Engel Injection Molding Machine

TECHNICAL SPECIFICATIONS - e-motion 440/165 ELECTRIC TIEBARLESS

CLAMP					
Clamp force	US tons	165			
Clamp stroke (max.)	inches	17.7			
Mold height (min - max)	inches	7.87 - 19.7			
Maximum daylight	inches	37.40			
Platen size (HxV)	inches	29.53 x 29.53			
Free drop clearance	inches	21.3			
Ejector stroke	inches	5.9			
Ejector force	US tons	3.85			
INJECTION		**440**	*Standard*	**440**	*Optional High Speed*
Screw diameter	mm	35	40	35	40
Screw diameter	inches	1.378	1.575	1.378	1.575
Shot size	oz	5.1	6.6	5.1	6.6
Injection capacity	in^3	10.3	13.4	10.3	13.4
Recovery rate	oz/sec	0.55	0.81	0.55	0.81
Injection rate at max. press.	in^3/sec	7.3	9.6	14.6	19.2
Injection velocity at max. press.	in/sec	4.9		9.8	
Screw stroke	inches	6.9		6.9	
Injection pressure	psi	34800	29000	34800	29000
Screw speed (max.)	rpm	290		290	
Screw torque (max.)	ft-lbs	443		443	
Screw L/D ratio		20.5	20.5	20.5	20.5
Nozzle stroke	inches	27.6		27.6	
Nozzle force	US tons	2.8		2.8	
ELECTRICS					
Power supply available	volts	460 / 3Ph / 60Hz		460 / 3Ph / 60Hz	
Total drive horsepower	HP	67		109	
Number of heat control zones		3+Nozzle		3+Nozzle	
Total heating wattage	kw	9.2		9.2	
GENERAL					
Dry cycle performance	sec	2.0		2.0	
Machine dimensions (LxWxH)	inches	228.9 x 65.9 x 78.7		228.9 x 65.9 x 78.7	
Machine weight	lbs	27557		27557	
Suitable Engel robots		ERTLi 31, ERC 33		ERTLi 31, ERC 33	

NOTES:

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

All data subject to change without notice

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e-motion 440/165 ELECTRIC TIEBARLESS Data Sheet

ENGEL

e-motion

STANDARDS & OPTIONS

e-motion 440/165 ELECTRIC TIEBARLESS

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