

General Information:

- Space-saving, easy to use Test Station with automatic motor drive, built-in precision load cell and distance measurement device.
- For special applications additional test programmes and accessories are available. The units can be adapted to user-specific test situations and specifications as required.
- The test stations enables pull, press, bend, elongation and break tests in all areas of testing as material testing or production control, quality assurance and incoming inspection.
- A wide range of standard fixing and clamping tools as well as specially designed tools for various applications enable customized adaptations to any particular area of testing.
- Sophisticated electronic control that makes operation easy and simple even for less experienced operators.
- High resolution of 10000 increments.
- Internal measuring rate of 10000 Hz provides high accuracy and consistently captures even critical peak force readings.
- Great and good readable touch screen panel.
- Default settings and special data can be entered using the touch screen panel.
- Optional with built-in printer that uses normal paper
- Adjustable test speed
- Preset of test load for non-destructive tests.
- Hold under load function.
- Integrated position sensor
- Graphic display of measured force/distance curves
- Repeat tests
- Measured value memory
- Test programme selection for standard test programmes and if applicable customized special test programmes.
- RS232C, DIGIMATIC, USB and LAN interface ports
- Applicable measuring tools or measuring devices, e. g. for crimp height or strain measurements can be connected over the standard Digimatic port.
- Quick change tool mounting adapters for tool assembly.

Model Overview MTM

Type	Indication Range [N]	Resolution [N]
5	0- 50	0.005
10	0- 100	0.01
25	0- 250	0.02
50	0- 500	0.05
100	0- 1000	0.1
200	0- 2000	0.2
500	0- 5000	0.5
1000	0- 10000	1



MTM 100 with SG 80 and DKS-20/A



Test Station MTM 1000 with SG 90 and SHA-40A

Clamping Tools and Test Fixtures:

- | | |
|-----------------------|---|
| Turntable | UDT 100, UDT 100-v |
| Clamping Crowns | SG 80, SG 90 |
| Quick Action Grippers | KSH-6, KSP-8, SHA-12, SHA-20, SHA-40 |
| Cable Clamps | MK-8, DKS-20, KSS25, KSW 25 |
| Comb Tools | KW 1, KW 2 |
| Miniature Grips | FSEL |
| mm-Bore Gauge | ML1 for cable insulation pull-off testing |
| Tool Set | KLH for insertion and extraction tests |
| Plug-in Plate | SL-BAT for battery cable terminals |
- Please see our catalogue for additional standard tools and tool specifications.
 Customer-specific special tools and test fixtures on request.



MTM Control Unit without printer



MTM 100 Test Station with built-in printer

Technical Specifications:

Test Unit MTM:

Capacities: 0- 50/100/250/500/1000/2000 N
Dimensions: ca. 116x520x124 mm (WxDxH).
Weight: ca. 11 kg.

Capacities: 0- 5000/10000 N
Dimensions: ca. 176x636x190 mm (WxDxH).
Weight: ca. 40 kg.

Construction: durable all metal construction.
Housing: aluminum
Finish: anodised oxide layer, titanium grey.
Drive: DC-Motor with precision linear drive
Linear stroke: 150 mm.
Operation: via touch screen of the measuring system control unit.

Test speed: Testers 50 to 2000 N: 5 - 600 mm/min.
 (adjustable) Testers 5 and 10 kN: 5 - 300 mm/min.
 max. tolerance: $\pm 3\%$ F.S.

Test load preset: 10-100% of tester's nominal load.

Break Stop function: Automatic stop and reversal after break of test specimen.

Cycle function: The load slide drives between two final positions back and forth continuously.

Power supply: 36 V DC, by external mains adapter.
 All test stations are equipped with quick-change tool mounting adapters for tool and test fixture assembly.

Technical Specifications:

Model Designation: MTM

Indication Ranges: 0 - 50/100/250/500/1000/2000 N
 0 - 5000/10000 N.
Resolution: 10000 increments, see overview
Rel. accuracy error: $\leq \pm 0.25\% \pm \text{LSD}$
 (within the measuring range)

Measuring System MTS:

Force Transducer:

DMS-load measuring cell type MWM 80108 with integrated gain and serial port, overload protection 200 to 2000%, depending on range .

Distance Measurement Device:

integrated sensor, 0-150 mm, resolution 0.01 mm.

Control Unit:

Dimensions:
 MTM with printer: ca. 360x290x154 mm (WxDxH);
 MTM without printer: ca. 260x265x154 mm (WxDxH).

Display:

Touch screen display, ca. 115x86 mm (5.7");
 LCD Update rate: minimum 5 Hz.

Operation:

Operation by keys displayed on touch screen

Evaluation:

Internal measuring rate: 10000 Hz;
 Operating Modes: Tracking Mode and Peak Point Mode;
 Tare compensation;
 Test load preset;
 Graphic display of measured force/distance curves;
 Measured-value memory for ca. 10000 values;
 Single and listing output of measured values;
 Real Time Clock for printout with date and time;
 Set-up menu for internal parameter selection and adjustment of measuring system;
 Special test programme sequences, e. g. with automatic reverse and printout as well as repeat test.

Interface Ports:

RS232C selectable 300-230400 Baud, 8 data bits, 1 data bit, no parity; connection: SUB-D 9;
 DIGIMATIC Digimatic interface port;
 Ethernet network interface, RJ45
 Ext 1 & 2 connection of USB devices & PC

MTM with printer:

Built-in printer with fan-fold paper, normal paper (58 mm wide).

Optional Accessories:

- V24 connecting cable for PC
- Keystast Interface
- Touch screen protection film
- Digital Control System KMS
- Special test programmes
- Customer-specific test programmes and adaptations available on request

General Information:

The **MI&T** offers optional firmware upgrades, special test programmes and customer-specific test software for the MTM Test Stations also. Already integrated in the standard firmware version integrated but not activated firmware upgrades can be purchased afterwards and activated subsequently without sending the test station back to **MI&T**. Firmware upgrades ordered together with the test station are already activated when the test station is consigned from **MI&T**.

Already included in the standard firmware version integrated but not activated firmware upgrades can be activated as a try out version on request but only as long as the test station is remained switched on and at the maximum for 3 days.

Firmware Upgrade “Graphic Printout of force/distance gradient”:

The optional firmware upgrade for the "GRAPHIC PRINTOUT" of the force/distance gradient enables the user additionally to print out the force/distance graph, determined with test program force/distance measuring and displayed in the main display, with the built-in printer. Using the standard version of the MTM software only the force peak value of the displayed measuring curve can be printed out by the built-in printer in the operating programme for the force/distance measurement. Activating the optional graphic printout function makes it possible to print out the displayed force/distance curve after completion of the test procedure with the built-in printer. With the measured curve additional a record heading inclusive date and time, force peak value of the measured curve with related distance value and the pre-selected values for load slide stroke and set point are printed out.

Firmware Upgrade “Webserver”:

The optional firmware upgrade "WEBSERVER" facilitates the output of the measured values stored in the measured value memory of the test station via the Ethernet interface to a PC using a browser (i. e. Microsoft Internet Explorer). Measured values downloaded by the browser with the Webserver programme can be easily pasted into user-defined software or can be stored in the CSV format for processing the data e.g. using Microsoft Excel. For downloading the measured values from the internal memory the MTM Test Station must be connected to a PC or to a local network via the Ethernet (LAN) interface using a suitable connection cable. Preliminarily an appropriate IP address for the test station must be set in the set-up of the MTM Test Station. Entering the IP address of the MTM test station in the browser the Webserver programme of the MTM test station loads the Webserver Start Screen into the browser, which controls the data transmission for the download of the measured values stored in the memory of the test station.

Special Test Programme “Repeat Test Force”:

The standard version of the MTM Test Station provides a test programme for repeat tests during which the load slide moves back and forth between two defined load slide end positions, which are set in the setup of the test programme. During the repeat test the respective force peak values in both directions are determined for each cycle. Using the optional special test programme "REPEAT TEST FORCE" repeat tests can be carried out during which the test specimen is loaded repeatedly with preliminarily selected test loads, i. e. the load slide moves back and forth between two defined force values. Also it is possible to store given test values (for example, the first or hundredth value, or each tenth and hundredth value) in memory and to print out or output these values.

Special Test Programme “Hold Time”:

Using the firmware upgrade “Hold Time” in the non-destructive test mode the hold time in function “hold under load” can be determined and outputted. The maximum hold time of 180 seconds in the standard programme is extended to a maximum hold time of 2000 seconds with the firmware upgrade. Furthermore after expiration of the pre-selected hold time at the set point force it is possible to load the test specimen automatically with an increasing load up to its breaking point and to determine the peak value.

Firmware Upgrade “PC Keyboard”:

The firmware upgrade “PC KEYBOARD” allows to operate the MTM Test Station using an external USB PC keyboard. Standard PC keyboards as well as accordingly against pollution protected keyboards and small size keyboards are suitable for the use with MTM Test Station. The USB keyboard is connected to the USB interface of the MTM control unit. All displayed keys can be activated using the keyboard and all inputs in the set-up menus can be inputted using the keyboard. The function keys F1 to F12 of the PC keyboard are assigned in measuring mode to the functions of the keys in the MEASURED VALUE display.