MAXIMA

PERFORMANCE SERIES

500-1100

MILACRON®

MAXIMA PERFORMANCE SERIES 500-1100

Raising the bar on speed, precision, reliability, versatility

The Maxima Performance two platen injection molding machine provides the highest performance, precision and flexibility. Its reduced overall footprint contributes to better floor space utilization and improved access to the molding area. This enhanced platform delivers faster cycle times, wider platens, a precision greaseless clamp guided on linear bearings and integrated auxiliary capability. Its improved centerline promotes an ergonomically friendly design allowing for safer tool install and faster utility hookups. The overall improved clamp design provides a greaseless part drop area, truer alignment, and increased access to the eject plate.

Rugged Lock Nut Design

- High Speed Lock Nut Design
- Fast / Repeatible Cylinders
- Improved response time and performance

Quick and Easy Setup

- Walk-up operator gates bring you closer to the mold
- Ejector mechanism is open and accessible for easy mold setup
- Lower centerline

Mosaic+ Control

- Multi-touch capable 21.5" HD screen
- Configurable screen layout
- Integrated Auxiliary Equipment
  - Thermolators
  - Robot
  - Chiller
  - and more

Servo Driven Machine Performance

- Up to 45% - 60% energy savings
- Closed loop digital control valve
  - Improved time ramping
  - Faster response times
  - Better repeatability
- Reduced complexity/improved reliability
- Quieter machine operation

Center Tonnage Clamp Force

- Improved platen deflection
- Reduced mold wear
- Reduced part scrap

Moving Platen Guided On Precise Linear Bearing-No Bushing Required

- Precision guidance of molds
- Reduced friction
- Improved parallelism
- Reduced mold wear
- Greaseless part drop area

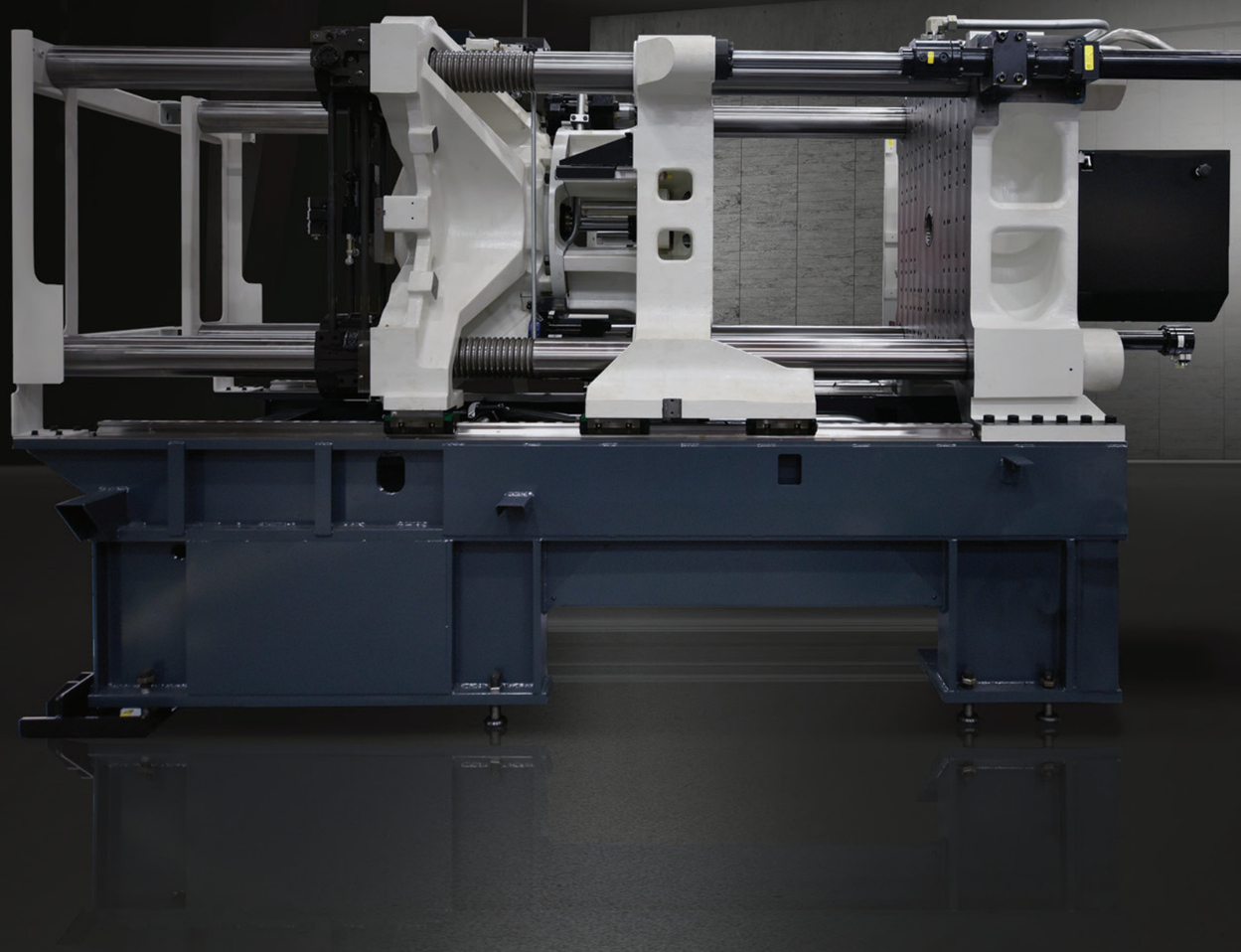
Optional Integrated Hot Runner Control IM2

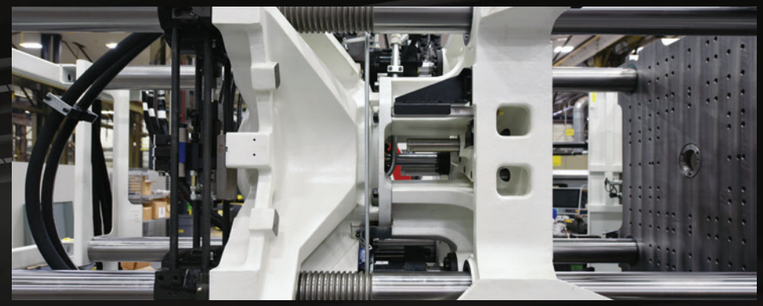
- Integrated into machine cabinet
- Controlled via Mosaic+ control screen

CLAMPING UNIT

The Maxima Performance two platen advanced injection molding machine provides the highest performance, precision, and flexibility. Its reduced overall footprint contributes to better floor space utilization and improved access to the molding area. Advanced speed and precision technology combine for improved cycle time.

- Large tie bar distance offers enhanced minimum-maximum mold height and flexibility to accommodate a variety of molds
- Walk-up gate design on both sides of the machine offering improved access to the molding area, ease of mold maintenance and setup
- Fully guided knock out bar using SPI pattern and multi-point ejection for even force distribution
- Rigid Platens and fully supported tie bars with linear ways
  - Less deflection
  - Improved parallelism
  - Reduced mold wear
- Reduced center line with tri-directional part drop



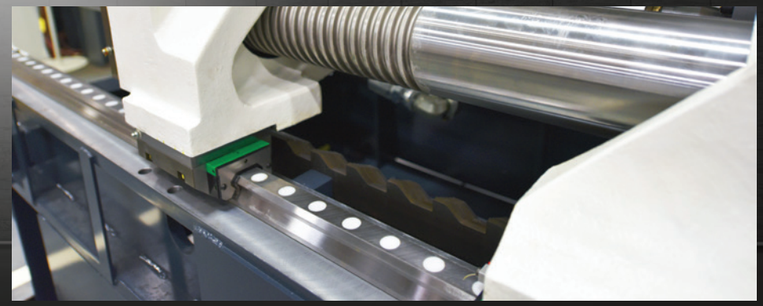


CENTER TONNAGE

Tonnage built directly behind the moving platen offers superior mold support by providing direct and even clamping force across the face of the platen. It also improves tonnage build time using and locking in a minimal amount of oil in the clamp cylinder.

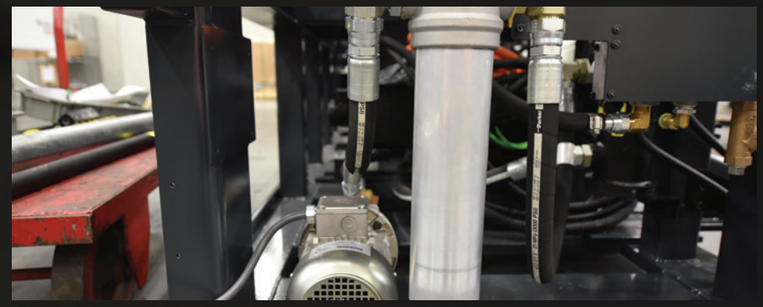
ROBUST NUT LOCK DESIGN

Synchronized top and bottom nut locks working in parallel to each other are monitored via proximity switch. This lock design ensures all nuts close and open faster and are more reliable.



PRECISION LINEAR GUIDE

Extended moving platen support runs on linear guides. Grease free mold area, reduced friction, improved clamp parallelism, reduced mold wear, and greaseless part drop area. More aggressive ramping at mold close and mold open improves dry cycles.



KIDNEY LOOP FILTRATION SYSTEM

The new design for the Kidney Loop Filtration System allows filtration to run continuously, if preferred, via the control and maintains a 3 micron filtration.

MOTOR / DRIVE UNIT

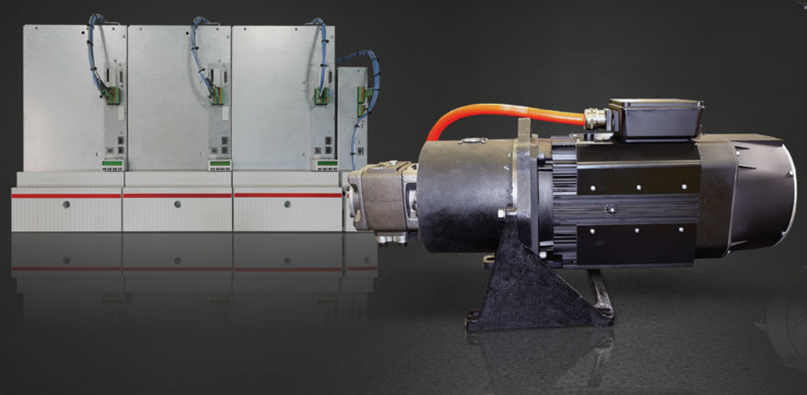
The Maxima Performance Series servo-driven hydraulic machine offers energy consumption ranging from 45%-60% compared to an induction hydraulic system. Utilizing a servo system results in a longer machine component life while also increasing oil life. The motor/pump only delivers oil as needed which reduces heat generation and water consumption. Other benefits include:

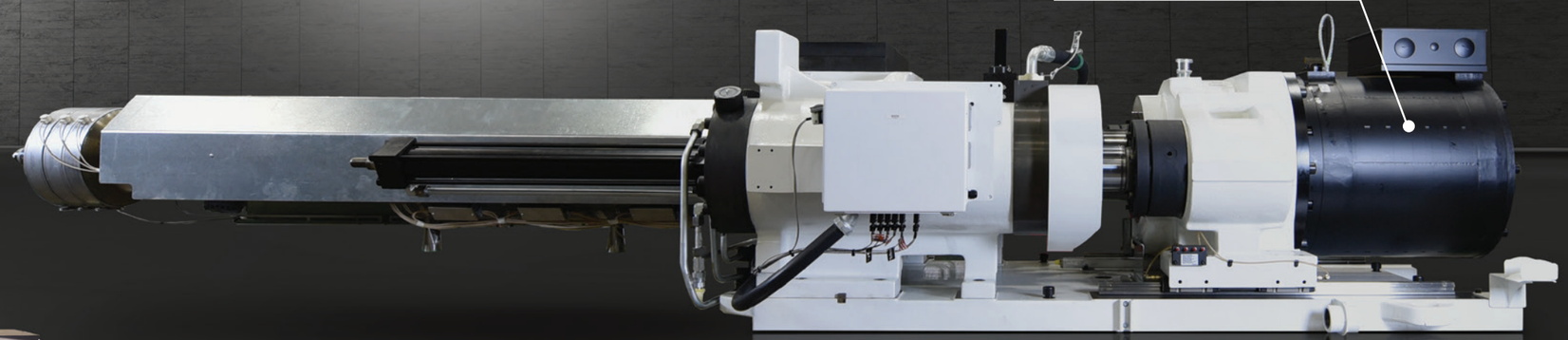
- Improved cycle precision and repeatability- closed loop system
- Reduced energy consumption- servo motor rpm can vary from 0 to 3000
- Increased accuracy and precision- rotation control to a fraction of a degree
- High response - low inertia
- Noise reduction- up to 80% quieter than conventional hydraulic machines
- Ability to remotely monitor for troubleshooting and analysis
- Reduced sensitivity to contamination
- Increased reliability and lower maintenance costs
- Bi-directional pump for fast response in pressure control
- Pump is stopped intermittently during the cycle
- Overall quiet operation

INJECTION UNIT

Milacron offers a wide selection of injection unit sizes, barrels and screws for the Maxima Performance, increasing customer flexibility in processing.

- Precise linear guide ways reduce misalignments, mechanical friction
- Higher L/D ratio- better plasticizing and homogeneity
- Improved pull-pin clevis design for easy injection unit swivel
- Twin cylinder injection unit distributes the load equally across the screw centerline
- Injection unit swivel for easy screw removal
- 10 stage injection velocity and pressure profiles
- 10 stage screw speed & 10 stage back pressure control (setting) through screen
- Digital setting of extruder RPM & digital read out of actual RPM
- Switch over from fill to pack based on position, time and pressure
- Linear position transducer for accurate injection position control
- Injection decompression before/ after refilling or both
- Semi-auto purge and cold slug removal
- Aluminum diamond plate below purge area
- Nozzle contact force by pressure switch
- Nozzle valve
  - Pin type
  - Rotary





Optional E-Drive

- Direct drive unit for independent operation

MOSAIC + CONTROL

It's easy to maximize the reliability and adaptability of Milacron machines with the ergonomic touch-screen control of MOSAIC+. Fast processing speeds power extensive data collection and report generation, as well as integration with automation controls to further simplify the whole process.

Exceptional Standard Features

- Multi-touch capable 21.5" HD touch screen
- Intuitive operator interface
- Configurable screen layout
- Remote mounted IP camera interface
- Windows based operating system
- Optional integrated Mold-Master hot runner control

MOSAIC+ Screen versatility gives the operator simultaneous views of multiple machine functions and related equipment, such as hot runner control and remote mounted IP cameras.

MOSAIC+™

"PLUS" Screen Technology

The PLUS Section has four configurable window spaces. In this section, the operator can choose to show:

- Four small windows
- One large and two small windows
- Two large windows

Swipe the screen to see the menu of screens available for placement in the PLUS Section.

Content choices for the four windows include:

- Alarms log
- Energy overview
- Production run
- Injection graphics
- Trend data analysis
- Trend graphics
- Cycle Analysis

- SPC Charts
- Robot, dryer and hot runner (optional)
- Status page
- Cameras

- Set point overview page for quick access-actual set points for each axis at the bottom of the page
- Display of 700 process monitor samples stored on control or virtually unlimited samples on USB stick or network drive via Reports.
- Graphic display of 33 integrated soft keys with LED's located below screen.

- Process monitoring of over 50 possible parameters with graphically displayed min, max and average.
- 8 + 8 freely configurable I/O
- Self diagnostic and fault finding capability
- SPC Distribution, XBar and R charts with over 50 possible parameters.
- Data protection with 4 access levels for up to 30 machine operators

- Fully configurable cores
- Save mold data and screen shots to USB keys
- Change log and Alarm Log display 700 rows of data on the control, virtually unlimited on USB stick or network drive via Reports.
- Energy Consumption graphic screen, broken down by cycle phase.

Interactive Technical Manual

NOW AVAILABLE ON THE MOSAIC+

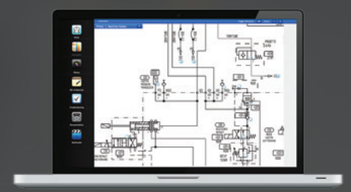
Milacron's ITM gives machine technicians immediate access to critical, detailed information about their plant equipment with its easy, intuitive navigation via an HTML browser. The interactive schematics display a graphical representation of each functional cycle stage. Innovative troubleshooting flow diagrams assist technicians in determining which component is creating the problem, offer recommendations for resolving the issue and aid in determining the correct part number.

- Traces hydraulic oil flow, pressure and return for each machine state
- Combines hydraulic circuit with conventional bar chart
- Represents actual valve position for each machine state

Instructional Videos

In addition, the ITM comes with training videos to help customers deal with another pressing need: the widening skills gap. The ITM's instructional videos reduce training costs by

ITM™



offering insights into machine layout, operation and installation, preventative maintenance, the hydraulic circuit and electrical schematic, component overview and the machine control. Maintenance staff can easily identify a machine part number from the instructional videos, schematics and component images.

Injection Unit Specifications

Frame	2290			3470			4880			6610			10100			16000	
Screw (mm)	60	70	80	70	80	90	80	90	100	90	100	110	100	110	125	90	100
Shot Size (g)	850	1,162	1,530	1,304	1,701	2,155	1,899	2,410	2,977	2,637	3,288	3,969	4,185	5,064	6,539	8,174	10,253
Maxima P 500																	
Maxima P 600																	
Maxima P 600WP																	
Maxima P 725																	
Maxima P 950																	
Maxima P 1100																	

Clamp Specifications

MODEL	TONNAGE	PLATEN SIZE (H x V)	TIE BAR SPACING (H x V)	MAX DAYLIGHT	MIN / MAX MOLD
	US Tons	mm	mm	mm	mm
Maxima P 500	500	1,250 x 1,160	920 x 830	1,650	350 / 850
Maxima P 600	600	1,370 x 1,250	1,040 x 920	1,750	350 / 910
Maxima P 600WP	600	1,520 x 1,350	1,205 x 1,035	1,850	400 / 960
Maxima P 725	725	1,520 x 1,350	1,190 x 1,020	1,850	400 / 960
Maxima P 950	950	1,850 x 1,390	1,390 x 1,100	2,100	500 / 1,100
Maxima P 1100	1100	2,010 x 1,660	1,550 x 1,220	2,400	500 / 1,200

Efficiencies

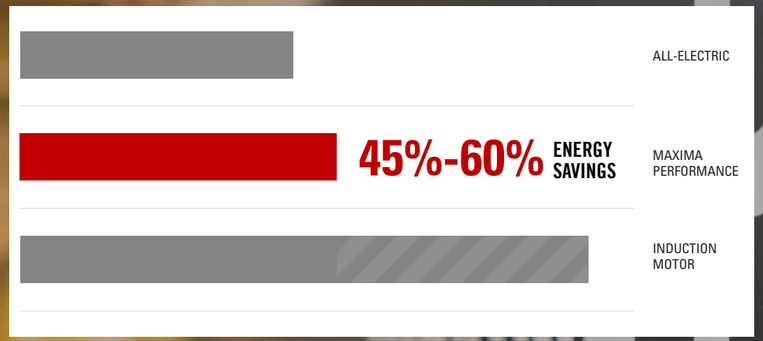
The Milacron Maxima Performance Series excels in providing efficiencies to your plastics processing as well as to your business. With performance and proficiencies in *energy efficiency*, consistent and accurate *repeatability* and an extensive *noise reduction,* when compared to induction motor injection machines of comparable size, its no wonder *Performance* is at the heart of this machine series.

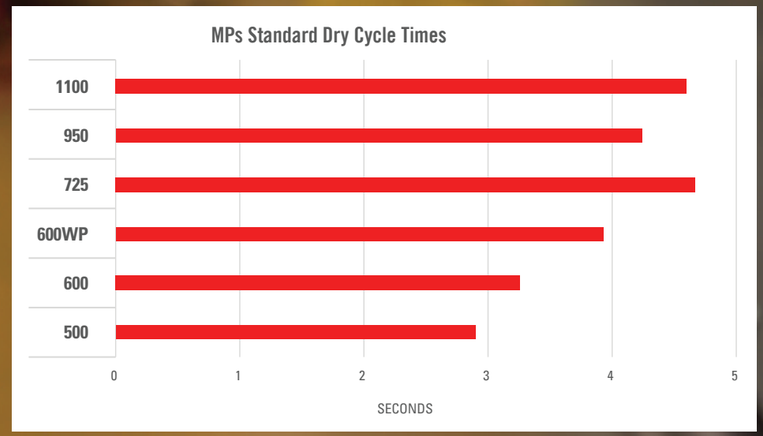
ENERGY

Improved cost savings compared to an induction style hydraulic system.

Improved oil life and less water consumption due to a reduction in oil heat.

Increased reliability, reduced warranty and maintenance costs.





DRY CYCLE PERFORMANCE

Utilizing the performance of the Milacron two platen short stroke ram, reduced tonnage build time, locked in tonnage, and synchronized locks have improved dry cycles.

Accessories - Customized to Perform

The Maxima Performance Series is engineered to provide predefined option content with ease. It allows for customization with over 60 options available providing flexibility for the end user. This allows our partners to fit the machine to their application.

PLATFORMS / WALKWAYS

Additional and extended platforms and walkways provide easy access and accessibility to larger tonnage and high base models of the Maxima Performance.

HIGH BASE

Provides additional access to clamp end of machine. Ideal for improved tri-directional part drop.

NOREN WATER COOL UNIT

Our Coolers remove waste heat from sealed electrical panels and enclosures. They dissipate heat without exposing sensitive electronic components to toxic environments outside of the cabinet.

ACCUMULATORS

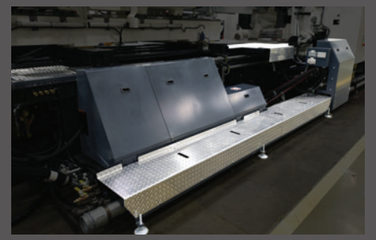
Used for substantially higher injection performance. Accumulators improve injection rates over 40% -60% (typical) of the shot size.

E-DRIVE

Allows independent operation of the axis improving part output by not allowing recovery time to dictate cycle time.

HOPPER PLATFORM

Provides the necessary means for the end user to ergonomically and safely maintenance equipment above the injection unit.

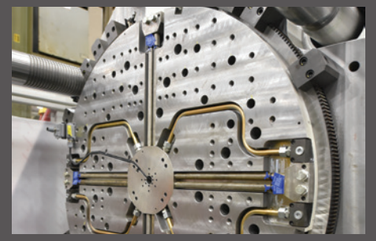


ADDITIONAL GUARDING

Additional guarding is available in all areas of the machine for protecting equipment, keeping areas cleaner, or improving internal plant safety or ergonomics.

PNEUMATIC / HOPPER SLIDE

Allows control of material shutoff from the operator station via a pneumatic cylinder. Provides an ergonomically safe environment when working on larger tonnage machines.



VARIAN TURN TABLE

With stand alone control or full integration into the machine, robots, and Mold-Masters e-multi, it provides customization of water, electrics, and hydraulics. It also provides the standard SPI mold mounting and knockout pattern. Driven by servo motor it can rotate in either direction 90, 180, and 360 degrees.

TECHNOLOGY PACKAGE

Increased pump package providing:

Clamp Breather Cycle
Compression Molding
Decompression

TIE ROD PULLER

Provides the versatility needed when crane height is not achievable to lift large tools over the standard tie bar. Enables non-op side pull and uses a clam shell design to secure the rod on the stationary side while guided by bronze bushings for easy removal and install of the rod.

SPARE PARTS PACKAGE

A predetermined parts package (Common Wear Parts) has been established for each machine model to ensure our customers have the parts needed to maintain production up time.

WEAR STAR / KLEAR STAR

The WEAR STAR & KLEARSTAR packages provide the high wear-resistant plasticizing kit or corrosion resistance and lubricity properties needed for various molding applications. These improve the flow of material or reduce wear on screw, barrel and tip assembly.

2nd / 3rd Injection Units

E-Multi converts existing equipment to enable multi-shot and multi-material molding, expanding your operations potential. The proven E-Multi platform is fully compatible with any IMM and the ideal solution for precision molding applications in any industry.

MILACRON PARTNERS

Milacron is a single source supplier for all of your molding technology needs. We offer turn-key solutions through a variety of auxiliaries and enhanced technology to support your molding application through our partnerships with the industries' best.

MILACRON FAMILY

Milacron has united the plastic industry's most trusted brands to create One Milacron. This means you get the best innovation from across the industry under one company.

Industries

The Maxima Performance Series platform brings provides the highest performance, precision and flexibility that industry has to offer without sacrificing footprint and energy savings. With a wide array of tonnages, options and available auxiliary robotics and components, the adaptable and efficient Maxima Performance can support a configuration for a great number of industry applications such as automotive, industrial, construction, consumer goods, packaging and electrical.

Appliance

Automotive

Construction

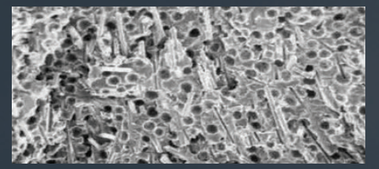
Consumer Goods

Electrical

Housewares

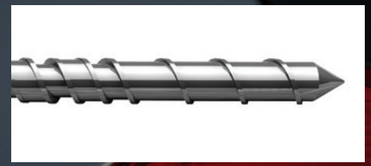
Packaging

Technology



MUCELL® TECHNOLOGY

The Maxima Performance series, in combination with the process and equipment technology offered by Trexel, Inc. provides a complete solution for lightweight quality parts. In addition to part weight reduction, other benefits include cycle time reduction, lower tonnage, increased cavitation, reduced cavity pressure, improved part quality, and longer life of the tool.



Barrier / Specialty Screw

The secret to higher productivity in your process? Faster, more efficient melting made possible by the Barr Variable Barrier Energy Transfer screw – available exclusively from Milacron. For even the most demanding applications, our team customizes a solution that produces better mixing and melting, lower energy costs and processing productivity improvements of up to 50 percent.

HIGH SPEED INJECTION

For substantially higher injection performance, the Maxima Performance is available with an optional integrated accumulator package for increased injection rates. Accumulators improve injection rates over 40% -60% (typical) of the shot size.

STACK MOLDING

The Maxima Performance is designed to accommodate stack molds, which can improve productivity, reduce part costs, and enable multi-component parts in one shot. With its wider tie bar spacing, generous daylight and precision greaseless clamp, the Maxima P is a perfect fit for your high speed stack mold operation.

PVC / CPVC

Milacron offers special Maxima Performance machine configurations designed specifically to run PVC / CPVC. The technology includes: special screw and barrel, specifically designed servo motor package, high torque extruder motor, environmentally protective cabinet, and other PVC / CPVC application options.

PAIL APPLICATION

Not every machine is a pail machine. The Maxima Performance brings fast clamping, high torque plasticizing, high plasticizing rates and capable of handling high volumes of air and water, which is essential to providing a machine/system that will run pails at world class cycles for long periods of time. The Maxima P offers a unique 2 cavity pail molding capability with great energy efficiency, repeatability and auxiliaries to support your pail applications.

QDP / QDP+

Flexibility and customization are at the root of the Maxima Performance platform. With over 60+ options available, you can configure your machine to the exact need and requirement to fit your molding application.

The Milacron Quick Delivery Program now brings that performance to you faster and more efficiently. Through QDP+ you can choose from over 60 pre-configured options to customize the already industry leading Maxima Performance injection machine. In *as little as 8 weeks* you can get the industries' high performing Maxima Performance series and get up and running faster than ever before. For more information about the QDP+ Maxima Performance Series please contact us at qdp-inquiry@milacron.com.

CLAMP

- Pump motor covers
- Power gate (MPs 725-1100)
- Part drop detect
- Cavity pressure, transfer interface (strain gauge)
- Robot interface adapter, Euromap 67 to AN-116 (SPI 3.0)
- Clamp motion key switch
- Hydraulic suction filtration- Magnum PumpMate
- Common wear parts package, MPs

HYDRAULICS / PNEUMATICS

- 3 stage air eject
- Eject retract verification (LS)
- Hydraulic 1-4 stage core pull with proportional speed & pressure (max of 2 valves per platen)
- Continuous high pressure core hold
- 1-8 hydraulic valve gates (< 600 ton)
- 1-12 hydraulic valve gates (> 600 ton)
- 1-8 pneumatic valve gates

SOFTWARE

- Host computer interface
- Special sequence- air, core, eject

GENERAL

- Mold water supply in semi & auto
- 2 zone water manifold
- Spanish screens, warning tags
- Special machine paint
- Varian turntable
- E-Multi second injection unit

INJECTION

- Extended nozzle penetrations
- Pneumatic hopper slides
- Hopper magnet
- Heater band burnout detect
- TCS heater bands in place of standard
- Additional nozzle heater zone
- Ball check or SS slider screw tips
- WearStar I (> 90 mm diameter) package
- WearStar II (< 90 mm diameter) package

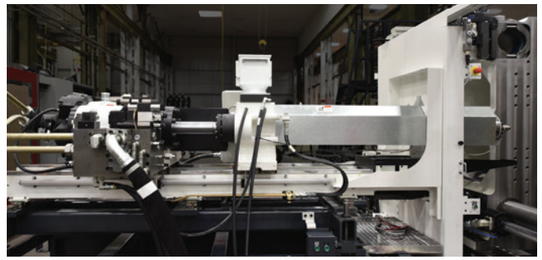
ELECTRICAL

- Power cabinet air conditioner
- Dual circuit motor lock out
- UL certification
- CSA Canadian certification
- 575 volt / 230 volt transformers
- Auxiliary electrical outlets- 230V, 30Amp
- Auxiliary electrical outlets- 110V, 15Amp
- Color feeder signal and receptacle

Contact your sales representative for the full list.

MULTI-COMPONENT

Milacron has successfully used MULTI-COMPONENT TECHNOLOGY for years to produce products with a range of complex properties, including several different colors, multiple materials, or integrated functions. A multi-component machine can manufacture products in a single production cell that would normally require additional injection-molding machines or downstream processes. You benefit from reduced initial investment and ongoing costs.

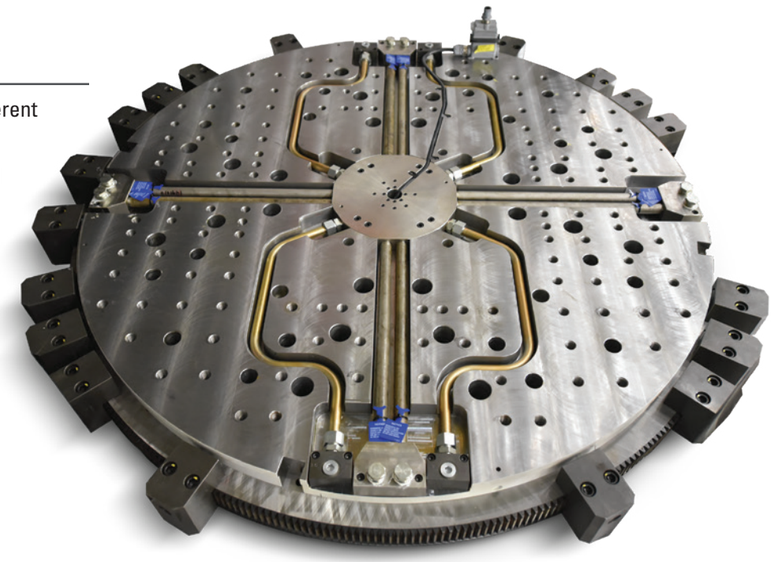


The more components a molded part will have, the more injection units need to be connected to the machine. Milacron provides maximum flexibility in the positioning of diverse injection units; they can be arranged vertically, horizontally, in parallel, piggyback or traversing. The combination of individual injection units largely depends on the molded parts to be produced or the molds used, while the selection of injection unit type is determined by the shot weight of the component. The current state of development is injection molding machines with six different injection units.

Technologies of Multi-Component

Multi-component injection molding combines different materials or dyes to produce high-quality plastic parts. This means you can improve the design and function of products, automatically and cost effectively.

- Interval injection molding – Colored surface effects can be reproduced through targeted timing control of two injection units
- Sandwich injection molding – The sandwich structure with skin and core layers is achieved through the specific timing control of two injection units
- Marbling – Colored surface effects are achieved by inhomogeneous mixing of several plastics in one injection unit
- Core-back process – The cavity is extended by pulling a slide and a second component injected
- Turning stack mold technology – Stack molds with a vertical rotary device are used for the central section
- Rotation technology – The pre-molded parts are transferred to the second station via a horizontal rotary movement
- Transfer technology – The transfer of pre-molded parts to the second station via a robotic system takes place directly in the mold or in a second machine
- Assembly injection molding – All processes in which assembly steps are integrated directly in the injection molding process

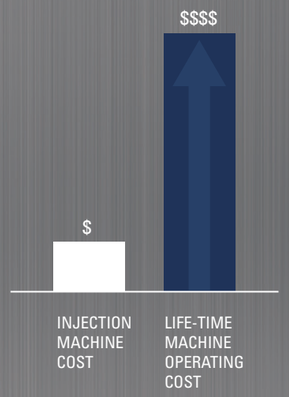


Milacron Advantage

LIFECYCLE MANAGEMENT

Milacron knows and understands that your machinery and the technology built within are the long-term life blood of your plastic processing business. We also understand that the investment and acquisition of that technology is just the start.

In fact, the majority of cost associated with owning and operating plastics processing machinery comes after you've accepted it into your business applications and processes. Whether it is resin costs, parts, maintenance or even labor these expenses are often undervalued and overlooked.



Milacron Lifecycle Management allows manufacturing companies to manage the entire lifecycle of their fleet efficiently and cost-effectively, from ideation, design and manufacture, through service and disposal.

Our care and attention to technology is focused on making sure you have the capabilities to compete and grow today and into the future.

The Milacron Lifecycle Advantage provides:

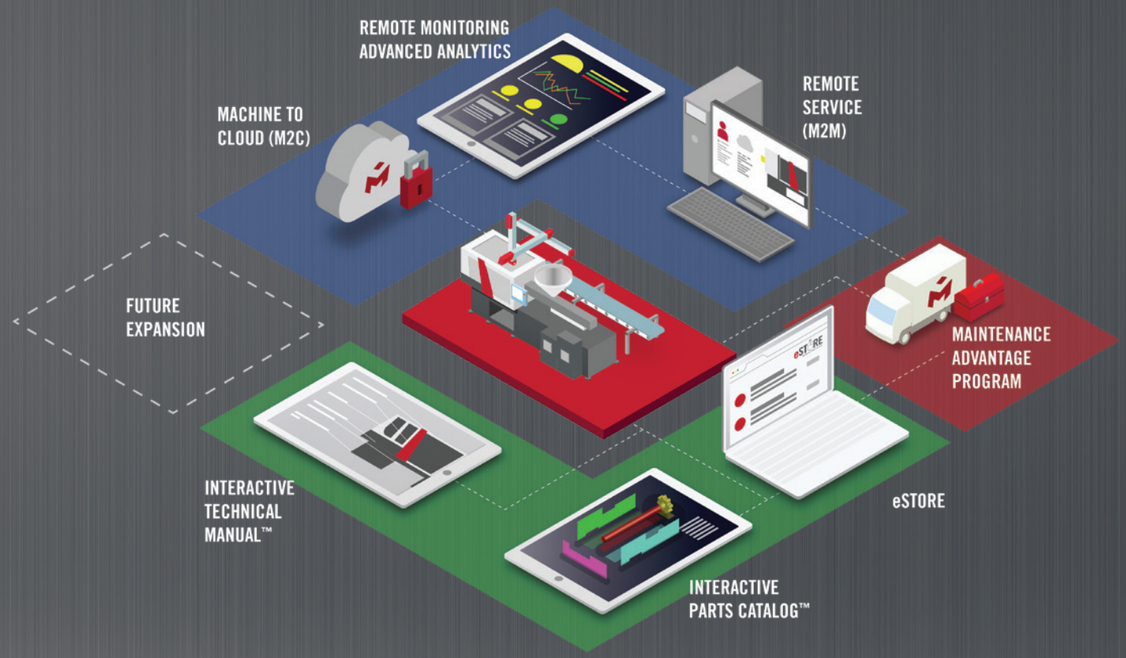
- Customization of solutions
- Capital and expense management
- Interactive Technical Manual
- Advanced training
- Interactive Online 3D Parts Catalog
- Same-day shipment on in-stock parts
- Remote Monitoring Services
- Rebuild and retrofit capabilities
- Maintenance Service Agreement

Milacron extends the value of your entire fleet – even if your fleet includes technology we didn't make!

This is the Milacron Lifecycle Advantage, and it is only the beginning of how we help you create value.

MILACRON 4.0

Milacron 4.0 provides a full suite of observational, analytical and transactional systems and services that enable you to improve your plastics operations with a focus on lean manufacturing. Smart manufacturing with Milacron 4.0 will help your organization understand not only your current capabilities but plan for your future manufacturing goals. While many companies may tout their Industry 4.0 experience on paper, very few can show you what it can do for you today. Let Milacron show you what your smart manufacturing operation can be, not tomorrow but today.



The Milacron Advantage is the *complete* and *comprehensive* technology, service, and support that can only be provided by the leading plastics machine manufacturer in the world. With the industry's most extensive and impactful services and tool sets, Milacron 4.0 and Lifecycle Management will change the way you do business and the potential of your machinery. For more information about the Milacron Advantage contact your sales representative today.

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