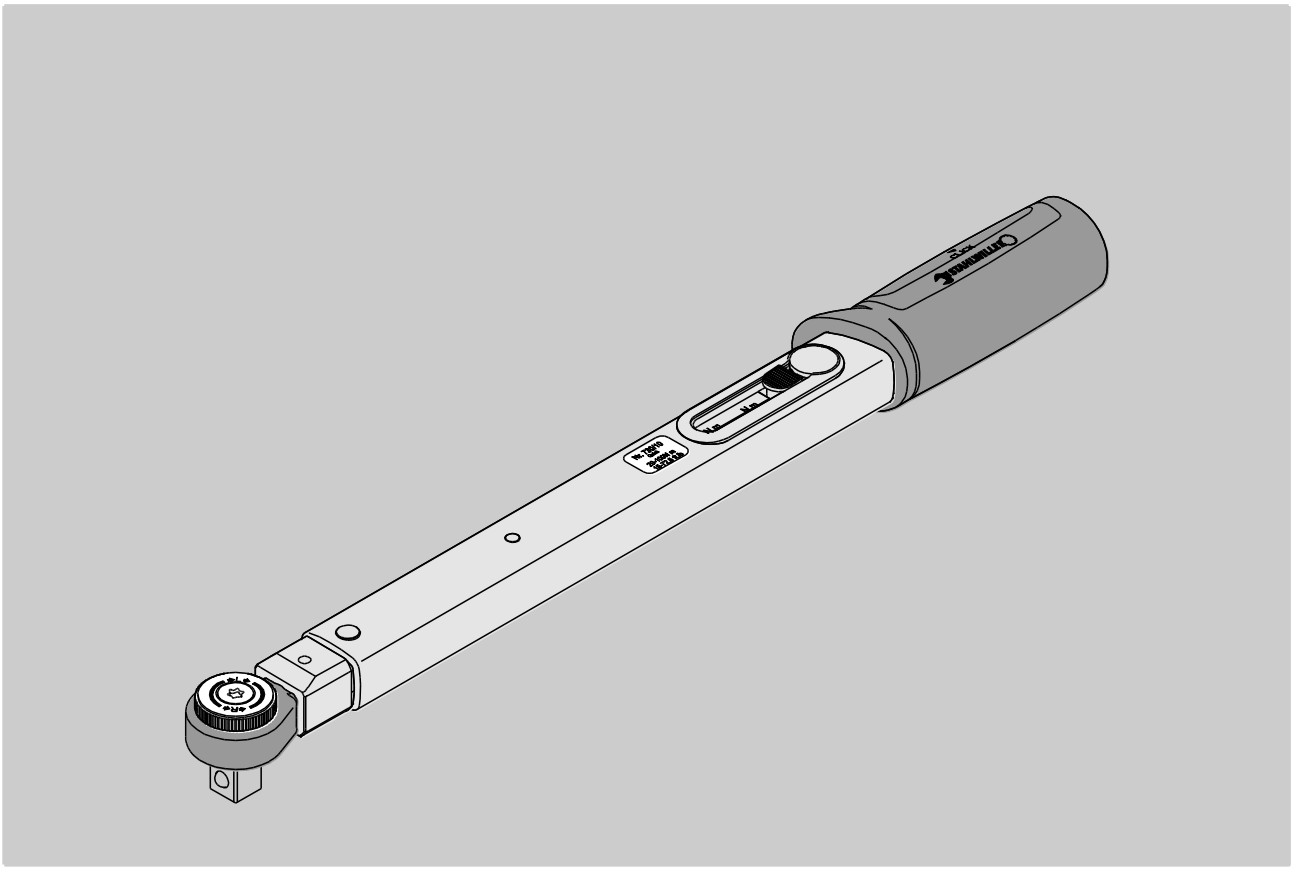
Instructions for use

EN

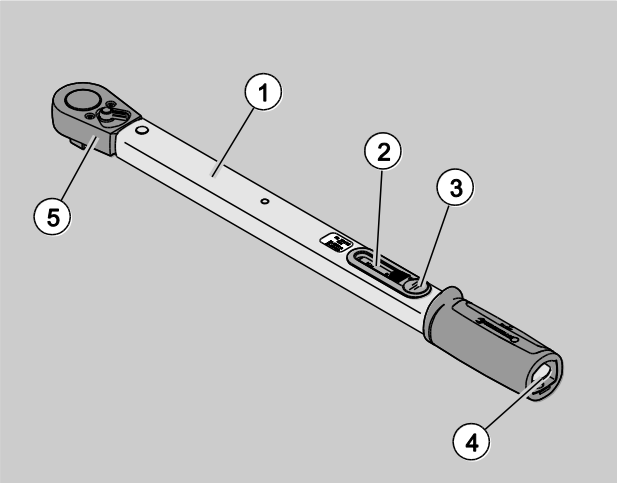
MANOSKOP® 721, 730 Quick



Status: 07/2016

Contents

Technical description



No	Explanation
1	MANOSKOP®
2	Sliding scale
3	Magnifying glass
4	Pressure plate
5	Ratchet adapter

All models

MANOSKOP® 721 and 730 Quick are adjustable torque wrenches with a cut-out, tactile and audible cut-out signals.

- These torque wrenches have a safety cut-out mechanism.
- The wrench is set to cut-out at a certain torque level by setting the required value on the force-free sliding scale.
- The setting slide has an automatic setting fail-safe mechanism.
- The measuring element is a flexible rod. The flexible rod is not pretensioned and is only under tension during the tightening process until the wrench cuts out.
- After use, it does **not** need to be reset to the lowest value.
- As soon as the torque wrench is released, it is ready for the next job.
- The 2-component grip, which is ergonomically designed, ensures pleasant and safe handling. The right grip position is indicated by optical and tactile signals.
- These wrenches will only tighten in one direction. Counterclockwise tightening is possible thanks to an insert tool which is rotated by 180°. Exception: The MANOSKOP® 721/5 Quick, 721/15 Quick and 721/20 Quick cannot be used for counter clockwise tightening. Counterclockwise tightening is possible with the MANOSKOP®®721/30 Quick by means of a square drive which is pushed through.
- By means of the QuickRelease function, insert tools can be changed quickly.
- If necessary, these torque wrenches can be readjusted without dismantling.

Maximum permissible deviation of the set value from the absolute value at cut-out is ± 4 %. MANOSKOP® 721 Quick and 730 Quick comply with DIN EN ISO 6789, Type II, Class A.

Each MANOSKOP® has a serial number and is delivered with a works calibration certificate in accordance with the above stated DIN EN ISO 6789.

Standard MANOSKOP® 721/5 Quick, 721/15 Quick, 721/20 Quick and 721QR/20 Quick ...

... have a permanent, switchable ratchet with a permanent square drive (sizes are shown in the Technical Specifications). Controlled counter clockwise tightening is not possible.

Standard MANOSKOP® 721/30 Quick ...

... has a permanent, switchable ratchet with a push-through 12,5 (1/2") square drive.

Service MANOSKOP® 730/5 to 730/65 Quick ...

... can be fitted with various insert tools. For this purpose, the head of the wrench has a recessed square drive at the face (sizes are shown in the Technical Specifications) with a double-sided locating hole and insertion groove. The insert tools can be attached in the „normal“ position or rotated through 180°. Controlled counter clockwise tightening is also possible.

Technical Data

MANOSKOP® 721 Quick

	721/5	721/15	721/20	721QR/20	721/30
range					
[N·m]	6–50	30–150	40–200	40–200	60–300
[ft·lb]	5–36	25–110	30–150	30–150	50–220
square drive shaft					
fixed [mm]	10 (3/8“)	12,5 (1/2“)	12,5 (1/2“)	12,5 (1/2“)	–
usable from both sides [mm]	–	–	–	–	12,5 (1/2“)
Length 1) [mm]	338	415	483	483	530
functional length L_F [mm]	293	387	418	418	486
weight [g]	915	1310	1490	1250	1710

1) length to centre of square drive

MANOSKOP® 730 Quick

	730/5	730a/5	730/10	730a/10	730/12	730a/12
range						
[N·m]	6–50	6–50	20–100	20–100	25–130	25–130
[ft·lb]	5–36	–	15–72,5	–	20–95	–
[in·lb]	–	50–440	–	180–880	–	225–1150
insertable square drive [mm]	9×12	9×12	9×12	9×12	14×18	14×18
Length [mm]	315	315	370	370	410	410
functional length L_F [mm]	288	288	343	343	390	390
standard extension S_F [mm]	17,5	17,5	17,5	17,5	25	25
weight [g]	805	805	965	965	1100	1100

	730/20	730a/20	730/40	730/65	730/II/65
range					
[N·m]	40–200	40–200	80–400	130–650	130–650
[ft·lb]	30–145	–	60–300	100–480	100–480
[in·lb]	–	350–1750	–	–	–
insertable square drive [mm]	14×18	14×18	14×18	14×18	22×28
Length [mm]	455	455	590	875	897
functional length L_F [mm]	435	435	570	855	907
standard extension S_F [mm]	25	25	25	25	55
weight [g]	1250	1250	1880	3280	3280

Safety instructions

Intended Purpose

MANOSKOP® 721 and 730 Quick have been designed for controlled tightening of screw joints in a workshop environment. In order to loosen a nut or bolt during the normal tightening process, the MANOSKOP® can also be used in the opposite direction. MANOSKOP® 721 and 730 Quick may only be used for these purposes. To do so, the correct attachments must be used with the torque wrench.

The „intended purpose“ includes full adherence to the information contained in this instruction booklet, in particular the safety instructions and technical tolerance limits.

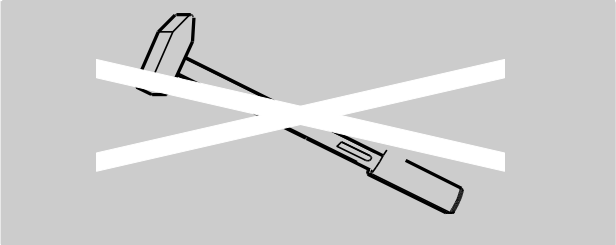
The buyer is required to ensure that all users comply with these instructions.

Any use beyond the use described here is in breach of the intended purpose.

The buyer and user are responsible for any damage or injury resulting from non-adherence to these instructions.

- MANOSKOP® 721 and 730 Quick have not been designed for tightening of screw joints under series production conditions. This might lead to inaccurate readings as a result of inadvertent operation of the sliding scale.
- The MANOSKOP® may not be used for uncontrolled loosening of nuts & bolts — for example rusty joints. This may cause damage to the torque wrench.

Therefore, avoid overloading the product by more than 25%.



- The MANOSKOP® may not be used as a hammer. This will lead to injury and damage.

Structural features of the information on dangers

⚠ **CAUTION**

Notices containing the word CAUTION warn of a hazardous situation which may lead to slight or moderate injuries.

Structural features of notices regarding material and environmental damage

ATTENTION!

These notices warn of a situation which leads to material or environmental damage.

Correct torque settings ...

... can be lifesaving in some applications. For this reason, please note the following points:

CAUTION

Impermissible deviation from the triggering accuracy leads to a risk of injury.

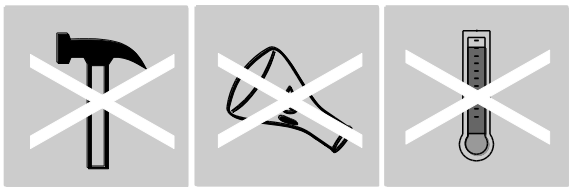
➢ Make sure that the triggering accuracy is checked at the prescribed intervals and is adjusted if required.

If not specified by internal regulations of the operator (e. g. test equipment monitoring according to ISO 9000 ff), we recommend an inspection according to DIN EN ISO 6789, i.e. after approx. 5000 cut-outs or after 12 months, whichever occurs first. The period (12 months) starts with the initial commissioning.

If an inspection shows that there is excessive deviation, the torque wrench will have to be readjusted (see page 15).

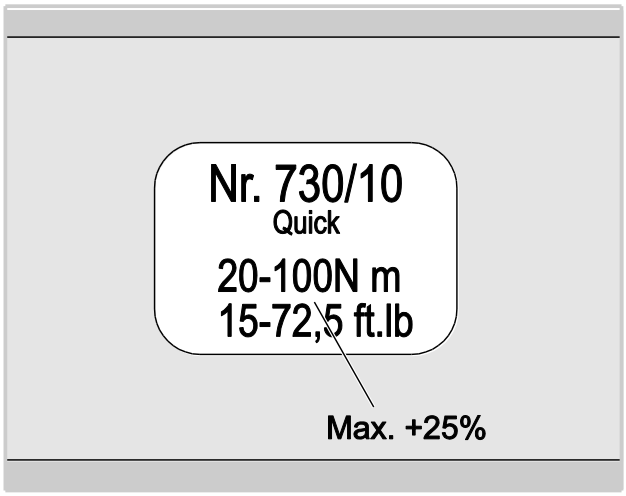
Operation

MANOSKOP® 721 and 730 Quick are measuring instruments and must therefore be treated with care. Avoid subjecting the tool to physical knocks, chemicals or excessive temperatures beyond the limits given in these instructions.



Please note that extremes of climate (cold, heat, humidity) may affect measuring accuracy.

Avoid overloading the tool by more than 25 % of the maximum permissible load in the direction of tightening or in the opposite direction. The MANOSKOP® may be damaged. After such an overload, the readings may be inaccurate in such a way that the user does not notice.



Selecting the inserts and insert tools

CAUTION

Faulty or incorrect plug-in tools lead to a risk of injury.

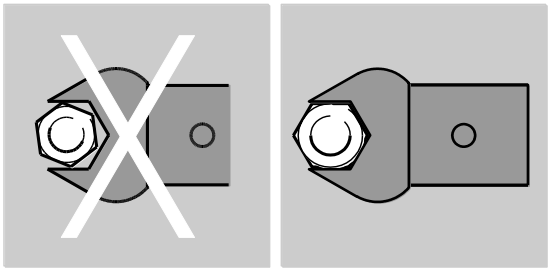
- ➢ Exclusively use plug-in tools from STAHLWILLE.
- ➢ Make sure that the permissible load capability of the plug-in tool exceeds the capacity of the torque wrench.
- ➢ Only manufacture special tools in consultation with STAHLWILLE.

CAUTION

Unsecured plug-in tools lead to a risk of injury.

- ➢ Make sure that plug-in tools are always secured against pulling out by engaging the retaining pin.

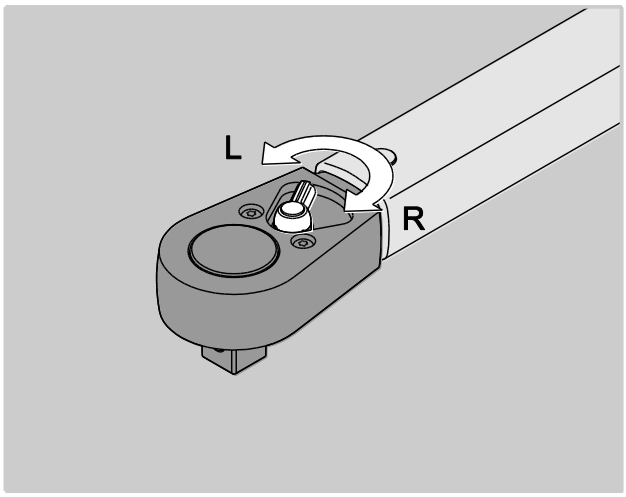
Remember that the tool has to be of the correct type and the right size for the screw or bolt.



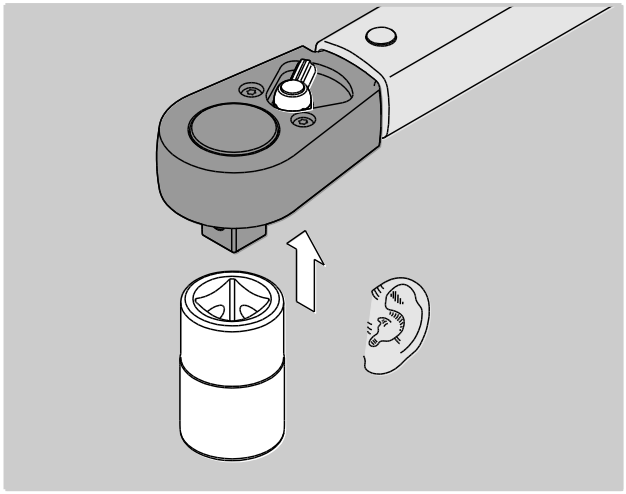
Attaching insert tools

721/5, 721/15, 721/20, 721QR/20 Quick

- ➢ For controlled clockwise tightening, switch the ratchet to „R” or, for uncontrolled loosening of joints, to „L”.

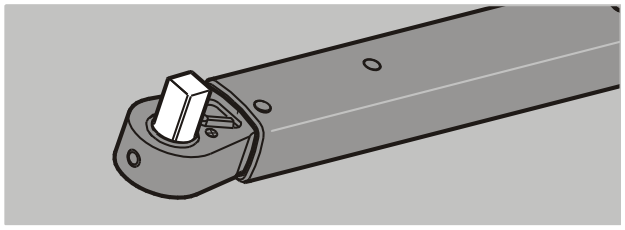


- ➢ Slide the insert over the square drive of the ratchet until it locates.

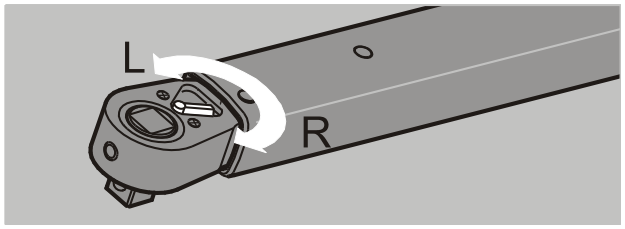


721/30 Quick

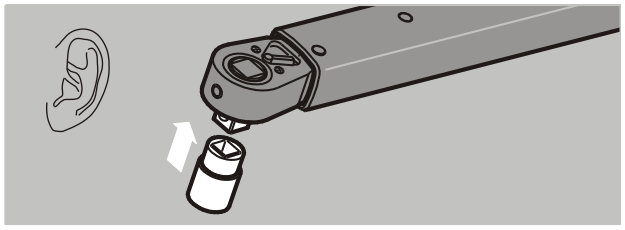
- Check that the square drive is fitted to the right side of the torque wrench.
- If not, push the square drive out through the upper side to the right side.



- For controlled tightening, switch the ratchet to „R” or, for uncontrolled loosening of joints, to „L”.

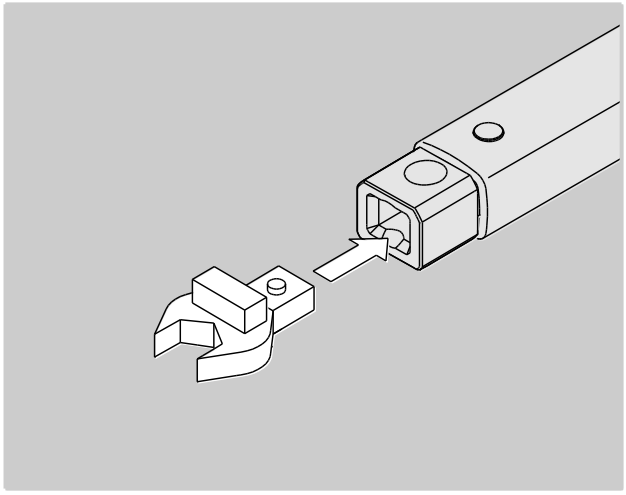


- Slide the insert over the square drive until it locates.

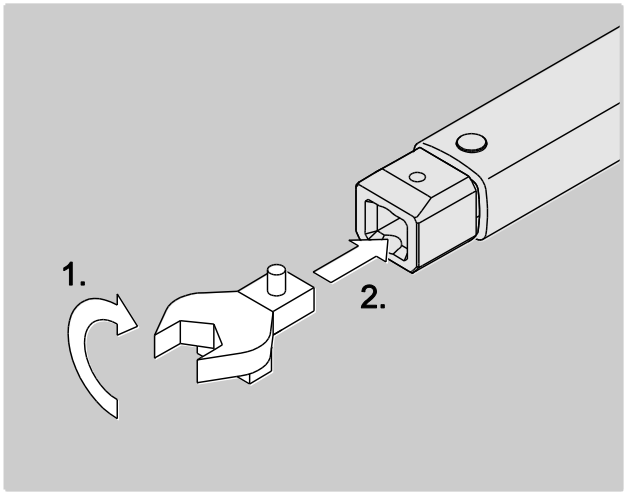


Attaching insert tools — 730/5 to 730/65 Quick

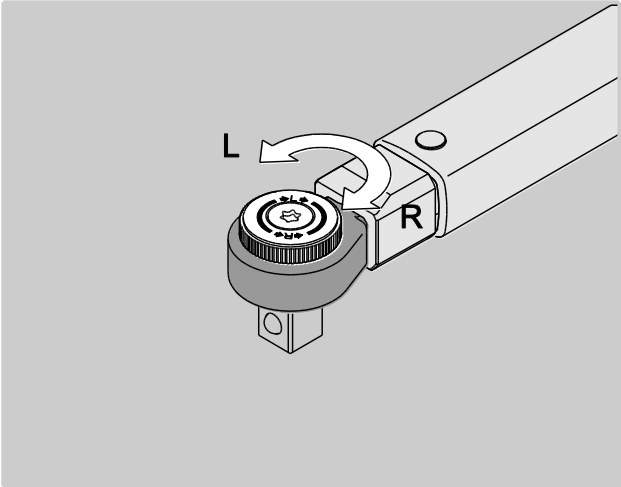
- Insert the insert tool into the internal square drive on the face of the head of the wrench. The spring-loaded locking pin of the insert tool will be pressed down by the insertion groove.
- Slide the insert tool in until it comes to the endstop. Ensure the locking pin locates in the hole.



- Check to see that the insert tool is properly attached.
- To tighten counter clockwise, turn the insert tool through 180° before attaching to the torque wrench.



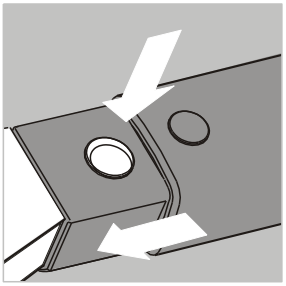
➢If you are using a ratchet insert tool, set this to the desired direction by turning the control knob.

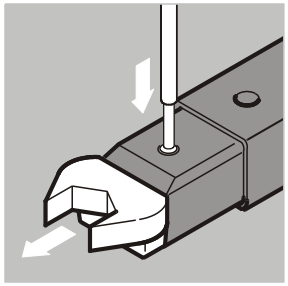


Removing insert tools

730/5 to 730/65 Quick

➢If the tool was attached in the „normal“ position, press the release button on the underside of the head of the wrench.
If the tool was attached to the torque wrench rotated through 180°. Insert a fine punch into the locating hole in the head of the wrench. Use the punch to depress the locking pin.





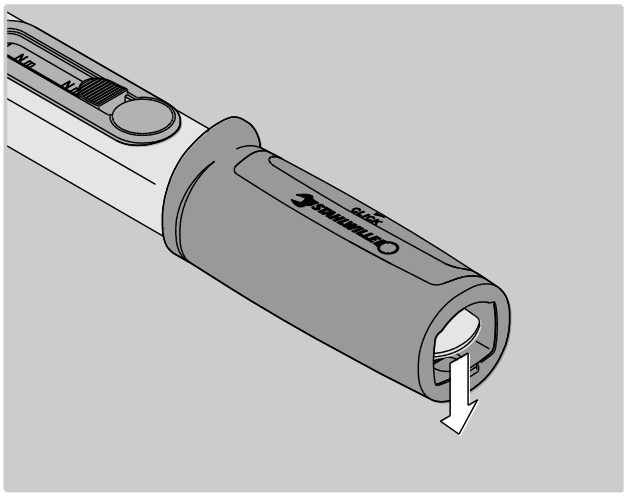
➢Extract the insert tool.

Setting the torque level

The torque level at which the wrench cuts out is set by moving the scale against the fixed mark. Always approach the desired torque setting from a lower value. Intermediate settings between two marks on the scale can be estimated.
In order to be able to set the scale, the setting fail-safe mechanism has to be operated first. Once the setting fail-safe mechanism is released, the value set is automatically locked.

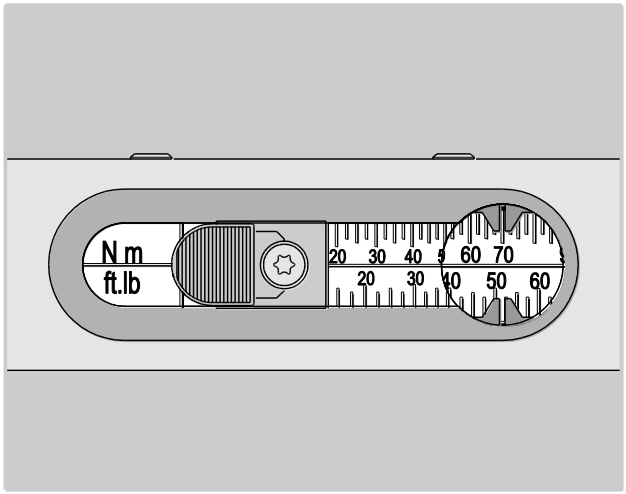
Proceed as follows:

➢Hold down the pressure plate at the grip end to release the setting lock.



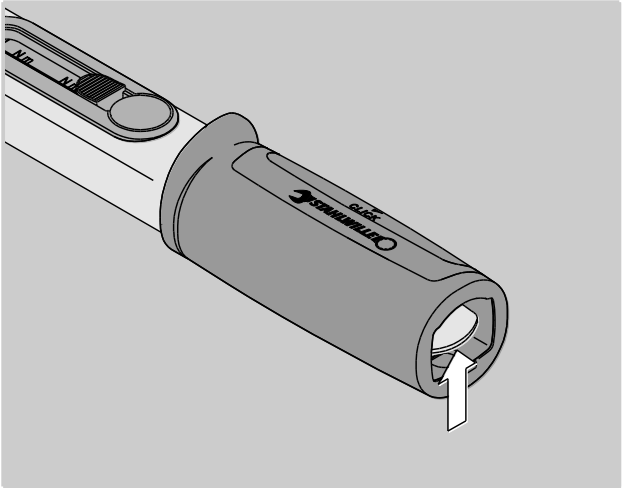
➢Slide the scale to a torque level lower than the desired cut-out value.

➢Slide the scale to the desired cut-out value. The integrated magnifying glass helps you to position the scale precisely.



➢Release the pressure plate again.

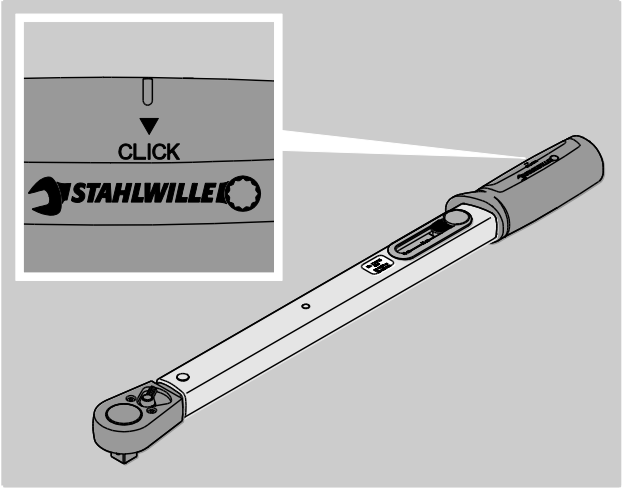
The set value is now safely locked.



➢Check the set value once again. If the set value is wrong, repeat the process.

Controlled counter clockwise tightening

Due to reasons of accuracy, the torque wrenches only function in one direction. This is identified by an arrow and the word "CLICK".



Controlled counter clockwise tightening is possible by turning the MANOSKOP® over. Exceptions: The MANOSKOP® 721/5, 721/15 and 721/20 Quick cannot be used for counter clockwise tightening. Counterclockwise tightening is possible with the MANOSKOP®721/30 Quick by means of a square drive which is pushed through.

For controlled counter clockwise tightening using the MANOSKOP® 721/30 Quick in the turned over position, the square drive must first be pushed through to the upper side. For controlled counter clockwise tightening using the MANOSKOP®730/5 to 730/65 Quick, the insert tool has to be rotated through 180°. Ratchet insert tools also need switching to „L“ (CCW) for the correct tightening direction.

Uncontrolled loosening of nuts & bolts ...

... opposite to the tightening direction is possible. The cut-out mechanism is not placed under load during this process.

ATTENTION!

Exceeding the limit torque leads to the risk of the torque wrench becoming damaged.

➢Make sure that a limit torque of approx. 125 % of the maximum scale value is not exceeded.

➢Do not loosen any tightly rusted bolts using the torque wrench.

Using the torque wrench

CAUTION

An incorrect trigger value leads to a risk of injury.

➢ Make sure that the correct trigger value is set.

CAUTION

Unsecured plug-in tools lead to a risk of injury.

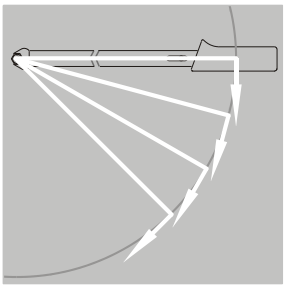
➢ Make sure that plug-in tools are always secured against pulling out by engaging the retaining pin.

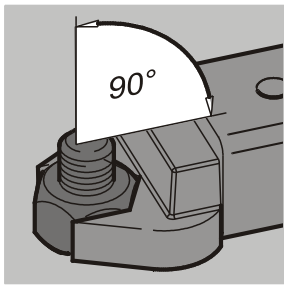
CAUTION

Slipping tools lead to a risk of injury.

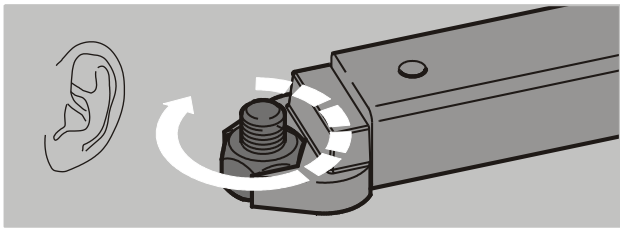
➢ Make sure that the tool cannot slip off the workpiece.

Actuate the MANOSKOP® via the handle only. Grip the handle centrally. Tighten at a tangent to the slewing radius and at an angle to the tightening axis.





Pull steadily and without any interruption, particularly during the final phase, until you feel a jerk and hear a click. The torque level set on the scale has now been reached.



ATTENTION!

Incorrect use of the torque wrench leads to the risk of material damage.

➢ Under no circumstances continue tightening the screw connection after the torque wrench has cut-out.

As soon as the torque wrench has cut out, it is ready for the next job.

Maintenance

The internal mechanisms of the torque wrench are subject to normal wear and tear under operating conditions. For this reason, the accuracy of the cut-out should be checked at regular intervals.

If not specified by internal regulations of the operator (e. g. test equipment monitoring according to ISO 9000 ff), we recommend an inspection according to DIN EN ISO 6789, i.e. after approx. 5000 cut-outs or after 12 months, whichever occurs first. The period (12 months) starts with the initial commissioning.

If inspection shows that there is a deviation, the torque wrench must be adjusted.

The inspection and adjustment must be carried out in accordance with DIN EN ISO 6789.

Checking the accuracy of the cut-out value

To check the torque, a torque tester with the right capacity is required which has an accuracy of ±1 % of the displayed value or better.

If you have access to such a tester, you may inspect the MANOSKOP®yourself. Suitable torque testers are available from STAHLWILLE. It is also possible for STAHLWILLE to test the MANOSKOP® for you.

To carry out the test, proceed as follows:

- ➢ Set the torque wrench to the highest scale reading.
- ➢ Operate the torque wrench five times ensuring it cuts out properly each time.

Important note on the accuracy of the readings:

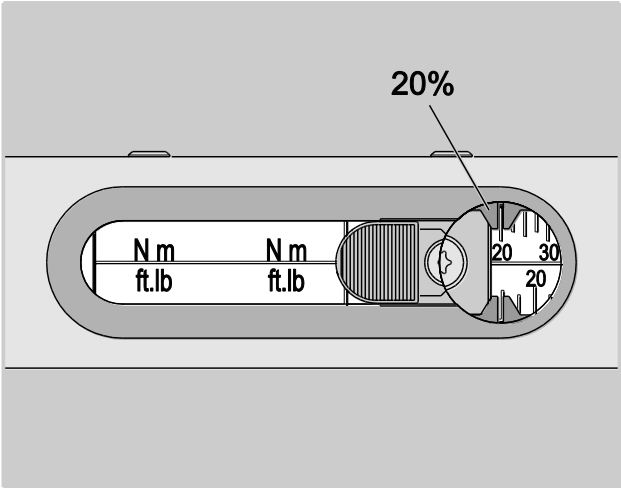
ATTENTION!

Incorrect use of the torque wrench leads to the risk of material damage.

- ➢ Under no circumstances continue tightening the screw connection after the torque wrench has cut-out.

In the following example a MANOSKOP® 730/10 Quick is used.

- ➢ Set the torque wrench to 20 % of the maximum scale reading.



- ➢ Use this setting to perform five measurements on the torque tester.
- ➢ Use the following formula to make sure that the values displayed by the torque tester do not deviate by more than ±4 %.

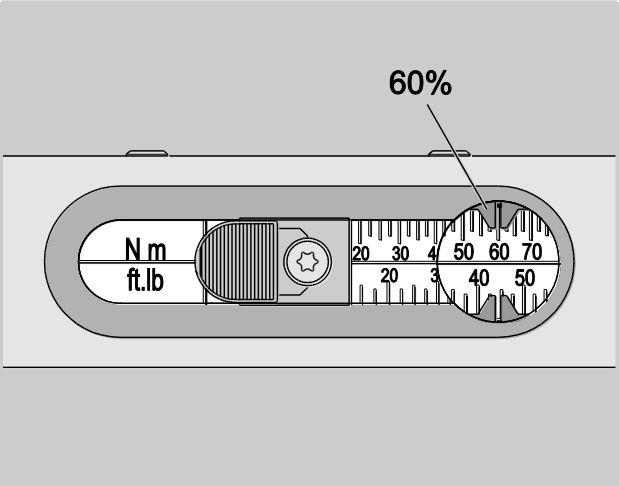
$$A = \frac{(W1 - W2)}{W2} \cdot 100$$

A=deviation in %

W1=value set on the Manoskop

W2=tester measured value

➢Set the torque wrench to 60 % of the maximum scale reading.



➢Use this setting to perform five measurements on the torque tester.

➢Use the following formula to make sure that the values displayed by the torque tester do not deviate by more than ±4 %.

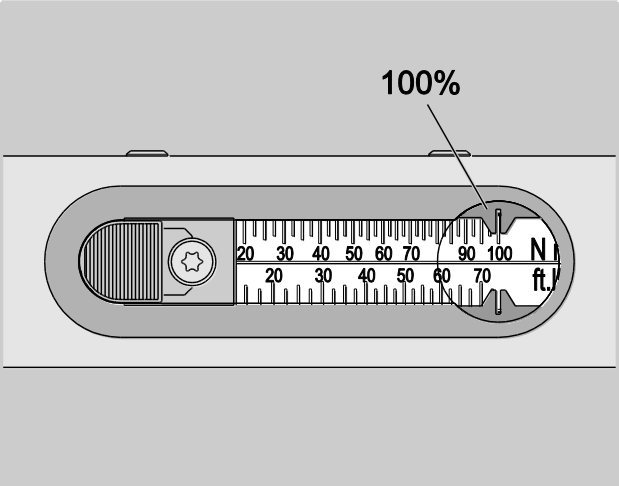
$$A = \frac{(W1 - W2)}{W2} \cdot 100$$

A=deviation in %

W1=value set on the Manoskop

W2=tester measured value

➢Set the torque wrench to the highest scale reading.



➢Use this setting to perform five measurements on the torque tester.

➢Use the following formula to make sure that the values displayed by the torque tester do not deviate by more than ±4 %.

$$A = \frac{(W1 - W2)}{W2} \cdot 100$$

A=deviation in %

W1=value set on the Manoskop

W2=tester measured value

If the tests show that there are deviations greater than the permitted amounts, the wrench will require readjusting.

Adjusting for deviations in cut-out value

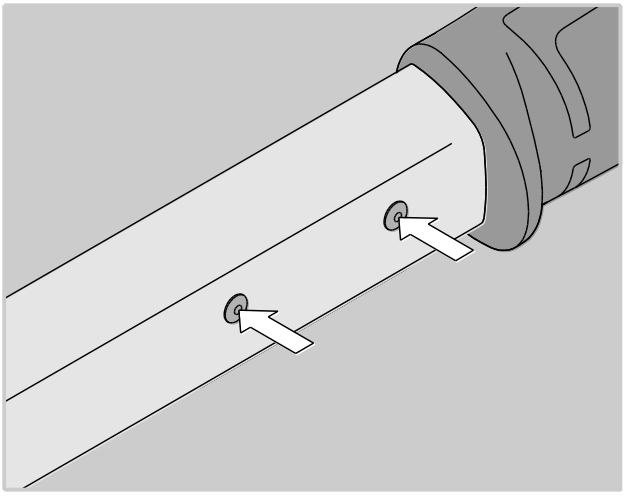
You may return your torque wrench to STAHLWILLE for adjustment. You will then receive the tool back with a new works calibration certificate.

You may adjust the torque wrench yourself. In this case, however, STAHLWILLE‘s accuracy guarantee is void.

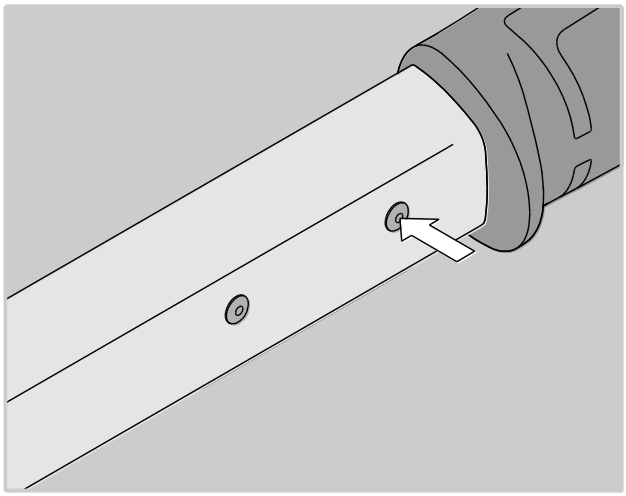
A torque tester of sufficient capacity and accuracy is required for making readjustments.

For readjustment, each MANOSKOP® is equipped with two internal adjuster screws.

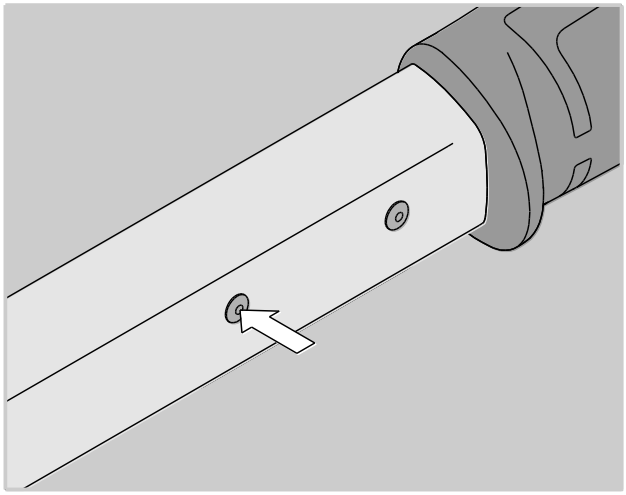
These are accessible with an Allen key, size 2 mm, through two holes in the housing.



The screw which is closest to the end of the handle is primarily for adjusting the lower end of the scale range.



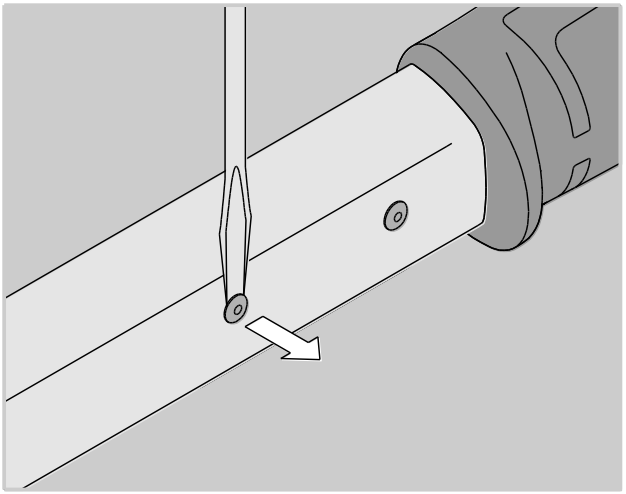
The screw which is closest to the head is primarily for adjusting the upper end of the scale range.



Each screw has a minor effect on the adjusting range of the other screw.
To protect the mechanisms from dirt and moisture, these two holes are plugged.
To adjust the wrench, you will need the torque tester and an Allen key, size 2 mm.

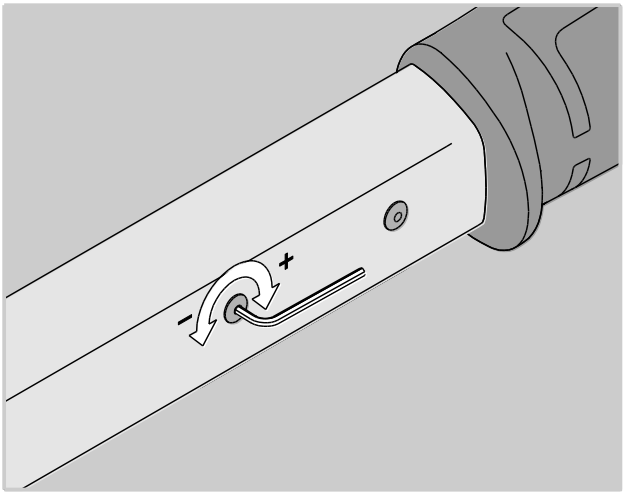
Proceed as follows:

➢ Remove the two plugs using a sharp object. Retain the plugs for later use.



➢ To adjust the lower end of the range, insert the Allen key in the hole nearer to the handle.
To adjust the lower end of the range, insert the Allen key in the other hole.

➢ Turn the Allen key with great care and very slowly. Turning in a clockwise direction increases the cut-out torque level, turning in the other direction decreases it. The screws will lock in any position.



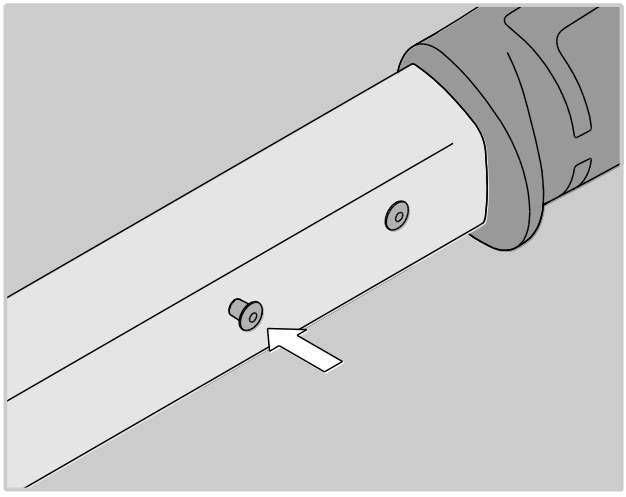
➢ Once you have made an adjustment using one screw, check the effect by testing the cut-out value on the torque tester.

➢ Repeat the adjustment of one or both screws and the testing process until the deviation has been compensated.

➢ Finally, do a thorough test again. Proceed as described under „Checking the accuracy of the cut-out value“.

If you cannot achieve adequate correspondence between the triggering values and the set values in this way, the triggering mechanism is probably defective.
Consult STAHLWILLE if this occurs.

➢ Replace the plugs as appropriate to protect the cut-out mechanism against dirt and damp. Replacement plugs are available from STAHLWILLE.



Cleaning

Clean the MANOSKOP® only with white Spirit. Other chemical substances may damage the plastic components.

Accessories

For all models

- Inserts for square drives for all usual screw head types and sizes.

For STAHLWILLE Service MANOSKOP® 730 Quick

Insert tools

- ratchet insert tools
- square insert tools
- open-jaw insert tools
- ring insert tools
- Open ring insert tools
- Torx® insert tools
- Bit-holder insert tools

For inspection and readjustment purposes

- Mechanical torque testers
- Electronic torque testers

Services

- repairs
- testing and readjusting (incl. accuracy guarantee and new works calibration certificate)
- Training courses
- Service portal: **service.stahlwille.de**

Disposal

When the tool finally has to be disposed of, please observe your local environmental protection laws. The handle is made of PPC.

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