

Project

Sealing of permeable aluminium intake manifold parts

Date: 2010-06-18

Language: us

Customer

Vietnam Foundry

Industry

Foundry

Products

#1836 - dichtol WF Makro FL

#1835 - dichtol WF FL

Problem Description

The parts shown in picture 1 do have a reject rate of approx. 10%. The parts have to be 100% pressure tight and resistant to max. 150 °C. To validate this the customer is running a 100% pressure control of each part where the unsealed parts are been sorted out. This parts should be sealed by a DICHTOL impregnation process.

Solution Description

The rejected parts are showing different sizes of porosities which makes it difficult to select a suitable impregnation material. For large failures a more viscose material would be the right choice whereas a less viscose material would be best for small pores.

Handling Description

The carried out test did show the best result for a combined application of DICHTOL WF #1835 and DICHTOL WF Macor #1836.

Preparation of the parts:

Before the parts can be impregnated they must be totally dry and clean. To achieve this the parts have been cleaned in Acetone and dried in an oven at 200 °C for 30 minutes.

Application:

First the parts are been impregnated with DICHTOL WF #1835, a material with very low viscosity, to seal the smallest pores. This is done by dipping the parts into a container with DICHTOL WF #1835 for 15 minutes. After that the parts need to be cured for minimum 24 hours.

A test after 24 hours showed that some parts are have been already sealed and some parts are still leaking.

In a second step the still leaking parts are been impregnated by dipping into DICHTOL WF Macro #1836 for 30 minutes. After this the parts where giving a curing time of minimum 24 hours.

A second test after the DICHTOL Makro application did show that now all parts are been sealed and pressure resistant up to 10 bar.

Final test:

To verify this results also for practical conditions the sealed parts are been heated up to 200 °C for 30 minutes and tested again. This procedure have been repeated two time within 24 hours. All parts did pass the pressure test even after the heat treatment!

Advantages

The advantage of the DICHTOL impregnation is again the flexibility of the process which can be suited to fit any kind of failure picture. In this special case it was required to handle different pore sizes with different materials. Combined with the flexibility of a ready to use material it offers the perfect solution to reduce the reject rate and safe time and money in the process.



Intake manifold of a light motorbike



Failed pressure test - Air bubbles



Impregnated part pressure tested up to 10 bar and 200 °C

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