

# Engel Injection Molding Machine

# e-motion 200/60 ELECTRIC TIEBARLESS Data Sheet ENGEL

## TECHNICAL SPECIFICATIONS - e-motion 200/60 ELECTRIC TIEBARLESS

### CLAMP

Clamp force	US tons	60
Clamp stroke (max.)	inches	10.6
Mold height (min - max)	inches	5.9 - 13.78
Maximum daylight	inches	24.4
Platen size (HxV)	inches	21.65 x 19.69
Free drop clearance	inches	16.1
Ejector stroke	inches	3.94
Ejector force	US tons	2.75

INJECTION		200	Standard	200	Optional High Speed
Screw diameter	mm	25	30	25	30
Screw diameter	inches	0.984	1.181	0.984	1.181
Shot size	oz	2.0	2.8	2.0	2.8
Injection capacity	in <sup>3</sup>	3.6	5.2	3.6	5.2
Recovery rate	oz/sec	0.34	0.48	0.34	0.48
Injection rate at max. press.	in <sup>3</sup> /sec	3.9	5.6	7.8	11.2
Injection velocity at max. press.	in/sec	5.1		10.2	
Screw stroke	inches	4.7		4.7	
Injection pressure	psi	34800	29000	34800	29000
Screw speed (max.)	rpm	380		380	
Screw torque (max.)	ft-lbs	221		221	
Screw L/D ratio		24.8	20.5	24.8	20.5
Nozzle stroke	inches	23.6		23.6	
Nozzle force	US tons	1.6		1.6	

### ELECTRICS

Power supply available	volts	460 / 3Ph / 60Hz	460 / 3Ph / 60Hz
Total drive horsepower	HP	54	67
Number of heat control zones		3+Nozzle	3+Nozzle
Total heating wattage	kw	7.0	7.0

### GENERAL

Dry cycle performance	sec	1.3	1.3
Machine dimensions (LxWxH)	inches	167.9 x 53.7 x 70.9	167.9 x 53.7 x 70.9
Machine weight	lbs	14770	14770
Suitable Engel robots		ERTLi 21, ERC 23	ERTLi 21, ERC 23

### NOTES:

1. Based on polystyrene material.
2. Calculated
4. Can be increased.
5. Per Euromap 6 standard.

All data subject to change without notice

The fully electric **e-motion** Tiebarless machine incorporates all the unique advantages of Engels proven tiebarless design, with fast and precise servo drive technology. The drive system on the injection unit is a dynamic dual ball screw drive, and the clamping unit employs a servo toggle lever drive.

## **STANDARD EQUIPMENT**

### **Injection Unit**

- bi-metallic barrel (M3)
- through hardened screw (S8)
- 10 step injection speed profiling
- 10 step holding pressure profiling
- 5 step screw speed profiling
- 5 step back pressure profiling
- digital screw speed (RPM) display
- digital injection time monitoring
- boost cut-off: time, stroke and **melt pressure** (switch over by cavity pressure is optional)
- automatic cushion monitoring and control
- cold start protection
- injection unit swivel
- direct drive of screw with servo motor
- ceramic heaterbands

### **Clamp Unit**

- SPI mold mounting and ejector pattern
- mechanical safety device for closing
- servo-electric ejector with brake
- ejector shaking function
- **Autoprotect** self-learning mold protection
- 3 speeds for opening and closing

### **Control, Electrics and Electronics**

- CC100 Microprocessor control
- color screen
- Micrograph Plus
- PD Graphics & Reports
- storage of mold set-ups on CPU
- help function on CPU and diskette
- quick set-up screen
- networking capability via optional Engel Monitoring System
- remote maintenance interface for modem

### **Control, Electrics & Electronics (cont'd)**

- automatic cycle monitoring
- digital display of all actual values
- current function display
- automatic screen shut-off
- automatic barrel heat-up system with start-up safety
- monitoring of process critical functions with alarm message
- printer connection via 24 volt interface
- self-optimizing of heat zones
- auto barrel stand-by temperature when machine in alarm condition
- digital bus connection between control unit and servo controller
- display of motor states
- screw retraction via return speed
- display of current switchover point
- history reporting of alarm conditions and set-up changes
- connection for PC keyboard
- integrated floppy disk drive

## **OPTIONAL EQUIPMENT**

### **Injection Unit**

- specialty screws and screw tips for a wide variety of applications
- pneumatic needle shut-off nozzle
- high speed injection
- insulating blanket for barrel
- hopper or drawer magnets
- pneumatic hot runner valve gate control
- stainless steel hopper

### **Control, Electrics and Electronics**

- Microplast and Microflow software packages
- Process Data Graphics & Reports software package
- SPC (Quality Data Statistics) software package
- Engel Monitoring System
- robot interface (SPI)
- auxiliary electrical outlets
- host computer and SPI auxiliary device interface
- hot runner PID temperature controls
- melt temperature monitor
- closed loop feedthroat cooling
- cavity pressure dependent boost cut-off
- keyboard for user-defined text pages
- graphics printer
- mold venting program

### **Hydraulic**

- preparation for hydraulic corepull on moving platen
- hydraulic power pack for corepull

### **General**

- air blow-off valve
- machine levelling/vibration mounts
- waterflow controls
- special painting of machine to customer specification
- alarm sounder in addition to alarm light
- pneumatic corepull
- spare parts packages
- Engel robots
- training programs