

Process stability and minimisation of rejects through the use of advanced metal treatment technology



KNOWLEDGE & PARTNERSHIP

THE CHALLENGE

In order to achieve VW's high quality requirements and ambitious sustainability goals, high purity of the melt with high process reliability is required. In addition, tight density control, reduced environmental impact and labour savings were also key to the success of the project.

FOUNDRY:

The Volkswagen plant in Hannover is the headquarters of Volkswagen Commercial Vehicles, a division of Volkswagen AG.

The foundry mainly produces cylinder heads, intake manifolds and now also electric motor housings for the ID.3, ID.4 and ID.5.

PARAMETERS

Alloy: AlSi7Mg0,3

Core production: Cold-Box sand core

Casting weight: 7.5 kg

Pouring temp.: 740°C

Casting time: 12 s

Moulding Process: Gravity die casting

FOSECO PRODUCTS

FDU MTS 1500 degassing unit
incl. rotors and shafts

SMARTT process control

NUCLEANT* 1582 grain refiner

OUR SOLUTION

SMARTT is a specially developed software for process control of aluminium degassing. It records and analyses all the initial variables and calculates the optimum parameters for each subsequent degassing and upgassing process. The aim of this optimisation is to achieve a consistent melt quality after each treatment, regardless of the initial conditions.

SMARTT calculates rotor speed and inert gas quantity and sends this data to the unit's control system at the start of treatment. Different optimisation modes (high-speed, low gas quantity, low wear, standard) offer the operator further options and work facilitation to achieve the required melt quality.

KEY BENEFITS

- Fully automatic process (oxide removal, grain refinement, upgassing)
- High process reliability
- Shorter treatment times; thus lower electricity and gas consumption
- Reduction of the reject rate by >10%

> LET'S LEARN MORE



THINK BEYOND. SHAPE THE FUTURE.



VESUVIUS
A VESUVIUS GROUP COMPANY

THE OUTCOME

The combination of the MTS Melt Treatment Station with SMARTT degassing control and automated dosing of NUCLEANT 1582 grain refining fluxes delivered a 10% reduction in the scrap rate, thereby saving both labour and energy costs and reducing CO₂ emissions.

The automated melt treatment process delivered a consistent melt quality which adhered to the strict density tolerances required.

SMARTT process control for rotary degassing of molten aluminium



E-Motor housing

COMMENT: Editorial policy is to highlight the latest Foseco products and technical developments. However, because of their newness, some developments may not be immediately available in your area. Your local sales organisation will be pleased to advise. No part of this publication may be reproduced, stored in a retrieval system of any nature or transmitted in any form or by any means, including photocopying and recording, without the written permission of the copyright holder. © Foseco International Ltd., 2023 *FOSECO and NUCLEANT are trade marks of the Vesuvius Group, registered in certain countries, used under licence.