

PROVEN PERFORMANCE

Van Dorn HT



85 - 650

Demag Plastics Group
VAN DORN

V A N D O R N H T

FOR EVERY MOLDER

The HT Series

More parts are made on injection molding machines between 85 and 650 tons than any other size. Molders of these parts need a wide range of processing capability, a machine that is flexible in configuration, deep in standard features and reliable in performance. The HT Series is the best-selling toggle in America because we continually strive to achieve these goals. More often than our competition, we hit the mark.

The HT Series didn't get to #1 and stay there by resting on its laurels – continuous improvement is our engineering philosophy. The current design of the Van Dorn HT Series is driven by careful research of your needs. You tell us what provides you a tangible benefit and we respond – elements such as a more durable clamp, a more capable injection unit and the industry-renowned Pathfinder control.

Design only goes so far. Manufacturing excellence is what guarantees your uptime and bottom line results. The HT Series is built with our “quality at the source” principles that are geared to doing things right from start to finish.

Each subassembly is tested by proprietary computerized test stations so when the machine is in final assembly, it runs to specification every cycle, every time. ISO 9001 and QS9000 TE-Supplement certification keeps us on track from machine to machine, quarter to quarter.

Van Dorn Demag Corporation draws on a rich 50-year history and our association with the largest manufacturer of injection molding machines in the world. While we offer a broad product line, we are strictly focused on injection molding. We know your business because it's our business – our only business.

“We've made it a strategic objective for the HT Series to provide the lowest cost of ownership over five years of any machine in the market. This includes cost of purchase, maintenance, and resale value, all elements to consider.”

Here's how flexible the HT Series is: one molder makes shirt clips with a basic machine configuration and Pathfinder 3000 control at the right price; but the same 300 HT with Pathfinder 5000 and a few options, molds a sophisticated laser surgical instrument.



HT

Installation of the HT Series is almost as simple as plugging it in, although all new machines come with complimentary start-up services. At one of our customer's plants, the field service engineer completed the basic check-out on the first day. He arrived the next morning and the molder was already running a brand-new mold, set up with ease using the Pathfinder control's Scout™ guided setup program.



HT SERIES

INJECTION UNIT

Peak Processing Performance

In our latest generation HT Series, we paid the most attention to the injection unit's design. To achieve greater, more flexible processing, longer life expectancy and to reduce maintenance requirements, we made some changes and applied new technologies.

The result is an in-line design for shot sizes from 9 to 140 ounces. (Units for 3, 5, and 8 ounces are also available.) We've built it to achieve higher pressures for both standard and high-pressure configurations. The screw and barrel are longer for better melt quality. We've switched to more durable components to ensure the integrity of the unit, particularly during high-pressure injection.

Modular by design, each tonnage model is available with a choice of three different injection units. Each injection unit is available with a choice of two different screw and barrel combinations, one for standard (23,200 psi) and the second for high-pressure (30,000 psi) processing or smaller shot sizes. Standard screws are maintained at a 20/1 L/D ratio and 3:1 compression ratio for a high-quality melt – even with the toughest engineered materials.

Simple screw removal is always important but even more so if you are a custom molder making frequent mold changes. After pivoting the injection unit away from the clamp, our screw design can be easily removed in five quick steps. The coupling is a major improvement from previous versions, designed to maintain a positive, durable connection between the screw and the driveshaft, extending the life of the screw.

The injection cylinder ram rides on glass-filled nylon bearings that live longer and withstand higher temperatures than ever before. Precision position sensing of the screw is accomplished with a linear transducer to ensure repeatability from cycle to cycle. Our leak reduction initiative led us to a fixed hydraulic screw motor, one that doesn't require dynamic seals. Its quiet operation and energy-saving design doesn't undercut its power to handle your molding project. An optional high-torque screw motor is available for all sizes of the HT Series if you anticipate stiff material requirements.

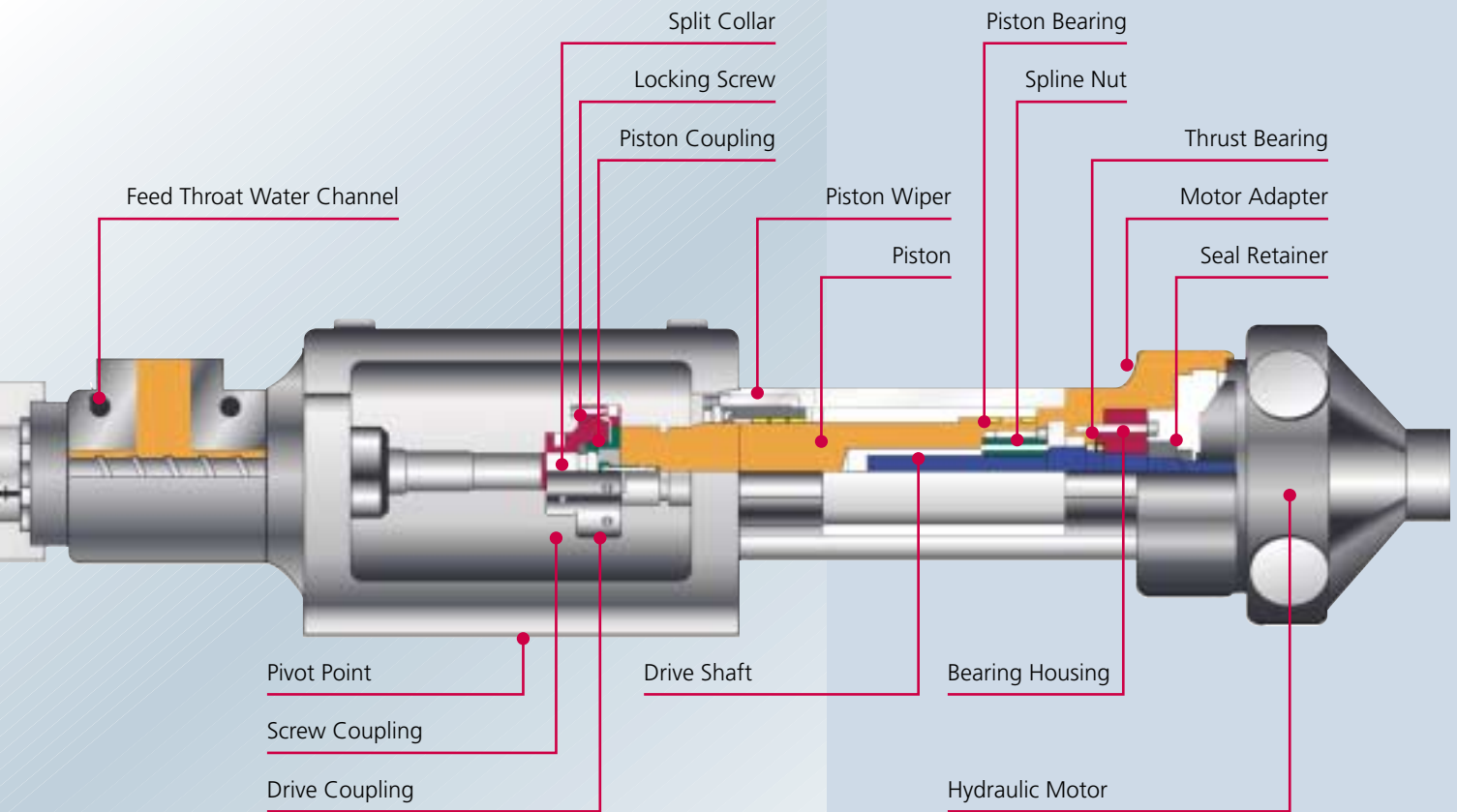
Other leak reduction elements of the design include improved bearings and seals, a reduction in the number of seal points, and easy access to seal and bearing components for simple replacement as the unit ages.



The injection carriage is supported on round guide rods providing 360-degree containment of the bars. It accommodates both standard and long L/D screws and barrels.



Easy access and simple removal mechanisms are critical for quick changes and maximum uptime.



Other standard features of the HT injection unit include:

- Cold screw start-up protection
- Water-cooled feed throat with temperature monitor
- High-wattage mica heater bands
- Screw speed tachometer with the ability to read and adjust RPM profiles from the control panel
- Cut off by time, position or pressure
- Settable screw rotate delay
- Intrusion molding capability for additional shot size by rotating the screw before injection
- Screw pullback (decompression) before and/or after screw rotate



State Temperature Control of the nozzle and barrel zones is state-of-the-art. This patented technology directs barrel temperatures to quickly reach temperature setpoints with reduced overshooting to gain energy savings and protect temperature sensitive materials. State Temperature Control predicts the effects of thermal disturbances such as shear heat or adjacent barrel zone activity and responds quickly to accurately maintain temperatures. Material degradation is reduced, shot consistency is enhanced and part quality is improved. Barrel high/low temperature alarms and thermocouple break alarms are provided via the Pathfinder control.

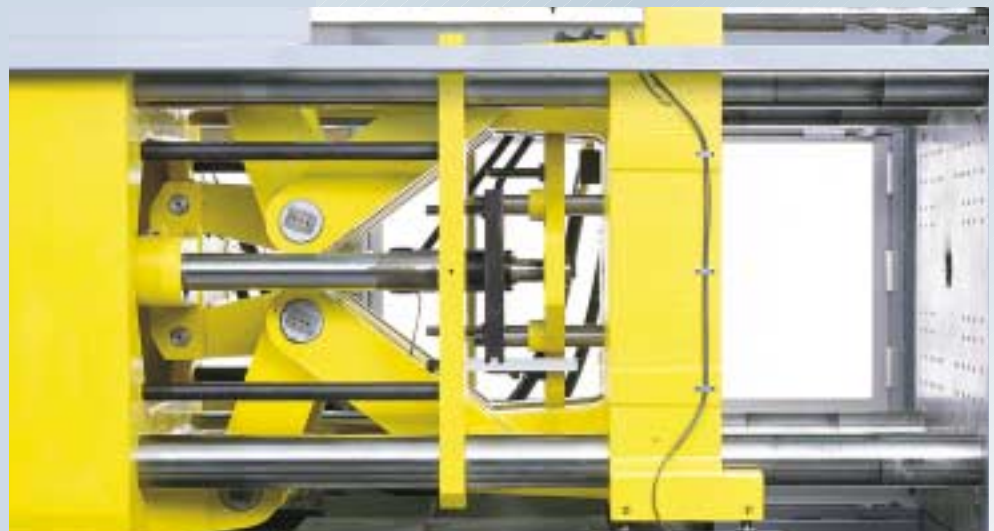
Sprue break allows the molder to select one of two sequences or off. Sequence selections are for nonmoving sprue molds (nozzle breakaway), moving sprue molds such as stack molds (sprue move away) or off.

CLAMP UNIT

Double Toggle

The HT Series clamp unit incorporates generous specifications, low maintenance features, sophisticated control devices, and rugged, high-quality components to deliver powerful clamp tonnage on a consistent basis.

Our toggle mechanism features a rugged, double-shear linkage that minimizes pin deflection with increased bearing area per steel toggle pin. Horizontal linkage is how we make sure you've got the long mold open stroke you need. Large, stiff links, chrome-plated toggle pins and hardfaced tie bars are how you know you'll get long-term durability from an HT Series clamp.



The mold receives a smooth ride on our oil-cushioned clamp cylinder, aided by our patented Digital Feed Forward control. (Standard color of clamp components is black. Yellow enhances visibility of design features.)



The long-term stability built into the toggle system contributes to the high resale value of the HT Series. Notice we've pre-drilled robot mounting holes into the stationary platen for you.

Low-lubrication bushings and a central, manual, eight-point lubrication block system to grease the reciprocating bushings deliver cost savings by reducing wear and maintenance requirements. The lubrication system covers the tie-bar bushings, crosshead bushings and platen shoes.

The platens feature dual platen bushings on each tie bar for precision guidance. We use fully adjustable extended platen supports to maintain platen parallelism and precisely align molds. Of course, the platens incorporate the full SPI knockout pattern and mold-mounting dimensions.

How does our clamp performance stand out? Working with a rotary potentiometer, the Pathfinder control's patented Digital Feed Forward technology can actually anticipate clamp position. The Pathfinder control automatically determines, with pinpoint accuracy, the location at which it needs to slow the clamp down – not a millisecond before – to safely reach the stop position. You obtain exacting repeatability and maximum cycle time quietly and smoothly. Low pressure mold close and slow mold breakaway protects your tooling investment.

The hydraulic ejector system is comprehensive in its capability. You'll get center ejection, ejector forward hold, positive stops, and multiple eject sequences such as tip stroking, with the ability to remotely set up to five pulses and eject on the fly as standard. You can set ejector speeds and pressures digitally from the control.



These low-lubrication bushings simplify maintenance requirements.

HT SERIES

Access to the ejector plate is wide open, making it easy to install knockout bars. The ejector plate is extremely rigid, particularly since we've recently improved its stiffness and the length of the bushing area. This ensures you will obtain precise ejector alignment and won't experience premature wearing on the pins, plate and bushings. Position sensing of the ejection system is provided by a linear transducer.

Safety is of critical concern to you and to us. A ratchet-type safety bar plus electrical and hydraulic interlocks on the operator's gate and electrical interlocks on rear and link guards promote safe operation of the HT Series.

Motorized, single-point die height adjustment with automatic die height lock and push-button adjustment of die height and clamp tonnage addresses two of your requirements – clamp tonnage accuracy and ease of operation.

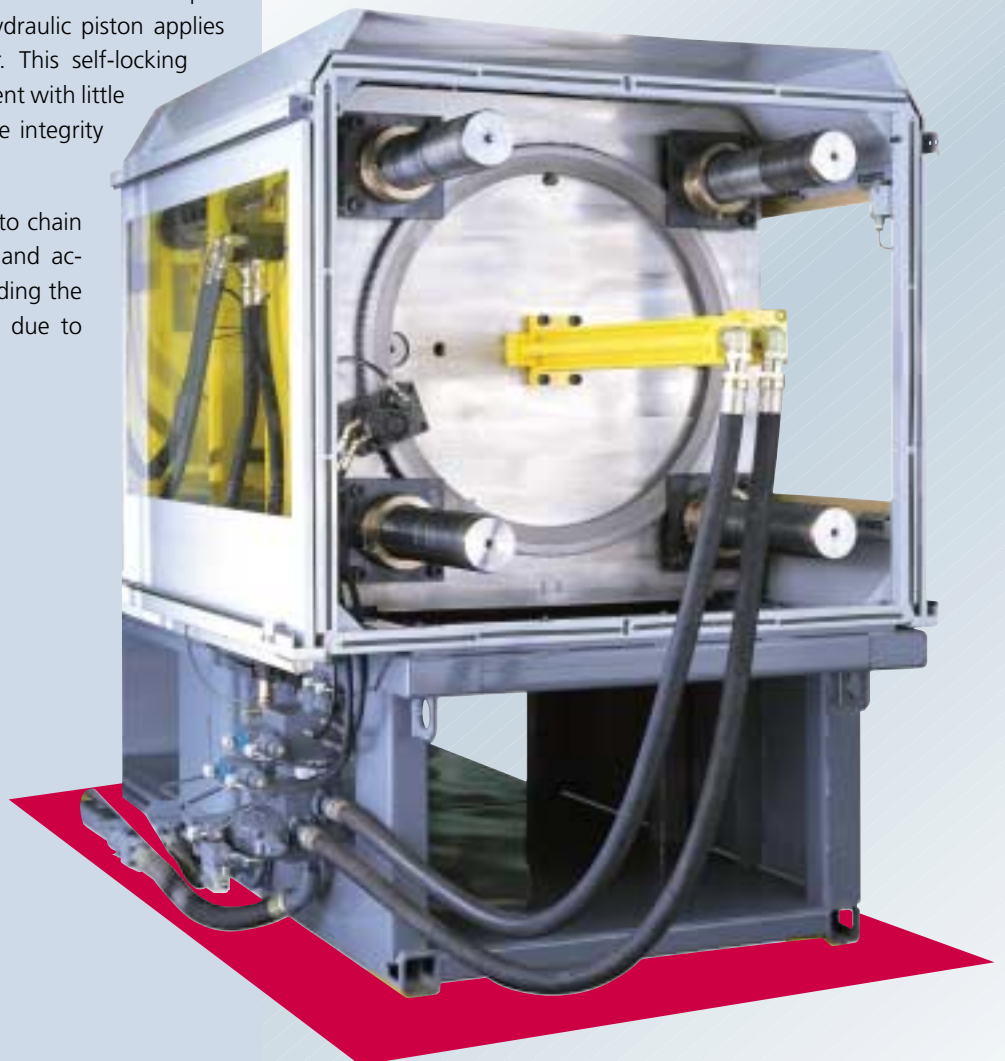
Using a ring design, a central gear meshes with spur teeth on the four tie bar nuts. A hydraulic piston applies locking force against the ring gear. This self-locking feature gives you quick, easy adjustment with little or no break in cycle, and secures the integrity of settings once made.

The gear drive design, compared to chain driven systems, achieves consistent and accurate alignment and avoids side loading the tie bars and the loss of adjustment due to jumped sprockets or broken chains.

The HT's die height adjustment is one of the simplest and most effective in the industry.



Recent clamp improvements include a strengthened crosshead and ejector plate for durability and guidance.



HYDRAULIC SYSTEM Strength and Accuracy

The HT's hydraulics also include:

- Closed-loop oil temperature control
- Full-time oil filtration system with 5 micron filter, visible and audible alarms
- High oil-temperature and low oil level-alarms, visible and audible
- Selectable oil preheat sequence



Injection manifold



Heat exchanger



Clamp manifold

The location of the variable volume pump inside the base contributes to the HT's quiet operation and compact size. Yet, you can easily reach the pump outside of the oil tank when necessary.

Today's HT Series hydraulics combine a variable volume pump with cartridge, proportional pressure, and proportional directional flow control valves, all of which incorporate more capability and endurance than their older counterparts.

The energy efficient variable volume pump's output is matched to the volume required by the speed selected, eliminating wasted energy. Load-sensing software on the Pathfinder control is responsible for keeping the pump running at its most highest efficiency. If energy is a high-priced commodity in your geographic area, consider our variable-speed electric pump option to further reduce your energy costs.

Proportional directional control valves are responsible for speeds and positions of shot control, screw motor rpm and clamp cylinder control including core and ejector. Proportional pressure control valves obtain and maintain injection and clamp pressure control. All of our proportional valves are digitally set from the Pathfinder control, whose innovations such as Adaptive Process Control and Digital Feed Forward impart performance superior to any other system. On-board electronics on proportional valves are ruggedly constructed.

Cartridge valves, recognized for their fast response, perform pressure relief tasks to minimize pressure drops and, in machines with more than one pump (170 HT and above have an added fixed pump), divert and separate pump functions. Our Pathfinder 3000 and 5000 controls feature Auto-Calibrate, an easy way for you to maintain the valves' optimum calibration values. At the touch of a button, you eliminate the human element of variation, ensuring your HT Series performs to its original specifications even with spring fatigue and eventual wear in the valves. Auto-Calibrate makes documentation for ISO certification much easier. Plus, setups can be moved to different machines with consistent part results.

We've come up with several design changes to reduce leaks including improvements to seals, SAE O-ring fittings, and valves. And our commitment extends to a Three Year, No Leak Guarantee. The HT Series will remain free from hydraulic leaks under normal use. If it does develop a leak, we'll quickly provide the parts and labor to return it to leak-free status.



OPTIONS

Completely Modular

GENERAL FEATURES

The HT Series also includes:

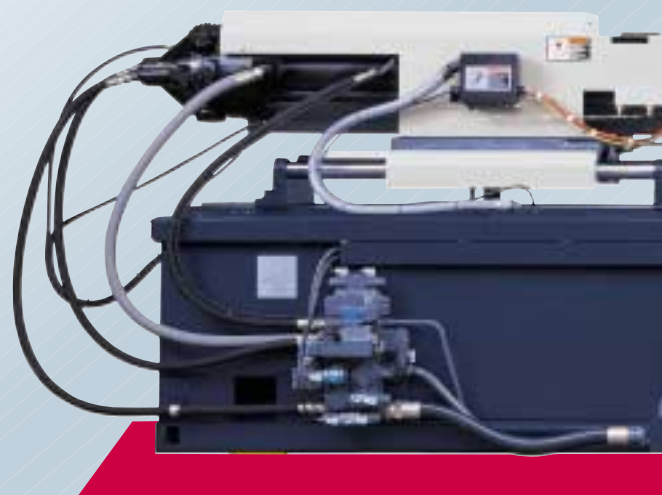
- Large three-way part drop area with access for conveyers and automated part drop removal systems
- Tray between linkage and part drop area to maintain cleanliness
- Standard machine is wired for 460/3/60 – alternatives are available
- Vibration mounting pads are standard
- UL-approved control cabinet
- ANSI/SPI B151.1 compliant

OPTIONS

The HT Series is available with a broad range of options. Just a few include:

- Core and ejector motion key switch
- Core pull: choice of set and pull sequences
- Auto die height and tonnage control
- Heavy duty clamp
- Additional daylight
- Robot interface
- High-speed and accumulator models
- High-pressure injection units
- Special application screws and barrels
- Cut off by cavity pressure
- Electric screw drive
- Variable speed electric pump drive
- Feed-throat temperature control
- Power factor correction capacitor

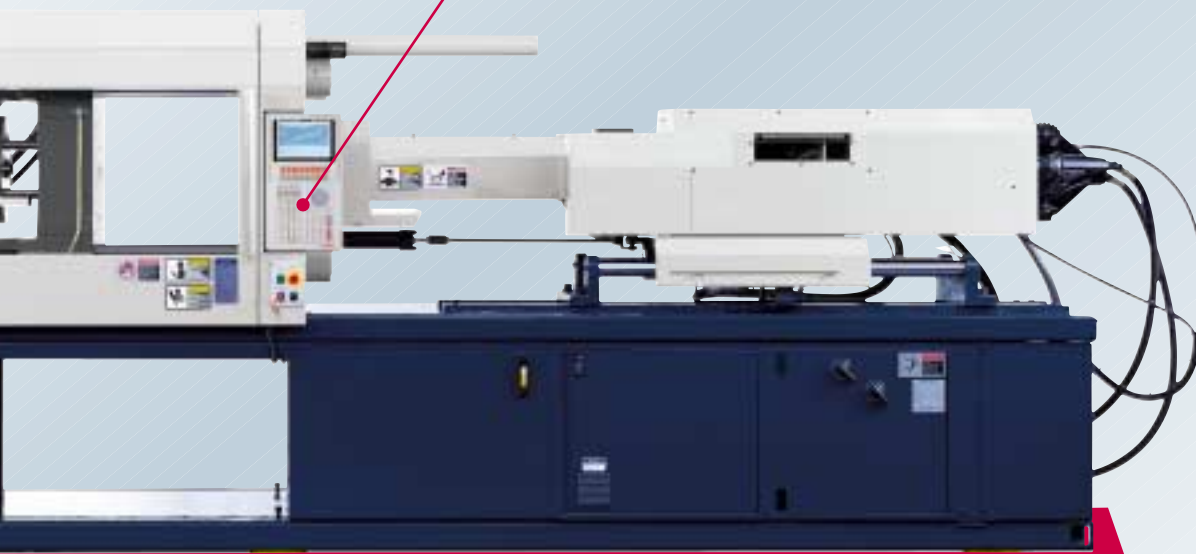
Our HT Series is available for immediate delivery thanks to our Customer Quick Response (CQR) stocking program. We can have a machine to you this week. For more details, consult your Van Dorn Demag representative.





PATHFINDER CONTROLS

The HT Series is equipped with the proprietary, industry-leading Pathfinder® family of controls to provide you with a choice of capability and cost. The Pathfinder 3000 takes the HT's capability to a high level with the Optimizer, our patented Adaptive Process Control feature that makes closed-loop control obsolete. The Pathfinder 5000 adds management tools such as auxiliary communications, SPI host communications interface and on-board SPC. Ask your sales representative about other features such as Scout™, Expert™, and our Preventive Maintenance program.



Accessibility to the mold area and hydraulics simplifies the addition of options to your HT – at the factory or at your facility as a retrofit.

MOLDER ACTION NETWORK

Our commitment to 100 percent customer satisfaction is part of the Van Dorn experience. That is why we created the Molder Action Network – total support with one call. Contact us at 866-491-1045 or visit www.molderactionnetwork.com.



REPLACEMENT PARTS

Van Dorn maintains an extensive, computerized inventory of replacement parts to assure customers of quick delivery.



TECHNICAL SERVICE

The Molder Action Network's Technical Service Department is standing by with a wide range of services – installation and start-up, troubleshooting, field service and preventive maintenance.



TRAINING

We offer classes at three different customer training centers located in Strongsville, Ohio; Greenville, South Carolina; and Roselle, Illinois. Training, tailored to meet your needs, can also be arranged at your facility.



PROCESS SOLUTIONS CENTER

This center, available to customers before and after a sale, is a state-of-the-art lab facility for mold trials, machine run-offs prior to delivery or troubleshooting processes in the field.

ENERGY SAVINGS

Sky-rocketing energy costs have changed the economics of the injection molding business. The Molder Action Network can help you cut your power bills down to size.

ONLINE STORE

Order parts from our new online store where convenience and ease are our main priority. We can accept payment via credit cards or purchase orders.

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Since continuous improvement is Van Dorn Demag's policy, we reserve the right to change information without prior notice or obligation.