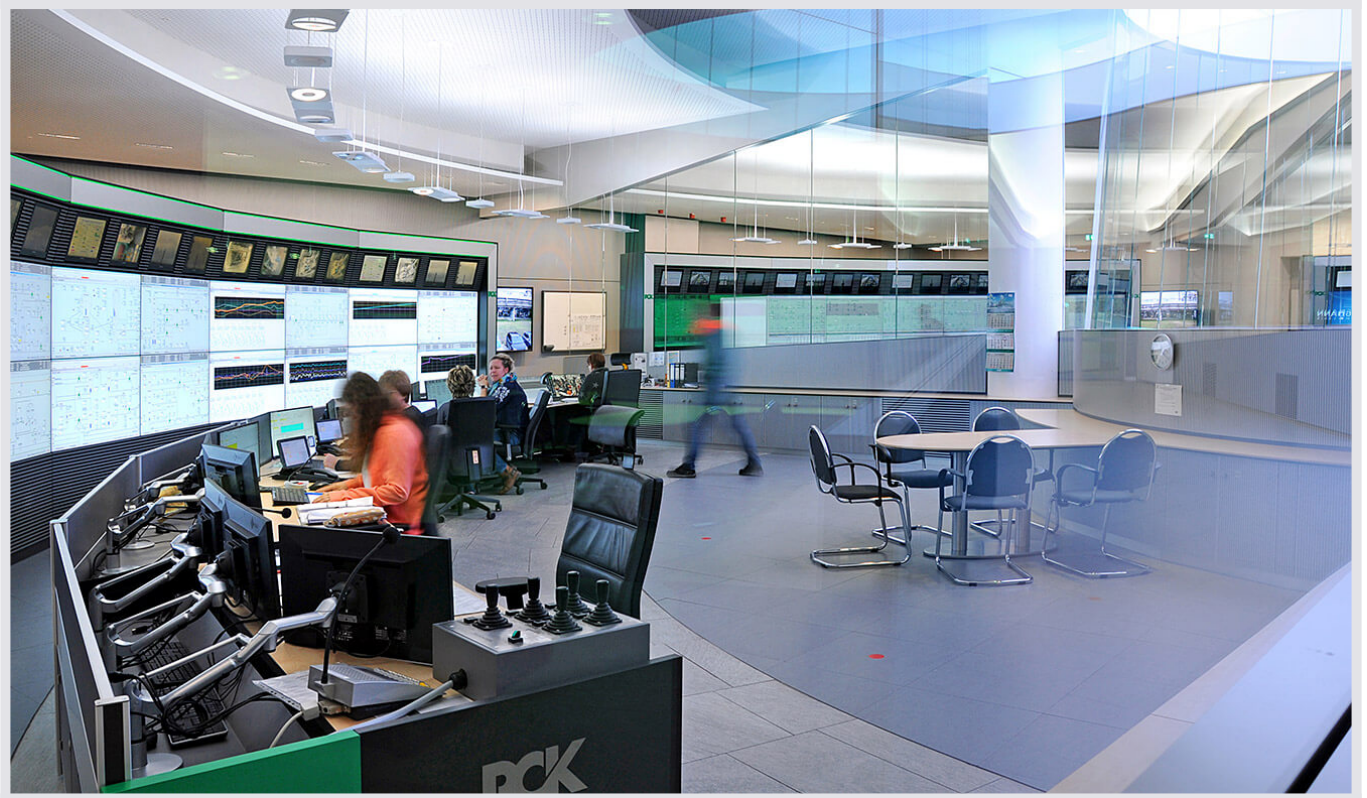


Client:



Kategorie: Production control center, Critical infrastructures.

Europe's most modern refinery control room successfully goes into operation



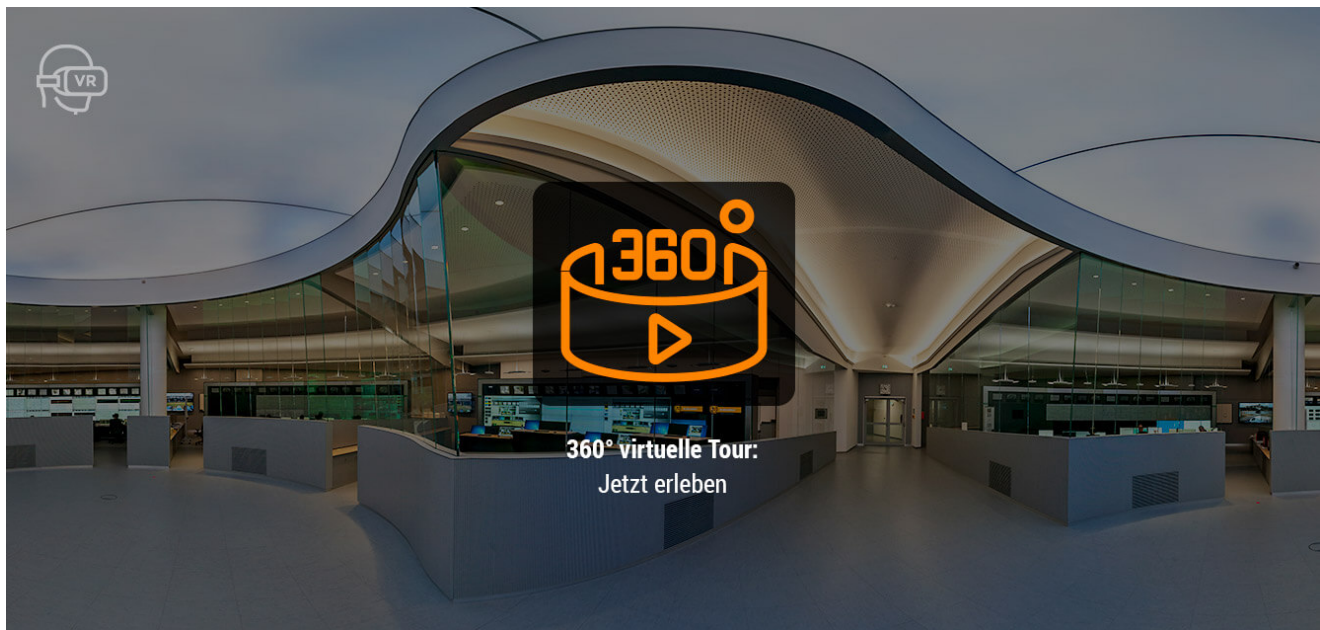
JST control stand: View through an anti-reflective glass pane into a control stand. A total of six of these control stands with a total of 25 operator stations were set up by the JST specialists.

Each year, PCK Raffinerie GmbH processes about 12 million tons of crude oil into petroleum and petrochemical products. All production facilities were monitored and controlled via a central control room from 1993, which had become too small and confusing over time. The responsible persons therefore decided to replace it with a state-of-the-art control room of about 1,000 m². With the interior design and technical equipment Jungmann Systemtechnik GmbH & Co. KG (JST) was awarded the contract for the interior design and technical equipment. The control room experts installed six control stations with a total of 25 operator stations and 78 monitors, as well as large screens with 100 displays, which are used proactively to control the systems. A special MultiConsoling concept reduces monitors and reaction times, creates an overview and enables particularly efficient work.

“PCK has been trying to centralize the control rooms since the 1990s. At that time we combined eleven satellite control rooms in the ‘old’ central control room. Now we are taking the next step forward by replacing this control room with a new, more modern one,” explains Thomas Taube, maintenance service engineer and project coordinator at PCK. In the new 1,000 m² main control room, the heart of the refinery, the entire process chain is monitored and controlled – from the receipt of crude oil by pipeline from Russia, through the steps in the production plants, to the finished product to be delivered, be it diesel, petrol or kerosene for aircraft.

Enables efficient and pleasant working

The control room consists of six control stands; acoustically separated from each other by anti-reflective glass walls. After completion, 125 plant operators – including reserve personnel – will be working there. Thomas Taube about the concept: “The system operation should be controlled via the large screen in combination with smaller monitors.” The company also intended to reduce the number of operating devices per workstation. Work in the control room should not only be made very efficient, but also as pleasant as possible for the employees. In addition, the entire system had to have extremely high availability and the probability of failure had to be reduced to an absolute minimum.



Test control center led to holistic JST solution

Detailed research and market analysis led to JST. “PCK contacted Jungmann Systemtechnik for the first time in 2014 during the ko:mon – Congress for Control Room Technology and Monitoring Systems. After a subsequent visit to JST’s control room simulator, the refinery first extensively tested a test workstation created by us consisting of a control room console, large screen segment and associated MultiConsoling hardware and software. After the successful acceptance of the test workstation, PCK then decided on an integrated solution from JST,” explains Carsten Jungmann, Managing Director of JST. These include among

others layout concept, control room furniture, large screen systems and MultiConsoling Hardware and software.

Increased availability with increased flexibility

An essential prerequisite for the new building: “We wanted to increase the availability of the process technology and achieve high flexibility in the use of the control system,” says Taube. “The aim was also to be able to access every place in the facilities from as many places as possible.” Besides the process control technology, this is mainly due to hardware and software developed by JST for the control of workstations and large screen systems: „MultiConsoling correlates monitors, which means that the system operator always gets the display on one of his own screens that he needs at the moment,” explains Carsten Jungmann. “In this way, up to 1,000 different process images can be displayed on a single workstation with a reduced number of monitors”. The operation is done with only one keyboard-mouse unit at a time.

Potential sources of error have been eliminated

“We used to have four keyboards per workstation and always slid back and forth between them,” says Taube. This was inefficient and inconvenient on the one hand, and on the other hand the control room operator did not immediately have an overview of which monitor the respective device belonged to – a potential source of error that is now eliminated. MouseHopping, another operating function of the MultiConsoling, also plays a part in this: “It enables the operator to move the cursor with the mouse, for example, over all the screens at his workstation and up on the monitor wall,” explains JST Managing Director Jungmann.

Large screen walls integrated into new operating concept

The new large screens also support this concept “from fault-oriented to knowledge-based operation,” explains Thomas Taube. When an alarm is received, the control room operator is supported by special proactive lighting of the control room workstations and large screen walls, which complements the acoustic warning: This is the AlarmLight from JST, which can be controlled by the monitoring system and can flash or change color when an error message is received.

Reliable system control even in critical cases

The complete solution at the Schwedt refinery is designed to ensure safe plant control even in critical cases: “At PCK, our MultiConsoling system is used in a highly available expansion stage, i.e. with full redundancy,” explains Jungmann. “The MultiConsoling systems are designed for each operator’s platform in a way that if one system module fails, a second cluster takes over its functions within a few seconds”. But the safety concept has even more to offer. Thomas Taube: “ We also designed the higher level, meaning the complete system, with a complete redundancy system. According to our calculations, the control center thus offers maximum safety for our systems.

Improvement in all respects

Both those responsible for the project at PCK and the plant operators rate the new control room very positively: “Compared to the satellite control rooms and also to the old central control room, we have achieved improvements in all aspects, be it acoustics, lighting, air conditioning, ergonomics or user-friendliness,” says Taube. “We are very pleased with the performance of our project partners.”

Interactive touch screen technology becomes a unique center for communication and data exchange



The motto “The future is now” applies! The state-of-the-art equipment of the PCK refinery control room is crowned with an extraordinary technical innovation: the interaction table. Christian Beck (technical director of JST, 3rd from left) gives an insight into the unbelievable variety of possibilities that could be realized with this unprecedented project. During months of development work, the Jungmann specialists created a multifunctional medium that enables interactive data exchange on an impressive touchscreen projection screen.

PCK refinery

PCK Raffinerie GmbH in Schwedt/Oder is one of the leading companies in the German state of Brandenburg. It processes around twelve million metric tons of crude oil annually into petroleum and petrochemical products, making it one of the largest crude oil processing sites in Germany. Its main products are diesel, gasoline, kerosene, liquefied petroleum gas, heating oils and bitumen. PCK was one of the first refineries in Germany to use biofuels and is itself a major producer of high-quality biofuel components. To PCK belongs the entire plant site including facilities and buildings, a crude oil tank farm and a pier in the Rostock oil port, the 78 km Schwedt – Seefeld pipeline, the 203 km Rostock – Schwedt pipeline and a hazardous waste disposal plant.

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"Compared to the satellite measuring stations and also to the old central measuring station, we have been able to improve in every aspect, be it acoustics, lighting, air conditioning, ergonomics or user-friendliness".

Eric Sieger, Thomas Taube, Carsten Jungmann (from left to right)

Chief Divisional Engineer for Processing (PCK) / Divisional Engineer for Maintenance Service and Project Coordinator (PCK) / Managing Director (JST)

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The components used in this project:



DisplayWall with special S-PVA panels for reliable 24/7 operation - optional with proactive alarm function



MultiConsoling® System – complete control room system for workplace, monitor wall and other systems



myGUI® user interface - in the intuitive 3D design of your control room for maximum user comfort



Stratos X11® control room desk – optional with height adjustment and proactive AlarmLight system



PixelDetection® – proactive alarm software to shorten response times



24/7 Recaro operator chair – optional with seat surface extension

Planning / 3D Planning

Surrounding furniture – individually manufactured solutions “Made in Germany”

ControlRoom Automation – reliable alarm reception and lightning-fast activation

Decentralized LC Displays

Sound-absorbing equipment

Air conditioning technology

AlarmLight

MouseHopping

Other projects with a similar task

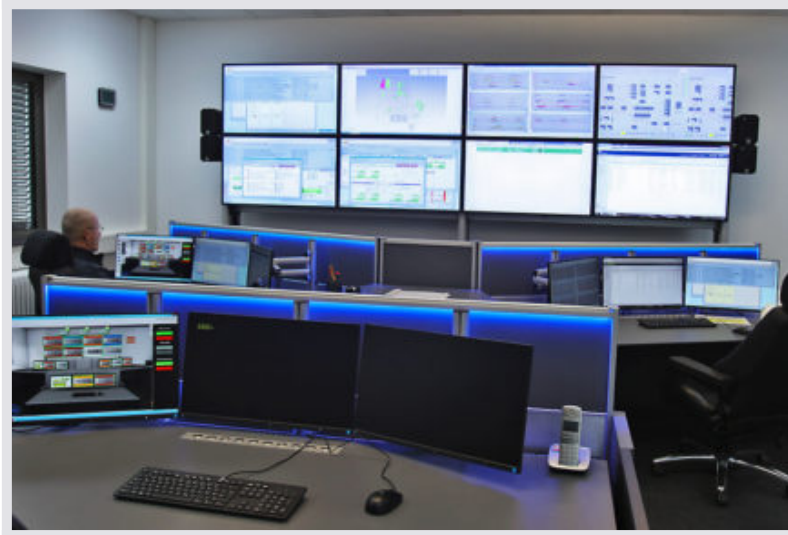


InfraLeuna



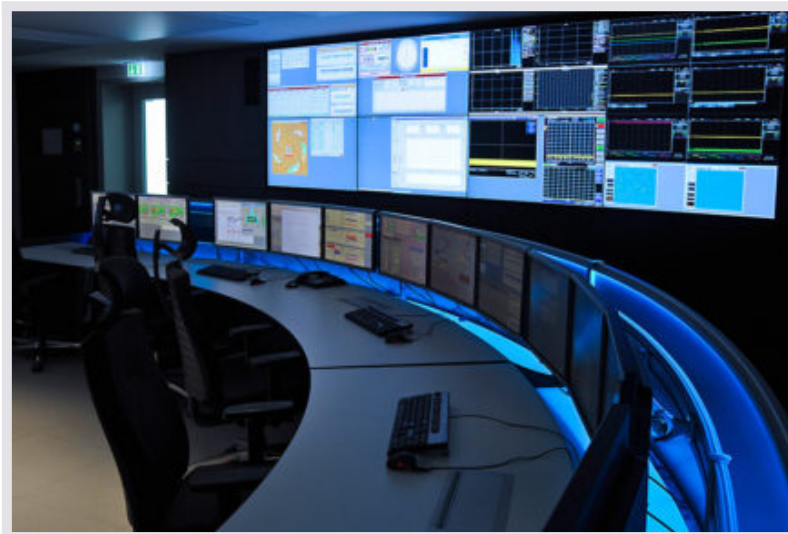
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