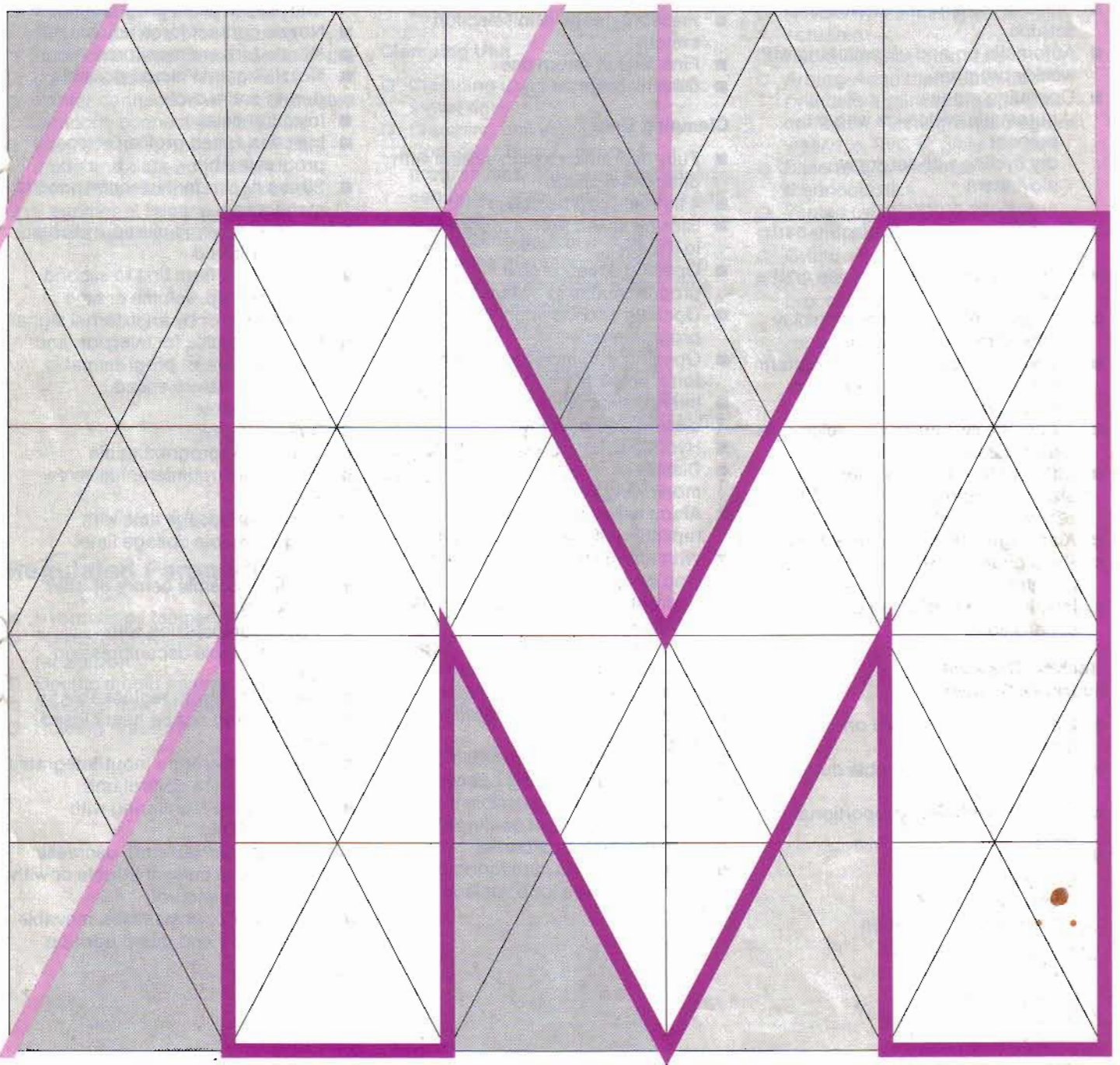


ALLROUNDER® 320 M

Model 320 M 500-90
Model 320 M 500-210
Model 320 M 750-210
Model 320 M 850-210

Display Control:
MULTRONICA®



■ Standard Equipment

Control Unit and Control Cabinet

- Multitronics control (microprocessor with stored program)
- Digital data input via keyboard and display on the screen
- Data input in absolute values for pressures, forces, strokes, speeds, times and temperatures
- Diskette memory for 60 mould set-ups
- Automatic on and off switching with weekly program
- Operating modes:
 - automatic switch-on with oil preheat
 - dry cycling without screw movement
 - automatic programs
- Connection for photo-electric part chute
- Indication of operating mode on the screen
- Operating hints and alarm display on the screen in plain language
- Problem correcting programs (alarm selectable according to problem frequency)
- Automatic switch-off with selectable alarm display
- Different follow up functions on alarms (purging etc.) selectable before switch-off
- Alarm light, flash duration selectable
- Parts counter, cycle counter, hour counter
- Heating and motor current separated

Machine Base with Hydraulic System

- Machine base installed on vibration pads
- Hydraulics with 2 variable output pumps
- Position controlled proportional valves
- Monitoring of
 - oil level
 - oil temperature
 - oil filter contamination

- Cooling water regulator for closed loop control of hydraulic oil temperature
- Arburg-Flowmatic - total of four closed cooling circuits with flow meter and thermometer in every cooling circuit
- Preheating program for hydraulic oil to shorten starting time
- Pressure gauge with selection switch
- Fine filter in return line
- Oil tank breather

Clamping Unit

- Fully hydraulic closing system with differential piston
- 4 tie bars, can be pulled
- Closing speed profile programmable in 3 steps
- Opening speed profile programmable in 3 steps
- Opening and closing force programmable
- Opening with increased opening force possible
- Intermediate stops selectable during closing and opening
- Hydraulic mould protection
- Display of mould protection monitoring time
- Alarm either directly or after one repetition of the mould protection
- With alarm mould protection select stop or open
- Hydraulic ejector, forces, speeds, advance and retract delay and number of strokes programmable
- Ejector maintain forward at the end of the cycle programmable
- Hydraulic ejector integrated into closing system
- Air blow with programmable blow time selectable during opening
- Mould monitoring possible through ejector plate retract confirmation and photo-electric barrier
- Hydraulic mould monitoring (low pressure closed loop, locking time monitored)

Injection Unit

- Injection unit as plug in, designed as complete group
- Thermoplastic screw with universal design, option of three diameters
- Plasticizing cylinder assembly as module, with central coupling
- Nozzle speed adjustable, advance and retract delay programmable
- Nozzle contact force adjustable
- Nozzle forward monitored
- Nozzle against mould possible during entire cycle
- Injection delay
- Injection speed profile, 3 steps, programmable
- Stroke dependent injection speeds monitored
- Injection time measured, indicated and monitored
- Switch-over from first to second pressure step, volume or time dependent, or by an external signal
- Pressure profile for injection and holding, 4 steps, programmable
- Holding pressure speed programmable
- Dosage delay
- Screw RPM programmable
- Display of circumferential screw speed
- Display of dosage time with programmable dosage time monitoring
- Dosage possible before or after screw retract
- Melt decompression with programmable decompression speed
- Open nozzle with replaceable tip
- Cylinder and nozzle heat closed loop
- Digital temperature input/integrated into Multitronics control unit
- Temperature monitoring with tolerance field
- Automatic temperature decrease selectable in case of trouble or with automatic switch-off
- Material hopper stainless, movable into shut-off and dump position

Optional Equipment

50141391

Control Unit and Control Cabinet

- Device for measuring mould cavity pressure with display of mould cavity pressure and programmable adjustment of switch over pressure
- Connection for scale
- Visible alarm flashlight
- Audible alarm
- Additional single phase socket 220 V \approx at the control cabinet
- Additional three phase socket at the control cabinet
- Printer connection with actual value protocol, connection for AQS
- Interface for host computer, DNC mode and data acquisition
- Connection for handling device
- 6 additional heating circuits for mould heating/cooling

Machine Base with Hydraulic System

- Accumulator for very quick injection
- Solenoid valve for water shut-off
- Arburg-Flowmatic with 8 or 10 closed cooling circuits
- Crane with electrical chain hoist to facilitate mould mounting and to swivel or remount the injection unit

Clamping Unit

- Clamping unit swivable, hydraulic swivel drive
- Clamping unit vertical up
- Core pull control, different programmes, pressures and speeds can be programmed for core in and core out
- Unscrewing device, one or two directions of rotation, installed on stationary or movable platen, time or stroke controlled
- Air blow device
- Parts chute with or without photo-electric recycling chute
- Pneumatically operated safety guard, programmable opening time
- Mechanical quick lock device
- Sorter unit
- Mechanical safety interlock

Injection Unit

- Device for parting line injection
- Lifting device for parting line injection with vertical clamping unit
- Regulation of injection speeds and injection pressures (injection regulation)
- Longer nozzle tips
- Needle type shut-off nozzle, spring actuated
- Hydraulic shut-off nozzle
- Arburg-Arbid thermoplastic cylinders against abrasion and corrosion. Recommended against wear, i.e. PVC or glass content
- Bimetallic cylinder for thermoplastics
- Vented cylinder
- Thermoset cylinder
- Cylinder for elastomeric materials
- Equipment for liquid silicone rubber processing

Regulated Parameters

- Hydraulic oil temperature
- Plasticizing cylinder temperature (adaptive)
- Electric mould heating circuits
- Injection flow, injection speed
- Holding pressure

Technical Data

Technical Data 320 M

Machine model	320 M 500-90	320 M 500-210	320 M 750-210	320 M 850-210
International size ¹⁾	500-90	500-210	750-210	850-210

Clamping unit

Clamping pressure	max. kN/US-tons	500/55	500/55	750/83	850/94
Mould protection force	max. kN/US-tons	37/4.1	37/4.1	37/4.1	37/4.1
Max. opening force	max. kN/US-tons	37/194/4.1/21.3	37/194/4.1/21.3	37/194/4.1/21.3	37/194/4.1/21.3
Mould opening stroke	max. mm/in.	375/14.76	375/14.76	375/14.76	375/14.76
Mould height	min. mm/in.	250/9.84	250/9.84	250/9.84	250/9.84
Daylight	max. mm/in.	625/24.61	625/24.61	625/24.61	625/24.61
Distance between tie bars	mm in.	320x320 12.60x12.60	320x320 12.60x12.60	320x320 12.60x12.60	320x320 12.60x12.60
Platen size (hor. x vert.)	mm in.	490x490 19.29x19.29	490x490 19.29x19.29	490x490 19.29x19.29	490x490 19.29x19.29
Mould diameter	max. mm/in.	477/18.78	477/18.78	477/18.78	477/18.78
Ejector force	max. kN/US-tons	38/4.2	38/4.2	38/4.2	38/4.2
Ejector stroke	max. mm/in.	150/5.91	150/5.91	150/5.91	150/5.91

Injection Unit

Screw diameter	mm in.	20/25/30 0.79/0.98/1.18	30/35/40 1.18/1.38/1.58	30/35/40 1.18/1.38/1.58	30/35/40 1.18/1.38/1.58
Screw length	L/D	25/20/16,7	23,3/20/17,5	23,3/20/17,5	23,3/20/17,5
Screw stroke	max. mm/in.	100/3.94	150/5.91	150/5.91	150/5.91
Swept volume	max. cm ³ cu.in	31/49/58 1.89/2.99/3.54	106/144/188 6.47/8.79/11.47	106/144/188 6.47/8.79/11.47	106/144/188 6.47/8.79/11.47
Shot capacity ³⁾	max. g/PS oz.	25/40/58 0.88/1.41/2.05	90/120/158 3.17/4.23/5.57	90/120/158 3.17/4.23/5.57	90/120/15/158 3.17/4.23/5.57
Injection pressure	max. bar psi	2500/1860/1290 35,600/26,500/ 18,400	2050/1500/1150 29,150/21,300/ 16,350	2050/1500/1150 29,150/21,300/ 16,350	2050/10 29,150/21,300 16,350
Injection flow	max. cm ³ /s cu.in/sec.	56/88/120 3.42/5.37/7.32	80/110/140 4.88/6.11/8.54	110/150/200 6.71/9.15/12.20	110/150/200 6.71/9.15/12.20
Back pressure	max. bar psi	450/290/200 6,400/4,100/ 2,850	320/235/180 4,550/3,300/ 2,560	320/235/180 4,550/3,300/2,560 2,560	320/235/180 4,550/3,300/ 2,560
Circumferential screw speed	max. m/min. ft./min.	29/37/44 95.15/121.40 144.36	35/40/46 114.84/131.24 150.93	49/57/65 160.77/187.02 213.27	49/57/65 160.77/187.02 213.27
Screw torque	max. Nm/ft.lbs.	290/214	360/266	360/266	360/266
Nozzle contact force	max. kN/US-tons	60/6.6	60/6.6	60/6.6	60/6.6
Nozzle retract stroke	max. mm/in.	180/7.09	240/9.45	240/9.45	240/9.45
Cylinder and nozzle heating	kW	3.9	5.1	5.1	5.1
Number of heating zones	-	4 + 1	4 + 1	4 + 1	4 + 1
Material hopper capacity	liters/lbs.	50/100	50/100	50/100	50/100

Hydraulic, Drive, General

Pump motor	kW	11	11	15	18.5
Dry Cycle Time ⁴⁾	s	2.0	2.0	2.2	2.3
Total connected load ²⁾	kW	15.5	16.5	20.5	24

Colour: plastic coating, structure green RAL 6011

Control Cabinet

Safety Instructions	DIN VDE 0113	DIN VDE 0113	DIN VDE 0113	DIN VDE 0113
Shock-proof socket	1 x 10 A	1 x 10 A	1 x 10 A	1 x 10 A
Ce-socket	1 x 16 A	1 x 16 A	1 x 16 A	1 x 16 A

1) 1st figure: clamping pressure (kN)
2nd figure: max. swept volume (cm³) x max. injection pressure (kbar)
2) 380 / 220 V, 3 phase, 50 cycles

3) 80% of theoretical
4) according to Euromap

Maximum Shot Weight

018 31007

Maximum Shot Weight for the Most Important Materials (In grammes/oz.)³⁾

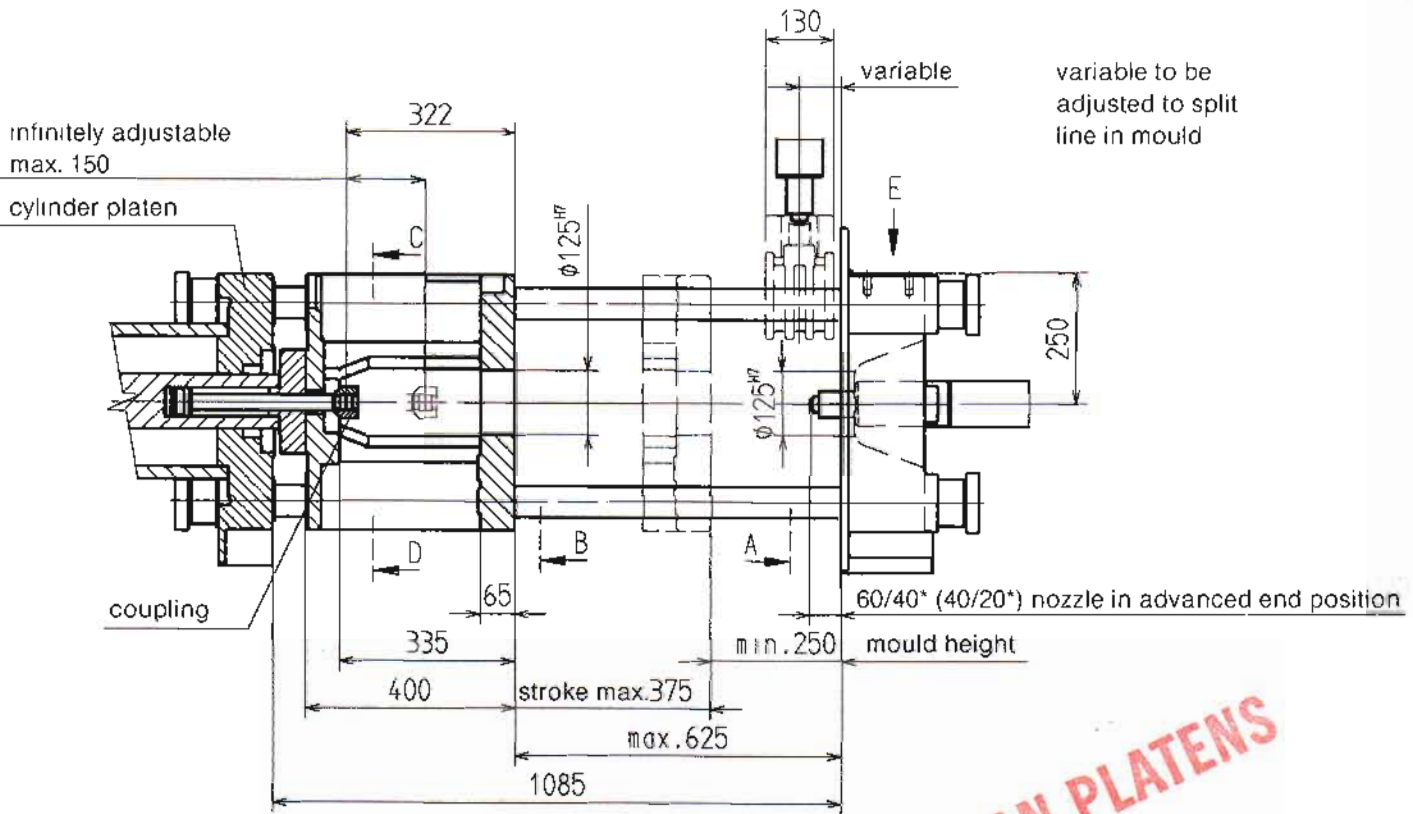
Screw stroke	mm/in.	150/5.91	150/5.91	150/5.91
Screw diameter	mm/in.	30/1.18	35/1.38	40/1.58
Polystyrene	PS	89/3.14	121/4.27	158/5.57
Styrene heteropolymerizates	SB	89/3.14	121/4.27	158/5.57
	SAN, ABS ⁵⁾	92/3.24	125/4.41	163/5.75
Cellulose acetate	CA ⁵⁾	109/3.84	148/5.22	194/6.84
Celluloseacetobutyrate	CAB ⁵⁾	101/3.56	138/4.87	180/6.35
Polymethyl methacrylate	PMMA	100/3.53	136/4.80	178/6.28
Polyphenylene oxide, mod.	PPO	90/3.17	122/4.30	160/5.64
Polycarbonate	PC	102/3.60	139/4.90	181/6.38
Polysulphone	PSU	105/3.70	143/5.04	187/6.60
Polyamide	PA 6.6, PA 6 ⁵⁾	96/3.39	131/4.62	171/6.03
	PA 6.10, PA 11 ⁵⁾	90/3.17	122/4.30	160/5.64
Polyoximethylene	POM	120/4.23	163/5.75	213/7.51
Polyethylene terephthalate	PETP	115/4.06	157/5.54	205/7.23
Polyethylene	PE soft	78/2.75	106/3.74	139/4.90
	PE rigid	81/2.86	110/3.88	143/5.04
Polypropylene	PP	77/2.72	105/3.70	137/4.83
Fluorpolymerides (Teflon, Hostaflon)	FEP, PCTFE ⁵⁾	182/6.42	248/8.75	324/11.43
(Tefzel)	ETFE	144/5.08	196/6.91	256/9.03
Polyvinyl chloride	PVC rigid	117/4.13	159/5.61	208/7.34
	PVC soft ⁵⁾	108/3.81	147/5.18	192/6.77

3) 80% of theoretical

5) average value

Mould and Platen Layout

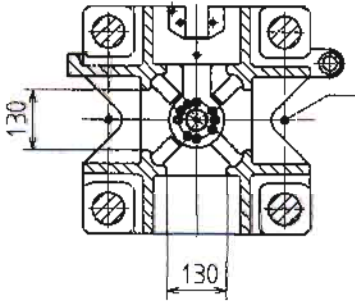
We conduct a continuing programme of development and therefore, must reserve the right to modify specifications.



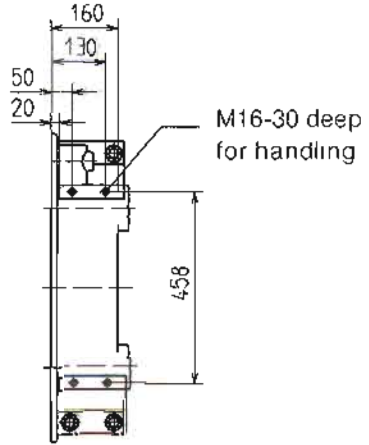
GERMAN PLATENS

C-D

View E

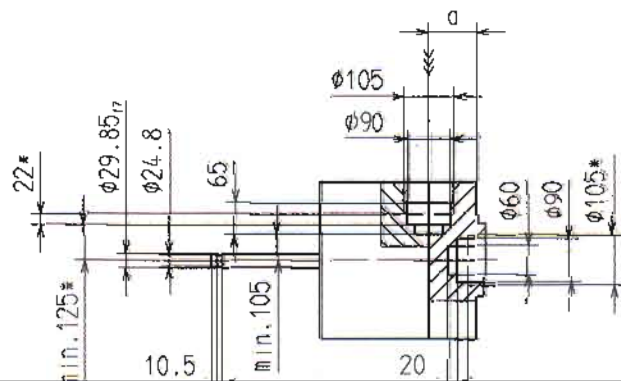


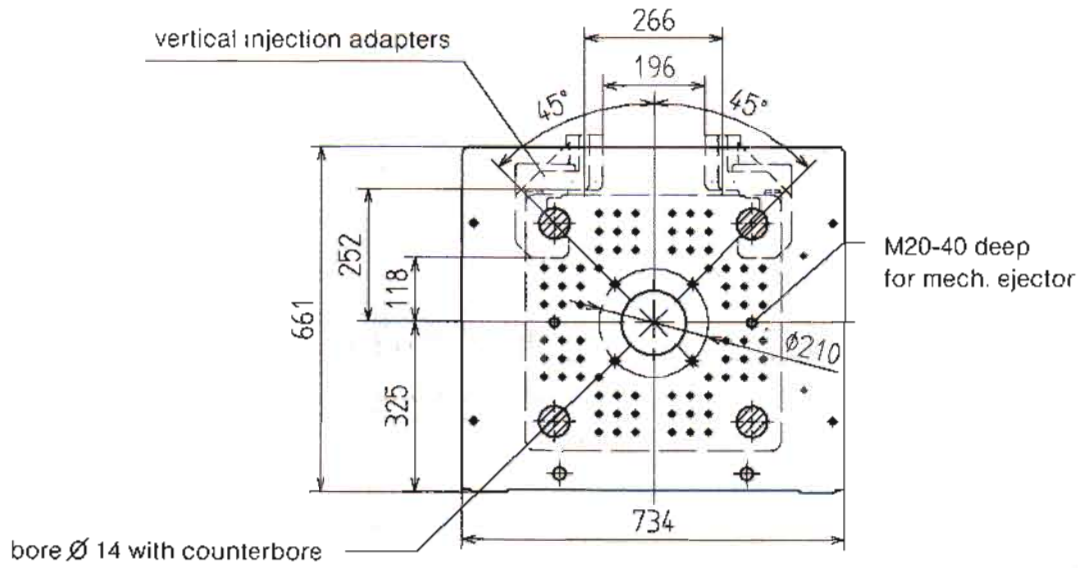
threads M20-18 deep in cylinder platen for mech ejector



Bore only when you want a short sprue
For parting line injection:
Dim. a min. = 70mm or 75mm with hydraulic nozzle
Dim. a max. = Mould length minus 70mm/75mm, but no more than 265mm

* Dimensions only apply to thermoset moulds
() Dimensions only apply to 320 M 500-90

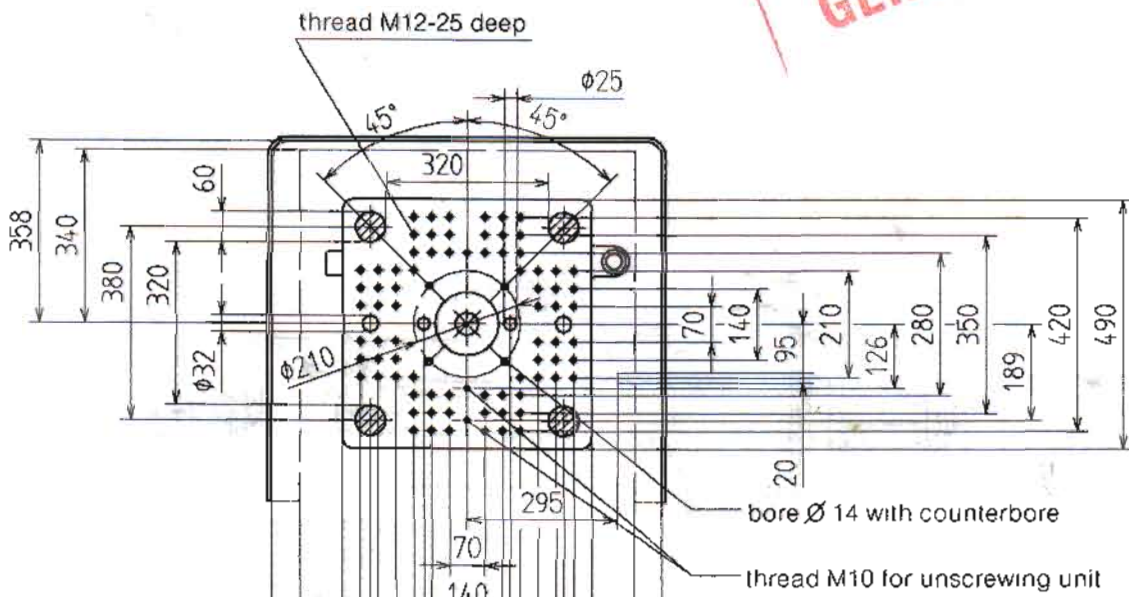




View A

GERMAN PLATENS

Movable Platen



View B

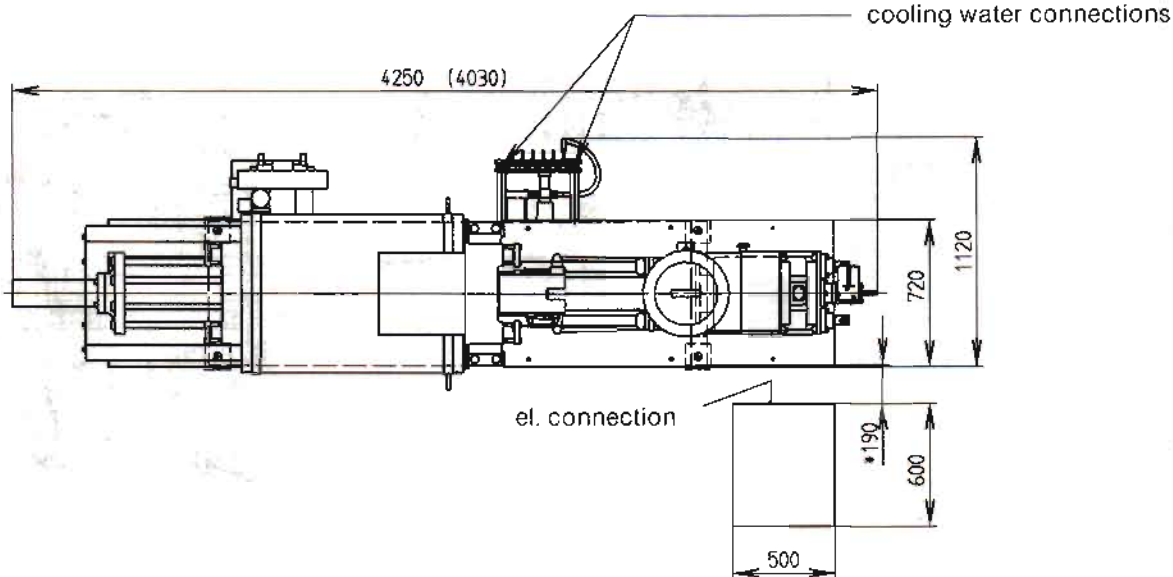
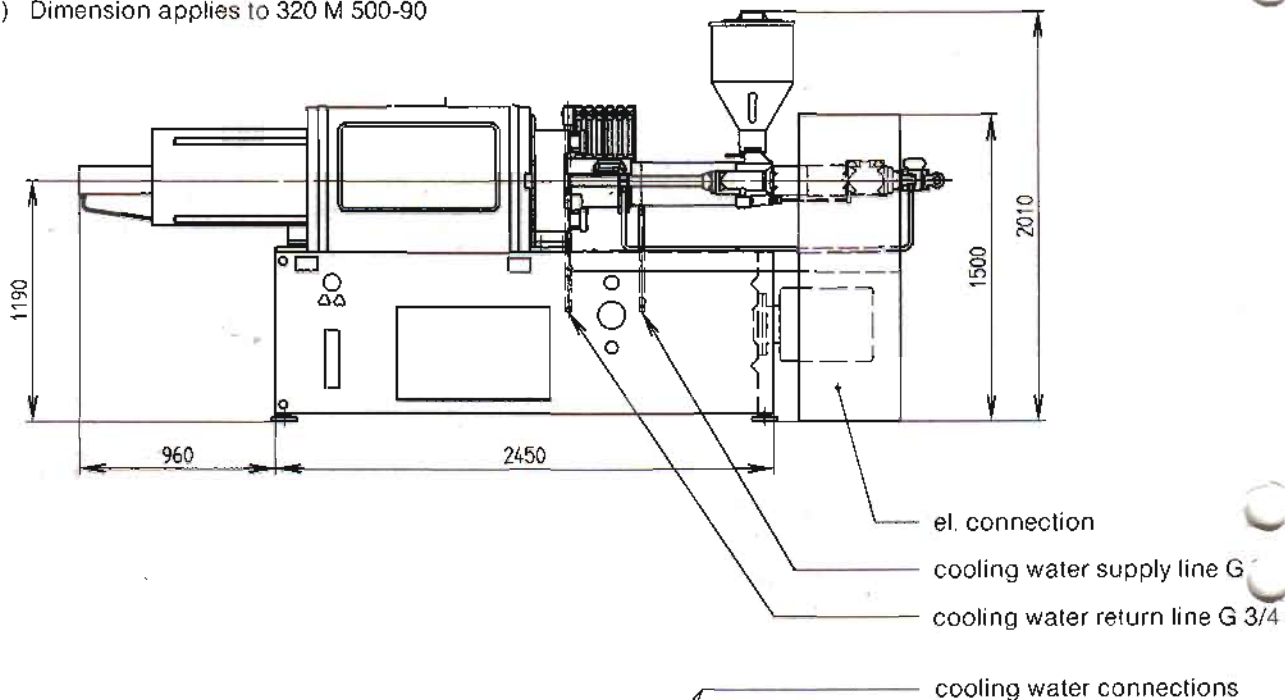


Machine Dimensions and Weights

320 762 1770

* Dimensions not binding
as control cabinet can
be erected at different places

() Dimension applies to 320 M 500-90



Machine Dimensions and Weights 320 M

Machine Model:		320 M 500-90	320 M 500-210	320 M 750-210	320 M 850-210
Height with vertical clamping unit	mm/in.	3060/120.5	3230/127.2	3230/127.2	3230/127.2
Height of hoist	mm/in.	3800/149.6	3800/149.6	3800/149.6	3800/149.6
Oil filling	kg/lbs.	190/419	190/419	190/419	190/419
Machine weight without oil filling	kg/lbs.	3060/6746	3060/6746	3060/6746	3060/6746
Weight of control cabinet	kg/lbs.	150/331	150/331	150/331	150/331
Elec. connection (addit. fuse at 380 V) ⁶⁾	A	50	50	63	80