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**RAILWAY INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

TB/T 3395.2-2015

**Fastening systems for high-speed railway - Part 2: Type IV
fastening system
(English Translation)**

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1 Scope

This Part specifies fastening system composition, assembly performance, technical requirements for parts, inspection methods, inspection rules, marking and packaging, as well as storage and transportation for type IV fastening system.

This Part is applicable to type IV fastening system for ballasted tracks of high-speed railways.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 224, Determination of the depth of decarburization of steels

GB/T 230.1, Metallic materials -- Rockwell hardness test -- Part 1: Test method

GB 443-1989, Lubricating oils for total loss systems L-AN

GB/T 528, Rubber, vulcanized or thermoplastic -- Determination of tensile stress- strain properties

GB/T 531.1, Rubber, vulcanized or thermoplastic -- Determination of indentation hardness -- Part 1: Durometer method (Shore hardness)

GB/T 1222, Spring steels

GB/T 1348, Spheroidal graphite iron castings

GB/T 1412, Pig iron used for spheroidal graphite cast iron

GB/T 1690, Rubber, vulcanized or thermoplastic -- Determination of the effect of liquids

GB/T 2828.1, Sampling procedures for inspection by attributes -- Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

GB/T 3398.2, Plastics -- Determination of hardness -- Part 2: Rockwell hardness

There shall be no burrs and nicks in elastic strips that affect assembly. There shall be no obvious creases and folds in the small rounded part of the tail.

5.1.4 Cracks

There shall be no cracks on the surface of the elastic strip.

5.1.5 Hardness

The hardness of the elastic strip shall be 44 HRC ~ 48 HRC.

5.1.6 Metallographic structure

The metallographic structure of the elastic strip shall be uniform tempered troostite and tempered sorbite. A small amount of discontinuous ferrite is allowed in the core, and it shall meet the requirements of TB/T 2478.

5.1.7 Decarburization layer

The total decarburization depth of the elastic strip shall not be greater than 0.20 mm.

5.1.8 Fastening pressure

The fastening pressure of the elastic strip shall not be less than 11.0 kN.

5.1.9 Residual deformation

After the elastic strip has passed the residual deformation test, the residual deformation shall not be greater than 1.0 mm.

5.1.10 Fatigue performance

The elastic strip shall not be broken after 5×10^6 fatigue tests. The residual deformation shall not be greater than 1.0 mm.

5.1.11 Anti-rust performance

The surface of the elastic strip shall be treated with antirust. After the anti-rust treatment, the protection level of the elastic strip shall not be lower than level 5 after the 120h neutral salt spray (NSS) test.

5.2.1 Raw material

The raw material of the elastic strip is 60Si2MnA or $\Phi 18$ mm hot-rolled spring steel with high performance. The performance of raw materials shall comply with the provisions of GB/T 1222.

5.2.2 Type size

The type size of the elastic strips shall meet the design requirements.

5.2.3 Fastening pressure

The fastening pressure of elastic strips shall not be less than 8.0 kN.

5.2.4 Appearance, cracks, hardness, metallographic structure and total

decarburization

The appearance, cracks, hardness, metallographic structure and decarburization layer of elastic strips shall meet the requirements of 5.1.3, 5.1.4, 5.1.5, 5.1.6 and 5.1.7 respectively.

5.3.1 Raw material

The material of the embedded seat is QT 450-10. The properties of pig iron for ductile iron shall comply with the provisions of GB/T 1412.

5.3.2 Type size

The type size of the embedded iron seat shall meet the design requirements.

5.3.3 Appearance

The appearance of the embedded iron seat shall comply with the provisions of GB/T 1348. The riser position shall be set at the buried end. Protrusion is not greater than 5 mm. The burr on the alignment line above the sleeper surface shall not be greater than

0.5 mm. The burrs on the parting line below the sleeper surface shall not be greater than 2 mm. All remaining burrs shall be removed.

5.3.4 Mechanical properties

The tensile strength and elongation after fracture of the embedded iron seat shall comply with the provisions of GB/T 1348.

5.3.5 Metallographic structure

The spheroidization level of the embedded iron seat shall not be lower than level 3.

5.4.1 Raw material

The raw material of insulating gauge blocks is glass fiber reinforced polyamide 66 or other materials whose properties are not inferior. The physical and mechanical

Visually inspect the appearance of elastic strips. Use a round rod with a diameter of 17.5 mm to check the small arc at the end of the elastic strip. Any contact position between the round rod and the inner side of the small arc shall be tangent.

6.1.3 Inspection of cracks

The surface crack inspection of elastic strips shall be carried out according to GB/T 15822.1.

6.1.4 Hardness inspection

The hardness test of elastic strips shall be carried out according to GB/T 230.1. The sampling site of the test piece is the middle part of the middle limb of the elastic strip (cutting length is about 20 mm ~ 30 mm). Test four points within the range from the center of the specimen section to 1/2 radius. The reading accuracy is not less than 0.5

HRC. Take the average of the last three points.

6.1.5 Inspection of metallographic structure

The metallographic structure test of elastic strips shall be carried out according to TB/T 2478. The sampling location of the test piece is the same as 6.1.4.

6.1.6 Inspection of decarburization layer

The decarburization layer test of elastic strips shall be carried out according to GB/T 224. The sampling location of the test piece is the same as 6.1.4.