

Hydraulic cylinders for tillers

[Hydraulic cylinders for tillers](#) serve as critical actuators in the tillage machine's hydraulic system. They enable functions such as plow depth adjustment and plow body tilting through hydraulic drive, enhancing operational efficiency and quality. Selection requires consideration of pressure, bore diameter, stroke, mounting method, and synchronization. Below is a detailed introduction to [hydraulic cylinders for tillers](#):

First, the role of hydraulic cylinders in tillage machines

1. Plowing Depth Adjustment: Hydraulic cylinders control the working depth of tillers to ensure consistent cultivation quality. For example, during plowing operations, they precisely regulate the plow body's penetration depth to adapt to varying soil conditions.

2. Plow Body Tilting: In reversible plows, hydraulic cylinders drive the plow body's vertical tilt within a horizontal plane, enabling rapid field conversion and boosting operational efficiency.

3. Component Lifting/Lowering: Hydraulic cylinders also control the elevation of other tillage implement components, such as tail wheels and furrow openers, enabling multifunctional operations.

Second, Types and Characteristics of [Hydraulic Cylinders for tillers](#)

1. Single-Acting Hydraulic Cylinder:

Principle: Extends via hydraulic pressure; retracts via gravity or spring return.

Applications: Suitable for single-direction actions, such as lifting/lowering certain auxiliary components on tillage implements.

Advantages: Simple structure, lower cost.

Limitations: Retraction speed significantly affected by load, limiting applicability in scenarios requiring precise control.

2. Double-Acting Hydraulic Cylinder:

Principle: Utilizes dual oil circuits to control extension/retraction, enabling bidirectional force output and speed regulation.

Applications: Primarily used in heavy-duty scenarios, such as plow body tilting and plowing depth adjustment requiring bidirectional force.

Advantages: High control precision, enabling centimeter-level adjustments to ensure consistent operational quality.

Third, Selection Criteria

1. Determine System Pressure:

Pressure selection depends on load magnitude and equipment type. At a fixed load, low working pressure increases actuator structural dimensions, compromising cost-effectiveness. Excessively high pressure demands superior material quality, sealing integrity, and manufacturing precision for pumps, cylinders, valves, etc., elevating equipment costs.

Tillage machines typically select medium-pressure ranges to balance performance and cost.

2. Determine stroke allowance:

Stroke allowance must account for manufacturing tolerances in system structure dimensions, plus potential stroke requirements at both the start and end points during actual operation.

Note: When hydraulic cylinders require buffering functionality, stroke allowance directly impacts buffering performance. Minimize stroke allowance whenever feasible.

3. Selecting Mounting Methods:

Hydraulic cylinder mounting methods include flange-type, pin-type, lug-type, and

tie-rod-type. Selection should ensure the cylinder is not subjected to compound forces while considering alignment ease, rigidity, cost, and maintainability.

Pin-type or lug-type mounts are commonly used in tillage machines to accommodate field operating conditions.

Hydraulic tiller for sale

Hydraulic tiller attachment