The TB series is a new energy-saving hydraulic injection molding machine that optimizes the mechanical structure and control system for the servo pump system.

- Center-press platen and brake motor in clamping unit for increased accuracy & precision.
- High-rigidity frame
- Optimized mechanical design for greater clamping force in a smaller-sized machine.
- Stabilizing mounting feet reduce noise and isolate the machine from ambient vibration.

Discrete hydraulic circuit for oil circulation, cooling, and filtering, decreasing process startup time, maximizing process precision, and increasing the life expectancy of the machine.

Injection unit equipped with dual-pull nozzle touch cylinder, Proportional/Integral/Differential valves, & low friction mechanism for improved precision and wear of nozzle.

### TB series

**Energy saving hydraulic injection molding machine**

<table>
<thead>
<tr>
<th>Injection Unit</th>
<th>IB370</th>
<th>IB370</th>
<th>IB406</th>
<th>IB406</th>
<th>IB1080</th>
<th>IB1320</th>
<th>IB2140</th>
<th>IB2950</th>
<th>IB3750</th>
<th>IB340</th>
<th>IB7970</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>O</td>
<td>A</td>
<td>B</td>
<td>O</td>
<td>A</td>
<td>B</td>
<td>O</td>
<td>A</td>
<td>B</td>
<td>O</td>
<td>A</td>
</tr>
<tr>
<td>TB 90S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB 120S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB 160S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB 280S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB 380S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB 480S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB 580S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB 680S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB 880S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Savings under standard conditions.*
1. Servo pump system

Servo pump system reduces energy consumption up to 80% vs traditional pump. Reduces heat generation & dissipation into hydraulic oil. Reduces oil cooling needs up to 25% compared to traditional pump. Produces less noise during machine operation.

2. Independent cooling and filtering system

- Oil-leakage protection
- Increase durability
- Reduce cooling & filtering time

Dedicated circuit for oil cooling/filtering maintains oil conditions with greater stability. It helps to improve reducibility and reduce maintenance normally needed under typical molding conditions with integrated oil conditioning.

By comparison, integrated oil circulation can bring contaminated oil into the tank through oil cooling/filtering and routine operation, increasing the frequency of filter changes, adding to component wear, producing additional heat, and contributing to leak point formation.

However, the newly designed oil tank & circulation system separates oil circulation from oil cooling/filtering through a discrete pump, ensuring that unfiltered oil and filtered oil have no contact during machine operation. Moreover, hydraulic oil can be conditioned while the process is idle or undergoing setup.

3. Center press moving platen

- Evenly distributes clamping force on the mold
- Minimizes mold deflection
- Greater speed and stability in platen movement

Center-press toggle system is designed to apply well-dispersed force across the entire mold surface during clamping. High-lubricity tie bar bushings decrease friction and retain shape during clamp movements.

4. Brake motor

- Maintaining set of clamping force by preventing clamp slip phenomenon

The brake motor on the rear platen maintains the same position even after long and repeated use, eliminating the need to recalibrate mold height on even the longest production runs.
Injection unit

1. Closed-loop system

- Enhanced control of injection back pressure by system feedback and self-regulation.

Correlates system parameters with actual measurements, ensuring that all positions and pressures perceived by the controller are precisely those of the actual components and fluids. Ensures that there is absolutely no deviation between set parameters and actual measurements.

2. Dual cylinder injection unit

- Faster reaction time of the screw during injection
- Provides an even axial force on the screw, reducing wear
- Greater process stability
- Minimize and cushion the impact

The dual cylinder injection unit is designed to provide axial dispersion of force during screw traversal, preventing wear against the barrel interior. High-responsiveness and minimizes molding defects caused by uncontrolled pressure changes in melt flow.

3. Dual pull nozzle touch cylinder

- Nozzle touch stability improves molding precision

The dual pull nozzle touch cylinders are equipped on both sides in injection unit providing greater stability and improved precision. By comparison, a single pull nozzle touch cylinder concentrates force at the bottom of the fixed platen, contributing to a loss of platen parallelism over the course of routine use.