

English version of original German operating instructions

EN

STAHLWILLE perfectControl

Motor-operated calibration and adjustment facility 7794-2



Read through these operating instructions carefully to ensure safe operation. Store these instructions for further use.

Code number 91979873

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Preface

These operating instructions help you to make

- proper,
- safe and
- economical

use of the motor-operated calibration and adjustment facility.

Target group of these operating instructions

The operating instructions are aimed at the users of the motor-operated calibration and adjustment facility.

The information contained in these operating instructions is aimed at authorised, trained and familiarised personnel. We assume that these persons possess general technical knowledge.

Each person who

- transports
- installs,
- dismantles,
- operates,
- maintains or
- disposes of

the adjustment and calibration facility must have read and understood the corresponding contents of these operating instructions.

If you do not understand any of the information in these operating instructions or information is missing, please contact
STAHLWILLE Eduard Wille GmbH & Co. KG.

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Introduction to the operating instructions

Availability

A complete and legible copy of the operating instructions must always be stored at the calibration and adjustment facility's operating location.

If these operating instructions become lost or unusable, a new copy can be requested from STAHLWILLE Eduard Wille GmbH & Co. KG.

If you have not yet registered the device, the following data are required for reordering:

- Serial number of your calibration and adjustment facility
- Name of your dealer
- The code number of the operating instructions can be found at the bottom left of the title page.

In addition to the operating instructions, the generally applicable and local accident prevention and environmental protection regulations must be made available and observed.

Keep all safety notices and information on dangers on the calibration and adjustment facility in legible condition.

Supplements

Regularly add instructions to the operating instructions at the relevant operating location due to

- Legal regulations concerning accident prevention,
- Legal regulations concerning environmental protection and
- Trade association stipulations.

Structural features

Defined structural features are assigned to the various elements within the operating instructions. You can therefore easily determine the type of text which this involves:

Normal text,

- Lists or

➤ Action steps.

- ① Notices with this symbol contain general information and information regarding the economical use of the testing facility.

Explanation of the warning notices

The following categories of notices are contained in these operating instructions:



DANGER

Notices containing the word DANGER warn of hazards which lead directly to severe or fatal injuries.



WARNING

Notices containing the word WARNING warn of hazards which may possibly lead to severe or fatal injuries.



CAUTION

Notices containing the word CAUTION warn of hazards which may possibly lead to minor to moderate injuries.

ATTENTION

Notices containing the word ATTENTION warn of hazards in which property damage may possibly occur.

Safety

Proper use, operating area

The machine is exclusively intended to be used in adjusting and calibrating torque wrenches and STAHLWILLE transducers within the framework of the technical specifications.

Proper use additionally includes:

- Compliance with all notes contained in the operating instructions
- Observance of all instruction signs on the machine
- Adherence to the inspection and maintenance intervals.

Any other use is regarded as improper, particularly bending objects.

STAHLWILLE Eduard Wille GMBH & CO. KG accepts no liability for damage arising as a result of this.

Basic safety instructions

Dangers due to electrical energy

There is a risk of fatal accident due to electric shock if you ignore the following safety instructions.

- Never open the housing of the calibration and adjustment facility.
- Only connect the calibration and adjustment facility to a properly installed mains socket of 100-240 V ~, 50/60 Hz.
- The mains plug must be freely accessible so that the calibration and adjustment facility can be easily and quickly disconnected from the mains power supply in an emergency.
- Disconnect the calibration and adjustment facility from the mains power supply in the following cases:
 - Before cleaning,
 - When installing accessories,
 - In the event of mechanical damage,

– When the calibration and adjustment facility is not used for a long period of time.

- Switch the calibration and adjustment facility off at the mains switch on the rear or remove the mains plug from the socket. Pull only on the mains plug in this case.
- The calibration and adjustment facility and the mains power cable must not be exposed to water.
- Do not place any objects filled with fluids on, next to or above the calibration and adjustment facility.
- Do not install the calibration and adjustment facility in the vicinity of water.
- Do not touch the mains power cable or the calibration and adjustment facility with moist hands.
- Do not kink or crush the mains cable.
- Never use the calibration and adjustment facility with a damaged mains power cable, following a malfunction or when the calibration and adjustment facility is damaged. Have the calibration and adjustment facility checked or repaired by the service department before using it again.
- Always have repair or maintenance work carried out by qualified, specialist personnel.

Risk of injury due to damaged calibration objects

- Under certain circumstances, parts may break or fracture when loading damaged calibration objects.
Check calibration objects and insertion tools for damage (cracks or fractures) before calibrating. Do not calibrate damaged calibration objects or insertion tools.
- To avoid risks of injury due to the calibration object or the square adapter splintering, always operate the calibration and adjustment facility with the protective cover mounted.

Risk of injury due to crushing

When operating the calibration and adjustment facility, there is a risk of crushing the fingers at the following points:

- Between the supporting bolts and the calibration object
- On the longitudinally adjustable carriage between the carriage and the transducer bracket

Hazards due to noise

- Depending on the calibration object, a sound pressure level (torque wrench triggering impact) which causes deafness may occur.
Wear ear protectors in these cases.

Environmental pollution due to incorrect disposal

- Dispose of cleaning agents and lubricants according to the regulations applicable at the operating location.
- Dispose of the calibration and adjustment facility according to the regulations applicable at the operating location.

Avoiding material damage

Avoid material damage on the device and the torque wrenches through the following measures:

- Make sure that the torque wrenches are not damaged.
- Only insert the torque wrenches in the manner described in these operating instructions.

Warranty and liability

Warranty and liability claims in the event of personal injury and material damage are inadmissible if they are attributable to one or more of the following causes:

- Improper use of the calibration and adjustment facility.
- Improper installation, commissioning, operation and maintenance of the calibration and adjustment facility.
- Operation of the calibration and adjustment facility with defective safety facilities or improperly installed or non-functional safety and protective devices.
- Non-observance of the notes in the operating instructions.
- Unauthorised modification of the calibration and adjustment facility's characteristics.
- Inadequate monitoring of parts of the calibration and adjustment facility which are subject to wear.
- Improperly carried out repairs.
- Disasters due to the effect of foreign bodies and acts of God.
- Non-observance of the requirements contained in the relevant standard during calibration.
- Non-observance of the manufacturer's instructions on calibrating and adjusting calibration objects.

Changes to the design of the calibration and adjustment facility

- Do not carry out any modifications, attachments or conversions on the calibration and adjustment facility without the approval of the manufacturer.
- Immediately exchange parts of the machine which are not in flawless condition.
- Use only genuine replacement and wearing parts. Parts procured from third-party manufacturers provide no guarantee of the fact that they have been designed and manufactured to cope with the stress and function safely.

Duties when handling this calibration and adjustment facility

Obligations on the part of the owner

The owner is obliged only to allow the following persons to work on the calibration and adjustment facility:

- Persons who are familiar with the basic regulations concerning industrial safety and accident prevention, and who have been trained in handling the calibration and adjustment facility,
- Persons who have read and understood the chapter on safety and the warning notices contained in the operating instructions, and have confirmed this with their signature,
- Persons who are familiar with and have understood the requirements for calibrating torque wrenches.

Responsibility for the properly executed calibration and adjustment of torque wrenches is borne by the owner or user.

Obligations on the part of the personnel

Before starting work, all persons commissioned to carry out work on the calibration and adjustment facility must be obliged:

- To observe the basic regulations concerning industrial safety and accident prevention,
- To read the chapter on safety and the warning notices contained in the operating instructions, and to confirm with their signature that they have read and understood these,
- To comply with the requirements of the relevant standard on calibration.

Personnel training

- Only trained and familiarised personnel may work on the calibration and adjustment facility.
- The user's qualification requirements must be defined by the customer. We recommend basic technical training with advanced quality assistant training.
- The personnel's responsibilities must be clearly defined for installation, commissioning, operation, set-up and maintenance work.
- Personnel undergoing on-the-job training may only work on the calibration and adjustment facility under the supervision of an experienced person.
- The personnel must be familiar with the application and handling of calibration objects.
- The personnel must have detailed knowledge of EN ISO 6789 and standards or works' requirements to be applied by the user.
- The personnel must have knowledge of the operation of a PC and the software installed on it.

Safety equipment

- The required personal safety equipment must be provided by the owner.

Safety measures during normal operation

- Only operate the calibration and adjustment facility if all protective facilities are fully functional.
- Before switching on the calibration and adjustment facility, make sure that nobody can be endangered by the calibration and adjustment facility starting.
- At least once per shift, check the calibration and adjustment facility for externally visible damage and to ensure that the protective facilities are functional.

Protective facilities

The calibration and adjustment facility is equipped with various protective facilities.

Regularly check all available protective facilities as per the maintenance schedule.

- In the event of an emergency, the calibration and adjustment facility is shut-down using an emergency stop button.
- Each time before the calibration and adjustment facility is started up, all protective facilities must be installed properly and within easy access, and must be functional.
- Protective facilities must not be manipulated.

Emergency stop button

The calibration and adjustment facility is equipped with an emergency stop button. A further emergency stop button is available on the manual operating terminal which can additionally be connected.

Motor operation is stopped after pressing the emergency stop button. An ongoing adjustment or calibration process is cancelled.

Proceed as follows after pressing the emergency stop button:

- Eradicate the cause of the malfunction.
- Make sure that the calibration and adjustment facility is in flawless condition.
- Release the emergency stop button by turning it clockwise to stop.
- Acknowledge the fault with the tare/reset button.

Protective cover

A protective cover is mounted above the transducer. In the event of a defect on the square adapter or the insertion tool, this protective cover prevents splintering parts from causing injury.



The position of the protective hood is polled using a safety switch. If the protective cover is opened during operation, this leads to immediate cancellation of the calibration process. It is not possible to start up the calibration and adjustment facility when the protective cover is open. No loading or rotation can be carried out.

Keep the protective cover clean. When closing the protective cover, no foreign objects must be present between the protective cover and the calibration object.

Edge guard on the longitudinally adjustable carriage

To prevent cutting or trapping the fingers when adjusting the longitudinally adjustable carriage, it must be fitted with edge guards (1).



Limitation of the movement range

Limit switches are located in the calibration and adjustment facility's drive system. The limit switches limit the movement range. If the permissible movement range is exceeded and a limit switch is actuated as a result, the calibration process is cancelled. During set-up mode, the calibration and adjustment facility can be manually moved outside of this range. Exceeding the permissible movement range may be caused for example by an improperly adjusted ratchet on a torque wrench.

Motor overload protection

The motor is equipped with an overload and temperature protection facility. If this is triggered, the calibration process is cancelled.

Proceed as follows in this case:

- Switch the calibration and adjustment facility off and allow the motor to cool down.
- Switch the calibration and adjustment facility on again after it has cooled.

Transducer overload

During operation, the calibration and adjustment facility constantly checks the transducer, which

serves as a reference, for overloading. The transducer may be overloaded by a maximum of 25 % of the maximum measuring range value. The software reports possible overloading via a warning prior to the start of a calibration process. If overloading occurs, the calibration process is cancelled.

Calibration object overload

During operation, the calibration and adjustment facility constantly checks the calibration object for overloading. The calibration object may be overloaded by a maximum of 20 % of the maximum measuring range value. If overloading occurs, the calibration process is cancelled.

Warning and instruction signs

- Observe and comply with the warning and instruction signs mounted on the device.
- Make sure that none of the warning and instruction signs mounted on the device are covered over and that they are all clearly legible at all times.
- Immediately replace damaged warning and instruction signs.

Technical description

Overview



No.	Explanation
1	Protective cover
2	Bridge anti-trapping guard
3	Vertically adjustable rest for the calibration object
4	Longitudinally adjustable carriage

No.	Explanation
5	Handle
6	Emergency stop button
7	Buttons
8	Transducer flange

Technical data

Max. permissible relative humidity	70 % (non-condensing)
Ambient temperature in the laboratory	From 18 °C to 28 °C (in accordance with EN ISO 6789:2003)
IP system of protection	IP 20
Operating temperature range	From 10 °C to 40 °C
Connection voltage	100 to 240 V AC
Frequency	50 to 60 Hz
Total output	250 W
Electrical fuse	2 x 6.3 A glass tube fuse T6.3A/250 V (at the IEC power connector socket)
No. of phases	1-phase
Dimensions (L x W x H) approx.	1060 x 640 x 330 mm
Weight	50 kg

Electrical protection

The calibration and adjustment facility is equipped with one IEC power connector socket. This is fused with two thermal glass fuses 6.3 A. If these fuses trip due to overload, the control circuit for the entire calibration and adjustment facility is switched off.

Identification

The calibration and adjustment facilities can be identified via a serial number. The type plate is mounted next to the electrical connections on the calibration and adjustment facility.

Type of product	Motor-operated calibration and adjustment facility
Type	7794-2
Intended use	Calibration and adjustment
Date of production	Month and year: See type plate

Transportation, delivery, storage

Transportation

Comply with the following safety instructions when transporting the calibration and adjustment facility:



DANGER

Life-threatening injuries due to falling or tipping calibration and adjustment facility

- Make sure that the aids for transporting the machine parts are undamaged and have the required carrying capacity.



CAUTION

Risk of injury when carried by one person.

- Only raise the calibration and adjustment facility using suitable lifting equipment or with the aid of a second person.
- Only carry the calibration and adjustment facility with the aid of a second person.
- Carry the calibration and adjustment facility by the handles which are provided.

ATTENTION

Damage due to improper transportation.

- Do not crush any lines during transportation.
- Use transportation equipment in such a way that no parts of the machine are deformed or shifted.

Additionally comply with the pictograms on the packaging and the calibration and adjustment facility.

Unpacking

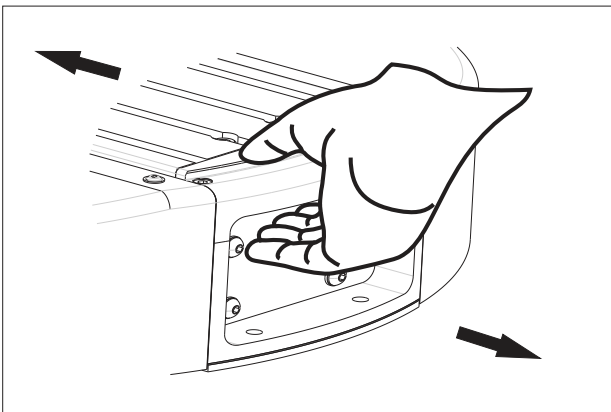


WARNING

Risk of injury when lifting the calibration and adjustment facility due to slipping out of the hand.

- Only lift the calibration and adjustment facility with the aid of a second person.
- To do this, use only the carrying handles which are provided on the calibration and adjustment facility.

Use the carrying handles as shown:



Proceed as follows to unpack the calibration and adjustment facility:

- Open the lid of the transport crate.
- Lift the calibration and adjustment facility out of the packaging with the aid of a second person using the carrying handles provided and marked for this purpose.
- Set the calibration and adjustment facility down in the intended location.

Delivery

Scope of delivery

Quantity	Designation
1	Motor-operated calibration and adjustment facility for torque wrenches
1	Bridge connector
1	Operating instructions
7	Mains power cable (country-specific)
1	USB adapter
1	Jack plug cable 1.5 m for USB adapter
1	Connecting cable for transducer (helical cable)
6	Calibration adapter (for adapting the calibration object's output square to the transducer)
4	Calibration squares (for adapting the insert system on the calibration object to the transducer if the calibration object has no output square)
1	Angled screwdriver for 2 mm hexagon socket (for adjusting mechanical torque wrenches)
1	USB stick with TORKMASTER software

i A transducer and a PC or laptop are required to operate the calibration and adjustment facility. These are not contained in the scope of delivery.

The following STAHLWILLE transducers can be used:

- 7728-1
- 7728-2
- 7728-4
- 7728-6
- 7728-10
- 7728-20
- 7728-40
- 7728-65
- 7728-80
- 7728-100

Check on acceptance by the recipient

- Check that the delivery is complete.
- In the event of incorrect deliveries, notify us or the representative responsible for you.

Reporting and documenting transport damage

- In the event of transportation damage, notify us or the representative responsible for you.
- Describe the damage to us.
- Document the damage.

Packaging

- Remove the existing packaging material.
- Remove the enclosed accessories.
- Make sure that the calibration and adjustment facility is not damaged.

Storage

- Store the calibration and adjustment facility in packaged condition.

Ensure the following storage conditions:

- Relative humidity: 20-60 %, non-condensing
- Temperature: -20 to +60 °C

Erection and mounting

The calibration and adjustment facility must be installed on a level surface with sufficient load-bearing capacity. It can be secured using the mounting holes in the handles at the sides. Perfect alignment and levelling of the calibration and adjustment facility are important in this case.

- Use the handles which are provided to handle the calibration and adjustment facility.
- To install the calibration and adjustment facility, place it onto the work surface on the workbench.
- Bolt the calibration and adjustment facility to the work surface using the mounting holes (1).
- Check the alignment of the calibration and adjustment facility.
- Make sure that the calibration and adjustment facility is perfectly aligned and securely mounted.



Installing extension 7791-1



CAUTION

Risk of injury on assembly of the extension.

- Wear protective gloves to prevent injuries caused by cutting on sharp edges.

The calibration and adjustment facility is designed for a maximum torque of 400 N m.

Extension 7791-1 can be used for calibration objects which require a higher torque. This is available as an accessory. When extension 7791-1 is installed, a maximum torque of 1100 N m can be applied.

The extension's scope of delivery contains:

- Extension 7791-1
- Two height compensation plates
- Two bolts for securing to the calibration and adjustment facility
- Two connectors with tapped holes

A ball-ended hexagon key wrench size 5 is required to mount extension 7791-1.

- Make sure that the calibration and adjustment facility has been installed and fastened properly.

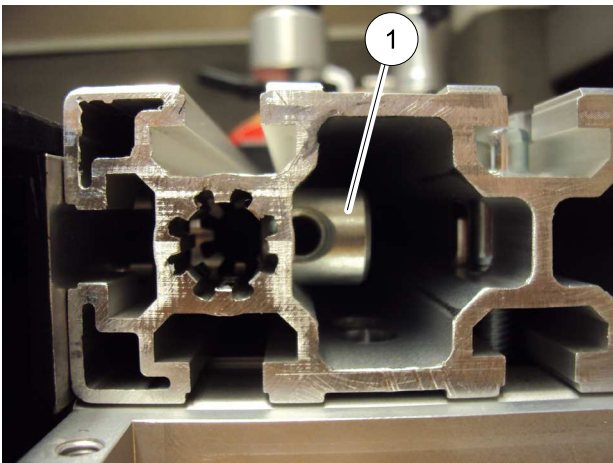
Proceed as follows to mount extension 7791-1:

- Remove the two cheese head screws with hexagon socket, to which the handle on the right-hand side of the calibration and adjustment facility is secured.

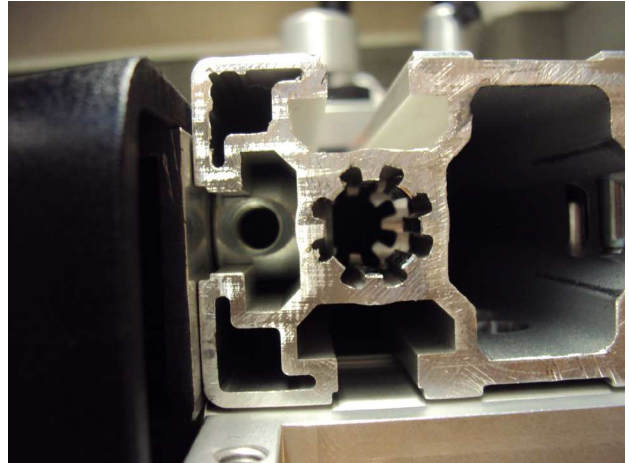


- Lift the handle off upwards.
- Retain the handle for subsequent use.
- Insert a connector (1) into the profile on the right- and left-hand sides of the calibration and adjustment facility.

The illustration shows the left-hand side.



- Make sure that the tapped hole in the connector is visible.



- Insert one bolt into the intended opening on the left- and right-hand side of the extension.

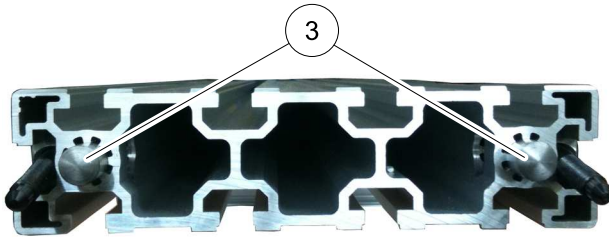


The height compensation plates are provided with double-sided adhesive tape.

- Remove the film.
- Adhere the two height compensation plates (2) beneath the extension as illustrated.

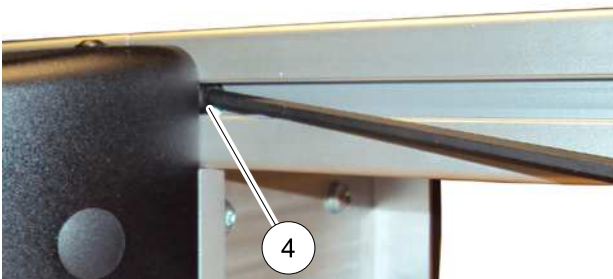


The extension is equipped with two centring pins (3) for mounting.



- Insert the extension with the two centring pins into the intended mountings on the calibration and adjustment facility.
- Tighten the two bolts (4) on the left- and right-hand sides of the extension hand-tight.

The illustration shows the left-hand side.



To secure the extension to the work surface, the mounting brackets (5) first have to be adjusted.

- Release the bolts for adjusting the mounting brackets.
- Lower the mounting brackets onto the work surface.



- Tighten the bolts for adjusting the mounting brackets hand-tight.
- Secure the extension to the work surface using the bolts and the mounting brackets.



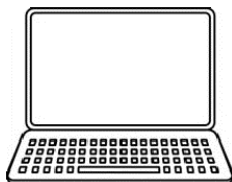
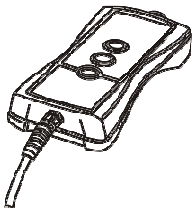
Connecting

Characteristic electrical data of the control system

Connection voltage	100 to 240 V AC
Frequency	50 to 60 Hz
Total output	250 W
Electrical fuse	2 x 6.3 A glass tube fuse T6.3A/250 V (at the IEC power connector socket)
No. of phases	1-phase

Overview of external connections

Pictogram on the calibration and adjustment facility



Connection

Manual operating terminal /PCA2 connection

The manual operating terminal can be connected here.

If the manual operating terminal is not connected, the bridge connector must be connected.

If the manual operating terminal or the bridge connector are not connected, an emergency stop error message is output

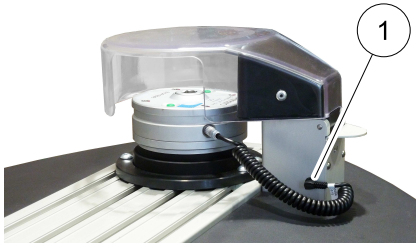
PC connection

Connect the PC here. Use only the 3.5 mm jack plug cable and the USB adapter from STAHLWILLE for this purpose.

Calibration object connection

Connect the electronic calibration objects of the STAHLWILLE model series 712, 713 and 730D torque wrenches as well as the model series 772x transducers here. Alternatively, interface adapter 7761 can be connected for torque wrenches 714 and 701.

Location on the calibration and adjustment facility



Connection

Reference connection (transducer)

(Laterally on the protective cover bracket):
Connect the transducer here (1). Use only the intended STAHLWILLE connecting cable for transducers (helical cable) for this purpose.

This cable must not transfer any forces to the transducer. Lateral forces can negatively influence the calibration results.

Establishing connections

To connect the calibration and adjustment facility, use the mains power cable with the appropriate connector for the connection used at the operating location. Seven mains power cables with the usual world-wide connections are contained in the scope of delivery.

- Insert the mains power cable's IEC power connector into the IEC power connector socket (2).
- Insert the bridge connector into the corresponding connection (1).

Alternatively, the manual operating terminal can be connected here.

- Connect the calibration and adjustment facility to the mains power supply using the mains power cable's grounding-contact type connector.




Operating the calibration and adjustment facility

Controls



i Alternatively, the optionally available manual operating terminal can be connected. This enables you to carry out the same functions as with the controls available on the calibration and adjustment facility.

No.	Description
1	Emergency stop button Direction of rotation for releasing 
2	Button with 3-colour LED display: Start calibration runs / transducer jog mode counter-clockwise (CCW-CounterClockWise)
3	Button: Stop calibration runs / data acceptance / transducer jog mode clockwise (CW-ClockWise)
4	Button: Transducer tare / reset (acknowledgement)

Control functions

<p>"Emergency stop" button</p>	<p>Press the emergency stop button to shut the calibration and adjustment facility down in an emergency. The calibration and adjustment facility relieves itself automatically up to a torque of approx. 100-150 N m.</p> <p>Before continuing to operate the calibration and adjustment facility, the emergency stop button must be released and the fault acknowledged.</p> <p>Turn the emergency stop button clockwise to stop.</p> <p>Acknowledge the fault with the tare/reset button.</p>
<p>"Tare/reset" button</p>	<p>Triggers transducer taring.</p> <p>Only tare the transducer when it is under no load (no inserted calibration object).</p> <p>In the event of a fault: Acknowledge the fault and reset.</p>
<p>"Ready/error LED" Integrated into the "Start" button</p>	<p>This LED indicates the operating mode of the calibration and adjustment facility and any malfunctions:</p> <p>Green LED lights up: The calibration and adjustment facility is in calibration mode / adjustment mode</p> <p>Yellow LED lights up: The calibration and adjustment facility is in set-up mode.</p> <p>Red LED lights up: A fault is present</p>
<p>"Start" button</p>	<p>The start button has several functions:</p> <p>In set-up mode: The transducer is turned counter-clockwise in jog mode.</p> <p>In triggering calibration mode: Start the set number of measurements. These are carried out automatically.</p> <p>In measuring calibration mode: The calibration object is loaded in jog mode.</p>
<p>"Stop" button</p>	<p>The stop button has several functions:</p> <p>In set-up mode: The transducer is turned clockwise in jog mode.</p> <p>In triggering calibration mode: Loading is cancelled and the transducer is relieved.</p> <p>In measuring calibration mode: Measured value is integrated into the TORKMASTER programme and the transducer is relieved.</p>

Using the TORKMASTER 4 programme

Installing the software

Installing the TORKMASTER 4 programme

The following system requirements must be met to install the TORKMASTER programme on your computer:

- Operating system Windows ® XP SP3 or higher
- Adobe Acrobat Reader ® 8.0 or higher
- Free USB interface.

The programme is installed with the aid of an installation assistant. This conducts you through the installation. To install the programme, you must have administrator rights on the computer. The steps required for installation are described in the following.

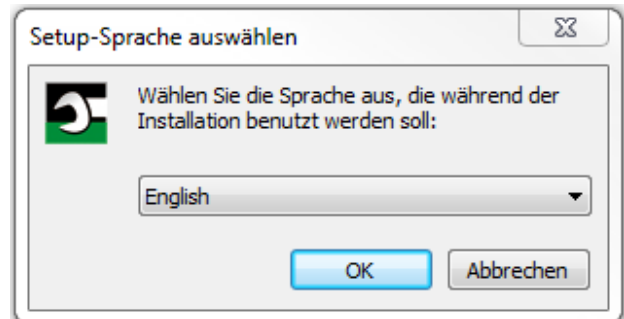
- Connect the enclosed USB stick to the computer.
- Connect the calibration and adjustment facility to the computer using the enclosed 3.5 mm jack plug cable.
- Launch the setup .exe file on the data medium.

The following query is displayed:



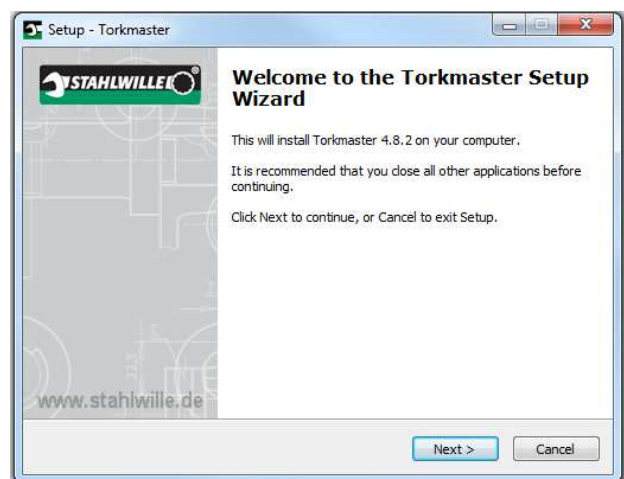
- To start installation, confirm the query with "Execute".

The language selection is displayed on the monitor.



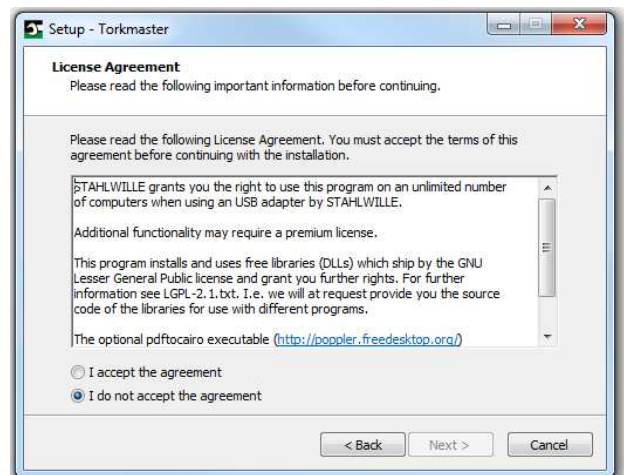
- Select the desired language.
- Click onto "OK" to confirm the selection.

The installation start window is displayed



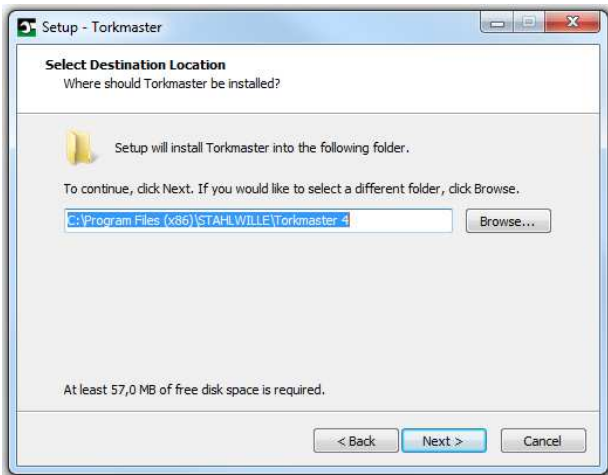
- To continue installation, click onto "Continue".

The "Licence agreement" window is displayed.

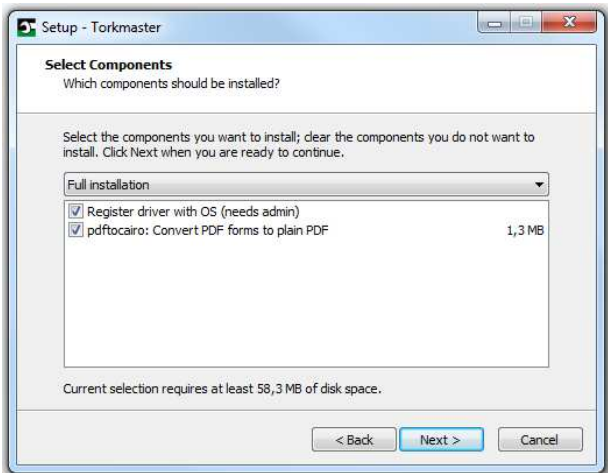


- Read the licence agreement.
- Select the option "I accept the agreement".
- To continue installation, click onto "Continue".

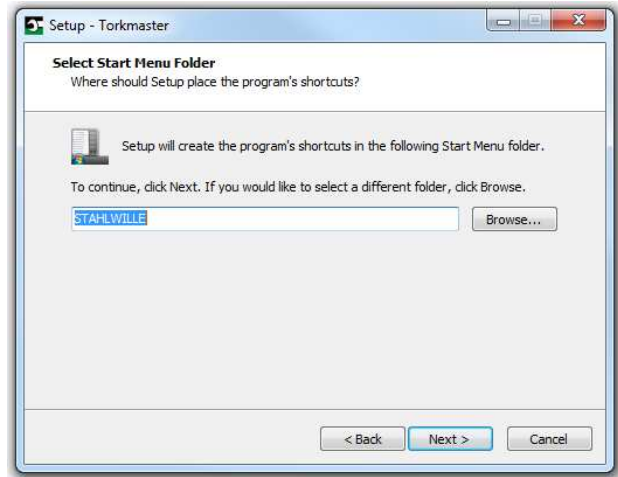
The "Select target folder" window is displayed.



- Select the desired installation directory.
 - To confirm the selection, click onto "Continue".
- The "Select components" window is displayed.
- Select the components that you want to install.



- To confirm the selection, click onto "Continue".
- The "Select start menu folder" window is displayed.



- Enter the desired name for the start menu.
- To confirm the input, click onto "Continue".

A summarisation of the settings which have been made is displayed.



- To change a setting, click onto "Back" until the window for the desired input is displayed.
- To discard the inputs and cancel installation, click onto "Cancel".
- To confirm the inputs and start installation, click onto "Install".

The programme is installed. On completion of installation, the following display is shown:

- Open the hyperlink.
- Follow the instructions on the screen.



- To close the window, click onto "Finish".

Installation is ended.

Manually installing the driver

Whilst the programme is being installed, the driver for the calibration facility's USB connection to the computer is automatically installed.

In certain cases, a driver which is unsuitable for your operating system may be installed.

If you connect the calibration facility to the computer and start the TORKMASTER programme, you will see the following displays in this case:

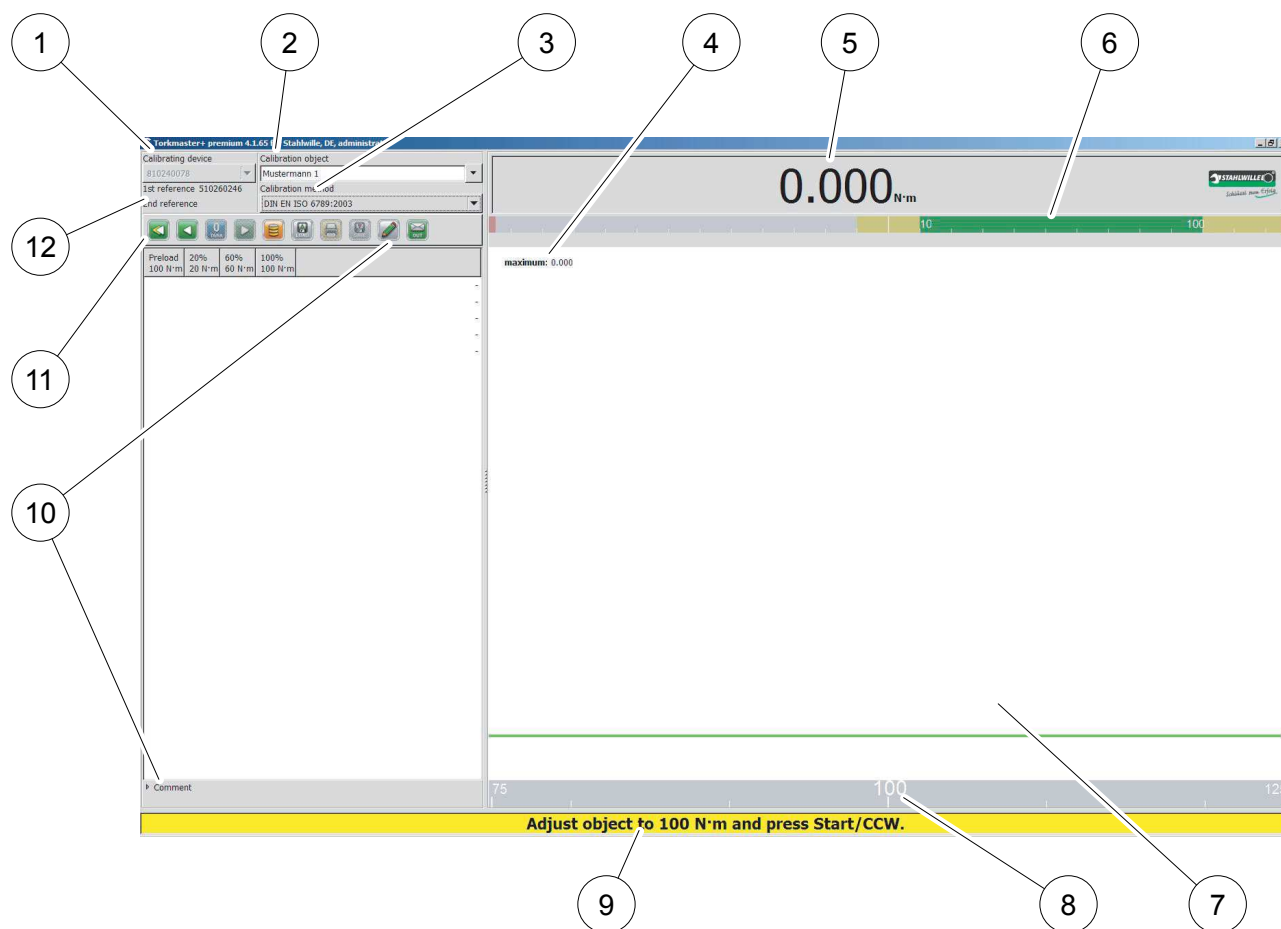
- The red LED on the USB connection lights up.
This indicates that a driver is installed.
- The message "No USB adapter found" is displayed in the programme user interface's status bar.

- Open the "www.stahlwille.de" site in the Internet.
- If you are already a registered customer, log in under "My account".
- If you are not yet a registered customer, you can create an account under "My account".

A hyperlink for downloading current drivers is available under "Service" in the downloads area.

The main menu controls

The main menu contains the following displays and controls:



Number	Designation
1	Serial number of the calibration facility and selection field for manual selection of the calibration facility
2	Input or selection of the calibration object ("Calibration object")
3	Selection of the calibration method
4	Result of the current measurement
5	Numerical display of the current measured value
6	Bar display of the measured value in the permissible measuring range
7	Graphical portrayal of the current measured value
8	Enlarged bar display of the target value
9	Status line for messages: <ul style="list-style-type: none"> • Green: Notes and information on the measurement • Yellow: Calibration instructions • Red: Error messages
10	Button for opening the comment field
11	Buttons for individual functions
12	Displays for the two transducers ("Reference")

Selection of the calibration facility

In the case of type 7794-2 and 7794-3 calibration and adjustment facilities, this information is automatically entered as soon as a calibration and adjustment facility is connected to the computer. This information has to be entered manually in the case of other types.

- To do this, click into the selection field.
- Then click onto the entry for the connected calibration facility.

Input field for the calibration object

The following information can be input in this field:

- Serial number or
- Identification number

The search criterion can be switched over in the basic settings.

If the number is displayed in red, the calibration object has not yet been created in the database.

Selection of the calibration method

One of the following test methods can be selected:

- Quick test:
The tool is tested without creating a standard-conforming log.
- Test and adjustment:
A tool can be tested and adjusted in the case of deviating values.
- According to EN ISO 6789:
Calibration of a tool (calibration object) according to the standard's specifications. Results cannot be deleted.
- Based on EN ISO 6789:
Calibration of a tool (calibration object) according to the standard's specifications. Individual results can be deleted and the measurement can be repeated.

Further calibration methods are possible on request.

A selection can only be made in this field if you have selected a calibration object.

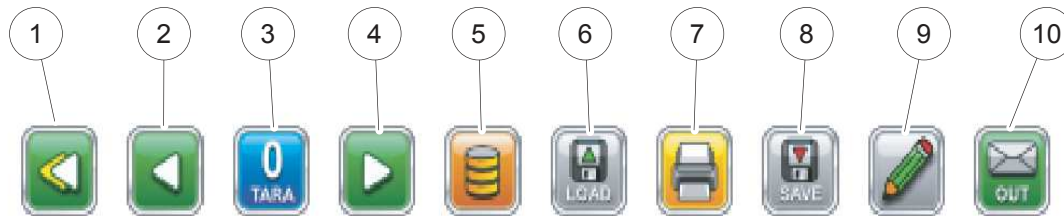
Serial number of the connected transducer ("Reference")

The serial number of the connected transducer is displayed here.

In certain cases, the measuring range of the transducer does not cover the measuring range of the calibration object completely. In such cases, the transducer must be changed during calibration. The information on the two transducers is displayed and stored in the log.

Buttons for functions

These buttons can be used to execute the following functions:



Number	Function
1	Completely repeat the last calibration.
2	Delete the result of the last measurement. To delete several results, this step can be repeated. Calibration is then continued and all deleted measurements are repeated.
3	Define the zero position for the transducer ("Tare transducer").
4	Continue the current calibration step following a malfunction or a fault.
5	Open a sub-menu for selecting basic settings. Settings for the calibration object can be changed here and stored in the database.
6	Load a stored measurement result from the database.
7	Print the measurement log. The measurement result is simultaneously stored in the database.
8	Save the measurement log to the database.
9	Show or hide the input field for comments. On showing, the enlarged bar display is simultaneously shown in enlarged form.
10	Select input or output calibration.

Operating the TORKMASTER 4 programme

Further notes on operating the TORKMASTER programme can be found in the online help.

The online help also contains information on changing basic settings.

Preparing for operation



CAUTION

Crushing of the fingers due to the carriage tilting as a result of soiled guide rails.

- Make sure that the guide rails are clean.
- Clean soiled guide rails before commissioning.



CAUTION

Cuts due to missing edge guards on the longitudinal carriage.

- Make sure that the edge guards are present and firmly mounted on the longitudinal carriage.
- Immediately replace missing edge guards.

For the position of the edge guards, refer to the illustration on page 10.

Preparing the calibration and adjustment facility

The following points must be guaranteed:

- Switch the main switch off.
- Make sure that the electrical connection to the mains power supply is correct.
- Make sure that the bridge connector is inserted or the manual operating terminal is connected.
- Make sure that all components, particularly the protective facilities, are functional by checking the components for proper operation and damage.
- Make sure that all attaching parts are firmly seated and the calibration and adjustment facility is anchored.
- Make sure that the emergency stop button is released.

Preparing the PC

ATTENTION

Malfunctions due to non-installed software.

- Only connect the USB adapter to the PC once the TORKMASTER has been installed.

- Connect the USB adapter's jack plug cable to the corresponding socket (1).



- Make sure that the TORKMASTER software is installed on the PC.
- Connect the USB adapter to the PC.
- Start the TORKMASTER programme on the PC.

Calibrating and adjusting torque wrenches



CAUTION

Risk of injury due to the torque wrench breaking. Parts can fly away.

- Make sure that the protective cover is in flawless condition.
- Do not operate the device with a damaged protective cover.
- Exchange a damaged protective cover for an undamaged one.

- Only operate the calibration and adjustment facility if all protective facilities are complete and functional.
- Make sure that nobody can be endangered by the calibration and adjustment facility's starting up before switching it on.

Starting the calibration and adjustment facility

- Switch the calibration and adjustment facility on using the switch on the IEC power connector.
- Position the transducer on the flange using the quick-release system.
- Connect the transducer to the calibration and adjustment facility using the helical cable.



- To exchange the transducer, press the two green locking pins and raise the transducer.
- Do not apply force when doing this.

Set-up mode

After switching on or after pressing the stop button at the end of a calibration process, the calibration and adjustment facility is in set-up mode.

The yellow LED in the start button lights up.

- To turn the transducer counter-clockwise, press the start button.
- To turn the transducer clockwise, press the stop button.
- Move the transducer to the neutral position by pressing the start or stop button. Align the two marks to do this.



Testing and adjusting



CAUTION

Cuts due to missing edge guards on the longitudinal carriage.

- Make sure that the edge guards are present and firmly mounted on the longitudinal carriage.
- Immediately replace missing edge guards.

For the position of the edge guards, refer to the illustration on page 10.

- Insert the torque wrench with the corresponding calibration square or calibration adapter into the transducer.
- Select the calibration object to be adjusted in the TORKMASTER programme.
- Start testing and adjusting mode in the TORKMASTER programme.
- Set the desired adjustment value on the calibration object and in the TORKMASTER programme.
- Set the longitudinal carriage so that the bridge anti-trapping guard is positioned centrally to the handle of the calibration object.

Observe the function lengths in the Annex for STAHLWILLE torque wrenches.

- Lock the longitudinal carriage using the lever on the right-hand side of the longitudinal carriage.
- Align the calibration object in the calibration and adjustment facility according to the specifications of the relevant standard.
- Release the clamp screw on the bridge anti-trapping guard.
- Set the distance between the eccentric bridge anti-trapping guard and the calibration object to a dimension of less than 4 mm.
- Tighten the clamp screw hand-tight.
- Close the protective cover.

- To start a measurement, press the start button. Any number of measurements can be carried out.
- To end the measurement, press the stop button.

See TORKMASTER operating instructions.

Clicking calibration



CAUTION

Cuts due to missing edge guards on the longitudinal carriage.

- Make sure that the edge guards are present and firmly mounted on the longitudinal carriage.
- Immediately replace missing edge guards.

For the position of the edge guards, refer to the illustration on page 10.

- Insert the torque wrench with the corresponding calibration square or calibration adapter into the transducer.
- Select the calibration object to be calibrated in the TORKMASTER programme.
- Select the calibration method.

The calibration data are automatically read-in from the database.

- Set the desired calibration value on the calibration object.
- Set the longitudinal carriage so that the bridge anti-trapping guard is positioned centrally to the handle of the calibration object.

Observe the function lengths in the Annex for STAHLWILLE torque wrenches.

- Lock the longitudinal carriage using the lever on the right-hand side of the longitudinal carriage.
- Align the calibration object in the calibration and adjustment facility according to the specifications of the relevant standard.

- Release the clamp screw on the bridge anti-trapping guard.
- Set the distance between the eccentric bridge anti-trapping guard and the calibration object to a dimension of less than 4 mm.
- Tighten the clamp screw hand-tight.
- Close the protective cover.
- To start calibration, press the start button.
- Follow the instructions of the TORKMASTER programme through the calibration sequence. The instructions are displayed at the bottom edge of the screen.

A calibration log can be saved and printed out at the end of the calibration sequence.

- To end calibration, press the stop button.

See TORKMASTER operating instructions.

Measuring calibration



CAUTION

Cuts due to missing edge guards on the longitudinal carriage.

- Make sure that the edge guards are present and firmly mounted on the longitudinal carriage.
- Immediately replace missing edge guards.

For the position of the edge guards, refer to the illustration on page 10.

- Insert the torque wrench with the corresponding calibration square or calibration adapter into the transducer.
- Select the calibration object to be calibrated in the TORKMASTER programme.
- Select the calibration method.

The calibration data are automatically read-in from the database.

- Set the longitudinal carriage so that the bridge anti-trapping guard is positioned centrally to the handle of the calibration object.

Observe the function lengths in the Annex for STAHLWILLE torque wrenches.

- Lock the longitudinal carriage using the lever on the right-hand side of the longitudinal carriage.
- Align the calibration object in the calibration and adjustment facility according to the specifications of the relevant standard.
- Release the clamp screw on the bridge anti-trapping guard.
- Set the distance between the eccentric bridge anti-trapping guard and the calibration object to a dimension of less than 4 mm.
- Tighten the clamp screw hand-tight.
- Close the protective cover.
- To achieve the desired value in jog mode, press the start button until the value is attained.
- To automatically integrate the value into the TORKMASTER programme, press the stop button.
- Follow the instructions of the TORKMASTER programme through the calibration sequence. The instructions are displayed at the bottom edge of the screen.

A calibration log can be saved and printed out at the end of the calibration sequence.

- To end calibration, press the stop button.

See TORKMASTER operating instructions.

Maintenance

Maintenance work is exclusively performed on the outside of the calibration and adjustment facility.

Proceed as follows before carrying out maintenance work:

- Switch the calibration and adjustment facility off using the switch on the IEC power connector socket.
- Additionally remove the mains plug from the mains socket.
- Make sure that the calibration and adjustment facility cannot be switched on without authorisation.
- Carry out the necessary maintenance work.
- Check the function of the available protective facilities.

- Prevent the ingress of soap solution into bearings, seals and electrical systems.
- Clean corroded areas and, if permissible, coat with paint, grease or oil.
- Replace damaged, illegible or missing labels and signs.
- Store cleaning agents and lubricants according to the applicable regulations.
- Dispose of cleaning agents and lubricants according to the applicable regulations.

Exchanging fuses

The IEC power connector socket is fused with two type T6.3A/250 V glass tube fuses.



DANGER

Lethal hazard due to electric shock.

- Switch the calibration and adjustment facility off using the switch on the IEC power connector socket.
- Remove the mains plug from the mains socket.

Cleaning

ATTENTION

Malfunctions due to ingressing cleaning agents.

- Use cleaning agents sparingly to avoid the ingress of cleaning agents into the electrical installation space.

Carry cleaning and care work out as required according to the following working rules:

- Do not use compressed air for cleaning the system. Ingressed dirt damages seals, bearings and electrical components.
- Clean all machine components, covers and splash panels with a cloth soaked in mild soap solution.
- Clean lines and plastic parts using a mild soap solution.
- Observe and comply with the manufacturers' instructions regarding cleaning agents.
- Remove escaped lubricants using a mild soap solution.

Proceed as follows to replace a defective glass tube fuse:

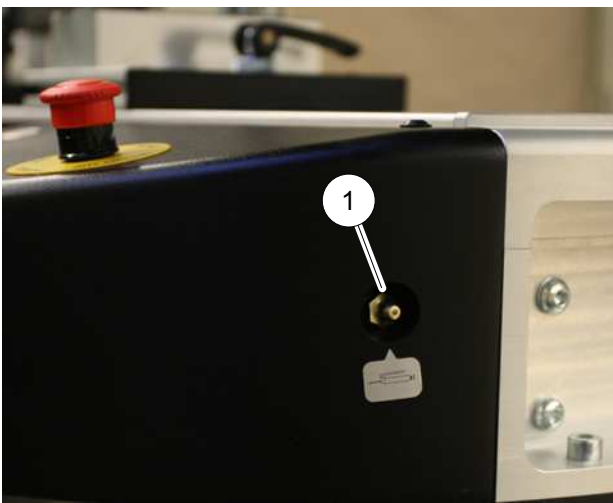
- Switch the calibration and adjustment facility off using the switch (2) on the IEC power connector socket.
- Remove the mains plug from the mains socket.
- Remove the fuse holder (1).



- Check whether a glass tube fuse is defective.
- Replace a defective glass tube fuse with a functioning fuse of the same type.
- Insert the fuse holder together with the glass tube fuses.

Lubricating

The calibration and adjustment facility is equipped with a central lubrication system. The lubricating nipple (1) is mounted behind a cover on the front right-hand side.



❗ We suggest Fin Grease MP 2/3 from Interflon.

The calibration and adjustment facility must be lubricated every three months.

- Remove the cover of the lubricating nipple.
- Lubricate the lubricating nipple with two pumps of the grease gun.
- Dispose of escaped grease and consumable materials soiled with grease according to the regulations applicable at the operating location.

Maintenance schedule for the mechanical system

Interval	Component	Check	Findings	Measures
Daily	Protective facilities	Presence	Not present	Do not commission device Install protective facility
Daily	Protective facilities	Function	Defective	Do not commission device Replace defective protective facility
Daily	Protective facilities	Damage	Damaged	Do not commission device Replace damaged protective facility
Daily	Bridge anti-trapping guard	Function	Loose, run out	Renew defective parts, secure
Daily	Threaded connections	Firm seating	Loose	Tighten threaded connections
3 months	Central lubrication system	Noises	The calibration and adjustment facility must be lubricated every three months.	Lubricate the lubricating nipple with two pumps of the grease gun.

i Further service and maintenance work on the calibration and adjustment facility may only be carried out by specialist personnel from STAHLWILLE.

Disposal

Dispose of the calibration and adjustment facility via a certified specialist disposal company. Observe and comply with the applicable regulations. If in doubt, contact your municipal or local administration.



The calibration and adjustment facility primarily consists of the following materials:

- Steel
- Aluminium
- ABS plastic
- PETG plastic

➤ Dispose of escaped grease and consumable materials soiled with grease according to the regulations applicable at the operating location.

The electronic components of the calibration and adjustment facility must be disposed of separately.

WEEE registration No.: DE 70431151

WEEE = Waste Electrical and Electronic Equipment

Information on extension lengths

The correct tightening torque with unchanged extension lengths

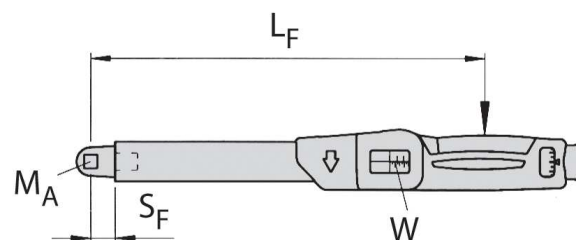
Normal case

Torque wrench No. 730N/10 combined with square plug-in tool No. 734/5 and socket wrench bit AF 13 mm.

Desired bolt tightening torque $M_A = 40 \text{ N}\cdot\text{m}$

Torque wrench $L_F = 336 \text{ mm}$,
dimension table: $S_F = 17.5 \text{ mm}$

Square plug-in tool $S = 17.5 \text{ mm}$
dimension table:



Torque wrench

No correction of the setting value on the torque wrench required.

$S = S_F$

$W = M_A$

The correct tightening torque with changed extension lengths

When tightening with plug-in tools whose extension length S deviates from the standard extension length S_F , a corrected display or setting value must be calculated for the torque wrench which is used.

ATTENTION! If adapters are combined with plug-in tools or special tools, the sum of the extension lengths $= \sum S$ must be used for the calculation. W_k must be determined empirically for special tools which are angled to the side.

$$W_K = \frac{M_A \cdot L_F}{L_K} \left[\frac{\text{N} \cdot \text{m} \cdot \text{mm}}{\text{mm}} \right]$$

$$W_K = \frac{M_A \cdot L_F}{L_F - S_F + S \text{ (bzw. } \Sigma S \text{)}}$$

Formulae

M_A = Desired tightening torque

W = Display or setting value $W = M_A$

W_K = Corrected display or setting value
 $W_K \neq M_A$

L_F = Function length (see torque wrench dimension tables)

L_K = L_K =corrected function length $L_K = L_F - S_F + S$ (or ΣS)

S = Extension length of the STAHLWILLE plug-in tools or special tools (see plug-in tool dimension tables)

S_F = Standard extension length (see torque wrench dimension tables)

ΣS = Sum of the extension lengths of the plug-in tools used
 $S_{\text{Adapter}} + S_{\text{Plug-in tool}} + \dots$

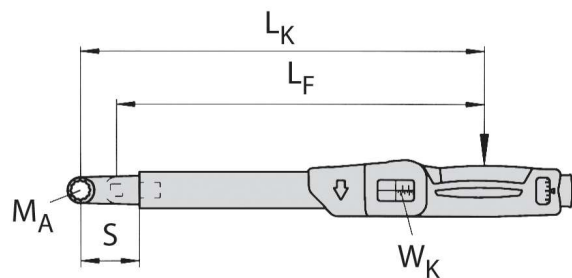
Example 1: corrected setting value (one plug-in tool)

Torque wrench No. 730N/20 combined with ring plug-in tool No. 732/40 AF 36 mm.

Desired bolt tightening torque $M_A = 190 \text{ N} \cdot \text{m}$

Torque wrench $L_F = 424.5 \text{ mm}$,
dimension table: $S_F = 25 \text{ mm}$

Ring plug-in tool $S = 28 \text{ mm}$
dimension table:



How to find the data in the catalogue:

730N Basic wrenches with tool carrier for insert tools													
Code	size	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
50181002	2	2-20 N·m	20-180 in·lb	1 N·m	10 in·lb	0.2 N·m	9x12	28	23	275	226	17.5	737
50181005	5	10-50 N·m	7-37 ft·lb	5 N·m	1 ft·lb	0.25 N·m	9x12	28	23	330	280.5	17.5	831
50181010	10	20-100 N·m	15-75 ft·lb	10 N·m	2.5 ft·lb	0.5 N·m	9x12	28	23	386	336	17.5	988
50181012	12	25-130 N·m	20-95 ft·lb	10 N·m	2.5 ft·lb	0.5 N·m	22x28	28	23	421	379	25	1128
50181020	20	40-200 N·m	30-150 ft·lb	10 N·m	5 ft·lb	1 N·m	22x28	28	23	467	424.5	25	1264
50181040	40	80-400 N·m	60-300 ft·lb	20 N·m	10 ft·lb	2 N·m	22x28	28	23	607	564.5	25	1655
50181065	65*	130-650 N·m	100-480 ft·lb	50 N·m	20 ft·lb	2.5 N·m	22x28	30.6	25.6	890	848	25	3231
50181365	11/65	130-650 N·m	100-480 ft·lb	50 N·m	20 ft·lb	2.5 N·m	22x28	30.6	25.6	911	900	55	3504
50181080	80	160-800 N·m	120-600 ft·lb	100 N·m	25 ft·lb	5 N·m	22x28	30.6	25.6	1178	1167	55	4882
50181100	100	200-1000 N·m	150-750 ft·lb	100 N·m	25 ft·lb	5 N·m	22x28	30.6	25.6	1363	1297	55	5300
50581002	a/2	20-180 in·lb	1.5-15 ft·lb	10 in·lb	0.5 ft·lb	2 in·lb	9x12	28	23	275	226	17.5	737
50581005	a/5	90-450 in·lb	7-37 ft·lb	50 in·lb	1 ft·lb	2.5 in·lb	9x12	28	23	330	280.5	17.5	831
50581010	a/10	180-900 in·lb	15-75 ft·lb	100 in·lb	2.5 ft·lb	5 in·lb	9x12	28	23	386	336	17.5	988
50581020	a/20	350-1800 in·lb	30-150 ft·lb	100 in·lb	5 ft·lb	10 in·lb	22x28	28	23	467	424.5	25	1264
50581040	a/40	60-300 ft·lb	800-3600 in·lb	20 ft·lb	100 in·lb	2 ft·lb	22x28	28	23	607	564.5	25	1655

* recommended ratchet insert tool No 735/40HD

$$W_K = \frac{M_A \cdot L_F}{L_F - S_F + S} = \frac{190 \text{ N·m} \cdot 424.5 \text{ mm}}{424.5 \text{ mm} - 25 \text{ mm} + 28 \text{ mm}} = \frac{190 \text{ N·m} \cdot 424.5 \text{ mm}}{427.5 \text{ mm}} = 188.7 \text{ N·m}$$

Adjusted setting value $W_K = 188.7 \text{ N·m}$
→ value to set 189 N·m

→ $S \neq S_F$
→ $W \neq M_A$

Example 2: corrected setting value (plug-in tool and adapter)

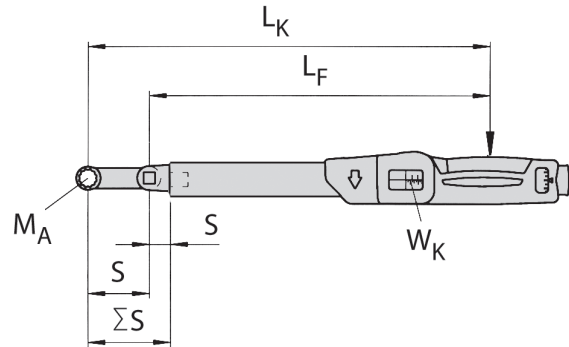
Torque wrench No. 730N/10 combined with square plug-in tool No. 734/5 and adapter No. 447 AF 10 mm.

Desired bolt tightening torque $M_A=25 \text{ N·m}$

Torque wrench $L_F=336 \text{ mm}$,
dimension table: $S_F=17.5 \text{ mm}$

Square plug-in tool $S=17.5 \text{ mm}$
dimension table:

Adapter dimension $S=50.8 \text{ mm}$
table:



$$W_K = \frac{M_A \cdot L_F}{L_F - S_F + \Sigma S} = \frac{25 \text{ N·m} \cdot 336 \text{ mm}}{336 \text{ mm} - 17.5 \text{ mm} + 17.5 \text{ mm} + 50.8 \text{ mm}} = \frac{25 \text{ N·m} \cdot 336 \text{ mm}}{386.8 \text{ mm}}$$

Corrected setting value $W_K=21.7 \text{ N·m}$

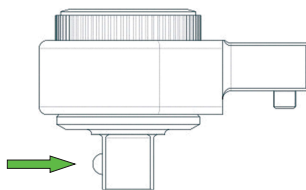
$\Sigma S \neq S_F$

$W \neq M_A$

General information on calibration

If no internal test equipment monitoring procedures are available, the calibration interval defined in the standard applies. Calibration should then take place twelve months after initial usage or after around 5000 load cycles.

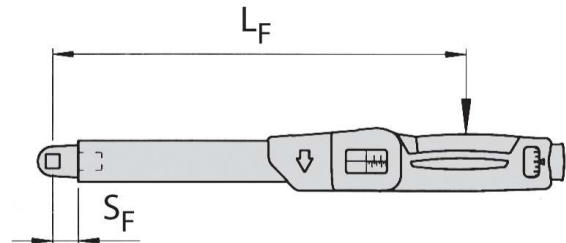
- Prior to calibration, perform a function check and visual inspection to rule out damage to the torque wrench.
- Only perform calibration at an ambient temperature of $23\text{ °C} \pm 5\text{ °C}$. If the ambient temperature lies outside of the tolerance, take this into consideration on evaluation of calibration.
- Make sure that the torque wrench to be calibrated is able to acclimatise sufficiently to the ambient temperature.
- On use of special plug-in tools, please note dimension SF and adapt the torque wrench settings according to the conversion formula specified here.
- In the case of plug-in tools with a spring-loaded ball or pin, align the tool so that it points away from the handle.



- Note all dimensions which deviate from the standard (SF and LF) in the calibration certificate.
- Position the torque wrench in the calibration facility so that it is aligned $\pm 3^\circ$ horizontally.
- Make sure that the torque wrench lies free of tension and without force in the calibration facility.

The dimension SF is the standard extension length of the plug-in tools which are used.

The dimension LF is the lever arm to be used during calibration, measured from the centre of the bolt head (centre of the transducer).

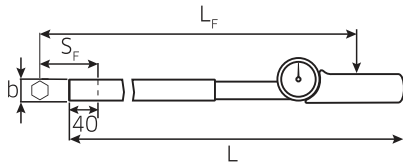


LF=function length

SF=standard extension length

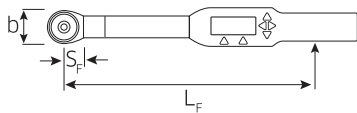
Torque wrench dimension tables

Type 71		
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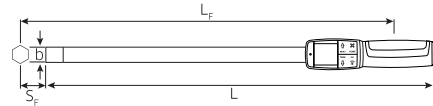
Model	SF [mm]	LF [mm]
80	95	1050
aR/80	—	1060

Types 712/713		
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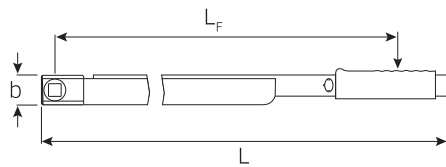
Model	SF [mm]	LF [mm]
712/6	17.5	299
713/6	17.5	299
713/20	25	524
713/40	25	750

Type 714		
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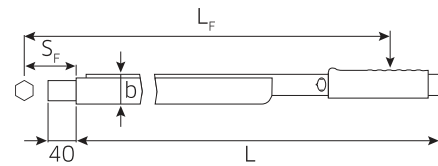
Model	SF [mm]	LF [mm]
1	17.5	188
2	17.5	188
4	17.5	214
6	17.5	355
10	17.5	428
20	25	516
40	25	656
65	55	890
80	55	1158
100	55	1343
R1	17.5	188
R2	17.5	188
R4	17.5	214
R6	17.5	355
R10	17.5	428
R20	25	516
R40	25	656
R65	55	890
R80	55	1158
R100	55	1343

Type 720NF



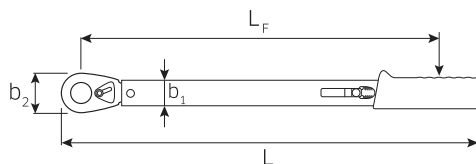
Model	SF [mm]	LF [mm]
80	–	938

Type 730



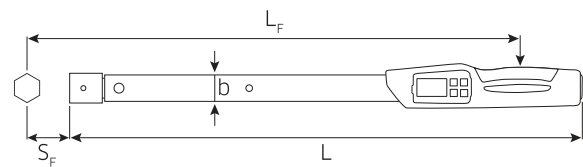
Model	SF [mm]	LF [mm]
80	–	990

Type 721



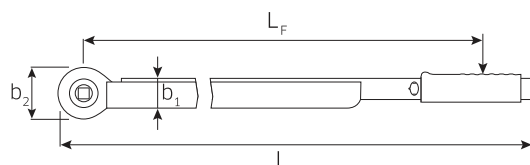
Model	SF [mm]	LF [mm]
5	–	293
15	–	387
20	–	418
30	–	486
QR/20	–	418

Type 730 D



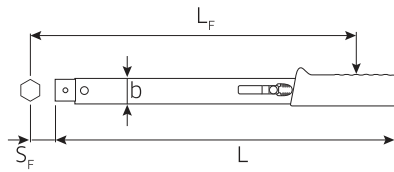
Model	SF [mm]	LF [mm]
10	17.5	426.5
20	25	515
40	25	655
65	25	837
II/65	55	889
80	55	1157
100	55	1341
R10	17.5	426.5
R20	25	515
R40	25	655
R65	25	837
II/R65	55	889
R80	55	1157
R100	55	1341

Type 721NF



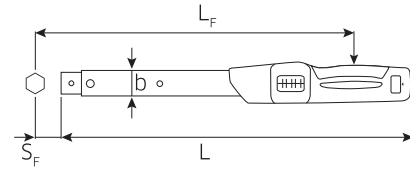
Model	SF [mm]	LF [mm]
80	–	938
100	–	1365

Type 730



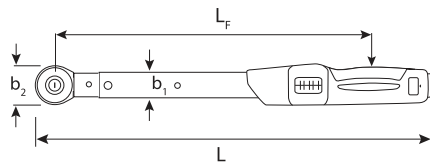
Model	SF [mm]	LF [mm]
2	17.5	174
4	17.5	218
a/2-1	17.5	174
a/2	17.5	174
a/40	17.5	218
5	17.5	288
10	17.5	343
12	25	390
20	25	435
40	25	570
65	25	855
II/65	55	907
a/5	17.5	288
a/10	17.5	343
a/12	25	390
a/20	25	435

Type 730N



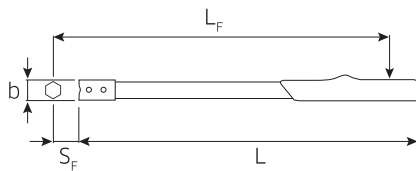
Model	SF [mm]	LF [mm]
2	17.5	226
5	17.5	280.5
10	17.5	336
12	25	379
20	25	425.5
40	25	564.5
65	25	848
65	55	900
80	55	1167
100	55	1352
a/2	17.5	226
a/5	17.5	280.5
a/10	17.5	336
a/20	25	424.5
a/40	25	564.5

Type 730 NR



Model	SF [mm]	LF [mm]
5FK	–	280.5
10FK	–	336.5
20FK	–	425
40FK	–	564.5
65FK-HD	–	848
5QR FK	–	291
100QR FK	–	346.5
200QR FK	–	438.5

Type 755




Model	SF [mm]	LF [mm]
R/1	17.5	172
4	17.5	289
10	25	425
20	25	435
30	25	587

Subsequent additions to the operating instructions

It sometimes occurs that manuals have to be supplemented, modified or updated. Make sure that exchanged parts of the operating instructions are

destroyed. The additions supplied for the manual must be confirmed at this point to be able to check that they are completely up to date and that all additions have been carried out:

Addition No.	Delivery date	Included on	Name	Signature

 If you require more space, the declaration can be copied and enclosed in the operating instructions.



EU declaration of conformity



EU declaration of conformity for a machine

The manufacturer: STAHLWILLE Eduard Wille GmbH & Co. KG
Lindenallee 27
42349 Wuppertal, Germany

hereby declares that the following product:

Product designation: Motor-operated adjustment and calibration device for torque tools and transducers

Type designation: 7794-2 perfectControl

Serial number:

Year of construction:

complies with all relevant regulations of Machinery Directive 2006/42/EC .

The machine additionally complies with all regulations of Electro magnetic Compatibility Directive 2014/30/EU.

The following harmonised standards have been applied:

DIN EN ISO 12100 Safety of machinery - General principles for design - Risk assessment and risk reduction

DIN EN 60204-1 Safety of machinery - Electrical equipment of machines - Part 1: General requirements

DIN EN 61326-1:2013-07 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

Person authorised to compile the techn. documents as per Annex VII A of Directive 2006/42/EC:

Name: Timo Schmidt
Address: Lindenallee 27
42349 Wuppertal
Germany.

Wuppertal,

Date

Signatory and data on the signatory

Signature

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Reg. No. DE 70431151 EAR

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Managing director:
Dipl.-Ing. Winfried Czilwa (CEO)
Dipl.-Betriebswirt Peter Mettlick

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