Operation manual
[incl. Installation Manual]

TESTit
Translation of the original operating manual
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1 General information

1.1 Information concerning this manual

The information in this manual enables safe and efficient handling of the product.

The manual is a component of the product and must be kept in the immediate vicinity of the product where it is accessible to personnel at all times. Personnel must have carefully read and understood this manual prior to starting all tasks. The basic prerequisite for safe work is compliance with all the safety instructions and handling instructions in this manual.

If the product is passed on to third parties, this manual must be included.

Illustrations in this manual are provided to impart a basic understanding only and may differ from the actual model of the product.

This manual applies to:
- TESTit V2 – two-piece, consisting of:
  - TEST module
  - IT module

1.2 Explanation of symbols

Safety notices are indicated by symbols in this operating manual. The safety notices are introduced by signal words that express the scope of the hazard.

Comply with the safety notices and act cautiously to avoid accidents, personal injury, and material damage.

<table>
<thead>
<tr>
<th>Safety notices</th>
<th>DANGER</th>
<th>WARNING</th>
<th>CAUTION</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>... indicates an imminent dangerous situation which, if not avoided, will result in death or serious injury.</td>
<td>... indicates a potentially dangerous situation which, if not avoided, can result in death or serious injury.</td>
<td>... indicates a potentially dangerous situation which, if not avoided, can result in minor or slight injury.</td>
<td>... indicates a potentially dangerous situation, which if not avoided, can result in material damage.</td>
<td></td>
</tr>
</tbody>
</table>
1.3 Limitation of liability

All information and instructions in this operating manual have been compiled with due consideration of applicable standards and regulations, the current state of technology, as well as our many years of experience. The manufacturer assumes no liability for damage due to:

- Failure to follow the instructions in the manual
- Non-intended use
- Deployment of untrained personnel
- Unauthorized conversions
- Technical modifications
- Use of non-approved spare parts
- Use of non-approved accessories

The obligations possibly agreed in the supply contract, the general terms and conditions, as well as the delivery condi-
1.4 Copyright

This manual is protected by copyright and is provided exclusively for internal purposes. This manual must not be made available to third parties, reproduced in any form or by any means – even in excerpts – or used and/or disseminated in any form or by any means without the written permission of the manufacturer, except for internal purposes. Actions to the contrary make damage compensation mandatory. We reserve the right to enforce additional claims.

1.5 Scope of delivery

**IT module without display device**

Included in the scope of delivery of the product:
- IT module [base unit]
- USB stick incl. measurement and archiving software
- Bluetooth stick
- USB charger / power adapter
- USB charging cable for IT module
- Magnetic holder
- Torx wrench
- Storage case
- Operating manual

Additionally required and optionally included in the scope of delivery:
- TEST module [measurement unit]
- Service pass and test report

**IT module with display device**

Included in the scope of delivery of the product:
- IT module [base unit]
- Display device / USB stick with software
- USB charger / power adapter
- USB charging cable for tablet
- Measurement software and archiving software [USB stick]
- Bluetooth stick
- Torx wrench
- Storage case
- Operating manual

Additionally required and optionally included in the scope of delivery:
- TEST module [measurement unit]
- Magnetic holder
TEST module
Included in the scope of delivery of the product:
- TEST module [measurement unit]
- Service pass and test report
- Torx wrench for changeover of the TEST module variants AS32, AS65, and AS65-4
- Storage case

Additionally required and optionally included in the scope of delivery:
- IT module [base unit]

1.6 Spare parts and accessories

WARNING
Serious injuries due to incorrect or faulty spare parts!
- Only use original spare parts from the manufacturer.

NOTE
Damage, malfunction or total failure of the product or of the machine tool due to incorrect or faulty spare parts!
- Only use original spare parts from the manufacturer.

Spare parts and accessories can be obtained from authorized resellers or directly from the manufacturer [see the »Contact« section].

Wear parts and parts in contact with the workpiece are not covered by the guarantee.
1.7 Guarantee conditions

The guarantee conditions are included in the manufacturer's terms and conditions.

**NOTE**

Influencing or destruction of the pre-installed TESTit software through any system modification or any external influencing of the display device!

- Influences such as
  - Installation of additional software
  - Software updates
  - Connection to external devices and/or a network

are **prohibited**.

HAINBUCH assumes no responsibility whatsoever for data loss on the display device.

The guarantee for the TEST module is one year from the date of delivery.

**NOTE**

Damage, malfunction or total failure of the product, or of the machine tool, due to incorrect or faulty accessories!

- Only use the accessories that are included in the scope of delivery:
  - Power adapter
  - USB cable
2 Safety

This section provides an overview of all the important safety aspects for optimal protection of personnel, as well as for safe and trouble-free operation.

2.1 Responsibility of the owner

The product is used in the industrial sector. Therefore the owner of the product is subject to the statutory occupational health and safety obligations.

In addition to the safety instructions in this manual, the local safety regulations, accident prevention and environmental protection regulations valid for the application area of the product, and the manual for the machine tool, must also be complied with.

Do not modify the product in any manner whatsoever. The responsibility for any resulting personal injury and/or material damage rests entirely with the owner.

2.2 Personnel requirements

WARNING
Serious injury due to improper handling of the product by personnel with insufficient qualifications!
- All activities must only be executed by specialists with proper qualifications in the respective field.

WARNING
Serious injury due to the presence of unauthorized persons in the work area!
- Keep unauthorized persons away from the work area.
- If in doubt, speak to these persons and instruct them to leave the work area.
- Interrupt tasks, for as long as unauthorized persons are present in the work area.

NOTE
Considerable material damage due to improper handling of the product by personnel with insufficient qualifications!
- All activities must only be executed by specialists with proper qualifications in the respective field.

In this manual, the following qualifications are cited for different areas of activity:

Specialist
Due to his technical training, knowledge, and experience, as well as knowledge of the relevant regulations, the specialist is able to carry out the tasks assigned to him and to recognize and avoid possible dangers on his own.

**Hydraulic specialist**
The hydraulic specialist is trained for the special task area, in which he is active, and knows the relevant standards and regulations.

Due to his technical training and experience, the hydraulic specialist is able to carry out tasks on hydraulic equipment and to recognize and avoid possible dangers on this own.

**Pneumatic specialist**
The pneumatic specialist is trained for the special task area, in which he is active, and knows the relevant standards and regulations.

Due to his technical training and experience, the pneumatic specialist is able to carry out tasks on pneumatic equipment and to recognize and avoid possible dangers on this own.

**Electrician**
The electrician is trained for the special task area, in which he is active and knows the relevant standards and regulations.

Due to his technical training and experience, the pneumatic specialist is able to carry out tasks on pneumatic equipment and to recognize and avoid possible dangers on this own.

**Apprentices**
Apprentices are only allowed to work on the machine under the supervision and direction of specialists in the respective field.

Only persons from whom it can be expected that they reliably execute their work are considered as personnel. Persons whose ability to react is influenced, for example by drugs, alcohol or medication, are not permitted to work on or with the machine.

Comply with age-specific and job-specific regulations that are applicable at the installation site when selecting personnel.
2.3 Intended use

The gauge is designed to measure the clamping force of a clamping device in a CE-compliant machine tool.

The product is intended exclusively for the purpose described in this manual [see the »Use« section]. In addition, an extension of the intended use can be contractually agreed between the manufacturer and the owner.

The product may only be operated and cleaned by trained specialists in the respective field [see the »Personnel requirements« section].

The product may only be operated within the framework of the specified technical values [see the section »General information« and the section »Operating conditions«].

The product must be maintained regularly [see the »Maintenance schedule« section].

The operational reliability of the product is guaranteed, to the extent foreseeable, when used as intended and in compliance with the relevant safety regulations.

Intended use also includes compliance with all the instructions in this manual.

Any use of the product beyond its intended use, or any other use, is considered misuse and can result in dangerous situations.

WARNING

Serious injuries due to misuse of the product!

- Use only for clamping force measurements. Any other use is prohibited.
- Use only for the designated intended purpose [see the »Use« section].
- Use of the product only by instructed specialists of the respective field [see the »Personnel requirements« section].
- Never exceed the technical data specified on the gauge [see section »General information« and section »Operating conditions«].
- The product must be maintained regularly [see the »Maintenance schedule« section].
- Use only with compatible products.
NOTE
Material damage due to misuse of the product!

- Use only for clamping force measurements. Any other use is prohibited.
- Use only for the designated intended purpose [see the »Use« section].
- Use of the product only by instructed specialists of the respective field [see the »Personnel requirements« section].
- Never exceed the technical data specified on the gauge [see section »General information« and section »Operating conditions«].
- The product must be maintained regularly [see the »Maintenance schedule« section].
- Use only with compatible products.

Claims of any type due to damage arising from non-intended use are excluded.
For example, non-intended use is present
- if the product is used for clamping devices for which it is not intended.

2.4 Personal protective equipment

The wearing of personal protective equipment is required to minimize health hazards when working with the device.
The protective equipment required for the work in question must always be worn during the work.
Instructions for personal protective equipment in the work area must be followed.

Always wear

For all tasks, always wear:

Work clothing
is tight-fitting work clothing with low resistance to tearing, with tight sleeves, and without projecting parts. It is primarily used to protect against entanglement through moving machine parts. Do not wear rings, chains, or other jewelry.

Safety footwear
for protection against heavy falling parts and slipping on slippery substrates.
Protective goggles

to protect the eyes from ejected parts and liquid splashes.

Hairnet

for long hair; to protect the hair from being entangled through rotating parts of the machine tool.

Additional protective equipment

Additional protective equipment is required when executing special tasks. Separate reference is made to this equipment in the specific sections of this manual. This additional protective equipment is explained below:

Protective gloves

to protect the hands from friction, abrasions, punctures or deeper injuries and from contact with hot surfaces.

Safety helmet

to protect against falling and ejected parts and materials.

2.5 Special dangers

In the following section, residual risks are cited that arise due to installation of the product in a machine tool. In any case, the residual risks identified on the basis of a risk assessment of the machine tool must be specified by the owner.

Comply with the safety notices listed here and the warnings in the other sections of this operating manual to reduce health hazards and avoid dangerous situations.
Sharp-edged parts

**WARNING**
Severe cutting injuries due to sharp-edged parts and burrs!
- The assembly of component parts must only be executed by qualified specialists in the respective field.
- The following protective equipment must be worn in addition to the basic equipment:

2.6 Functionality

**WARNING**
Severe injury due to high contamination of the product!
- The cleaning instructions and cleaning intervals must be complied with [see the »Cleaning« section].

**NOTE**
Incorrect measurement results due to insufficient cleaning intervals and maintenance intervals.
- The cleaning intervals and maintenance intervals must be complied with [see the »Cleaning« section].
2.7 Environmental protection

**NOTE**

Considerable environmental damage due to incorrect handling or incorrect disposal of environmentally hazardous substances!

- If environmentally hazardous substances accidentally enter the environment, appropriate measures must be taken immediately.
- If in doubt inform the responsible municipal authority of the damage.

The following environmentally harmful substances are used:

**Rechargeable battery**

Batteries and rechargeable batteries, as well as other electronic parts and foreign materials, contain toxic substances. These substances must not be released into the environment.

Environmentally hazardous materials must be disposed of properly [see the »Disposal« section].
# 3 Technical data

## 3.1 General information

<table>
<thead>
<tr>
<th>TEST modules</th>
<th>O.D. clamping</th>
<th>I.D. clamping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>AS 18 AS 32 AS 65 AS 65-4 IS 28 IS 50 IS 70</td>
<td></td>
</tr>
<tr>
<td>Clamping ø</td>
<td>18 32 65 65 28 50 70</td>
<td></td>
</tr>
<tr>
<td>Max. Clamping force measuring range [kN]: 4 measuring points</td>
<td>- - - 0-150 - - -</td>
<td></td>
</tr>
<tr>
<td>Max. Clamping force measuring range [kN]: 3 measuring points</td>
<td>0-75 0-140 0-225 0-100 0-200 0-240</td>
<td></td>
</tr>
<tr>
<td>Max. Clamping force measuring range [kN]: 2 measuring points</td>
<td>- 0-90* 0-150 0-150 - - -</td>
<td></td>
</tr>
<tr>
<td>max. RPM [min⁻¹]</td>
<td>10000 8000 6000 6000 7000 7000 6000</td>
<td></td>
</tr>
<tr>
<td>Dimensions ø x length [mm]</td>
<td>Ø76 x30 Ø134 x28 Ø134 x36 Ø134 x36 Ø76 x35 Ø73 x45 Ø95.5 x50</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP21 IP21 IP21 IP21 IP21 IP21 IP21</td>
<td></td>
</tr>
</tbody>
</table>

* When using size 32 with 2 clamping positions, the flat measuring attachments must be used, see section »Changeover of the measuring head [only for size 32]«

Table 1: Technical data for TEST module AS/IS

<table>
<thead>
<tr>
<th>TEST modules</th>
<th>HTS [hollow tapered shank]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>HTS40 HTS50 HTS63 HTS100</td>
</tr>
<tr>
<td>Clamping ø</td>
<td>0-20 0-20 0-50 0-90</td>
</tr>
<tr>
<td>Dimensions ø x length [mm]</td>
<td>Ø76x91 Ø76x98 Ø76x98 Ø100x138.5</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP21 IP21 IP21 IP21</td>
</tr>
</tbody>
</table>

Table 2: Technical data for TEST module HTS
3.2 Capacity values

**NOTE**
Material damage of the products used and/or the machine tool if the maximum capacity values are exceeded!
- The maximum capacity values of the product must not be exceeded.
- For all the products used, do not exceed the lowest of the maximum capacity values.
- Only use the product in machine tools with the same capacity values.

**INFORMATION**
Information concerning the maximum capacity values is provided on the respective product.

3.3 RPM

The product is approved for rotating use.
The maximum RPM is specified on the product [maximum RPM see the »General information« section].

**DANGER**
Serious injuries due to ejected parts if several products are combined improperly!
- For all the maximum speeds of the combined products specified, the lowest maximum speed must always be complied with.
3.4 Operating conditions

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range, ambient</td>
<td>15 - 40</td>
<td>°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>≤ 80</td>
<td>%</td>
</tr>
</tbody>
</table>

Table 3: Operating conditions

3.5 Type designation

The type designation is located on the product and contains the following information:

- Manufacturer
- ID number
- Serial number [marked with # symbol]
- Year of manufacture
- Maximum RPM $n [min^{-1}]$
- Maximum clamping force $F_{max} [kN]$ for the sum of all measuring points
4 Structure and function
4.1 Overview and brief description

HST clamping

For normal O.D. clamping and I.D. clamping, the measuring gauge is used to test the radial clamping force and for HTS [hollow tapered shank], it is used to test the draw-in force. The measuring gauge consists of a measuring head, IT module [force transducer], and a measuring unit, TEST
module [electronics], that can be separated from each other.  
The clamping device is equipped for location of the measuring gauge. 
The measuring gauge is clamped with the clamping device. 
The measuring head determines the radial clamping force via sensors and transmits this data from the TEST module to the IT module. 
The software is designed so that it can be used, not only with the TEST module in conjunction with the IT module, but also in conjunction with the »old« TESTit V1. 
TESTit V1 devices must be taught-in and thus made known to the software. 
TESTit V2 devices [TEST module and IT module] just have to be within radio range to connect. 
Via Bluetooth Low Energy [BLE] the measured values are transmitted to the output device with the installed measuring software. 
The measurement can be performed stationary, as well as at rotational speed.
4.2 Required accessories

4.2.1 Display unit / USB stick with software
The measuring software is already pre-installed on the display device, if provided.
The USB stick, if provided, contains the measuring software that must be installed on the display device.
The Bluetooth connection to the IT module is realized via the internal Bluetooth interface.

4.2.2 TEST module
The TEST module is used to measure the clamping force on / in the mounted clamping device.
The TEST module is provided in a size that is specified in the purchase order.
Together with the IT module it forms a measuring head, with which the actual measurement is carried out.

4.2.3 IT module
The IT module is used to transfer the measurement results to the software.
Together with the TEST module it forms a measuring head, with which the actual measurement is carried out.

4.2.4 USB charging cable
The USB charging cable is used to charge the IT module.
When the measuring head is not in use, it can be charged with the USB charging cable on the display device, or alternatively it can be charged via the power adapter.
A static measurement is also possible during the charging process.

4.2.5 USB charger / power adapter
The USB power adapter is used to charge the measuring head.
It is included in the starter-set.

4.2.6 Storage case
The storage case is used for transport and storage of the TESTit components.
5 Use and limits of use

5.1 Use

TESTit is a clamping force gauge to determine the actual radial clamping force.

At the same time, with this new variant it is possible to measure the draw-in force of the HTS clamps on machine tools, e.g. to detect fatigue of the springs.

5.2 Implementation limits

The TESTit clamping force gauge is intended exclusively for use with smooth clamping positions.

For the measurement the gauge must not be attached on a mounted end-stop.

Before use, always ensure that all clamping surfaces of the TEST module are covered by the clamping element.
6 Transport, packaging, storage

6.1 Safety for transporting, packing, storing

**WARNING**
High physical strain due to the dead weight of the product or its individual parts if transported improperly!
- Starting from a weight of 10 kg, use suitable means of transport, lifting gear, and sling gear.

**WARNING**
Serious crushing injuries and fractures due to components falling if transported improperly!
- Ensure that the possibility of rolling off or falling is excluded.
- Use a non-slip substrate.
- When using a hoist, use suitable load-handling equipment and sling gear.

**WARNING**
Serious injuries due to eccentric center of gravity during transport!
- Pay attention to the marks on the packages.
- Attach the crane hook in such a manner that it is above the center of gravity.
- Lift carefully and correct the attachment points if necessary.

**WARNING**
Serious injury due to improper transport with a hoist!
- Never move loads over persons.
- Never step under suspended loads.
- Comply with the instructions concerning the intended attachment points. Ensure that the sling gear is securely seated.
- Only use approved and undamaged hoists, load-handling equipment, and sling gear.
- Do not exceed the maximum load carrying capacity of the hoists, load-handling equipment, and sling gear.
NOTE
Material damage due to falling components if transported improperly!
- Ensure that the possibility of rolling off or falling is excluded.
- Use a non-slip substrate.
- When using a hoist, use suitable load-handling equipment and sling gear.

NOTE
Material damage or total failure of the product due to improper transport!
- Transport the product with extreme caution.
- Never drop the product or expose it to other strong shocks.

6.2 Symbols on the packaging

Fragile
Indicates packages with fragile or sensitive contents.
Handle the packed goods with care; do not allow them to fall, and do not subject them to impact.

Protect from moisture
Keep packed goods dry and protected against moisture.

Position marking
Displays the correct upright position of the package.

6.3 Transport inspection
Inspect the delivery immediately upon receipt to ensure that the delivery is complete, and to identify any transport damage.
Proceed as follows if there is apparent external damage:
- Do not accept the delivery or accept the delivery only with reservation
- Note the extent of damage on the transport documents or on the carrier's delivery note
- File a complaint
INFORMATION
File a complaint for any defect as soon as it is detected. Claims for damage compensation can only be enforced during the applicable periods for filing a complaint.

6.4 Storage

INFORMATION
There may be instructions on the packages concerning storage and re-storage that extend beyond the instructions in this section. Such instructions must be complied with accordingly.

Store packages under the following conditions:
- Correctly positioned.
- Do not store outdoors.
- Store in a dry and dust-free location.
- Do not expose to aggressive media.
- Protect from sunlight.
- Avoid mechanical shocks.
- Storage temperature: 15 to 35°C.
- Relative humidity: maximum 60%.

6.5 Placing the product back in storage
Place the product back in storage under the following conditions:
1. Clean the product [see the »Cleaning« section].
2. The product must be stored safely in its original case.
3. Storage conditions, see chapter »Storage«.
7 Preparing the measuring gauge

7.1 Safety for preparing the measuring gauge

![NOTE]
Sensor imbalance due to excessive tightening torque!
- Do not exceed the specified tightening torque.

7.2 Preparation of the measuring gauge

![INFORMATION]
To use the measuring head, the battery must be sufficiently charged.
- If necessary, connect the measuring head to the display device using the provided USB cable
- Do not disconnect until the rechargeable battery of the measuring head is fully charged.

7.2.1 Displays

Display of the measuring head:
- Charge status

![INFORMATION]
The display on the measuring head:
- An undamaged and fully charged battery has a holding time of approx. 8 hours
- If there is a residual charge of < 1 % the measuring head switches off automatically and must be recharged.

7.2.2 Connections

Connection of the measuring head:
- USB port
7.2.3 Positioning the magnet

For preparation of a force-speed diagram, the magnet must be in place on for the measurement.

**INFORMATION**
Position the magnet in such a manner that it sits on the housing a maximum of 5 mm above the lathed groove.

1. Place the magnet on the measuring head.
7.3 Assembly of a TEST module with an IT module

1. Join TEST module and IT module together, position via the pins and the bolt hole circles.
2. Firmly press TEST module and IT module together.
3. Screw in the mounting screws and tighten hand tight.
7.4 Changeover of the measuring head [only for O.D. clamping size 32, size 65, size 65-4]

The measuring head for O.D. clamping for size 32 or size 65 is prepared for 3 clamping positions.

**INFORMATION**

When measuring with 2 clamping positions, e.g. in a vice, use the flat plug gauges [not included in the scope of delivery].

The following steps are required for changeover of the measuring head from 3 clamping positions to 2 clamping positions:

**INFORMATION**

For changeover, first remove the 2 plug gauges that are located next to the free mounting point.

1. Loosen and remove the mounting screws [1] and take off the 2 plug gauges [2].
2. Place one of the flat plug gauges on the mounting point that was left free at delivery.

3. Screw in the mounting screw and tighten to a **tightening torque of 0.8 Nm**.


5. Likewise fit on a flat plug gauge [4] in its place as well. Screw in the associated mounting screw [3] and tighten to a **tightening torque of 0.8 Nm**.

**INFORMATION**

- After changeover, the number of clamping positions must be set in the software, see »Settings«.
8 Installing and setting up the software

**TEST module and IT module**

- Communication via Bluetooth Low Energy [BLE].
- Two-piece design. The electronic »IT module« and the »TEST module« can be separated from each other.
- The TESTit V2 devices just have to be within the radio range of the software to connect to the software.
- The V2 software has been designed and developed so that this software can also be used in conjunction with TESTit V1 devices.

8.1 Installing the software

The TESTit software is offered in 2 variants:

- **Starter-set with display device**
  At delivery, the software is already installed on the display device.

- **Starter-set without display device.**
  At delivery the software is provided on a USB stick. The software must be installed on a suitable display device that meets the hardware requirements for the TESTit software.

A Setup Wizard guides the operator through the installation process.

Installing the software:

1. Start the »TESTit_Setup« application from the USB stick.
2. Select the language, in which the Setup Wizard should be executed. The following languages are available for selection:
   - German
   - English
   - French
3. Select the desired language
4. Confirm with »OK«
   The welcome greeting appears on the screen.

5. Click »Next«.

6. Accept the license agreement.
7. Click »Next«.

8. Select the destination folder for installation of the TESTit software.
9. Click »Next«.
10. Click »Install«.
The TESTit software will be installed.

INFORMATION
The software is started.
- Exit software 1x
- Restart the software.

11. Click »Finish«.
The TESTit software is installed.
The TESTit software is in the Start menu under »All Programs« in the »HAINBUCH« folder.

8.2 Software start page

After successful installation, the software starts automatically.

The TESTit software is in the Start menu under »All Programs« in the »HAINBUCH« folder.
After starting the software, the main page »Measure« is displayed.
In the middle area of the header the name of the page is displayed for orientation
- The area marked in yellow opens the menu.
- The area marked in red shows the currently used page.
- The area marked in green shows whether a Bluetooth connection exists.

8.2.1 Menu

The menu is visually divided into three areas.
- The upper area contains the pages relevant for execution of a measurement.
- The administrative pages are presented in the middle area.
In the lower area a page with help listings is shown.

8.2.2 The Bluetooth® icon

The Bluetooth® icon can be displayed in different colors.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gray</td>
<td>Means there is no connection to a TESTit.</td>
</tr>
<tr>
<td>White</td>
<td>In conjunction with a rechargeable battery symbol, it shows an existing connection to a TESTit.</td>
</tr>
</tbody>
</table>

Table 4: Display colors of the Bluetooth® symbol

8.3 Administration

It is recommended to make certain settings before first use.

Via the »Administration« page

1. Testers
2. Measures
3. Clamping devices can be created.

8.3.1 Testers
To create a new tester
1. Click »New«.
2. Enter the name of the new tester.

**INFORMATION**
The input field is limited to 20 characters.

3. Click »OK«.

Alternatively, you can set an existing tester
- Edit

- as default tester
  - A tester, who is set as default tester is highlighted in bold in the listing.
  - When saving, the tester set as default here will be pre-allocated.
8.3.2 Measures

The procedure that is described for testers also applies to the measures. Measures can also be
- Newly created
- Edited
- Deleted
- Set as default.

8.3.3 Clamping devices

Various information, i.e. data, is required to create a new clamping device.

Either:
- Designation*
- ID number*
- Actuating type*
  - Force actuated [mechanical]
  - Manually actuated [manual]
- Maximum radial clamping force*
- Maximum axial draw force/compression force *
- Actuating pressure at maximum axial draw force/compression force axial [diagram] for force actuated*

Or
- Max. Torque for manually actuated*
- Permissible tolerance [+-]*
- Time period maintenance interval:
- Machine/site:
The following checks are run through:

- Are all mandatory fields filled in?
- What is the maximum radial measuring force?

If the maximum radial measuring force is less than the maximum axial draw force/compression force, then a new window appears with the message

»Maximum radial measuring force must be greater than the maximum axial draw force/compression force»

To create a new clamping device

1. Click »New«.
2. Enter the name of the new clamping device.

**INFORMATION**

The input field is limited to 30 characters.

3. Click »OK«.

Alternatively you can use the following functions for an existing clamping device
TESTit
Installing and setting up the software

- Edit

- Delete
8.4 General settings

The following functions are available via the »Settings, general« page:
1. Settings for configuration of the measurement report.
2. Administration of the TESTit V1 devices.

8.4.1 Configuration of the measurement report

Via the Configuration page, all information that should be output to the measurement report can be selected. Selected information is indicated by a box with a check mark. Information that is not desired can be deselected. Non-selected information is indicated by a check box without a check mark.
8.4.2 Management of TESTit V1 devices

The TESTit software V2 is compatible with the TEST V1 devices.
Via »Administration TESTit V1« it is possible to manage the TESTit V1 devices.

The window is divided into two columns.
If the »Search« button is actuated, TESTit V1 devices that are switched on and that are in range will be searched.
A red progress bar will be displayed during the search.
If a TESTit V1 device is found, it will be taught-in and listed.
After teach-in, the dialog window must be closed; click the Bluetooth icon to connect to the added measuring head.
The content of the list with already taught-in TESTit V1 is transferred to the selection window for the clamping force gauge. Thus the selection window is changed.
TESTit V1 that has been taught in can also be removed via the »Delete« button.
When searching for TESTit V1 devices the function of the right button changes from »Search« to »End search«.

The search can be stopped temporarily by clicking »End search«.
8.5 Settings for the force-speed diagram
The diagrams/curves to be output can be visually adapted. The following adaptations are possible:
1. Color of the curve and the curve background
2. Maximum values for the X-axis and Y-axis
3. Designation of the curve

8.5.1.1 Customizing colors
The colors of the curves and of the curve background can be adapted.
Click the relevant field to open a window, in which the new color is selected.

8.5.1.2 Adapting maximum values
Two sliders are presented in the diagram. These sliders can be used to change the maximum value to be displayed for Force and Speed.
The slider displays the maximum values in percent/100.
The value 1 corresponds to 100%, the value 1.05 corresponds to 105%.

The Fig. presents the values 1.05 for the force and 1.02 for the speed.

If a new centrifugal force curve is recorded under »Force-Speed Diagram« or if an already stored centrifugal force curve is added to the diagram, then the maximum values for the force and speed of the diagram will be determined with due consideration of the factor that is set.

The maximum measured force value of a centrifugal force curve is multiplied by the factor that is set, which then serves as the maximum value for the scaling of the diagram.

**Example:**

- A centrifugal force curve has a maximum measured force value of 71 kN and the set factor of the force is 1.05.

  The diagram shows a maximum force value of
  
  \[
  F_{\text{max,Diagramm}} = F_{\text{max,Messkraft}} \times Faktor_{\text{Kraft}} = 71 \, kN \times 1.05 = 74.55 \, kN \approx 75 \, kN
  \]

  Specifically, the factor indicates that the diagram shows a 5% greater value.

If several curves are now added, the curve with the maximum measured force value is always used for the scaling of the diagram.

The same procedure is also used for the scaling of the speed.

These settings are the basic settings.

The display can be adjusted at any time via »Select section«.
8.5.1.3 Adapting the designation of the curve

In the settings, you select the form of the designation that should be used for the curve.

8.6 Changing the language

The language setting for the TESTit software is set via the language of the WINDOWS 10 operating system. This means that on an English-language operating system the TESTit software will also be English.

The TESTit software supports three languages:

- German
- English
- French
If the operating system is set to one of the above languages, the TESTit software is also available in the same language.
If the operating system is set to a different language, the TESTit software will be set to English.
The following are illustrations of the language settings in Windows 10.
1. Start menu → Settings

Already installed languages can be selected via a dropdown menu. In the example German is the currently selected display language.
By way of example, English is selected as the Windows display language.
Changing the Windows display language will only become active after the next login.
This means

1. Select Windows display language
2. Log off user
3. Login user

Now both Windows and the TESTit software will be displayed in the previously selected language.

The currently selected Windows display language is also visible in the taskbar.

If a Windows display language deviates from German, English or French, the TESTit software will be displayed in English by default.
8.7 Legal notice

On the »Legal Notice/Quick Reference Guide« page the software conditions, data protection regulations, and the user manual as PDF are linked (see Fig. 71). In addition, information for support and contact details are also displayed.

On the right side you will find how-to videos. These videos are intended to help you. They explain how to use AS, IS, and HTS TEST modules.

In addition, connection establishment, working with the clamping device database, and the force-speed diagram are also explained.
8.8 Tablet mode

Depending on the display device on which the TESTit software is installed, it may be possible to switch from desktop mode to tablet mode under Windows 10. This in turn means that a classic keyboard is not available.

In tablet mode, the Windows on-screen keyboard then appears if an input field is selected in the TESTit software.
9 Measuring

9.1 Safety for measuring

**WARNING**
Serious injury due to unplanned process start in automatic mode!
- Set the machine to manual mode before starting the measurement.

**CAUTION**
Destruction of the measuring gauge due to unwanted cooling lubricant supply.
- Ensure that the cooling lubricant supply is switched off when measuring.

**NOTE**
Measuring gauge damage due to unplanned process start in automatic mode!
- Set the machine to manual mode before starting the measurement.

**INFORMATION**
Before measuring:
- Switch off the cooling lubricant supply to the machine.
- Clean the clamping surfaces of the clamping head or segment clamping bushing with a soft, lint-free cloth.

**INFORMATION**
The measuring head must not hit a workpiece stop or the mandrel body during the clamping process.
- Check the clamping diameter of the segmented clamping bushing or the clamping head.

**INFORMATION**
Sufficient reserve stroke must be provided for correct use of the measuring head.
- Read and comply with the manual for the clamping device used.
9.2 Clamping the measuring gauge

In the measuring area:

**INFORMATION**
The marking on the measuring head must always be positioned in the middle of the steel segments of the clamping element.

9.2.1 O.D. clamping

The following steps are required to test the clamping force:

1. Mount the clamping device on the machine. To do this, read and comply with the manual for the clamping device.
2. Mount the clamping element and the workpiece end-stop on the clamping device. To do this, read and comply with the manual for the clamping device.
3. Check the charge status of display device and measuring head and recharge if necessary, see the section »Starting the software«.
4. Insert the measuring head so that it
   - hits the clamping head, but
   - DOES NOT hit the workpiece end-stop
5. Clamp the measuring head.

9.2.2 I.D. clamping

The following steps are required to test the clamping force:

1. Mount the clamping device on the machine. To do this, read and comply with the manual for the clamping device.
2. Mount the clamping element and the workpiece end-stop on the clamping device. To do this, read and comply with the manual for the clamping device.
3. Check the charge status of display device and measuring head and recharge if necessary, see the section »Starting the software«.
4. Fit the measuring head on the mandrel, above the segmented clamping bushing; the measuring head must not touch the face side.
5. Clamp the measuring head.

9.2.3 Testing the draw force

The following steps are required to test the draw force on the HTS spindle nose:

1. Remove the workpiece from the HTS spindle nose
2. Check the HTS spindle nose for cleanliness, clean if necessary.
3. Check the rechargeable battery charge status of display device and measuring head and charge if necessary, see the section »Starting the software«.
4. Manually insert the measuring gauge into the HTS spindle nose and clamp it in.

9.3 Preparation

Recommended in the TESTit software for measuring:

- Tester created
- Measure created

A clamping device can now be selected on the »Measure« page.

In the selection window that opens, it is possible to search for a clamping device using the ID number.

9.4 Measuring procedure

1. Select clamping device and click »OK«.

Two colors are used in the selection window for listing the clamping devices.

- The clamping devices marked in red indicate to the operator that the clamping device has not yet been measured. A clamping device is marked in red, if the time period since the last measurement exceeds the time period of the selected maintenance interval.
  The maintenance interval is defined when a clamping device is created, but it can be changed at any time.

- Clamping devices written in black mean that the time period of the maintenance interval has not yet expired; the time period since the last measurement until the current date is less than the selected »Maintenance interval period«.

If a clamping device is selected, then the following will change depending on the stored clamping device data:

- The scaling of the tachometer
- The TARGET measuring force range
The clamping pressure

The clamping pressure actually set on the machine tool must be transferred to the software. The clamping device must be entered correctly [axial/radial ratio].

This is the only way to correctly determine the TARGET measuring force range [green range] in the tachometer. This is calculated with due consideration of the set clamping pressure and the selected tolerance.

If a clamping device with manual actuation is selected, the »Clamping pressure« field changes to »Torque«.

If the Bluetooth® symbol is visible and gray, then TESTit V2 with connection capability is within range or TESTit V1 has already been taught-in.

If the Bluetooth® symbol is then clicked, a selection window opens.
If no TESTit V1 devices have been taught-in, the left column is displayed in its entirety in the selection window.
If there is a connection to a TESTit or IT module, the Bluetooth® symbol changes from gray to white.

In addition, a rechargeable battery symbol with the capacity display in percent is displayed for the IT module.

The square at the right edge of the header line changes the display to the »Full screen« page.
2. Select a found TESTit and confirm with «OK«. All relevant data of the selected TESTit is displayed in the »Clamping force gauge« area.

For TESTit V1:
- Variant of the TESTit
- The maximum measuring force
- The number of clamping positions if a selection of measuring points is available
- The serial numbers of the TESTit

For TESTit V2:
- Variant of the TEST module
- The maximum measuring force
- The number of clamping positions if a selection of measuring points is available
- The serial numbers of the TEST module and the IT module

3. TEST module AS65 and AS32: The button »Selection of measuring points« is shown
9.4.1 Save measurement

1. Save the measurement by actuating the »Save measurement« button. The save procedure consists of a total of four selection windows/input windows.
   - Perform an evaluation of the measurement. Evaluation of a measurement is at the discretion of the operator.
   - Select tester.
   - Select measure [optional].
   - Enter comment [optional].
2. Select tester.

3. Alternatively, enter a new tester in the search field and create the new tester by clicking »New tester«.

4. Select measure.

5. Alternatively, enter a new measure in the search field and create the new measure by clicking »New measure«.
6. Execute the evaluation through selection of:
   - OK
   - Not OK

7. Add comment.
9.4.2 Overload

Each variant of the TEST module is designed for a maximum measuring force.

If the maximum measuring force is exceeded by up to 3%, the measured value in the tachometer will be colored red.

If the measuring force exceeds the maximum measuring force by >3%, the display changes. In this case the measured value in the tachometer is overwritten with the red text »OVERLOAD« [ÜBERLAST].
As soon as the current measuring force is less than the maximum measuring force, the display changes again. If an overload is indicated, it is recommended to send the TEST module back to HAINBUCH for inspection and factory calibration.

9.4.3 Checking the connection of a TEST module to an IT module

To ensure that an IT module is correctly connected to a TEST module, the TEST module is queried. Thus you can determine on the software side during an existing connection, whether the TEST module is still connected to the IT module.

When the TEST module is removed, the connection from IT module to the software is disconnected. The following message window alerts to this situation.
An IT module cannot be connected without a mounted TEST module.
After 20 seconds of unsuccessfullly attempting to connect, a message window appears.

9.4.4 Creating a measurement report

1. Via the »Create measurement report« button a list of previously stored measurement reports can be called-up. The listing of measurements can be sorted according to various information:
   - »Clamping device«
   - »Date«
   - »Machine/site«
   - »Target/ACTUAL measuring force«
TESTit
Measuring

Order hotline +49 7144.907-333
Display of the stored measurement report:

a) Select clamping device.
b) Select 1 measurement report or several measurement reports.
c) Click »Show measurement« → the measurement report will be opened in PDF format.

2. Save the displayed PDF document via »Save as«. The storage location can be freely selected by the operator.
9.5 Force-speed diagram

Under »Force-speed diagram«:
- Can a new centrifugal force curve be created?
- Can multiple centrifugal force curves be compared?

With the centrifugal force curve, the measuring force values [y-axis] are recorded via the associated speed values [x-axis].

If no clamping device was previously selected on the »Measure« page, the »Force-speed diagram« page will be displayed as presented below:

1. Select the clamping devices for the centrifugal force curve.
   The selected clamping device will be transferred to the »Measure« page.
The »New curve« button is displayed.
9.5.1 Creating a centrifugal force curve

1. Click the »New curve« button to open the selection window.

2. Enter the designation of the centrifugal force curve.
   The designation of the centrifugal force curve can be pre-allocated under »Settings, force-speed diagram«.
   The default setting can be changed at any time.

3. Enter the minimum speed value.
   The minimum speed value defines the speed at which recording of the centrifugal force curve will be started.

4. Enter the maximum speed value.
   The maximum speed value defines the final value for determining the centrifugal force curve.

In the example below, the ID number of the clamping device and the measurement time are used.

5. Click »Apply« to start the measurement.
   Recording of the measurement curve starts and ends at the selected parameters.
   If none of the end parameters is reached, or the measurement is not performed within 15 seconds, the software automatically cancels the measurement process.
   »Timeout« appears in the status bar.

The centrifugal force curve is not plotted in the diagram until after the end of the recording. The axes are independently scaled depending on the maximum values of force and speed.

If several curves have already been recorded, you can use »Add curve« to load curves into the diagram and compare them. To visualize stored curves, it is not necessary to select a clamping device.
6. Select «Select section» to display an enlarged area of the centrifugal force curve.
   Enter minimum and maximum measuring force, as well as minimum and maximum RPM value.
7. Select «Hide section» to undo the magnification (enlargement).
8. Click the »Curves overview« button for an overview of the saved curves.

9. Click the »Delete curve« button to delete or remove a saved curve from the displayed diagram.
10. To change the background color of the diagram, set the color under »Settings« → »Force-speed diagram«.

9.5.2 Exporting a curve

1. Export curve as CSV table.
### TESTit Measuring

#### Export curve as JPG image.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verlustkurve</td>
<td>Bezeichnung der Kurve</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drehzahl</td>
<td>Kraft</td>
<td>0</td>
<td>130</td>
<td>0</td>
<td>130</td>
<td>0</td>
</tr>
<tr>
<td>1.000</td>
<td>1.100</td>
<td>1.200</td>
<td>1.300</td>
<td>1.400</td>
<td>1.500</td>
<td>1.600</td>
</tr>
</tbody>
</table>
10 Disassembling

10.1 Disconnect a TEST module from an IT module

1. Loosen and remove the mounting screws.  
2. Pull the TEST module and IT module apart and thus disconnect them.
11 Maintenance

11.1 Safety for maintenance

The TESTit clamping force gauge is a measuring gauge and must be handled with appropriate care.

**INFORMATION**
Special attention must be paid to the surface of the TEST module. The surface wears out due to the clamping forces that occur with frequent use.

- Replace the TESTit or the TEST module if there are visible or measurable indications of wear.

11.2 Cleaning

**WARNING**
Eye injuries and cutting injuries due to missing protective clothing when performing the cleaning procedure!

- Never clean the product with compressed air.
- The following protective equipment must be worn in addition to the basic equipment:

1. Use cleaning agent and a cloth to clean the measuring head of all oil and grease residues.
11.3 Yearly factory calibration

**NOTE**
- Service tasks on the TEST module or the IT module performed by the customer are prohibited.

At delivery, the measuring head is already factory-calibrated, this can be read via the stamp in the service pass.

To ensure measurement accuracy, the TEST module should be re-calibrated yearly.

For the yearly factory calibration, send the TEST module, together with the service pass back to HAINBUCH.

Additional service tasks performed by HAINBUCH will be noted in the service pass and sent back to the customer, together with the newly calibrated TESTit measuring head / TEST module.
12 Disposal

When the TESTit measuring gauge has reached the end of its useful life, return it to HAINBUCH for disposal. Specify »For disposal« on the delivery note.

The respective guidelines of the forwarding agent for transport of lithium polymer batteries installed in equipment must be complied with.

⚠️ DANGER

 Serious injury due to possible fire and explosion when removing the battery!

- Never remove the battery.
- The display device, the power adapter and the USB charging cable must be disposed of in accordance with the instructions in the manufacturer’s operating manual.
- These parts can also be sent back to HAINBUCH for disposal.
13 Faults

The section below describes the possible causes of faults and the tasks to rectify these faults.

If faults occur more frequently, the maintenance intervals must be shortened in accordance with the actual load.

If there are faults that cannot be rectified through the instructions below instructions, contact the manufacturer [see the »Contact« section].

13.1 Procedure if there are faults

The following always applies:

1. If there are faults that pose an imminent hazard to persons or material assets, immediately press the emergency stop button on the machine tool.
2. Determine the cause of the fault.
3. If fault rectification requires tasks in the danger zone, put the machine tool in setup mode.
4. Immediately inform the responsible person at the installation site of the fault.
5. Depending on the type of fault, have it rectified by authorized specialists in the respective field.

**INFORMATION**
The troubleshooting table provided below lists personnel who are authorized to rectify the fault.

6. In the event of a fault that was not caused by the product, the cause of the fault may be in the machine tool area. See the operating manual of the machine tool in this regard.
## 13.2 Troubleshooting table

<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible cause</th>
<th>Troubleshooting</th>
<th>Rectification through</th>
</tr>
</thead>
<tbody>
<tr>
<td>After pressing the ON button on the measuring head, there is no display</td>
<td>The capacity of the rechargeable battery of the measuring head is too low</td>
<td>Charge the rechargeable battery of the measuring head</td>
<td>Specialist</td>
</tr>
<tr>
<td>IT module is not found, the gray Bluetooth icon is not displayed</td>
<td>Rechargeable battery of the IT module is empty</td>
<td>Charge the IT module</td>
<td>Specialist</td>
</tr>
<tr>
<td></td>
<td>Bluetooth of the display device is deactivated</td>
<td>Enable Bluetooth in the Windows settings</td>
<td>Specialist</td>
</tr>
<tr>
<td></td>
<td>IT module not within range</td>
<td>Bring IT module closer to the TESTit software [display device]</td>
<td>Specialist</td>
</tr>
<tr>
<td>Connection to IT module not possible although it is detected and listed</td>
<td>Insufficient battery charge of the IT module</td>
<td>Charge the IT module</td>
<td>Specialist</td>
</tr>
<tr>
<td></td>
<td>IT module not connected to TEST module</td>
<td>Screw IT module onto TEST module</td>
<td>Specialist</td>
</tr>
<tr>
<td></td>
<td>IT module is in the limit area of the radio range</td>
<td>Bring IT module closer to the TESTit software [display device]</td>
<td>Specialist</td>
</tr>
<tr>
<td>No measurement data found for storage</td>
<td>Insufficient battery capacity</td>
<td>Charge the battery</td>
<td>Specialist</td>
</tr>
<tr>
<td></td>
<td>Bluetooth connection faulty</td>
<td>Check connection of measuring head and display device</td>
<td></td>
</tr>
<tr>
<td>Display device cannot be started</td>
<td>Rechargeable battery of the IT module is empty</td>
<td>Charge the battery of the IT module</td>
<td>Specialist</td>
</tr>
<tr>
<td></td>
<td>Display device is defective</td>
<td>Send display device back to the manufacturer</td>
<td>HAINBUCH</td>
</tr>
<tr>
<td>Measuring head is damaged</td>
<td>Measuring head has fallen off / hit something</td>
<td>Factory function test and, if necessary, replacement of the components is necessary</td>
<td>HAINBUCH</td>
</tr>
<tr>
<td>Connection to measuring head cannot be established</td>
<td>Measuring head is out of the Bluetooth range</td>
<td>Bring the measuring head within range of the software and reconnect</td>
<td>Specialist</td>
</tr>
</tbody>
</table>

Table 5: Troubleshooting table
14 Appendix

14.1 Contact us

The following hotlines are available for orders, scheduled dates, and emergencies.

Order Hotline
Ordered fast, delivered fast. Just give us a call:
+49 7144. 907-333

Delivery Hotline
Current status of your order? Just call give us a call:
+49 7144. 907-222

24 h emergency call
Equipment crash or other technical emergency?
Our experts are here for you around the clock:
+49 7144. 907-444

The sales partners and service employees listed at www.hainbuch.com are available for advice or assistance.

14.2 Manufacturer certification

The manufacturer's certificate is supplied with the product and its manual.
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