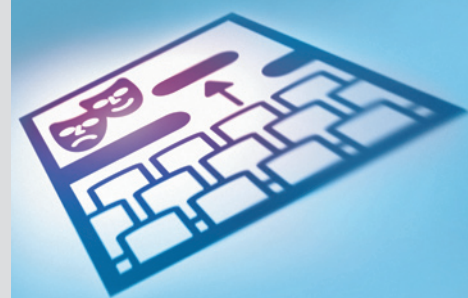
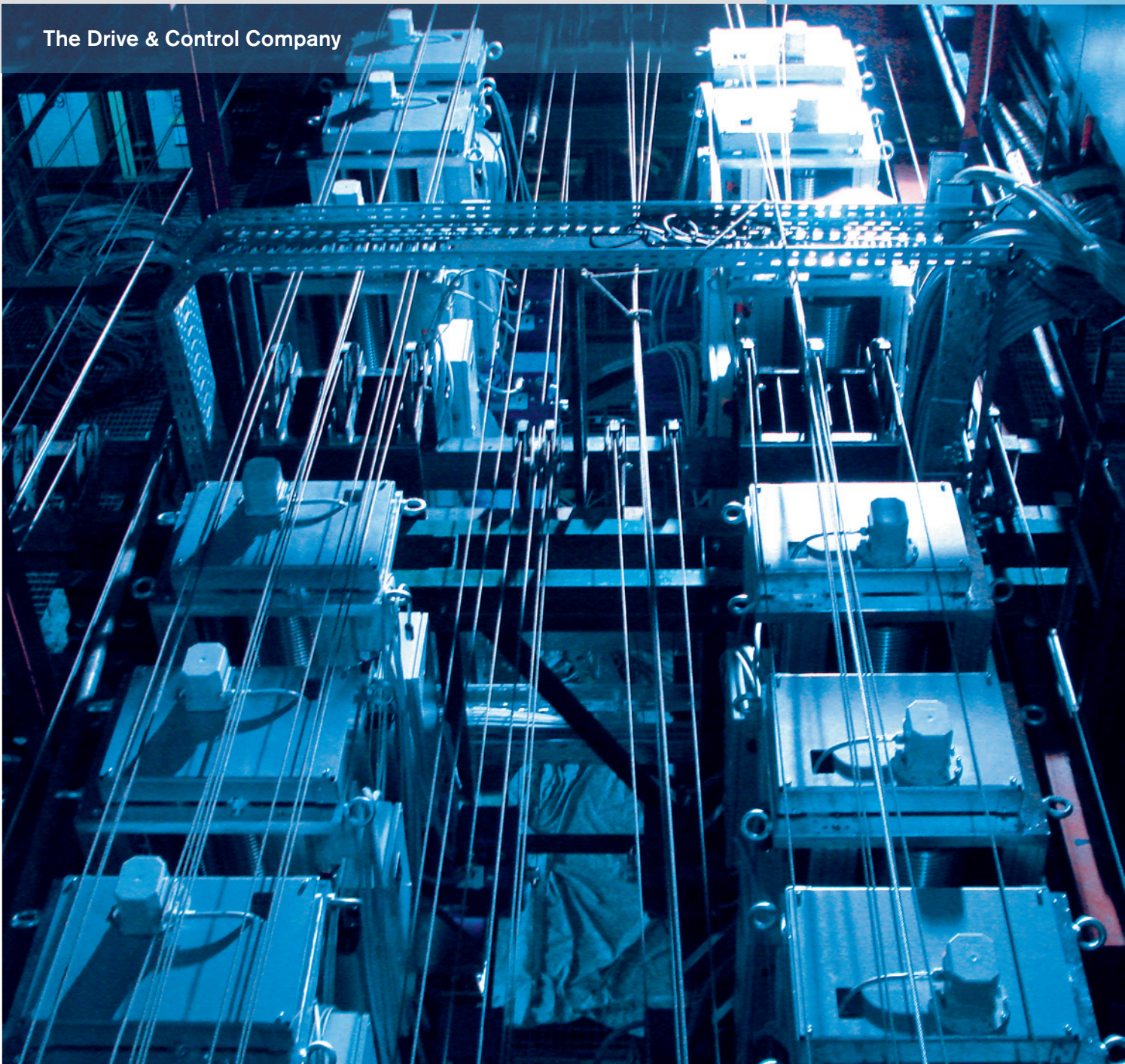


Stage Technology Electric Winches for Upper Stage Machinery

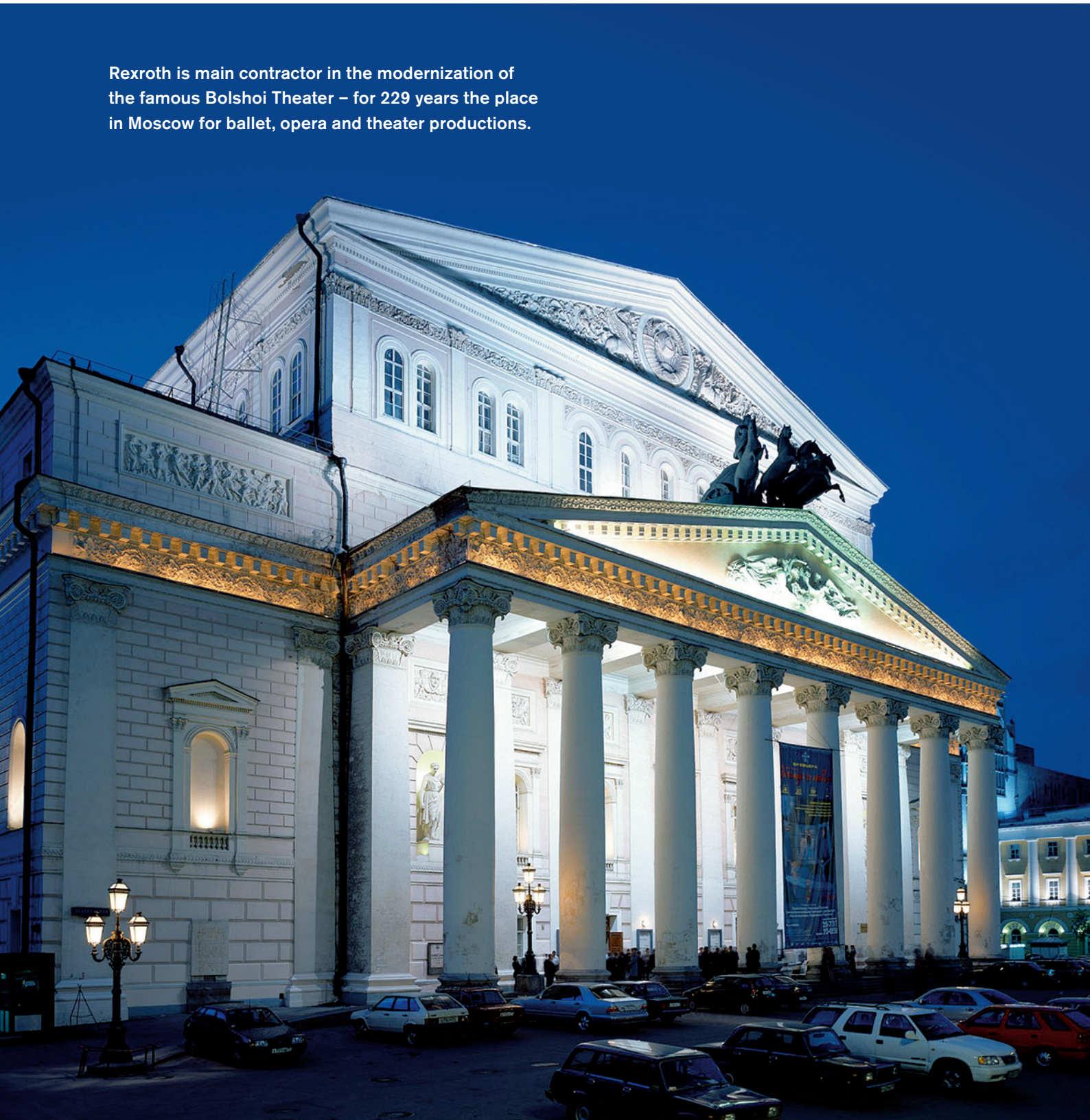


The Drive & Control Company



Realizing the Vision

Rexroth is main contractor in the modernization of the famous Bolshoi Theater – for 229 years the place in Moscow for ballet, opera and theater productions.

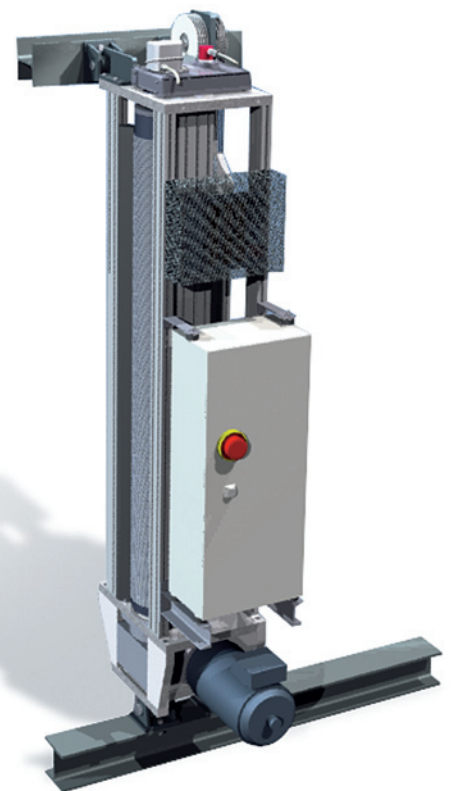


Electric Winches for Upper Stage Machinery



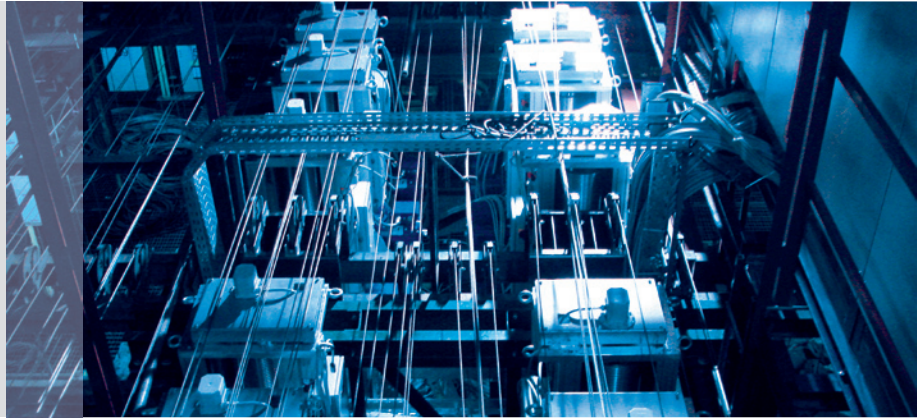
Bosch Rexroth has developed a wide range of drive concepts for stage technology. Working together with the customer, electric or hydraulic drive solutions can be selected and Bosch Rexroth is able to supply both technologies. The drive presented here is installed in the upper stage machinery.

The new generation of electric winches is normally designed to accommodate one or more cables and is thus suitable for use as a point hoist, backdrop or fly hoist, lighting hoist or for operating the main curtain, to name a few. Reference systems using the aluminum winch are to be found in the Bayreuth Festival Theater and soon also in the Bolshoi Theater, Moscow.



Advantages

- Compact design
- Low dead weight
- Low noise operation
- High duty cycle
- Winch family of modular design



Mechanical Construction

The new generation of Bosch Rexroth electric winches consists essentially of drive section, aluminum profile frame, winding apparatus and drum. The main components are manufactured predominantly from a special aluminum alloy, but this will depend on the version selected.

The drive section is constructed as follows:

- Asynchronous motor
- Noise-optimized worm gear
- Electromagnetic double spring pressure brake
- Torsionally flexible coupling

This series winch contains the following sensors:

- Load measuring device with overload and under-load detection i.e. weighing function
- Slack cable monitoring via Cu (copper) rail
- Overwind protection via Cu (copper) rail
- Incremental and absolute value transducer
- Gear limit switch for operation end and emergency stop
- Gear limit switch for cable operation end or cable emergency stop (point hoist)

Optional:

- Electromechanical emergency drive
- Brake with hand-release

The electric control cabinet with integrated power electronics is mounted locally directly onto the winch. The axis controller can also be integrated if required, enabling the winch to be delivered as a complete, factory-tested unit, then only needing to be connected to the redundant bus for communication and to the power supply.

The scope of supply is not limited just to the delivery of the electric winches; the following may also be included, depending on customer requirements:

- Backdrop or fly hoist / Point hoist
- Lifting cables
- Load bar
- Pulleys
- Steel construction
- Stage control system
- Engineering (inc. budgeting, project design).
- Assembly, commissioning, acceptance test.
- Training
- Maintenance



The Drive & Control Company

Rexroth is unique. No other brand on the world market can offer all drive and control technologies, both on a specialized and integrated basis. With approximately 28,000 employees in more than 80 countries around the world, Rexroth has an infrastructure designed with partnership and customer proximity in mind. Over 500,000 customers worldwide utilize the know-how of the technology leader.

- Electric Drives and Controls
- Hydraulics
- Linear Motion and Assembly Technologies
- Pneumatics
- Service

Technical Data: PUN 1000 daN

Project: Bolshoi Moscow

Payload	1000 kg
Speed	0.001 – 1.8 m/s
Nominal motor power:	24 kW / S3-40 % ED
Lift	27 m
Lifting cables	1 x
Cable diameter	11 mm
Dead weight:	1000 kg
Noise	< 58 dB(A) *

* Measurements at 1 m distance at a cable speed of 1.44 m/s and 790 kg payload

Technical Data: PRO 1000 daN

Project: Bolshoi Moscow

Payload	1000 kg
Speed	0.001 – 1.8 m/s
Nominal motor power:	20 kW / S3-40 % ED
Lift	27.5 m
Lifting cables	8 x
Cable diameter	6 mm
Dead weight:	1200 kg
Noise	< 61 dB(A) **

** Measurements at 1 m distance at a cable speed of 1.44 m/s and 1000 kg payload



Intelligent Hydraulics in New Dimensions

Whether it's a case of raising or lowering loads smoothly, undertaking linear or rotational movements, achieving even acceleration or accurate positioning, maintaining preset speeds, transmitting power or linking motion sequences – in fact, wherever economical power is required, this is where hydraulics comes into its own.

Using hydraulic drive and control technology from Rexroth will help you become more competitive than ever.

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