

Future starts now - The hydraulic power unit CytroBox

Compact, energy-efficient, quiet and connected –
the new hydraulic power unit CytroBox up to 30 kW



THE FUTURE OF HYDRAULICS...

- ▶ ...is uncompromisingly compact – **Less Space, more Power:** Space Savings up to 50%
- ▶ ...conserves on energy – **Less Consumption, more Efficiency:** Energy savings up to 80%
- ▶ ... is really quiet – **Less Noise Emissions, more Flexibility:** Less than 75dB (A)
- ▶ ... is connected – **Less Surprises, more Availability:** with integrated IoT Services CytroConnect

The CytroBox

Compact, energy-efficient, quiet and connected - this is the hydraulic power unit of the future called CytroBox. The USP's of the CytroBox is that it requires 50% less space, saves up to 80% of energy, reduces oil volume by 75% and reduces noise emissions by 10dB(A). The digital service CytroConnect makes the CytroBox a "Connected Product". Cloud-based standardized applications provide the user with visualization and evaluation of system status on mobile devices.

LESS SPACE, MORE POWER

CytroBox's all-in-one power unit saves space in production lines. It combines a small footprint with a compact design, which also includes the degassing and flow-optimized tank. Thanks to a CFD simulation, the oil volume is reduced by 75 percent from 600 liters to 150 liters.

To reduce the size even more, its high-performance synchronous motors have a length of only 400mm and a diameter of 200mm, making them up to 90 percent smaller than comparable asynchronous motors. Further advantages of the synchronous technology includes higher dynamics and increased energy density. In addition to the compact components, the cooling lines held to a minimum thanks to the innovative watercooling concept.



LESS CONSUMPTION, MORE EFFICIENCY

CytroBox hydraulic power units have a power range up to 30 kW, and offers an intelligent combination of speed variability, synchronous motors and axial piston pumps. Efficiency is achieved via the optimum adjustment of servo motor and pump, and also by demand-oriented energy consumption. Predefined controllers in the variable-speed drives adapt the energy requirement of the machine to prevailing conditions. At partial or zero loads the speed is lowered, saving energy, while at full load it's increased.

This flexibility delivers energy savings of up to 80 percent compared to units driven at constant speeds. The hydraulic block has been manufactured using an additive manufacturing method, resulting in a design that is 40 percent more compact and comes with improved flow channels. This in its turn reduces pressure loss and minimizes leakage due to the innovative design.

LESS NOISE EMISSIONS, MORE FLEXIBILITY

CytroBox hydraulic power units also keep noise to a minimum. Airborne sound is absorbed by the compact arrangement of all components in the unit housing and by built-in sound insulation material, so no sound escapes. The motor pump group is rigidly fixed to a polymerconcrete foundation.

CYTROCONNECT

With the integrated CytroConnect IoT service, Bosch Rexroth offers everything needed for a highly available hydraulic supply solution. The browser-based dashboard by CytroConnect Monitor provides operators with the relevant operating status, free of charge and regardless of their user interface - whether it be a smartphone, a tablet or a PC.

The CytroConnect Maintain service, which can be subscribed to on a monthly basis, assesses the reliability and life cycle of the hydraulic fluid and drive unit - both key components. The CytroConnect Predict service allows for a predictive analysis of the overall system and also enables the pay-per-use functionality. With the help of the machine learning algorithms, offered by the Rexroth Online Diagnostics Network (ODiN), maintenance can be planned and carried out more cost-effectively and thereby make use of the maximum operating life of individual components.

www.cytroconnect.com

TECHNICAL DATA

Hydraulic Power Unit CytroBox	
Maximum operating pressure	315 bar
Maximum flow	160 l/min
Power	30 kW
Maximum oscillating volume	50 liters
Maximum tank capacity	150 liters
Noise	< 75 db(A)

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The damping bearings, which typically transmit the noise to the tank, are completely eliminated. The compound polymer-concrete foundation increases the inertial mass, whereby the center of gravity of the power unit is located deeper. Any vibrations which arise are absorbed efficiently. Consequently, the noise emission of the hydraulic power unit is less than 75 dB(A) – even at full load. Comparable power units have an average noise level of 85 dB(A). A low level of noise emissions 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.

LESS SURPRISES, MORE AVAILABILITY

Modern automation concepts will only be futureproof if they are capable of adapting to upcoming innovation and new environments. Machines and their modules will exchange information and commands utilizing open interfaces, wireless technologies and smart condition monitoring concepts. CytroBox comes with just this kind of thinking in mind. CytroBox is equipped with preconfigured and wired sensor package, which is processed by the drive. Multi Ethernet interface and Open Core Interface enables the convenient usage of this data in higher level data systems or modern Machine Automation Architectures. Furthermore, the included CytroConnect IoT service unlocks the potential of IoT technologies to operators such as a Pay-per-Use Service – Plug & Play and riskless. All information on the power unit is easily at hand anywhere you go – whether component states and operation point, upcoming maintenance needs or predictive analytics utilizing the Rexroth Online Diagnostics Network (ODiN).

www.boschrexroth.com/cytro

“The CytroBox combines our latest technologies in a compact and attractive design. It is revolutionizing the market and setting completely new standards. The result: the Footprint is reduced by 50% and at the same time there is a noise reduction of up to 70%. In addition, the CytroBox saves up to 80% of energy, up to 75% of hydraulic fluid and provides ready-to-use connectivity.”

Jörg de la Motte, Senior Vice President of Industrial Hydraulics, Product Area – Power Units & Manifolds

Manufacturers have always needed energy efficiency from their power units, compactness and low noise levels are sure to have been on their wish-lists as well. In recent years these demands have been joined by others, in particular by the new levels of efficiency and flexibility that digital transformation can bring. All such requirements are met by the CytroBox, a valuable asset in the Factory of the Future.

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