MILACRON®

THE Q-SERIES

55-610

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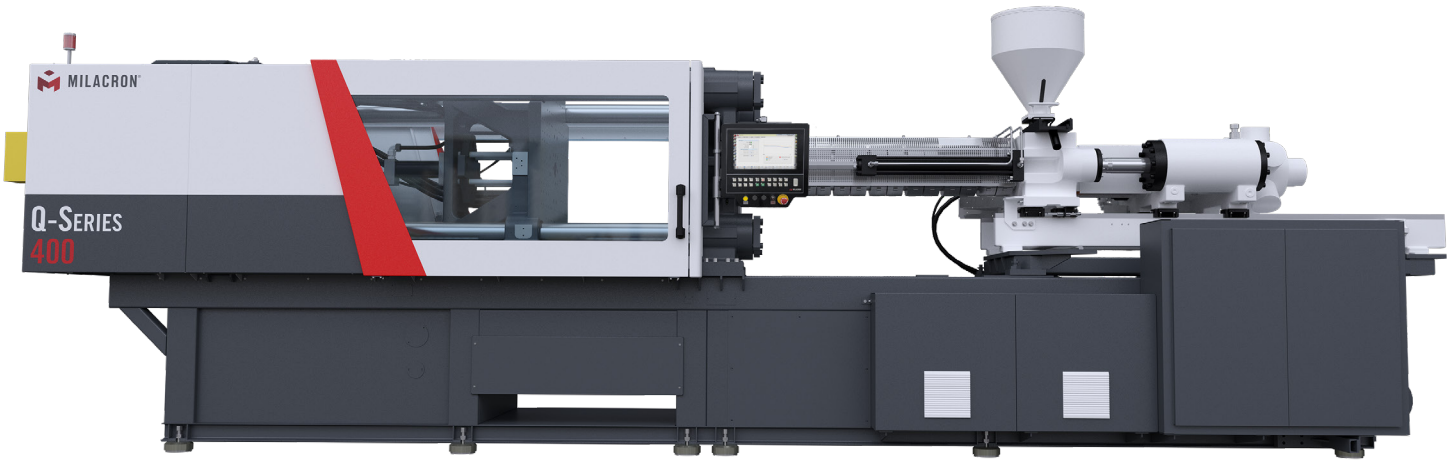
55-610

Performance wrapped up in a durable package, the Q-Series leverages a servo-hydraulic package to deliver quality parts at a rapid pace, while minimizing energy use. The platform's performance and features surpass injection molding expectations of higher priced machinery. The reliable Q-Series provides clamp specifications with greater tie bar spacing, clamp stroke, ejector stroke, and force delivered in a smaller machine footprint.

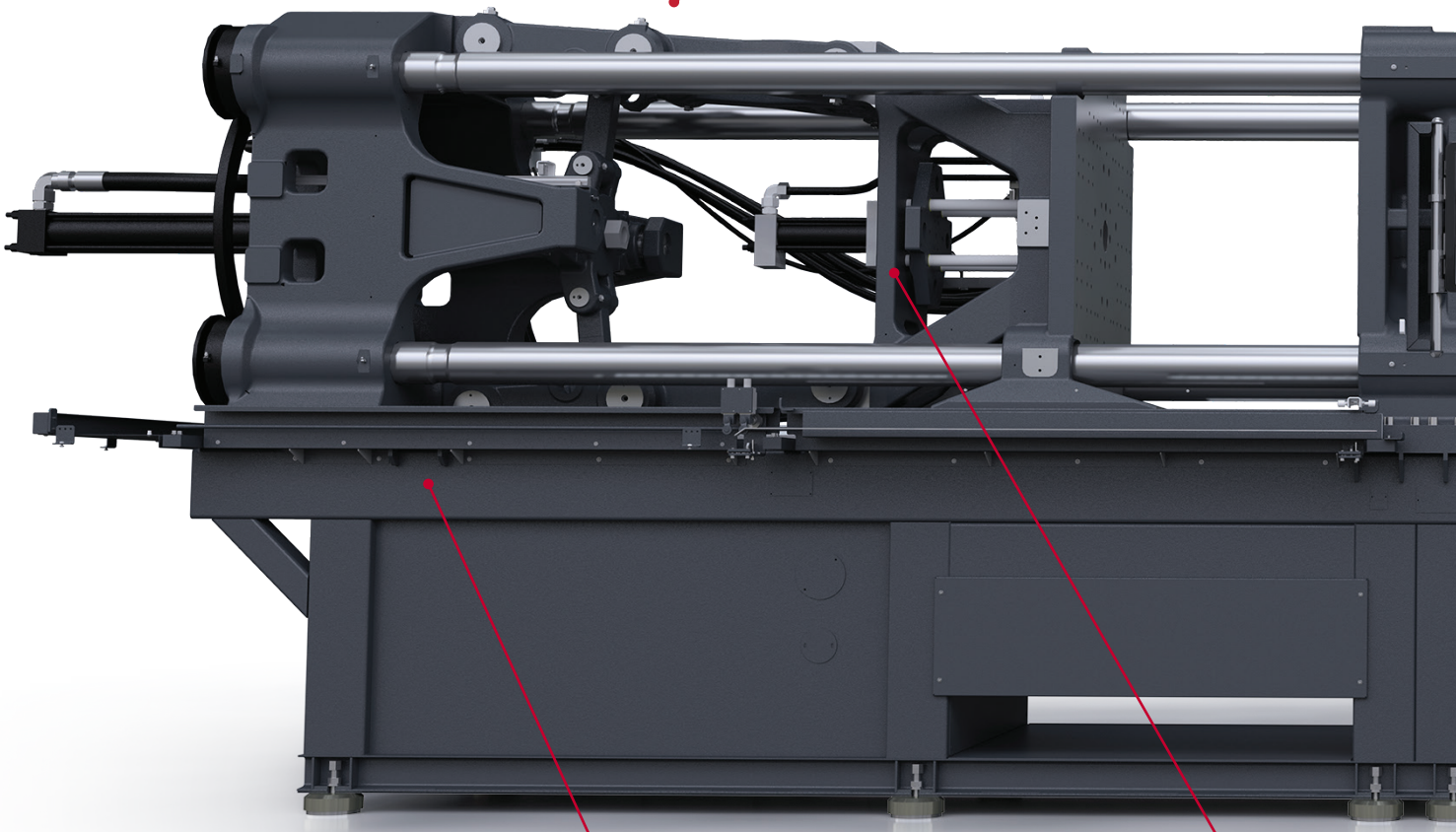
THE HIGH-PERFORMANCE, DOUBLE-TOGGLE Q-SERIES OFFERS INDUSTRY LEADING TECHNICAL SPECIFICATIONS, VERSATILITY, DURABILITY, PRECISION, AND PRODUCTIVITY PROVIDED ON A SERVO CONTROLLED HYDRAULIC TOGGLE.

- An energy-efficient hybrid, powered by a reliable RexRoth servo system.
- Exceptional toggle kinematics offer a smooth and quick-clamp velocity profile.
- Refined clamp control and rigid base reduce vibration from prior designed toggles.
- Enhanced optional application capability: stack tools, extended day light, intrusion, increased base height.
- Innovative platen design ensures uniform load distribution across the mold face.
- Designed for quick mold changes with an advanced auto die height setup and interchangeable mold files from similar machines.
- Precise platen parallelism to reduce machine and mold wear.
- Offering 10 clamp tonnages that are paired with 6 variations of injection units, the Q-Series offers a wide range of operation capacity.



TOGGLE DESIGN

- Improved speeds and reduced footprint with new toggle design
- Durable double toggle, 10-pin design
- Rectangular platen designs accept a wide range of molds (see clamp specification table on page 6)
- New toggle design allows for consistent lower tonnage operations at 30% of maximum clamping force
- Auto lubrications to critical toggle components
- Grease-free mold area



DIE HEIGHT MECHANISM

- Repeatable and accurate die height adjustments with use of a linear transducer
- Easy auto die height setup through the control screen
- Adjustable manual die height setup speeds
- Durable mechanical design ensures accurate clamp position is maintained during production

EJECTOR

- Improved ejector stroke and force from prior toggle designs
- SPI knockout pattern
- Programmable settings and pulsating eject functions

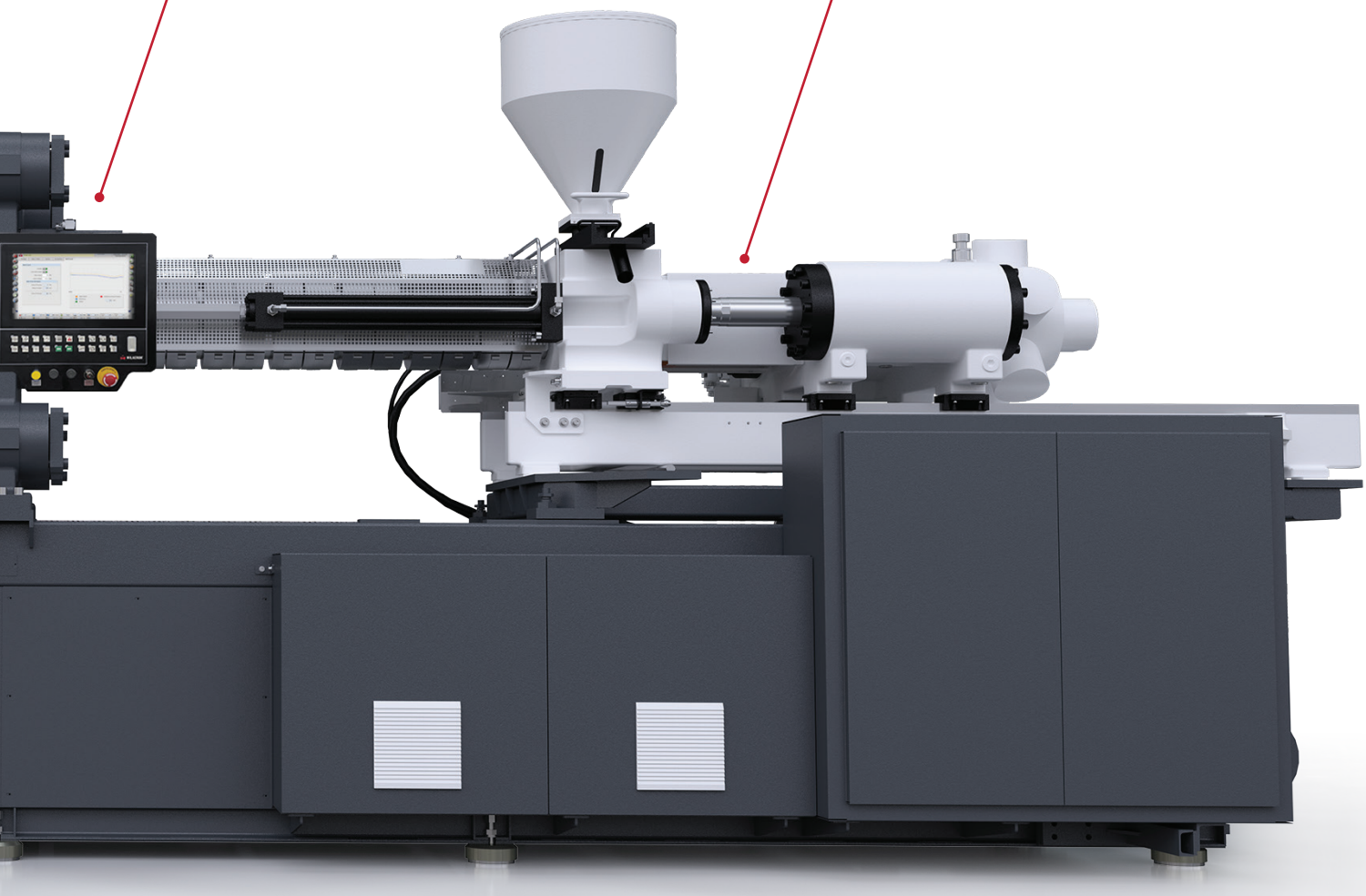
PROVIDING THE HIGHEST PERFORMANCE, PRECISION, AND FLEXIBILITY.

MOSAIC G3

- 15.6 in. diagonal, capacitive multi-touch screen
- Flyout overlay window with capacity to display 3 configurable content selections:
  - Alarms
  - Cycle analysis
  - Energy Analysis
  - Help info
  - Product information
- Mold data storage (internal, external USB, network drive)
- Statistical Process Control (SPC) - volume/position/injection pressure set points
- Process monitors with trend data and trend graphs (3,000 cycles)

TWIN CYLINDER INJECTION UNIT

- Uniform load distribution across screw centerline
- Standard barrel swivel for convenient screw removal
- Precision linear guideways for precise screw and barrel alignment
- Optimized hydraulic hose routing to minimize footprint and improve hose life
- Durable ceramic insulated heater bands



ENHANCED MOLD LIFE

The rigid base and clamp design provides:

- Higher mold carrying capacity
- Enhanced parallelism and squareness

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MILACRON M•POWERED

- Designed to fully utilize our M-Powered suite of connectivity products
- Reduce failures, improve uptime and OEE
- Remote monitoring capability

Q-SERIES

The latest in Milacron's low-to-mid tonnage range of injection molding machines. The NEW high-performance double-toggle Q-Series product line offers a 10-pin double-toggle machine, with enhanced productivity, performance, and precision.

MULTIPLE STANDARD INJECTION FRAMES

- A-B-C barrel combination for part standardization
- Twin cylinder injection unit distributes the load evenly across the screw centerline
- Injection unit travels on precision liner guides
- Injection unit swivel for easy maintenance

INJECTION UNIT SPECIFICATIONS

Frame	28	32	40	450	630	970	1540	2290	3470	4880
Q-Series 55										
Q-Series 90										
Q-Series 125										
Q-Series 170										
Q-Series 200										
Q-Series 260										
Q-Series 315										
Q-Series 400										
Q-Series 500										
Q-Series 610										

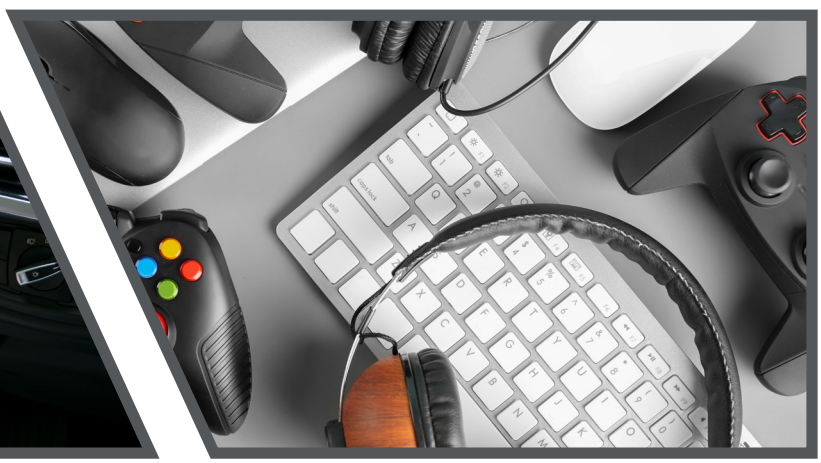
CLAMP SPECIFICATIONS

MODEL	TONNAGE	PLATEN SIZE (H X V)	TIE BAR SPACING (H X V)	MAX DAYLIGHT	MIN / MAX MOLD
	US Tons	mm	mm	mm	mm
Q-Series 55	55	500 x 485	325 x 310	630	150 / 350
Q-Series 90	90	610 x 565	405 x 360	710	150 / 400
Q-Series 125	125	690 x 645	480 x 435	900	150 / 520
Q-Series 170	170	780 x 740	550 x 510	1,060	200 / 600
Q-Series 200	200	810 x 770	575 x 525	1,100	200 / 600
Q-Series 260	260	920 x 820	660 x 560	1,260	200 / 710
Q-Series 315	315	990 x 940	710 x 660	1,400	250 / 750
Q-Series 400	400	1,120 x 1,035	810 x 725	1,520	300 / 800
Q-Series 500	500	1,245 x 1,200	875 x 830	1,670	350 / 820
Q-Series 610	610	1,330 x 1,300	1,000 x 900	1,820	400 / 900

APPLICATIONS

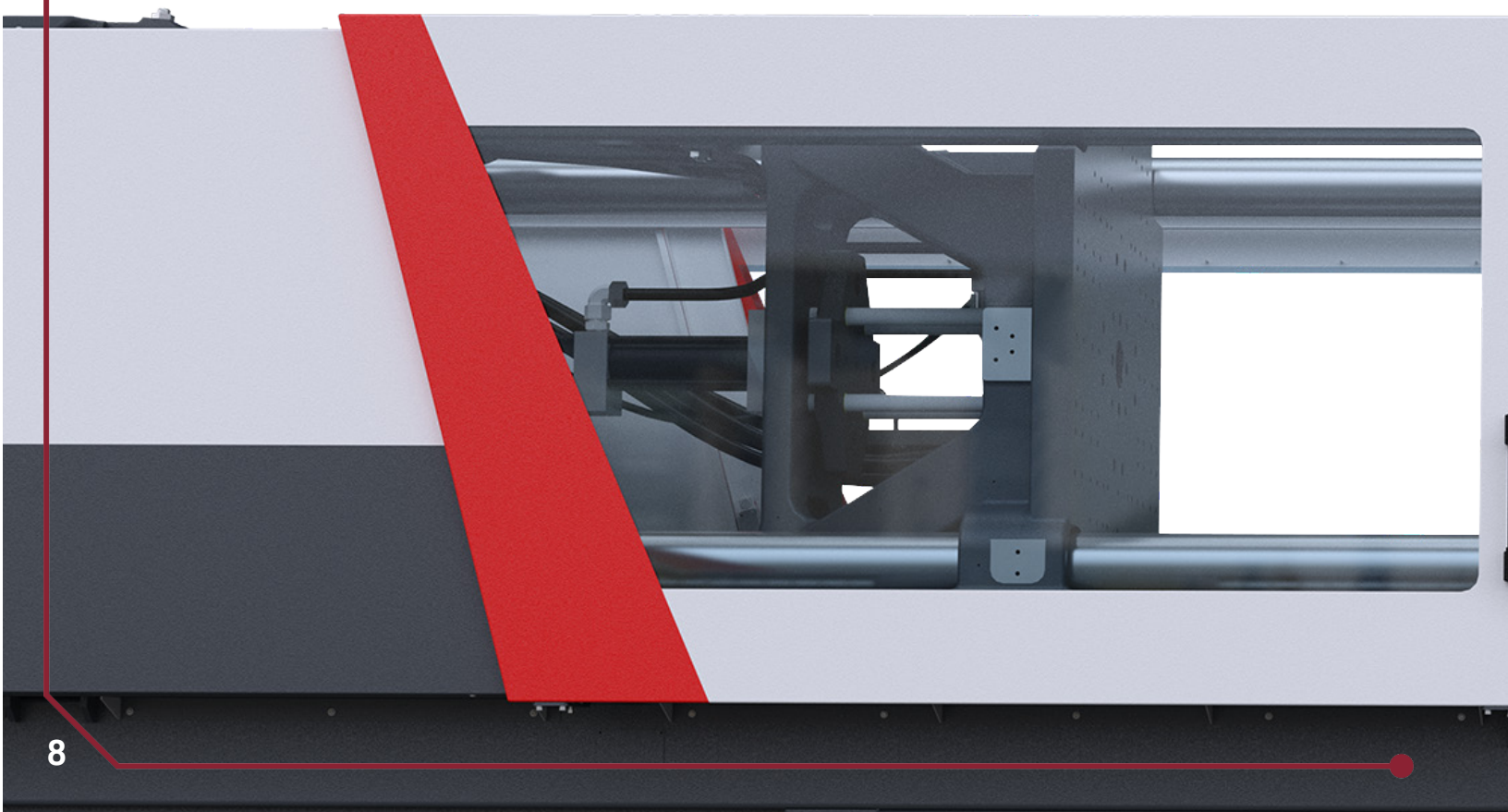
Leveraging the use of a servo motor in combination with hydraulic components, the Q-Series provides exceptional repeatability and energy savings with oversized clamp specs, increased max mold weights, and outstanding dry cycle times to meet the demands of all the major industry market segments.

- *CONSTRUCTION*
- *PACKAGING*
- *AUTOMOTIVE*
- *MEDICAL*
- *CONSUMER*
- *ELECTRONICS*



CLAMPING UNIT

- A toggle manufactured on a robust platform and designed for repeatable performance.
- Leveling pads and rugged base strategically designed to reduce machine vibration.
- Robust base allows for larger mold weights than prior toggle designs.
- Generous tie bar distance accommodates a vast range of molds.
- The rectangular platen design opens up the die space for advanced mold versatility.
- The improved toggle kinematics provide for fast clamp velocities and a smooth velocity profile.
- Clamp traverses on guide ways for smooth low friction operation.
- Better strain linearity provides for a larger span of tonnage operations, allowing for repeatable low tonnage settings.
- Chrome plated strain rods (standard).



CLAMPING UNIT

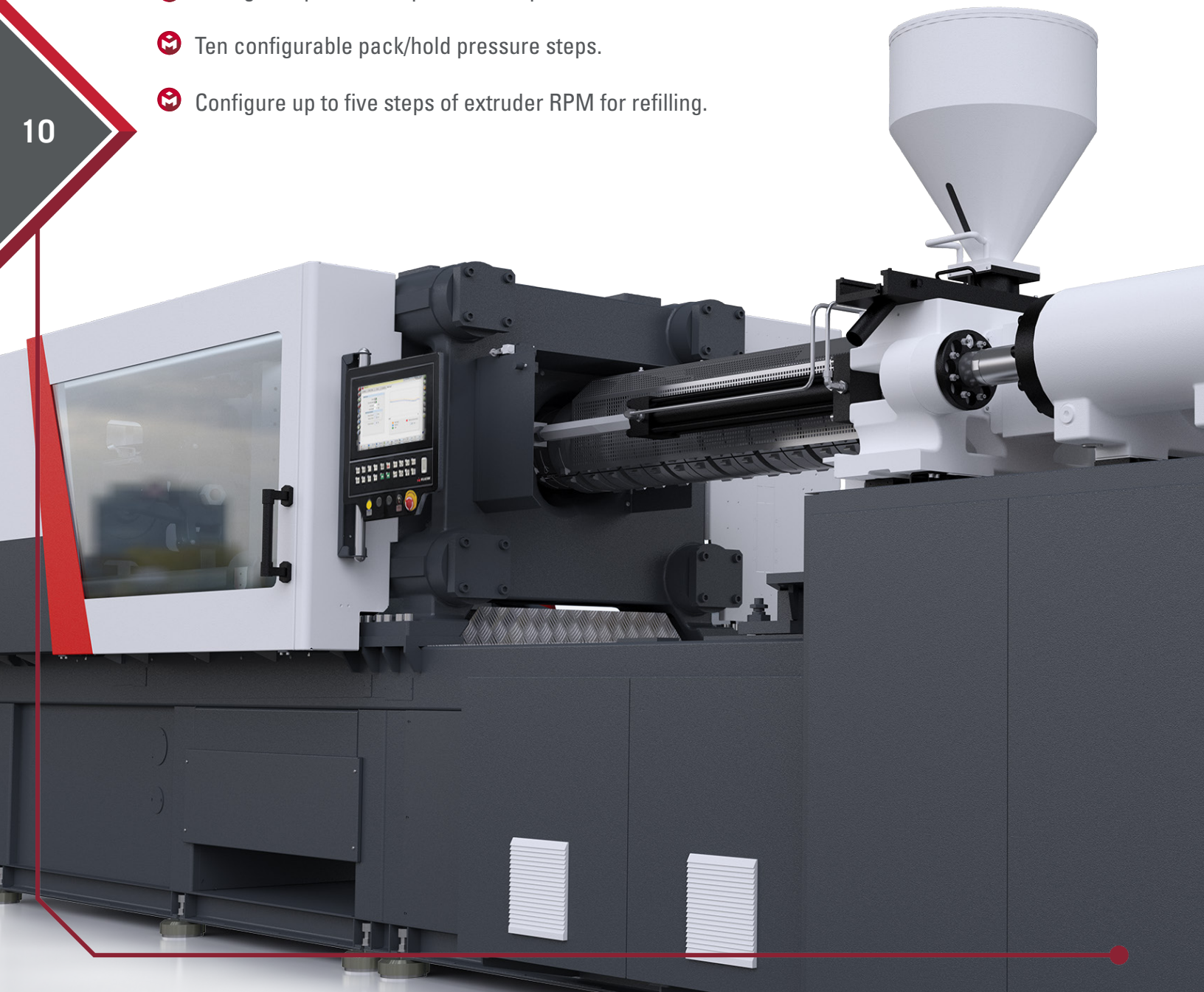
Q-SERIES	EUROMAP 6 DRYCYCLE TIME (SEC - MM)
Q-55	2.40 - 227 mm
Q-90	2.05 - 284 mm
Q-125	1.65 - 336 mm
Q-170	1.70 - 385 mm
Q-200	1.85 - 402 mm
Q-260	1.95 - 462 mm
Q-315	2.15 - 497 mm
Q-400	2.40 - 567 mm
Q-500	2.95 - 612 mm
Q-610	3.20 - 700 mm

- Clamp Euromap dry cycle time improvements approximately 30% over conventional toggle designs.
- Grease-free tie bars with bushing-free moving platen.
- Auto lubrication to toggle linkage and the precision linear skates (Q-125 to 610).
- Tri-directional part removal.

INJECTION UNIT

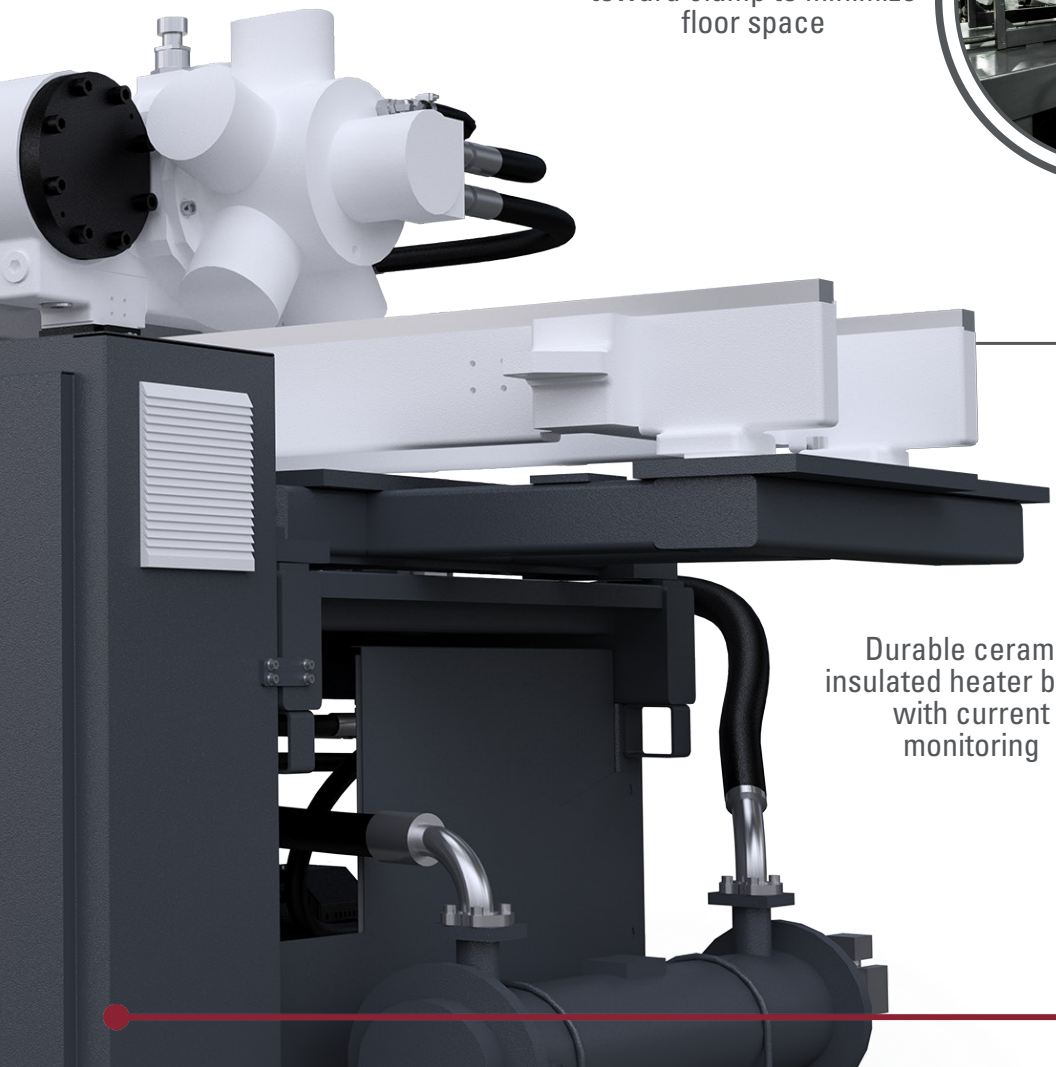
The Q-Series is one of Milacron's global product lines, presenting a universal line of injection units, barrels, and screws that are perfect for vast assortment of high-quality processing applications.

- Twin cylinder injection unit keeps a uniform load distributed across the centerline of the screw.
- Frictionless precision linear guides and precise screw and barrel alignment, resulting in reduced ware.
- Improved hydraulic hose routing to minimize footprint and enhance hose life.
- Six-stage configurable injection velocity profile.
- Configure up to five fill pressure steps.
- Ten configurable pack/hold pressure steps.
- Configure up to five steps of extruder RPM for refilling.

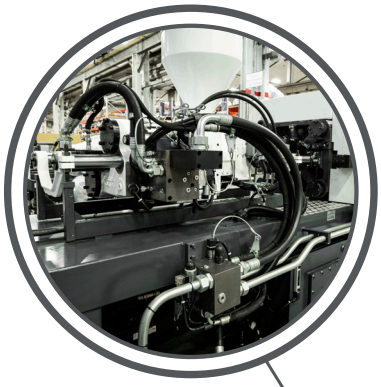


INJECTION UNIT

- Auto tuning of temperatures provides for accurate closed-loop temperature control.
- Standard current monitoring of each heat zone provides for heater band burn out detection.
- Barrel swivel allows for easy screw replacements.
- Standard magnet included in hopper.
- Standard sliding hopper with shutoff (Q-125 to 610) and swivel with shutoff on (Q-55 to 90).

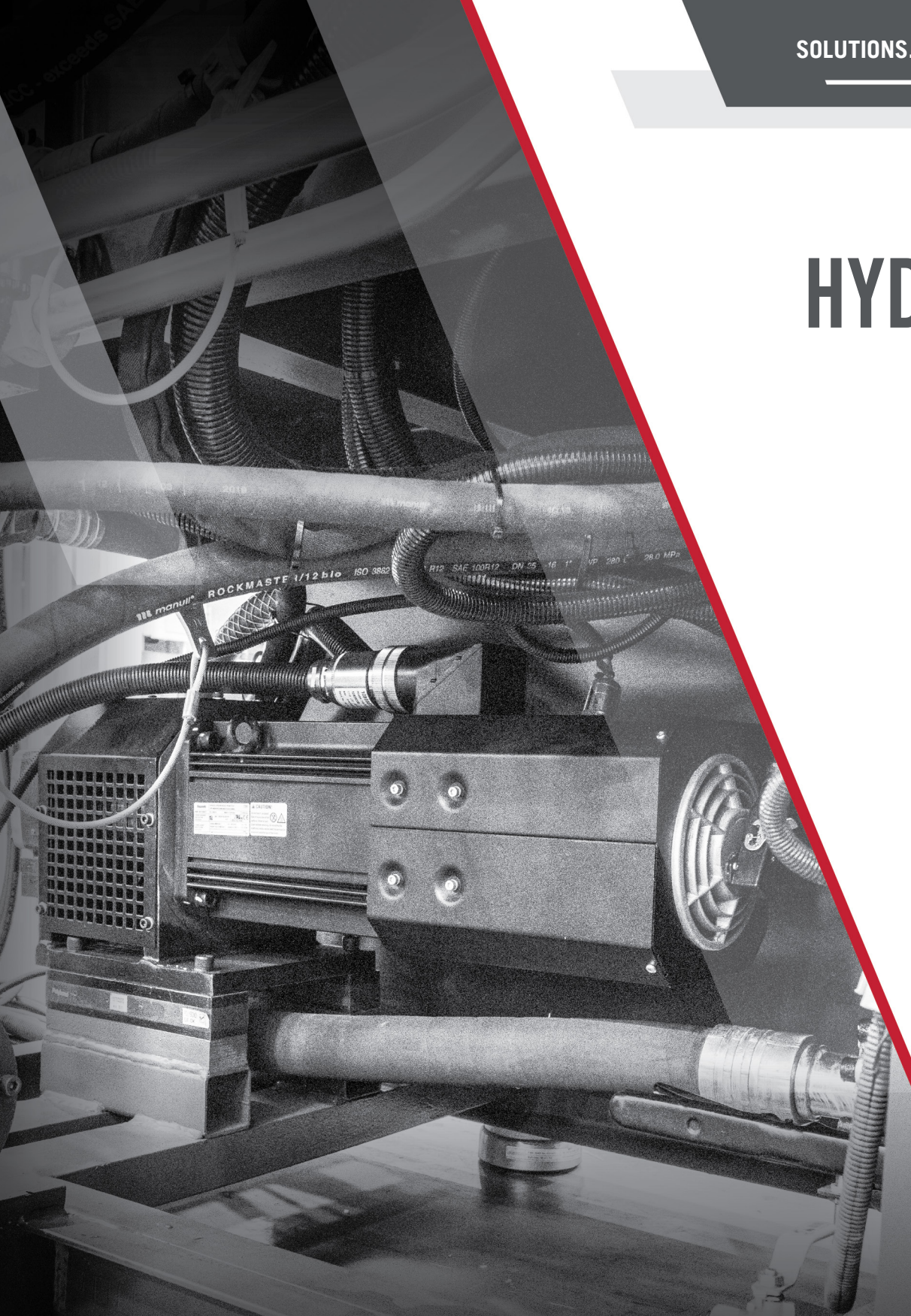


Injection hoses routed toward clamp to minimize floor space



Durable ceramic insulated heater bands with current monitoring

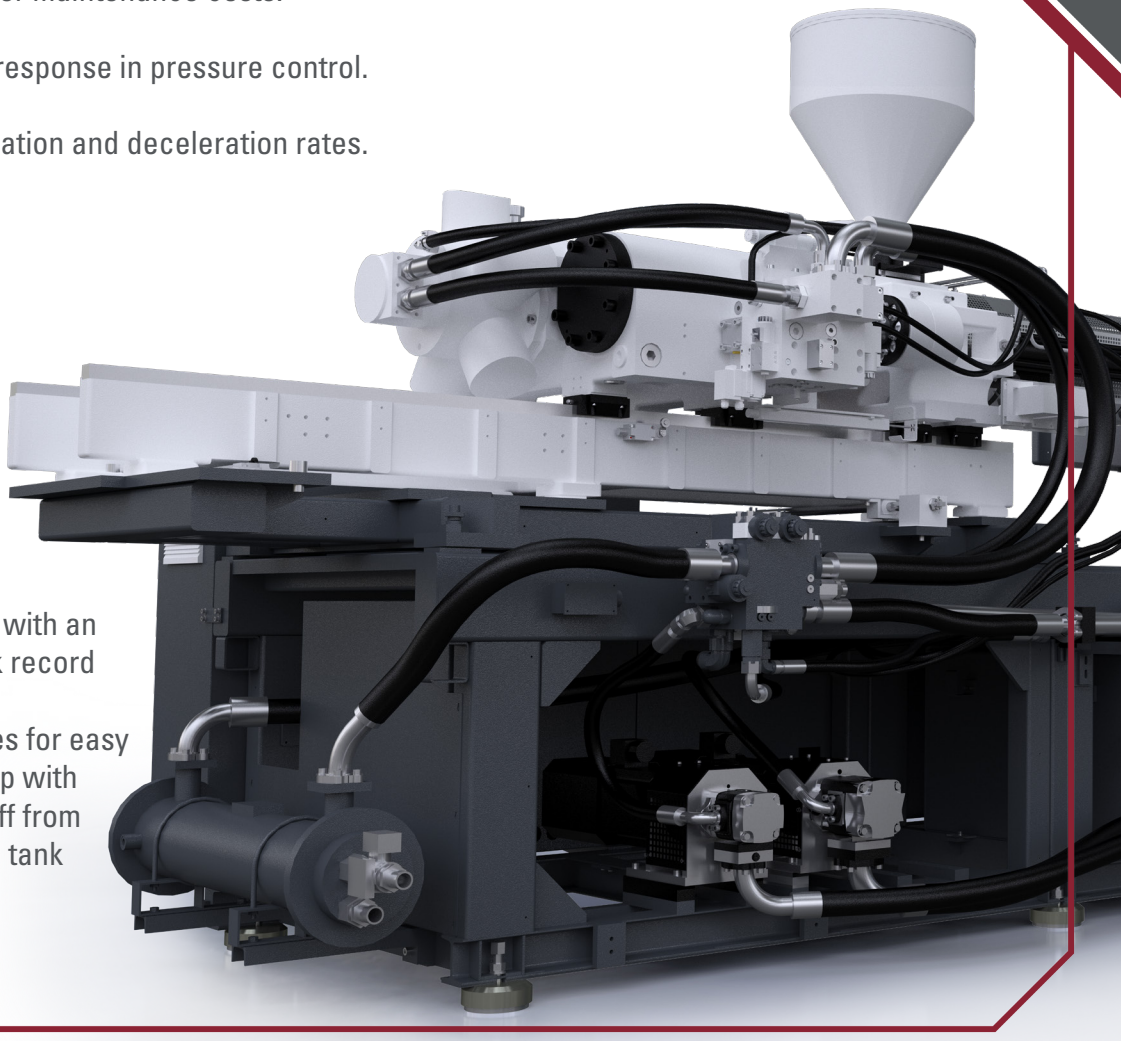
SERVO-HYDRAULIC SYSTEM



The proven servo-hydraulic package offers peace-of-mind during operations. The Q-Series reliability is elevated by operating with fewer moving parts. The bi-directional pump driven by a servo motor is engineered for quick response to your process while operating at low maintenance cost. The closed-loop servo-hydraulic system provides for consistent operations.

BENEFITS INCLUDE

- Cycle precision and repeatability using a closed-loop system.
- Motor speeds vary between 0-3,000 RPM.
- Easy-access power system for maintenance.
- Reduced energy consumption.
- Increased accuracy and precision – rotational control to a fraction of a degree.
- High response – low inertia.
- Noise reduction – quieter than conventional toggle machines.
- Secure remote monitoring available for troubleshooting and analysis.
- Reduced sensitivity to contamination.
- Increased reliability and lower maintenance costs.
- Bi-directional pump for fast response in pressure control.
- Provides aggressive acceleration and deceleration rates.



- Proven design with an excellent track record
- Design provides for easy access to pump with butterfly shutoff from main hydraulic tank

MOSAIC G3 CONTROL SYSTEM

The refined control provides a straightforward format for the operator with 19 different language selections. Mold files can be moved with a simple USB stick, minimizing operator setup time. The Q-Series programmable core provides over 25 different configurable selections to operate before, during, or after clamp, injection, or ejector axis movements.

STANDARD FEATURES

- 15.6 in. diagonal, capacitive multi-touch screen.
- Flyout overlay window with capacity to display 3 configurable content selections:
  - Alarms
  - Cycle analysis
  - Energy analysis
  - Help info
  - Product information
- Actual injection speed and pressure graph display.
- 39 parameter monitoring last 3,000 cycles.
- (Statistical Process Control) SPC.
- Mold data storage (internal, external USB, network drive).
- Insert molding.
- Operator programable I/O.
- Ergo-friendly design with adjustable height and rotation for easy viewing of the screen.

MOLD GUARD TECHNOLOGY

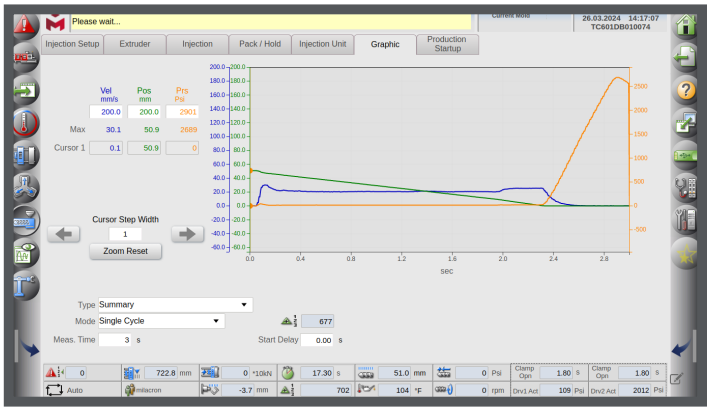
- A closed-loop control process that senses any presence of left over articles from the last process cycle or any foreign article between the core and the cavity.
- Auto or manual configuration to monitor clamp pressure during high-velocity stages of clamp closure.

CONTROL THE PROCESS

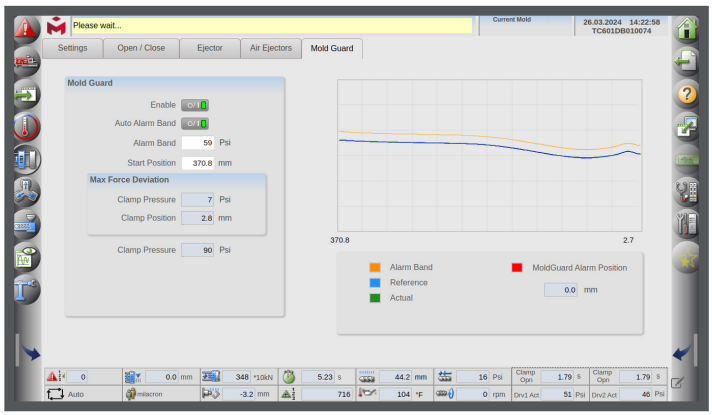
- Refined control provides a straightforward format for the operator.
- Statistical Process Control (SPC) - volume/position/injection pressure set points.
- Process monitors with trend data and trend graphs (3,000 cycles).
- Multiple language selections.

TEMPERATURE OVERVIEW

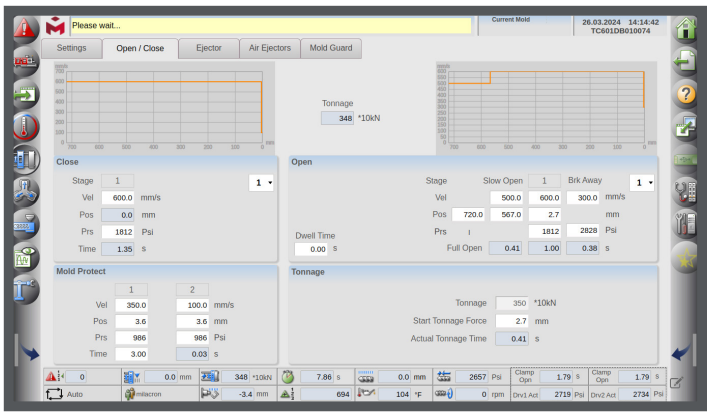
INJECTION GRAPH



MOLD GUARD



CLAMP SETUP



MINIMIZE ENERGY CONSUMPTION WITH RELIABLE PERFORMANCE

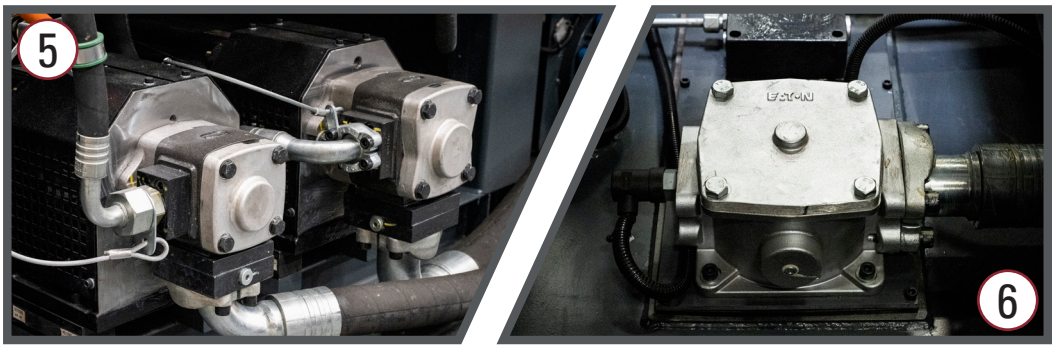
- Lower power consumption and water requirements.
- Minimized hydraulic fluid reservoir contributes to reduced environmental impact.
- Standard water saver valve provided for the heat exchange regulates the cooling water usage to minimize overall water usage.
- Ceramic insulated heater bands require less energy consumption, helping to keep the heat against the injection barrel.

HIGH-QUALITY COMPONENTS

The Q-Series was designed to be durable and deliver exceptional performance in any environment. Built with the highest quality components, the Q-Series requires very little ongoing maintenance. Year-over-year, the Q-Series will continue to produce.

1. Motor/Drives – RexRoth
2. Control Hardware – B&R

3. Non-contact linear transducers – Gefran
4. Control valves – RexRoth/ ATOS



5. Fixed gear pump – Voith
6. Filtration – EATON

SERVO-DRIVEN GEAR PUMP

- Servo-driven performance for quick acceleration and repeatable response.
- Bi-directional gear pump provides fewer moving parts and low maintenance.
- The pump, motor, and drives are paired together for a more efficient control of power.
- Lower cooling requirements for hydraulic oil than conventional hydraulic systems.

STANDARD FEATURES

	Standard	Optional
GENERAL		
Advanced toggle technology powered by energy efficient servo motor hydraulic system	●	
Direct control of pressure and flow via internal gear pumps	●	
* Multiple servo motor systems … (multiple for Q315 and up)	●	
Improved layout of manifolds and hoses on non-operator side	●	
Monitored shut off valve to pump suction lines	●	
Solenoid indicator lights (Q-Series 125-610)	●	
Designed for serviceability (test ports, access, etc)	●	
Filtration to 10 micron with clog detection and alarm	●	○
Ports for external auxiliary filtration plumbing	●	
Option of additional loop filter		○
Open access to ejector area for quick/easy mold change	●	
Tri-directional part removal	●	
Robot mounting pads on stationary platen (optional SPI plates)	●	○
Euromap 67 robot interface	●	
SPI 3.0 robot interface		○
Filtered ventilated control cabinet with overtemperature alarm (cooling options)	●	○
Receptacle Package		○
Operator settable oil temperature control	●	○
Alarm light multiple tiered (option)	●	○
Leveling pads	●	
Low oil level monitoring	●	
Freely programable cores	●	

	Standard	Optional
CLAMP		
Durable 10-pin double toggle with improved clamp kinematics	●	
Precision linear guides on moving platen	●	
Compact footprint	●	
Increased max mold weight capacity	●	
Reduced (Euro-map 6) dry cycle times	●	
Grease-free mold area, bushingless moving platen	●	
Chrome plated strain rods with shot peen threads	●	
Insert molding (Standard)	●	
“Mold Guard” Enhanced full stroke mold protection	●	
SPI mold mounting pattern on platens	●	
Auto linkage and clamp skate lubrication (Q-Series 125-610)	●	
Die height bull gear adjustment (Q-Series 125-610), chain sprocket adjustment (Q-Series 55-90)	●	
Repeatable auto die height adjustment is supported with a linear transducer	●	
Extended day light package available		○
Real-time tonnage readout		○
Automatic lubrication of skates	●	
Self adjusting ratchet style jam bar		○
Proportional speed control with 5 opening and 5 closing speeds	●	

	Standard	Optional
INJECTION		
Twin cylinder injection units for compact footprint	●	
Twin pull-in cylinders for even nozzle force distribution	●	
Closed-loop injection velocity and pressure control	●	
Cold slug removal	●	○
Injection fill-to pack by screw position, pressure, or time	●	
Direct drive single stage hydraulic screw motor	●	
Short stroke slider ring	●	
Sprue break	●	
Injection unit swivel for easy nozzle, screw, and barrel maintenance	●	
J-Style thermocouples	●	
Hopper slide with shutoff, open/close, op side emptying	●	
Ceramic insulated heater bands	●	
Nitrided barrel	●	
Medium compression screw 45mm and smaller	●	
Barrier screw 50mm and larger	●	
Slider ring non-return valve	●	
Heater band burnout detect	●	
Configure up to 5 injection high velocity steps	●	
Configure up to 10 injection pressure pack and hold steps	●	
Closed loop back pressure control	●	
Configure up to 5 backpressure steps	●	
Feed throat temperature monitoring alarm (closed loop control option)	●	○
Hopper swivel with shut-off (Q-Series 55-90)	●	
Sliding hopper with shut-off (Q-Series 125-610)	●	
Intrusion option available		○
Programmable auto heat startup	●	
End of production run shutdown	●	

	Standard	Optional
EJECT		
Machine-mounted eject system (SPI)	●	
Eject on the fly (std: Q-Series 315-610)	●	○
Auxiliary power unit (for EOF Q-Series 55-260)		○
Pulsating ejection	●	
Position transducer used for setup and readout of ejector positions	●	
Proportional control of eject speed and pressure (operator adjustable at control)	●	
Two forward-eject speed set points	●	
Eject forward dwell timer	●	
Eject retract override	●	
Intermediate eject retract set point	●	
Eject retract limit switch verification (software/signals only)	●	
Eject forward limit switch verification (software and signals only)		○

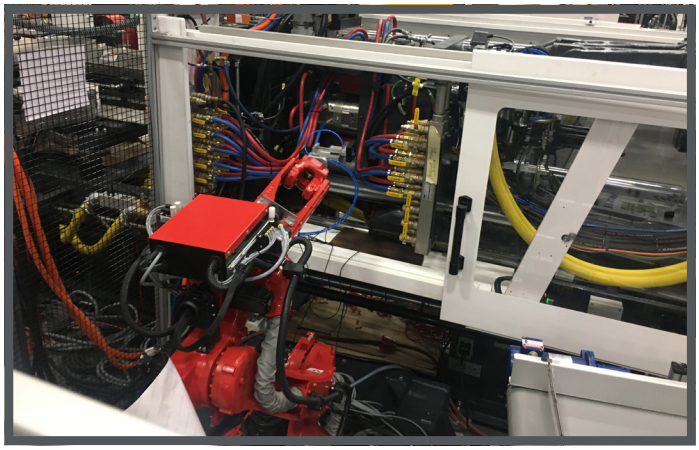
* Features not availble on all models.

WORKCELL INTEGRATION & APPLICATIONS

AUXILIARY SOLUTIONS

- Hot runner controllers
- Integrated robot cells
- Hydraulic mold clamping systems
- Conveyors
- Thermoset stuffers
- Rack circuit encoders

APPLICATIONS



- Pail/bucket applications
- PVC / CPVC solutions
- Two component Injection
- Integrated iMFLUX technology
- Stack molds
- Thermoset application options
- Intrusion
- Rotary tables

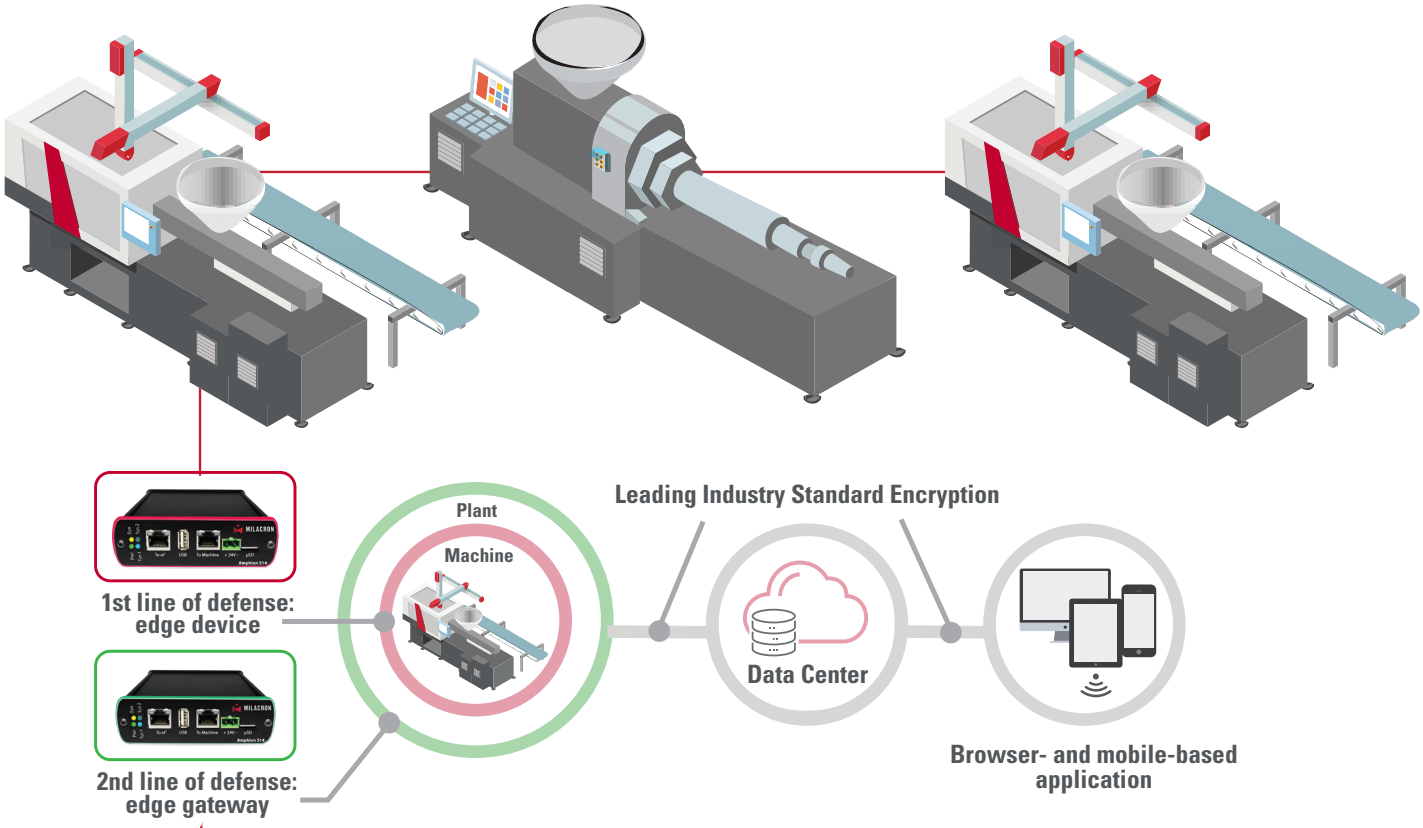
EUROMAP

- Euromap 67 Robot interface (standard)
- Euromap 73 interface (option available to operate with rear gate open)
- Euromap 70 (option available for magnetic mold clamp integration)

M·POWERED

Leading The Plastics Industry In Digital Transformation

M-Powered is a portfolio of easy-to-use observational, analytical and support services that gives customers a competitive advantage. Leveraging Industrial Internet of Things (IIoT) technology, M-Powered runs sophisticated algorithms that utilize real-time machine learning to monitor machine operations and alert before potential issues.



M-Powered Uses End-to-End Data Protection

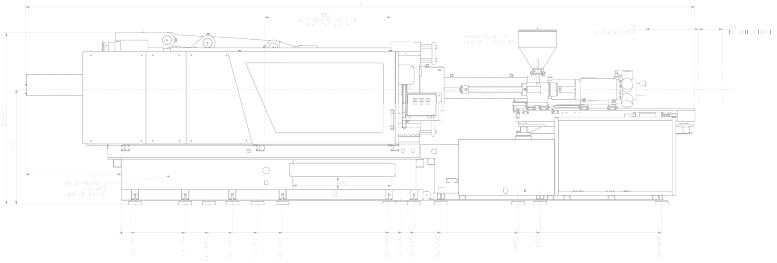
M-Powered Yields Unique Intelligence On:

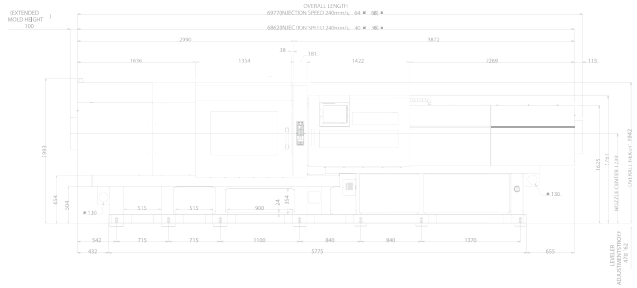
- Current and future operations
- Manufacturing quality - reduce scrap
- Uptime and OEE
- Reduce power usage

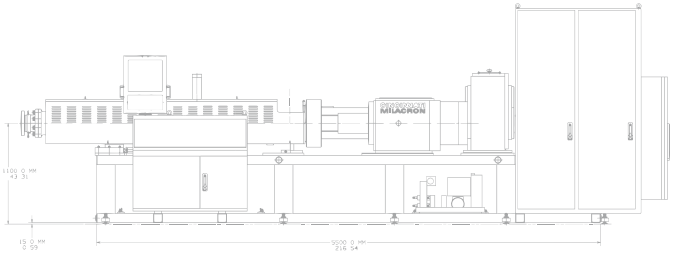
The addition to your company's bottom line from implementing IIoT solutions are:

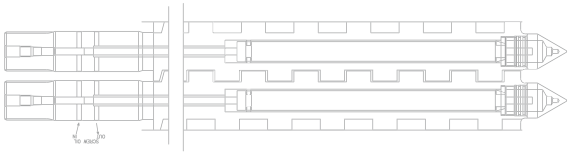
- Alert for scheduled maintenance
- Reduce unplanned outages
- Increase productivity

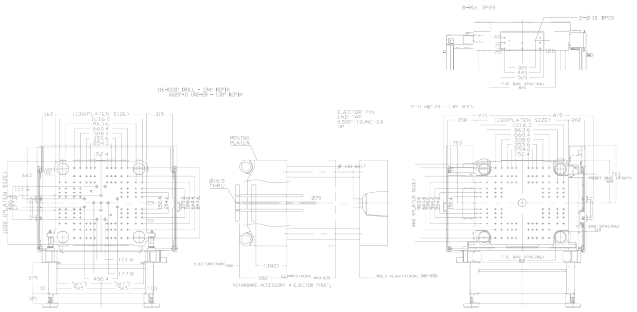
To learn more, contact SALES@MILACRON.COM or MPOWERED@MILACRON.COM.











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