WOOJIN PLAIMM

Value Creator, For your success

PRODUCT
# Machine series

<table>
<thead>
<tr>
<th>Machine series</th>
<th>Capacity (ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB series</td>
<td>90-880</td>
</tr>
<tr>
<td>TH-S(D&amp;B) series</td>
<td>50-450</td>
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<tr>
<td>TH-PET(D&amp;B) series</td>
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<tr>
<td>TH-SMC series</td>
<td>220-450</td>
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<tr>
<td>DL-S series</td>
<td>450-3000</td>
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<td>DL-SH series</td>
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<td>TN-SH series</td>
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<td>VH-RSC series</td>
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<td>VH-S series</td>
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(ton)
TB Series

TB series is the newly launched energy saving hydraulic type injection molding machine from WOOJIN PLAIMM equipped with servo pump system for optimum performance.

- Center-press platen and brake motor in clamping unit has increased the accuracy & reproducibility.
- Newly designed high-rigidity frame.
- Main parts have new minimized and optimized design which made it possible to apply higher clamping force.
- It assists in stabilizing the machine and reducing the noise during operation.

Oil circulation and oil cooling & filtering is divided separately maximizing the efficiency and durability of the machine.
The injection unit is equipped with dual pull nozzle touch cylinder, Proportional/Integral/Differential valves & the low friction mechanism make it more precise & long lasting.

<table>
<thead>
<tr>
<th>WOOJIN/PLAIMM TB</th>
<th>Tie-Bar Clearance (HxW)</th>
<th>Injection Unit [Screw Diameter in mm / inch]</th>
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<td>TB 880S</td>
<td>970 US 8624kN 1110 x 1110</td>
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Clamping unit

1. Servo Pump System
   It saves the energy consumption up to 80%
   It prevents high temperature in hydraulic oil.
   Thus, saving the oil cooling up to 25%
   It also reduces the noise during machine operation.

2. Independent cooling and filtering system
   - Oil-leakage protection
   - Increase durability
   - Better injection reproducibility
   - Reduce cooling & filtering time

   Hydraulic oil rotation and oil cooling/filtering operate separately maintaining constant conditions. It helps to improve reproducibility and prevent the damages from excessive high temperature or pressure.

   In comparison, the normal oil rotation mechanism can bring the contaminated oil back in the tank through oil cooling/filtering and in the process, the filter can be blocked which can further lead to excessively high temperature or oil leakage issues.

   However the newly designed oil tank & rotation mechanism separates the oil rotation from oil cooling/filtering through an installed pump which makes sure that the contaminated oil and the filtered clean oil have no contact with each other during the machine operation.

3. Center-Press Toggle System
   - Improve stability in molding
   - Minimize platen’s damage
   - Higher speed and stable platen’s movement

   Center-press toggle system designed to apply equal force on mold during clamping and preventing platen’s damage.
   Tie-bar bush provided to decrease friction and retain stability during clamp movements.

4. Brake Motor for Keeping Clamping Position
   The brake motor is installed in clamping unit to maintain the same clamping force & position even after long and repeated usage during clamp movements.
Injection unit

1. Closed-Loop System
Enhance controlling injection back pressure by system optimization. The closed-loop injection optimization system helps to regulate the values inserted in the controller should be exactly same as the real position. It makes sure that there is absolutely no deviation between the selected parameter by a user and the actual position of the machine.

2. Dual Cylinder Injection Unit
- Faster reaction time of injection
- Advance in balance of injection
- More stability in molding
- Minimize and cushion the impact
The dual cylinder injection unit is designed to have a better balance and increased stability. It has high responsiveness and minimizes molding error & machine’s shock.

3. Dual Pull Nozzle Touch Cylinder
The dual pull nozzle touch cylinders are equipped on both sides in injection unit providing more stability and improved precision.
In comparison, the single pull nozzle touch cylinder concentrates the force on the bottom of the fixed platen, making it to bend or damage after long usage of the machine.
TH Series

TH (D&B) series is European type hydraulic injection molding machine featuring fast cycle time, precise molding and energy efficiency developed in WOOJIN PLAIMM’s R&D center located in Austria.

The machine movement accuracy is equivalent to All Electric type IMM which enables in excellent molding preciseness and stability. In addition, it is very economical because of its low maintenance cost.

Main characters of TH

■ Wide range of availability
  The machine is optimum for molding products in various size and weight due to wide range of clamping force from 50ton up to 450ton with unitized injection unit.

■ Energy saving effect
  Hydraulic device is equipped with servo-pump system that minimizes the energy loss, hence, reduces energy consumption of the machine up to 80% and provides better working condition due to low noise and vibration.

■ Reduce cycle time
  The optimal combination of hydraulic valves for high speed mold opening/closing with independent hydraulic oil circulation system shortens total production time because of reduction in mold opening/closing time and injection reaction time.

■ Perfect degree of parallelization in platen
  Moving platen equipped with high quality LM Guide which maintains parallelization of platen constantly despite of fast mold opening & closing. In addition it prevents platen’s abrasion and damage of mold. Also it helps to enhance preciseness of clamping position and reduce cycle time.

■ Efficient controller system
  Equipped with 15 inches touch screen type user friendly color monitor that includes multi-lingual function along with very easy to use operations.

■ Easy to replace of screw & barrel
  Easy maintenance is possible for screw & barrel owing to QBC(Quick Barrel Change) structure that screw & barrel can be lifted up for replacement by simple disassembling without moving injection unit.

■ Various options available
  Accumulator system for high speed injection for thin wall molding and hybrid system for energy saving and fast cycle time are available for high-tech injection molding.

<table>
<thead>
<tr>
<th>WOOJINPLAIMM TH</th>
<th>Tie Bar Clearance (HxV)</th>
<th>Unit No.</th>
<th>Injection unit [Screw diameter in mm / inch]</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH 50S 55 US</td>
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<td>360×360</td>
<td>IH 1.7 S O A B</td>
</tr>
<tr>
<td>TH 80S 90 US</td>
<td>785kN</td>
<td>410×410</td>
<td>IH 2.1 O A B C</td>
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<td>TH 110S 120 US</td>
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<td>IH 5.2 S2 S O D A B C</td>
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<td>IH 17 S O A B</td>
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<td>TH 450S 500 US</td>
<td>4413kN</td>
<td>870×820</td>
<td>IH 23 S O A B</td>
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Clamping unit

5 points type new advanced toggle design gives complete control of the exact accuracy of mold open/close positions. Hydraulic system for clamping unit is equipped in a dynamic way to reduce the production time and energy consumption in order to provide the best solution for cost saving to our users.

1. Center press moving platen
Center press type moving platen delivers equal clamping force into the mold and prevent deformations of molding and damage of platen.
- Equal delivery of clamping force
- Extend the mold’s life time
- Enhance the quality of molding

2. Proportional valve
High performance hydraulic valve enables rapid and precise operation, minimizes energy consumption for clamp movement and reduces cycle time with dynamic movements.
- Effect of reducing energy consumption
  - rapid movement : -13%
  - slow movement : -31%

3. Brake motor
Brake motor prevents clamping position backwinding because of constant clamp movement which in result increases the preciseness of repeated molding.

4. Low friction linear guidance
By maintaining constant parallelization of platen, precision of platen’s movement is enhanced and mold’s damage is minimized and cycle time is reduced.

5. T slot
T shaped slots on the platen make it easier to install and change the mold.

Your advantages

- Reaction time of clamping
  - Before : 200ms
  - After : 80ms

- Precision of clamping position
  - Before : ±0.7mm
  - After : ±0.1mm

- Variation of mold closing position
  - Before : ±90mm
  - After : ±0.2mm

- Save energy

- Equal delivery of clamping force
- Extend the mold’s life time
- Enhance the quality of molding

- Effect of reducing energy consumption
  - rapid movement : -13%
  - slow movement : -31%

- Brake motor prevents clamping position backwinding because of constant clamp movement which in result increases the preciseness of repeated molding.

- T shaped slots on the platen make it easier to install and change the mold.
Injection unit

Energy efficient servo pump system, oil circulation system which extends life time of hydraulic oil, butterfly valve and seamless pipe system for hydraulic flow which prevent inflow of contaminant and designed in a way to change pipes easily provide users maximum benefit within minimum cost.

1. Servo pump system

There is no unnecessary power loss because servo pump system precisely controls RPM of servo motor as per each section of injection molding’s required condition.

In the section of hold pressure and cooling, the temperature of hydraulic oil and noise level are very low because the motor almost stops its rotation.

This system has excellent responsiveness and stability when operating with low & high speed owing to direct controlling system of pump’s RPM by AC servo motor.

- Energy consumption: 60%~80% less
- Cooling water consumption: 25% less
- Capacity of oil tank: 33% less

Comparison of energy consumption

General type pump vs Servo pump system

2. Independent cooling and filtering system

Oil circulation line and independently equipped line filter with oil cooler system maintain cleanliness and its temperature constantly. So it is possible to extend oil change and oil’s life time.

- Prevent oil leakage
- Enhance product’s durability
- Enhance injection reproducibility
- Shorten cooling & filtering time

3. Clean pipeline & oil tank structure

Hydraulic pipe line adopted seamless type structure. Seamless pipe type makes it easy to change the pipe by connecting flange without welding. It is excellent in durability and preventing broken pipes and oil leakage.

Specially coated inside of oil tank prevent corrosion and abrasion by inflow of humidity & alien substances helps to extend oil’s life time.

- Up to 33% saving (compared with typical tank)
Injection unit

Optimized injection unit and hydraulic system for high speed and precise molding makes it possible to have prompt injection responsiveness and stability. Various options in size and materials of screw/barrel make it simple to produce many kinds of plastic products. Accumulator system for high speed injection in order to produce thin wall products and Hybrid system for simultaneous operating are available as machine’s option.

1. Closed-loop back pressure control

High performance back pressure controlling valves are equipped on hydraulic blocks in injection unit. D&B back pressure closed-loop controlling system makes back pressure maintain constantly setting by the user through pressure sensor and it helps to manage the back pressure precisely and stably by electric signal. The blocks are coated by Nickel so that clean inside & outside also it features anti-wear & anti-corrosion.

2. Dual pull nozzle touch cylinder

Bilateral symmetry designed dual nozzle touch cylinder delivers same force to the platen while nozzle touching so that it can prevent platen’s damage. Also it is realized to touch the nozzle precisely to solve decreasing reproducibility.

3. Q.B.C (Quick Barrel Change)

Structural innovation in Barrel & Screw design and Plug In Play method are applied in heater Terminal Block’s to save time while lifting the injection unit to replace Barrel without rotating around to assemble and disassemble.

4. In-line screw type injection unit

In-line screw type injection unit designed to charge and inject simultaneously makes rapid and precise injection molding along with efficient energy consumption.

5. Low friction linear guidance

LM Guide is equipped in injection RAM part lowers the mechanical resistance and enhances precision, offering the optimal structure for high quality molding.

Comparison graph of injection function

The comparison of function between TH220S and TH220S D&B

Old version

TH version

Injection speed(mm/s) Pump speed(rpm/10) Valve

Time in ms

-50 -100 -50 0 50 100 150 200 250 300 350 400 450 500

0 50 100 150 200 250 300

0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320

-50 0 50 100 150 200 250 300 400
Option

1. Accumulator system

High speed injection molding for thin wall products is available by accumulator featuring momentary increasing outflow. Equipped closed-loop servo valve has excellent in controlling position & pressure and there are two available options for high speed injection mode and typical injection mode for many purposes.

- Injection speed: 1,000mm/sec
- Responsiveness: 60ms
- Coefficient for weight change level: 0.02%
- System representation: 0.1%

※Based on HS.2

2. PID temperature and Synchronized heating control

PID temperature control method is installed to manage the temperature on the barrel remain exactly the same or the most nearest parameter set by the user so that temperature variation can be minimized and constant temperature rising on the each heating section can be achieved.

As a result, there will be no carbonization of resin and fault molding. In comparison with PID function, the simple On/Off controlling has huge variation in temperature.

3. Hybrid system

Energy saving by maximum 30% and reduced processing time due to the electric motor controlled screw movements & combined operation of opening / closing of mold during charging.

Increased screw rotation number by high powered electric motor and screw rotation can be controlled accurately through hybrid system.

4. Smart screw

The double flight (blade) has applied to screw on charging zone featuring increased in productivity through improved plasticizing capacity and stabilized molding.

Due to this design, the plasticizing capacity & resin melting process and color dispersion effect have been improved.

PID control

On / Off control

PID temperature and Synchronized heating control

Non-synchronized heating

Synchronized heating

Hybrid system

Energy saving area

Hybrid system: (Electric motor)

Smart screw

General single screw

Charging zone  Compression zone  Feeding zone

Main flight  Sub flight  Main flight  Sub flight  Main flight  Sub flight
**TE Series**

It guarantees high speed precision configuration using high output and rapid response AC servo motors. Servo Motor System allows separate control to save energy while enhancing productivity and reducing noise, manipulating the mold opening and closing during charging.

<table>
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<th>Tie Bar Clearance (HxV)</th>
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</table>
**Clamping Unit**

Plate structure innovation with computer assisted structure interpretation (FEA)

- Consistent pressure on the platen for precise molding.
- Decreased mold changes for longer lifetime of mold.
- Consistent quality of multi-cavity injection molded products.
- Respond to low mold clamping force with consistently exerted clamping force.

**Injection Unit**

Injection unit structure innovation to enhance precision

- In-line type injection structure for stabilized precision molding products.
- Suitable for fast cycle molding with high speed precision position control.
- Equipped with high load ball screw for longer product life cycle.
- Positioning and adjusting mold opening/closing by encoder.

**Stack Mold Guide (Optional)**

- Apply dedicated type of LM Guide for safe and solid support for stack mold.
- Lengthens product life cycle to prevent sagging due to the weight of general 3 stage molding.
- Able to use a jig for precise installation of a molding (required for insert automation).

1. **Excellent performance for injection acceleration**
   - Four times more rapid response than the previous model improving the acceleration and deceleration features.
   - Design the injection’s single ball screw for longer product life cycle.
   - Lower friction LM Guide.
   - Low inertia motor applied.
   - Center press type high rigid and high speed configuration.

2. **Precise location control and ultra precision configuration**
   - Precise location control and ultra precision configuration.
   - Ultra precision safe configuration of the injected products.
   - Closed loop control (controller + AC Servo Drive).
   - In-line type injection structure.

3. **Energy Saving and Green System**
   - Energy Saving: Within 70% (comparing to hydraulic type).
   - Remove environmentally harmful factors and reduce noise (by AC Servo Motor).

**Injection drive unit (Injection Unit)**

- Barrel (Plug In Type)
- Dual Pull Nozzle Touch Unit

**Clamping Unit**

- Tie Bar
- Ejector
- Mold height adjustment drive motor
- Servo Motor
- LM Guide
- Tie Bar
- Ejector
- Mold height adjustment drive motor
- Servo Motor
- LM Guide

**FEA Interpreted High Rigid Plate Structure**

**Injection drive unit (Injection Unit)**

- Barrel (Plug In Type)
- Dual Pull Nozzle Touch Unit

**RAM BOX LM Guide**

**LM Guide**
DL Series

The new concept injection molding machine adopted high rigidity two-platen direct locking method. With compact design, it takes up less installation space, maximizing the space utilization producing medium to ultra large 3,500 ton machines.

### WOOJINPLAIML DL

<table>
<thead>
<tr>
<th>Tie-Bar Clearance (HxV)</th>
<th>Unit No.</th>
<th>Injection unit [Screw diameter in mm / inch]</th>
</tr>
</thead>
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</table>
Clamping Unit

- The structure of half nut and tie bar was improved to prevent operation errors of half nut for mold open under high pressure.
- It minimizes the volume of mold clamping cylinder to cut down on pressure rising time for realizing short dry cycle.
- It lengthens the mold lifespan by setting clamping force to avoid applying excessive force on the mold.
- 4 tie bar cylinders generate clamping force which is evenly distributed inside a mold, thereby lowering the chances of contraction defects.
- Computational program automatically sets the mold thickness to shorten the time it takes for mold change.

Energy Saving Solution1 (Optional)

AC servo motor’s speed control system

AC servo motor’s speed control in servo pump system.
It has drastically cut down on the energy consumption and effectively prevented the rise of temperature in hydraulic operating oil and noise control.
- It saves up to 60% of energy comparing the standard hydraulic type
- It saves 25% of coolant consumption
- It uses 15% less hydraulic operating oil
- Excellent system representation: within 0.1%
- High response: 70ms
- Low speed precision position control: mold protection

Injection Unit

Optimized injection plasticizing equipment

- It enhances the precision in resin temperature control
- Separate temperature control in nozzle area (variable structure of nozzle temperature sensor)
- Heating controller synchronizes the temperature rising for temperature rise
- Optimization of thermo couple position in barrel area (variable structure of the rear parts in thermo couple)
- Hopper’s automatic control for lowering temperature

Energy Saving Solution2 (Optional)

AC servo motor’s speed control system

AC servo motor’s speed control in servo pump system.
It has drastically cut down on the energy consumption and effectively prevents the rise of temperature in hydraulic operating oil and noise control.
- It saves max. 30% of energy consumption
- It shortens the process time with mold open/close during plasticizing
- It shortens plasticizing processing time and increasing screw speed
- Capable of tandem molding and stack molding
- Closed-loop control type is excellent in control response and precision of plasticizing process.
- Dispersion effects on hydraulic system make it easy to manage oil temperature.
- Separate control valve in proportion to the clamping control enables the accurate clamping position control and precision mold protection.
VH Series

- Insert molding solution
  Outstanding performance in integrating metal and film other than plastics
- Automation for optimization
  Came up with flexible structure to enhance productivity adapting adjustment in the structure changes
- Brilliant space utilization
  The vertical type machine structure can help users better utilize the space for installation than horizontal machine

Single Stage Hydraulic Clamping Unit

- Apply various injection units: wide variety of injection units can be applied depending on the features of molded products
- Control for more precise molding and remote control the back pressure
- Basic application of double injection cylinder and in-line screw
- Control auto-tuning of synchronized heating in each barrel zone
  Considering the features of each vertical barrel structure that the temperature goes up at different rate, each zone can be controlled in synchronization.
- Separate temperature control in upper end of the nozzle
  Separately controls the temperature at the upper end of the nozzle for stable molding even for the resins not sensitive to temperature changes.
- Multi-stage control of injection/back pressure

Standard Injection Unit Structure

- Apply various injection units: wide variety of injection units can be applied depending on the features of molded products
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Came up with flexible structure to enhance productivity adapting adjustment in the structure changes

Brilliant space utilization
The vertical type machine structure can help users better utilize the space for installation than horizontal machine

<table>
<thead>
<tr>
<th>WOOJINPLAIMM VH</th>
<th>Tie-Bar Clearance (HxV)</th>
<th>Unit No.</th>
<th>In-line screw</th>
<th>Controller</th>
<th>Double Cylinder</th>
<th>Direct Pressure</th>
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<td>490kN</td>
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* R: Rotary table

**Injection unit [Screw diameter in mm / inch]**

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<tr>
<th>22</th>
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<th>32</th>
<th>36</th>
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<td>1.13</td>
<td>1.26</td>
<td>1.42</td>
<td>1.57</td>
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</table>
**VH Series**

**Application of Basic VH Features**

- Use high performance servo motor and precision gear at the revolving table to realize accurate position control and high speed rotation.
- Reduce the cycle time with simultaneous ejector operation during clamping closure.

**Energy Saving Solution (Optional)**

- **Ultra precision safety control**
  - Excellent representation of the system with feedback control and servo pump system's closed loop control by using AC servo motor (within 0.1%)
  - High responsiveness with AC servo motor's hydraulic drive: 70ms
  - Precise clamping mold protection with low speed precision location control

- **Energy saving and low noise level**
  - Controlling the number of servo pump system rotation with the AC servo motor helps save energy and reduces noise (max 60% energy saving comparing to the general hydraulic drive types)

- **Saving coolants and oil**
  - Prevent the temperature rise of the oil controlling the rotation number by AC Servo Motor
  - Save up to 25% of the coolant consumption
  - Save up to 15% of hydraulic fluid

**Injection Unit**

**High Speed Injection Unit (optional)**

- It enhances the product precision maintaining the stability adopting structure innovation which is rapid in response during high-speed injection operation with in-line type structure in its high rigidity integration structure.
- It minimizes the position variation by adopting single type injection structure and minimizing the weight of injection unit for rapid response and precision control.
- It can control high-speed injection with ACC servo valve (Injection speed at 700mm/sec or above)
- Cylinder at nozzle touch section
- Stable nozzle touch with highly rigid nozzle touch cylinder load
- Better working condition when replacing the upright vertical injection cylinder screw as the injection unit can turn toward the nozzle touch cylinder

**Clamping Unit**

**2-stage high speed turn table clamping type (RS series)**

- Enhance the location precision and high cycle with servo driver's electronic signal control using the precision control method which decides the acceleration and deceleration and the position
- Simultaneous operation of ejector (R Series)
  - During clamping closure, it helps reduce the cycle time with simultaneous operation of ejector and further to enhance the productivity
NC Series

Two components injection molding machine

NC Series is 2 components injection molding machine of the injection in two different mold through two injection units. This production method is possible to reduce or omit the assembly process after process of injection molding is the production efficiency.

Two components injection molding process

1. First molding
   - Rotating table by servo motor

2. Open mold and rotation
   - Two injection unit

3. Second molding
   - Movable board

4. Ejection of the secondary product
   - Closed loop system

Servo pump system

There is no unnecessary power loss because servo pump system precisely controls RPM of servo motor as per each section of injection molding’s required condition. In the section of hold pressure and cooling, the temperature of hydraulic oil and noise level are very low because the motor almost stops its rotation. This system has excellent responsiveness and stability when operating with low & high speed owing to direct controlling system of pump’s RPM by AC servo motor.

Power Consumption Comparison for Hydraulic and Servo Hybrid System

<table>
<thead>
<tr>
<th>Contents</th>
<th>Power Consumption(kw/h)</th>
<th>Saving Rate(%)</th>
<th>Note</th>
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</thead>
<tbody>
<tr>
<td>TH170 Hydraulic</td>
<td>20.83</td>
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<td>DL550 Servo Hybrid</td>
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<td>500g, 33sec</td>
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</table>

*Savings under standard conditions.

Application Examples

- Rotating table by servo motor
- Two injection unit
- Closed loop system
Controller (pp480)

Intuitive design
15 inch TFT color monitor attached to the controller is easy to control and manage the information.

Central command program interface
Compatible interface program is equipped in the system which is available to manage automation robot and auxiliary devices.

Dual display
Real time remote monitoring of controller display is available anytime and anywhere.

USB interface
External mold data storage system by USB memory

Multilingual support
It supports multilingual services.

Central monitoring system program (Option)
Central Monitoring Computer can access up to 100 injection molding machines at the same time to facilitate the data transmission and management. Such injection related data will be converted into excel files for easier data management and retrieval.

Functions
- Various core drive
- Production data storage
- Production data analysis
- Molding condition alterations and changes or alert details stored
- Injection speed graph print
- Transporter interface circuit
- Automatic control of motor and heater for unmanned operation
- Rotation injection for large volume of injection
- Weekday heater reservation
- Heat insulation mode for cylinder to prevent carbonization of resin carbide
- System state monitoring : communications state, module operation state, etc
- Internal mold data storage : 1000 data files
- External mold data storage system : USB memory storage
- Display storage : converts the current display into a hard copy to store the data in USB memory
- Injection speed, holding pressure closed-loop (Optional)
- Back pressure closed-loop (Optional)
- Injection pressure graph display (Optional)

Built-in VNC Servo Function for Dual Display
Remote access for a same display of controller

Alarm function
All the information is provided on possible errors and glitches during operation for accurate maintenance and repair. In addition, it can be printed.

Production management
The user can set up targeted production amount and time. Also user can check the total production amount, current production amount, total production time, remaining production time through monitor.

Graph display
The user can find out production status easily through graph on the monitor such as injection speed and pressure, detailed information about charging stage as well.

Mold setting management
Up to 1,000 mold data can be stored in the controller and USB memory. The mold data can easily retrieved and used from controller for convenient molding information setting.

Energy consumption display (Option)
The total production time, energy consumption amount can be displayed on the monitor so that the user can find out cycle time and electric consumption amount easily.

Quality management
Selective data storage and management for quality assurance under maximum 7 categories and 2,000 process information.

Multilingual support
It supports multilingual services.

Central monitoring system program (Option)
Central Monitoring Computer can access up to 100 injection molding machines at the same time to facilitate the data transmission and management. Such injection related data will be converted into excel files for easier data management and retrieval.

System features
- Geode LX800 500MHz
- 128MB DRAM, 512KB SRAM
- 0.4ms scan time
- 15 inch TFT color monitor (768 x 1024)
- PID automatic temperature control
- In & Out put module type
- 1 x USB2.0
- Touch screen type

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Controller (ES600)

A new type of high performance control system
ES600 maintains optimum machine condition at all times to produce high quality mold products thanks to the harmony between the multi-functional, high performance electronic control technology and the machine characteristics, which enables precision molding and provides stable system performance.

ES600 displays are in the form of graphs and pictures to facilitate user interface. The feed back control feature provides accurate operations based on configured conditions.

Controller technical data

- Standard 10.4” TFT Color LCD
- RS232(Mold Data, Fix Data, Sequence)/ CAN Comm.
- Supports multiple languages (3 languages)
- Temp Input: K or J Type
- Supports CF memory (up to 512MB)
  - Mold Data, Shot Data, Screen Capture

Characteristics of ES600

- Multi-stage, precision control of each moving unit
- Simplified control using sensors on moving units
- Heating Cylinder zones: Default 7 Zones, Oil Temp 1 Zone
- Stores up to 100 Internal Mold Data sets
- Uses CF memory for External Mold Data
- Equipped with Robot Interface by default
- Can store Shot Data
- Displays Injection Speed and Pressure in graphic formats

Applications

There are total of 21 functions such as machine status, clamping, injection & holding pressure, charging etc. displayed on a wide 10.4” screen in English, Chinese & Korean languages for user convenience with below 1ms of scan time.

- Machine Status
- Temperature
- Ejector & Robot
- Clamping
- Mold Data
- Setting Record
- Injection & Holding Pressure
- Product Control
- Alarm Record
- Nozzle & Material Change
- Shot Data
- Resin Type & Weekly Pre-heating
Foreign languages such as English, Russian, Czech, Polish, Spanish and others are available for easy manipulation of the machine in other parts of the world.

Central monitoring computer can have access to maximum 200 injection molding machines at the same time to facilitate the data transmission and management. Such injection related data will be converted into excel files for easier data management and retrieval.

Users can store the changes they made hourly and print out the log of setting changes.

Central monitoring system (Optional)

Central monitoring computer can have access to maximum 200 injection molding machines at the same time to facilitate the data transmission and management. Such injection related data will be converted into excel files for easier data management and retrieval.

---

Controller (GTB)

The high performance precision controller enables high speed high precision injection for closed-loop type (option) to guarantee the maximum safety and precision during operation.

Storing & Printing

Other than an internal storage device, users can easily store the molding and other relevant information and data in USB and print out as they want.

Multilingual operation

Foreign languages such as English, Russian, Czech, Polish, Spanish and others are available for easy manipulation of the machine in other parts of the world.

Setting log

Users can store the changes they made hourly and print out the log of setting changes.

Central monitoring system (Optional)

Central monitoring computer can have access to maximum 200 injection molding machines at the same time to facilitate the data transmission and management. Such injection related data will be converted into excel files for easier data management and retrieval.

System Features

- INTEL Celeron 600MHz 32bit microprocessor
- 128MB SDRAM 128KB cache memory
- 1ms or less system internal processing time
- 10.4 inch TFT color LCD (800*600)
- PID type cylinder temperature control
- Input/output module type- USB printer port

Position Transducer

- Digital sensor
  - Effective positioning capabilities allow it to adjust the position and measuring without having to reposition the machine all over again.
  - Can be used semi-permanently for literally unlimited amount of time (over 100 million cycle)
  - Excellent analysis of output signal
  - Easy to use and install

Process management

The snapshot of process management

It offers a snapshot of the entire monitoring of equipments in operation.

Quality management

Accurate product management

Selective data storage and management for quality assurance under maximum 6 categories and trace back to 1,000 processes conducted in the past.

Graph display

Convenient data visualization service

Detailed data on measured areas that a user may want are displayed in graph.

Alarm function

Wide range of management on errors and glitches

All the information is provided on possible errors and glitches during operation for accurate maintenance and repair.