LIMITLESS SOLUTIONS, SINGLE SOURCE

MGS - Injection Unit Systems

Mold Mount
Vertical
Horizontal

MGS Multishot™ – Pioneering Custom Molding Solutions

Statistics / FAQs

- Developed First Machine Solution in 1998
- All Products are Built to Order in Germantown, WI
- Over 1200 Products Deployed – Worldwide Install Base

Why Retrofit Solution vs OEM Solution?

- Ability to Easily Reconfigure Existing Assets
- Faster Leadtime than OEM Machines
- More Flexibility across Assets and Facility Locations

Why MGS vs Competitor Offerings?

- Complete System Solution – Injection Unit Product Offering + Downstream Rotary Solutions
- Better Performance is Standard – High Injection Speeds & Peak Pressures; Small Envelope
- Customizability – Each Solution Built to Order
- Answer Challenges with Unconventional Solutions
- Turnkey & Integration Capability

MGS Multishot™ – Standard Features

Advanced Technology – effectively *smart*
- Industry 4.0 ready - compliant Euromap 77 and Euromap 83 for MIS and MES interface

Closed loop injection speed, pressure, and plasticizing position control.
- Multiple injection speeds and hold pressure
- Pressure/Time - Velocity/Time - Position /Time *real-time graphic overlay display*
- Close loop plasticizing back pressure control

Nozzle position controlled at operator interface panel
- Easy to set nozzle touch and sprue break set points via servo carriage

Heater zones
- 3 to 4 independent heater zones / 2 set points per zone (run & standby); ceramic heat bands
- 2 operation modes (automatic and manual)
- Individual circuit breaker protection

Integrated Operator Interface
- 12" color touch screen operator interface HMI
- Internal storage of 25 machine set-ups
- Quality screen; displays 8 parameters; Quality History of Last 1000 cycles on HMI
- Scatter Plot Display - Graphic Trending Analysis
- Ability to export History of 30 parameters (time stamp to USB Storage)
- Print screen feature to USB

Robot interface (for communications with base machine)
- Euromap 67 (50 pin) interface connector
- Euromap 67 or SPI interface to communicate with robotics (optional)

CPM3V Hardened Screw and D2 Lined Barrel
- Other special alloys or hardening levels available
- Performance design options available

Servo Injection Unit Types

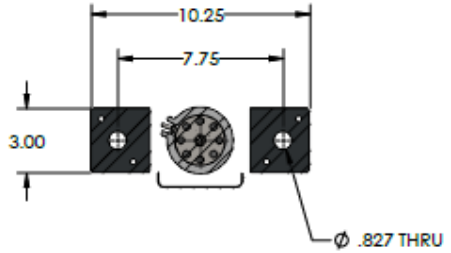
Mold Mount	Vertical Platen Mount	Horizontal “L-Configuration”

Full Servo Injection Models - E14S • E14 • E22 • E32 • E45 • E60

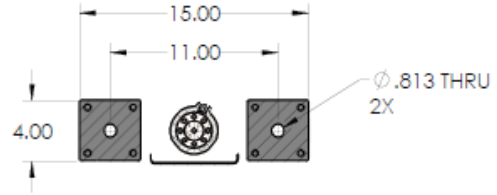
- ✓ **High Performance Design**
- ✓ **Easy Integration**
- ✓ **Customizable Software**
- ✓ **Fully Independent Control**
- ✓ **Integration of IMM Robots and Auxiliaries**
- ✓ **Low Energy Usage**

Servo Injection Unit – Mounting Examples

E14S



E14



Mold Mount

Fasten Directly to the Mold

Mounted Vertically or Horizontal using standard mounting patterns

Vertical Platen Mount

Attaches to IMM Stationary Platen

Can easily be exchanged from machine to machine

Horizontal Freestanding ‘L’ Configuration

Positioned on Non-Operator side of IMM

Shown is Model E45 & 1450 Ton Press

Servo Injection Unit – Large Mounting Examples

Vertical Platen Mount

Horizontal “L-Configuration”

Vertical Platen Mount

- ✓ Plasticizer Size Range 22mm – 60mm
- ✓ Traverses clear of ‘mold area’ for mold set-up/removal
- ✓ X & Y axis adjustable for sprue location
- ✓ Power X axis, if equipped, via HMI display
- ✓ Can be easily exchanged from machine to machine

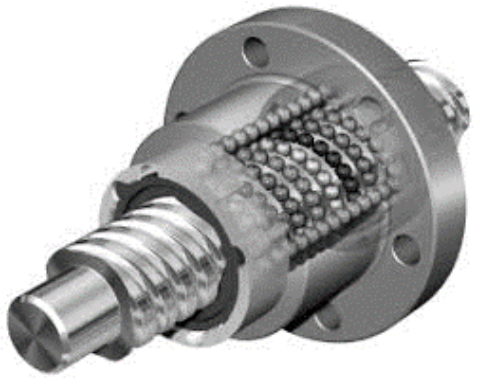
Horizontal ‘L’ Configuration

- ✓ Positioned on Non-Operator side of IMM
- ✓ Large capacity horizontal plasticizer – 52 oz HIPS
- ✓ Plasticizer Size Range 14mm – 80mm
- ✓ Auxiliary HMI for purging and manual functions

Servo Injection Unit – Highlighted Features

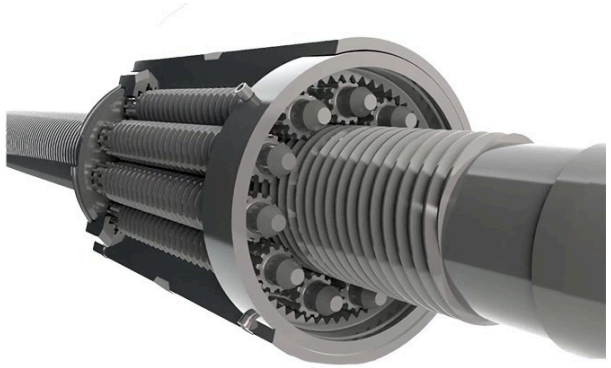
Precision Ball Screws

E14S & E14 Utilize Dual Ball Screws for Precision Injection Sequencing



Planetary Roller Screws

MGS E22 – E60 IU, utilize Dual Planetary Roller Screws, capable of achieving high thrust loads and speeds in compact machine envelope



Load Cells

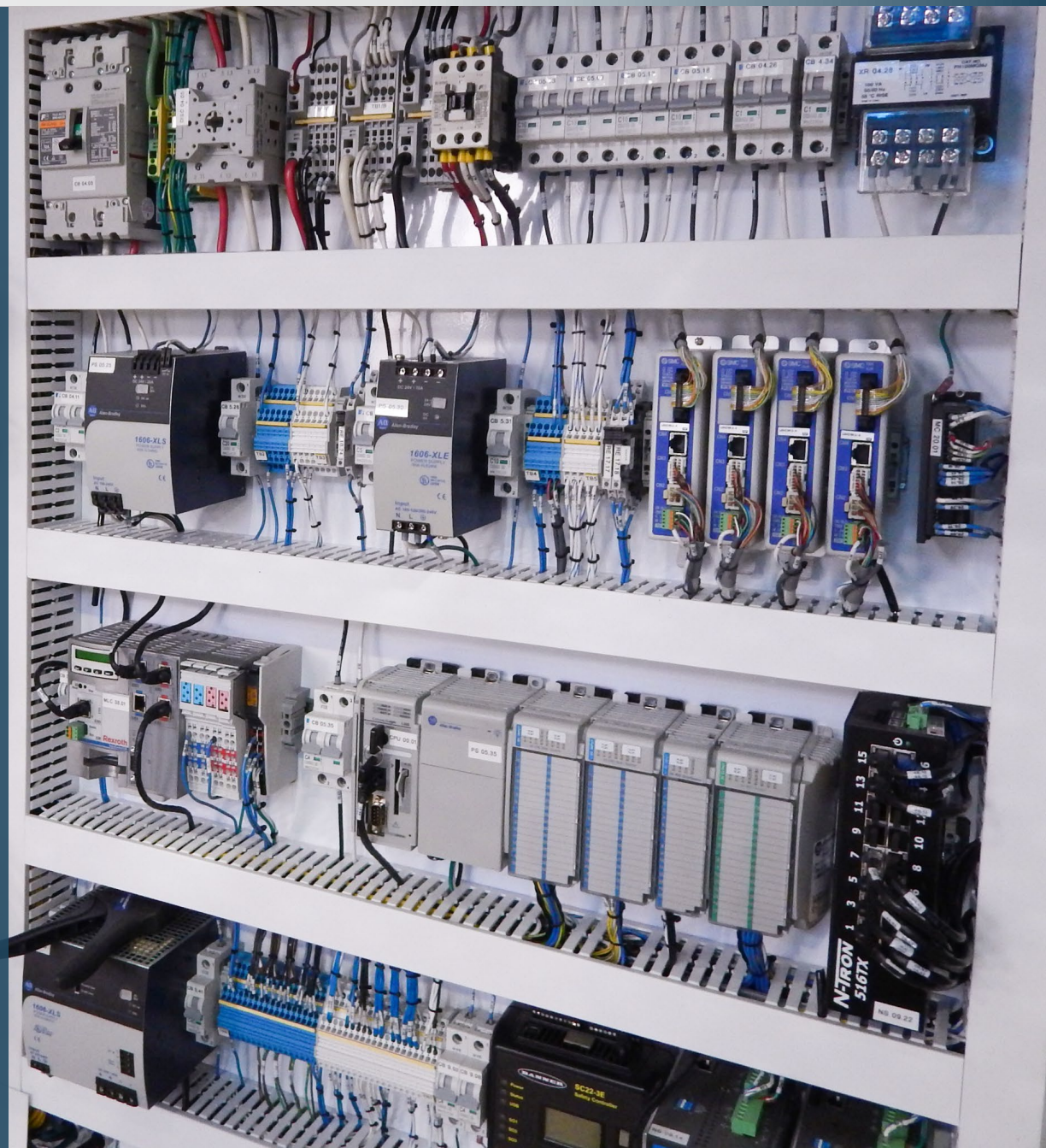
Dual Load Cells Precisely Monitor Recovery Backpressure and Injection Pressure

Remote I/O

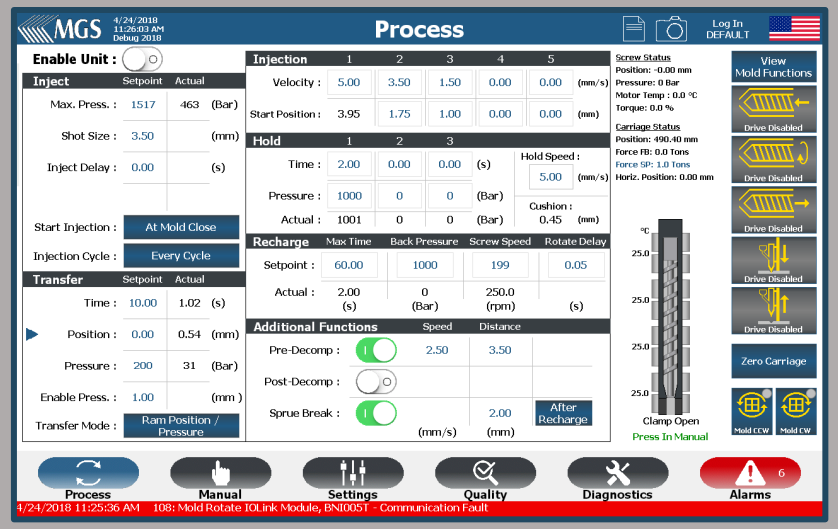
Hi-speed signal response, easy Maintenance and improved Troubleshooting
Less wiring failure points

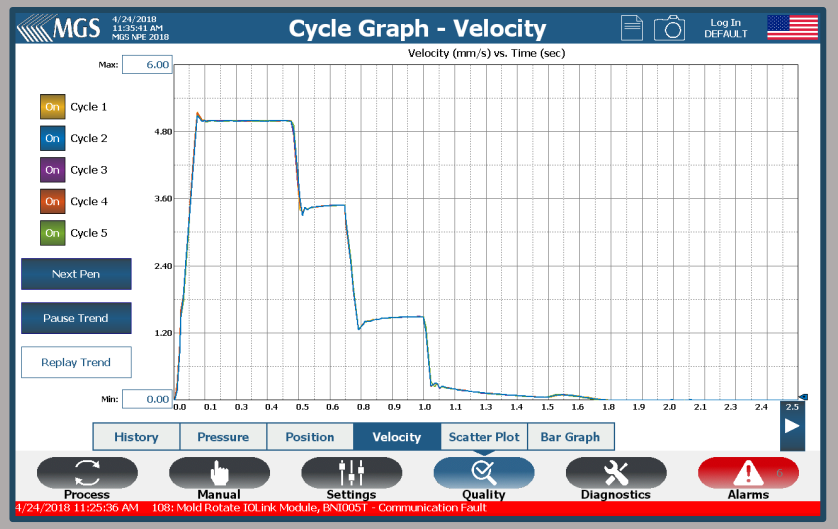
Electrical Engineering

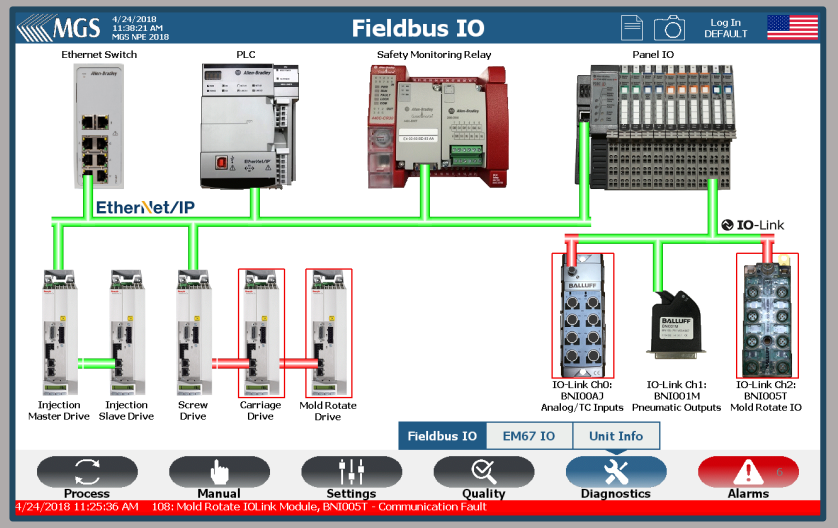
- Electrical design work is completed in AutoCAD Electrical and includes full dimensional drawings of enclosure, panels, sub-enclosure, and HMI layout
- All wires have crimped ferrules to prevent against electrical shorts
- Electrical enclosures feature color coded terminal blocks to easily identify voltage, junctions, and safety groups
- Top quality hardware selections are our standard and include Allen Bradley machine processors, Bosch servo drives, Allen Bradley HMI displays
- (EIP) Ethernet IP & IO Link networks are used on most machines allowing for local I/O and providing reduced wiring, improved communication, control, and serviceability
- CE Certification offered for European destinations



Injection Unit – Machine Control







User Interface Product Details

- ✓ 1000 Cycle Process History
- ✓ 15 Cycle Comparison Table
- ✓ User Selectable Comparison Values - 8 of 26 Parameters
- ✓ Graphical Injection Curves – Velocity & Pressure / Time
- ✓ Graphical Scatter Plot & Trend Analysis
- ✓ Roll-around Pedestal Mount Design
- ✓ Industry 4.0 Compliant
- ✓ Support for Multilingual Display
- ✓ Single Screen Process Parameters
- ✓ Onscreen Electrical Drawings
- ✓ Custom Mold Sequencing Offered
- ✓ Remote Support via VPN

Servo Injection Unit - Specifications

MGS SERVO Injection Systems - 2022

MGS SERVO MODEL	MAX Injection Stroke inch (mm)	Screw Ø	MAX Shot Volume (in^3)	MAX Shot Volume (cc)	MAX Capacity PP** (oz.)	MAX Capacity HIPS** (oz.)	MAX Injection Pressure (psi)	MAX Injection Pressure (bar)	MAX Injection Velocity in/s (mm/s)	MAX Injection Velocity Volume (in^3/s)	MAX Injection Velocity Volume (cc/s)	MAX Screw RPM	MAX Screw Torque Nu	
E14S	2.0 (50)	12mm	0.35	5.7	--	--	26,000	1,793	5.5 (140)	0.9	15.8	350	33.0	Mold Mount
		14mm	0.48	7.8	--	--	26,000	1,793		1.3	21.5			
		16mm	0.62	10.2	--	--	20,000	1,379		1.7	28.0			
E14	4.0 (101)	14mm	0.95	15.6	0.4	0.5	36,000	2,483	7.1 (180)	1.6	27.8	350	100	Horizontal Vertical Platen
		16mm	1.25	20.4	0.5	0.7	36,000	2,483		2.2	36.3			
		18mm	1.58	25.9	0.7	0.9	29,000	2,000		2.8	45.8			
		20mm	1.95	31.9	0.8	1.1	23,000	1,586		3.4	56.6			
E22	5.5 (139)	22mm	3.24	53.1	1.4	1.8	35,000	2,414	7.1 (180)	4.2	68.6	300	300	Horizontal Vertical Platen
		24mm	3.86	63.2	1.7	2.2	34,000	2,345		5.0	81.6			
		28mm	5.25	86.0	2.3	2.9	29,000	2,000		6.8	111.0			
		32mm	6.86	112.4	3.0	3.8	25,000	1,724		8.9	145.0			
E32	8.0 (203)	32mm	9.97	163.4	4.3	5.6	34,000	2,345	7.1 (180)	8.9	145.0	300	600	Horizontal Vertical Platen
		36mm	12.62	206.8	5.5	7.1	31,000	2,138		11.2	183.6			
		40mm	15.58	255.3	6.8	8.7	28,000	1,931		13.8	226.6			
		45mm	19.72	323.2	8.5	11.1	25,000	1,724		17.5	286.8			
E45	10.0 (254)	45mm	24.65	404.0	10.7	13.8	34,000	2,345	7.1 (180)	17.5	286.8	275	1100	Horizontal Vertical Platen
		50mm	30.43	498.7	13.2	17.1	31,000	2,138		21.6	354.1			
		55mm	36.82	603.4	16.0	20.6	27,000	1,862		26.1	428.4			
		60mm	43.82	718.1	19.0	24.6	23,000	1,586		31.1	509.9			
E60	12.0 (305)	60mm	24.65	861.8	22.8	29.5	35,000	2,414	5 (127)	24.1	395.0	250	2000	Horizontal
		65mm	30.43	1011.4	26.8	34.6	35,000	2,414		28.3	463.6			
		70mm	36.82	1173.0	31.0	40.1	30,000	2,069		32.8	537.6			
		80mm	43.82	1532.0	40.5	52.4	23,000	1,586		42.8	702.2			
MGS SERVO MODEL	MAX Injection Stroke inch (mm)	Screw Ø	MAX Shot Volume (in^3)	MAX Shot Volume (cc)	MAX Capacity PP** (oz.)	MAX Capacity HIPS** (oz.)	MAX Injection Pressure (psi)	MAX Injection Pressure (bar)	MAX Injection Velocity in/s (mm/s)	MAX Injection Velocity Volume (in^3/s)	MAX Injection Velocity Volume (cm^3/s)	MAX Screw RPM	MAX Screw Torque Nu	

Thank you for your time!

Please visit MGS Automation in Germantown, WI. for a personal tour.