

CNR, ISTITUTO PER LA BIOECONOMIA Attn.
Attn. Michela Nocetti
Via Madonna del Piano, 10
50019 – Sesto Fiorentino (FI)
Italy,

Enschede, 06 November 2023

Quotation: Timber Grader MTG machine strength grading system

Dear Michela,

Thank you for your interest in the Handheld Timber Grader MTG for mechanical strength grading of rectangular cross-section construction timber according to international standards.

The Timber Grader MTG uses settings approved by CEN TC124 for grading of structural timber to EN 14081-1 under the machine control system and documented in Approved Grading Reports (AGR).

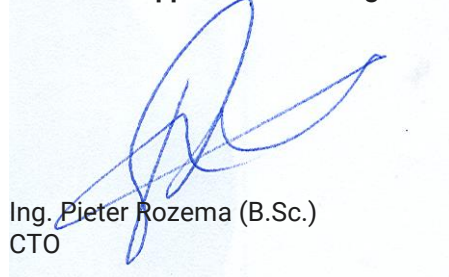
Furthermore, the Timber Grader MTG has been approved by, among others, the ALSC Board of Review and CLSAB Operations Committee.

This quote lists the standard Timber Grader MTG packages and options.

If you have any questions about, for example, measuring certain wood species from certain growth areas, the size range, the possible sorting classes or any other questions about mechanical strength grading with a Brookhuis machine grading system, please feel free to contact us.

Best regards,

Brookhuis Applied Data Intelligence B.V.



Ing. Pieter Rozema (B.Sc.)
CTO

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Timber Grader MTG

The Timber Grader MTG is a patented handheld machine grading system developed by Brookhuis Applied Data Intelligence in Enschede (the Netherlands).

The Timber Grader MTG is a fully accepted and approved machine grading system according to the European standard EN14081 for CE marking and to grade wood according to EN14080, EN15497 and EN16351 as well as ALSC and CLSAB.

The Timber Grader MTG is the best solution for sorting smaller product volumes with the advantage of sorting according to machine regulations. It is also a reference tool for many timber institutes and notified bodies around the world.

The Timber Grader MTG is a handheld measuring device with an LCD screen that is placed against the wooden beam. When the measurement is activated, it sends a sound wave (signal) through the beam. The special Timber Grader software converts these sound waves quickly and error-free into measurement results.

A Timber Grader MTG set consists of:

- Ergonomic microprocessor driven handheld MTG
- Timber Grader PC software
- Calibration set
- Wireless (Bluetooth) communication adapter
- User and installation manual
- CE and FCC approval of the equipment

Factory Product Control

The Timber Grader software is an ideal reporting tool as part of your FPC. Batch information such as product-, customer-, supplier-, and owner information is stored in the database together with each individual measurement including date, time and result. Extensive reports can be made by using database programs such as Microsoft Access.

With or without connected balance

- The Timber Grader MTG set with connected weighing system gives the best prediction, resulting in the highest yield. This version is mainly intended for sorting into the higher strength classes as well as for laboratory or test work, but also to be very flexible. This version can also be used without a connected weighing system.
- The Timber Grader MTG without weight measurement connected is less precise than the Timber Grader MTG with weight measurement connected, but it is the fastest and most practical solution for mechanical strength grading of wood. This version is particularly intended for sorting into lower strength classes.

Timber Grader MTG



MTG packages



All Timber Grader MTG packages are supplied as a complete set ready for use on your own laptop or computer. The options to these packages are the service contract and a ready installed laptop with label printer.

MTG product packages

MTG packages with CE Settings		
MTG 920 Set with Timber Grader Software for wood with a mean moisture content of a batch between 10% and 25% whereby all pieces in the batch shall not deviate by more than four percentage points from the mean.	MTG 960 I Set with Timber Grader Software for wood with a mean moisture content of a batch between 10% and 25% whereby all pieces in the batch shall not deviate by more than four percentage points from the mean.	MTG 960 I Set with Timber Grader Software for wood with a mean moisture content of a batch between 10% and 25% whereby all pieces in the batch shall not deviate by more than four percentage points from the mean and for wood with a moisture content of the individual timber pieces greater than 25% respectively 30%.
No Balance	Industrial Balance 250 kg	Industrial Balance 250 kg
Approved setting EN14081-4 DRY	Approved setting EN14081-4 DRY	Approved setting EN14081-4 DRY + WET
Indication of Static Modulus of Elasticity (MoE)	Indication of Static Modulus of Elasticity (MoE)	Indication of Static Modulus of Elasticity (MoE)
Freight & Packaging	Freight & Packaging	Freight & Packaging
€ 9.250,00	€ 12.250,00	€ 14.250,00

MTG product services

Timber Grader Service Contract	Timber Grader Laptop & Label Printer
Remote Service per Location consisting of: Remote service Free updates to the latest PC software Free updates to the latest firmware ¹ Free calibration ² Free helpdesk	Label Printer (36x89mm) with Timber Grader software extension (for internal use only)
via post/courier, including free software updates. Price per year, ex works	Ready to use HP Probook fully configured and equipped for Timber Grader MTG
€ 495,00	€ 1.350,00

Terms

Validity	1 month after 06 November 2023
Price	In Euro, excluding VAT, import duties, taxes, GST etc.
Conditions	DAP Customer in Europe (Incoterms 2010)
Payment	Net, 50% in advance at order entrance, 50% before shipment PC is not included in software packages, unless specified otherwise Commissioning & Training are not included, unless specified otherwise Mounting & installation are not included, unless specified otherwise
Delivery time	Delivery time 2~4 weeks dependent on model and configuration
Warranty	1 year

MTG configuration and settings included per package

Article	Description	ITT Table	MTG 920 DRY	MTG 960 Dry	MTG 960 Dry & Wet
191.550.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce from Germany, Italy, Slovenia, Austria, Finland, Norway, Sweden and Russia (for measurements with weighing system C18...C30)	11-1	0	1	1
191.551.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce and Pine from Sweden, Finland and Russia (for measurements without weighing system C18...C35)	19-1 & 19-2	1	1	1
191.551.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce and Pine from Sweden, Finland and Russia (for measurements with weighing system C18...C40)	11-2 & 11-3	0	1	1
191.552.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce from Belgium, Germany, Czechia, Austria and Italy (for measurements without weighing system C16...C35)	19-4	1	1	1
191.552.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce from Belgium, Germany, Czechia, Austria and Italy (for measurements with weighing system C16...C35)	11-5	0	1	1

¹ DAP delivery to Brookhuis NL and FCA delivery to customer

² DAP delivery to Brookhuis NL and FCA delivery to customer

Article	Description	ITT Table	MTG 920 DRY	MTG 960 Dry	MTG 960 Dry & Wet
191.553.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Douglas Fir from Germany, France, Italy and the Netherlands (for measurements without weighing system C18...C35)	19-3	1	1	1
191.553.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Douglas Fir from Germany, France, Italy and the Netherlands (for measurements with weighing system C18...C40)	11-4	0	1	1
191.555.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Sitka Spruce from France (for measurements without weighing system C16...C30 & TR26)	19-6	1	1	1
191.555.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Sitka Spruce from France (for measurements with weighing system C16...C30 & TR26)	11-6	0	1	1
191.556.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Sitka Spruce from France (for measurements with weighing system C16...C30 & TR26 of wood >25%)	11-7	0	0	1
191.557.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce from Sweden, Finland, Estonia, Latvia, Poland and Russia (for measurements without weighing system C18...C35)	19-5	1	1	1
191.562.03	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce from Austria and Switzerland (for measurements with weighing system LT11...TL26)	11-8 & 11-15	0	1	1
191.563.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Pine from Sweden, Finland, Russia and Poland (for measurements without weighing system C18...C35)	19-7	1	1	1
191.565.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Corsican Pine from France (for measurements without weighing system C16...C35 & TR26)	19-8	1	1	1
191.565.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Corsican Pine from France (for measurements with weighing system C16...C45 & TR26)	11-9	0	1	1
191.566.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Corsican Pine from France (for measurements with weighing system C16...C40 & TR26 of wood >30%)	11-10	0	0	1
191.568.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Maritime Pine from Portugal (for measurements with weighing system C18...C40)	11-11	0	1	1
191.569.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce from Sweden, Finland, Estonia, Latvia, Lithuania, Poland and Russia (for measurements with weighing system C18...C35)	11-21	0	1	1
191.571.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Sitka Spruce and Norway Spruce from United Kingdom of Great Britain, Northern Ireland and Republic of Ireland (for measurements without weighing system C16...C20)	19-10	1	1	1

Article	Description	ITT Table	MTG 920 DRY	MTG 960 Dry	MTG 960 Dry & Wet
191.571.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Sitka Spruce and Norway Spruce from United Kingdom of Great Britain, Northern Ireland and Republic of Ireland (for measurements with weighing system C14...C24)	11-13	0	1	1
191.572.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Sitka Spruce and Norway Spruce from United Kingdom of Great Britain, Northern Ireland and Republic of Ireland (for measurements with weighing system C16...C18 of wood >25%)	11-14	0	0	1
191.573.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Larch from United Kingdom of Great Britain and Northern Ireland (for measurements without weighing system C14...C30 & TR26)	19-9	1	1	1
191.573.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Larch from United Kingdom of Great Britain and Northern Ireland (for measurements with weighing system C14...C30 & TR26)	11-12	0	1	1
191.574.03	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce and Silver Fir from Austria, Switzerland, Slovakia and Germany (for measurements with weighing system T9...T26)	11-16	0	1	1
191.575.03	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce and Silver Fir from Austria, Switzerland, Czechia, Slovakia, Germany and Sweden (for measurements with weighing system T9...T26)	11-17	0	1	1
191.576.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Sitka Spruce and Norway Spruce from United Kingdom of Great Britain, Northern Ireland and Republic of Ireland (for measurements with weighing system C14...C27 and Napier SA, SB, SC and SD classes)	11-18	0	1	1
191.577.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Larch from United Kingdom of Great Britain and Northern Ireland (for measurements with weighing system C14...C35 and Napier LA, LB, LC and LD Classes)	11-19	0	1	1
191.578.03	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce and Silver Fir from Austria, Switzerland, Czechia, Slovakia, Germany and Sweden (for measurements with weighing system T9...T26)	11-20	0	1	1
191.579.03	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce and Silver Fir from Austria, Switzerland, Czechia, Slovakia, Germany, Sweden and Norway (for measurements with weighing system T9...T26)	11-23	0	1	1
191.580.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Sitka Spruce and Norway Spruce from United Kingdom of Great Britain, Northern Ireland and Republic of Ireland (for measurements with weighing system C16...C18 of wood >25%)	11-22	0	0	1
191.581.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Douglas Fir from United Kingdom of Great Britain, Northern Ireland and	19-11	1	1	1

Article	Description	ITT Table	MTG 920 DRY	MTG 960 Dry	MTG 960 Dry & Wet
	Republic of Ireland (for measurements without weighing system C14...C27 & TR26)				
191.581.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Douglas Fir from United Kingdom of Great Britain, Northern Ireland and Republic of Ireland (for measurements with weighing system C14...C35 & TR26 & Napier DA, DB, DC and DB)	11-24	0	1	1
191.584.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce and Silver Fir from Europe (for measurements without weighing system C18...C24)	19-12	1	1	1
191.584.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce and Silver Fir from Europe (for measurements with weighing system C18...C24)	11-27	0	1	1
191.585.02	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce and Silver Fir from Europe (for measurements without weighing system C11...T14)	19-13	1	1	1
191.585.03	Settings approved and listed in EN 14081-4 and according to EN 338 for Spruce and Silver Fir from Europe (for measurements with weighing system C11...T14)	11-28	0	1	1
191.586.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Poplar from France (for measurements with weighing system C16...C27)	11-25	0	1	1
191.587.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Poplar from France (for measurements with weighing system C16...C27 of wood >25%)	11-26	0	0	1
191.588.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Larch from United Kingdom of Great Britain, Northern Ireland and Republic of Ireland (for measurements without weighing system C14...C30 and Napier LB and LD)	19-14	1	1	1
191.588.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Larch from United Kingdom of Great Britain, Northern Ireland and Republic of Ireland (for measurements with weighing system C14...C30 and Napier LA, LB, LC and LD)	11-29	0	1	1
191.589.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Radia Pine from Spain (for measurements without weighing system C14...C16)	19-17	1	1	1
191.589.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Radia Pine from Spain (for measurements with weighing system C14...C24)	11-32	0	1	1
191.590.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Pine from Spain (for measurements without weighing system T8...T22)	19-15 + 19-16	1	1	1
191.590.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Pine from Spain (for measurements with weighing system T8...T22)	011-30 + 11-31	0	1	1
191.591.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Maritime Pine from Spain (for measurements without weighing system C14...C30)	19-19	1	1	1

Article	Description	ITT Table	MTG 920 DRY	MTG 960 Dry	MTG 960 Dry & Wet
191.591.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Maritime Pine from Spain (for measurements with weighing system C14...C30)	11-35	0	1	1
191.592.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Maritime Pine from Spain (for measurements with weighing system C14...C27 of wood >30%)	11-36	0	0	1
191.593.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Southern Blue Gum from Spain and Portugal (for measurements without weighing system SP1...SP5 of wood <25%)	19-18	1	1	1
191.593.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Southern Blue Gum from Spain and Portugal (for measurements with weighing system SP1...SP6 of wood <25%)	11-34	0	1	1
191.595.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Scots Pine from Finland, Russia, Poland, Sweden and Belarus (for measurements with weighing system C16...C35)	11-37	0	1	1
191.597.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Sitka Spruce and Norway Spruce from United Kingdom of Great Britain, Northern Ireland and Republic of Ireland (for measurements with weighing system C14)	11-33	0	1	1
191.599.00	Settings approved and listed in EN 14081-4 and according to EN 338 for Douglas Fir and Larch from United Kingdom of Great Britain, Northern Ireland and Republic of Ireland (for measurements without weighing system C16...C24)	19-20	1	1	1
191.599.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Douglas Fir and Larch from United Kingdom of Great Britain, Northern Ireland and Republic of Ireland (for measurements without weighing system C16...C24)	11-39	0	1	1
191.600.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Cedar from Portugal (for measurements without weighing system C14)	11-38	0	1	1
191.601.01	Settings approved and listed in EN 14081-4 and according to EN 338 for Sitka Spruce and Norway Spruce from United Kingdom of Great Britain, Northern Ireland and Republic of Ireland (for measurements with weighing system C14...C24)	11-40	0	1	1

Article	Description	MTG 920 Dry	MTG 960 Dry	MTG 960 Dry & Wet
191.500	Prediction MoE (static) softwood and hardwood for measurement with and without balance in N/mm ²	1	1	1
191.702	Software extension measurement with external hammer for range extension of wood dimensions	1	1	1
192.201	Timber Grader "balance" consisting of a balance of 60 kg with serial interface cable (10 meter) and Timber Grader software extension (for product 191.111)	0	0	0
192.203	Timber Grader "Industrial Balance" consisting of 2 weighing units with 4 load cells for weight measurement up to 200 kg, a control unit (230 VAC), a serial interface cable (10 meter) and Timber Grader software extension (for product 191.111)	0	1	1

MTG settings and configuration options

Article	Description	MTG 920 Dry	MTG 960 Dry	MTG 960 Dry & Wet
191.501	Settings according to EN 338 for C Class softwood and C/D class hardwood for measurement with and without balance C18...C40 and D18...D70	1	1	1
191.503	Settings according to AS 1720 for MGP Class softwood for measurement with and without balance MGP10...MGP15	1	1	1
191.504	Settings according to NDS for Fb-E Class softwood for measurement with and without balance 1200Fb-1.2E...2550Fb-2.1E	1	1	1
191.505	Settings according to SANS 1783 for S Class softwood for measurement with and without balance S7...S10	1	1	1
191.506	Settings according to IS 107 for SP Class softwood for measurement with and without balance SP1...SP4	1	1	1
191.507	Settings according to NZS 3603 for MSG Class softwood for measurement with and without balance MSG6...MSG15	1	1	1
191.508	Settings according to AS 1720 for F class softwood and F class hardwood for measurement with and without balance F4...F34	1	1	1
191.509	Prediction MoE (static) of stems softwood and hardwood for measurement without balance in N/mm ²	1	1	1
191.510	Settings according to EN 338 consisting of indicating classes for hardwood for measurement with balance 18...70	1	1	1
191.602	Software extension "Output Controlled System" + CLSAB & ALCS (based on calculated, measured and pre-set weight for Softwood _{Dry} , Hardwood _{Dry} und Softwood _{Wet})	1	1	1
191.603	Software extension "Imperial"	1	1	1
191.700	Software extension natural frequency measurement of softwood and hardwood for measurement with and without balance in Hz	1	1	1

Certified certainty

The handheld instruments FME and FMD6 as well as the in-line systems FMI have been tested by the MPA University of Stuttgart, Wood Construction Department (Notified Body No. 0672) according to the requirements EN14080:2013, Appendix G, EN15497:2014, Appendix D and EN16351:2015, Appendix G.

The machine strength grading systems of the MTG series are approved and recognized for the CE marking according to EN14081 (ITT reports available) and by ALSC in the USA and CLSAB in Canada.

Contact-free wood moisture measurement

- Thousands of satisfied customers!
- The FMI is a patented in-line moisture meter system which determines the wood moisture in sorting or production lines without contacting the wood. The Brookhuis FMI-5 systems can measure up to 300 boards per minute. Boards can be measured in only 10ms.



FMI Sensor longitudinal wood transport
FMI Operating Panel



FMI sensor transversal wood transport

Machine strength grading

- Hundreds of satisfied customers!
- The Timber Grader MTG is the only approved handheld (mobile measurement device) machine strength grading device with CE certification.
- mtgBATCH and mtgSCAN are machine grading systems for CE certification to integrate in a production for 30, 60 120 or 180 boards per minute.



Timber Grader MTG



mtgSCAN

Handheld moisture meters

- Tens of thousands of satisfied customers!
- The FMC contain calibration lines of 4 wood groups, different construction materials and paper. The handheld moisture meters FME and FMD6 contain also more than 500 calibration lines of dedicated wood species. The FMD6 is also equipped with a data memory for seamless logging. The FMW determines the moisture content by holding the top (FMW-T) or back (FMW-B) of the device for half a second to the material to be measured. The FMW is suitable for final checks and quick inspections!



FMD6



FME



FMW