

Hydraulic cylinders for tractors

First, the main types of [hydraulic cylinders for tractors](#).

1. Classified by structure:

Telescopic hydraulic cylinder: piston rod can be multi-stage telescopic, applicable to the need for large stroke occasions, such as tractor suspension system.

Non-telescopic hydraulic cylinder: the piston rod is fixed, applicable to the occasions of short stroke, such as brake system.

2. Classified by function:

Brake Master Cylinder: Used in hydraulic braking system to realize braking by pushing the piston of the slave cylinder with hydraulic oil.

Booster: Introduces hydraulic booster to reduce pedal force and improve driving comfort.

Two-stage Master Cylinder: Braking is done in two stages, the first stage with low pressure to contact the friction pads and the second stage with high pressure to apply the brakes.

Dual-stage booster: Combines the advantages of booster and dual-stage master cylinder, amplifies the pushrod force and increases the output oil volume.

3. Classified according to piston diameter:

YG type cylinder: such as YG-110, YG-100, YG-90, etc., the number after the model number indicates the diameter of the piston (mm).

Second, working principle

1. Hydraulic energy conversion: hydraulic pump converts mechanical energy into hydraulic energy, generating high-pressure oil.

2. control valve regulation: control valve to regulate the direction of oil flow and flow, drive the hydraulic cylinder piston movement.

3. Piston movement:

Oil feed stage: high-pressure oil into a cavity (such as rodless chamber), pushing the piston to move to the low-pressure chamber.

Return phase: the reversing valve to switch the oil circuit, the oil through the return port back to the tank, the piston reverse movement.

4. Calculation of output force: output force $F = P \times A$ ($F = P \times A$ (P is oil pressure, A is the effective area of the piston)).

5. Speed control: the oil supply is regulated by a flow valve, speed $V = Q / A$ (Q is the flow rate).

Third, Application Scenarios

1. Braking System:

Hydraulic Brake: The brake is realized by pushing the piston of the slave cylinder by hydraulic oil, with short response time and small pedal force.

Brake Master Cylinder: Used for tractors with low horsepower (approx. 80-120 hp).

Booster: Significantly reduces pedal force and improves driving comfort.

Two-stage master cylinder: braking in two stages, increasing the output oil volume and pressure.

Dual-stage booster: combines the advantages of a booster and a dual-stage master cylinder to improve braking performance.

2. Suspension system:

Telescopic hydraulic cylinder: used for the tractor to suspend implements, to realize the

adjustment of plowing depth and the lifting and lowering of implements.

Positioning mechanism: Limit the maximum working stroke of the cylinder piston to prevent the impact of the lower cover of the cylinder.

3. Other systems:

Steering system: the hydraulic cylinder drives the steering mechanism to realize the tractor steering.

Clutch system: booster is used in the tractor clutch booster system to reduce the operating force.

Fourth, Technical Advantages

1. High-efficiency Transmission:

Strong-pressure Hydraulic System: Provide higher working pressure and load capacity to improve working efficiency and performance.

High working speed: the hydraulic oil flows fast, the hydraulic cylinder working speed and response speed is higher.

Low energy loss: high working pressure, low energy loss, improve the stability and reliability of the system.

2. Reliable and durable:

Long service life: Made of high-strength materials and advanced technology to withstand greater working pressure and load.

Low maintenance cost: easy to repair and replace parts, reduce maintenance time and cost.

3. Flexible control:

Accurate control: the hydraulic system has good control performance to realize accurate speed and position control.

Multiple movements: hydraulic cylinders can realize push and pull, lift, bend and rotate movements to meet different work requirements.

4. Environmental Adaptation:

Harsh Environment Work: It can work under harsh conditions such as high temperature, low temperature, high humidity and corrosive environment.

Compact structure: space-saving, easy to install and maintain, and work reliably with low failure rate.

Replacement hydraulic cylinders tractor

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