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SINTEF

Authorised and notified according to Article 10 of the Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products

MEMBER OF EOTA

European Technical Approval ETA-08/0035

Trade name:	HRC 100 Series T-headed bars
Holder of approval:	Metalock Industrier AS Lierstranda 107 N-3400 Lier Norway
Generic type and use of construction product:	T-headed reinforcement steel bars
Valid from: to:	31.01.2008 31.01.2013
Manufacturing plant:	Metalock Industrier AS Lierstranda 107 N-3400 Lier Norway
This European Technical Approval contains:	7 pages including 1 Annex which forms an integral part of the document

I LEGAL BASIS AND GENERAL CONDITIONS

1 This European Technical Approval is issued by SINTEF Building and Infrastructure, in the following called SINTEF, in accordance with:

- Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products[1], modified by the Council Directive 93/68/EEC[2] and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council[3]
- Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex of Commision Decision 94/23/EC[4]
- Common Understanding of Assessment Procedure (CUAP) for ETA request no. 03.01/39

2 SINTEF is authorised to check whether the provisions of this European Technical Approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European Technical Approval and for their fitness for the intended use remains with the holder of the European Technical Approval.

3 This European Technical Approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1 of this European Technical Approval.

4 This European Technical Approval may be withdrawn by SINTEF in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.

5 Reproduction of this European Technical Approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of SINTEF. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European Technical Approval.

6 The European Technical Approval is issued by the approval body in its official language. This version corresponds fully to the version circulated in EOTA. Translations into other languages have to be designated as such.

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[1] Official Journal of the European Communities N° L40, 11.2.1989, p. 12
[2] Official Journal of the European Communities N° L 220, 30.08.1993, p. 1
[3] Official Journal of the European Union N° L 284, 31.10.2003, p. 1
[4] Official Journal of the European Communities N° L17, 20.1.1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product and intended use

1.1 Definition of the product

HRC 100 Series T-headed bars are steel bars for reinforcement of concrete structures. The bars have an anchoring plate (T-head) at one or both ends a steel head plate rigidly connected to the bar by friction-welding. See Annex 1. Nominal anchoring plate thickness is in the range of 12 mm to 25 mm. Nominal bar diameter is in the range of 16 mm to 32 mm. The reinforcement bar material is B500NC according to NS 3576-3. The head plate material is of steel grade S450J0 according to EN 10025-2:2004. The friction welding between the reinforcement bar and the head plate comply with EN ISO 15620.

1.2 Intended use

The main areas of application are anchoring of rebars in reinforced concrete structures. T-headed bars are used as an alternative to anchorage by bond or hook, particularly for large size bars where hooks are no option. They are used in congested areas for improved concrete pouring conditions. "Intended use" imply predominantly static loads only.

The provisions made in this European technical approval are based on an assumed working life of the HRC 100 SERIES T-headed bars of 100 years, provided that the conditions laid down in section 4 are met. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works. The assumed intended working life of the mechanical anchorages depends especially on the corrosion protection by the concrete cover.

2 Characteristics of the product and methods of verification

2.1 Mechanical resistance and stability (ER1)

The characteristic material values, dimensions and tolerances of the components not indicated in Annex 1 shall correspond to the respective values laid down in the technical documentation of this European Technical Approval[5]. The strength of the connections exceeds that of the bar, allowing the reinforcement bar to develop its full ductility and ultimate strength.
The assessment of the fitness of the HRC 100 series T-headed bars for the intended use in the relation to the requirements for mechanical resistance and stability in the sense of Essential Requirement 1 has been made in accordance with the test procedure described in the CUAP for ETA request no. 03.01/39.

[5] The technical documentation of the European Technical Approval is deposited at the Norwegian Building Research Institute and, as far as relevant for the tasks of the notified body involved in the attestation of conformity procedure, is handed over to the notified body

2.2 Safety in case of fire (ER2)

2.2.1 Reaction to fire

The HRC 100 SERIES T-headed bars satisfy Class A1 of EN 13501-1 in accordance with the provisions of EC Decision 96/603/EC (as amended) without the need for testing on the basis of the listing in that Decision.

2.2.2 Resistance to fire

HRC 100 SERIES T-headed bars are part of the reinforcement of a concrete structure. To ensure the resistance to fire, the structure has to be designed and constructed according to the provisions of an appropriate standard for structural fire design.

3 Evaluation and attestation of conformity and CE marking

3.1 System of attestation of conformity

According to Decision 97/597/EC of 02.09.1997 the European Commission has decided that System 1+ of attestation of conformity applies. This system of attestation of conformity is defined as follows:

Certification of the conformity of the product by a notified certification body on the basis of:

(a) Tasks for the manufacturer:
   (1) factory production control;
   (2) further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan;

(b) Tasks for the notified body:
   (3) initial type–testing of the product;
   (4) initial inspection of factory and of factory production control;
   (5) continuous surveillance, assessment and approval of factory production control;
   (6) audit–testing of samples taken at the factory.

3.2 Responsiblities

3.2.1 Tasks of the manufacturer

3.2.1.1 Factory production control

The manufacturer shall exercise permanent internal control of the production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall insure that the product is in conformity with this European technical approval.

The manufacturer may only use constituent materials stated in the technical documentation of this European technical approval.

The factory production control shall be in accordance with the Control Plan for HRC 100 Standard T-Headed Bars relating to the this European technical approval. The Control Plan is part of the technical documentation of this European technical approval, and is laid down in

the context of the factory production control system operated by the manufacturer. The Control Plan is deposited at SINTEF.[6]

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the Control Plan.

3.2.1.2 Other tasks of manufacturer

The manufacturer shall, on the basis of a contract, involve a body (bodies) which is (are) notified for the tasks referred to in section 3.1 in the field of reinforcement steel products in order to undertake the actions laid down in section 3.2.2. For this purpose, the Control Plan referred to in sections 3.2.1.1 and 3.2.2 shall be handed over by the manufacturer to the notified body or bodies involved.

3.2.2 Tasks of the notified body

The notified body (bodies) shall perform the

- initial type-testing of the product
- initial inspection of factory and of factory production control
- continuous surveillance, assessment and approval of factory production control
- audit-testing of samples taken at the factory

in accordance with the provisions laid down in the Control Plan relating to this European technical approval ETA.

The notified body (bodies) shall retain the essential points of its (their) actions referred to above and state the results obtained and conclusions drawn in written reports.

The notified certification body involved by the manufacturer shall issue an EC certificate of conformity of the product stating the conformity with the provisions of this European technical approval.

In cases where the provisions of the European technical approval and its Control Plan are no longer fulfilled the certification body shall withdraw the certificate of conformity and inform SINTEF without delay.

3.3 CE marking

The CE marking shall be affixed to the packaging or accompanying commercial documents. The letters „CE" shall be followed by the identification number of the notified certification body and be accompanied by the following additional information:

- the name and address of the producer (legal entity responsible for the manufacture),
- the last two digits of the year in which the CE marking was affixed,
- the number of the EC certificate of conformity for the product
- the number of the European technical approval,
- identification of the product

[6] The "control plan" is a confidential part of the European technical approval and only handed over to the notified body or bodies involved in the procedure of attestation of conformity. See section 3.2.2.

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacturing

The European technical approval is issued for HRC 100 SERIES T-headed bars on the basis of agreed data/information deposited with SINTEF, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to SINTEF before the changes are introduced. SINTEF will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA, and if so whether further assessment or alterations to the ETA is necessary.

4.2 Installation

The HRC 100 SERIES T-headed bars shall be installed in accordance with detailed construction drawings worked out for the individual works, based on the structural design for the works according to applicable design standards. Necessary bursting and spalling reinforcement shall be according to EN-1992-1-1 or the relevant national standard.

5 Indications to the manufacturer and supplier

5.1 Packaging, transport and storage

HRC 100 SERIES T-headed bars must be transported and stored in such a way that the material is protected against salt due to the risk of corrosion.

On behalf of
SINTEF Building and Infrastructure
Oslo, 31.01.2007

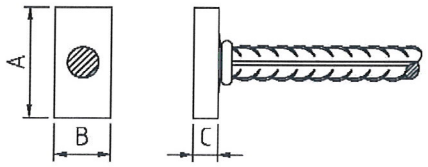
Kim R. Lisø
Research Director

Trond Ø. Ramstad
Approval Manager

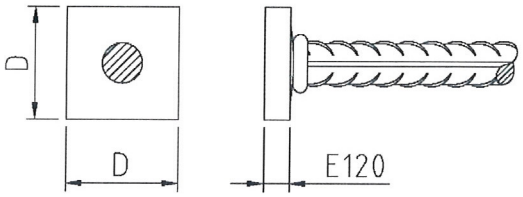
Annex 1

Product description

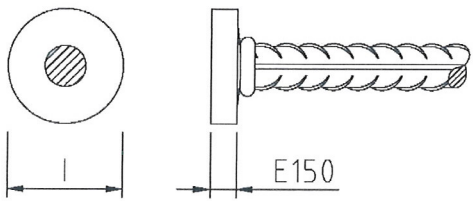
HRC 110 Head



HRC 120 Head



HRC 150 Head



Nominal diameter of reinforcement bar	Head Dimensions						
Ø	A	B	C	D	E120	E150	I
mm	mm	mm	mm	mm	mm	mm	mm
16	60	35	16	50	12	12	50
16 < Ø ≤ 20	80	40	18	60	14	16	65
20 < Ø ≤ 25	100	50	20	70	16	20	80
25 < Ø ≤ 32	120	65	25	90	20	25	100