

# Solaris



**Hi Efficiency / Energy Saving / Automation Turn-key Solution for Injection Molding**

## Company Introduction

GAINPRO, has been concentrated on Plastic Injection industry for many years, is the leading provider of technique support and auxiliary system of plastic Injection and extrusion industry. As the expert of optimizing the product quality, production efficiency and energy consumption, GAINPRO supplies the solution based on the concept of high-efficiency, energy-saving and automation, and offer the high price-performance ratio products such as Pelletizer, Injection Molding Machine, Cold Chamber Die Casting Machine, Hot Runner System, Robot, Dehumidifying Dryer, Moldex3D,

Servo Energy- Saving Improvement and the Whole Plant of Auxiliary Equipment. By integrating different products, GAINPRO always can serve the clients with the whole automation solution.

Company Concept: Honesty, Creative  
Company Purpose: Quality the Best, Customers the First



## Enterprise's Management Concept



### Research and Development Capabilities

Experienced Design Team. Through continuous research and development, to meet the technological innovation of hot runner industry.

### Quality Assurance

Quantifying the quality of the hot runner system, to ensure the quality of each product.

### Cost advantage

Provide competitive prices

### Convenient delivery

Delivering satisfying products to the customers instantly.

The manufacturing center is located in Suzhou. There are offices set in Qingdao and Chongqing.

### Service-oriented

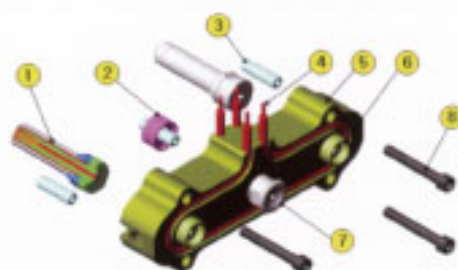
Building a global service network for fast services  
Strong after-sales service team

## HOT RUNNER SYSTEM

### Hot Runner Categories

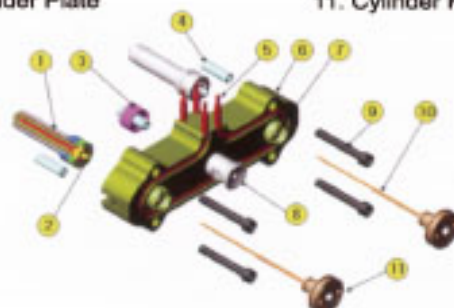
#### Open Architecture

- |                               |                      |
|-------------------------------|----------------------|
| 1. Nozzle                     | 6. Upper Support Pad |
| 2. Lower Support Ring         | 7. Primary Runner    |
| 3. Locating Pin               | 8. Spreader Plate    |
| 4. Spreader Plate Heating Rod | Fixing Screw         |
| 5. Spreader Plate             |                      |



#### Needle-Type Structure

- |                               |                      |
|-------------------------------|----------------------|
| 1. Nozzle                     | 7. Upper Support Pad |
| 2. Ring Shunt                 | 8. Primary Runner    |
| 3. Lower Support Ring         | 9. Spreader Plate    |
| 4. Locating Pin               | Fixing Screw         |
| 5. Spreader Plate Heating Rod | 10. Valve Pin        |
| 6. Spreader Plate             | 11. Cylinder Part    |



### Analysis to be The Best Option

GAINPRO performs evolutionary and optimizing design for runners and molds based on product characteristics and molding conditions. Providing customers with: filling time analysis / injection pressure, temperature design analysis /

cooling system, vent position setting / gate size, position analysis / product weld line, shrink, warp trend analysis / molten line analysis





## THREE-IN-ONE QUICK DRYING MACHINE

### ◆ Microprocessor Controlled High Speed Dryers

1. Shortening half of the drying duration.
2. Effectively increasing transparency for 3C products, i.e. lens backboards (PC, PMMA).
3. Effectively reducing the generation of gas during the injection molding and effectively reducing the number of cleaning the molds (PA46, PPS) so as to increase mobility.
4. Reducing ripples caused by insufficient drying and thus increasing product validity and quality.
5. Increasing drying to the raw material to enhance product stretching resistance, intermolecular combining force and hardness. Due to less moisture in the raw material, less resistance is left in the raw material to hinder intermolecular combination.
6. Reducing cost for drying equipment and cost for drying plastic materials.
7. Saving electricity fee for drying for more than 40%.
8. The equipment is able to ensure the water containing rate drops to 0.02% (200ppm) so as to increase product quality.
9. There are different reasons for defected products, especially when the plastic material is not fully dried.
10. Easy access two stage cyclonic filter removes fines to 1 micron.
11. Standard microprocessor controlled.
12. LED lights monitor system functions.
13. The 3-in-one fast dehumidification device is equipped with patented valve to completely clean the plastic residue such that there will be no material re-dampening problem.



## INJECTION MOLDING REMOVING MACHINE

### ◆ Features of Structure

#### The Feature of Mechanical Structure :

1. All components on this robot are made by modular manufacturing for superior interchangeability.
2. Extra large construction assures high rigidity and vibration-free.
3. The second step of the vertical stroke is transmitted by a steel reinforced belt. Simultaneous motions for the first and second stroke give fast stroke speed.
4. The transmission mechanisms are equipped with racks for upgrading service life and accuracy.
5. Driven by high performance server motor combined with rigid rack for stable and vibration-free motions.
6. Two step vertical stroke with two linear motion guide ways for effortless, stable and vibration-free movement.
7. A large, durable, flexible strip is provided to prevent the electrical wires and air circuit pipes from being damaged.

### ◆ All New Control Panel Design Powerful Functions Exhibiting Optimal Editing Features Features of controller

#### The Feature of Controller :

1. Suitable for irregular take-out motions for special products, such as hooked products.
2. Allows for products stacking up to 99\*99\*99 points. Once stacking quantity has been reached, an out signal is transferred to conveyor belt. When performing the first

- time stacking, any foreign products existing on the production line will be detected. If the foreign products is not removed during stacking, stacking motions will stop.
3. Provides insert in-mold function, and picks product at a setting position. Once mold opens, the robot picks product and inserts it into a specified position.
  4. Allows for simultaneous editing of 3 axes position.
  5. Module functions provide any motion editing as desired. The control provides 16384 commands for program editing and memory function.
  6. Speed increasing and reducing function. A handwheel is provides for convenient program editing and simulation.
  7. In manual mode, operator may use a hand wheel for micrometric position adjustment. This avoids operational error and provides protection for the mold.
  8. Advanced injection confirmation signal eliminates the problem of robot bumping and clamping against the mold.
  9. The robot arm can perform inside insert and take-out function at any position inside or outside of mold.
  10. Remote controller with the LCD display for easy reading. The screen capacity is 260 Chinese characters.
  11. Choice of English/ Chinese displays on screen. The control panel is a separated design, allowing for operation control at any position. Machine interface function include: mold clamp interlock, eject forward interlock, safety door control, product counting and cycle time.



TEL-SNC3 series

### ◆ More Convenient, Simpler, and User-friendly Interface!

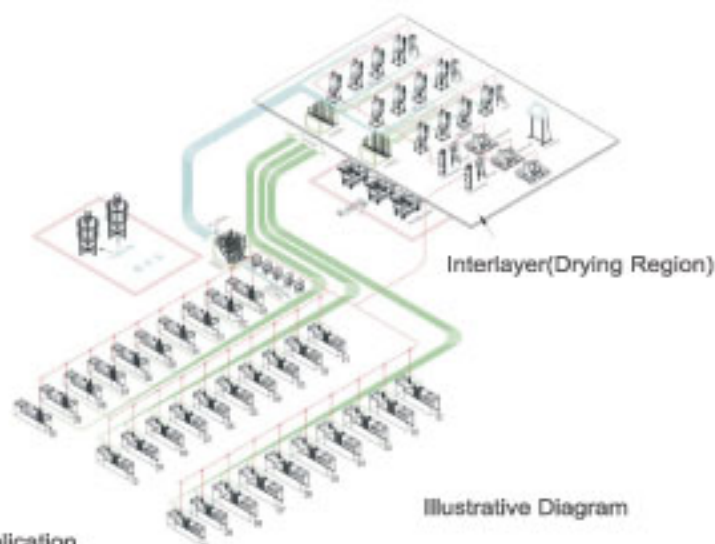
The USB interface allows program updates. Screen uses color display of 320 x 240. CPU adopts 16BIT CPU with high speed and efficiently, with working frequency of 133MHz. Servo and CPU board are single-boarded design, allowing replaced independently. Fine-tune can be conducted in the manual encoder.





## CENTRAL FEEDING SYSTEM

It is with low cost, energy saving, long service life (more than 10 years); centralized management for avoiding waste and pollution; keep the clean environment of the workshop; the main machine can be separated from the rest of the machines for noise reduction; the system is with high quality and efficiency.



Example of Application

- ▲ Central conveying system for GMP (pharmacy)
- Optical dehumidifying system
- material and powder conveying system

Control Panel



Central Console



Central Conveying Vacuum Station (B Type)



AL-300DG1S



AL-300GIH



Multi-functional  
Mobile Operator  
Station



AL-400DG2S(H)



AL-300DG1VES



▲ Standard Industrial Water Chiller



▲ Optical Microcomputer  
Controlled Hopper Dryer



▲ On-line Recycling System

▲ European-style Freestanding Autoloader



## MOLD TEMPERATURE CONTROL MACHINE CHILLER / MOLD TEMPERATURE CONTROLLER FOR DUAL-USE OF ICE AND HEAT

### ◆ Mold Temperature Controller Features

#### Water features

1. The electronic control box and the frame of the machine are separated, with excellent thermal insulation and waterproofing effect, which can extend the useful life of electrical parts. (Chinese patent number: ZL.02301434.2).
2. In startup, the hot water piping can automatically supply water and exclude air in the hot water piping, to avoid air in the piping and anhydrous operation which may cause the burning of heating tube and the motor.
3. The hot water piping system is made up of stainless steel and integrally molded, 4 into 4 to the outside of the machine without causing pipeline leakage. Built-in 4-into-4 branch pipes leave only a ball valve in the exterior for beautiful and practical use.
4. The temperature control table uses Japan-imported the "YAMATAKE PID" microcomputer automatic calculation which is accurate and stable. The temperature difference between the actual outlet temperature and set temperature can be controlled within  $\pm 0.5^{\circ}\text{C}$ . Also, there is a machine type of which temperature control is within  $\pm 0.1^{\circ}\text{C}$ , suitable for the FA / FAS series of high-precision injection molding, with rapid heating and cooling time for cost saving.
5. Electrical parts use FUJI from Japan, Schneider from France, and O.D.E. from Italy.
6. Hot water motors use PECK and NERI from Germany and TECO from Taiwan.
7. The error indication system of the security protection level is easily to be operated and for maintenance.



#### Oil features

1. In startup, the hot oil piping can automatically supply oil and exclude air in the hot oil piping, to avoid air in the piping and non-oil operation which may cause the burning of heating tube and the motor.
2. The hot oil piping system is integrally molded, 4 into 4 to the outside of the machine without causing pipeline leakage. Built-in 4-into-4 branch pipes leave only a ball valve in the exterior for beautiful and practical use.

### ◆ Security Protection and Indication System

1. Power supply phase protection.
2. Main power no-fuse breaker.
3. Pump reverses protection and indicator light.
4. Pump over-load protection and indicator light.
5. Water shortage protection and indicator light.
6. Overheating protection and indicator light.
7. Hot water BT- PASS relief loop.
8. Enforcement cooling function (FS Series, FAS Series).
9. Abnormal temperature alarm and indicator light (FS Series, FAS Series).
10. SSR control (FA Series, FAS Series).
11. Mould automatic drainage function (FS Series, FAS Series).
12. Abnormal alarm buzzer.

## A NEW GENERATION OF ALL-ELECTRIC INJECTION MOLDING MACHINE

### ◆ 50~180-ton All-electric Series

#### The key to stable molding

DV II-typed screw design achieves a stable product quality output in a wide range of formation conditions, thereby improving productivity.

#### DV II screw

The integration design of the new DV-II screw ensures excellent mixing and transparency in the production and operation of enterprises of high throughput.

#### Screw head assembly

Excellent sealing of screw check rings makes resin raw materials completely isolated. Minimalist design coupled with high-performance coating makes the replacement of resin materials and colors even easier.

#### Significant quality stability

By using the new DV II screw and precision injection devices, to exactly match ultra-high-speed processing control, the stable molding without quality change can be achieved.

#### Significant quality stability

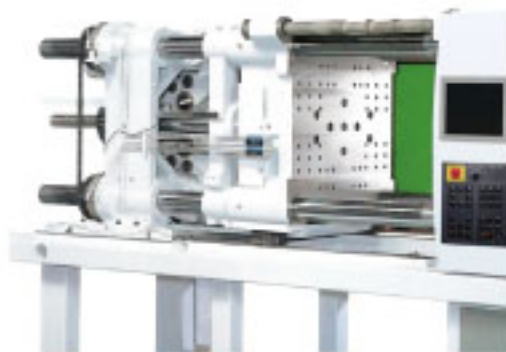
By using the new DV II screw and precision injection devices, to exactly match ultra-high-speed processing control, the stable molding without quality change can be achieved.

#### Reliable clamping mechanism

1. Floating reamer structure design
2. Quickly-responding mold protection circuit

#### Stable injection unit mechanical structure

1. AC SERVO MOTOR
2. Centralized manual grease filling device
3. Automatic grease lubrication device



#### Using large-size touch screen

10.4-inch color LCD touch screen allows users easier to operate. The large-size virtual touch keyboard on the touch screen makes it more convenient for users to input data and reduce the misuse.

#### GP Viewer remote control

GP Viewer remote control allows engineers for remote configuration and management of the factory molding machines through the factory LAN or the Internet.

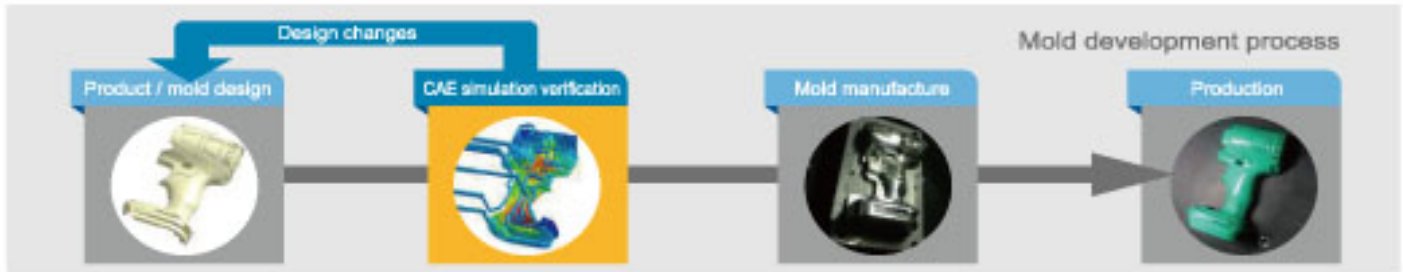




## Optimized Product Design Solutions

Moldex3D leads the innovative real three-dimension CAE molding technology in the industry. It is undoubtedly the best choice to improve the quality of plastic products and shorten the mold development process! Moldex3D is the CAE molding software leading brand in the global plastic injection

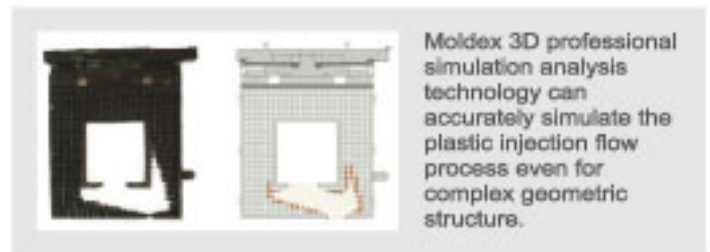
molding industry, through state-of-the-art true 3-D simulation analysis technology, helping global industrial users solve all kinds of plastic product design and manufacturing problems, shorten the time to market, and maximize profits.



## Full-ranged Integrated Analysis Capabilities

Moldex3D professional simulation analysis technology provides users complete injection molding solutions, which can accurately simulate the injection process situation of plastics in filling pressure holding, molding cooling, fiber orientation, and plastic warpage. Besides, it provides multi-material injection molding, optics, injection compression molding, gas and water-assisted injection molding, hot runner optimization, variotherm molding and other modules with advanced features, allowing users to do more extensive and in-depth analysis for the special process. In addition, the Moldex3D FEA interface module integrates major well-known structural analysis software, such as

ABAQUS, ANSYS, Nastran, LS-Dyna...etc., to provide users a full range of integrated product design and solutions.



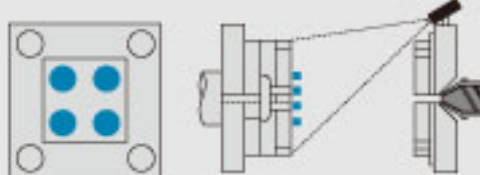
## ONLINE OPTICAL INSPECTION

- ◆ Mold protection devices PRO-600PI
- ◆ Completely solving the mold problems
- ◆ Setting multiple monitor screens to enhance the identification efficiency



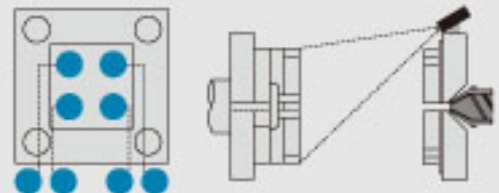
### Molded product confirmation process

Finished product recognition (after molding / before demolding) for the first confirmation

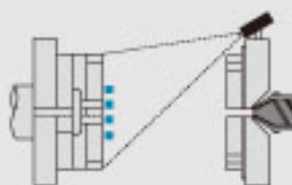


Normal flow

Active template confirmation (after molding / before demolding) for the second confirmation



### The function of preventing abnormal operation



#### The function of automatic correction

The auto-correction function when the molding stop position is unstable and vibrates, or rapid changes in the surrounding brightness



#### Regional high-sensitivity surveillance can be set

1. Any square confirmation area can be set freely, to accurately match the actual shape of the mold.
2. Sensitivity can be set individually in the four regions. Based on recognized area, even if the brightness is different, it can also confirm stably.

#### Other functions

1. Dual-lens monitoring: by using dual lens, male die and female die can be monitored four times simultaneously and extremely subtle confirmation can be achieved.
2. Operating easily. Three optional languages are available (Chinese, Japanese and English).
3. After setting the function / condition-setting confirmation, the action can be conducted.
4. Other special settings: checking the alarm history.

## FACTORY-FORMULATED EQUIPMENT



### ◆ You will get not only extrusion equipment but professional factory formulation and services

In terms of extrusion and granulation equipment, screws are the heart of the extruder. A pair of well-designed screws can not only perform high production efficiency but result in downstream faster production and high quality for good effective mixed finished products. In this part of design, CYKF has been

commended by the customers. In addition, CYKF strictly control the production process for the screws and twin-screw precision joint to ensure smooth production and long service life. Feed tubes are produced with special alloy and integrally-forming grinding processing, owning the advantages of long life.

#### ▼ CK-70HT same-direction twin screws extrusion granulation machine (water granulation system)



#### ▼ CK-SF120 side extrusion recycling machine



#### ▼ CK-PS75 Extrusion Plant for Pipe and Profile



#### ▼ CK-SI30DT PVC parallel twin-screw granulating machine

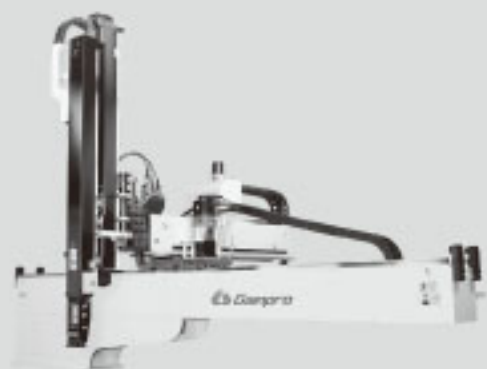
#### ▼ CK-75DTP 3-in one co-extrusion profile extruder



#### ▼ CK-75DTP PVC parallel twin-screw pipe profile extruder







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