Title
High-stability shaft extension length detection device

International Patent Classification(s)
- G01B 5/02 (2006.01)
- G01B 5/00 (2006.01)
- G01B 3/00 (2006.01)

Application No: 2017100870
Date of Filing: 2017.06.26

Publication Date: 2017.07.27
Publication Journal Date: 2017.07.27
Granted Journal Date: 2017.07.27

Applicant(s)
INNUOVO INTERNATIONAL TRADE CO., LTD. HENGDIAN GROUP

Inventor(s)
CHEN, Wangwang

Agent / Attorney
Admiral Trademarks & Patents Services, PO Box 767, Miranda, NSW, 1490, AU
A high-stability shaft extension length detection device, comprising a soleplate; a fixed member and a meter-type universal length measurement tool are provided on the soleplate, and the meter-type universal length measurement tool is located on a front side of the first fixed member; a shaft extension positioning member is fixed on the first fixed member, the shaft extension positioning member consisting of a positioning member body and a positioning member bulge located on a rear side of the positioning member body; a positioning groove is formed in the shaft extension positioning member, the positioning groove running through the positioning member body and the positioning member bulge from front to back; a rear end of the positioning member bulge is located on a rear side of the first fixed member; and an evading space for evading an end ring of a rotor is formed between a lower edge of the rear end of the positioning member bulge and an upper end face of the soleplate; the positioning member bulge consists of a first positioning member bulge segment and a second positioning member bulge segment; and the thickness of the first positioning member bulge segment is greater than that of the second positioning member bulge segment, and the thickness of the second positioning member bulge segment is less than the distance between the rotor shaft and an inner wall of the end ring.
DESCRIPTION

HIGH-STABILITY SHAFT EXTENSION LENGTH DETECTION DEVICE

Technical Field of the Invention

The present invention relates to a high-stability shaft extension length detection device.

Background of the Invention

A core is fixed on a rotor shaft, an end ring is fixed on an end face of the core, and the distance from the end of the rotor shaft to the end face of the core is the shaft extension length. After a rotor is well assembled, the detection of the shaft extension length is required. A too large or small shaft extension length may influence the service performance of the motor, increase the noise during the operation of the motor, and even cause damage to the bearing or core to reduce the service life of the motor.

Summary of the Invention

An objective of the present invention is to provide a high-stability shaft extension length detection device.

The present invention employs the following technical solutions. A high-stability shaft extension length detection device is provided, including a soleplate; a fixed member and a meter-type universal length measurement tool are provided on the soleplate, and the meter-type universal length measurement tool is located on a front side of the first fixed member; a shaft extension positioning member is fixed on the first fixed member, the shaft extension positioning member consisting of a positioning member body and a positioning member bulge located on a rear side of the positioning member body; a positioning groove is formed in the shaft extension positioning member, the positioning groove running through the positioning member body and the
positioning member bulge from front to back; a rear end of the positioning member bulge is located on a rear side of the first fixed member; and an evading space for evading an end ring of a rotor is formed between a lower edge of the rear end of the positioning member bulge and an upper end face of the soleplate; the positioning member bulge consists of a first positioning member bulge segment and a second positioning member bulge segment; and the thickness of the first positioning member bulge segment is greater than that of the second positioning member bulge segment, and the thickness of the second positioning member bulge segment is less than the distance between the rotor shaft and an inner wall of the end ring. This arrangement makes the second positioning member bulge segment thinner so as to extend to the inner side of the end ring conveniently. The stability and strength of the positioning member bulge are ensured by the first positioning member bulge segment.

The shaft extension length detection device of the present invention can be used for shaft extension length detection; and the detection is convenient and the detection precision is high.

**Brief Description of the Drawings**

Fig. 1 is a structural diagram of the device according to the present invention;

Fig. 2 is a structural diagram of a shaft extension positioning member in the device according to the present invention;

Fig. 3 is a structural diagram of a first fixed member according to the present invention; and

Fig. 4 is a structural diagram of a second fixed member according to the present invention.

**Detailed Description of the Invention**

The present invention will be further described below by specific embodiments with reference to the accompanying drawings.
As shown in Fig. 1 and Fig. 2, the present invention provides a shaft extension length detection device, including a soleplate 1; a fixed member 2 and a meter-type universal length measurement tool 3 are provided on the soleplate 1, and the meter-type universal length measurement tool 3 is located on a front side of the first fixed member 2; a shaft extension positioning member is fixed on the first fixed member 2, the shaft extension positioning member consisting of a positioning member body 5 and a positioning member bulge 6 located on a rear side of the positioning member body 5; a positioning groove 41 is formed in the shaft extension positioning member, the positioning groove 41 running through the positioning member body 5 and the positioning member bulge 6 from front to back; a rear end of the positioning member bulge 6 is located on a rear side of the first fixed member 2; and an evading space for evading an end ring 11 of a rotor shaft is formed between a lower edge of the rear end of the positioning member bulge 6 and an upper end face of the soleplate 1. Wherein, the meter-type universal length measurement tool 3 is a 0.001 dial indicator or a 0.01 dial indicator.

The positioning member bulge 6 consists of a first positioning member bulge segment 61 and a second positioning member bulge segment 62; and the thickness of the first positioning member bulge segment 61 is greater than that of the second positioning member bulge segment 62, and the thickness of the second positioning member bulge segment 62 is less than the distance between the rotor shaft 12 and an inner wall of the end ring 11.

As shown in Fig. 1, Fig. 2 and Fig. 3, a fitting groove 21 is formed in the first fixed member 2, the fitting groove 21 running through the first fixed member 2 from front to back and also running through the first fixed member 2 upward; a lower edge of the positioning member body 5 is located on a lower side of a lower edge of the positioning member bulge 6 so that the positioning member body 5 and the positioning member bulge 6 form a stepped structure; the first positioning member bulge segment 61 is fitted within the fitting groove 21; a rear end face of the positioning member body 5 comes into contact with a
front end face of the first fixed member 2, and the thickness of the first fixed member 2 from the front end face to the rear end face is less than the axial length of the positioning member bulge 6.

Wherein, an outer edge of the positioning member bulge 6 and the fitting groove 21 are the same in shape, both being arc-shaped. The radial section of the positioning groove at the positioning member body 5 is circular. The radial section of the positioning member bulge 6 along an axis of the positioning groove 41 is arc-shaped, and an opening of the arc faces upward.

The shaft extension positioning member is fixed to the first fixed member 2 by a first bolt; a first fixed hole 51, which is directly through from front to back, is formed on the positioning member body 5, and a second fixed hole 22, which is directly through from front to back, is formed on the first fixed member 2; and an end of the first bolt passes through the first fixed hole 51 to be fixed within the second fixed hole 22 by threads, with the head of the first bolt being resisted against the front end face of the shaft extension positioning member; and threaded structures, which are fitted with each other, are formed at the end of the first bolt and the second fixed hole 22.

As shown in Fig. 1 and Fig. 4, the meter-type universal length measurement tool 3 is fixed to the soleplate 1 by a second fixed member 8, the second fixed member 8 is fixed to the soleplate 1, and a fixed groove 81 and an elastic groove 82 are formed in an upper portion of the second fixed member 8; both the fixed groove 81 and the elastic groove 82 run through the second fixed member 8 from front to back, and both are arranged at intervals in the left-right direction with the fixed groove 81 being on the right side of the elastic groove 82; the fixed groove 81 and the elastic groove 82 are communicated with each other by a connection groove 83 which is arranged transversely, and the connection groove 83 extends from the elastic groove 82 to the fixed groove 81 and runs through a left end face or right end face of the second fixed member 8; a third fixed hole 84 is formed in the upper portion of the second fixed member 8, and a second bolt 85 is fitted within the third fixed
hole 84; the third fixed hole 85 extends downward and is communicated with the connection groove 84; a sleeve 31 for the meter-type universal length measurement tool 3 is fixed within the fixed groove 81; and a measuring rod of the meter-type universal length measurement tool 3 extends toward the side of the first fixed member 2. Wherein, the radial sections of the fixed groove 81 and the elastic groove 82 are both circular, and the area of the radial section of the elastic groove 82 is greater than that the radial section of the fixed groove 81.

When the shaft extension length detection device of the present invention is used, the rotor shaft 12 is held by the detection personnel, one end of the rotor shaft 12 is inserted into the positioning groove, the end of the rotor shaft 12 is located within the positioning groove 41 of the positioning member body 5, the end ring 11 on the end face of the core 13 is relatively sleeve outside the second positioning member bulge segment 62, and the rear end of the second positioning member bulge segment 62 is resisted against the end face of the core 13; then, the meter-type universal length measurement tool 3 is operated, and the measuring head 32 of the meter-type universal length measurement tool 3 moves and comes into contact with the end face of the end of the rotor shaft 12; and the operation personnel reads the reading on the meter-type universal length measurement tool 3, then takes out the rotor shaft 12, and judges whether the rotor shaft 12 and the core 13 are standardly assembled by comparing the reading on the surface with the standard shaft extension length value.
Claims

1. A high-stability shaft extension length detection device, comprising a soleplate; a fixed member and a meter-type universal length measurement tool are provided on the soleplate, and the meter-type universal length measurement tool is located on a front side of the first fixed member; a shaft extension positioning member is fixed on the first fixed member, the shaft extension positioning member consisting of a positioning member body and a positioning member bulge located on a rear side of the positioning member body; a positioning groove is formed in the shaft extension positioning member, the positioning groove running through the positioning member body and the positioning member bulge from front to back; a rear end of the positioning member bulge is located on a rear side of the first fixed member; and an evading space for evading an end ring of a rotor is formed between a lower edge of the rear end of the positioning member bulge and an upper end face of the soleplate; the positioning member bulge consists of a first positioning member bulge segment and a second positioning member bulge segment; and the thickness of the first positioning member bulge segment is greater than that of the second positioning member bulge segment, and the thickness of the second positioning member bulge segment is less than the distance between the rotor shaft and an inner wall of the end ring.