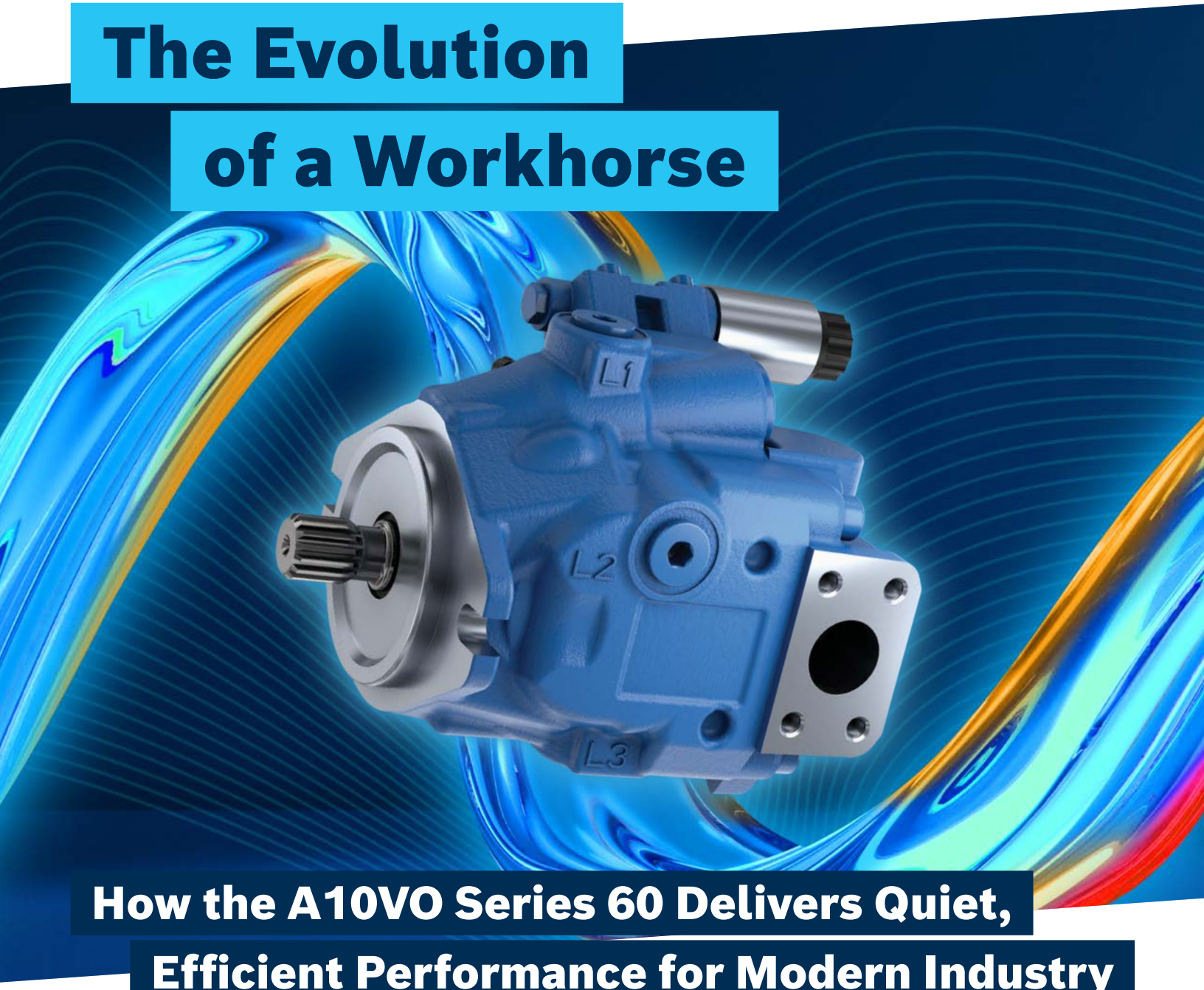
WHITEPAPER

Evolution MOTION SOLUTIONS

rexroth
A Bosch Company

The Evolution of a Workhorse



How the A10VO Series 60 Delivers Quiet, Efficient Performance for Modern Industry

The Bosch Rexroth A10VSO axial piston pump has long been a benchmark for reliability in medium-pressure (280 bar) open-circuit applications. The introduction of the Series 60 represents a significant evolution of this platform, specifically addressing the modern industrial demands for lower noise emissions, higher efficiency, and more compact machine design. This whitepaper will detail the key engineering advancements in the A10VSO Series 60, including its noise-optimized "Silence" version featuring a pre-compression volume (PCV) that reduces pressure pulsation by up to 50%. We will also examine its high overall efficiency, compact design, and versatile through-drive capabilities that make it the new standard for industrial applications such as machine tools, plastics machinery, and presses.

ADDRESSING THE MODERN INDUSTRIAL ENVIRONMENT: THE IMPERATIVE FOR QUIET OPERATION

Noise reduction is no longer a luxury in machine design; it is a critical factor for operator safety, comfort, and productivity. A primary source of noise in hydraulic systems is pressure pulsation generated by the pump. The A10VSO Series 60 directly addresses this with an optional configuration known as the "Silence" version. This design incorporates a pre-compression volume (PCV) into the pump's port plate. The PCV acts as a hydraulic damper, smoothing the transition of the pistons from the low-pressure to the high-pressure side. This pre-compression of the fluid before it enters the pressure port significantly dampens the resulting pressure ripple, achieving a pulsation reduction of up to 50% and leading to a noticeably quieter machine.

EFFICIENCY AND COMPACTNESS: DOING MORE WITH LESS

The A10VSO Series 60 builds upon the proven swashplate design known for its high overall efficiency. This efficiency minimizes wasted energy, which translates directly to lower operating costs and reduced heat load on the system, potentially decreasing cooling requirements. Furthermore, the Series 60 has been optimized for an excellent power-to-weight ratio. Its compact dimensions allow designers to integrate powerful hydraulics into smaller spaces, supporting the trend of more consolidated and cost-effective machine footprints.

SYSTEM FLEXIBILITY THROUGH MODULAR DESIGN AND THROUGH-DRIVE

A hallmark of the A10VSO platform is its versatility. The Series 60 continues this tradition with a wide range of proven controllers, from basic pressure controllers (DRO) to pressure-flow controllers (DRF/DRS) and electro-hydraulic controls (EC4). This modularity allows a single pump platform to be adapted to numerous control requirements. Crucially, the robust design of the Series 60 supports 100% nominal torque through-drive capability. This allows for the direct mounting of additional pumps, including other A10VSO pumps or gear pumps, to create multiple, independent hydraulic circuits powered by a single prime mover. This eliminates the need for external splitter gearboxes, reducing component count, cost, complexity, and potential points of failure in the system.

THE LEGACY OF RELIABILITY

While offering significant modern enhancements, the A10VSO Series 60 is an evolution, not a revolution. It retains the fundamental design principles and robust construction that have made the A10VSO name synonymous with durability and long service life. By building upon this proven foundation, the Series 60 offers machine builders a low-risk, high-reward solution that combines the reliability of a known standard with the quiet, compact, and efficient performance demanded by today's competitive industrial market.

The A10VSO Series 60 is the intelligent progression of an industry standard. It meets the critical demands of modern machine building by delivering a solution that is significantly quieter, highly efficient, and more compact, all while upholding the legendary reliability of the A10VSO platform. For medium-pressure industrial applications, it represents the new benchmark for quiet power and proven performance.

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