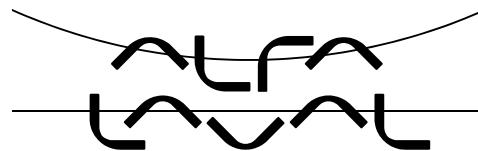


Report



Subject
Audit of the test laboratory TCR in Mumbai

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Commissioner
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Commission No.
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Summary

An audit of the test laboratory TCR in, Mumbai was performed on Thursday 12:e of January 2006. The aim of the visit was to see if TCR could be an approved test laboratory for testing of duplex forgings and other material from Alfa Laval's supplier in India.

For Alfa Laval purpose TCR is approved as laboratory for tensile testing, hardness testing, microstructure evaluations (σ -phase, austenite/ferrite content), slag inclusions, impact testing and chemical composition.

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1 Introduction

An audit of the test laboratory TCR in, Mumbai was performed on Thursday 12:e of January 2006. The aim of the visit was to see if TCR could be an approved test laboratory for testing of duplex forgings and other material from Alfa Laval's supplier in India.

The participants during the entire audit were:

From Alfa Laval: Björn Axelsson Alfa Laval Materials & Chemistry Centre
Pravin Dumbare Alfa Laval Support Services Pvt. Ltd. India
From TCR: V.K Bafna managing director

2 General

The TCR is family owed company (Mr Bafna and his family). Mr Bafna has 30 years of experience in test laboratory business. The turnover for 2005 was 35 million ropier. The company has 80 employees. The laboratory has customer both within and outside India. They are working with both small and big issues in the areas: mechanical testing, chemical analyses, metallographic evaluations, corrosion testing, PMI. They are also doing failure examinations of broken parts.

3 Quality system

The TCR is accredited according to ISO 17025 by the Indian National Accreditation Board NABFL.

4 Testing facilities

TCR has testing equipment to make all Alfa Laval needed test as: Tensile testing, hardness testing, microstructure evaluations (σ -phase, austenite/ferrite content), slag inclusions, impact testing and chemical composition. For the above tests they have the following test equipment.

- Wolpert hardness tester
- Tensile test machine equipped with an electronic extensometer
- Two impact test machine (also testing at sub zero temperatures)
- Microscope equipped with camera to transfer the pictures into a computer.
- OES machine for chemical analyses
- LECO machine for carbon and sulfur analyses

All machines were calibrated and the personnel working at the laboratory were skilled to do their work. The traceability of the test samples were maintained trough all test.

The test samples are stored at least 3 month after testing.

They have no equipment to do the pitting potential test for the moment. Mr Bafna told that he have a person at his laboratory how have done pitting potential test at his former employer. That person says that it is no problem to make the Alfa Laval pitting potential test according AL 101 5170, method A.

5 Conclusions

For Alfa Laval purpose TCR is approved as laboratory for tensile testing, hardness testing, microstructure evaluations (σ -phase, austenite/ferrite content), slag inclusions, impact testing and chemical composition.