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Designed by Yizumi, June 2022

YIZUMI 伊之密

D1

D1 Series Two-platen Injection Molding Machine

(500T-4000T)

Innovative Practice of
Large-tonnage Two-platen Machine

Guangdong Yizumi Precision Injection Molding and Die Casting Technology Co., Ltd.

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3.533 Billion

Total sales in 2021 exceed 3.533 billion, year-on-year increase of 29.97%, maintaining growth for five years

70+

Owns over 40 global sales and service representatives, business covers over 70 countries and regions

600000㎡

600000㎡ of total world-wide manufacturing floor space

>>

3000+

Over 3,000 employees globally

155 Million

R&D investment in 2021 over CNY 155 million, a year-on-year increase of 21.49%

YIZUMI is committed to be a technologically leading supplier of the best cost-effective solution.

Founded in Guangdong, China in 2002, Guangdong Yizumi Precision Machinery Co., Ltd. is a ChiNext-listed company focusing on the fields of polymer molding and metal forming. The company involves in design, R&D, manufacture, sale and service of injection molding machines, die casting machines, rubber injection machines, high-speed packaging systems and automated robotic systems.

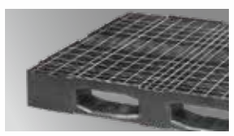
Yizumi mainly produces injection molding machine, die casting machine, high speed packaging machine, mold and robot. Also, Yizumi owns many technical services centres and over 40 global distributors, business covers over 70 countries and regions. It has established production bases at home and abroad covering an area of nearly 600,000 square metres, and has over 3,000 employees globally.

In China, Yizumi successively set up three major manufacturing bases in Gaoli, Wusha and Suzhou to comprehensively upgrade its productive capacity. In 2017, Yizumi built manufacturing bases in India and the United States. In addition, Yizumi has established technology service centers, R&D centers and a sales network, implementing the globalized operations strategy.

Based on importation and absorption of advanced German technology and years of experience in product application, we continue to move on and undertake the historic project of large-tonnage two-platen injection molding machine, striving to become a pioneer to fulfill such an innovative mission.

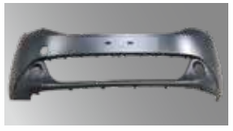
Deep-cavity parts

Household appliances



Logistics materials

Auto parts

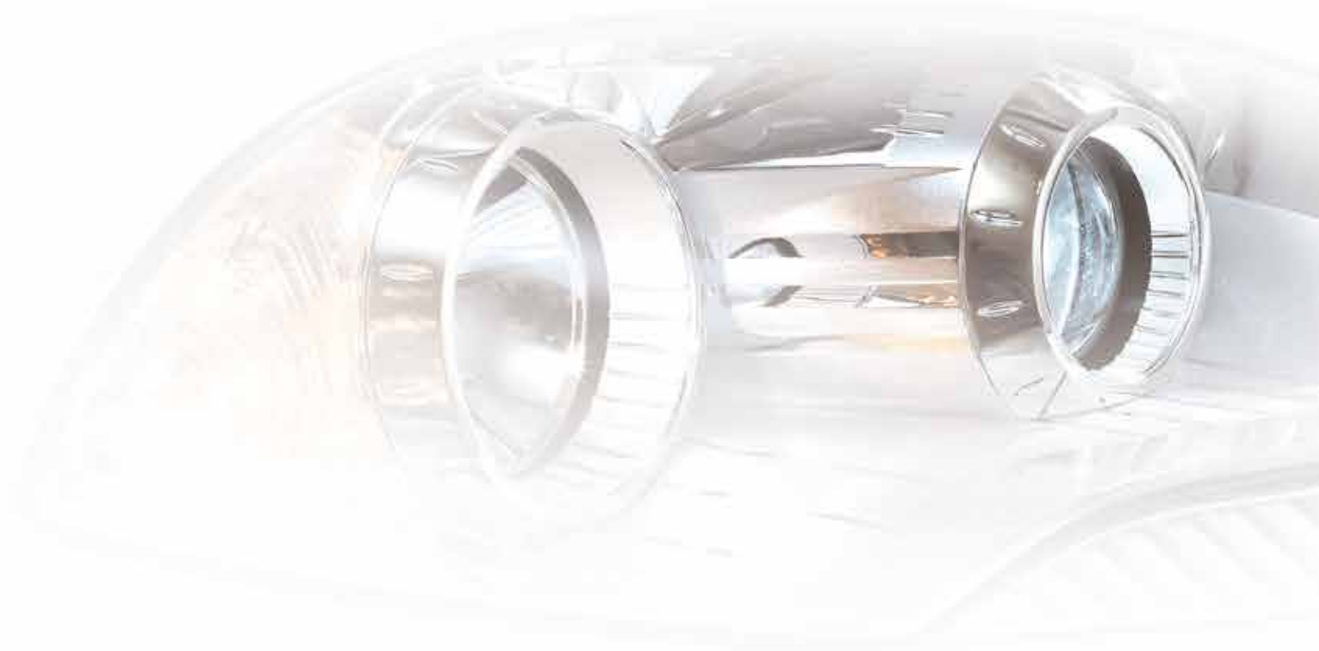


Auto bumper

Auto sunroof

Auto interior decoration

Auto lamp



Core Value Propositions

Fast

Synchronized lock nut mechanism, precision movable platen supports, quick hydraulic cylinders, differential fast mold opening, low-resistance hydraulic circuit design and high-response servo system enable the machine to operate more efficiently and response faster.

Stable

High-rigidity clamping unit, uniform stress distribution on tie bar threads, high-response dual proportional valve, high-speed closed-loop control, precision filter and efficient cooling system enable the machine to be more stable for injection molding.

Higher stability of mold-open position

Variation up to ±0.2mm, meeting higher requirements on automated part removal and inserting.

Shorter dry cycle

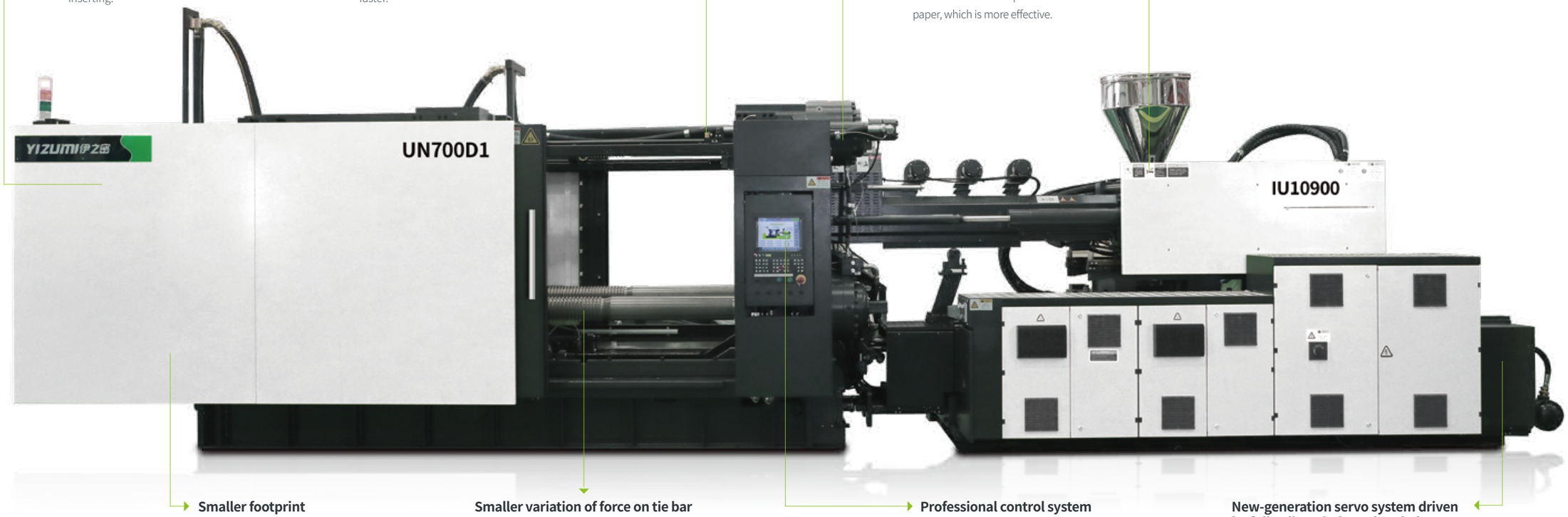
Compared with a three-platen machine of the same clamp tonnage, mold opening and closing during dry cycle is about 55% faster.

More reliable low-pressure mold protection

Mold protection is so sensitive that it can sense three pieces of A4 paper, which is more effective.

Outstanding injection stability

Repeatability of part weight ⩽ 3 ‰ , excellent quality, saving materials and costs.



Smaller footprint

D1 series machine occupies less floor space than a three-platen machine, improving factory utilization and reducing costs of production facilities.

Smaller variation of force on tie bar

Variation⩽ 3%, high mold-close accuracy, hardly any flash, higher stability of injection molding.

Professional control system

Short scan time, fast response and high movement repeatability.

New-generation servo system driven by fully oil-cooled two-headed motor

Fast response, strong power and low energy consumption.

※Data above come from Yizumi lab, available for reference.

Clamping Unit

Short dry cycle, reliable and stable

D1 series two-platen injection molding machine, based on high-rigidity clamping unit, precision guide device, synchronized lock nut mechanism, quick hydraulic cylinders, fast control system and controlled by high-response dual proportional valve, delivers higher movement efficiency and control stability.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① Impact-proof synchronized lock nut mechanism

Impact-cushioning synchronized lock nut closing is fast and more reliable.

② Independent high-pressure cylinder（optional）

Mold opening under low speed and high pressure, as well as mold change through tie bar pulling in a factory with excessively low ceiling are available.

③ Highly-rigid accurate guide device

High-rigidity L-shape guide rails on machine frame, with guiding precision up to 0.05mm, facilitate fast and steady motion of platens.

④ Wear & corrosion resistant tie bars with uniform stress distribution

With special technical treatment, tie bars are highly-rigid and resistant to wear and corrosion. Uniformity of stress distributed on tie bar threads is over 99% without unbalanced force, bringing durability.

⑤ High repeatability of mold-open end position

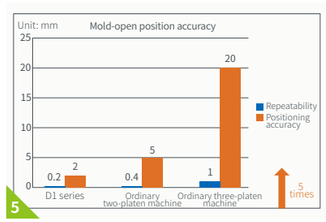
Repeatability of mold-open position is up to ± 0.2mm, five times higher than that of a three-platen machine. (proven by in-house 1300T machine test result)

⑥ Sensitive mold protection

With the use of smart prior deceleration control, even three pieces of A4 paper can be sensed. Mold protection is more reliable and sensitive.

⑦ Short dry cycle

Efficient mold opening and closing and short dry cycle directly improve manufacturing efficiency and capacity. (proven by in-house 1300T machine test result)



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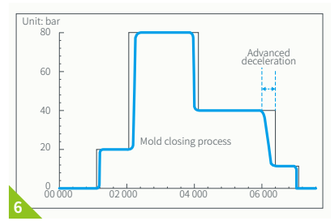

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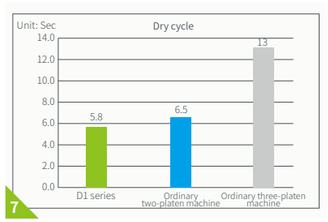

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Injection Unit

Stable injection end position and high repeatability of part weight

Linear guide rails, with the benefits of low resistance and quick acceleration, are a standard feature of D1 series two-platen injection molding machine. Incorporating other features, such as high-rigidity injection unit and ultrasonic displacement sensor for monitoring, D1 series has achieved accurate position control and high repeatability of part weight.

① High-rigidity injection unit

Casts of injection unit are made from ductile cast iron. The platens are highly rigid with little deformation. Injection is more stable.

② Excellent injection performance

Repeatability of injection end position up to ±0.2mm and repeatability of part weight ⩽ 3‰ meet the needs of increasing efficiency and lowering costs.

③ Integral linear guide rails for injection

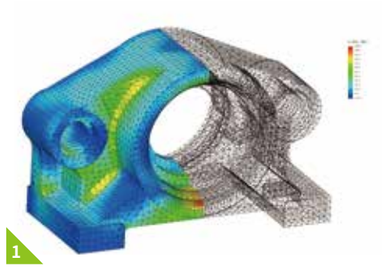
Linear guide rails are a standard feature of D1 series, bringing benefits of low resistance, quick acceleration and accurate injection.

④ Ultrasonic displacement sensor

D1 series is equipped with an ultrasonic digital displacement sensor, characterized by little signal interference and high position control accuracy.

⑤ Adaptive PID temperature control

With the use of durable ceramic heater bands and adaptive PID control performed by the Austrian controller, temperature control accuracy is up to ±0.5℃.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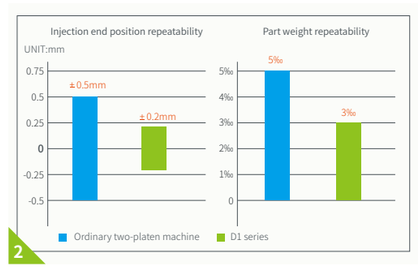

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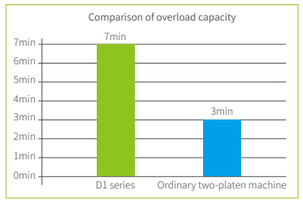
Hydraulic System

Precise filtration, efficient cooling, higher stability

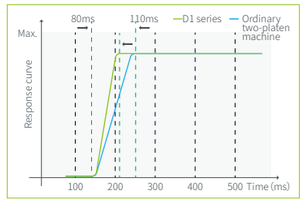
D1 series is based on a hydraulic system with stability and fast response at the core, which enables hydraulic circuit to be in optimal operating conditions. The hydraulic system is characterized by fast response, strong overload capacity and low energy consumption that is superior to China energy efficiency grade 1.

① Servo system driven by fully oil-cooled two-headed motor

The fully oil-cooled two-headed motor-driven servo system is the quintessence of highly-integrated servo pump system. It eliminates the influence of instability in machine operation due to the work environment and further reduces energy consumption of hydraulic circuit. Synchronized drive technology makes hydraulic circuit response faster and movements more efficient.



Strong overload capacity



Rapid acceleration

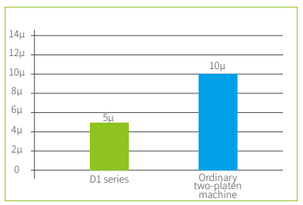
Durable and reliable

② Precise filtration and independent cooling system

Filter fineness is up to 5μm and cooling effect is 2-3 times better than ordinary two-platen injection molding machines, which ensure long service life of seals. Machine becomes more stable.

Good cooling effect

High filter fineness



Comparison of filter fineness

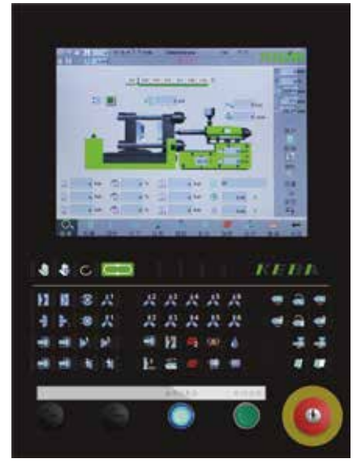
③ Motor protected with L-shape plates

L-shape plates are easy to install and they can be opened directly so that there is open space for more efficient maintenance of the drive system.

Control System

Accurate control, humanized design, reliable and stable

D1 series adopts Austria's KEBA control system dedicated to two-platen injection molding machine. This powerful system can accurately control the position, pressure, speed, temperature and other parameters. The whole control system is engineered based on reliability, stability, safety and user-friendly operation for better user experience.



Stable, fast and accurate control

- D1 series two-platen injection molding machine adopts Austria' s KEBA control system, with double CPUs, 1ms of scan cycle and high reliability.
- Fast mold opening and closing and high repeatability thanks to the high-response dual proportional valve control technology.
- Fully-closed-loop control of injection speed, pressure and back pressure, with fast response and high accuracy.
- Self-tuning of temperature parameters of barrel and hot runner makes temperature control more accurate.

Data and safety

- Storage of process data without limit
- Memory of alarm and process parameter change
- Record of process parameter change curve
- Production process data control (PDP) and statistic process control (SPC)
- Multi-level user access to protect data
- Multiple protections of equipment and people through software and hardware

Easy to operate

- Real-time remote control (optional)
- Online conversion of languages and units
- Quick input by means of graph and virtual keyboard
- Quick settings page for easy and convenient process parameter setting

① IP54 electrical enclosure

The electrical enclosure is designed with IP54 rating, resistance to water and dust and good cooling effect, so that the electrical system is more stable in operation.

② Separate connector module for auxiliary equipment

External separate power control without opening the electrical cabinet makes operation safer and more convenient.

③ Euromap-based robot interface

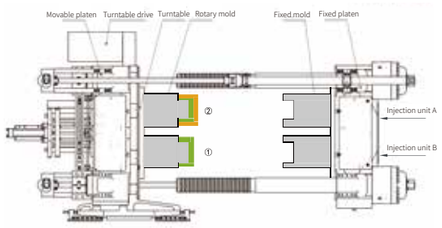
Euromap 12 robot interface is a standard feature, meeting customer's need for safer connection.

MultiPro injection molding machine

Molding with vertical turntable

Operating principle

After simultaneous injection by A unit and B unit, the product is ejected. Then the turntable rotates vertically by 180 degrees and the mold is closed for next-round injection. When the mold is finally opened, the molding process of two stations is completed. The rotary degree of turntable is set at 180 degrees in forward and reverse direction.

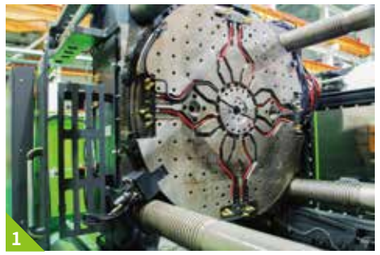


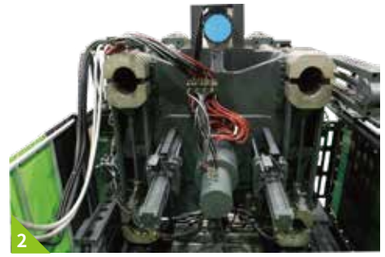
Feature

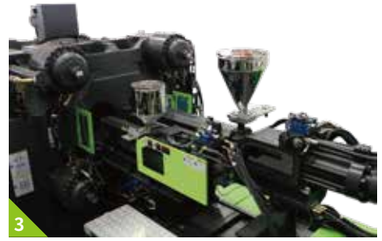
- Station exchange can be achieved by rotating the turntable vertically. Good compatibility and mature mold technology, with wider application.

Application

- Widely applied in the production of multi-component products, such as auto taillight, center console panel, interior and exterior parts, appliance shell, notebook parts, etc.







① Integrated turntable

The integrated turntable with high rigidity, high load-bearing capacity and compact structure can be equipped with large-capacity, multi-channel swiveling water, oil and gas distribution system.

② Automatic flow distribution system

Based on German technology, the three-in-one (water, oil and gas) distribution system is designed with a double-layer structure for water-oil separation. The turntable can rotate 360 degrees without the tangle of lines to meet the rotation needs of multiple stations.

③ Parallel injection unit

The nozzle center distance is adjustable (optional) with high compatibility. The injection structure with a single well-sealed cylinder has high injection speed.

④ Digital closed-loop positioning control technology

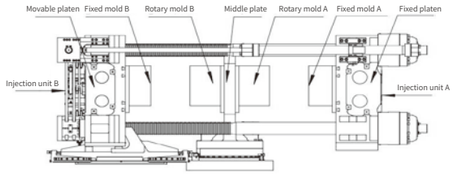
The DCPC technology enables the servo-driven turntable to rotate fast and smoothly without impact. The positioning of turntable is accurate with repeatability of ±0.005°.

MultiPro injection molding machine

Molding with horizontal turntable

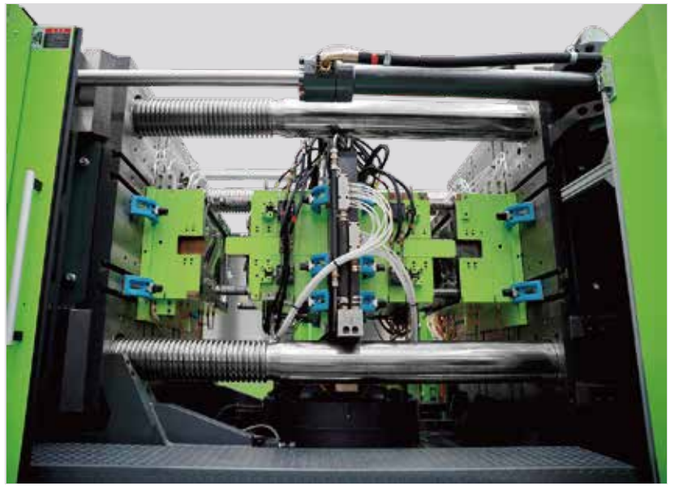
Operating principle

Injection unit B is moved along with the movable platen. The process of mold opening and closing is completed with the movement cooperation of movable platen and horizontal turntable. After mold closing, the injection by unit A and B is carried out as per process requirement. And the product is finally ejected by the core-pulling unit of middle plate or ejection unit after mold opening.



Feature

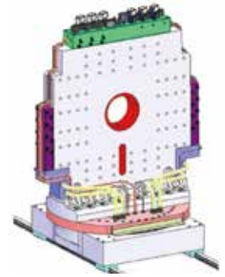
- Station exchange can be achieved by rotating the turntable horizontally. Compared with vertical turntable, horizontal turntable can help machine double the production capacity with the same clamping force setting; or largely reduce clamping force under the same production capacity as required.



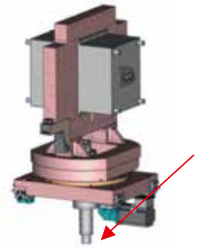
Application

- Widely applied in the production of multi-component products, such as auto sunroof, side window, A-pillar, B-pillar, headlight, grill, door panel, center console screen, appliance panel, and outer frame.

Middle plate of horizontal turntable



- Core
- Hydraulic ejector
- Electronic signal
- Cooling water
- Steam



- Applied with German automatic flow distribution shaft system and double layer structure for oil-water separation, integrated management for oil, water and gas is achievable. Clockwise rotation is also available by 90°, 180° or 360°, no tangling for pipeline.

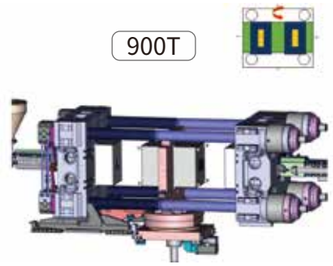
Technical advantages

Compared with traditional stack molds

- Using two independently controlled injection units to better control injection volume
- High flexibility, two different molds can be used synchronously
- Reduce length of hot runner for lower cost
- Improved hot runner balance for faster debugging and startup
- Reduce dwell time of raw materials in the barrel
- Less raw material degradation and better quality control

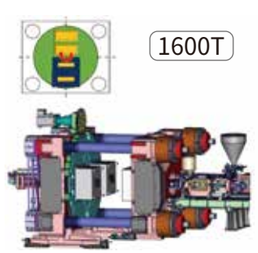
Compared with machine with vertical turntable

- More flexible and applicable to production of large two-color parts
- With double cavities and output under the same tonnage, more economical
- Nearly half of the required machine tonnage under the same production capacity requirement, less power consumption and lower cost.
- Provide innovative integrated solutions with horizontal turntable



Molding with horizontal turntable

VS



Molding with vertical turntable