gear pump catalogue

In the huge system of industrial machinery, hydraulic gear pumps continuously inject strong power for all kinds of equipment. Its performance parameters as hidden in the internal code, contains the key information of the operation of the equipment; and classification standards is like a well-drawn map, clearly guiding the different needs and the corresponding path between the pump type. As a gear pump catalogue, this article will introduce you to the hydraulic gear pump performance parameters and classification standards.

1.Five core performance indicators

(1) Displacement and flow: the pump's “blood supply capacity”.

Displacement: the amount of oil that can be delivered by one revolution of the gear (e.g., 16mL/rev), just like the heart's output per beat.

Actual flow = displacement × speed × efficiency, high speed (> 3000 rpm) when the efficiency will be significantly reduced

Example: a model pump in 2000 rpm, 1.92 tons of hydraulic oil per hour can be transported

(2) Pressure level: the pump's “compressive strength”.

Low-pressure type (≤160bar): suitable for simple systems conveying lubricating oils.

Medium-pressure type (160-250bar): common in injection molding machines, agricultural machinery

High-pressure type (250-320bar): standard for hydraulic systems in construction machinery

(3) Efficiency performance: energy conversion level

Total efficiency = mechanical efficiency × volumetric efficiency, high-quality pumps up to 88 Sources of loss: oil leakage between gears and casing; bearing friction and oil churning; heat generated by oil channel resistance.

(4) Flow fluctuation: the pump's “heartbeat rhythm”.

The fluctuation of oil flow of external gear pump is about 15%, similar to the pulse beat. The internal pump can control the fluctuation within 7% by special structure, realizing “smooth blood supply”.

(5) Noise control: Silent level

Normal pump noise ≈ vacuum cleaner (70dB)

Optimized pump ≈ office environment (64dB)

2. Three major classifications

(1) Gear meshing method

External gear pump (mainstream type): simple structure, like two biting gear cookies, suitable for pressure ≤ 250bar conventional scenarios.

(2) Internal gear pump (precision type): internal and external gear nesting design, similar to the mechanical watch structure, suitable for medical equipment that requires a smooth flow of hydraulic systems

(3) Special structural design

Duplex pumps: a combination of large and small pumps, which can simultaneously meet the demand for fast and slow speeds (such as injection molding machines open and close the mold)

Intelligent variable pump: built-in “intelligent chip”, can automatically adjust the flow (energy saving more than 30%)

Explosion-proof: copper alloy gears, suitable for coal mines and other dangerous environments.

(4) Industry-specific design

Construction machinery version: strengthen the “immune system”, can work in the sand content of 0.1% of the fluid

Food grade pump: made of stainless steel, can directly contact with edible oil/pharmaceuticals.

Marine corrosion-resistant type: surface plating can resist marine salt spray for 10 years.

Gear pump selection needs to take into account various factors, hope this gear pump catalogue can help you optimize your decision.Hebei Runhe Hydraulic Machinery Co., Ltd. is a leading manufacturer specializing in hydraulic system solutions. We are also one of the most recognized suppliers of large OEM equipment manufacturers in the domestic hydraulic industry, with a professional production team and advanced production equipment, if you need, welcome to contact us.

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