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YIZUMI 伊之密

D1

D1 Series Two-platen Injection Molding Machine
(500T-2400T)

广东伊之密精密注压科技有限公司

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

Address: No.12, Shunchang Road, Daliang, Shunde, Foshan, Guangdong Province, China 528306

TEL: 86-757-2926 2215 Email: imm@yizumi.com www.yizumi.com



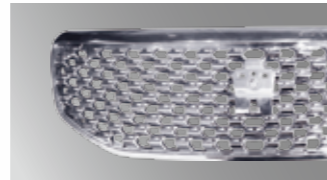
Based on importation and absorption of advanced German technology and years of experience in product application, we continue to move on and undertake the historic project of large-tonnage two-platen injection molding machine, striving to become a pioneer to fulfill such an innovative mission.



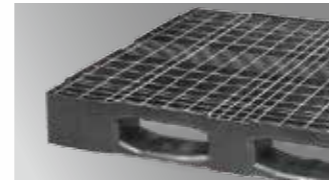
Deep-cavity parts



Household appliances



Auto parts



Logistics materials



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 $\pm 0.2\text{mm}$, meeting higher requirements on automated part removal and inserting.

Shorter dry cycle
Compared with a three-platen machine with 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 $\leq 3\%$, 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 $\leq 3\%$, high mold-close accuracy, hardly any flash, higher stability of injection molding.

Professional control system
Short scan time, fast response and high movement repeatability.

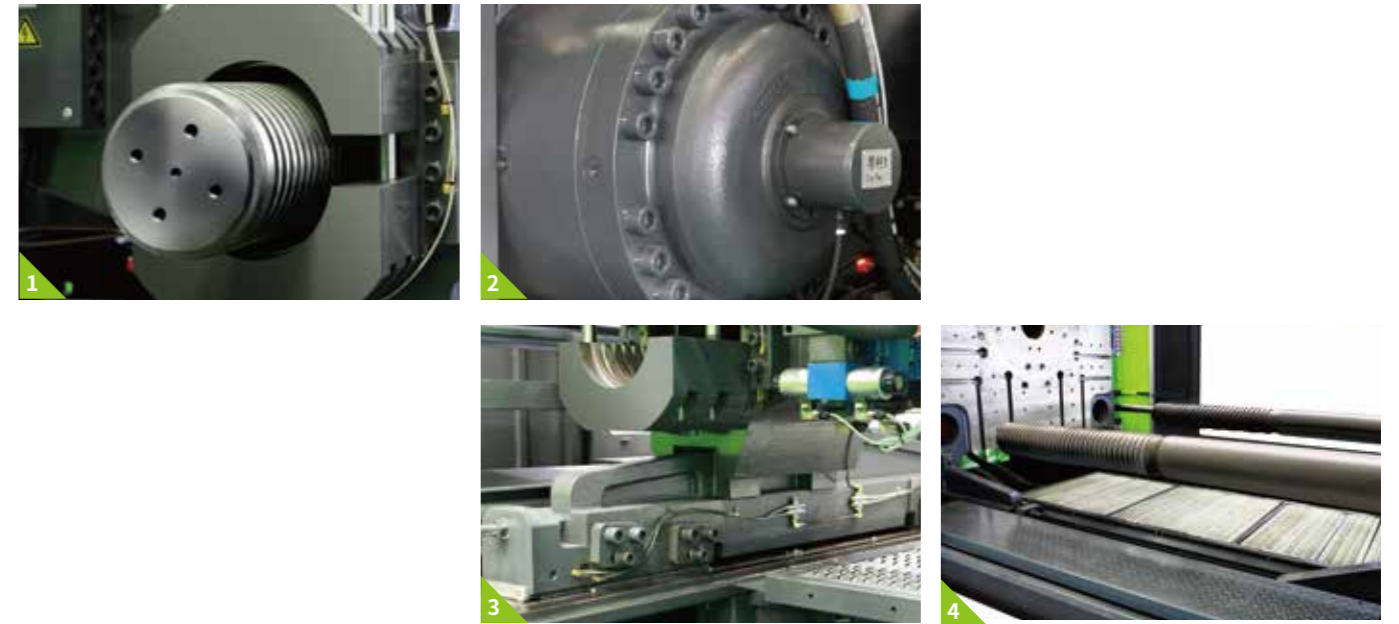
New-generation servo system driven by fully oil-cooled two-headed motor
Fast response, strong power and low energy consumption.

Data above are reference criterions for factory tests.

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.



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

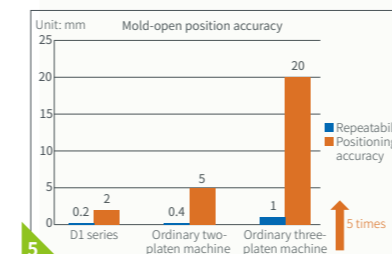
High-rigidity L-shape guide rails on machine frame, with guiding precision up to 0.05mm, facilitate fast and steady motion of platens.

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.

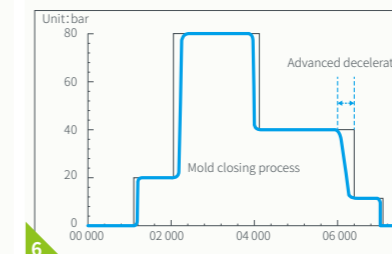
⑤ High repeatability of mold-open end position

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



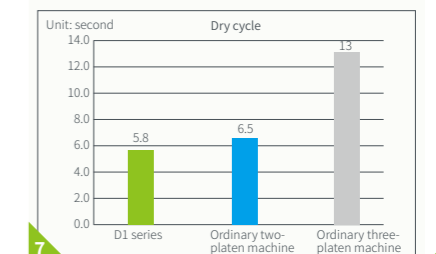
⑥ Sensitive mold protection

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)





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

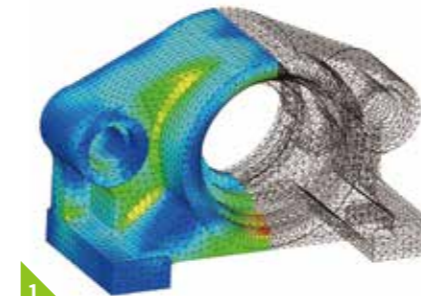
Casts of injection unit are made from ductile cast iron. The platens are highly rigid with little deformation. Injection is more stable.

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.

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 $\pm 1^\circ\text{C}$.



② Excellent injection performance

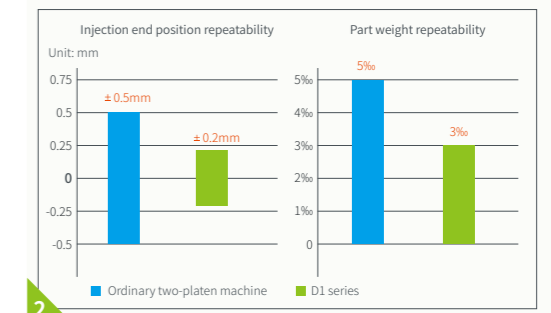
Repeatability of injection end position up to $\pm 0.2\text{mm}$ and repeatability of part weight $\leq 3\%$ meet the needs of increasing efficiency and lowering costs.

④ Ultrasonic displacement sensor

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

⑥ Optional quick barrel change mechanism

Barrel is mounted with a press plate and it can be directed hoisted for installation, which lowers labor intensity and enhances maintenance efficiency.



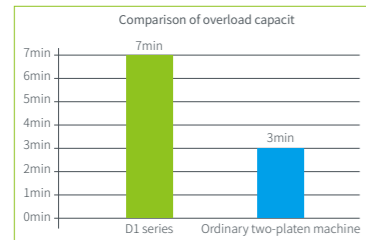
Hydraulic System

Precise filtration, efficient cooling, higher stability

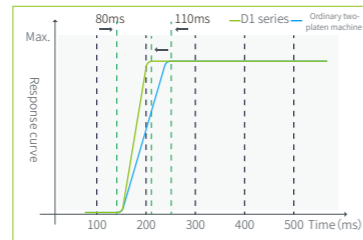
D1 series is based on a hydraulic system with stability and fast response at the core, which enables hydraulic circuit to be in optimal operating conditions. The hydraulic system is characterized by fast response, strong overload capacity and low energy consumption that is superior to China energy efficiency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

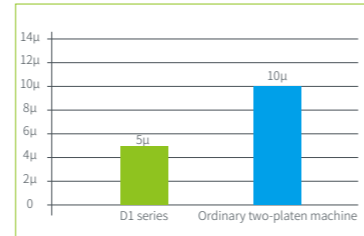
Filter fineness is up to 5 μ m and cooling effect is 2-3 times better than ordinary two-platen injection molding machines, which ensure long service life of seals. Machine becomes more stable.



● 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.

Main Part List

(Standard) Part Name	Brand/Specifications	Place of Brand
Control system	KEBA	Austria
Oil seal	SKF	Sweden
Guide ring	SKF	Sweden
Directional valve	Rexroth/ YUKEN/Atos	Germany/Japan/Italy
Proportional relief valve	YUKEN/ Hydraulik Power	Japan/Taiwan
High-response proportional valve	Rexroth	Germany
Shaft seal cartridge valve	Rexroth	Germany
Cartridge type electromagnetic ball valve	HYDAC	Germany
Variable piston pump	Rexroth	Germany
Pressure sensor	Danfoss	Denmark
Magnetostrictive displacement sensor	Germanjet	Germany
Gear pump	SUMITOMO/ Eckerle	Japan/Germany
Servo motor	PHASE	Italy
Barrel assembly	HAYEUR	China
Hydraulic motor	PKL	China
Tie bar	Hua Xiang	China
Tie bar locking nut	Hua Xiang	China
Clamping piston	Hua Xiang	China
Clamping cylinder cover	Zhong Tian/ QSQY	China
Platen	Zhong Tian/ QSQY	China
Servo drive	PHASE	Italy
Solid state relay	KUDOM	UK
Automatic switch	ABB	Switzerland
Air switch	FUJI	Japan
Position limit switch	SCHMERSAL/ Schneider/ Panasonic	Germany/France/Japan
Proximity switch	AUTONICS	Korea
AC contractor	FUJI	Japan

Standard & Optional Features

	Standard	Optional
● Clamping Unit		
Clamping mechanism with tie bars independent of moving platen	●	
Quantitative volumetric automatic lubrication system	●	
High-response proportional control of pressure and flow for mold open & mold close	●	
Hydraulically-driven ejection device	●	
Low-pressure mold protection	●	
Clamping force adjustment as needed	●	
Forced reset function	●	
Ejector return protection	●	
Robot mounting hole (Euromap 18)	●	
T-slot platen	●	
Four clamp platens made of high-rigidity ductile iron	●	
Hydraulic and electrical safety devices	●	
Safety foot plate in mold area (unavailable to UN900D1 and smaller models)	●	
High-accuracy magnetostrictive displacement sensor for mold open/close control	●	
Safety foot plate in front & rear door areas		○
Synchronous ejection and core pulling		○
Secondary mold closing		○
Quick mold change system platform		○
Hydraulic mold clamp		○
Magnetic platen		○
Increased mold thickness		○
Increased ejector stroke		○
Mold lifting device		○
Heat insulating plate of mold		○
Special mold mounting hole		○
Increased mold opening stroke		○
Larger ejection force		○
● Electrical system		
Closed-loop PID barrel temperature control	●	
Manual, semi-auto and fully-auto operating mode	●	
Input and output inspection interface	●	
Automatic display of alarm messages and acousto-optic alarm system	●	
Built-in software with the oscilloscope function	●	
Unlimited technical parameter storage	●	
Automatic mold height adjustment	●	
Chinese and English operating system	●	
Safety gate emergency stop function	●	
Online cycle monitoring	●	
12" TFT color touch screen	●	
Visualized graphic programming	●	
PDP interface	●	
Injection monitoring protection	●	
Mold-close monitoring protection	●	
Statistical process control (SPC) interface	●	
Electrical enclosure rated IP54	●	
Screw speed detecting device	●	
Time/ position/ time + position control modes for switchover to holding phase	●	
Protective plate in mold area	●	
3 sets of 380V 32A socket (2 sets for 500T-900T machines)	●	
A sets of 380V 16A socket (2 sets for 500T-900T machines)	●	
16-level password security	●	
Reserved robot interfaces based on SPI, EUROMAP 12	●	
Automatic heat preserving, automatic heating settings	●	
Servo injection		○
Electric unscrewing device		○
Hot runner interface		○
Auxiliary emergency stop button		○
Air blast in mold		○
Power supply change		○
Central (networked) monitoring system		○

	Standard	Optional
Protective light grid of safety gates		○
Opto-electronic safety switch of front and rear safety gates		○
Protective light grid of central safety foot plate		○
● Injection unit		
Double parallel cylinder injection unit with low-speed high-torque hydraulic motor	●	
Nitrided alloy steel screw & barrel	●	
Heat preservation cover for barrel and purge guard (with electrical protection)	●	
Selectable suck-back before or after plasticizing	●	
10-stage injection speed/ pressure/ position control	●	
10-stage holding speed/ pressure/ position/ time control	●	
5-stage plasticizing speed/ pressure/ position control	●	
Linear guides for injection unit	●	
Double-carriage cylinder	●	
Cold start protection	●	
Manual central lubrication system of injection unit	●	
Suck back function	●	
Automatic purging	●	
Screw rotation measuring device	●	
Mixing screw		○
Bi-metallic screw barrel		○
Swivelling injection unit		○
Extended nozzle (50/100/150/200mm longer)		○
Special screw components		○
Energy-saving barrel heat retaining device (silicone cover)		○
Spring shut-off nozzle		○
Increased injection stroke		○
● Hydraulic system		
Low-noise energy-saving hydraulic circuit	●	
Proportional back pressure control for plasticizing	●	
Oil pre-heating system	●	
2 sets of core pull (4 sets for UN2100D1 and larger models)	●	
Differential mold-open circuit	●	
Injection and mold-close pressure protection	●	
High-pressure mold opening	●	
Automatic pressure and flow calibration	●	
Oil temperature and oil level alarm	●	
High-performance servo pump system	●	
Multiple sets of sequence (injection) valve interface		○
Variable displacement pump system		○
Closed-loop proportional variable displacement pump system		○
High-response accumulating servo injection system		○
Enlarged oil cooler		○
Multi-capacity larger pump motor		○
Multi-capacity larger plasticizing motor		○
Servo injection (closed-loop control of injection, plasticizing, holding pressure and back pressure)		○
Plasticizing during mold opening		○
Multiple sets of core pull or unscrewing devices with electrical interfaces		○
● Other		
User manual	●	
Adjustable leveling pad	●	
8-in 8-out water manifold on movable platen (with quick connectors)	●	
Nozzle spanner	●	
Mold clamp	●	
Hopper (standard on UN900D1 and smaller models)		○
Hydraulic oil (standard on UN1400D1 and smaller models)		○
Loading platform		○
Mold temperature controller		○
Automatic loader		○
Dehumidification dryer		○