Quality

We will operate all work and business activities to ensure the quality of the products and services we deliver to our customers

Pictured:
To underscore the importance of the Quality Breakthrough initiative, and the Turbo.Q programme designed to support its roll–out, François Wanecq, CEO, and Group Executive Committee member Ryan van der Aa, VP HR, participated in the two day training programme in October 2013. Patrick Bikard, President Operations, led the training.

Vesuvius Quality Policy

Focusing on Quality is the another important step in the implementation of our wider Lean programme. We see this as a fundamental part of our progress towards operational excellence. Already, the renewed focus on Quality has improved customer relationships and added to operating efficiency.

Our Quality Policy clearly defines the commitments and responsibilities which apply to all aspects of the business, with implementation driven throughout the organisation by senior management.

The Vesuvius 8D Methodology

- **D1** CLARIFY THE PROBLEM
- **D2** GRASP THE CURRENT SITUATION
- **D3** CONTAIN AND SET TARGET
- **D4** ANALYSE CAUSES
- **D5** DEFINE COUNTERMEASURES
- **D6** EXECUTE AND TRACK PROGRESS
- **D8** CHECK RESULTS
- **D8** STANDARDISE AND ESTABLISH CONTROL

Our Quality Plan features:

- The application of the **Vesuvius 8D methodology** to resolve customer, supplier and internal issues. This methodology is built upon the 8 Disciplines to follow in order to eliminate problems permanently. It is focused on determining the root cause, implementing effective corrective actions and preventing repeat issues
- A commitment to become a true **Learning Organisation**. Every problem is welcomed as an opportunity for improvement where lessons learned are created and shared in order to leverage the benefits across the Group
- The application of **Lean Principles** to improve shop floor quality, responsiveness, and flexibility. Lean manufacturing methods, such as those successfully utilised in the automotive industry, have been adopted throughout the Group. These principles drive implementation of:
  - strong control plans to detect any defects as close as possible to their point of occurrence in order to facilitate immediate problem solving
  - accelerated product flow to allow quicker detection of issues and impact rejects / rework
  - standardised production methods to ensure excellent quality.

Quality Strategy

Quality Strategy defines a holistic approach to the execution and implementation of our Quality Policy throughout the organisation. We have aligned our Quality Strategy to the corporate strategy. The Quality Strategy seeks to support the five aspects of corporate strategy:

- **Maintain technology leadership** by allowing Marketing & Technology, and R&D to keep their focus on technology and improving the industrialisation of new products than quality fire-fighting
- **Increase penetration of value-creating solutions** by satisfying customers through improved consistency, leading to improved cross-selling and reduced business loss
- **Capture growth in developing markets** by differentiating ourselves from our competition on the basis of our quality and our service offering
- **Support the goal of cost leadership** by improving the reliability of our products, by improving the total cost of ownership for our customers, and by reducing costs associated with defects, reworks and customer rejects
- **Built technical service offering** to align the business with customer needs through information received from customer surveys and through increased executive visits to customers.

Quality continued

The key features of our Quality Strategy are:

- Roll out the Quality Breakthrough Initiative throughout the organisation
- Build infrastructure to support embedding of Quality Breakthrough Initiatives in the organisation
- Leverage global roll-out of the improvement process to drive behaviour to improve product and service quality and deliver customer loyalty
- Use senior executive visits to customer sites and lost business analysis as drivers for reducing customer attrition.

Reliability

Reliability is vital to our customers as they use Vesuvius' products in critical areas of their own processes. The level of risk attached to a catastrophic failure is often such that, for people and equipment, no compromise can be accepted. Reliability therefore is a primary commitment of Vesuvius.

We strive to deliver reliability and consistency through best-in-class quality management in our 69 production sites and 107 major customer locations.

Reliability also flows from our close cooperation with customers' operations, the permanent presence of our engineers and technicians at our customers' locations and the level of service and expertise we provide.

Reliability is maintained within our global process of innovation and continuous improvement through strict testing procedures and transparency with our customers on the protocols we follow to validate any change in our products.

Service is part of the Vesuvius culture

The quality of our service delivery derives from our deep understanding of our customers' processes and expectations, our intimate knowledge of their needs and our efforts to increase their performance at all levels of their value chain.

Vesuvius' plants are close to the customers they serve and can deliver goods and technical service at very short notice.

Our experts are in permanent contact with our customers' operations to provide support with creative solutions and new technologies, based on their access to the unrivalled experience acquired across the world and throughout the industry.

Case Study

Reliability

In 2013, Voestalpine was looking for the refractory materials, service and support for their jobbing foundry that uses one of the largest coreless induction furnaces in the world. Because this furnace is used up to 15 times a month, it needs to be relined five times per year, which requires ten tonnes of refractory material each time. Due to the fact that the steel is heated up to 1,780°C, the lining application is demanding and the refractory materials must perform well.

Vesuvius service personnel worked closely with the customer to find the best option. After some preliminary trials the furnace was completely lined with Vesuvius products in June 2013 to meet customer expectations.

Maintaining our high level of service is part of our commitment to our customers.

Case Study

Reliability

Foseco specialists played a significant role in the supply of safety critical steel construction rings used for building a new roof at the 76,000 seat Olympic Stadium in Berlin. Foseco-patented KALPUR direct pour technology was used by Friedrich-Wilhelms-Hütte (FWH) steel foundry for the production of steel construction rings. Reliability of these safety-critical steel construction rings was crucial, and the foundry chose a Foseco patented technology for making these castings.

Case Study

Reliability

Vesuvius is the pioneer in designing, supplying and operating "no-lift" refractory tube exchange mechanisms for slab casters. There is more steel cast through Vesuvius tube exchange devices than through any other option available on the market. A large number of such installations are successfully operating worldwide on more than 310 slab strands. The use of mechanisms and refractories from a single technological source guarantee utmost operational safety and highest performance level. Launched first in Europe, our most recent Tube Changer SEM3085, is now beginning to be used worldwide. By the end of 2014, 16 strands in the Americas, Asia or Europe will operate with this breakthrough model. Besides productivity, safety and quality impact on final steel, the SEM3085 brings new reliability standards.

Its strong design includes a new clamping concept for refractory parts as well as an iron cast metallic enclosure to support and fix the refractory part in a more protected way. Thus, it limits stress on refractory materials and ensures minimum risk of breakage. A complete integration of pipes into the mechanical parts minimises risk of malfunction of the inert gas or air cooling circuit.

Through better sealing between plates, it also offers better reliability on steel quality to the customer, while taking advantage of the tube change function for highest productivity and reduced operation cost. Last but not least, SEM3085 has been designed robot-ready: the tube change operation can be in option under full control of a robot that will change tube after tube in a reliable protocol.