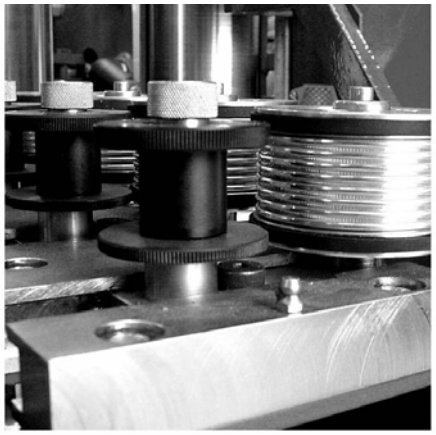
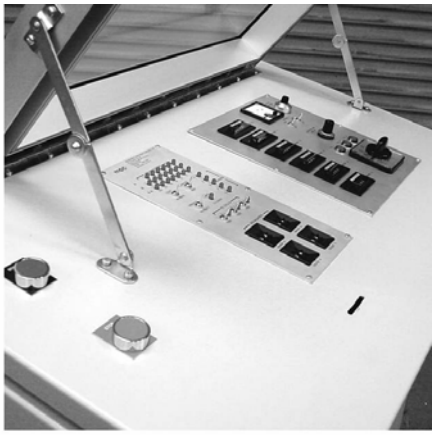
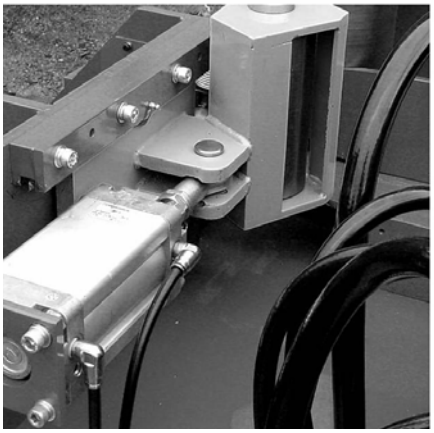
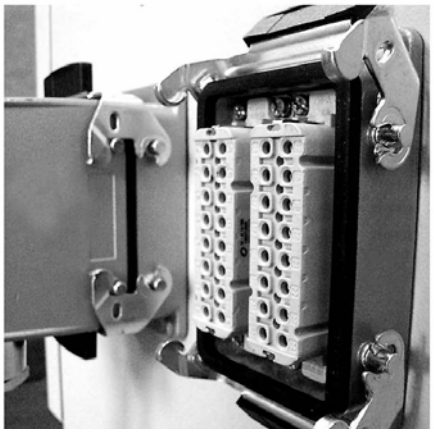
COMPUTERMATIC MK5B

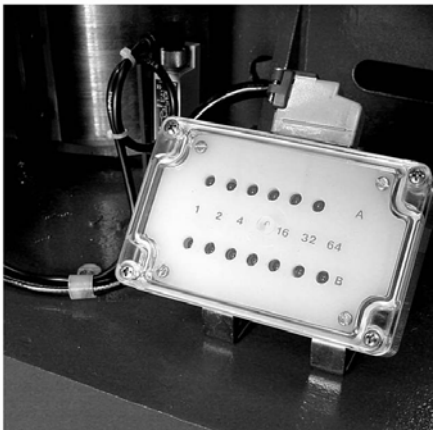
SINGLE PASS TIMBER STRENGTH TESTING MACHINE











MAKING PRODUCTION COST EFFECTIVE

COMPUTERMATIC MK5B

SINGLE PASS TIMBER STRENGTH TESTING MACHINE

Faster and more accurate grading
Remote operating console
Digital load measurement

The COMPUTERMATIC MK5B strength testing machine speeds up the production of grading timber. It is approved for use to BS EN 519 & BS EN 14081 :2005 and grades all approved sizes. It is a single pass operation and the MK5B comes with digital load measurement and readout giving greater accuracy. The Computermatic MK5B has been the machine chosen by approximately 60-70% of all timber grading machine users whether in the fields of research or production. The machine can be hand fed but when combined with materials handling it dramatically increases production and reduces labour costs.

PRINCIPLE OF OPERATION

The machine is designed to accept timber of a common cross section but random lengths (practical minimum 1.8m) and, in a single pass, allocate a strength grade.

The operation principle of the machine takes the proven principle, that for all timbers, there is a satisfactory working relationship between the stiffness and ultimate rupture strength, this relationship remaining true even when the timber is tested in the narrow section but used and loaded in the deep section.

During the single pass through the machine the timber is first measured for straightness in an unloaded condition at intervals of 152 mm. This straightness measurement is then entered into a progressive memory whilst the timber proceeds to the loaded section of the machine and effectively travels with the piece being tested.

When the sample point arrives under the load roller, which exacts a precise load, the deflection created by that load is measured. From this measurement is subtracted the original straightness value, thus leaving a net value which is directly equitable to the stiffness of the piece.

This net value is then set in comparison with data (compiled by the appropriate authorities) to achieve one of five grades. This procedure is repeated each 152 mm down the length of the timber and the appropriate grade is allocated. The process continued until the timber leaves the machine, when the lowest grade registered (which has been stored in memory) will be marked automatically by the action of the roller marker. Only grades 1 to 4 are marked as grade 5 is reject. At this time the board is fully tested and ancillary outputs signals are generated to action any supported mechanical handling.

MACHINE CAPACITY THOUGHPUT TABLES

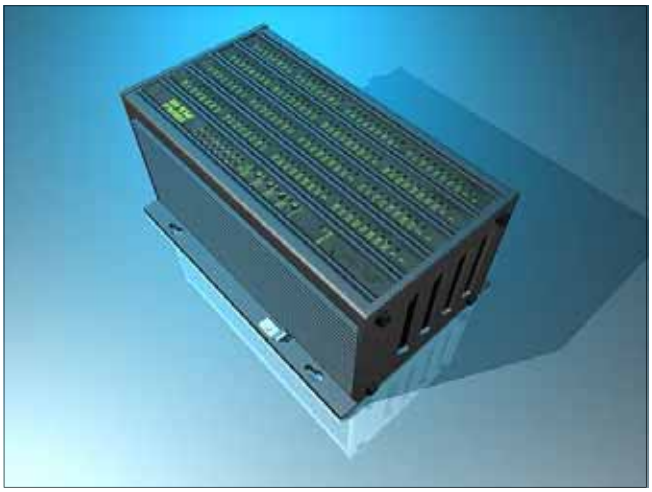
(allowing 1 metre gap between each piece)

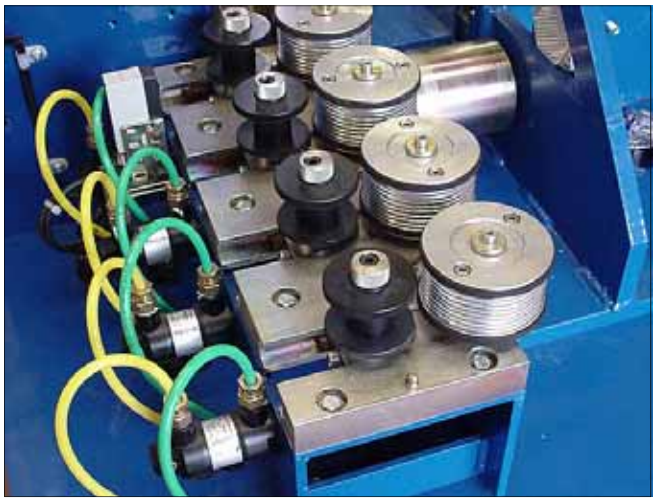
Timber Length:	Throughput of Pieces Per Minute: (allowing 1 metre gap between each piece)		Volume Per Hour in Cubic Metres @ 70 Metres Per Minute:		Volume Per Hour in Cubic Metres @ 105 Metres Per Minute:			
	@ 70 m/min	@ 105 m/min	Size: 75*200	Size: 75*225	Size: 47*100	Size: 47*150	Size: 47*200	Size: 47*225
3.0m	17.5	26.3	47.25m³	53.17m³	22.25m³	33.37m³	44.50m³	50.06m³
3.3m	16.3	24.4	48.41m³	54.46m³	22.71m³	34.06m³	45.41m³	51.09m³
3.6m	15.2	22.8	49.25m³	55.40m³	23.15m³	34.72m³	46.29m³	52.08m³
3.9m	14.3	21.4	50.19m³	56.47m³	23.54m³	35.30m³	47.07m³	52.96m³
4.2m	13.5	20.2	51.03m³	57.41m³	23.92m³	35.89m³	47.85m³	53.83m³
4.5m	12.7	19.1	51.44m³	57.86m³	24.24m³	36.36m³	48.48m³	54.54m³
4.8m	12.1	18.1	52.23m³	58.81m³	24.50m³	36.75m³	49.00m³	55.15m³
5.1m	11.5	17.2	52.79m³	59.39m³	24.74m³	37.11m³	49.47m³	55.66m³
5.4m	10.9	16.4	52.97m³	60.00m³	24.97m³	37.46m³	49.95m³	56.19m³
5.9m	10.1	15.2	53.63m³	60.33m³	25.29m³	37.93m³	50.58m³	56.90m³

Example: [47mm * 100mm * 3m Long @ 105m/min] - 0.047m * 0.1m * 3.0m = 0.0141m³ volume per piece.
0.0141m³ * 26.3 pieces per minute = 0.37083m³ per minute * 60 = **22.25m³** per hour.

PLEASE NOTE: When calculating achievable thoughput it is recommended that between 50% and 75% of the above values are used.

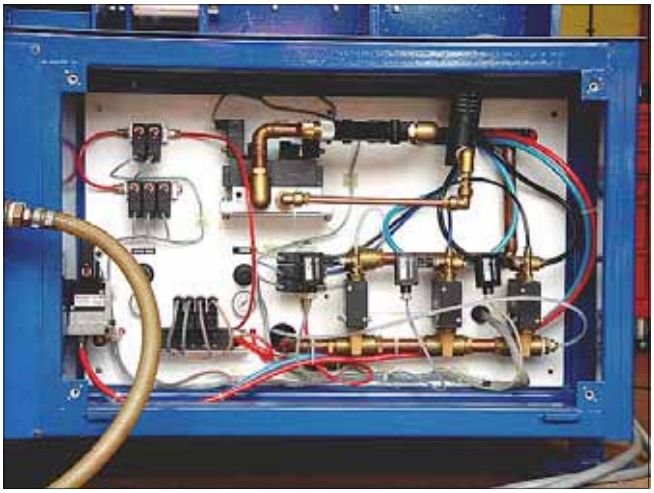
Control of the Computermatic MK5B is based on the Eberle PLS 511-04 programmable logic controller. All input/outputs can be visually monitored on the front face of the PLC by LED indicators. The PLC offers the advantage of being a simple plug-in unit should substitution be necessary during maintenance. It is however, true, that the reliability of these units goes a long way towards eliminating failure from TTL control electronics and therefore enhances the already good reputation of the Computermatic as a long term reliable grading machine.

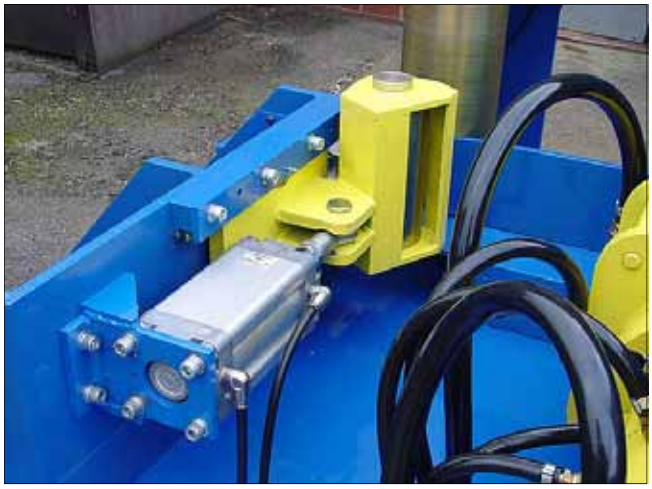




A four mark roller marker is fitted which allows grading details to be printed down the face of the timber as the piece leaves the machine. The length of marked area is approximately 1 metre long.

All pneumatic control valves and operating solenoids are collectively mounted in a separate panel this allows ease of access during any servicing.



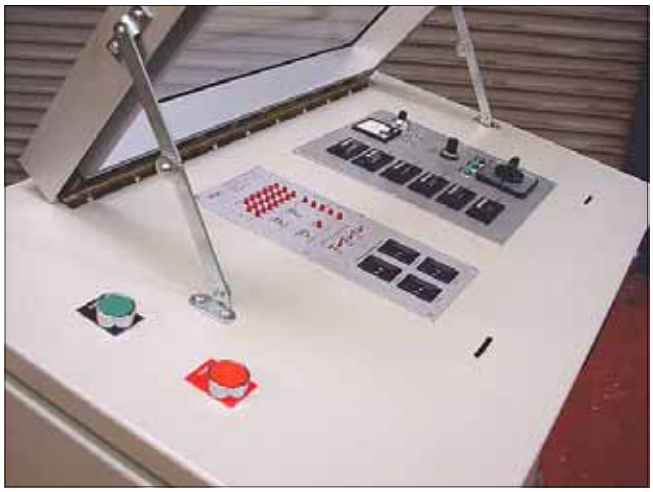


A heavy duty output drive roller is used to ensure timber is driven out of the machine after the grading process, the output drive also ensures that the timber is presented correctly to the roller markers during the final grade marking.

A 25kN pressure transducer load cell is interfaced directly between the load cylinder and the load roller, this allows the load cell to accurately register the load being exerted on the timber by the load cylinder.

A digital display readout on the machine's front panel allows the operator to see the load currently being exerted, the operator can then use this display to more accurately set the required load for grading in Newton's instead of Kpa.

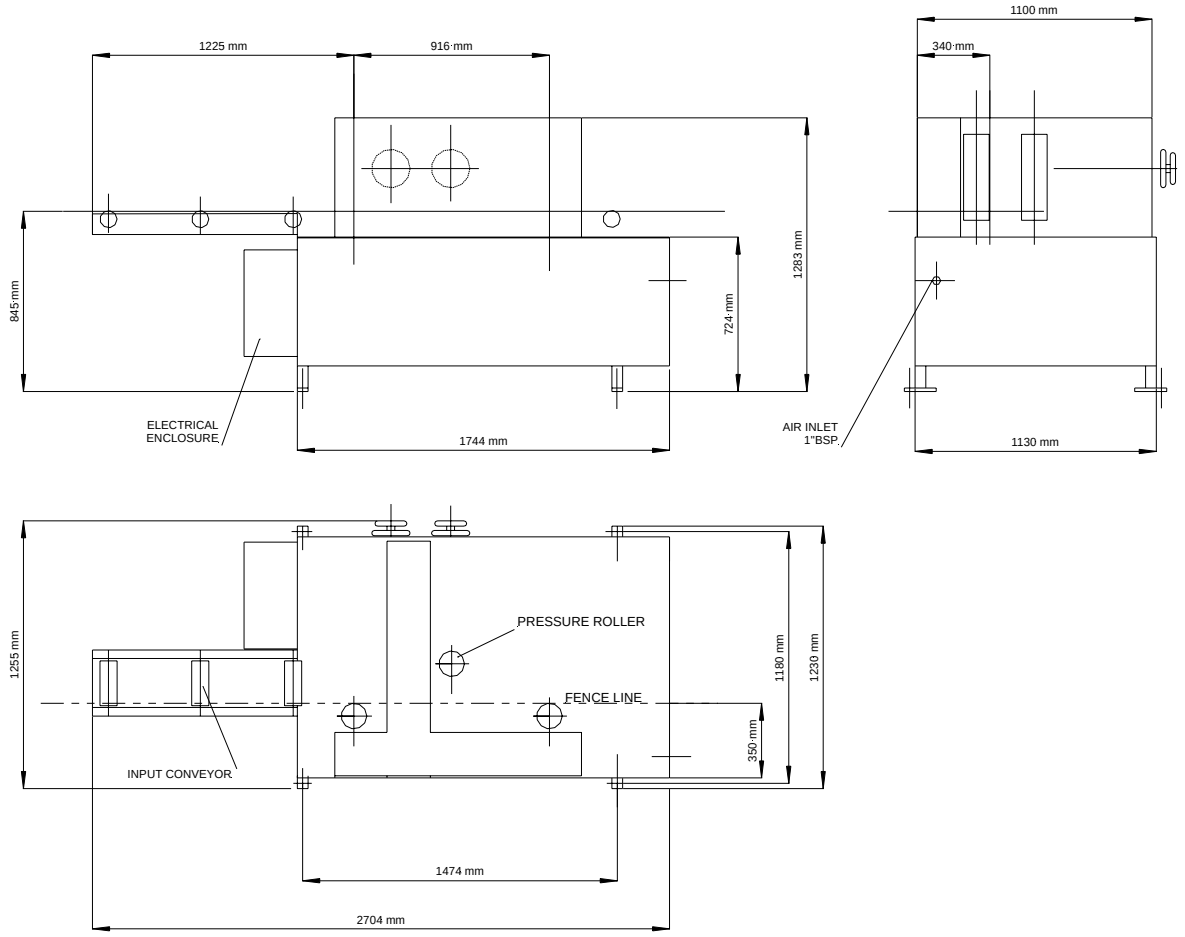
From the remote console the operator can completely control the grading machine. Controls for grade boundary settings, load cylinder range selection and the machine's speed are all located on the panel. Also there are readouts for both 'A' and 'B' transducers, photocells and grade piece and total counters.



The console connects to the grading machine via two 36-way connecting leads, these two leads carry all the signals required to run the machine. The standard length is of these is 5 metres.

The controls are cover by a transparent lockable hood, which whilst keeping the control panels free from dust and other debris, still allows the operator to monitor the status of the machine.

TECHNICAL SPECIFICATION



Machine Capacity & Speed:	
Timber Height:	50mm - 304mm
Timber Thickness:	25mm - 76mm
Timber Length:	1.8m - 8.0m
Machine Speed:	70m/min - 105m/min

Electrical Specification:	
Supply Voltage:	380/415 @ 50Hz
	(3 Phase Earth & Neutral).
Supply Current:	10 amps

Pneumatic Specification:	
Air Supply:	550Kpa - 850Kpa
	(non lubricated dry air)
Consumption:	0.7 cubic m/min
	24.7 cubic ft/min

Machine Size & Weight:	
Length:	2704mm
Width:	1255mm
Height:	1283mm
Working Height:	845mm
Weight:	1250Kg

Control Console Size & Weight:	
Height:	985mm
Width:	800mm
Depth:	400mm
Weight:	100Kg

measuring and process control ltd

Unit 2, Tabrums Industrial Estate Battlesbridge, Essex, SS11 9QX, UK
TEL: +44 (0) 1245 322855 FAX: +44 (0) 1245 328922
email: sales@mpcuk.co.uk website: www.mpcuk.co.uk