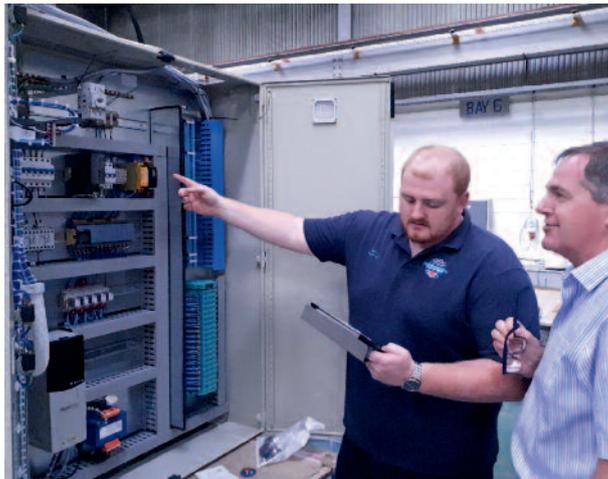


Spring 2018

# newsletter



## Millennials teach Baby Boomers a Lesson



**H**osokawa Micron Ltd is using reverse mentoring to upskill and motivate the future of its workforce.

Older employees learn about the latest technology from new recruits, whilst new recruits and younger career builders learn real, industry specific practical skills and attitudes to finding problem solving solutions that are elusive in books and on the internet. An established option to filling the skills gap, that delivers motivation to all concerned, reverse mentoring highlights the existing skills in the workforce and builds on them. Iain Crosley, *'you'll be surprised how many excellent mentors are in your team and how sharing skills helps develop stronger team spirit.'*

*A full article on this subject appeared in The Chemical Engineer in June, or read it in full at: <https://hml.to/1b67t>*

## ISO 9001:2015

With a transition deadline of September this year, we are pleased to announce that our transition from ISO 9001:2008 was completed 6 months ahead of the deadline! Hosokawa Micron has been accredited with ISO



We were externally audited by BSI and internally audited throughout the process by our internal quality group.

The new manufacturing standard reflects the radical business changes, growth in technology and complexity of supply chains of today's markets.

## Siemens Collaboration

**T**he Government backed Made Smarter Review sets out a roadmap for the wide scale adoption of industrial digitalisation technologies in order to boost the UK's manufacturing sector. To boost their own manufacturing performance within their Runcorn based Contract Processing Facility Hosokawa has adopted Siemen's open cloud operating platform, MindSphere.

The companies have a long standing relationship going back over 20 years and have worked in partnership to utilise industrial digitalisation - and in particular MindSphere, to achieve performance improvements that enhance productivity and competitiveness.

We will capture real time and essential operational data which can then be analysed and interrogated to provide insight into all aspects of the plant's production performance and the status of the assets and aid strategic decision making, scheduling, predictive maintenance and operational availability.

Iain Crosley says, *'The MindSphere platform brings with it capabilities for remote monitoring, data driven analytics and secure cloud connection. It will allow us, for example, to reduce our production downtime and associated maintenance costs, quickly highlight the potential for any production anomalies and, ultimately, aid our competitiveness by allowing us to get products to market more speedily. Not only will this assist with our own contract processing performance but also enable us to better support our customer base. It will also be a clear illustration of the many benefits digital technology can deliver for UK manufacturers.'*

# Tipping Point for Pharma Manufacturer

**W**hen a leading manufacturer of innovative pharmaceutical products needed a multifunctional, dispensary booth delivering operator protection from hazardous airborne particles generated during manual product transfer, Hosokawa Micron engineers developed a bespoke solution.

Tight customer user specifications for the containment system and space and height constraints due to the location of structural beams and room layout were taken into account alongside critical demands for the system to support dispensing and weighing out of active/excipient pharmaceutical powders with the ability to meet low OEL levels during drum tip, invert, dock, mill and IBC transfer, (all fully interlocked with client MES).



Hosokawa engineers designed a bespoke, 5m wide, recirculation, dispensing downflow booth suitable for the handling of OEB3 compounds with a time-weighted average less for process operator level (OEL) less than  $0.100\text{mg}/\text{m}^3$  ( $<10\mu\text{g}/\text{m}^3$ ) with the addition of a high containment barrier screen.

The low noise (less than 70dba) booth with an increased safe working zone of 2m, consistently meets these target OELs over an 8hr period to deliver a high level of operator protection. Full on-site OEL testing was undertaken by Hosokawa Micron's industrial chemist in accordance with ISPE Guidelines and SAT tests validates these figures.

Two drum inverters are used for dispensing larger excipients: Each drum inverter is equipped with a funnel, butterfly valve and valve outlet chute. The 5d screen is used during the opening of raw material drums to limit operator exposure.

Raw materials are presented in a range of multiple drum sizes to be discharged into an IBC using a drum tipper and post hoist inverter. Space restrictions determined that

drums be lifted and inverted using either the drum tipper or post hoist to allow for the  $120^\circ$  or  $180^\circ$  rotation required to invert for discharge. If the raw material requires milling the material enters the IBC via the mill which is part of the dispensing train but which only has the impellor and screen fitted when required.

A vacuum lifter is used to lift a raw material drum off the pallet and place the drum on the inverter where it is clamped into position and fitted with drum discharge cones for easy, dust free discharge of drum contents. Drums are then lifted and lowered onto the mill and docked and locked into position for discharge.

The drum tipper and inverter provide the ultimate method for safe lifting for reasons of safety, accuracy, repeatability and low maintenance.

A downward inflating packing head located below the mill outlet inflates against the IBC inlet to ensure closed transfer of materials from mill to IBC. A mill frame with combined IBC guide rails ensures the IBC is perfectly docked for filling prevented product egress which may present a health and safety hazard.

The customer commented, 'We have worked with Hosokawa on similar installations and always find them easy to work with, taking time and effort to work closely

with our in-house team and other suppliers to ensure an optimum, holistic solution. The input from Hosokawa's experience engineers is invaluable, not least in the early design stages with physical and visual mock ups that reassure all members of our team including our H & S and maintenance managers, that we have the best design possible for the task'.

Carl Emsley, Hosokawa Micron, commented, '*A wooden mock-up of the installation, built in the Hosokawa workshop, enabled the internal layout of equipment to be ergonomically assessed for optimum positioning. A Computational Fluid Dynamics simulation showed air flow distribution/movement to ensure positioning of both equipment and personnel did not compromise efficiency of the booth. This not only speeded up the design and build process but also eliminated costly design errors whilst allowing layout changes to be made at early design stage. This was particularly beneficial when working with several 3rd party equipment suppliers on this challenging project*'.

# Getting the Best Out of Contract Processing

In a rapidly changing manufacturing landscape outsourcing and partnership development are key strategies for companies seeking efficiencies and improvement. Recent significant investment means Hosokawa Micron's, Runcorn Contract Processing facility is now leading the way in meeting these needs using the latest smart manufacturing technologies.



Our Contract Processing facility offers two food and two chemical processing suites to support customers seeking 500kg to multi-tonne processing of powders and material and process development services. FSSC 22000, Halal and Kosher certified we offer full product traceability.

Five years ago we started to look at how we could make improvements within the facility in order to meet current and future needs – this started a smart manufacturing journey, deploying the latest digital technologies to meet objectives of improved process efficiency and yields, reduction of out of specification materials, increased plant uptime and availability and to get things right the first time/every time. Our journey has reached a significant milestone – but there is more to come!

***'Today we have a reduction in out of specification material and 98% of the time we get it right first time.'***

Investment across our whole Contract Processing Facility has allowed us to link process equipment and controls using Siemens latest MindSphere open cloud operating platform, enabling us to measure, monitor and control our contract processing plant to enhance our productivity and competitiveness and offer customers an improved service in contract processing and process development.

With the latest sensors we capture real time and essential operational data which can then be analysed and interrogated to provide insight into all aspects of the plant's production performance and the status of the assets and aid strategic decision making, scheduling, predictive maintenance and operational availability.

The automated running facility operates with pre-set, optimised parameters. Alarms are triggered at set points when anomalies arise and require operator intervention. This enables rapid response and can enable immediate plant shut down which minimises lost product and allows a prompt return to optimised operation.

## Operational Visibility – Prompt Action

For operators a fully mimicked, touch screen HMI (Human Machine Interface) panel provides a graphics-based visualization of the control and monitoring system making it easy to monitor the whole plant from one location and easy to determine exactly where anomalies or problems occur.

Contract Processing Team Leader, Oscar explains, *'Everything is visible on the screen. We can immediately see where there is a problem. With a rapid shut down we can immediately fix the problem without having to go through the whole plant searching. We can save time on checks, unnecessary equipment dismantling and critical cleaning and product tests – which leaves us more time to do other things.'*

Technical Centre Manager, Kathryn Hipkins, says, *'The system produces advisory alerts on the HMI and directly to managers on or off site. We can then determine if the operator can resolve the issue or if further intervention is required. With remote access to all data, control systems and advisory information the opportunity for dynamic troubleshooting means we can always optimise working.'*

*'With a £1 million investment programme scheduled we are already working on further improvements with the addition of on-line particle analysis, linking in contract documentation and building data models on key equipment.'*

If you are interested in finding out more about our improved contract processing service and how the smart manufacturing technologies we have adopted in our facility can help your business, please call us to arrange a visit – and see for yourself.

## Made Smarter Demonstrator

The Contract Processing Facility has been built as a Made Smarter Demonstrator and offers others within the process sector a real insight into how companies can develop their own digital strategy and realise the potential of IIoT technologies.

We are happy to share details of our own digital journey and have recently launched a new business unit, Hosokawa Gen4, to support companies within the process sector wishing to apply digital technologies to their own operations.

Hosokawa Micron Ltd is at the forefront of this technology, much of which is already incorporated within our equipment. We are currently working with sister companies across the Hosokawa Micron Group to share this technology and expertise that combines digital technologies with human process knowledge and expertise to deliver highly effective systems and understandable, affordable and process focused transitions across digital strategies for improved manufacturing.

# SME Digital Technologies Factory Tour

Over 70 members of the Manufacturers Alliance Annual Group Meeting, visited Hosokawa Micron Ltd's Runcorn factory, as part of an event to showcase how utilising digital technologies can be a performance enhancer in SME manufacturing businesses.

It is hoped the event can show, by best practice example, how Industry 4.0 type technologies are already being used, effectively. The Hosokawa factory tour was seen by many as a highlight of the day, with many commenting, 'very insightful', 'very informative', 'really enjoyed the explanation of the new processes and input from the shop floor', 'great energy and knowledge from the Hosokawa Team' and 'great to listen to Hosokawa's digital journey'.



The factory tour at Hosokawa allowed MA members to see:

The factory tour at Hosokawa allowed MA members to see:

- How a PLM system can be used to pull the overall business management system together, such as, CRM, ERP & Design Software
- How 3-D Design & VR/AR can be applied in an SME business
- How to set up and gain value from a Digital Twin
- What a roadmap to implement digital technologies looks like

Iain Crosley said, *'Throughout the day exceptional speakers spoke passionately about a number of topics including; the unique USPs that Industry 4.0 can provide, cyber security protection, real examples of how even simple technologies can have a big impact on businesses and the support for Industry 4.0 implementation available through Innovate UK and KTN.'*

*A visit to our Contract Processing facility enabled visitors to see how digital technologies have enabled us to improve in-spec material production to 98%. Our Contract Processing and Hosokawa Gen4 teams were pleased to answer questions on a range of topics including 'how to start the digital journey', 'who to trust' and 'the benefits they could apply to their own businesses'.*

The Contract Processing Facility has been built as a Demonstrator as called for in the Made Smarter Report, and Hosokawa Micron are inviting interested parties to arrange visits to understand how these technologies can be applied to their businesses.



For further information on anything within this newsletter please visit  
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