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CytroBox

CytroBox

FUTURE STARTS NOW

New ways of thinking and new design approaches are what makes hydraulic power units the key components in the efficient and intelligent factory of the future. Today, the latest power units already boost efficiency in production with their energy-efficient operation, innovative design and intelligent connectivity.

With CytroBox, Bosch Rexroth are revolutionizing hydraulic supply units and sustainably changing people's perception of hydraulics. We are writing a new chapter in the history of hydraulic drive technology.

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FUTURE STARTS NOW

The Future of Hydraulics has begun.

Connected Hydraulics

Now. Next. Beyond.

Compact, energy-efficient, quiet and connected- this is the hydraulic power unit of the future called CytroBox.

The unique selling points of the CytroBox is that it require 75 % less space, reduced from 2 sqm to 0,5 sqm, save up to 80 % of energy, reduce oil volume by 75 % and reduce noise emissions by 10 dB(A).

The digital service CytroConnect makes the CytroBox a „Connected Product“. Cloud based standard applications provide the user with status visualization and data evaluation on mobil devices.

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FUTURE STARTS NOW

The Future of Hydraulics is uncompromisingly compact.

Less Space. More Power.

If machine manufacturers want to make their production fit for the future, they need new and intelligent machines and hydraulic drives which can be flexibly installed in a space-saving way.

Which is why the CytroBox combines everything in a single housing. The all-in-one power unit combines a small footprint with a novel and compact design.

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Full power in the smallest installation space.

INNOVATIVE DESIGN CONCEPT.

All functionalities are integrated in a compact cabinet design - thus reducing the space requirement from 2 sqm to 0.5 sqm. This allows the CytroBox to be installed in production lines in a space-saving manner.

POWERFUL SYNCHRONOUS MOTORS.

The use of synchronous technology also has a space-saving effect. Powerful synchronous motors with a length of only 400 mm and a diameter of 200 mm are up to 90 percent smaller than comparable asynchronous motors.

Further advantages of synchronous technology are not only the higher dynamics but also the increased energy density.

75 % LESS OIL.

Thanks to a CFD simulation, the oil volume is reduced by 75 percent – from 600 liters to only 150 liters.

RENUNCIATION OF COOLING PIPES.

In addition to the compact components, the innovative water-cooling concept eliminates the need for additional cooling circuits with pump and motor.

EASY TO INTEGRATE.

In the new hydraulic power unit, all of these functions are combined in a compact cabinet. As a result, the CytroBox can be integrated into existing production lines in a flexible, space-saving manner.

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The Future of Hydraulics is connected.

Less Surprises. More Availability.

The CytroBox was designed with the requirements of the factory of the future in mind. The CytroBox is equipped with a pre-configured and wired sensor package whose data is processed by the drive controller. Multi-Ethernet and open-core interfaces allow easy use of this data in higher-level data systems or modern automation architectures.

In addition, with its own IoT service CytroConnect, the CytroBox offers the possibility to tap the potential of IoT technologies as a usage-based service – through plug-and-play and without risk. All information on the CytroBox is thus always conveniently at hand.

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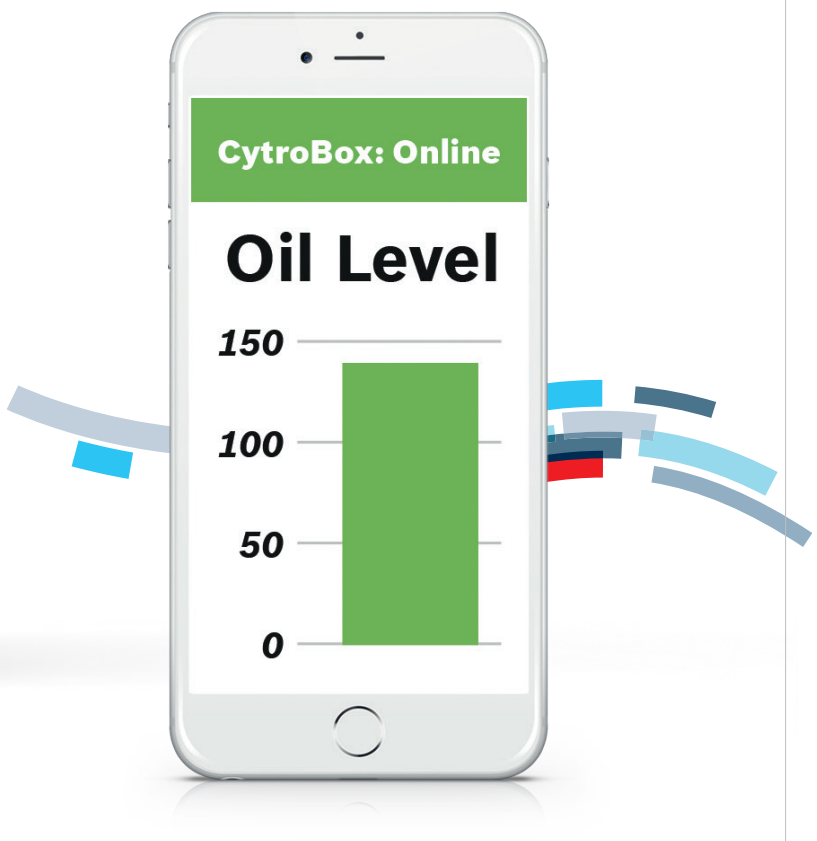
Cleverly connected – intelligent prevention of machine downtimes.

CytroConnect MONITOR

With the CytroConnect MONITOR, operators have all information regarding the CytroBox at their fingertips at all times. The data collected are transferred to the browser-based CytroConnect MONITOR web dashboard via Multi-Ethernet or 4G-LTE. As a result, operators can be kept up to date regarding the current operating status and key status indicators on any end device (tablet, smartphone, PC). This plug and play service is free of charge and can be used without additional installation work. CytroConnect is implemented in the CytroBox as standard.



CytroConnect MAINTAIN

With CytroConnect Maintain, the data of the most important components for reliability and lifetime are evaluated - the hydraulic fluid and the drive unit. Extensive experience on the causal relationship between the speed of the servo motor and the volume flow allows the monitoring of system leakage. Correlations between motor data and operating pressure allow conclusions to be drawn about drive behavior. Leakage sensor, temperature and level sensor, particle sensor, water sensor and oxygen sensor are further data sources which can be used to make a condition diagnosis. In case of deviations, operators are automatically informed by push message.

CytroConnect PREDICT

With CytroConnect PREDICT a predictive analysis of the system is performed for maximum system availability. In case of deviations, the system automatically calculates the ex-pected lifetime of the affected component and immediately informs the operator via push message.

Predictive maintenance can be planned in advance in the operator‘s maintenance plans, thus ensuring maximum availability.

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The Future of Hydraulics conserves on energy.

Less Consumption. More Efficiency.

The new CytroBox raises the level of production to the new limits. This new limits generation of hydraulic power units for medium-range performance up to 30 kW impresses. With its intelligent combination of speed variability, synchronous motor and axial piston pump, makes the power unit even more efficient than comparable products.

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Efficient power package with sophisticated energy management.

THE NEXT LEVEL.

The hydraulic manifold is manufactured using an additive manufacturing process. This enables a more compact design of up to 40% and an optimization of the flow channels with regard to pressure losses and reduced leakage, as fewer screw plugs are required.

PERFECT COORDINATION.

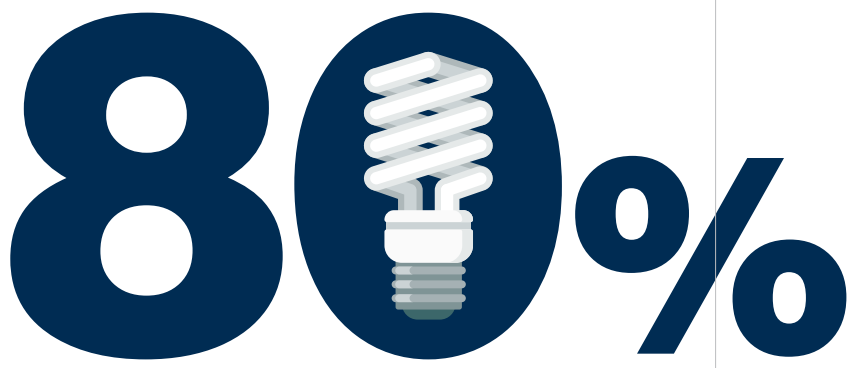
The CytroBox impresses with its smart combination of speed variability, synchronous motors and axial piston pumps, which make the power unit even more efficient than comparable products. This is thanks to the ideal combination of servo motor and pump, as well as needs-based energy consumption.

VARIABLE SPEED PUMP DRIVE ENERGY ON DEMAND.

Preset controllers in variable-speed pump drives adjust the energy requirements of the machine to match the particular conditions. Consequently, the speed is reduced under partial or no load to save energy, and conversely increased under full load with a highly dynamic response.

80 % ENERGY SAVING.

Up to 80 percent energy saving compared to constantly driven power units are achieved through the use of variable-speed pump drives.



Up to 80 percent energy savings through the use of variable speed Pump drives.

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FUTURE STARTS NOW

The Future of Hydraulics is really quiet.

Less Noise Emission. More Flexibility.

In addition to more energy-efficient production, manufacturers should also take low-noise equipment and procedures into consideration. In accordance with the German Noise and Vibration Work Safety Ordinance (LärmVibrationsArbSchV), the daytime sound pressure level should not exceed an average of 80 to 85 dB (A) or a peak of 135 dB. With less than 75 dBA at full load, the new hydraulic power unit CytroBox clearly falls well below these limitations.

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Lower noise emission for a comfortable working environment.

NO PROBLEMS OF LIMIT VALUES.

The daytime sound pressure level should not exceed an average of 80 and 85 dB (A) or a peak of 135 dB (A). The noise emission of the CytroBox is less than 75 dB(A) - even under full load. Comparable units have an average noise level of 85 dB(A).

PLEASANT COST REDUCTION.

A low level of noise emission reduces the need for additional measures and ensuing costs for noise reduction. It also makes working very pleasant, even in direct proximity to the hydraulic power unit.

ABSORBTION OF VIBRATIONS.

The motor pump group is rigidly mounted to a polymer concrete foundation. The compound of the polymer-concrete increases the inertial mass, whereby the center of gravity of the power unit is located lower. Any vibrations that arise are absorbed efficiently.

NO TRANSMISSION OF NOISE.

The airborne sound is absorbed completely by the compact arrangement of all the components in one unitary housing and the builtin sound absorbing insulation. This way, no sound leaks out. In order to reduce noise absorbing insulation stemming from structure-borne noise, the motor pump group is rigidly fixed to a polymerconcrete foundation. The damping bearings, which typically transmit the noise to the tank, are completely eliminated.

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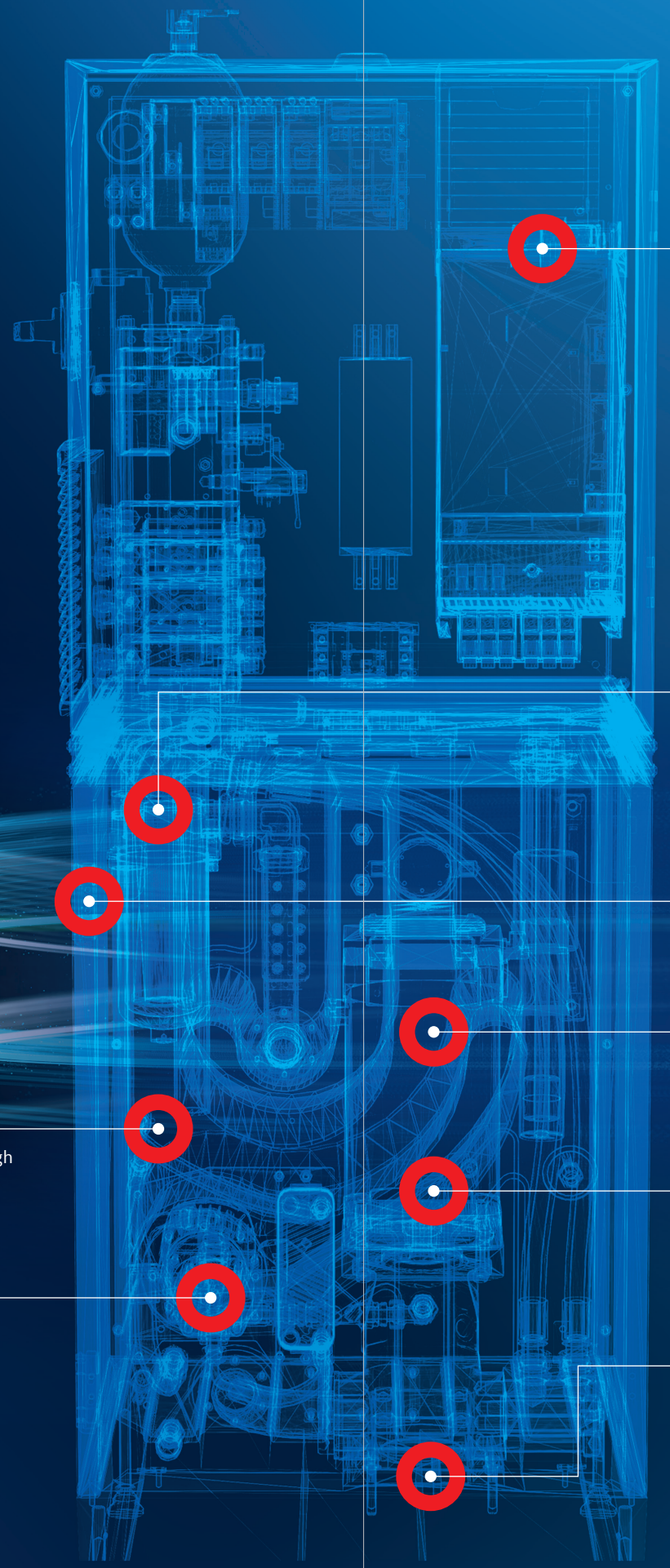

Drive Controller:
Variable speed drive:
Energy on Demand

Flow optimized manifold:
Flow optimized through additive manufacturing process

Housing:
Airborne noise is absorbed in noise damping

Motor-pump group:
Drive unit synchronous motor and axial piston pump

Synchronous motor:
Higher power density through water cooled synchronous motor

Polymer concrete:
The polymer concrete absorbs vibrations of the drive.

Tank:
Tank size reduction through myCro optimized tank

Cooling Assembly:
Integrated water cooling

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Hydraulic Power Unit CytroBox

Maximum operating pressure	315 bar
Maximum flow	160 l/min
Power up to	30 KW
Maximum oscillating volume	50 l
Maximum tank capacity	150 liters
Noise	< 75 db(A)

More information:
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