

Allrounder 221 M 250-55
Allrounder 221 M 350-75

ARBURG

ALLROUNDER 221 M: Profitability with Proven Technology



Flexible Machine Layout, Universally Applicable

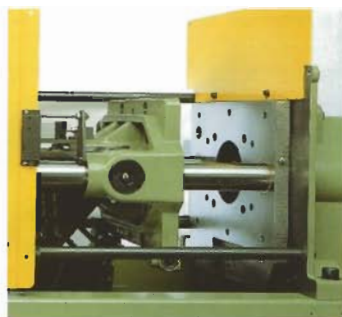


Stable Base: Machine Base and Hydraulics

The stable machine base of welded steel metal sheets has an integrated oil tank and hydraulics. The part ejection area is open on three sides. A parts chute can be integrated as an option.

The hydraulic system operates with a regulating pump and energy saving proportional valve technology.

The cooling water distribution manifold which is attached to the machine base is freely accessible and service friendly. The control cabinet can be positioned lengthwise or at right angles to the machine.



Rugged Under Tough Continuous Operation

The clamping unit is guided by two tie-bars. Electro-mechanical monitoring protect the molds from being damaged. The speeds and strokes of the clamping unit and hydraulic ejector are programmable.



The Injection Unit: Compact and Versatile

The injection unit is a self contained modular assembly. It is very easy to convert or re-position without removing the supply lines.

The connections for the electrical energy supply lines (heating and thermocouples) are automatically connected during installation and removal of the cylinder module via a central plug connector.

A quick connect coupling ensures a trouble free and time saving coupling and de-coupling of the plasticizing screw.

Cylinder modules practically suited for the processing of thermoplastics, thermosets, elastomer and liquid silicons, are available in a variety of outfits.



Trouble Free Programming

All essential machine parameters are centrally recorded on the Multronica visual display control system. The important strokes, speeds, pressures and times are inputted into the controller and monitored on the visual display unit.

This data can be stored on a diskette, ensuring quick machine setting as well as the continuation of production with parameter sets, that have already been determined.

Up to 60 complete data sets can be stored on a diskette.

The operator shell permits quick and direct access to the necessary adjustment parameters. The most important input pages can easily be selected with the corresponding keys on the operator keypad.

Machine Model		221 M 250-55	221 M 350-75
International size ¹⁾		250-55	350-75
Clamping Unit			
Clamping force	max. US-tons	28	39
Mold protection force	max. US-tons	0.2	0.2
Opening stroke	max. in.	7.87	7.87
Mold height	in.	5.9-11.81	5.9-11.81
Distance between tie bars	in.	8.7	8.7
Platen size (hor. x vert.)	in.	13.46 x 9.84	13.46 x 9.84
Mold diameter	max. in.	8.7	8.7
Weight of mov. mold half	max. lbs.	165	165
Ejector force	max. US-tons	2.2	3
Ejector stroke	max. in.	2.36	2.36
Hydraulics, Drive, General			
Pump motor	kW	6.5	8.6
Dry cycle time	⁴⁾ s	1,7	1,7
Total connected load	²⁾ kW	11	13
Colour: plastic coated, structure green RAL 6011			
Control Cabinet			
Safety standard according to		ANSI	ANSI
Injection Unit			
Screw diameter	in.	0.79/0.98/1.18	0.79/0.98/1.18
Screw length	L/D	25/20/16.7	25/20/16.7
Screw stroke	max. in.	3.94	3.94
Dosage volume	max. cu.in.	1.89/2.99/4.27	1.89/2.99/4.27
Shot capacity	³⁾ max. oz./PS	0.92/1.45/2.08	0.92/1.45/2.08
Injection pressure	max. psi	28,282/18,130/12,763	34,809/22,771/15,809
Injection flow	max. cu.in./sec.	2.13/3.48/4.94	2.13/3.48/4.94
Back pressure	max. psi	5,076/4,206/2,901	5,076/4,206/2,901
Circumferential screw speed	max. ft./min.	78.7/98.4/118.1	78.7/98.4/118.1
Screw torque	max. ft.lbs.	110.6	140
Nozzle contact force	max. US-tons	5.6	5.6
Nozzle retraction stroke	max. in.	7.08	7.08
Cylinder and nozzle heating	kW	4 x 900 + 300	4 x 900 + 300
Number of heating zones		4 + 1	4 + 1
Material hopper capacity	lbs.	110	110
Machine Dimensions and Weights			
Height with vertical injection unit	in.	120.5	120.5
Height of hoist	in.	132.3	132.3
Oil capacity	US-gal.	31.7	31.7
Machine weight without oil	lbs.	2140	2180
Control cabinet weight	lbs.	330	330
Electrical connection (pre-fused)	⁵⁾ A	50	50

1) 1st figure: clamping force (kN)
 2nd figure: max. dosage volume (cm³) x max. injection pressure (kbar)
 2) 230 V 3 phase, 60 cycles; Ampere at 230 V
 3) 80% of theoretical
 4) according to Euromap
 5) values refer to 230 V/60 cycles. The load is symmetrically distributed on three phases (observe machine dismounting steps)

Comprehensive Standard Outfitting, Interesting Options

Controller and Control Cabinet

- Multitronics controller (computer programmed micro-processor system)
- Digital data input via keypad and display on the monitor
- Data input as absolute values for pressures, forces, speeds, times and temperatures
- Data input in % for pressures, forces and speeds
- Diskette storage for 60 mold data sets
- Dry cycle without screw movement
- Connection for photo electric barrier
- Display of the operating condition of the monitoring switches, adjustment elements etc. on the monitor
- Operator instructions and malfunction display in plain language on the monitor
- Optical malfunction display with selectable malfunction display duration
- Parts counter, cycle counter, pre-select counter, run time counter
- Separate heating and motor current possible
- Mold blow program, variable start and duration

Machine Base with Hydraulic System

- Free standing machine base on anti-vibration pads
- Hydraulic system with regulation pump
- Position regulated proportional valves
- Monitoring of
 - Oil level
 - Oil temperature
 - Oil contamination
- Cooling water regulator for regulation of the hydraulic oil temperature
- Cooling water distributor with 2 or 4 free cooling circuits; flow meter and thermometer in each cooling circuit
- Central manometer for pump pressure
- Fine oil filter in the return line
- Oil tank venting via air filter

Clamping Unit

- Horizontally fixed clamping unit
- Programmable closing speed
- 2 stage programmable opening speed profile
- Programmable opening stroke
- Hydraulic ejector; programmable forces, speeds, advance and retraction delay as well as stroke count
- Adjustable mold installation height and closing force
- Sensitive, electro-mechanical mold protection, programmable point of actuation
- Manually actuated central grease lubrication for the toggle system
- 1 part safety gate
- Mechanical mold closing protection

Injection Unit

- Plug-in injection unit as a complete assembly group
- Thermoplastic cylinder with Universal screw, 3 different nominal diameters are available.
- Plasticizing cylinder as modular unit with central coupling
- Nozzle retraction after dosage, programmable advance and retract delay
- Nozzle contact force manually adjustable on hydraulic manifold
- Monitored nozzle contact
- Injection delay
- Programmable 3 stage injection speed profile
- Measurement, display and monitoring of the injection time
- Volume or time dependant switch over to holding pressure, or via an external signal
- Programmable pressure profile for injection and holding pressures, 3 stage programmable
- Programmable holding pressure speed
- Dosage delay
- Programmable screw RPM
- Open nozzle with screw on nozzle tip
- Electronically regulated cylinder and nozzle heating
- Temperature regulator with digital temperature input integrated into the Multitronics controller
- Temperature monitoring with defined tolerance band
- 50 Litre, corrosion proof stainless steel feed hopper, movable to a blocking and emptying position

Controller and Control Cabinet

- Cavity pressure measurement unit with display of mold cavity pressure and programmable adjustment of the switch over pressure
- Connection for part weighing scale
- Optical alarm, flashing beacon
- Acoustic alarm
- Printer connection with actual value protocol, connection for AQS
- Interface for Host processor: for DNC mode and for operating data recording
- Connection for handling device
- Programmable Inputs / Outputs
- Production Control see Package 1
- Quality Control see Package 2
- Extended Movements see Package 3

Machine Base with Hydraulic System

- Cooling water shut off valve
- Cooling water distributor with 4, 6 or 8 free cooling circuits
- Hydraulic oil preheating
- Crane with electric hoist to simplify mold installation and swiveling / repositioning of the injection unit

Clamping Unit

- Clamping unit swivable
- Clamping unit vertically upwards
- Core pull control, various programs, pressures and speeds for insertion and retraction programmable
- Unscrewing unit for threaded cores with two directions of rotation; for installation on the fixed or movable mold platen, time/stroke controlled or with fixed limit
- Mold blow unit
- Parts chute with or without part monitoring
- Automatic central grease lubrication for the toggle system
- Power actuated safety gate, programmable opening time

Injection Unit

- Device for parting line injection
- Extended nozzle tips
- Needle type shut off nozzle, spring actuated
- Needle type shut off nozzle, hydraulically actuated
- Thermoplastic cylinder complete with abrasion and high abrasion proof outfitting
- Thermoplastic cylinder with abrasion proof outfitting as:
 - Vented cylinder
 - Thermoset cylinder
 - Elastomeric cylinder
 - Outfitting for LSR processing

Package 1 Production Control

- Time controlled automatic switch on / off
- Alarm follow on functions, switch off functions
- Temperature control for heating zones (preheating, sink with switch on, switch off)
- Extended actuation of the cooling water valve (e.g. operating mode dependent)

Package 2 Quality Control

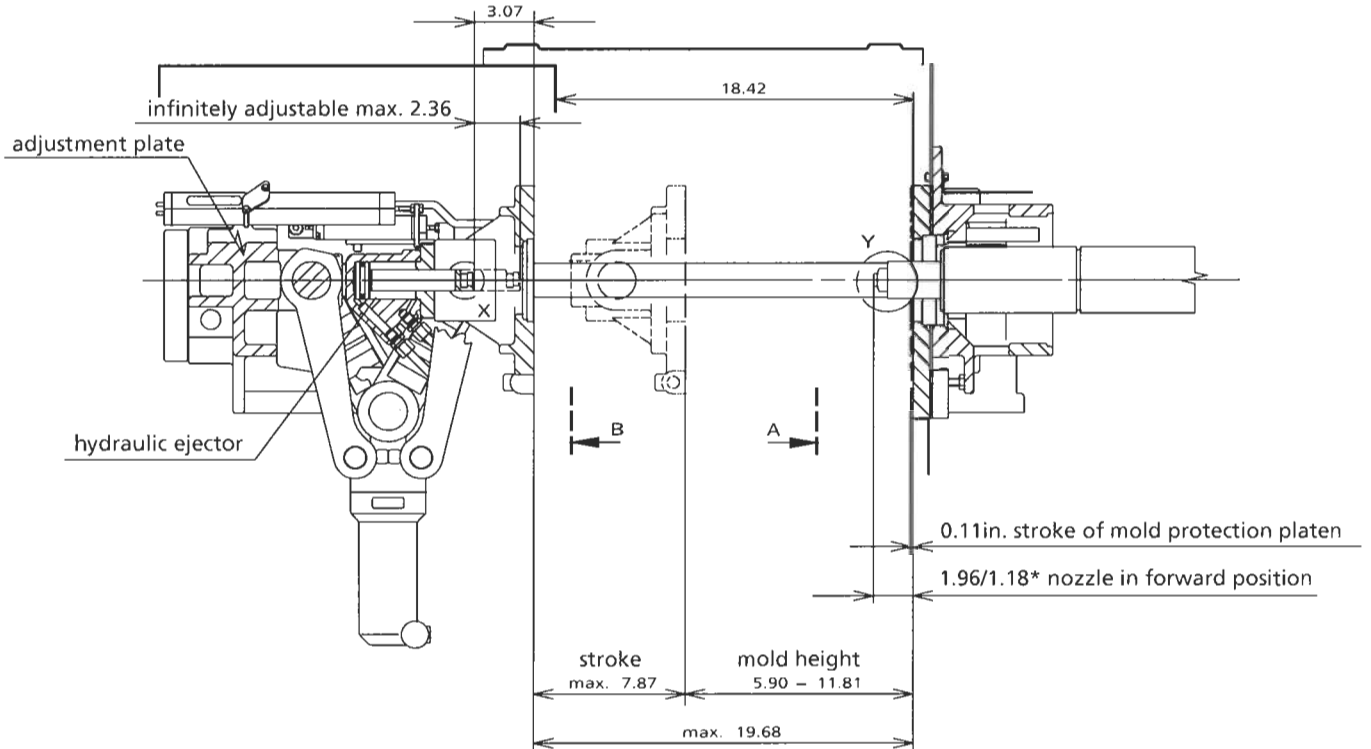
- Machine clock, alarm memory
- Programmable stroke point and minimum time for the injection time monitoring
- Dosage time monitoring
- Material cushion monitoring
- Error evaluation

Package 3 Extended Machine Movement

- 2nd mold closing stage
- 3rd stage for mold opening
- Mold protection double action
- Measured time for mold protection in the mold closing panel
- Ejector advanced at program end (cycle end)
- Ejector retraction between the strokes with programmable stroke (numerous short strokes)
- Ejector movement with mold intermediate stop
- s601 ejector intermediate stop

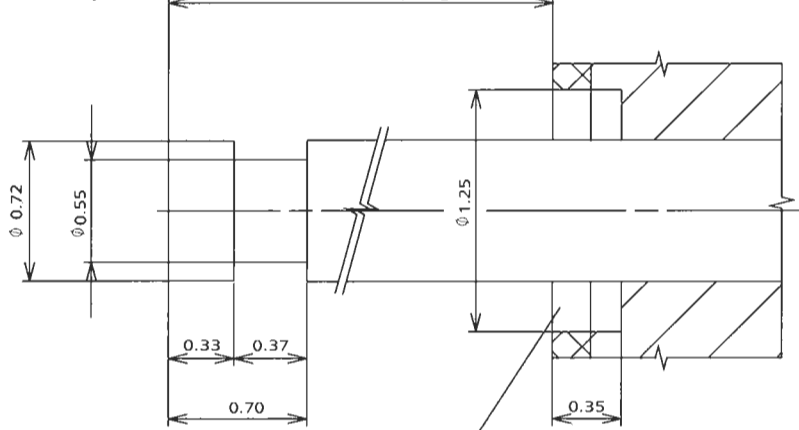
- Nozzle advance with programmable speed (=2 stage V/s201)
- Nozzle retraction with programmable speed
- Nozzle retraction before dosage
- Material decompression with programmable speed
- Material decompression before dosage
- Back pressure = 0 in manual
- Mold with manual opening > s504
- 4th injection speed stage for injection profile
- 3rd pressure stage in holding pressure

These technical specifications refer to the specifications at the time of printing. We reserve the right to modify specifications in the interest of a continuing program of further development.



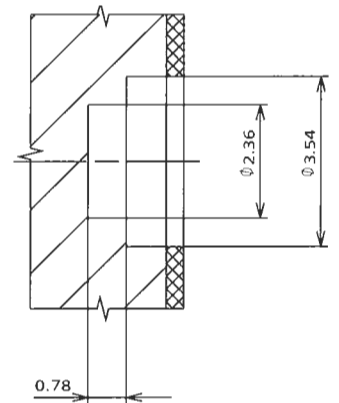
View X
Center ejector

3.77 without coupling
2.75 with coupling



a relief in the mold at 2.36in.
ejector stroke with use of a coupling

View Y
Nozzle penetration



counter bore only for short spue

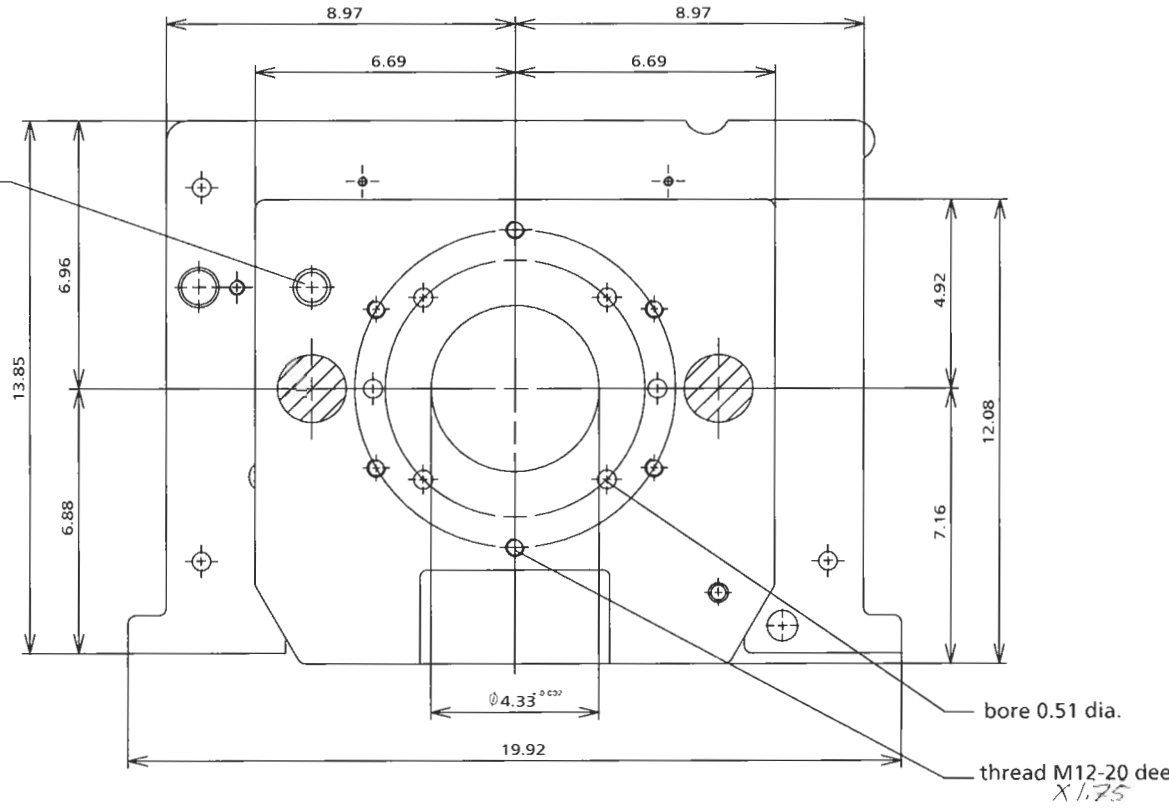
* Dimensions only apply for thermoset molds

Refer to separate dimension sheet for parting line unit

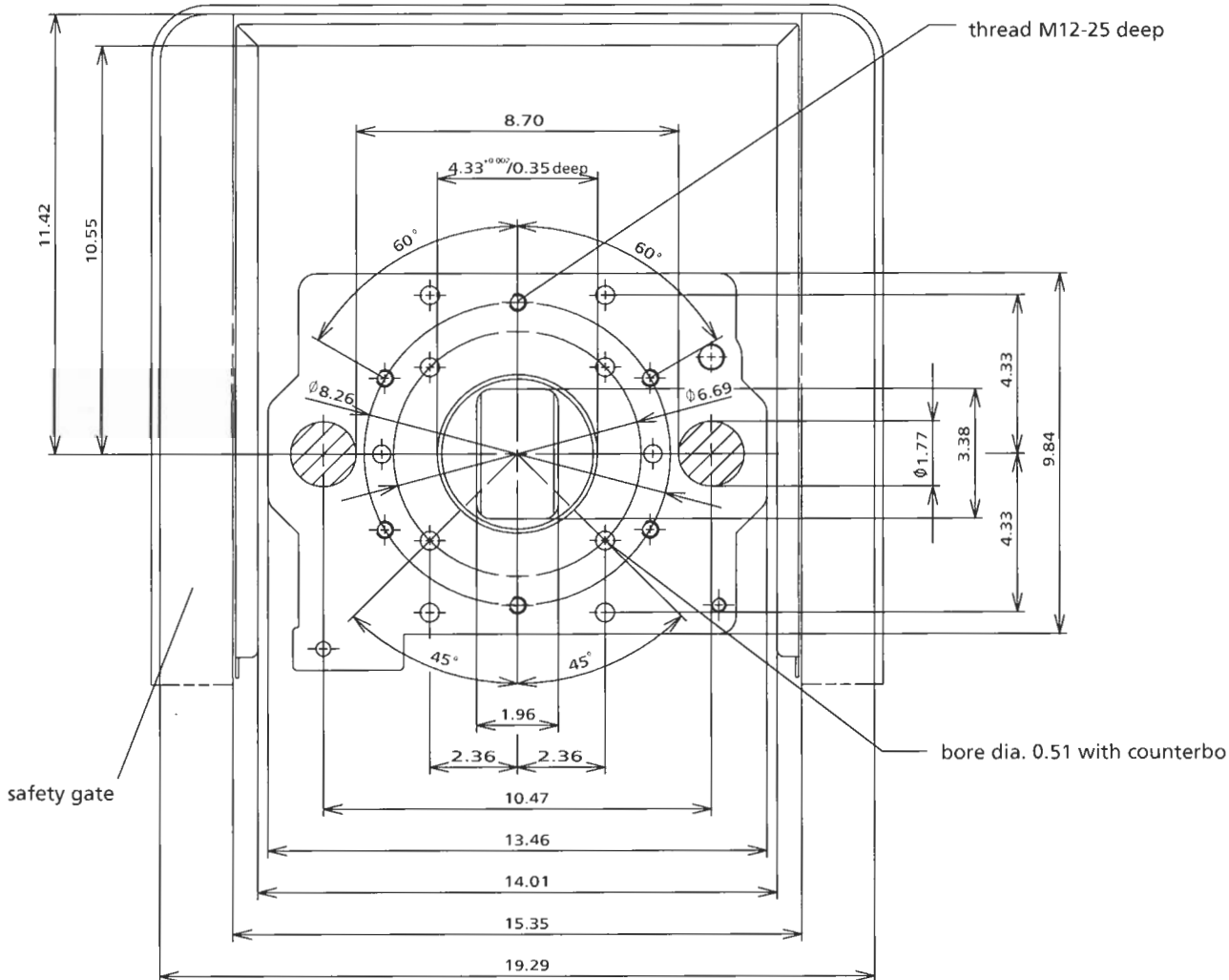
440 352 0880

Fixed Platen
View A

bore for mech. closing stroke protection



Movable Platen
View B

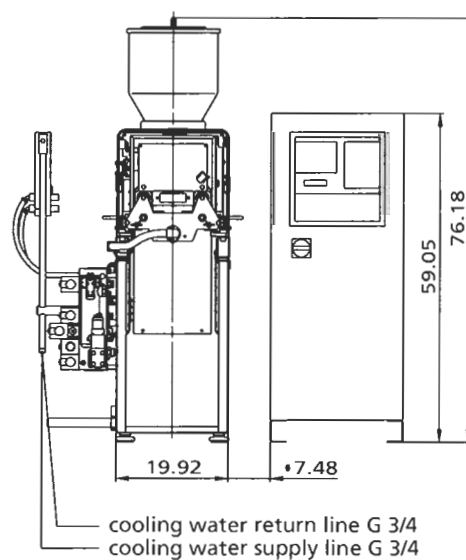
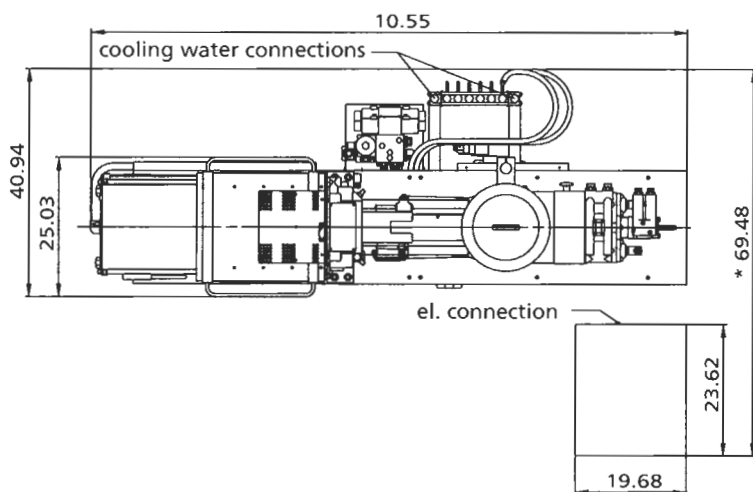
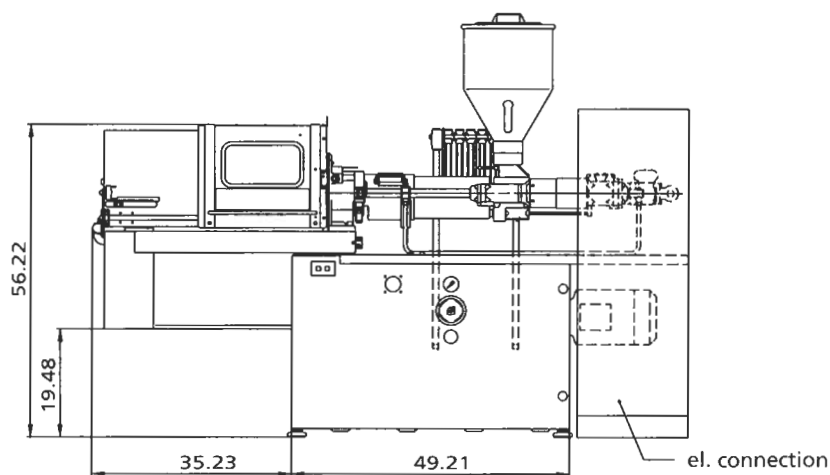


Maximum Shot Capacities for the Most Important Materials (in oz.) ³⁾				
Screw diameter	in.	0.79	0.98	1.18
Polystyrene	PS	0.92	1.45	2.08
Styrene heteropolymerizates	SB	0.92	1.45	2.08
	SAN, ABS ⁶⁾	0.95	1.48	2.15
Cellulose acetate	CA ⁶⁾	1.13	1.76	2.57
Celluloseacetobutyrate	CAB ⁶⁾	1.06	1.66	2.40
Polymethyl methacrylat	PMMA	1.06	1.62	2.36
Polyphenylene oxide, mod.	PPO	0.95	1.48	2.12
Polycarbonate	PC	1.06	1.66	2.40
Polysulphoneate	PSU	1.09	1.73	2.47
Polyamide	PA 6.6, PA 6 ⁶⁾	1.02	1.59	2.26
	PA 6.10, PA 11 ⁶⁾	0.95	1.48	2.12
Polyoximethylene (Polyacetal)	POM	1.23	1.94	2.82
Polyethylene terephthalate	PETP	1.20	1.87	2.72
Polyethylen	PE soft	0.81	1.27	1.83
	PE rigid	0.85	1.30	1.90
Polypropylene	PP	0.81	1.27	1.80
Fluoropolymerides (Teflon, Hostafion) (Tefzel)	FEP, PCTFE ⁶⁾	1.90	2.96	4.30
	ETFE	1.52	2.36	3.39
Polyvinyl chloride	PVC rigid	1.23	1.90	2.75
	PVC soft ⁶⁾	1.13	1.76	2.54

3) 80% of theoretical

6) average value

Machine Dimensions



* Dimensions are not binding as the control cabinet can be installed in varying positions