

### **cast iron hydraulic gear pump**

In the power systems of construction machinery, agricultural equipment, and general hydraulic equipment, cast iron hydraulic gear pumps have become mainstream hydraulic power components in the market due to their well-balanced overall performance and wide range of applications. The durability and operational stability of a gear pump fundamentally depend on material selection and processing technology. As a company focused on hydraulic equipment research, development, and technical services, Runhe deeply optimizes from the material perspective, compares the characteristics of mainstream metals, leverages the inherent advantages of cast iron, and compensates for its shortcomings through precision processing, providing customers with a cost-effective overall solution for [cast iron hydraulic gear pumps](#).

The commonly used materials for hydraulic gear pumps are mainly divided into cast iron, cast steel, and aluminum alloy. The three differ significantly in terms of cost, strength, wear resistance, and weight. In terms of cost, cast iron raw materials are readily available, and casting is relatively easy, so the procurement and processing costs are much lower than those of cast steel and aluminum alloy, effectively reducing the overall equipment cost. From a structural strength perspective, cast steel has the best strength, cast iron strength can meet most medium- and low-pressure industrial conditions, and aluminum alloy strength is relatively weak, suitable only for light-load scenarios. In terms of wear resistance, cast iron is better than aluminum alloy and close to cast steel, with outstanding long-term operational wear resistance. Regarding weight, aluminum alloy is the lightest, cast iron has moderate weight, and cast steel is relatively heavy. Considering overall operational adaptability and cost-effectiveness, cast iron is the ideal material for medium- and heavy-duty gear pumps.

The cast iron hydraulic gear pump can serve stably for a long time, thanks to the four natural advantages of cast iron itself. First, it has excellent vibration absorption and noise reduction; cast iron can absorb the vibrations generated by gear meshing, effectively reducing pump operating noise and minimizing component fatigue. Second, it has excellent casting performance; cast iron has high fluidity, allowing complex pump bodies to be formed as a single piece, reducing assembly gaps and improving sealing. Third, it has inherent self-lubricating properties; the graphite content in cast iron can form a lubricating film, easing dry friction between gears. Fourth, it has outstanding cost-effectiveness; while ensuring basic performance, it greatly reduces procurement and maintenance costs for users, which is also the core reason why cast iron gear pumps are the preferred choice for industrial equipment.

Of course, cast iron has its own limitations, with a relatively heavy weight and brittleness, making it unsuitable for extreme conditions such as ultra-high pressure and ultra-high speed. To address these shortcomings, Runhe precisely improves performance through mature surface treatment and heat treatment processes, breaking through performance bottlenecks. We use high-frequency quenching on critical parts of gears and pump bodies to enhance surface hardness and strengthen wear and impact resistance; a chrome plating process is applied to form a protective layer against moisture and impurity corrosion; combined with nitriding treatment to optimize surface toughness, extending the service life of core components, enabling the improved cast iron hydraulic gear pump to adapt to higher load operating environments.

Runhe always takes user operating requirements as the guide, strictly controls the grade of cast iron raw materials, and standardizes the execution of heat treatment processes to ensure the quality of cast iron hydraulic gear pumps from the source. At the same time, we provide one-stop

services including material selection guidance, daily maintenance advice, and spare parts replacement. According to the equipment's pressure, speed, and load conditions, we match customers with suitable cast iron gear pumps to maximize the performance advantages of the material.

Deeply cultivating the hydraulic field, adhering to the original intention of quality. Runhe focuses on the material selection and process upgrading of [cast iron hydraulic gear pumps](#), balancing performance, cost, and durability, empowering the stable operation of equipment in various industries with reliable products and considerate services. Choosing Runhe allows you to obtain cast iron hydraulic gear pumps that consider both cost-effectiveness and practicality, helping enterprises reduce costs, increase efficiency, and achieve long-term stable operation.

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