

p330 gear pump

In the complex systems of modern industry, hydraulic transmission functions like the circulatory system, supporting every precise movement of equipment. Whether driving the thunderous operation of heavy machinery or enabling the subtle control of precision instruments, the hydraulic pump—as the system's “heart”—directly determines equipment reliability and efficiency. The P330 series gear pump from Runhe Hydraulics is precisely such a power core, engineered for high-pressure, high-load applications. With its exceptional technical performance and broad adaptability, it has become a trusted solution across global industries.

1. Crafted with Precision, Setting New Standards for High-Pressure Performance

The development of the [P330 gear pump](#) began with a deep understanding of extreme operating conditions. In the harsh environments of mining machinery, equipment must withstand intense vibrations and sustained high pressures; on construction sites, hydraulic systems in lifting equipment must maintain stable output under rapidly changing loads. To meet these demands, the P330 series employs a three-piece cast iron structure. Precision casting ensures housing strength while optimized internal flow path design elevates continuous operating pressure to 241 bar (approx. 3500 psi), with instantaneous peak pressure exceeding 280 bar. This high-pressure durability stems not only from material and structural innovations but also from the balanced design of the floating bushing. By dynamically adjusting gear clearance, it effectively reduces friction losses, achieving volumetric efficiency exceeding 98%. This means the P330 delivers stronger flow output at equivalent power input, significantly reducing energy waste and saving long-term operational costs for equipment.

2. The Perfect Balance of Efficiency and Quiet Operation

Industrial users typically prioritize efficiency and stability in hydraulic pumps. The P330 series achieves noise levels below 82 dB(A) through innovative gear meshing technology, setting a benchmark among comparable products. The secret lies in optimized gear profiles—utilizing modified cycloidal tooth forms to reduce meshing impacts, while the distributor's specialized pattern design further smooths pressure pulsations. During extended agricultural machinery operations, this low-noise characteristic not only enhances operator comfort but also prevents interference with precision control systems.

Achieving high efficiency also relies on meticulous refinement. Gears are crafted from high-wear-resistant alloy steel, achieving surface hardness exceeding HRC 60 through carburizing and quenching. Combined with precision grinding, this ensures tooth surface roughness $Ra \leq 0.8\mu m$. These stringent manufacturing standards enable the [P330 gear pump](#) to surpass 92% mechanical efficiency under rated conditions, maintaining stable flow output across a wide temperature range from -20°C to 80°C. For cleanliness-sensitive industries like food processing and chemical manufacturing, the P330 offers optional stainless steel versions to meet dual demands for corrosion resistance and contamination prevention.

3. Modular Design Unlocks System Integration Potential

Modern hydraulic systems are evolving toward compactness and multifunctionality, placing higher demands on core component compatibility. The P330 series embodies this philosophy through its consistent modular design approach. Standard interfaces support multiple mounting standards including SAE, ISO, and DIN. Users can flexibly choose flange or shaft-end connection methods to seamlessly adapt to hydraulic valve manifolds from different brands. Notably, the P330 supports multi-pump configurations. By sharing a common suction port and connecting

multiple pumps in series, it enables flow summation or functional zone control. For instance, in concrete mixer trucks, the P330 can be paired with a variable displacement plunger pump to simultaneously meet the high-pressure demands of the mixing drum and the variable flow regulation needs of the chassis hydraulic system.

Its flow adjustment flexibility is equally impressive. Through integrated load-sensing valves or proportional solenoid valves, users can dynamically adjust displacement based on operating conditions, ensuring the system always operates within its optimal efficiency range. During the clamping phase of injection molding machines, the P330 rapidly increases flow to accelerate mold closure; it then automatically reduces flow during the holding pressure phase to minimize energy consumption. This intelligent regulation makes the P330 an ideal choice for green manufacturing in today's pursuit of carbon neutrality goals.

4. Full-Scene Applications Demonstrate Reliable Performance

From polar research stations at -30°C to oil rigs in Middle Eastern deserts, the P330 series serves diverse global environments with its environmental adaptability. In forestry machinery, the P330-driven chainsaw hydraulic system effortlessly handles high-frequency cutting actions. Its contamination-resistant design effectively filters wood chips and dust, extending service life to over 10,000 hours. In port cranes, the P330 integrates with pilot-operated relief valves to achieve precise boom positioning and smooth lifting/lowering. Even during violent swaying caused by Force 8 sea winds, pressure fluctuations remain within ± 2 bar.

For the food and beverage industry, the sanitary version of the P330 features smooth inner walls and a dead-zone-free structure, certified by the FDA for conveying fluid media containing pulp. In dairy production lines, its stable, low-pulsation output ensures filling machine batches with less than 0.5% variation, guaranteeing quality control.

Amidst the dual waves of smart manufacturing and green transformation, hydraulic pump innovation continues unabated. Built upon a century of Parker's technical heritage, Runhe Hydraulics' P330 gear pump delivers sustained value through continuous optimization and localized service. Whether tackling tomorrow's extreme conditions or meeting today's efficiency demands, the P330 remains your most reliable partner. Choosing Runhe Hydraulics means choosing excellence.

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