

Our latest technologies mean

WE MOVE. YOU WIN.





Exhibit Floor Plan

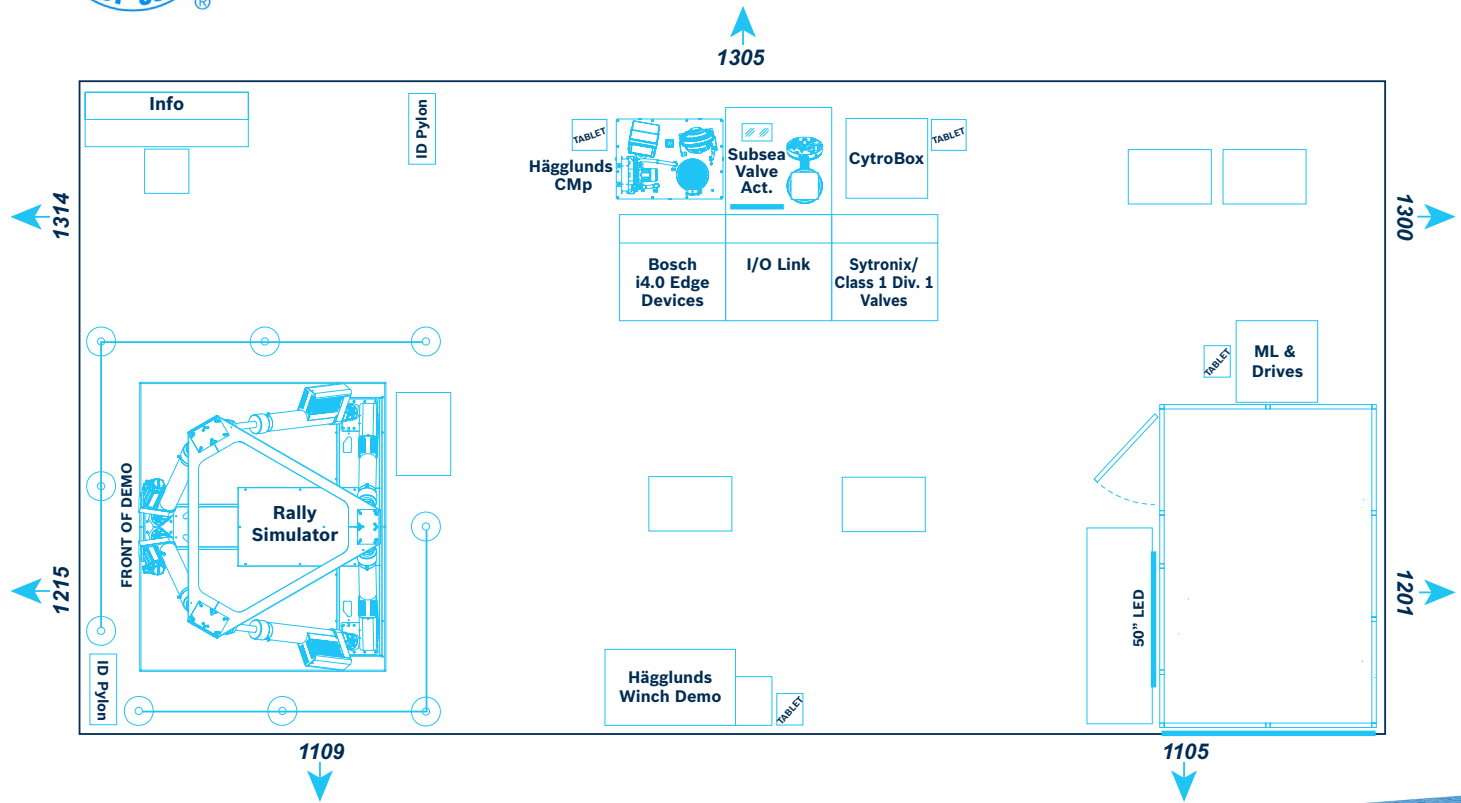


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Lower operational costs and minimized equipment downtime means We Move. You Win.

The maritime market is facing a tremendous shift in technology as well as business models, and i4.0 technologies play an important part. During OTC 2019, Bosch Rexroth will highlight many technologies that can help offshore operators deploy applications that combine stability, safety and efficiency, and a few that emphasize our i4.0 ready products. This is your opportunity to get a first-hand look at our multi-technology systems, control systems and electro-mechanical and electro-hydraulic actuators. Explore our interconnected technologies and our expert service, keeping your equipment operating at peak performance.

An exciting highlight at OTC 2019 is the opportunity to see a Rexroth system in action. Experience the full power and control of our electro-mechanical actuators by riding the rally simulator!

Stop by and get a look at Rexroth's products that are changing the future of the offshore industry. Visit booth 1205, Hall D and talk to our experts. **#RallywithRexroth**

www.boschrexroth-us.com/otc





Motion Compensation Systems, featuring the Rally Simulator

Experience for yourself the amazingly smooth movements and low noise levels generated by this Bosch Rexroth motion simulation platform. This dynamic exhibit shows Rexroth's expertise in engineering and building high performance systems that work reliably and efficiently.

The standardized eMotion 1500 hexapod system consists of six identical electromechanical actuators, mounted on a triangular base plate. A SERCOS based control system is integrated in the center.

Complementing the Virtual Reality rally visuals with actual movements, the platform provides an extremely realistic experience, as if you would be driving in the real world.

Benefits

- Performance in the areas of noise, payload and dimensions is significantly improved

- Reliability and low cost of ownership
- Safe operations
- Energy efficient
- Low maintenance
- Optimal motion control
- Best in class smoothness

Applications

- Flight simulators
- Driving simulators
- Cabin crew trainers
- Comprehensive range of application-based motion systems



SVA – for the All-Subsea Factory

Subsea Valve Actuator

The Subsea Valve Actuator (SVA) is an electro-mechanical actuator with hydrostatic drive designed to complete the range of traditional hydraulic and all-electric subsea actuators for subsea control and production systems.

The SVA achieves the same safety performance as hydraulic actuators, but with much better reliability. It also provides a simple electric interface similar to those in all-electric actuators, without umbilicals for hydraulic fluid power.

Connectivity Features

- Compatible with Industry 4.0 technology, the SVA includes integrated sensors for monitoring position, pressure, temperature, and more

Benefits

- Increased automation
- Safety built-in with redundant systems
- Environmentally friendly
- Energy efficiency
- Modular design
- Subsea cabling

Applications

- All subsea factory
- Ultra-deep production fields
- Subsea Tree and Manifolds





Smooth sailing in tough applications with Häggglunds Winch Solutions

The unique design of a Häggglunds hydraulic motor gives it the special features that make them an ideal match for marine winch applications.

With a wide range of solutions ranging from the unique Häggglunds VI motor (with an amazing up to 98% starting efficiency) to the most compact but powerful CA to Häggglunds CBm motor range we can provide reliable performance to the most demanding of marine applications.

Benefits

- Compact and lightweight
- High starting torque
- Unlimited starts and stops

- Minimal maintenance
- Reliability
- Low noise level

Applications

Bosch Rexroth delivers marine and offshore winch systems for many different functionalities on ships:

- Anchor and Mooring winch
- Towing winch
- Davit / crane winch
- Heave compensation winch

Maximize productivity with Hägglunds Inside Intelligence

With the Hägglunds Drive System with CMP exhibit, Rexroth demonstrates how a Hägglunds system with connectivity works, how this enables you to gain extended knowledge about your machines, and how this can increase your productivity.

Drive condition monitoring from Bosch Rexroth

Hägglunds Condition Monitoring (CM) and Hägglunds Condition Monitoring premium (CMP) show you the true health of your Hägglunds drive and connected hydraulics. By establishing a link between your drive system and Bosch Rexroth expertise, they enable instant analysis and predictive maintenance. That lets you avoid the cost of downtime and reduce your total cost of ownership (TCO).

Hägglunds CMP with ODIN analytics

Hägglunds CMP offers a complete health index, including historical data, trending, and deeper analytics. Through secure and encrypted data communication, it lets Bosch

Rexroth – or your own skilled engineers – look within the drive to optimize performance and initiate condition-based maintenance.

Part of Hägglunds Inside Intelligence

Hägglunds CM and Hägglunds CMP are part of Hägglunds Inside Intelligence, a suite of condition-based tools and services designed to unlock your drive system's full potential. This growing portfolio combines the advantages of Hägglunds original service with smart technologies and interactive solutions.

Benefits

- Analytics, expert advice and planned maintenance
- Connectivity package for service solutions
- With Hägglunds InSight Live, our AR solution, you're in direct connection with your Hägglunds Service Expert





**The Future of
Hydraulics has started.**

CytroBox

FUTURE STARTS NOW

CytroBox – efficient, intelligent, compact and quiet

New ways of thinking and new design approaches are what make hydraulic power units the key components in the efficient and intelligent factory of the future. Focusing on customer values is what drives Bosch Rexroth in the design of new products. Rexroth's latest power units boost the efficiency in production with their energy-efficient operation, innovative design and intelligent networking.

Connectivity Features

- Integrated CytroConnect IoT service ensures higher availability and avoids unplanned downtimes
- Operators can monitor operating statuses and plan maintenance in a cost-effective manner

Benefits

- Efficient power with sophisticated energy management
- Flow-optimized manifold block

- Less noise emission for more work comfort
- Full performance in the smallest installation space
- Cleverly networked to condition monitoring

With the CytroConnect digital service, operators have information regarding the CytroBox at their fingertips, such as standardized visualization of the component, operating status, chargeable IoT services such as maintenance work, and predictive maintenance analyses using Rexroth's Online Diagnostics Network (ODiN).

- Plug & Play – No Installation Effort
- Accessible everywhere – conveniently via Web App
- Basic Service CytroConnect Monitor + Use Case addressing add-on services
- The Basic CytroConnect Monitor Service comes free of charge with your CytroBox



IndraDrive ML Drives: Power, performance control, and connectivity

IndraDrive ML extends the IndraDrive series into the upper power range: individually up to 500 kW, connected in parallel up to 8 devices and up to 4 MW. Rexroth's space-saving, modular inverters can be used as a mains power inverter or as a motor inverter. Combined with innovative energy saving features the design is a real cost saver! IndraDrive ML drives are marine certified, and can be on ships, offshore platforms, in heavy industrial settings – anywhere long life and reliability for critical use is important.

Connectivity Features

ML Drives feature intelligent operation features and connectivity not typically available in drives in this size range. Your system can be monitored for predictive maintenance, monitored remotely, and can be more efficiently designed given the ease of integration due to multi-ethernet / Open Core Interface.

Benefits

- Size: Reduced mass, less cabinet space, compact design

- Modular: Reduction of variants and stock costs for simplified handling
- Energy efficient: Reuse of energy through regeneration, storage, and/or sharing
- Efficient cooling: High power density, more effective cooling path, and lower cost cooling.
- Robust: Rugged mechanical components and laminated power interconnect
- High dynamic operation: Multi-axis coordination, multi-ethernet
- Energy monitoring: Accessible via Open Core Interface

Applications

- Trawler and anchor winches
- Hoist, slewing and luffing drives for ship or offshore cranes
- Propulsion systems
- Container cranes, conveyor belts



IO-Link

Rexroth's IO-Link replaces analog 0-10VDC and 4-20mA wiring for most systems. IO-Link digital communications protocol allows sensors, valves, and actuators to receive and send information to a machine PLC for truly connected hydraulics.

Connectivity Features

- Sensors, valves, and actuators transmit data to a machine PLC which can be used for predictive component failure analysis
- Allows sharing of Information regarding operating conditions and expected response

Benefits

- Eliminates analog wiring for proportional control valves
- Makes digital information available from the hydraulic valves and sensors
- Costs less than analog signals when incorporated into OEM equipment
- Easy to implement: No third party commissioning software needed
- True plug and play digital communications
- Internationally supported standard for point-to-point device communications

Applications

- Harsh environmental conditions

i4.0 Edge Devices

Bosch Connected Devices and Solutions provides a suite of i4.0 edge device. Each device is built with MEMS sensors that will allow the user to monitor their machines and the surrounding environment.

How it relates to i4.0

- Our edge devices help bridge the gap between the physical and digital world, giving a digital signature to machines that can be analyzed and monitored.



Benefits

- All devices are cloud agnostic, giving the user the benefit of integrating the sensor devices into their current ecosystem
- The XDK110 is freely programmable, allowing the user to prototype almost any use case
- The CISS multi-sensor device is robust to work in most factory environments
- The IVAS vibration sensor, monitors high precision and high bandwidth vibration signals
- The TDL110 brings transparency to your supply chain by sensing and recording relevant temperature, humidity, tilt, and shock events



Applications

- Machine Learning
- Predictive/Preventative Maintenance
- Condition Monitoring
- Process Control/Management

Sytronix Drive with Class 1 Div. 1 Valves

5020 FcP

This interactive demo model highlights the Explosion proof Valves with NEC500 FM approval, 5020 FcP variable speed pump controller and XM21 programmable logic control with IEC-Ex type approval. The VR21 touch screen HMI display operates and controls the demo.

Benefits

- Variable speed drives with a power range 0.4-160kW
- FcP 5020 utilizes fixed displacement pump to provide energy-efficient constant pressure source
- XM21 is a PLC and motion controller
- 4WE6 valves with NEC500 Class 1 Div 1

Applications

- Accumulator and clamping systems
- Pilot pressure control for larger hydraulic systems

Winch Demo with VT-HPCn

This interactive demo model highlights the VT-HPCn pump controller, with Sytronix variable speed “n” function. It also features an explosion proof directional valve, a 5020 FcP as a pilot pressure source, an EFC 5610 providing variable speed operation of an induction motor, a XM22 PLC controlling the motion and positioning of a Hägglunds CA50 Hydraulic motor and a A4-HS5 high pressure hydraulic pump. Additionally, the XM22 hosts Rexroth’s WebConnector demonstrating easy and powerful data monitoring and connectivity.

Benefits

- Variable speed operation maximizes efficiency and minimizes noise and losses of closed loop flow and pressure control
- Multi-axis synchronization and robotic control capabilities
- Unequaled power density of Hägglunds motors
- Condition monitoring and multi-Ethernet bus communication

Applications

- Winch control for synchronized speed and positioning systems



Specialized Service for Offshore Applications

Rexroth’s specialized service centers offer an experienced, responsive network of field service technicians, as well as service center-based repair, warranty, and maintenance programs. We only use Genuine Rexroth spare parts and the latest technologies, not just what fits. We feature expert application development support, drawing on world-class Rexroth engineering resources.

We service:

- Axial piston hydraulic pumps
- Axial piston hydraulic motors
- Hägglunds motors
- Large hydraulic cylinders
- Energy actuators

Applications

- Offshore
- Marine / Dredge
- Special Systems
- Motion Technology
- Civil Engineering
- (Heavy) Industry
- Bulk Handling

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