

Engel Injection Molding Machine

**ES 500WP
TOGGLE**
Data Sheet

TECHNICAL SPECIFICATIONS - ES 500WP TOGGLE INJECTION MOLDING MACHINE

CLAMP

Clamp force	US tons	500
Clamp opening force	US tons	60
Clamp stroke (max.)	inches	27.56
Mold height (min - max)	inches	11.81 - 33.94
Daylight (min - max)	inches	11.81 - 61.50
Platen size (HxV)	inches	58.26 x 47.24
Distance between tie bars (HxV)	inches	44.09 x 33.07
Tie bar diameter	inches	5.51
Hydraulic ejector stroke	inches	9.45
Hydraulic ejector force	tons	8.9

INJECTION

		2550			3550		
Screw diameter	mm	70	80	85	70	80	90
Screw diameter	inches	2.756	3.150	3.346	2.756	3.150	3.543
Shot size ¹⁺²	oz	38.7	50.5	57.1	48.7	63.6	80.5
Injection capacity	in ³	72.8	95.1	107.3	91.6	119.6	151.4
Recovery rate ¹⁺²	oz/sec	3.2	3.0	3.6	1.9	2.6	2.7
Plasticizing capacity ¹⁺²	lbs/hr	728	683	820	417	585	597
Injection rate at max. press. ³	in ³ /sec	19.0	24.9	28.1	18.0	23.6	29.8
Injection rate (regenerative) ³	in ³ /sec	22.4	29.2	33.0	21.2	27.6	35.0
Injection velocity at max. press. ³	in/sec	3.2			3.0		
Injection velocity (regenerative) ³	in/sec	3.8			3.5		
Screw stroke	inches	12.20			15.35		
Injection pressure (max.)	psi	30000	23751	21039	30000	23780	22639
Injection pressure (regenerative)	psi	25521	20205	17898	25560	20260	19288
Screw speed range (min=25)	rpm	262	175 ⁶	175 ⁶	150		
Screw torque ⁴	ft-lbs	1305	1950 ⁶	1950 ⁶	2655		
Screw L/D ratio		20:1			20:1		
Nozzle stroke	inches	25.59			23.62		
Nozzle force	US tons	12.4			16.8		

HYDRAULICS

Pump capacity (required)	gpm	58.1	58.1
Oil reservoir capacity	US gal	204	204

ELECTRICS

Power supply available	volts	460 / 575 - 3PH / 60Hz			460 / 575 - 3PH / 60Hz		
Total rated horsepower	HP	60			75		
Number of heat control zones		4+nozzle	4+nozzle	5+nozzle	5+nozzle		
Total heating wattage	kw	29.4	33.5	51.8	30.6	33.6	38.8

GENERAL

Dry cycle performance ⁵	sec	2.6	2.6
Water requirements (max)	gpm	12	15
Machine dimensions (LxWxH)	inches	349 x 88 x 102	365 x 99 x 102
Machine weight	lbs	45000/16000 ⁷	45000/22000 ⁷
Hopper capacity	lbs	163	300
Suitable Engel robots		ERC 53 - 63	ERC 53 - 63

NOTES:

1. Based on polystyrene material.
2. Calculated
3. Can be increased with accumulator.
4. Can be increased.
5. Per Euromap 6 standard.
6. With high torque screw drive.
7. Split base - two piece shipping

(N/A=Not Available)

All data subject to change without notice
Per Rev. 22, 010807

ENGEL

STANDARD EQUIPMENT**Injection**

- Nitrided barrel and screw
- Non-return ring check valve
- 10 step injection speed profiling
- 10 step holding pressure profiling
- 5 step back pressure profiling
- 5 step screw speed profiling
- Digital screw speed (RPM) display
- Digital injection time monitoring
- Screw recovery time monitoring
- Boost cut-off: time, stroke, and hydraulic pressure dependent (switch-over by cavity pressure is optional)
- Automatic cushion monitoring and control
- Cold start protection
- Injection unit swivel
- Quick barrel change
- Precision linear bearings for carriage movement
- Hopper discharge chute
- Feedthroat prepared for water-cooling
- Feedthroat with thermometer
- Increased wattage ceramic heater bands
- Quick disconnects for heater bands
- Increased injection speed (regenerative circuit, screen selectable)
- Programs for sprue break, decompression, and intrusion

Clamp

- SPI mold mounting and ejector pattern
- Multi-stroke hydraulic ejection, speed and pressure controlled
- Heavy tie bars, large bearing surface support for moving platen
- Split base design
- Center ejector rod
- Mechanical safety dropbar
- 3 speed opening and closing
- Hydraulic, electric and electronic safety gate interlocks
- Automatic mold protection: self learning mold protection for optimum cycle time and set-up efficiency on CC100 models. (optional with EC100)
- Smooth, fast acting 5-point double toggle
- Adjustable support under moving platen
- Automatic central lubrication with pressure system protection
- Stationary platen prepared for water cooling
- 5 speed/pressure/position mold protection on EC100 models

Hydraulics

- Closed loop injection speed, injection pressure and screw back pressure; via single 'smart' pump technology on EC100 controlled models; (via double 'smart' pump technology on CC100 controlled models)
- Independent ejector/core motion/carriage movement on CC100 controlled models (corepull hardware optional)
- Fully proportional linearized hydraulic system
- Automatic calibration of proportional hydraulic valves and transducers
- Closed loop oil temperature regulation with prewarming system
- Clogged filter indicator

Hydraulics (cont'd)

- Oil level indicator with level switch
 - Pressure selector gauge
 - Proportional clamp valve for accurate clamp positioning
- Controls, Electrics & Electronics**
- Microprocessor control with high resolution flat color screen
 - Micrograph plus for CC100 control (optional with EC100)
 - RISC Multiple processor architecture (distributed intelligence)
 - Built-in disk drive for data up/down loading. Mold set-ups stored via machine CPU.
 - Quick machine set-up via single screen
 - Help text system
 - Linear transducers for measurement of the clamp, injection, carriage & ejector positions
 - Networking capability via "Teleservice/Engel Monitoring System" ethernet connection on CC100 models. (optional on EC100 models)
 - Automatic cycle monitoring and analysis
 - Digital display of all actual values
 - Current function display
 - Self-diagnostics, monitoring, alarm & calibration
 - Automatic screen shut-off
 - Automatic balancing of heat zones during warm-up
 - Auto barrel stand-by temperature when machine in alarm condition
 - Automatic reject selection
 - Additional screen selectable languages (Spanish/French) (other languages available upon request)
 - US/metric units conversion (A03 controls only)
 - User-defined programmable text pages. Keyboard optional.
 - Self-tuning temperature controls
 - History reporting of alarm conditions and set-up changes
 - Resettable cycle and non-resettable hour counters
 - Ventilated, filtered control panel
 - Energy-efficient, totally enclosed fan cooled motor

General

- Easy access to motors, pumps & hydraulics
- Large, open drop area for automation
- Ergonomic design for operator ease and safety
- Optically isolated control system (protection from outside noise)
- Analog/digital conversion to minimize signal noise on linear position transducers.
- Manufactured to ANSI/SPI B151.1 safety regulations

OPTIONAL EQUIPMENT**Injection Unit**

- Hardened screws and bi-metallic barrels
- Specialty screws and screw tips for a wide variety of applications
- LIM, Thermoset, PVC, PIM, Gas-inj., MuCell and other packages
- Smaller than standard injection units
- Increased wattage & air-cooled heaterbands
- Shut-off nozzles

Injection (cont'd)

- Electric screw drive for increased energy efficiency
- Insulating blanket for barrel
- Hopper or drawer magnets

Clamp

- Platen prepared for water cooling
- Mold locating ring on the moving platen
- Mold venting program
- Quick mold mounting systems (hydraulic or magnetic)
- Semi- or fully auto. mold change system
- Air blow-off valve
- Mold support assembly
- SPI safety key switch for clamp, ejector and core movement
- Extended tie bars
- Automatic clamp force control (std. with CC100)

Hydraulics

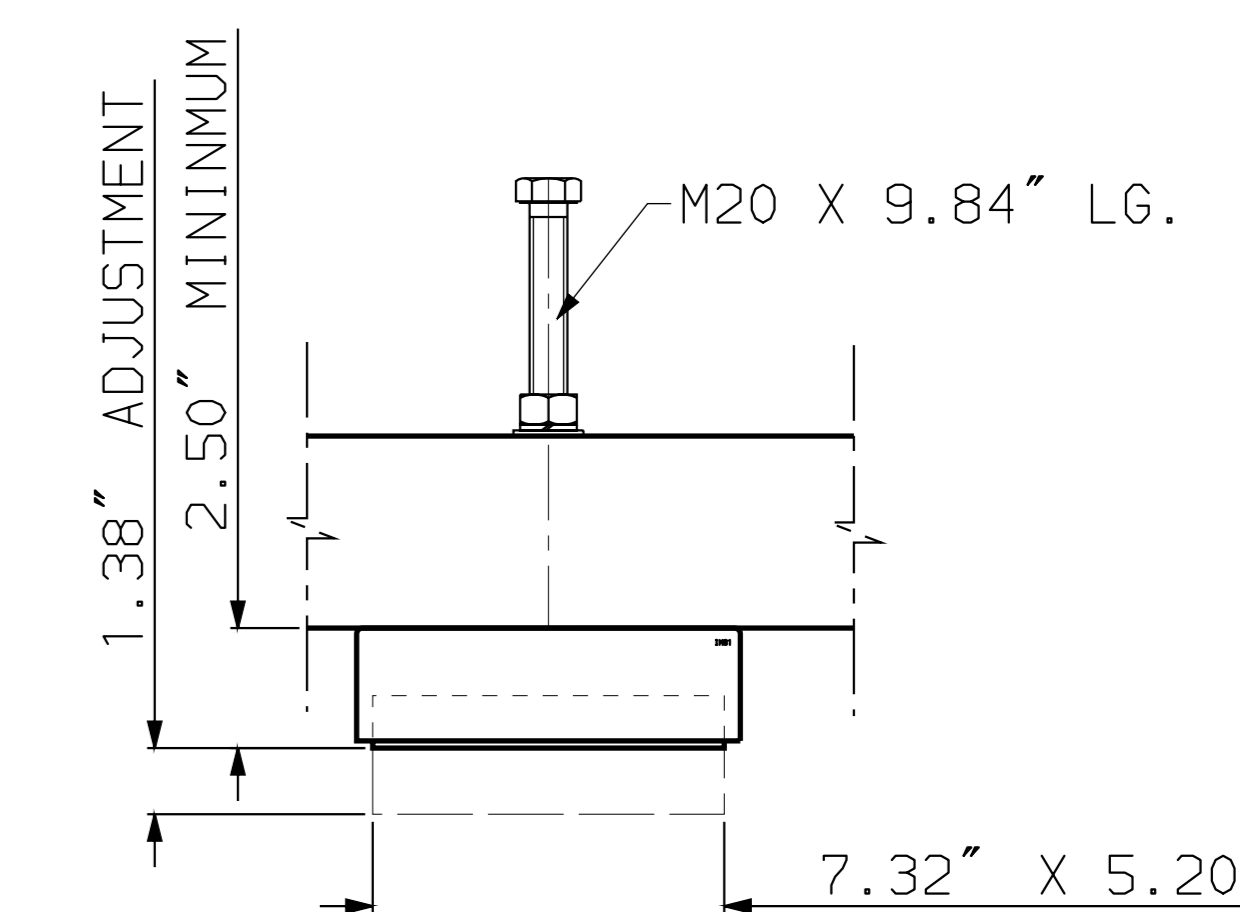
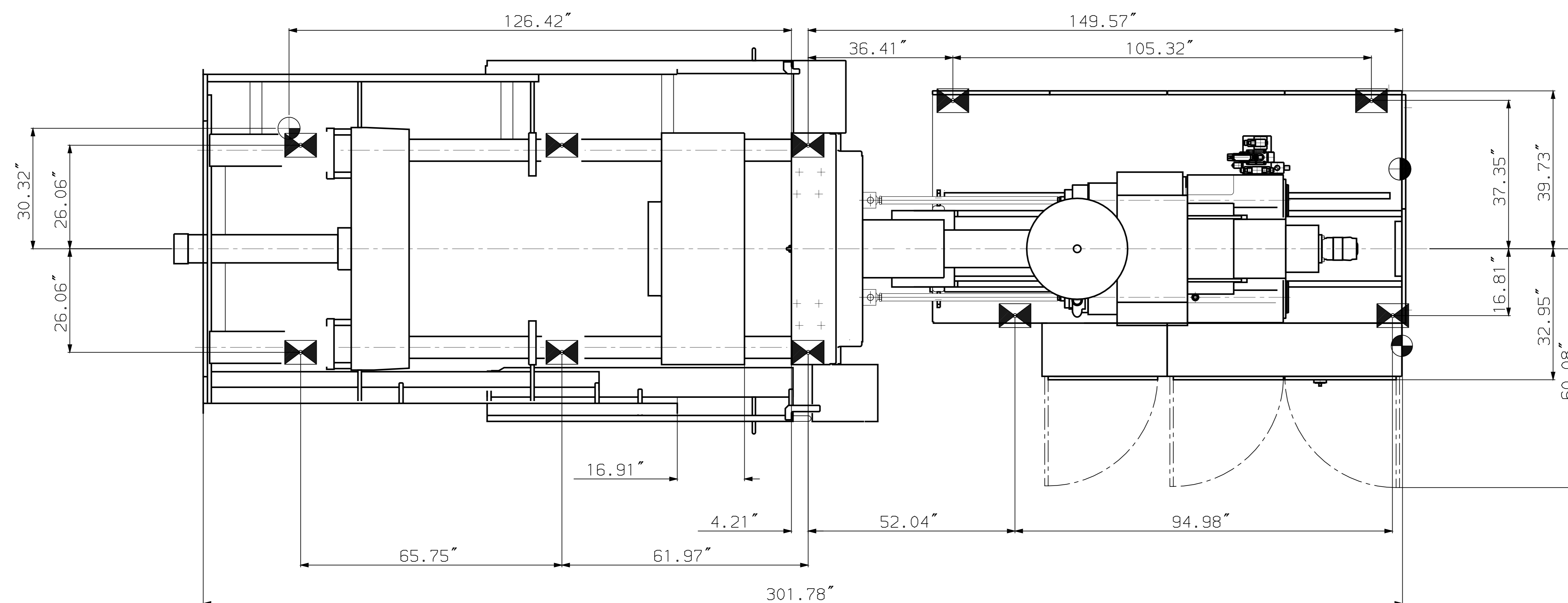
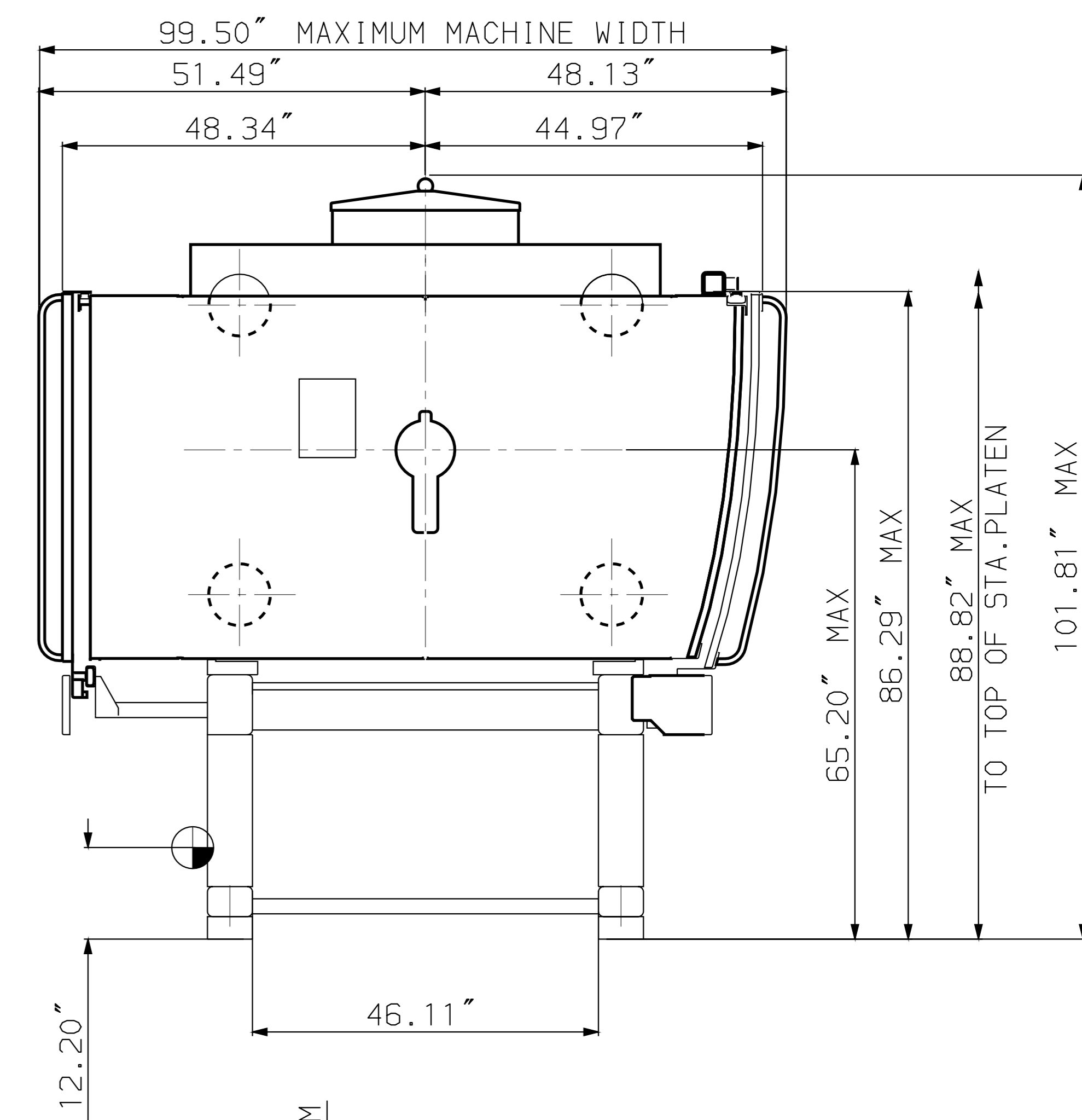
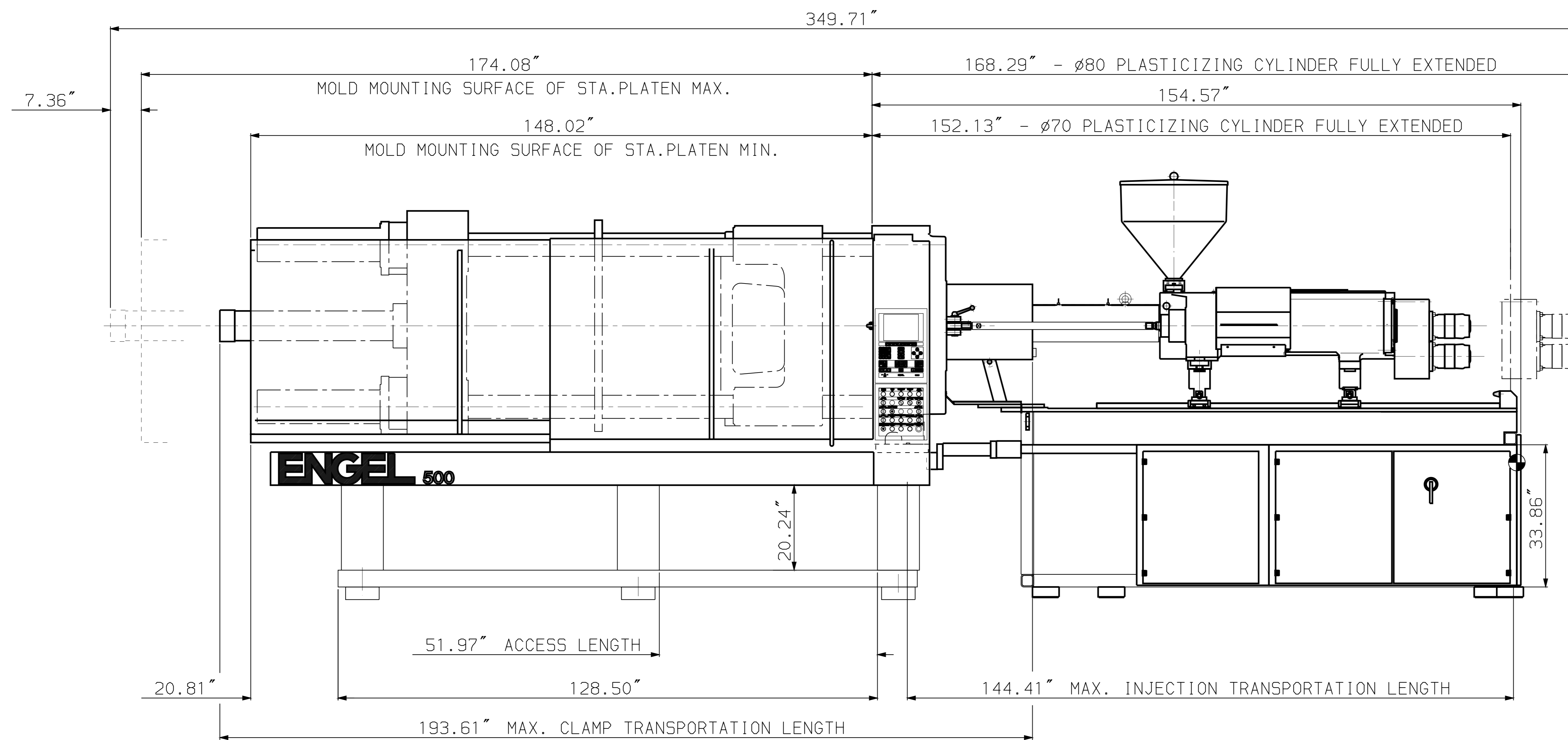
- Increased hydraulic drive for increased plasticizing and injection speeds
- Corepull(s) and unscrewing
- Hot runner valve gate control (pneumatic or hydraulic)
- Independent plasticizing
- High torque screw drive
- By-pass oil filtration
- Accumulator for increased inj. speed

Controls, Electrics & Electronics

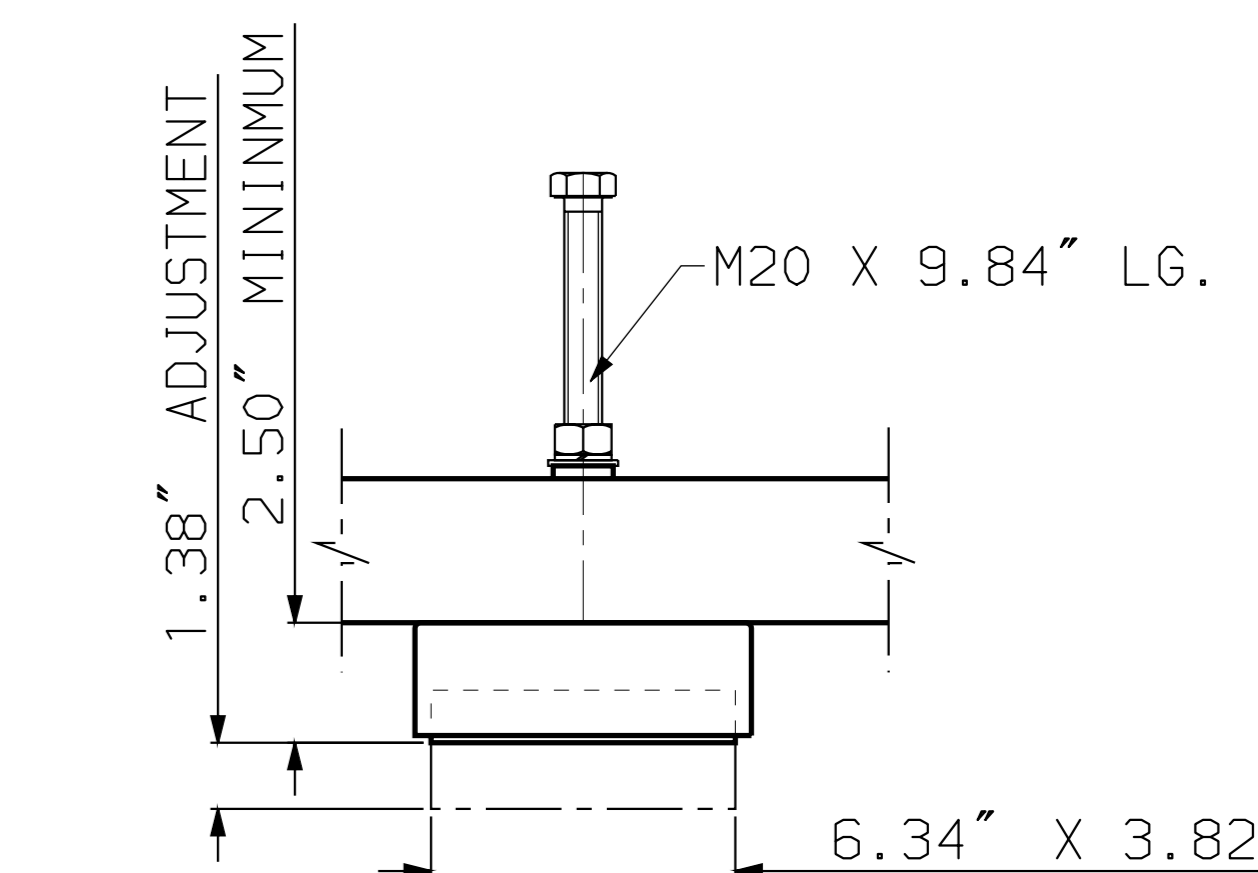
- CC100 microprocessor control with high resolution flat color screen.
- Microplast and Microflow software pkgs.
- Micrograph for EC100 Control (standard with CC100 Control)
- Process data graphics and reports
- Magnetic security card access
- SPC (Quality Data Statistics)
- Auto. barrel/nozzle heat-up (7 day, 24 hour time)
- Power factor capacitors
- Robot interface
- Auxiliary electrical outlets
- Host computer & SPI auxiliary device interface
- Automatic shutdown for "lights out" operation (ghost shift program)
- Hot runner PID temperature controls
- Melt temperature monitor
- Melt pressure monitor
- Closed loop feedthroat cooling
- Cavity pressure dependent boost cut-off (Kistler/RJG/Dynisco)
- Graphics printer
- Power supply available: 208 / 230 / 460 / 575 volts, 3Ph / 60Hz
- Ammeters for barrel and nozzle zones

General Options

- Machine levelling/vibration mounts
- Water manifolds and flow controls
- Special painting of machine to customer specs
- Multi-injection
- Alarm bell in addition to alarm light
- Air and water service routing
- Spare parts packages
- Engel robots
- Training programs
- Engel monitoring system



CLAMP BASE MACHINE MOUNT DETAIL
LOAD CAPACITY 12000 LBS. SCALE 1:4



INJECTION BASE MACHINE MOUNT DETAIL
LOAD CAPACITY 6000 LBS. SCALE 1:4

NOTES:

1. ALL DIMENSIONS ARE IN INCHES UNLESS SPECIFIED OTHERWISE.
2. TECHNICAL DATA SUBJECT TO CHANGE WITHOUT NOTICE

- ☒ -MACHINE MOUNT
- ⊙ -STD.ELE.UTILITY ENTRANCE
- ⊙ -AIR CONN.-3/8"NPT-120 PSI MAX.
- ⊙ -COOLING WATER CONN. IN & OUT 1"NPT.

RELEASED
MICROFILM
REV. # 0

PART WEIGHT IN Kg.

REV#	ECOM	REVISION	DATE	J.S.	NAME
0	0000000000	NEW	29-JUL-00	J.S.	J.S.
SCALE DESCRIPTION					
1:10 MAIN DIMENSIONS					
E5500WTG-2050INJ. SPLIT BASE					
ENGEL GUELPH - CANADA					
MATERIAL =					
OUTDOCK CODE =					
BREAK SHARP CORNERS =					
SIZE FROM 0.5 6 30 120 315 1000 2000					
TO 8.0 30 120 315 1000 2000					
FINE # 0.05 0.1 0.15 0.2 0.3 0.5 0.8					
MEDIUM # 0.1 0.2 0.3 0.5 0.8 1.2 2.0					
DIM. METERS COARSE # 0.2 0.5 0.8 1.2 2.0 3.0 4.0					
TOL. IN MICRONS					
THIS DRAWING AND THE INFORMATION HEREIN IS CONFIDENTIAL AND MUST NOT BE REPRODUCED OR USED IN ANY WAY WITHOUT WRITTEN PERMISSION OF ENGEL CANADA INC.					
PART WEIGHT IN Kg. 9786.005.9762E					
SHEET 2 of 2					
REV. # 0					

