

# **CLOUD-BASED PROCESS TRAINING SIMULATOR AT LINDE**

Linde used the Honeywell Process Training Simulator, part of Honeywell's workforce competency solutions, to roll out sophisticated simulator-based training for its Remote Operating Centers controlling gas plants across the globe.

**Honeywell**

**“THE PROCESS TRAINING SIMULATOR ENABLED US TO TRAIN OPERATORS IN OUR REMOTE OPERATION CENTER IN GERMANY, EVEN BEFORE THE PLANT IN FINLAND FINISHED COMMISSIONING. THIS RESULTED IN A VERY SMOOTH HANDOVER OF THE OPERATIONS OF THE PLANT FROM COMMISSIONING TO NORMAL REMOTE OPERATION PHASE.”**

– Jan Heinrich

HyCO Operations Manager, Linde Gas

## BACKGROUND

Linde is one of the leading industrial gas producers and engineering companies in the world. Offering a wide portfolio of gases, equipment, solutions and services for applications across most industries, it operates more than 1,300 gas production plants globally. Over 500 of these are large-scale plants, including both hydrogen plants and air separation units.

To help them run safely, more efficiently and productively, operation of Linde’s plants has been consolidated into a small number of Remote Operating Centers (ROC) in locations such as Leuna in Germany; Stewartsville, New Jersey in the United States; and Shanghai in China. Each provide shared operations, a technical center of excellence and central control for plants across their regions.

## CHALLENGE

Operators in each ROC oversee control of dozens of plants across different countries. This is enabled through a degree of automation that requires little manual input during normal operation. In this diverse operating environment, a high level of operator competence is essential to ensure safe and smooth control for start-ups or process upsets. Hand-over of control for new plants from local operation to the ROC must also be carefully managed.

With such events occurring rarely, opportunities for training and preparing ROC operators were limited. Moreover, there is significant risk of causing downtime when training on the real system.

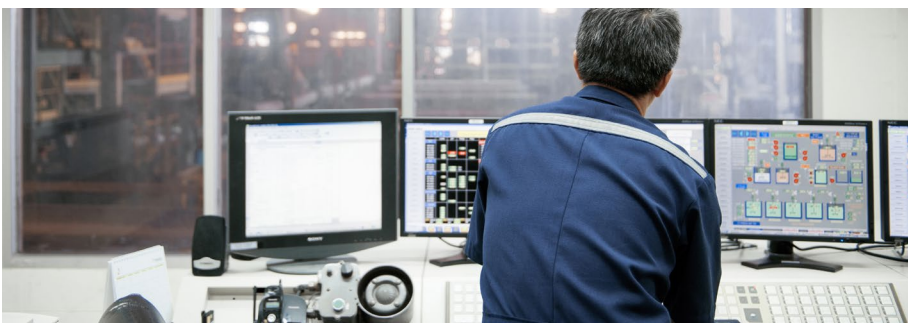
## SOLUTION

With support from Honeywell, Linde engineers designed and implemented a training solution across its Remote Operating Centers based on simulator-based training.

Dynamic models of complex industrial processes combined with real-world operator interfaces, allow trainees to quickly develop confidence, competency and experience dealing with both normal and abnormal situations - without risk to the operation.

Linde selected Honeywell’s Process Training Simulator, part of Honeywell’s workforce competency solutions, to implement a cloud-based, centrally managed operator training simulation platform for all ROCs. Operators worldwide can access training for typical plant configurations from their workstations. Several hydrogen plants, as well as an air separation plant application, are available through the solution.

The training simulator architecture is based on Honeywell Forge’s Process Training Simulator solution implemented on centrally managed virtual machines. The DCS is an emulation of Siemens PCS7 including engineering and operator stations linked using the SIMIT adaptor.



# BENEFITS

Honeywell Forge Process Training Simulator has allowed Linde to rapidly roll out consistent, high-quality training across its ROCs worldwide.

Operators have easy access to training using original plant HMI and control strategies, wherever and whenever they need it. With centralized training, Linde can ensure a consistent curriculum can benchmark across sites. Using several simulator applications representing typical plants allows Linde to provide high quality simulator-based training while sharing costs across a large user base.

With the ability to order duplicate hardware and licenses, the system is easily and cost-effectively scalable, to deal with expansions in staff or even new ROCs. Linde is also able to offer training externally to Linde Engineering customers running their own plants.

Florian Hang, HyCO Global Operations said: “Our global operator training platform allows us to provide consistent training across the organization while at the same time it is saving maintenance and license cost.”

Jan Heinrich, HyCO Operations Manager, Linde Gas added: “The OTS enabled us to train operators in our ROC in Germany, even before the plant in Finland finished commissioning. This resulted in a very smooth handover of the operations of the plant from commissioning to normal remote operation phase.”

## ABOUT HONEYWELL PROCESS TRAINING SIMULATOR

Honeywell Process Training Simulator is Honeywell’s simulator-based learning and development software solution, helping operators develop skills, gain knowledge and experience, and develop critical behaviors to boost the ability to operate process plants safely and efficiently.

Using sophisticated mathematical models of the plant process equipment, process controls and operator interfaces, deployment using on or off-premises cloud architectures brings the simulator experience to the desktop, wherever your operators are.

## ABOUT HONEYWELL CONNECTED WORKFORCE COMPETENCY

Through Honeywell Connected Workforce Competency, which is deployed on a SaaS basis, simulations can be available at any time and anywhere.

Honeywell Connected Workforce Competency is a cloud-deployed, scalable, learning and development service that delivers simulator enabled, comprehensive process training for operations personnel. With Honeywell Connected Workforce Competency, trainees gain both knowledge and experience to handle complex simulations, execute analysis and decision-making tasks while being mentored anywhere and anytime.

**For more information**

Learn more about how Honeywell's Workforce Competency solutions can improve operator competency and plant performance.

Visit [www.honeywellforge.ai/](http://www.honeywellforge.ai/)

or contact your Honeywell Account Manager, Distributor or System Integrator.

**Honeywell Connected Enterprise**

715 Peachtree Street NE

Atlanta, Georgia 30308

[www.honeywell.com](http://www.honeywell.com)

**Linde AG, Linde Engineering**

+49 89 7445-4277

[customer-services@linde.com](mailto:customer-services@linde.com)

CLOUD-BASED PROCESS TRAINING  
SIMULATOR AT LINDE

© 2023 Honeywell International Inc.

The Honeywell logo, consisting of the word "Honeywell" in a bold, red, sans-serif font.