSE  Ø 12, 14, 16, 20, 25 32 en 40 mm	
Rebar Anchor type: PSA: Ø 12, 14, 16, 20, 25, 32 en 40 mm  PSA rvs: Ø 12, 14, 16, 20 mm	
Coupling piece type: PSAD  Ø 12, 14, 16, 20, 25 mm	



**Tightening torque**

	Ø12/M16	Ø14/M18	Ø16/M20	Ø20/M24	Ø25/M30	Ø32/M42	Ø40/M48
Tightening torque between Rebar End and Anchor	5 x Ø 60 [Nm]	5 x Ø 70 [Nm]	5 x Ø 80 [Nm]	5 x Ø 100 [Nm]	5 x Ø 125 [Nm]	5 x Ø 160 [Nm]	5 x Ø 200 [Nm]