Haitian **Mars** Series

HAITIAN
PLASTICS MACHINERY

Haitian **Mars** Series

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A Member of Haitian International

We Create Advantage.

Haitian Mars Series

Environmental protection – high energy saving.

Integrating all of the excellent features of the Haitian Saturn Series, the Haitian Mars Series with the servo energy concept is characterized with energy efficiency and environment protection. This machine range will raise your molding operation to the next level of efficiency and precision. It's unique design provides energy and water saving functions for standard injection molding machines.

The Haitian Mars Series closes the gap between fully hydraulic and fully electrical machines.

We create advantage:

High energy savings

» Under normal operating conditions, compared with conventional hydraulic injection molding machines, energy savings of 20-80% can be achieved.

Molding stability

» Compared with conventional injection molding machines, repeatability is greatly improved due to servo motor closed-loop control.

Quick response

» Featuring a dynamic servo motor with a response time of only 0.05sec

Quiet operation

» The machine runs at much lower noise levels, particularly in low speed applications.

Reliable holding pressure

» Compared with traditional hydraulic machine the holding pressure is more stable and does not have limitation.

Better oil temperature stability

» The servo system only delivers hydraulic oil as it is needed for the various functions. This prevents unnecessary generation of heat and substantially reduces oil cooling requirements.

Haitian Mars Series-MA 1200/410

Haitian Mars Series-MA 2800/1350

Haitian Mars Series

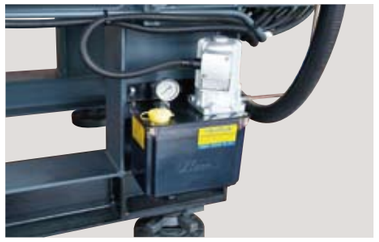
in detail.

The Haitian Mars Series has integrated all of the benefits of the traditional hydraulic driven Haitian Saturn Series, but are enhanced by the use of a high powered servo motor dynamic control system. This system is an innovation in hydraulic injection molding machine design, which improves molding precision and significantly reduces energy consumption.

Clamping unit:
The powerful kinematics of the proved 5-point double toggle represent economical speed and power processes. This allows high sensitivity in the opening and closing processes and protects tools from excessive wear and tear. The fast mold closing device is optimized to shorten the cycle time.

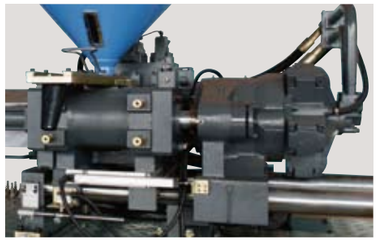
Injection unit:
The optimization of the injection unit is providing for higher precision and stability. The force is always applied centrally as the two drive cylinder for the unit movement and two injection cylinders for screw injection. There are three different screw sizes to be selected according to process and application. The barrel temperature can be set and monitored by the control.

Hydraulic system:
The energy-saving hydraulics are fitted with sound reduced and are made of high-quality European components. They allow much greater forces to be transferred and enable very uniform and precision movements of the machine.



Automatic lubrication system:

The automatically controlled oil lubrication ensures that the toggle operates without friction and considerably increases its durability.



Customize configuration

Up to three screw size for free selection.

Energy saving servo motor

With quick response and steady capability, servo gear shift dynamical control system has equipped with pressure feedback device with high precision and sensitivity, which forms a close-loop precision control and provide products with high stability for customers.

Powerful & sensitive

The 5-point double toggle provides short locking time and high opening forces.

More space

Generous tie bar clearances and distance between platens, provide the optimum mold space.

Increased flexibility:

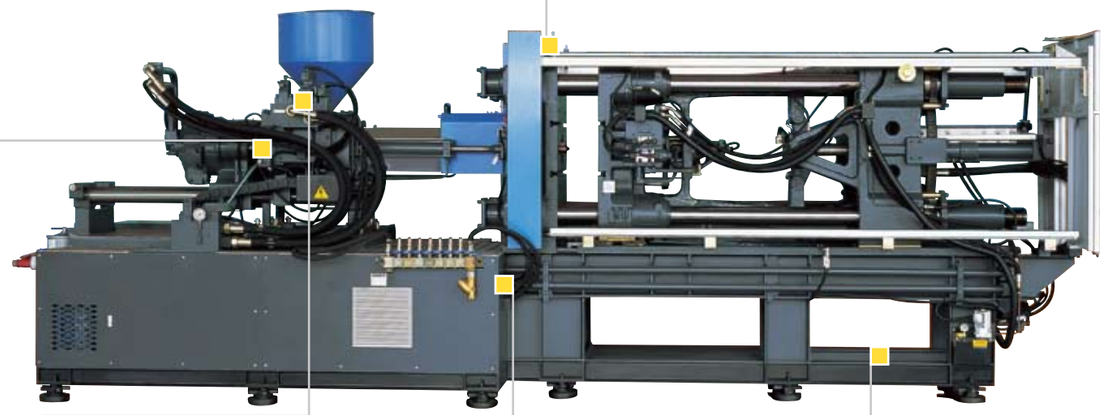
Latest Keba control ensures multi stage plasticizing pressure, speed and position adjustment.

Accurate reaction:

Mold open and close is controlled by position transducer.

Accessible support:

Euromap robot mechanical interface.



Environmental protection

The sound-reduced hydraulics are made of high quality European components and guarantee harmonious motion at a high reproduction accuracy.

Self-detecting optimization:

Oil temperature upper and lower limit alarm.

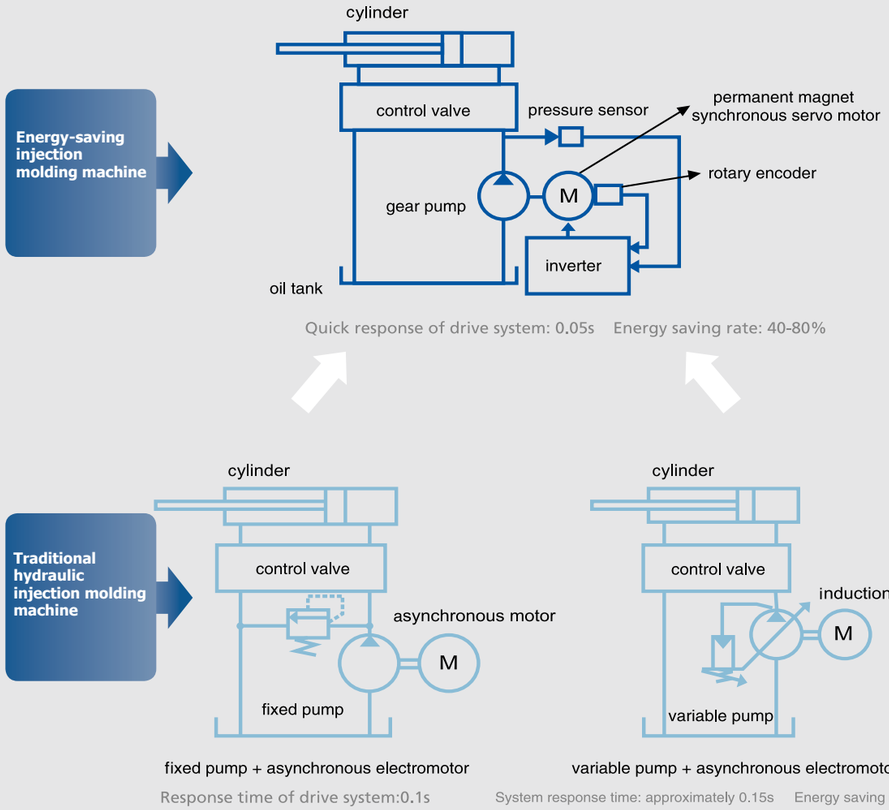
Easily accessible

Discharge area opens on three sides to allow simple integration of peripheral components.

Haitian Mars Series

Energy-saving injection molding machine.

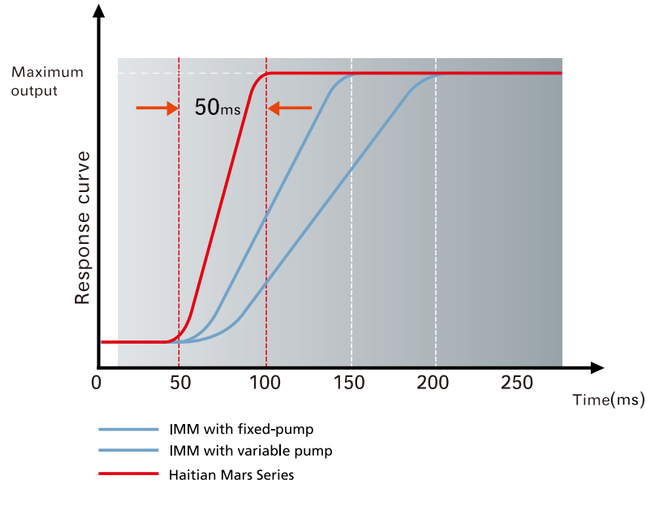
Energy-saving injection molding machine-innovation of drive system



Equipped with a rotary encoder and pressure sensor, the pressure flow state of the energy saving Haitian Mars Series machine will be transmitted to the controller, the command of which will be sent out to the efficient synchronous servo motor to change the rotation and the torque accordingly. The corresponding flow and pressure adjustment ensures the highest quality and precision of the plastic parts produced, with energy savings and fast response times.

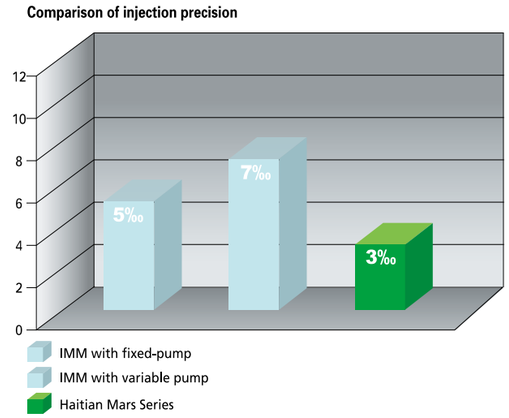
Quick response of servo motor

The response time of the drive system is very fast. It requires only 0.05s to reach the maximum power output. Cycle time is substantially shortened comparing with the plastic parts production by traditional hydraulic injection molding machines. The efficiency is improved significantly.



Precision tolerance comparison

(Thin wall parts)
The precision of processing tolerances to produce the plastic parts will be greatly improved by using the energy-saving Haitian Mars Series , instead of using traditional hydraulic machines using either a fixed or variable pump. The optimized rate of repeated qualified parts is around 40-130%



Uniform control

The latest technology from Keba.

The Haitian Mars Series uses the latest control technology from Keba. This high-performance control system prvides the ideal communication between the injection molding machine and the operator. The uniform operating concept and logical, clear structure of the functions make machine operation easy and user-oriented.

Model 1075 is suitable for standard applications, while model 4030 lends itself to more complex injection molding processes. Both versions are currently delivered in 15 languages.

Because of the large quantity of units required per year, Haitian is given high priority by their European partner. Haitian experts work closely with the Keba development team, positively influencing the development and expansion of hardware and software as well as the reliable services provided.

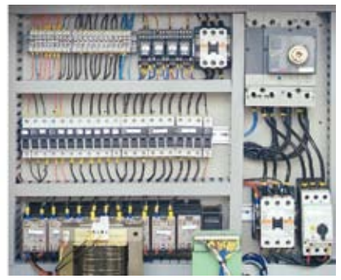
Both versions – 1075 and 4030 – have USB and Ethernet interfaces to enable the quick transfer of machine data for software updates and for connections to external printers.

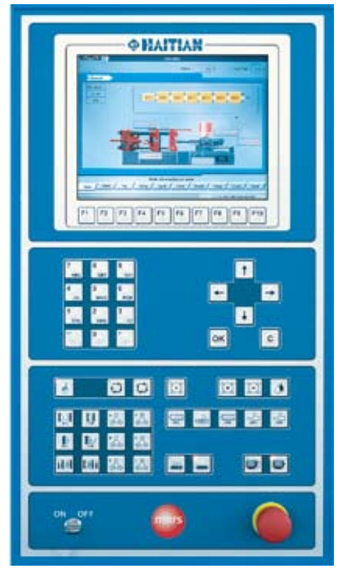
The graphical temperature displays for hot runner systems and heating equipment help to make controlling, monitoring, and document machine processes easy and clear. This makes life easier for operators.

1075 system

Special features.

» Keyboard operated 10.4 inch colour screen
» Temperature display for up to 12 hot runners
» Easy-to-use injection, holding pressure, and dosing settings for the specified profile
» Cascade control injection valve gate up to 6 pneumatic or hydraulic
» USB interfaces for the external backup of mold data and for connecting printers
» Ethernet interface





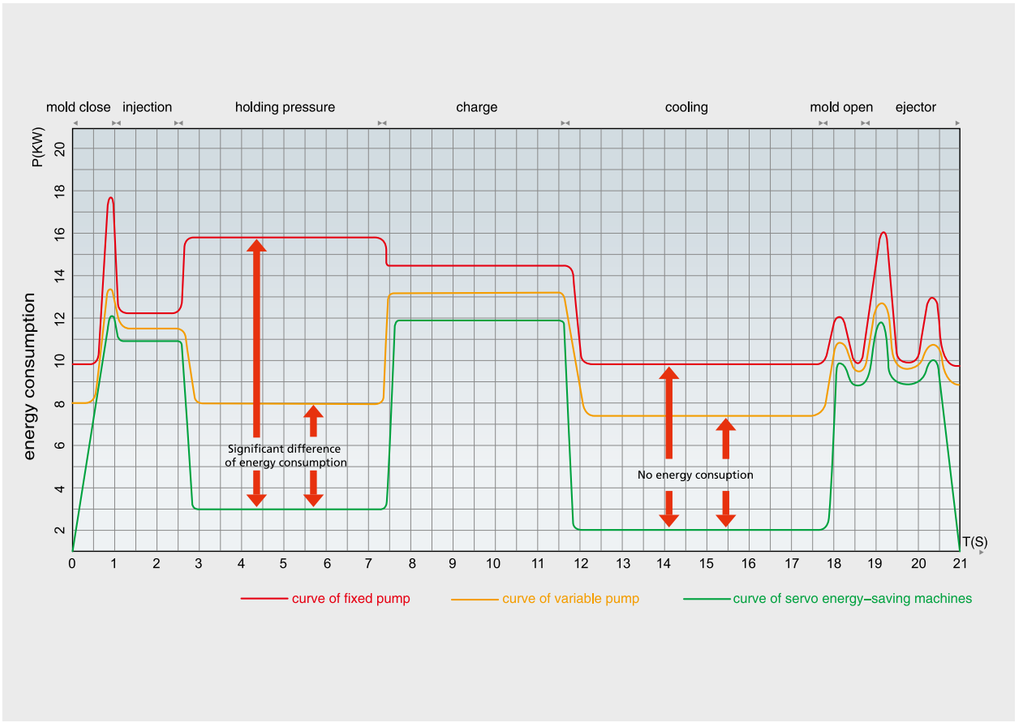
4030 system

Special features.

» 12 inch touch screen monitor for easy, ergonomic use
» Temperature display for up to 40 hot runners
» Easy-to-use injection, holding pressure, and dosing settings for the specified profiles
» Cascade control injection valve gate up to 12 pneumatic or hydraulic
» 3 USB interfaces for the external backup of form data and for connecting printers
» Ethernet interface
» RS232 and RS485 interfaces

Ultimate energy efficiency

Energy-saving injection molding machine.



Features of the energy-saving Haitian Mars Series injection molding machines

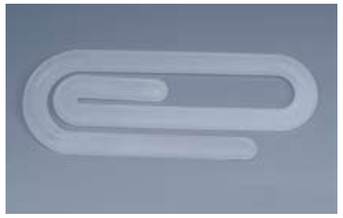
The output of the drive system is sensitively altered, according to the actual need of the plastic parts being produced. The beauty of this concept is the avoidance of energy waste.
During the pressure holding period the rotational speed of the drive will be significantly reduced, the resultant output provided by the drive system, will only be used for actual requirements of production.
During the cooling period the output from the drive system is zero, which means there is no energy cost at all.
Depending on the plastic parts being produced and the material being processed, energy-savings of is 20% to 80% are achievable.

Energy saving proving test:

Case test for energy-efficiency

Test:
Product name: Ruler
Material: PP
Weight: 48.6g
Thickness: 3.6mm
Mold cavity : 1

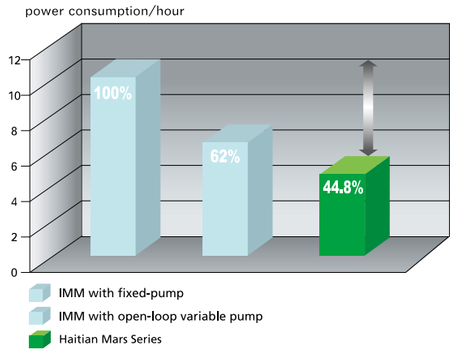
Test conditions:
Three type machines
Oil temperature: 45 ℃
Cycle time: 22 s
Operation duration: 3 hours without stop



Comparison of energy consumption

Comparison		1200KN IMM with conventional fixed pump	IMM with open-loop variable pump (1200 kN)	Haitian Mars Series (1200 KN)
Molding cycle	Second	22	22	22
Check time	Hour	3	3	3
Total shots	Shot	490	490	490
One-hour power consumption	Kw/h	**10.5**	**6.51**	**4.7**
One-year power consumption	Kw/h	**69300**	**42966**	**31020**
Electricity cost per year in China	USD	**6930**	**4296.6**	**3102**
Cost saving	%	Compared with ÿxed pump		**55.2%**
		Compared with variable pump		**77.2%**

Calculation condition: 24 hours, 365 working days, Electricity charge: 0.1USD/Kwh



Based on actual data:
The required energy consumption to produce the processing ruler by an energy-saving machine is 55.2% less when compared to a traditional hydraulic IMM and 17% less an IMM with an optimized variable pump.
The energy-saving machine also requires 80% less energy to produce a thick walled product which needs a longer holding and cooling time or 50% less than using an IMM fitted with optimized variable pump.