

Engel Injection Molding Machine

INSERT 700H/200 WP US - VERTICAL CLAMP / HORIZONTAL INJECTION

CLAMP

Clamp force	US tons	200
Clamp opening force	US tons	14
Clamp stroke (max.)	inches	15.75
Mold height (min - max)	inches	15.75 ⁵ - N/A
Daylight (min - max)	inches	15.75 ⁵ - 31.50
Platen size (HxV)	inches	39.37 x 25.90

ROTARY TABLE

Rotary table diameter	inches	62.00
Mold pitch circle diameter	inches	35.83
Hydraulic ejector stroke	inches	5.9
Ejector penetration (above table)	inches	3.0
Hydraulic ejector force	US tons	4.3

INJECTION 700

Screw diameter	mm	45	50	55
Screw diameter	inches	1.772	1.969	2.165
Shot size ¹⁺²	oz	10.3	12.7	15.4
Injection capacity	in ³	19.4	24.0	29.0
Recovery rate ¹⁺²	oz/sec	0.9	1.2	1.6
Plasticizing capacity ¹⁺²	lbs/hr	197	268	349
Injection rate at max. press. ³⁺⁴	in ³ /sec	9.2	11.4	13.8
Injection rate (regenerative) ³⁺⁴	in ³ /sec	12.0	14.9	18.0
Injection velocity at max. press. ³⁺⁴	in/sec	3.7		
Injection velocity (regenerative) ³⁺⁴	in/sec	4.9		
Screw stroke	inches	7.87		
Injection pressure (max.) ⁴	psi	30000	24708	20416
Injection pressure (regenerative) ⁴	psi	22986	18931	15643
Screw speed range (min=25)	rpm	238		
Screw torque ⁴	ft-lbs	813		
Screw L/D ratio		20:1		
Nozzle stroke	inches	15.8		
Nozzle reach to mold center	inches	5.0		
Nozzle force	US tons	4.0		
Nozzle height (min-max) ⁴	inches	5.0 - 12.0		

HYDRAULICS

Pump capacity (required)	gpm	31.4
Oil reservoir capacity	US gal	106

ELECTRICS

Power supply available	volts	460 / 575 - 3PH / 60Hz
Total rated horsepower	HP	40
Number of heat control zones		4+Nozzle
Total heating wattage	kw	10.3 11.3 12.7

GENERAL

Water requirements (max)	gpm	11
Machine dimensions (LxWxH)	inches	200 x 115 x 130
Machine weight	lbs	37400
Hopper capacity	lbs	163
Suitable Engel robots		ERC 23, ERV 31

NOTES:

1. Based on polystyrene material.
2. Calculated
3. Can be increased with accumulator.
4. Can be increased.
5. Smaller mold height settings optional

All data subject to change without notice
Issue Date: 10/30/02

INSERT 700H/200 WP US
VERTICAL CLAMP
Data Sheet

ENGEL

STANDARDS & OPTIONS

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 (80cc-330cc)
- Precision linear bearings for carriage movement
- Hopper discharge chute
- Feedthroat prepared for water-cooling
- Feedthroat with thermometer
- Quick disconnects for heater bands (80cc-330cc)
- Increased injection pressure (via regenerative circuit, screen selectable)
- Programs for sprue break, decompression, and intrusion
- Pneumatic purge shield
- Single-point nozzle height adjustment

Clamp

- Pneumatically actuated safety gate
- Rigid bridge-type frame
- Mechanical safety dropbar
- 3 speed opening and closing
- Hydraulic and electric safety gate interlocks
- Direct hydraulic clamp with integral quick close cylinder
- Precision linear bearings for platen stroke
- Moving platen prepared for water cooling
- 5 speed / pressure / position mold protection
- Hydraulic counterbalance circuit
- Automatic clamp force control

Rotary Table

- Rigid base plate for full table support
- Lifting table design for minimal wear
- Precise table positioning via "shot pin" locating mechanism
- Multi-stroke hydraulic ejection, proportional speed control, independent of injection/screw feed
- 2-position reciprocating 180 deg. table

Hydraulics

- Fully proportional linearized hydraulic system
- Automatic calibration of proportional hydraulic valves and transducers
- Clogged filter indicator
- Closed loop oil temperature regulation with pre-warming system

Hydraulics (continued)

- Oil level indicator with level switch
 - Pressure selector gauge
 - Pressure compensated variable displacement pumps
 - Energy efficient totally enclosed fan-cooled motors
- #### Controls, Electrics & Electronics
- Microprocessor control with high resolution flat color screen
 - RISC Multiple processor architecture (distributed intelligence)
 - Built-in disk drive for data up/down loading
 - Mold set-ups via machine CPU
 - Quick machine set up via single screen
 - Linear transducers for measurement of the clamp, injection, carriage and ejector positions
 - Automatic cycle monitoring
 - Digital display of actual values
 - Current function display
 - Self-diagnostics, monitoring, alarms
 - Automatic screen shut-off
 - Automatic balancing of heat zones during warm-up
 - Auto barrel stand-by temperature when machine in alarm condition
 - Automatic reject signal
 - US/metric units conversion (instant changeover)
 - User-defined programmable text pages. Keyboard extra.
 - Self-tuning temperature controls
 - History reporting of alarm conditions and set-up changes
 - Resettable cycle and non-resettable hour counters
 - Interface port for external data carrier and calibration
 - Anti-tie down cycle start safety palm buttons
 - Pivoting cabinet for operator interface and display

OPTIONAL EQUIPMENT

Injection

- Hardened screws and bi-metallic barrels
- Specialty screws and screw tips for a wide variety of applications
- LIM, Thermoset, PVC, BMC, PIM, Gasmelt, MuCell and other packages
- Increased wattage & air-cooled heater bands
- Shut-off nozzles
- Insulating blanket for barrel
- Hopper or drawer magnets
- Automatic motorized nozzle height adjustment

Clamp

- 3 or 4 mold stations with rotary union for mold water cooling at table center
- Hydraulic quick mold mounting system (moving platen only)
- Safety key switch for entry during ejector and core movement

Clamp (continued)

- Air blow-off valve
- Infrared light curtain in place of safety gate
- Positive return of mold ejector
- Hydraulic ejector on moving platen
- Additional fixed ejector
- Hot fluid connections through rotary union at table center
- Corepull(s) and unscrewing control
- Mold venting program
- Reduced minimum mold height

Hydraulics

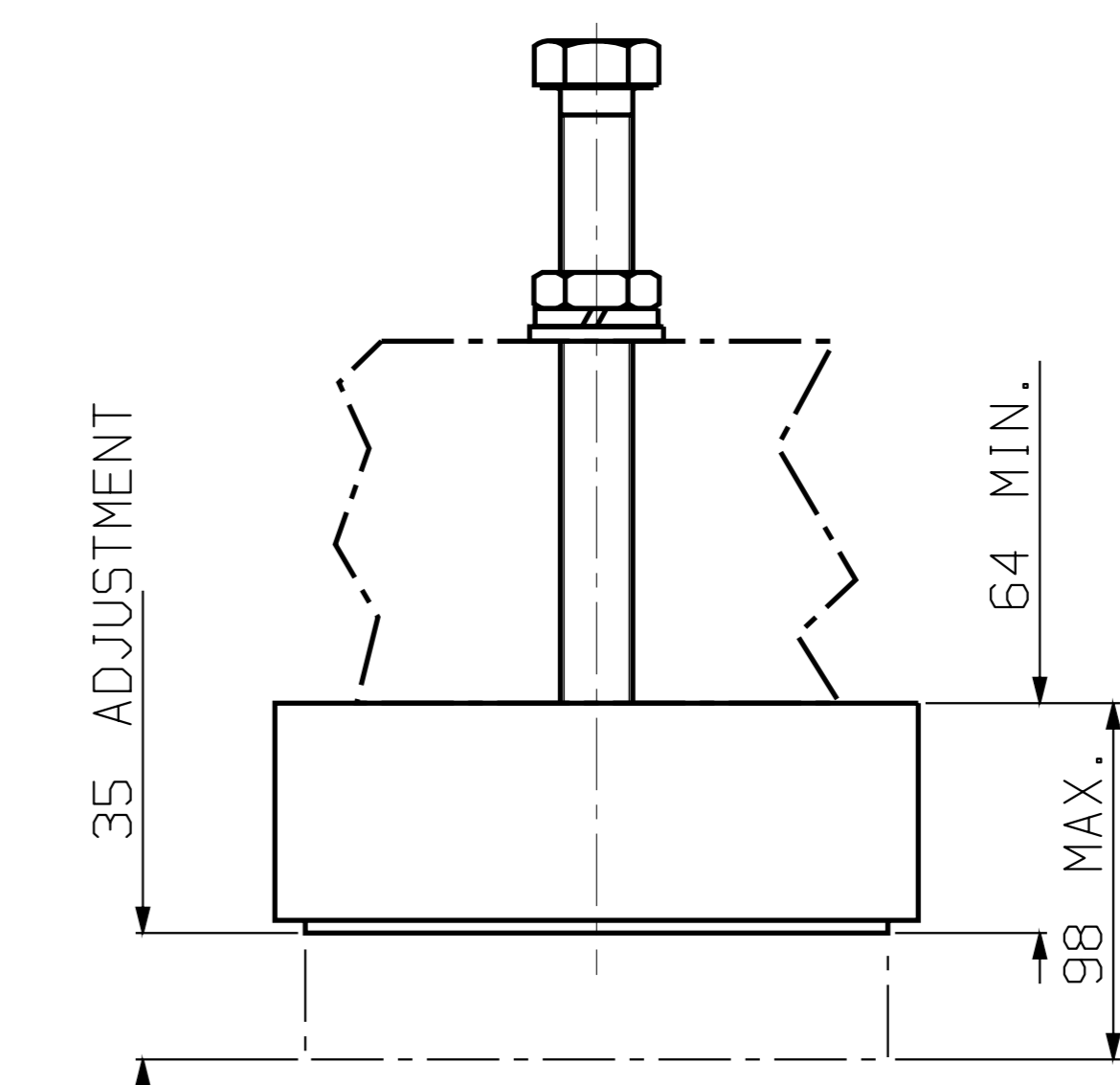
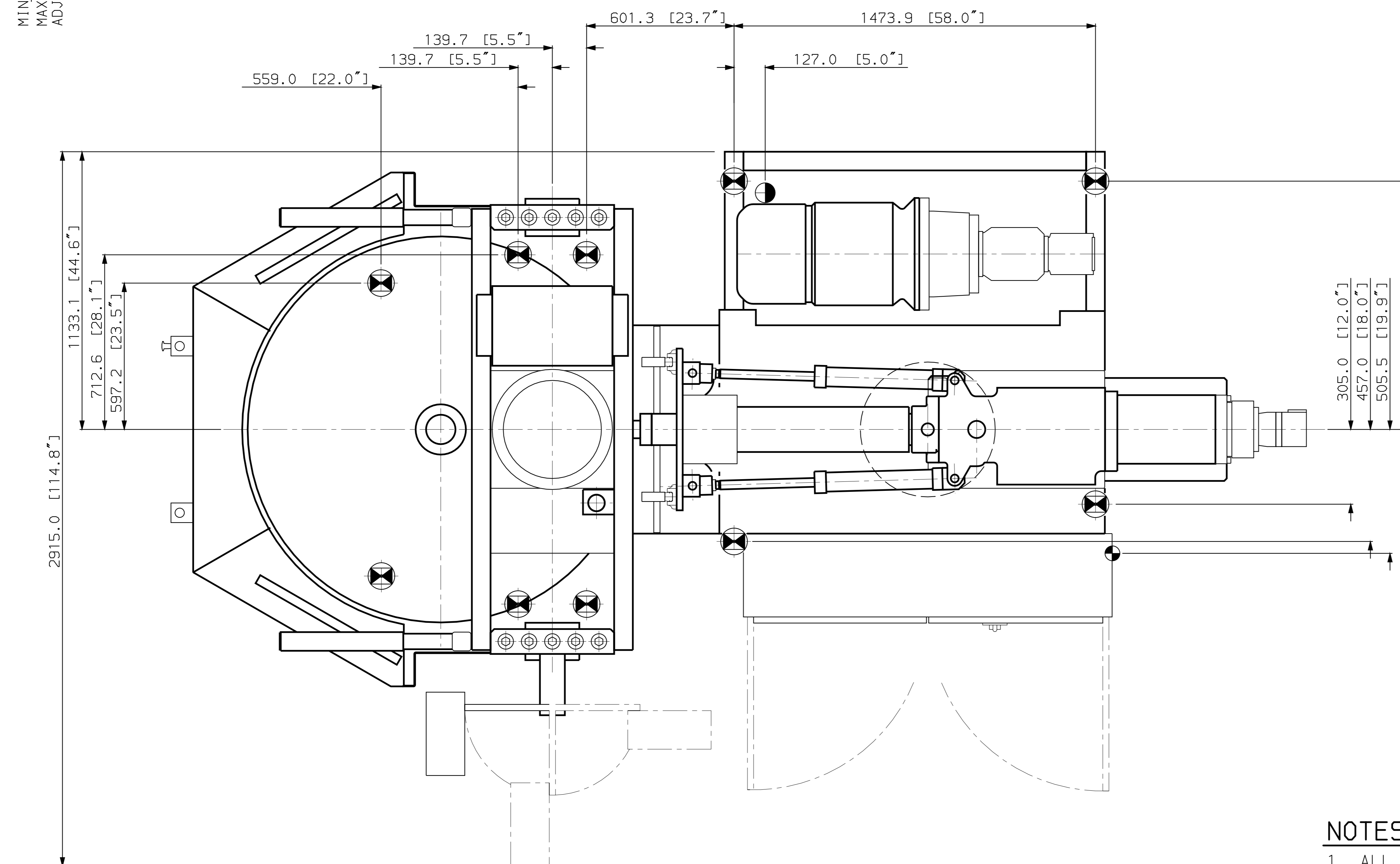
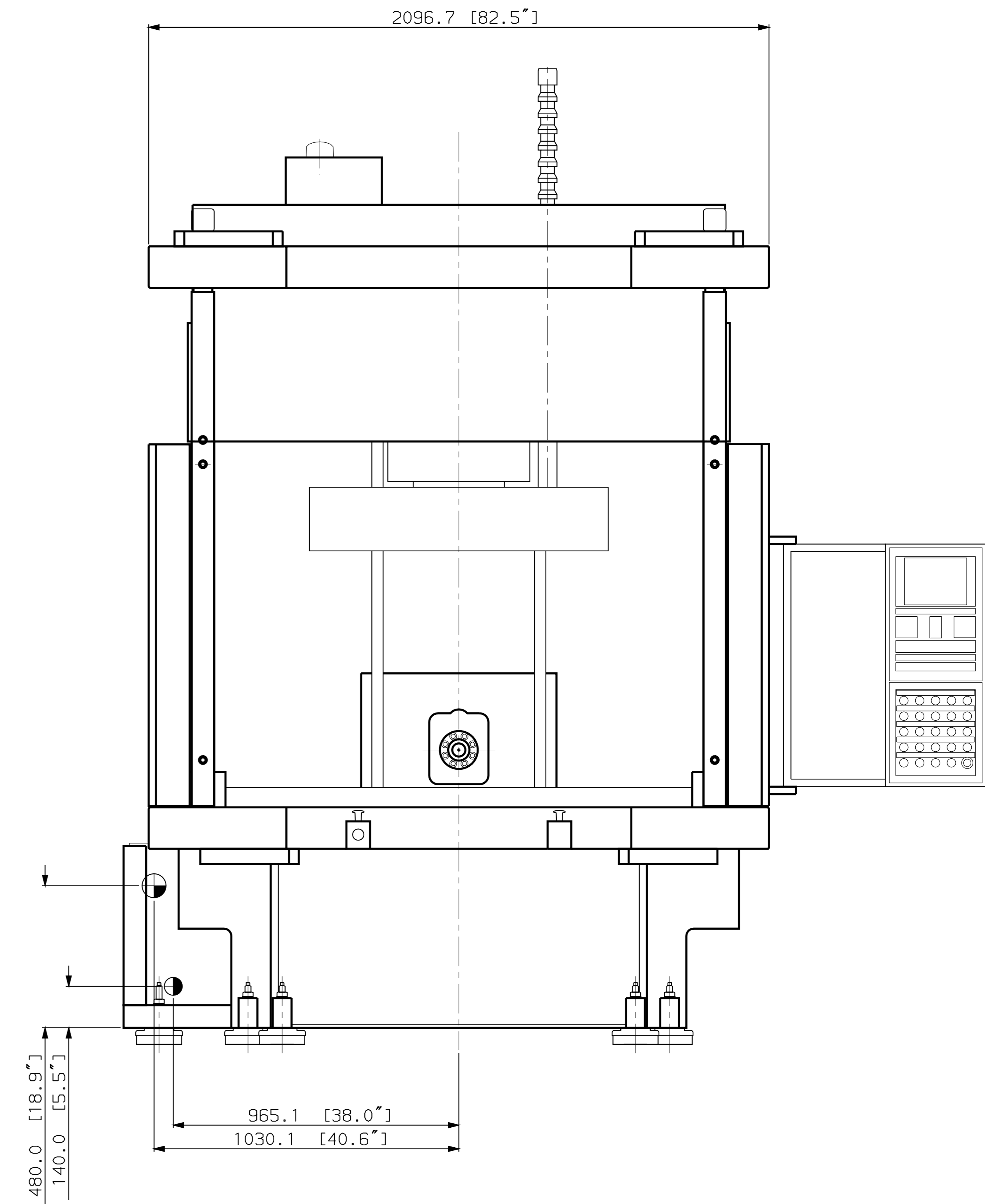
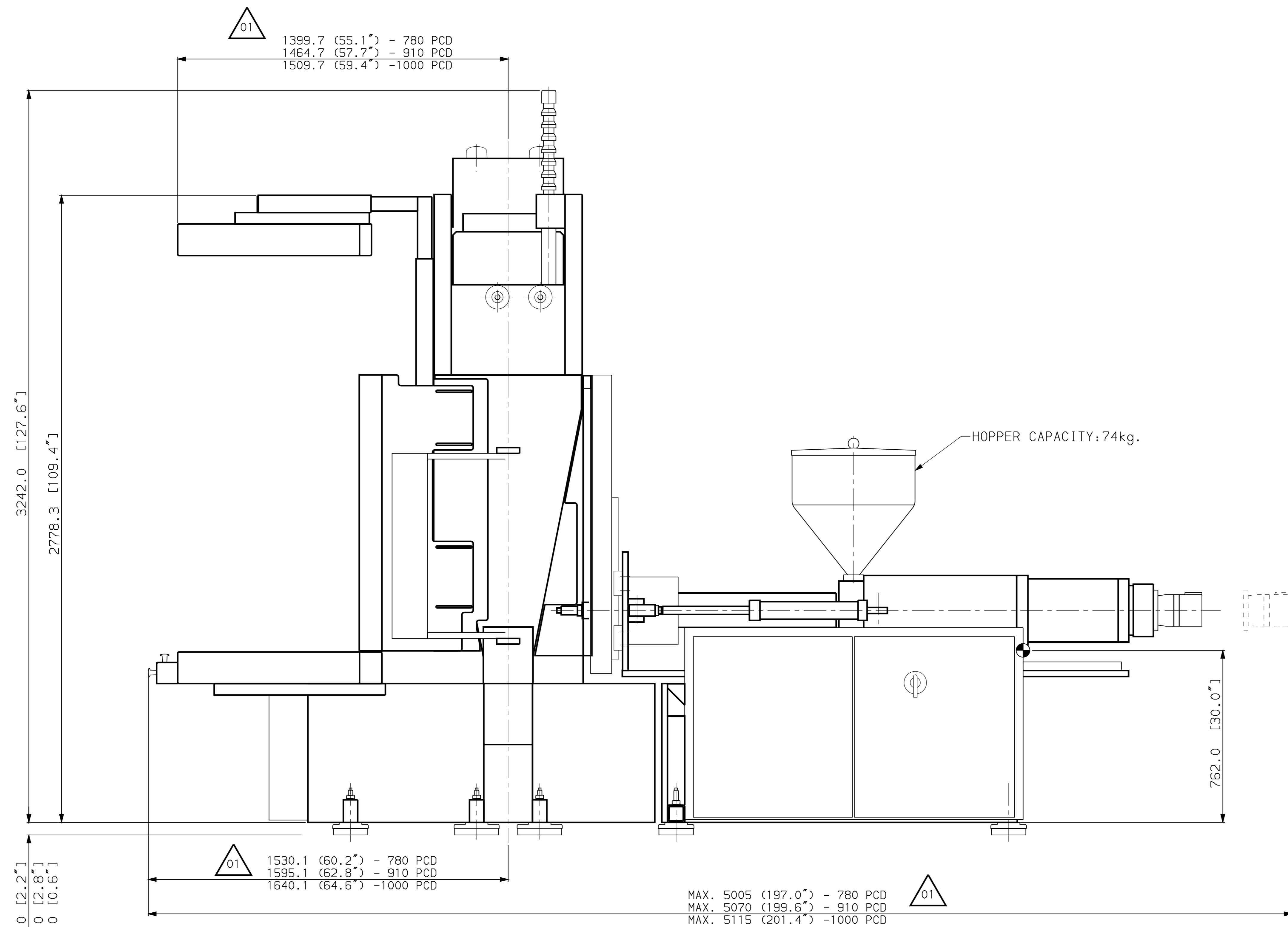
- Servo valve for closed loop injection speed, injection pressure, and screw back pressure control
- Increased hydraulic drive for increased plasticizing and injection speeds
- Accumulator system for increased injection speed or special functions
- Hot runner valve gate control (pneumatic or hydraulic)
- High torque screw drive
- By-pass oil filtration

Controls, Electrics & Electronics

- CC100 Microprocessor control with high resolution color screen
- Microplast and Microflow software packages
- Process data graphics and reports
- SPC (Quality data Statistics)
- Automatic barrel/nozzle heat-up (7 day, 24 hour timer)
- Power factor capacitors
- Robot interface
- Auxiliary electrical receptacles
- Host computer and SPI auxiliary device interface
- Automatic shut-down for "lights-out" operation (ghost-shift program)
- Hot runner PID temperature controls
- Melt temperature or pressure monitors
- Closed loop feedthroat cooling
- Cavity pressure dependent boost cut-off
- Graphics printer
- Power supply available: 230/460/575 volts, 3Ph/60Hz
- Ammeters for barrel and nozzle zones
- Electrical input for insert confirmation
- Electrical rotary commutator for mold temp. control connections at table center

General

- Machine levelling/vibration mounts
- Waterflow controls
- Special painting of machine to customer's specifications
- Alarm sounder in addition to standard alarm light
- Spare parts packages
- Engel robots
- Training programs



MACHINE MOUNT DETAIL (OPTIONAL)
 TYP. IM51 (6 PLACES), MAXIMUM LOAD 1364 kg.
 TYP. IM61 (4 PLACES), MAXIMUM LOAD 2727 kg.
 SCALE 1:2

- LEGEND**
- MACHINE MOUNT
 - STD.ELE.UTILITY ENTRANCE
 - AIR CONN.-3/8"NPT.
 - COOLING WATER CONN. IN & OUT 3/4"NPT

WEIGHT OF MACHINE
 17,000 kg (APPROX.)
 [37,400 lb]

RELEASED
 MICROFILM
 REV. # 1

- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETER AND [INCH].
 - TECHNICAL DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE.

PART WEIGHT IN Kg.		5620.005.1265E	
-		1 of 1	
-		1	

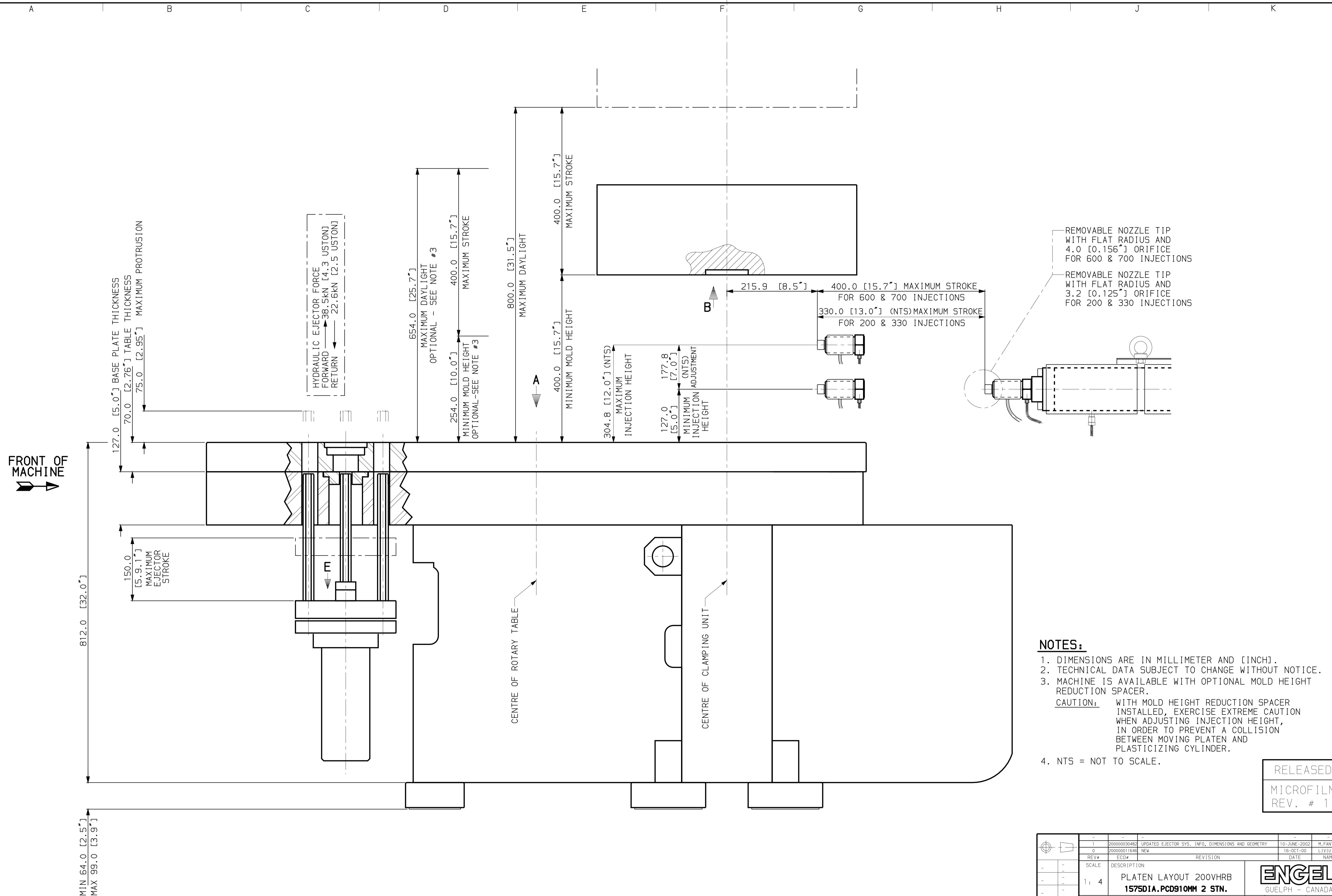
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1	2-15000	12-JAN-01	DAIN P.
2	ADDED DIM'S FOR 780 AND 1000 PCD	19-OCT-00	UTIK P.
3	REVISIONS		
4	NEW		

SCALE	DESCRIPTION	DATE	NAME
1:10	MAIN DIMENSION 200-700		
	E5200VHRB 62" TABLE		

MATERIAL	NAME	DATE

DRUCK CODE	DR-N	DATE

SIZE	FROM	TO	REPLACES
0.5	6	30	1000
1.0	120	315	2000
2.0	630	1000	2000
3.0	1200	1500	2000
4.0	2000	3000	2000
5.0	3000	4000	2000
6.0	4000	5000	2000
7.0	5000	6000	2000
8.0	6000	7000	2000
9.0	7000	8000	2000
10.0	8000	9000	2000
11.0	9000	10000	2000
12.0	10000	11000	2000
13.0	11000	12000	2000
14.0	12000	13000	2000
15.0	13000	14000	2000
16.0	14000	15000	2000
17.0	15000	16000	2000
18.0	16000	17000	2000
19.0	17000	18000	2000
20.0	18000	19000	2000
21.0	19000	20000	2000
22.0	20000	21000	2000
23.0	21000	22000	2000
24.0	22000	23000	2000
25.0	23000	24000	2000
26.0	24000	25000	2000
27.0	25000	26000	2000
28.0	26000	27000	2000
29.0	27000	28000	2000
30.0	28000	29000	2000
31.0	29000	30000	2000
32.0	30000	31000	2000
33.0	31000	32000	2000
34.0	32000	33000	2000
35.0	33000	34000	2000
36.0	34000	35000	2000
37.0	35000	36000	2000
38.0	36000	37000	2000
39.0	37000	38000	2000
40.0	38000	39000	2000
41.0	39000	40000	2000
42.0	40000	41000	2000
43.0	41000	42000	2000
44.0	42000	43000	2000
45.0	43000	44000	2000
46.0	44000	45000	2000
47.0	45000	46000	2000
48.0	46000	47000	2000
49.0	47000	48000	2000
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75.0	73000	74000	2000
76.0	74000	75000	2000
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81.0	79000	80000	2000
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87.0	85000	86000	2000
88.0	86000	87000	2000
89.0	87000	88000	2000
90.0	88000	89000	2000
91.0	89000	90000	2000
92.0	90000	91000	2000
93.0	91000	92000	2000
94.0	92000	93000	2000
95.0	93000	94000	2000
96.0	94000	95000	2000
97.0	95000	96000	2000
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100.0	98000	99000	2000
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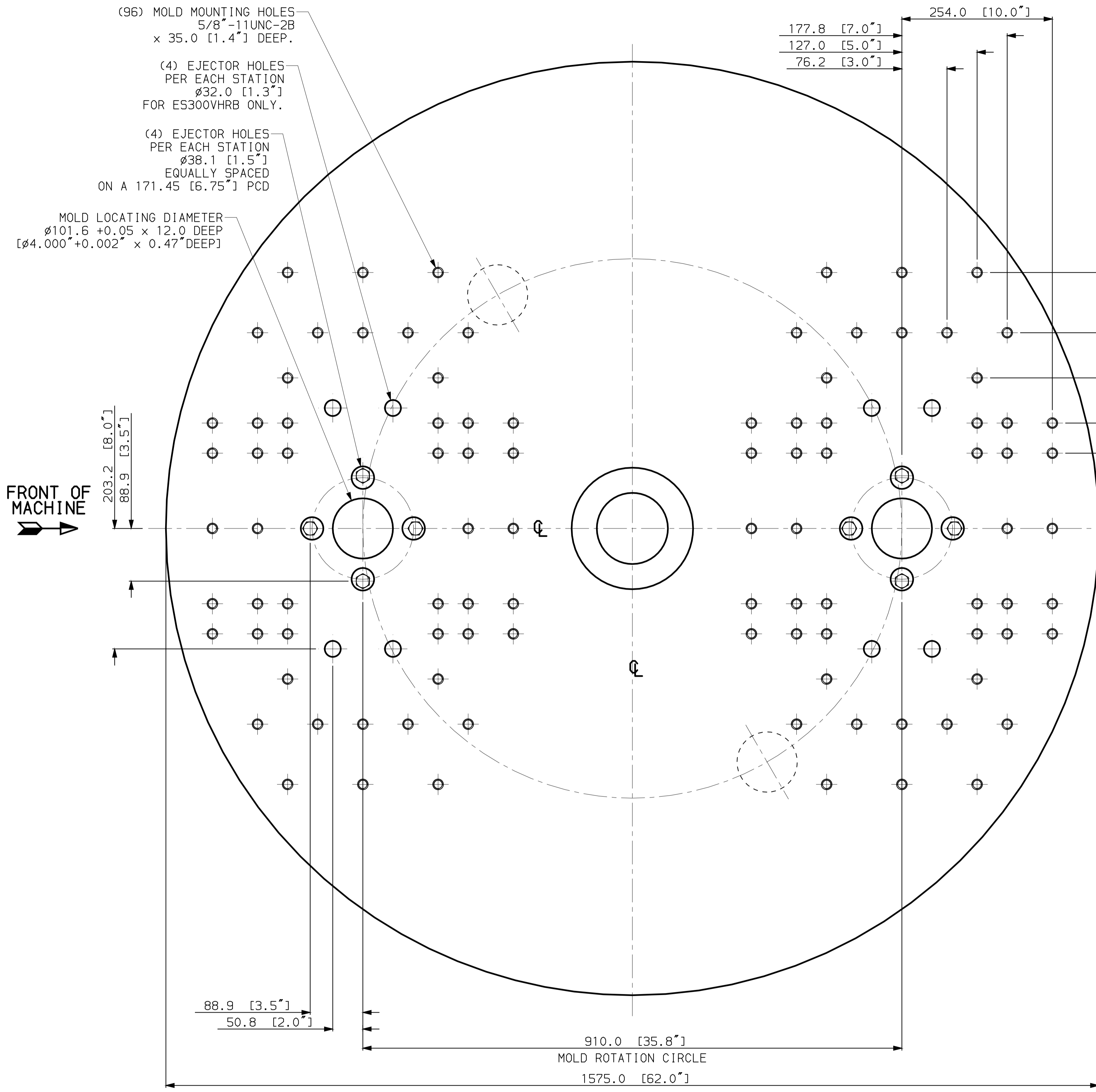


NOTES:

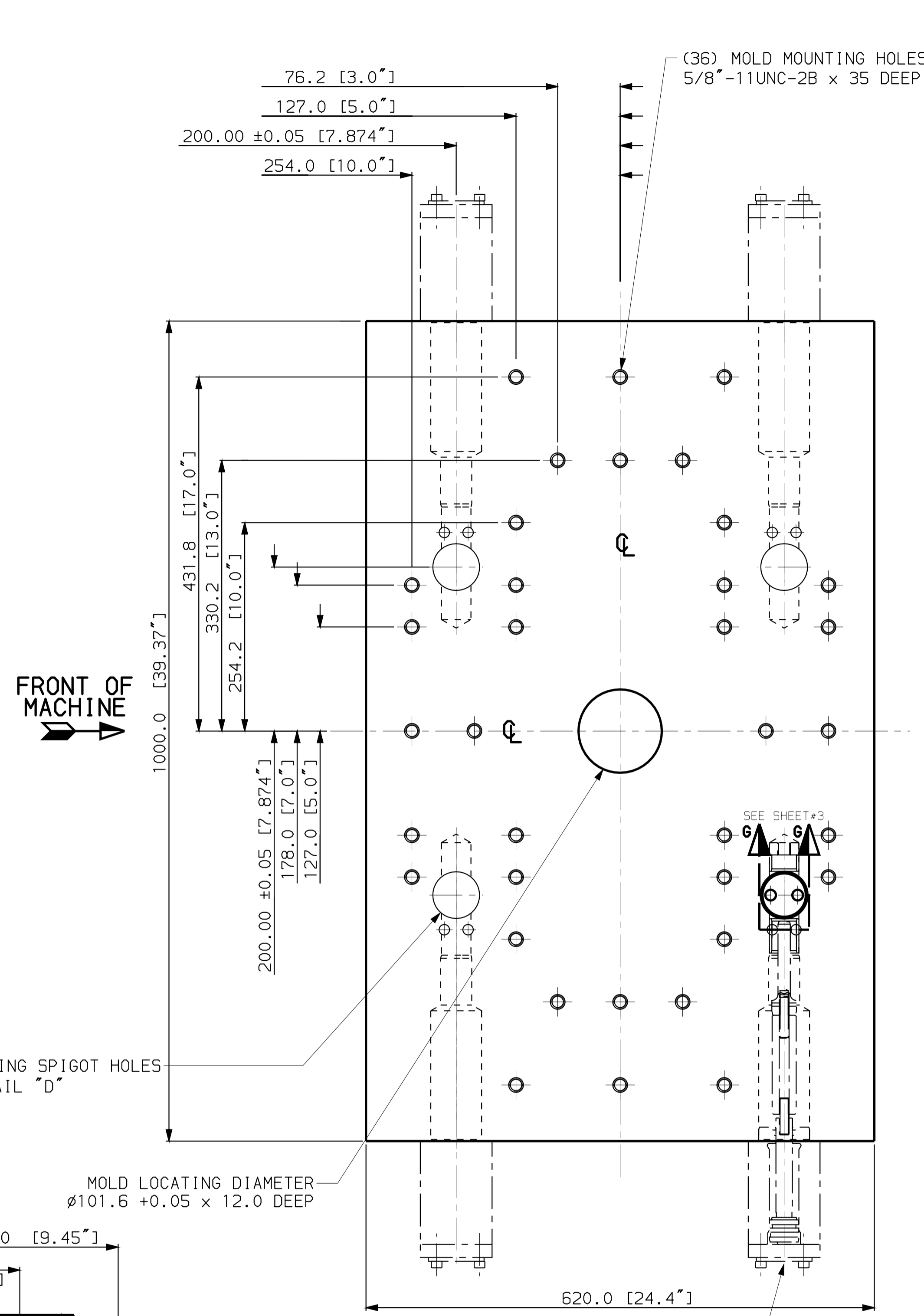
- DIMENSIONS ARE IN MILLIMETER AND [INCH].
- TECHNICAL DATA SUBJECT TO CHANGE WITHOUT NOTICE.
- MACHINE IS AVAILABLE WITH OPTIONAL MOLD HEIGHT REDUCTION SPACER.
CAUTION: WITH MOLD HEIGHT REDUCTION SPACER INSTALLED, EXERCISE EXTREME CAUTION WHEN ADJUSTING INJECTION HEIGHT, IN ORDER TO PREVENT A COLLISION BETWEEN MOVING PLATEN AND PLASTICIZING CYLINDER.
- NTS = NOT TO SCALE.

RELEASED
MICROFILM
REV. # 1

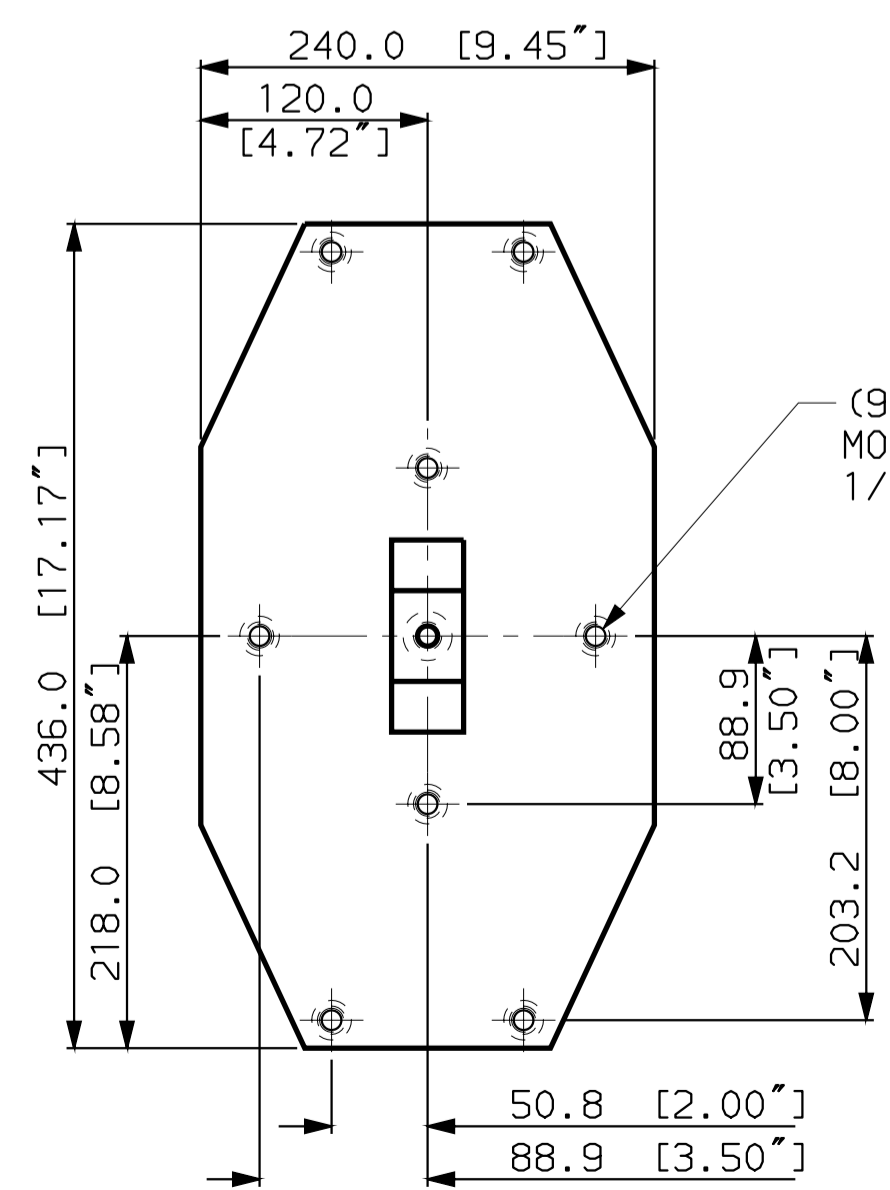
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0	200000011648	NEW	16-OCT-00	LIVIU P.
REV#	ECC#	REVISION	DATE	NAME
1: 4	DESCRIPTION		ENGEL GUELPH - CANADA	
MATERIAL		NAME		DATE
STOCK CODE #		DR'N		16-OCT-00
BREAK SHARP CORNERS		CHK'D		16-OCT-00
SIZE	FROM	TO	REPLACES	
	0.5	6	30	120
	6.0	30	120	315
	315	1000	2000	2000
	2000	2000		
	0.05	0.1	0.15	0.2
	0.2	0.3	0.5	0.8
	0.1	0.2	0.3	0.5
	0.2	0.5	0.8	1.2
	0.5	0.8	1.2	2.0
	0.8	1.2	2.0	3.0
	1.2	2.0	3.0	4.0
TOL. IN MICRO METERS	MEDIUM ±		DRAWING NO	
	COARSE ±		5620.002.1259D	
PART WEIGHT IN Kg.		SHEET		REV.#
-		1 OF 3		1



VIEW-A
VIEW AT TOP OF TWO STATION TABLE



VIEW-B
VIEW AT MOLD MOUNTING SURFACE
OF MOVING PLATEN



VIEW-E
VIEW AT EJECTOR PLATE

NOTES:
1) DIMENSIONS ARE SYMMETRICAL ABOUT ϕ
UNLESS OTHERWISE SHOWN.

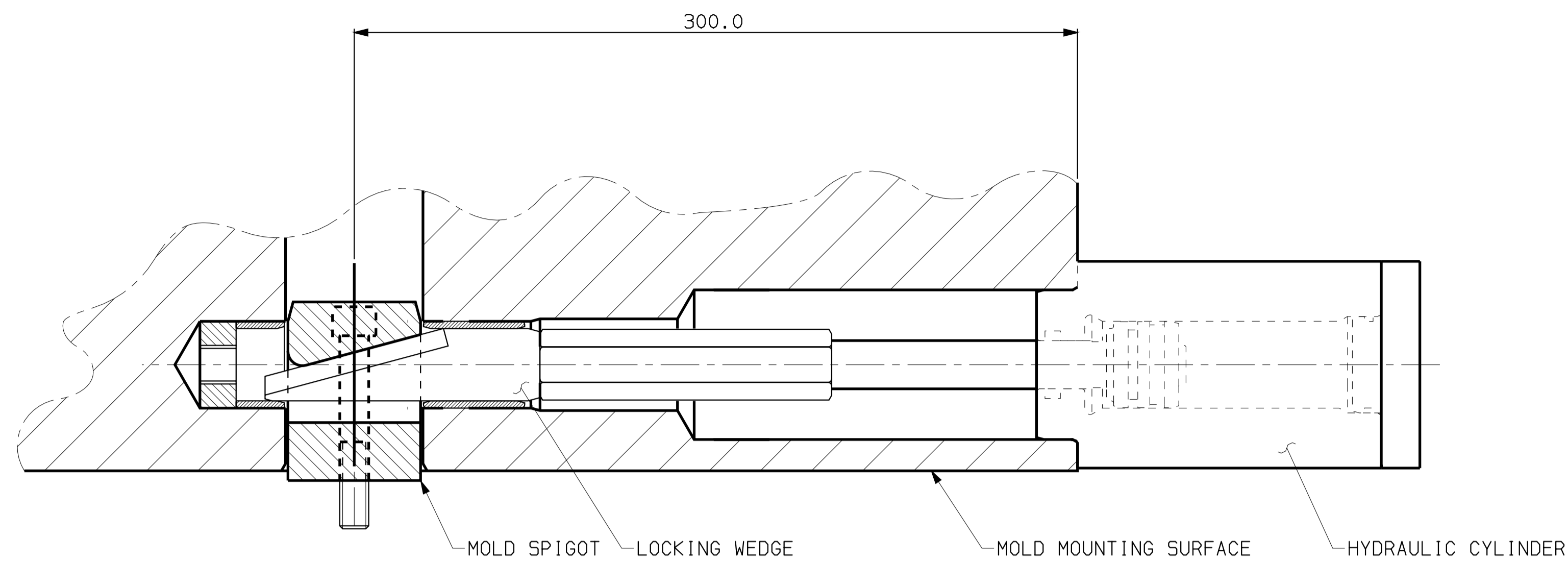
RELEASED
MICROFILM
REV. # 1

PART WEIGHT IN Kg.
-

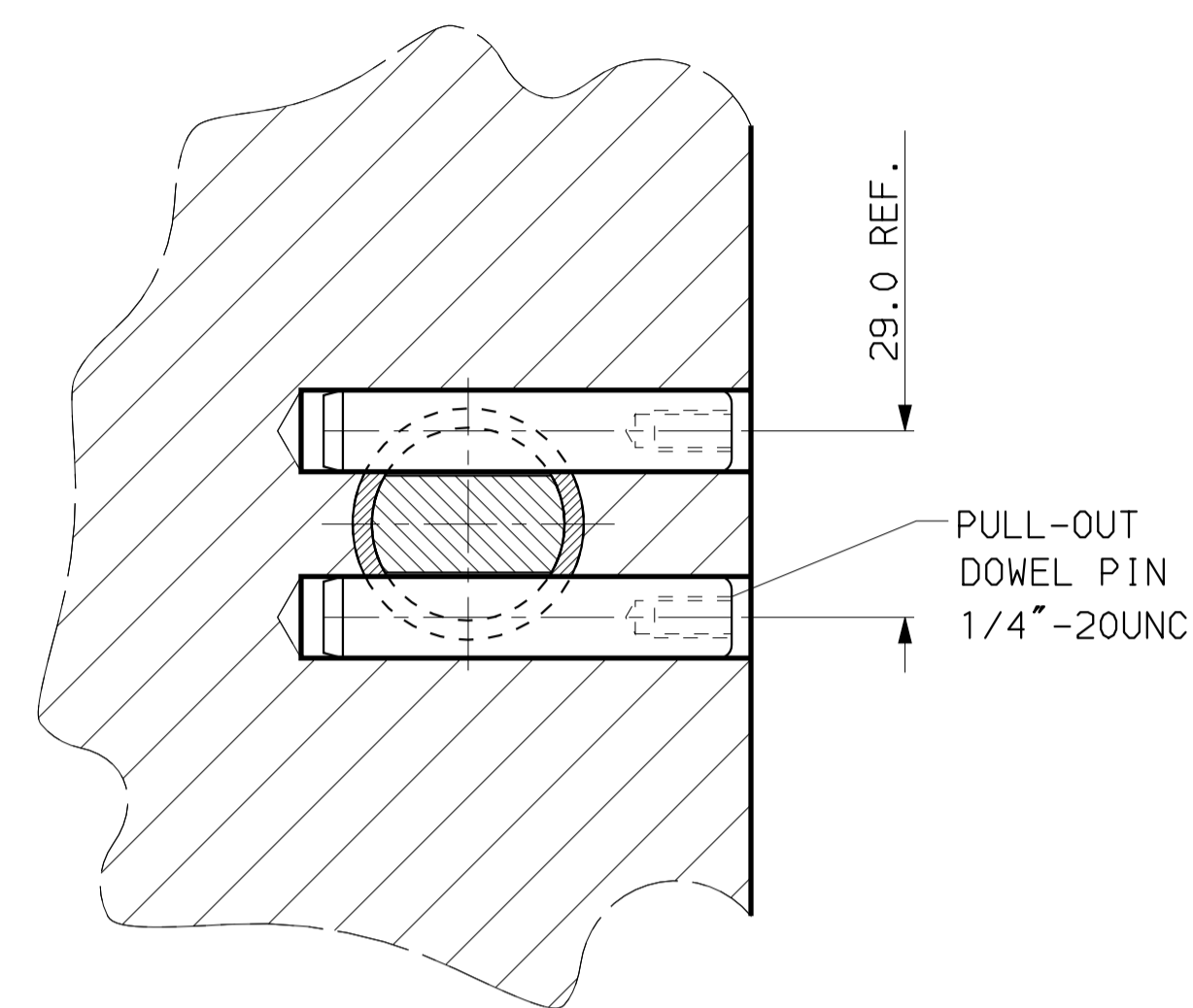
1	200000030482	UPDATED VIEW-E, (9) EJECTOR ROD HOLES WAS (5).	10-JUNE-2002	M.FANTUZ
0	200000011648	NEW	16-OCT-00	LIVIU P.
REV#	ECC#	REVISION	DATE	NAME
SCALE	DESCRIPTION		MATERIAL	
1: 4	PLATEN LAYOUT 200VHRB 1575DIA.PCD910MM 2 STN.		NAME DATE	
STOCK CODE #		DR'N		DATE
-		LIVIU P.		16-OCT-00
-		A.D.		16-OCT-00
BREAK SHARP CORNERS		CHK'D		
SIZE	FROM	TO	REPLACES	
	0.5	6	30	120
	6.0	30	120	315
	30	120	315	1000
	120	315	1000	2000
	315	1000	2000	>
	0.15	0.2	0.3	0.5
FINE ±	0.05	0.1	0.15	0.2
MEDIUM ±	0.1	0.2	0.3	0.5
COARSE ±	0.2	0.5	0.8	1.2
	2.0	3.0	4.0	
TOL. IN MICRO METERS	DRAWING NO			
	5620.002.1259D			
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.				REV.#
SHEET				1

ENGEL
GUELPH - CANADA

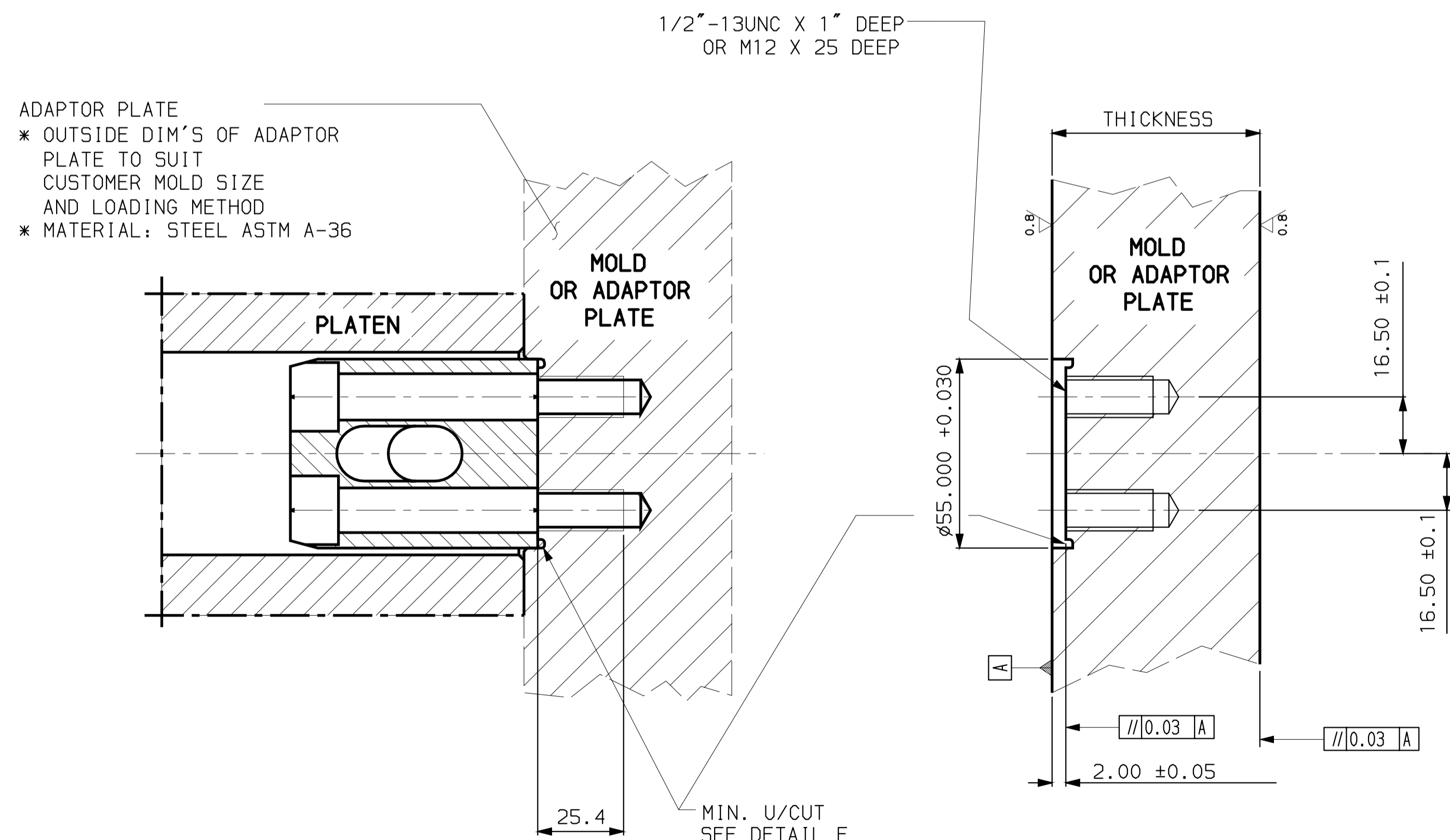
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2 OF 3



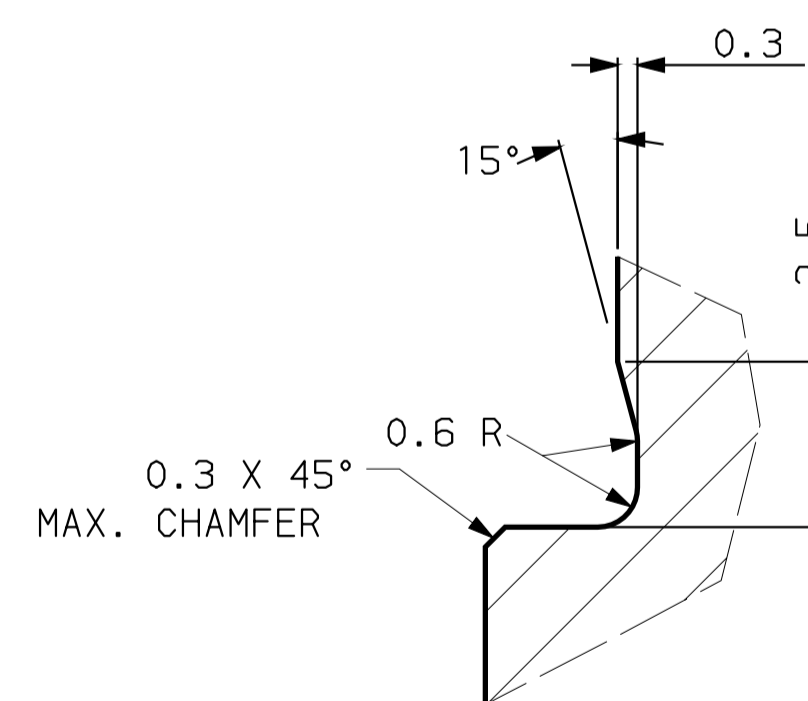
DETAIL "D"
QUICK MOLD MOUNT SYSTEM



SECTION G-G
ROTATED 90° CLOCKWISE



MOLD OR ADAPTOR PLATE
SHOWN WITHOUT SPIGOTS
MACHINING DIMENSIONS



DETAIL E
UNDERCUT
DIN 509-E0,6x0,3
N.T.S.

RELEASED
MICROFILM
REV. # 1

1	200000030482	SEE SHEET 1 AND 2.	10-JUNE-2002	M.FANTUZ
0	200000011648	NEW	16-OCT-00	LIVIU P.
REV#	ECO#	REVISION	DATE	NAME
SCALE	DESCRIPTION		ENGEL GUELPH - CANADA	
1:4	PLATEN LAYOUT 200VHRB 1575D1A.PCD910MM 2 STN.		NAME DATE DR'N LIVIU P. 16-OCT-00 CHK'D A.D. 16-OCT-00	
MATERIAL	-		-	
STOCK CODE #	-		-	
BREAK SHARP CORNERS	-		-	
SIZE	FROM	TO	REPLACES	DATE
BH	0.5	6	5620.002.2209D VER.#12	
	6.0	30		
	120	315		
	1000	2000		
	2000			
FINE ±	0.05	0.1	0.15	0.2
MEDIUM ±	0.1	0.2	0.3	0.5
COARSE ±	0.2	0.5	0.8	1.2
			2.0	3.0
			4.0	
TOL. IN MICRO METERS	-		-	
DIM.	-		-	
PART WEIGHT IN Kg.		DRAWING NO 5620.002.1259D		
-		SHEET 3 OF 3		
-		REV.# 1		