OPERATING INSTRUCTIONS

RoboRiv®

Note

In case of doubt, the original German version of the operating instructions applies.

Issue date:	February 2022
Tool Firmware:	from 2.2.5.18
HST-Tool-Manager:	from 2.0.5.4

Table of contents

1 Operating principles

Dear customers,

Thank you for choosing a HS-Technik GmbH product.

This quality product „Made in Germany“ fulfils the highest requirements with regard to performance, quality and accuracy. When used correctly the product will definitely perform very well for many years.

These operating principles contain information on safety and for the operation of the tool. In addition it contains information on the dimensions and technical data. We would be happy to assist you with additional information or to answer your questions. Our technical support and our technicians would be happy to assist you.

1.1 Scope of delivery

- Cordless blind riveting tool
- Power supply unit for power supply
- USB Cable (Type A on Mini B)
- Operating instructions

1.2 General information

Read the operating manual before initial operation. **Please pay particular attention to Chapter 2 „General safety information“ which you can find in the attached safety instructions.**

This manual should make it easier for the operator to get to know the tool and to make use of its intended application possibilities. The operating instructions include important information related to the safe and proper operation of the tool. Compliance with these instructions helps you to:

- Avoid dangers
- Avoid repair costs and downtimes
- Increase the reliability and the lifespan of the product.

This manual must be read and applied by every person who is assigned to conduct work using this tool.

In addition to this operation manual the applicable regulations on accident prevention and environmental protection should be observed.

NOTE
After reading, keep the operating manual in a place accessibly to every operator. If you have any further questions, please feel free to contact us.

1.3 Signs and symbols used

The following signs and symbols will be used in this manual, or on the product:

Symbol	Explanation
	Read this operating manual
	Do not dispose of with household waste
	Do not dispose of the battery in a fire
	Do not throw the battery into water
	EU conformity marking
	Registered trademark
	Use only indoors
	Protection class II
	Intrinsically safe transformer
	Battery is charging
	Defective battery
	Battery fully charged
	Direct current
	Universal Recycling Symbol

1.4 Structure of the warnings

The warnings are structured as follows:

DANGER
Indicates an immediate dangerous situation that can lead to serious or even deadly injuries and / or that could seriously damage or even destroy the tool.

WARNING
Indicates a potentially dangerous situation that can lead to serious injuries and / or damage to the tool.

NOTE
Important and useful information on using this tool.

1.5 Technical terms and abbreviations used

Abbreviation	Meaning
°C	Degrees Celsius, temperature
AC	Alternating current
Ah	Amp hours, electric charge, battery capacity
a_{hv}	Overall vibration
dB(A)	Decibels, sound pressure level (A-weighted)
DC	Direct current
Hz	Hertz, Frequency
Li-Ion	Lithium-ion, battery technology
L_{pA}	Emission sound pressure level, workplace-related
m/s^2	Acceleration, Vibration
min^{-1}	Revolutions per minute, Speed
mNN	Metres above sea level, height

Abbreviation	Meaning
SN	Serial number
V	Volts, electrical voltage
W	Watts, electrical power

1.6 Intended use

This battery operated blind riveting tool was designed to prepare rivet joints. An external controller is required to operate the RoboRiv.
The tool may only be used for this purpose as described in this manual. Only materials that are suitable for this type of tool may be used.

WARNING
Intended use also includes
- following all indications of the operating instructions and
- observance of inspection and maintenance works.

Any other use or use beyond that is considered improper use. HS-Technik GmbH is not liable for any damage resulting from this.

1.7 Improper use

DANGER
The use of this tool for other purposes, e.g. for hammering, is not permitted. Improper use or incorrect accessories can lead to dangers with unforeseeable consequences.

We accept no liability for damage and malfunctions resulting from non-observance of these operating instructions and improper use.

1.8 Duties of the operator

The operator undertakes to only allow people who are familiar with the basic regulations on occupational safety and accident prevention and who have been trained on how to use the tool at the workplace to work with this tool.

The safety awareness of the personnel while working will be reviewed at regular intervals.

In addition it is necessary to established safety measures for operator safety which are based upon an estimation of the vibration load during actual conditions of use.

1.9 Duties of personnel

Prior to its use all people who work with this tool are obligated to inform themselves of the applicable workplace safety and accident prevention regulations for this power tool and to observe them.

It is recommended that every operator wear hearing protection.

1.10 Training of personnel

Only trained and instructed personnel should work with this tool. The responsibilities of the personnel must be clearly defined. Trainees may only work with this power tool under the supervision of an experienced person.

1.11 Guarantee and liability

Guarantee and liability claims for personal injury and property damage are excluded, if caused by one or more of the following:

- improper use
- failure to observe these operating instructions
- improper installation, commissioning, operation and maintenance of the device
- Operating the device with defective safety devices or improperly installed, or non-functioning safety and protective devices
- Failure to observe the information in the operating instructions regarding transport, storage, assembly, commissioning, operation and maintenance of the device
- unauthorised structural modifications to the device
- improperly performed repairs
- catastrophes due to external influences and acts of God

1.12 Copyright

These operating instructions are intended solely for the operator and its personnel.

They contain guidelines and information which may not be fully, or partially

- reproduced
- distributed or
- otherwise shared.

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2 Important information about this tool

2.1 Handling the associated lithium ion battery

a) **Observe the operation manual of the Li-Ion battery.**

b) **If the battery will not be used over a longer period of time it may not remain on the charger or on the machine.** If an interruption of work of more than 3 hours is expected the battery must be removed from the tool. Otherwise it cannot be excluded that the battery will be permanently damaged.

c) **For safety reasons the Li-Ion battery should not remain on the activated charger for longer than 36 hours.** Remove the battery from the charger as soon as possible after charging is complete.

d) **An empty battery should not be in contact with the machine or a charger disconnected from the mains for a longer period of time.** In both instances low currents flow which totally discharge the battery and can permanently damage it.

e) **Always charge the Li-Ion battery as soon as possible after use and do not store it when empty.** If the battery is stored separately from the tool and the charger it's capacity will remain constant for a long period of time (loss approx. 5 % per year).

f) **Always transport the battery separately from the machine if possible.** This prevents accidental switching on of the machine as well as a total discharge of the battery.

g) **Do not subject the Lithium-Ion battery to high temperatures (above 50˚C) or direct sunlight.** If the battery gets warmer than 50°C during operation (charging or discharging) it must be immediately separated from the charger or the tool.

h) **Under extreme use or temperature conditions batteries may leak. In the event of a leaky battery avoid contact with the skin or eyes.** The battery fluid is corrosive and can cause chemical burns to tissue. If the fluid comes into contact with the skin it must be washed immediately with soap and water and then rinsed with lemon juice or vinegar. If the fluid comes into contact with the eyes they must be rinsed for at least 10 minutes with water and a doctor must be consulted immediately.

i) Ensure that the Li-Ion battery does not fall or is not subjected to vibrations or shocks.

j) Clean the battery contacts regularly with a cotton swab dipped in high-proof alcohol.

NOTE

Lithium-Ion batteries have virtually no self-discharge and have no memory effect. With proper and professional handling your tool will be reliably supplied with high energy density for a long period of time.

2.2 Information on the associated charger

a) **Observe the operation manual of the charger.**

b) **The charger may not be connected to a step-up converter, generator or a direct current outlet.**

c) **Ensure that the ventilation slots on the charger are not covered or blocked.**

d) **Never charge the battery inside a carton or a closed container. They battery may only be charged in a well ventilated location.**

e) **Do not charge the battery at temperatures BELOW 10°C or ABOVE 40°C.**

f) **Do not store the power tool, the charger and the battery in locations in which temperatures are above 50°C. In particular, avoid direct sunlight.**

2.3 Structural modifications

No changes, additions or conversions to the power tool may be made without the approval of the manufacturer.

All conversion measures require written consent and confirmation by **HS-Technik GmbH.**

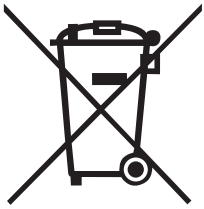
WARNING

In the event of the replacement of wear and tear parts only original replacement parts may be used.

2.4 Cleaning the device and disposal

Substances and materials used must be handled and disposed of properly, particularly when cleaning with solvents.

Do not throw the used battery into the household waste, fire or water, instead have it professional disposed of by a specialist or the manufacturer.



DANGER

Risk of injury from damaged tools
Damaged tools can lead to injuries or damages.
- All damaged parts must be repaired before use.

Risk of burns due to hot exhaust air
Hot air can escape through exhaust openings.
- Do not place any sensitive body parts directly in front of exhaust openings.

Risk of injury due to improper use
Improper use can lead to injuries or damage.
- Use the tool only for the intended purposes.

Risk of injury from substances
Substances such as lubricating oil and grease are flammable on the skin.
- Avoid contact with such substances.
- Should you still come into contact wash the affected area carefully.

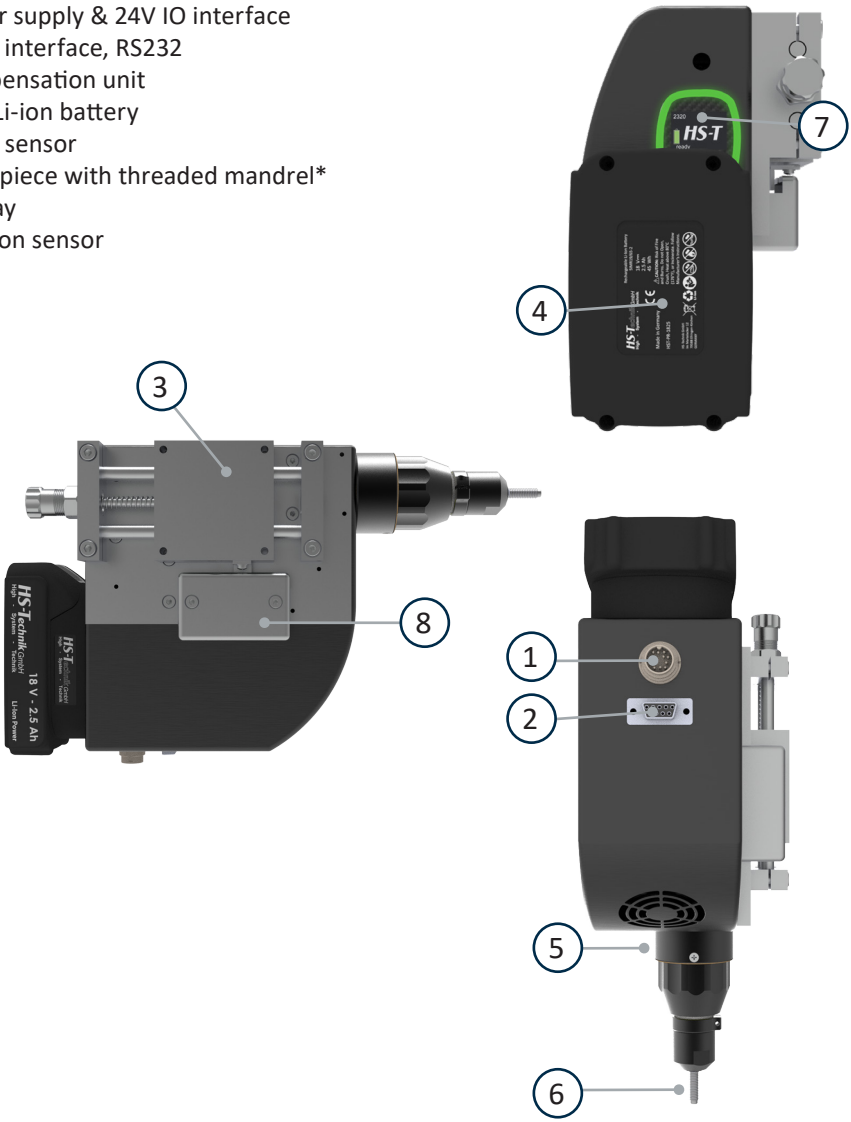
NOTE
Maintain your tool with care. Follow the operation manual during maintenance and cleaning. Keep the handle free of lubricants and dirt.

NOTE
Do not drop the riveting device, and do not let any other objects fall onto the riveting device. Protect it from impacts.

NOTE
Ensure that the tool does not come into contact with splashing water or oil.

3.1 Tool structure

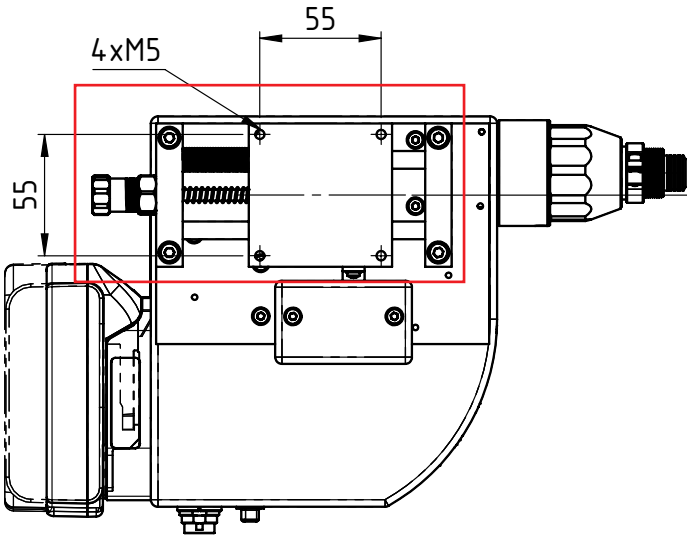
1. Power supply & 24V IO interface
2. Serial interface, RS232
3. Compensation unit
4. 18 V Li-ion battery
5. Force sensor
6. Nose piece with threaded mandrel*
7. Display
8. Position sensor



*nose piece and threaded mandrel are not included in the standard scope of delivery and must be ordered separately.

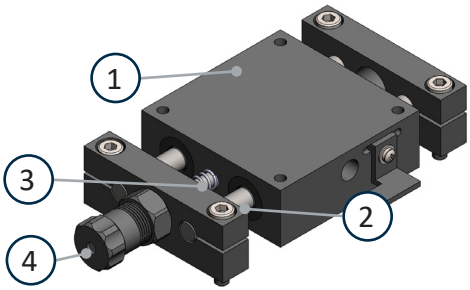
3.2 Assembly of the RoboRiv

The RoboRiv is connected to a higher-level system using the compensation unit. 4x M5 threads are provided for this (see drawing).



Tolerances in the travel and blind rivet can be balanced using the compensation unit. However, you have to make sure that after installation the threaded mandrel is directly above the centre and in alignment with the blind rivet nut in order to avoid damages or incorrect results.

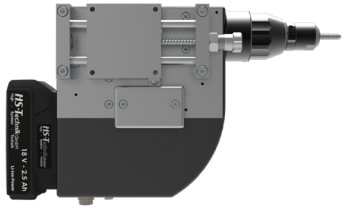
The compensation unit consists of one linear slide (1) with guide (2), one spring (3) and one adjustment screw (4). The pre-load force on the spring can be set using the adjustment screw. This means that more force is necessary to move the slide. This affects the RoboRiv through a change in the contact pressure.



Whether the threading and riveting procedure takes place horizontally or vertically is a determining factor in the assembly of the compensation unit.

Vertical threading and riveting procedure
In the vertical application the compensation unit is assembled as shown in the image (with the adjustment screw opposite the blind rivet). The stroke from the higher-levelsystem must be set, that the slide of the compensation unit is located in the centre of the guide when reaching the threading / rivet position. In the vertical case the contact pressure is achieved through the dead weight of the RoboRiv. It is important that no additional force is built up by the springs in the compensation unit.

Horizontal threading and riveting procedure
In the horizontal application the compensation unit is assembled turned at 180°as shown in the image (with the adjustment screw in the direction of the blind rivet). The stroke from the higher-level system must be set, that the slide of the compensation unit is located in the centre of the guide when reaching the threading / rivet position. In the horizontal case the contact pressure is built up by the adjustment of the spring in the compensation unit. The built up force should equal to approx. 30N.



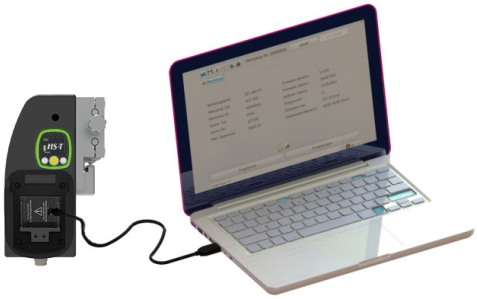
3.3 Installation of the RoboRiv

The tool is installed with the help of the „HST-Tool-Manager“ software, see also Chapter 3.6.

NOTE
We recommend enlisting the support of HST service technicians for the installation of the tool during the initial start-up.

The following is needed for installation:
- Tool
- USB Cable included
- PC
- HST-Tool-Manager software (download at www.hs-technik.com/software)

NOTE
Always use the most current version of the HST-Tool-Manager. The software is backward compatible, i.e. it can also read and process older tool versions. If an update of your tool is necessary the HST-Tool-Manager will inform you.



3.4 Operation

3.4.1 Inserting and removing the battery

- In order to insert the battery (1), align it so that it can be easily pushed onto the mounting provided along the guide. After sliding it on completely, the fastening clip (2) must lock the battery firmly and properly into place in the tool housing.
- In order to remove the battery push the latch on the front side of the battery down and pull the battery forward and off.
- Under no circumstances should you use force to install the battery. If the battery can not be easily pushed in it was not correctly positioned.

NOTE
Always push the battery all the way in until it locks into place with a click.

WARNING
Risk of injury from falling battery
If the battery is not correctly locked it can fall out and cause injuries.
- Always ensure that the battery is fully locked into place.

1 - Battery
2 - Latch

3.4.2 LED indicator at the back and sound signals

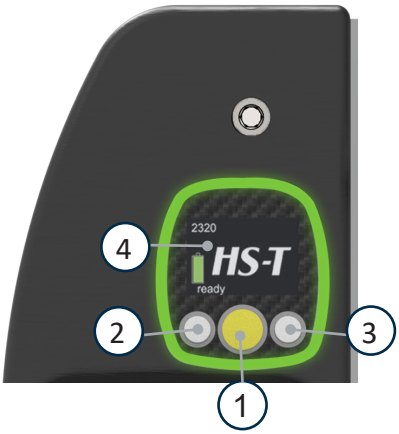
Led indication	Description
	Enable
	OK result
	NOK result
	Battery almost empty
	Action by operator necessary, see note on OLED display
	Approval if the signal for the set direction is at low through the 24V IO signals.

* - LED-Light indicator

NOTE
After changing the battery, the tool will only start if the battery has sufficient capacity.

3.4.3 OLED Display

After several seconds without actuation the display will dim. After longer downtime the tool will switch into standby mode.



1. Key for menu activation and selection as well as for the NOK confirmation
2. Key for decreasing value (-)
3. Key for increasing value (+)
4. Charge status display

NOTE
It is recommended that the standby function is deactivated in order to avoid problems with the PLC. (See page 38)

3.4.4 Selection of threaded mandrel and mouthpiece

NOTE
The threaded mandrel (sleeve) and the mouthpiece must be selected in accordance with the blind rivet nut, blind rivet screw or earthing pin used.

You can use the riveting tool for processing different sizes ad materials. Please note the exact specification of the blind rivet nut or the blind rivet screw and adjust the threaded mandrel (sleeve) and mouthpiece.

Blind rivet nuts	M3 - M10
Blind rivet screws	M3 - M8

1 - Mouthpiece
2 - Threaded mandrel (sleeve)

NOTE
Use only the appropriate traction head for your blind rivet nut or blind rivet screw. Non-compliance may cause damage to the tool. Furthermore, material damages can result from a damaged thread. Do not use force, the traction head as well as the blind rivet nuts and blind rivet screws must be able to be tightened by hand.

NOTE
Assemble the traction heads only in accordance with the quick guides provided by HS-Technik GmbH.

3.4.5 Adjusting the mouthpiece

The mouthpiece must be adjusted to the blind rivet nuts to be processed. Wind the blind rivet nuts by hand so that 1 - 2 threads stick out of the nut, see Figure 1. Lock the mouthpiece in this position using the lock nut. With automatic winding the threaded mandrel should now be flush with the blind rivet nut.

With closed blind rivet nuts wind the nuts by hand as far as they will go, see Figure 2, and then lock the mouthpiece using the lock nut. With automatic winding the nut should now be optimally wounded.

NOTE
These figures are intended as a guide and must proved in tests with the nuts used!

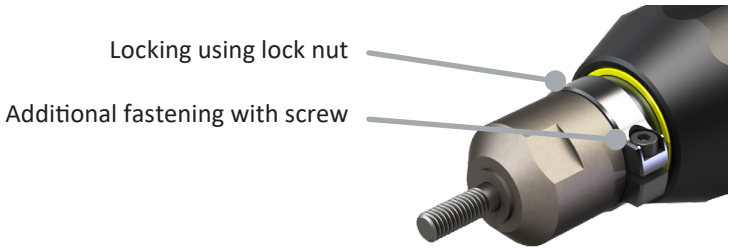


Fig. 1

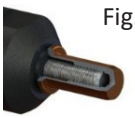


Fig. 2

3.4.6 Tool start

1. Connect the RoboRiv with the external power source and push the battery up.
i. In the event of an empty battery the RoboRiv will send an RMSG telegram using the serial interface
ii. If the battery is not empty only two undefined bytes are sent which do not need to be observed.
iii. When starting the RoboRiv a signal is present at the NIO Pin and the IO pin each for a few milliseconds.
iv. As long as the compensation unit is not in its original position the light barrier is interrupted.
2. After starting the RoboRiv must be brought to its initial state; to do this a signal must be provided to the start Pin.
i. The mechanics in the RoboRiv will independently move into the start position
3. The tool is now ready for use.

3.4.7 Set blind rivet nuts

NOTE

Use only appropriate threaded mandrels (sleeves) and mouthpieces for the rivet nut. An incorrect threaded mandrel (sleeve) and mouthpiece can lead to damage of the threaded mandrel (sleeve), tool, screw thread and components. You can find the size of the blind rivet nut in the rivet manufacturer's information.

NOTE

The tool must be programmed before its first use, see Chapter 4.6.

1. At first, the RoboRiv must be brought into position for winding. To do this the RoboRiv must be driven onto the blind rivet nut until the threaded mandrel rests on it and the compensation unit is located in the centre of the guide. When this happens a signal is available on the position pin.
2. By placing a signal at the start pin the winding process is started.

i. Please note: The signal at the position pin will disappear again because the compensation unit moves during the winding.

3. If a stop is programmed between the winding and the riveting process a new signal on the start pin is required for the riveting process. Without a stop the RoboRiv will automatically conduct the riveting process and then the unwinding process.

i. After the unwinding a signal is sent to the OK or the NOK pin depending on the result of the riveting.

ii. At the same time a result telegram is sent via the serial interface. In addition to the result this contains values such as force and travel.

4. After unwinding the tool automatically goes back to its original state.

DANGER

Risk of injury from moving parts.

You should not touch parts of the traction head during the winding and setting process under any circumstances, because these are moving parts which heat up during the process and could cause crushing.

DANGER

Risk of injury from continuous power supply

The tool is still being supplied with power by the battery after disconnecting from the power supply. Please also disconnect the battery when disconnecting from the power supply or in the event of an emergency shut-off with the higher-level system.

3.4.8 Unwinding

If an incorrect nut or screw is spun on or it is not currently needed it can easily be spun off.

Clicking the yellow display button will make the notification „BACK“ appear in the display. The tool is ready to spin off the blind rivet nut or blind rivet screw next.
To do this hold the nut or screw firmly at the front.

After unwinding the tool will automatically go back to its normal operating state.

DANGER
Risk of injury from moving parts.
You should not touch parts of the traction head during the unwinding process under any circumstances, because these are moving parts. You could injure yourself.

3.4.9 Tool tilted or blocked

If the tool or the blind rivet nut becomes tilted and stuck, there is an option to release it on the back of the tool using a size 4 mm Allen key. To do this place the Allen key in the opening provided (1) and turn it counter-clockwise. Always keep a firm hold on the tool.

DANGER
Before detaching, ensure that the battery and power supply have been removed.

DANGER
Risk of injury from rotating / falling parts. If the Allen key remains in the tool it creates significant risk of injury.
Before operation ensure that the Allen key has been removed.

3.4.10 Use of tools and maximum load

In order to avoid damages as a result of excess temperatures during continuous operation it is important to ensure sufficient break times during the installation process.

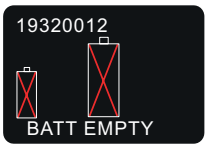
If the tool should go into an automatic shut-down (tempFET) as a result of excess temperatures, the pause times should be reviewed and adjusted.

Continued work is only possible after a cooling off period in order to protect the tool from lasting damage.

3.4.11 Charge state of the battery

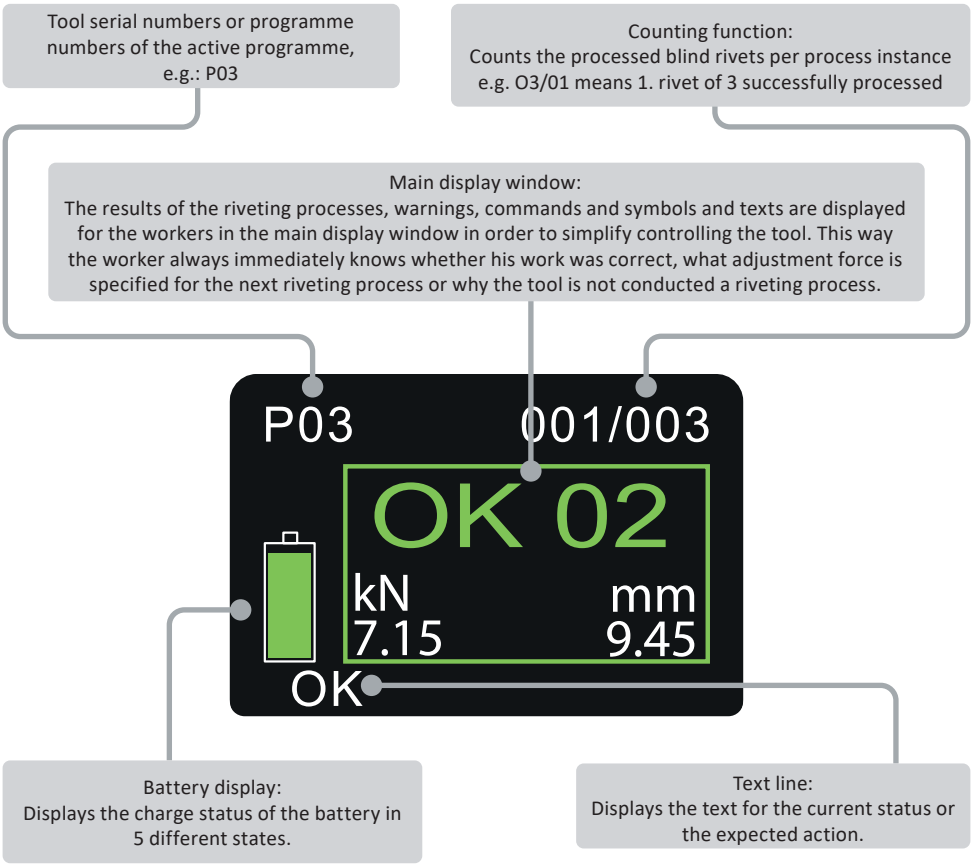
NOTE
The tool will only start if the battery has sufficient charge capacity.

When fully charged the battery will display the charge state on the display on the left side as a green battery symbol. As the battery voltage decreases the colour of the symbol will change to yellow and then red. When it reaches red an additional warning signal will sound, the display will read „warn batt“ and recommend changing the battery. After several additional installations the tool will no longer start and the display will read „batt low 2“ with a crossed through battery. The battery must then, at the latest, exchanged (see 3.4.1 Inserting and removing the battery). The battery of the RoboRiv is permanently charged by an integrated charger. If the battery charge level drops significantly during operation, please contact the manufacturer.

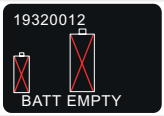
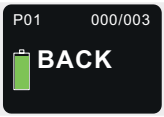


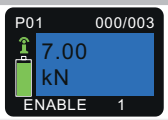
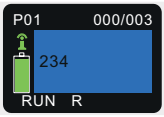
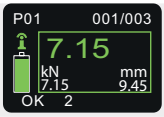
3.5 Display

The display element in the HST-Tool-Manager can be changed so that, for example, precise values for the rivets, the stroke, only one OK or NOK or the count process can be displayed for the worker. The display elements can be displayed in German or English. In addition you can set which unit the values will be provided in (kN or lbf).

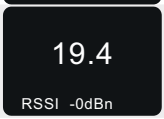
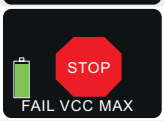


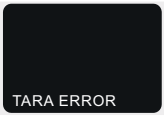
3.5.1 Display notifications

Display notifications	Meaning
	Battery state of charge: 50 % - 100 %
	Battery state of charge: 30 % - 50 %
	Battery state of charge: 10 % - 30 %
	Battery state of charge: 5 % - 10 %
	Battery state of charge: less than 5 %
	The tool is ready for use.
	If a stop is programmed between two program steps, this display indicates that the start trigger must be pressed again. Alternatively, it is possible to unscrew a blind rivet nut by pressing the yellow display button.
	The spinned-on blind rivet nut can be spinned off. Hold the blind rivet nut. This option is only possible if a stop is programmed between the spinning on and the riveting process.
	The tool has been restarted successfully. By setting the trigger signal, the tool moves to its starting position and checks the tool for functionality. Then the tool is ready for use.

Display notifications	Meaning
	The tool is enabled for three rivet nuts with program 1. 7.00 kN corresponds to the target force from program 1. HST-Tool-Manager display setting: Signals - OLED-display - Enable display: Target value
	The tool is enabled for three rivet nuts with program 1. The riveting process is currently in progress. This is indicated by "Run R". "234" corresponds to the ID of the riveting.
	Tool requires acknowledgement after NOK setting process.
	The tool is not enabled.
	The first of three rivet nuts was successful. Achieved force 7.15 kN and a stroke of 9.45 mm. This message is also available as a NOK notice. HST-Tool-Manager display setting: Signals - OLED-display - Display of results: Smiley
	The first of three rivet nuts was successful. Achieved force 7.15 kN and a stroke of 9.45 mm. This message is also available as a NOK notice. HST-Tool-Manager display setting: Signals - OLED-display - Display of results: Force
	The first of three rivet nuts was successful. In the visualisation area, the counter decreases as the remaining number of rivets is displayed. This message is also available as a NOK notice. HST-Tool-Manager display setting: Signals - OLED-display - Display of results: Counter
	The first of three rivet nuts was successful. Achieved force 7.15 kN and a stroke of 9.45 mm. This message is also available as a NOK notice. HST-Tool-Manager display setting: Signals - OLED-display - Display of results: Stroke max.
	All three setting processes were successful. HST-Tool-Manager display setting: Signals - OLED-display - Display of results: Big smiley

For NOK results, the visualisation area is framed in red and the green result display is also red.

Display notifications	Meaning
	Example of the NOK setting process: Process 1 NOK, 2 processes left. If NOK acknowledgement is activated, the display must be acknowledged by pressing the yellow display button.
	The battery voltage can be displayed in the Setup menu under "features".
	NOK setting process successfully acknowledged.
	Maximum temperature of the motor exceeded. Allow the tool to cool down and check break times. If the error persists, contact the manufacturer.
	Maximum logic voltage exceeded. Tool must be repaired!
	Maximum permissible force exceeded, contact the manufacturer.
	Maximum permissible current exceeded, contact the manufacturer.
	If the maximum temperature of the control unit is exceeded, contact the manufacturer.
	Maximum battery voltage exceeded.
	Battery voltage too low.

Display notifications	Meaning
	Tool must go for servicing and is only enabled again after confirmation by the service team.
	Tool must be calibrated and is only enabled again after calibration.
	Service interval for the threaded mandrel has been reached and it must be exchanged. The service notification must be reset by the service team in the HST-Tool-Manager.
	Sensor value error. Contact manufacturer, tool must be checked.
	Motor does not start correctly. Motor faulty or incorrect programming. Check the last step of your program in the pulling direction. During this step, $Force_{actual}$ must be activated. Nominal value of the tool must be entered.

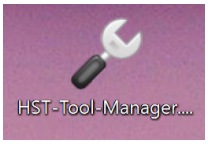
3.6 HST-Tool-Manager

This excerpt shows only the most important functions for this tool type.
A complete guide for the HST-Tool-Manager is available for you to download on our website.

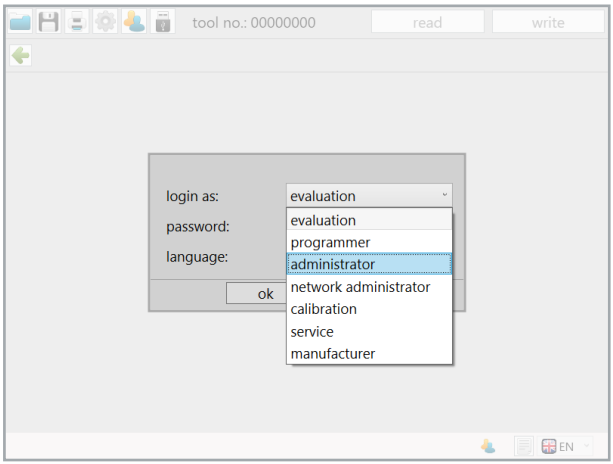
Download the current version of the HST-Tool-Manager in the downloads area on the HS-Technik website **www.hs-technik.com**.

NOTE
Always use the most current version of the HST-Tool-Manager from the website. The HST-Tool-Manager is backward compatible, i.e. it can also read and process older tool versions. If an update of your tool is necessary the HST-Tool-Manager will inform you.

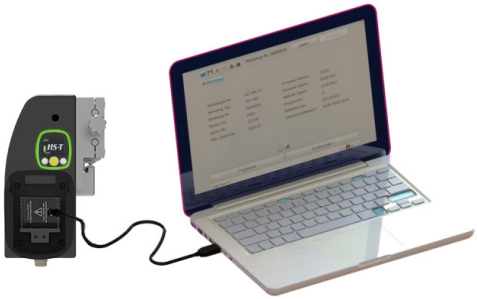
1. Start the HST-Tool-Manager by double clicking the HST-Tool-Manager icon:



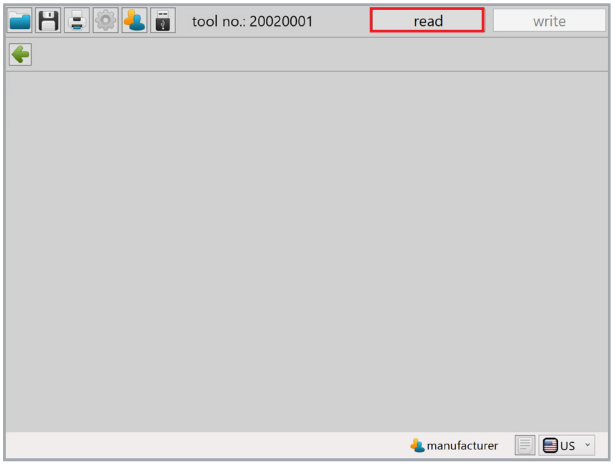
2. Log-in with the required User, a list of the passwords can be requested from HS-Technik (support@hs-technik.com).



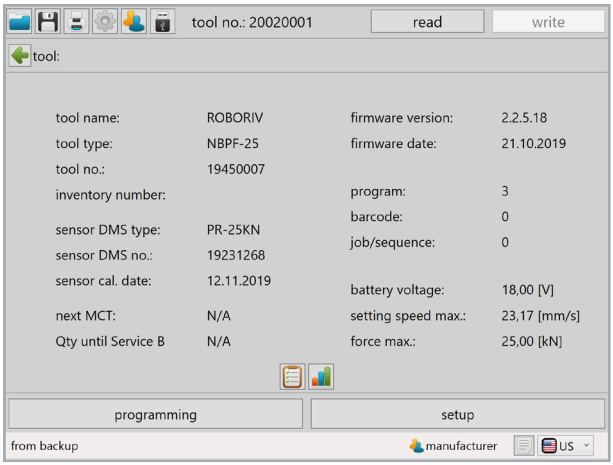
3. Make sure that the tool is disconnected from both the battery and the external power supply. Insert the USB cable included into the Mini-B socket at the bottom of the tool and the opposite end into an open USB interface on your laptop / tablet / PC.



4. Click on the „read“ button on the top right.

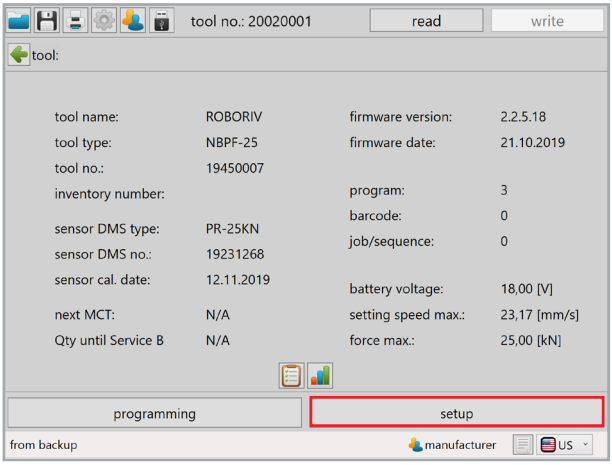


5. The HST-Tool-Manager will now read the settings from your tool and will display its progress using a green bar. At the end the tool overview will be displayed.



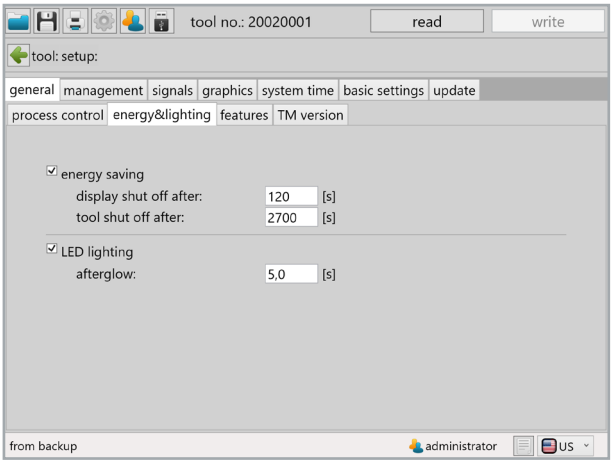
3.6.1 Setup

Clicking on „setup“ takes you to the tool settings menu. Here, for example, the display, LED display, and energy savings settings...can be parametrised.



3.6.2 General → energy & lighting

Here you can parametrise the energy savings options and the LED lighting.



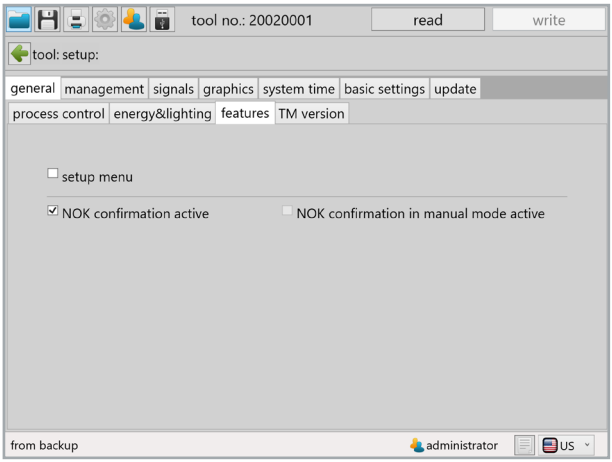
„energy saving“	The checkbox can be used to activate or deactivate the energy-saving options.
„display shut off after“	Time in seconds without action after which the OLED display of the tool will switch off and the screen saver will activate. Default value: 600 seconds (10 minutes)
„tool shut off after“	Time in seconds without action after which the tool turns off. Default value: 1,800 seconds (30 minutes)
„LED lighting“*	The LED lighting can be activated or deactivated with the check-box.
„afterglow“*	The amount of time the LED lighting continues to glow after completion of the work process.

NOTE
The option „tool shut off after“ should be deactivated by entering the value 0. Otherwise this could lead to problems with the PLC.

* The RoboRiv does not have LED lighting.

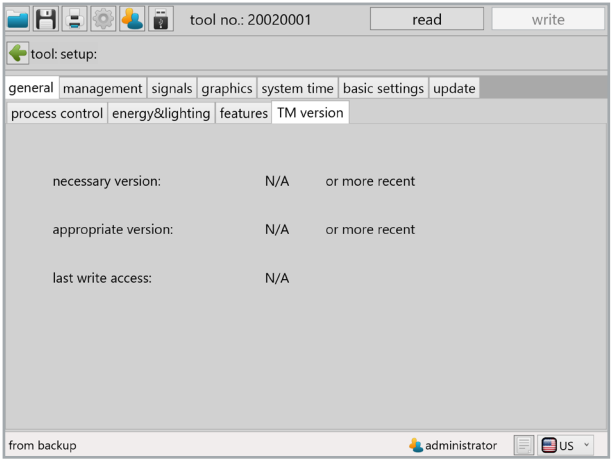
3.6.3 General → features

The NOK acknowledgement can be activated and deactivated in the features tab.
If the check-box is selected the NOK acknowledgement function is active (default).



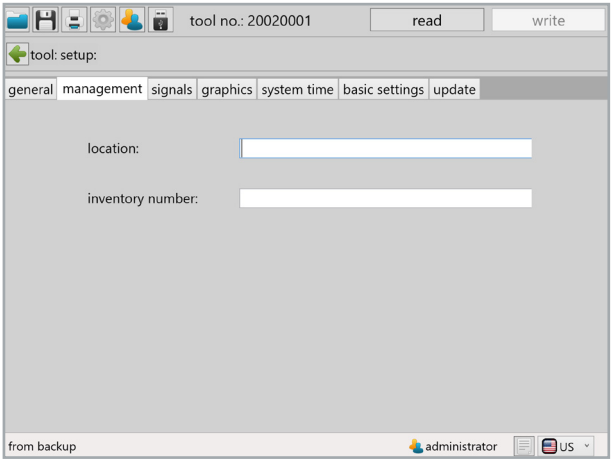
3.6.4 General → TM version

Which version of the HST-Tool-Manager is required for this tool, at minimum, which version is intended for the application, and which version was last written on the tool will be displayed in the TM tab.

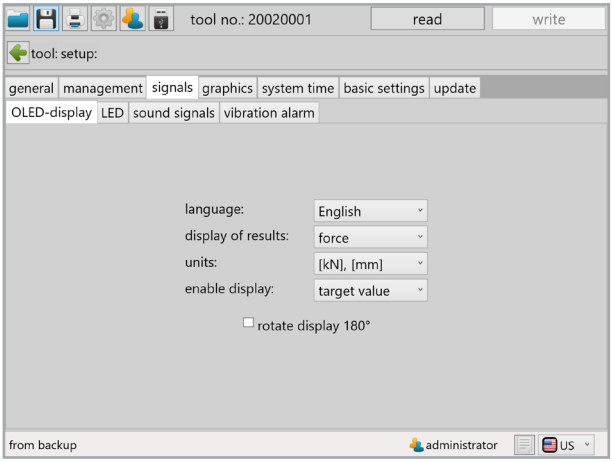


3.6.5 Management

The data on the operating site and the inventory number of the tool can be saved under management.
location max. 20 characters
Inventory number max. 40 characters



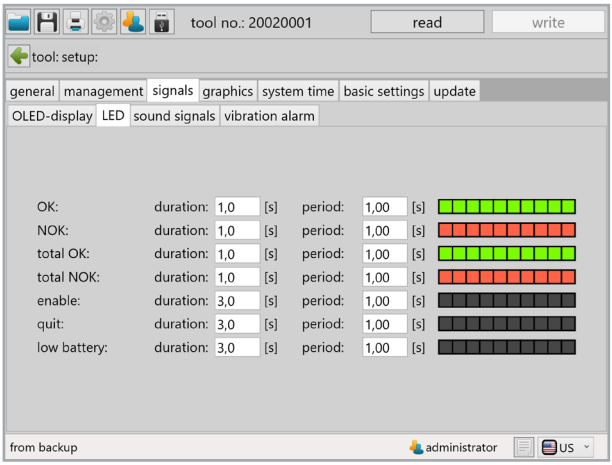
3.6.6 Signals → OLED-display



„language“	Select the language on the OLED-display, German or English Default: English
„display of results“	Select the display of results on the OLED display. **Smiley** displays the result as Smiley with the process values as small, **Force** displays the force reached as large, **Stroke** displays the stroke value reached as large, **Smiley large** displays the result as Smiley without process values. Default: Smiley large
„units“	Selection of the units on the OLED display, SI units or imperial units Default: SI units (kN and mm)
„rotate display 180°“	Selecting the check-box turns the display on the OLED display by 180°.

3.6.7 Signals → LED

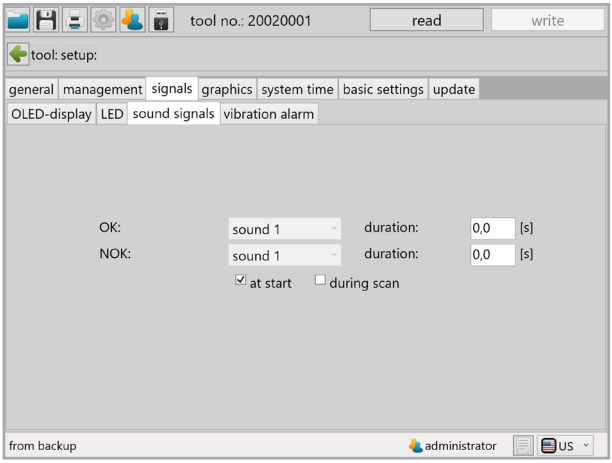
The LED displays around the OLED-display can be parametrised under the LED tab. The colour of the display can be changed by clicking on the coloured square.



„duration“	The duration of the display in seconds, max. 25.5 seconds.
„period“	The duration of the sequence of the 10 parametrisable indicator fields. Period 1.00 seconds means that the 10 fields will be shown one after another within 1.00 seconds.

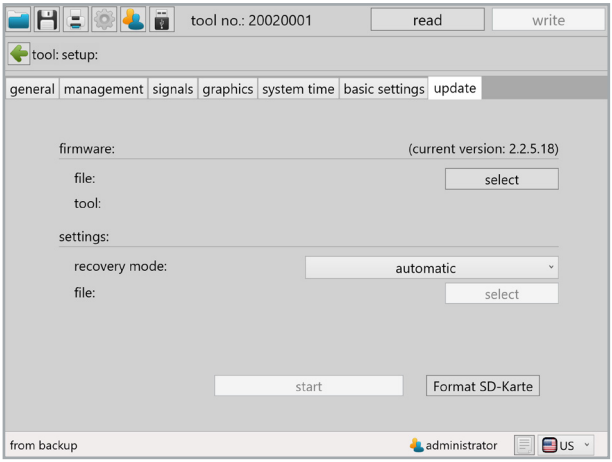
NOTE
The settings for the OK and NOK display also influence the output of the external control signals and should therefore not be changed.

3.6.8 Signals → sound signals



„duration“	For the duration the time of the sound signal for OK and NOK results will be parametrised in seconds, max. value 3.0 seconds.
„at start“	When the check-box is selected a signal will sound when the tool starts.

3.6.9 Update

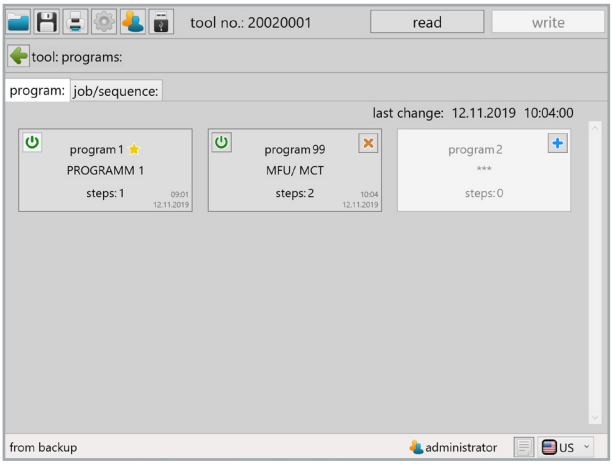


select:
Click on „select“ and select the .upd file provided by HS-Technik GmbH. Click „start“. The progress of the update will be displayed using a status bar and confirmed at the end with „done“. The tool is now up-to-date with the current firmware and has the same settings as prior to the update.

NOTE
Do not pull out the USB cable during the update process!

3.6.10 General → program

Clicking on „program“ takes you to the program settings menu.



The programmes are created here; in doing so many parameters must be set which will have a large influence on the process.
A detailed guide on this can be found in the operations manual of our HST-Tool-Manager (download at www.hs-technik.com/software)

NOTE
We recommend using the support of the HS-Technik service personnel during initial start-up in order to determine the perfect parameters for your application.

3.7 Maintenance and servicing

Apart from the regular cleaning and the inspection and maintenance of the clamping jaws the battery blind riveting device is largely maintenance-free.

WARNING

Risk of injury as a result of improper handling!

Repair, maintenance and care of riveting tools must be completed professionally. After the work no risk for the operator should exist during proper use. The operator may only conduct the work described here.

3.8 Cleaning

NOTE

Observe the following information for cleaning your riveting device. Incorrect cleaning solutions or improper procedures when cleaning can lead to damages on the riveting device.

3.8.1 General information

Do not use any degreasing or corrosive cleaning solutions and no water. Do not spray any cleaning solutions, solvents or easily flammable materials into the openings of the housing!

Clean the battery contacts and the battery connection on the tool with a cloth, cotton swab and a little alcohol when necessary.

3.8.2 Cleaning / replacement of the threaded mandrel

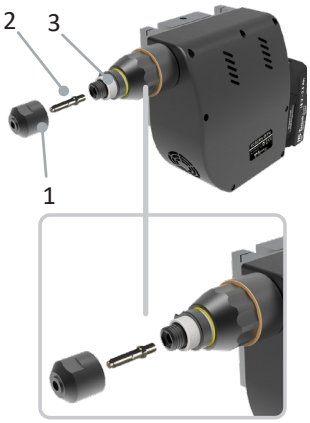
Loosen and remove the mouthpiece (1).

In order to clean or replace the threaded mandrel (2) pull back the silver lock ring (3) and loosen the mandrel by turning.

If the mouthpiece (1) can not be loosened by hand it can be loosened using two SW24 keys.

These components can be cleaned using a wire brush or a cloth. Any shavings should be removed. Then check the mandrel and replace if necessary.

Then reassemble the device in reverse order. While doing so ensure that the threaded mandrel is again locked into place flush with the lock ring.



3.8.3 Machine capability test (MCT)

We recommend an annual machine capability test for high quality standards and a long life span. This can be combined with maintenance and inspection of the overall tool.

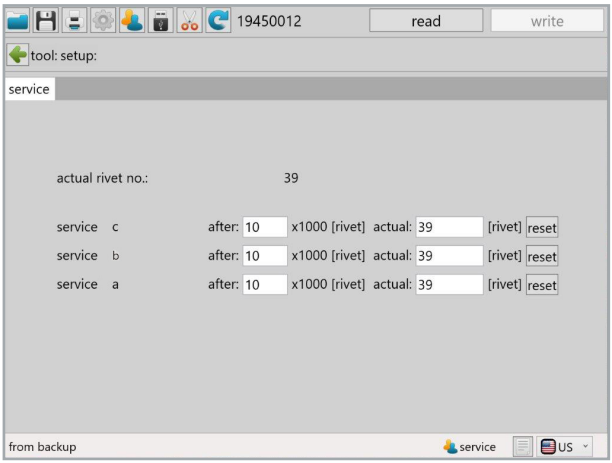
The machine capability test can be completed by HS-Technik GmbH.

3.8.4 Service interval counter

The tool has an internal service interval counter which will inform the user of an inspection due. In this case you will receive the following notification in the display:

The service counters can be parametrised with the HST-Tool-Manager under the „Service“ user. The respective value entered will be multiplied by 1,000, i.e. when entering 10 the service notification will appear on the display after 10,000 sets. If you enter 0 the function is deactivated.

The recommended service intervals are saved in the tool ex works. We would be happy to inspect the tools for you after reaching the service interval.



4 Interfaces

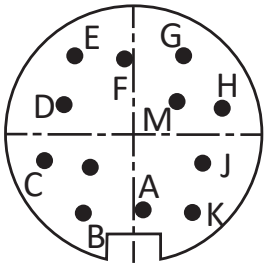
4.1 Serial port

For the transmission of process data, the RoboRiv has a 9-pin Sub-D connector with RS232 interface. The process data is transferred as a string. For a complete interface description please contact our support at: **support@hs-technik.com**

4.2 IO Ports and Power Supply

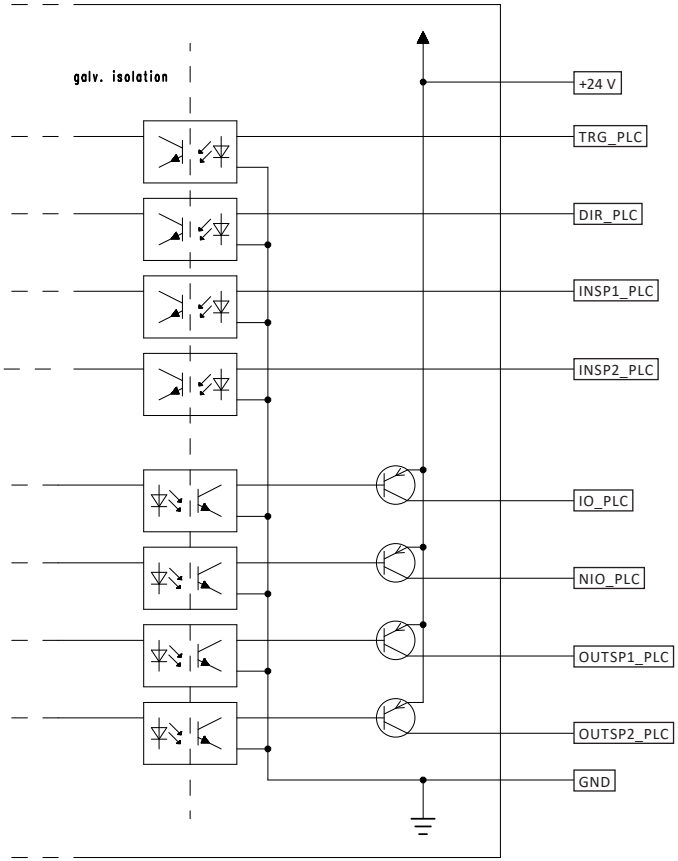
An 12-pin M16 connector is available for controlling the RoboRiv via PLC.

Pin	Tool	Signal
A	OUTPUT	IO_PLC
B	OUTPUT	NIO_PLC
C	Power Supply	GND
D	INPUT	TRIG_PLC
E	INPUT	DIR_PLC
F	INPUT	INSP1_PLC
G	INPUT	INSP2_PLC
H	Power Supply	24VDC
J	OUTPUT	OUTSP1_PLC
K	OUTPUT	OUTSP2_PLC
L	Power Supply	GND
M	Power Supply	24VDC



Contact arragement (Plug-in side)

NOTE
The power supply must be well shielded because sensitive measurement technology is being used.



Principal schematic

5 Storage

Observe the following information when storage riveters and chargers:

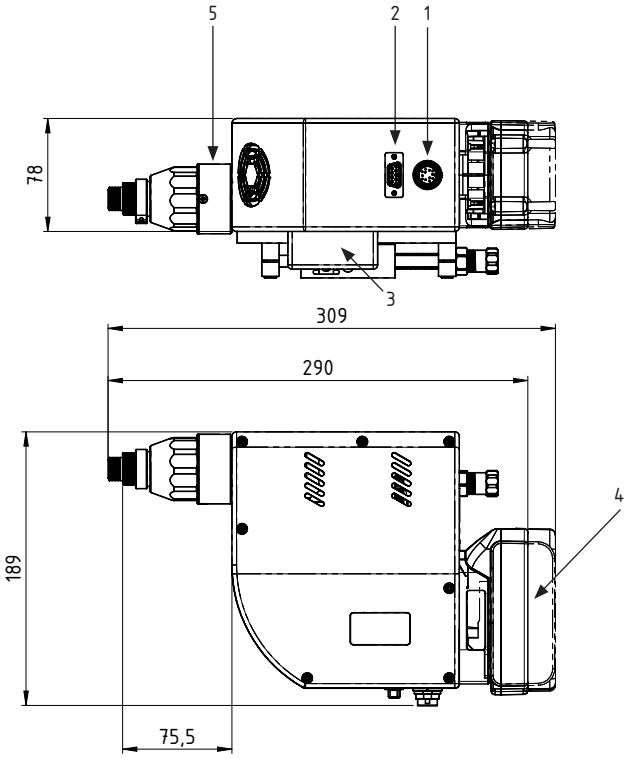
- Remove the battery when you are not using the riveting device.
- If you will not be using the battery for a longer period of time it should be stored, fully charged, in a dry, dust-proof area.
- Store the riveting device, power supply and charger in a dry environment protected against splashing water.
- Store the riveting device, power supply and charger in a well ventilated space and protected against exposure to dust.
- Ensure that the storage environment is free of aggressive chemicals and vapours.

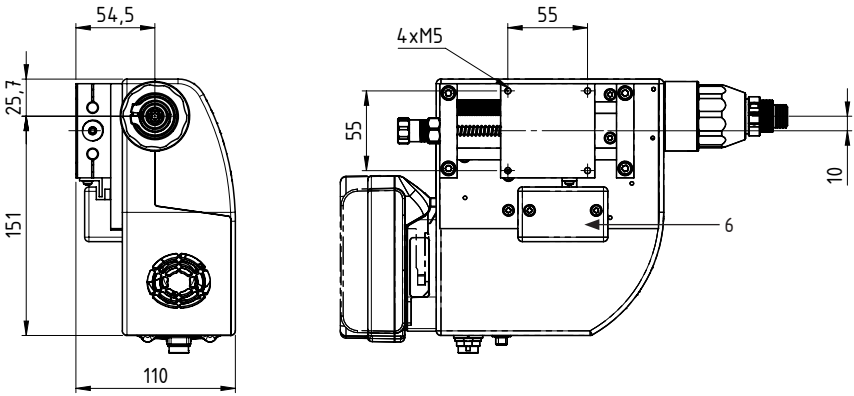
6 Technical data

Description	RoboRiv®
Operating voltage	18 VDC
Device stroke	21 mm
Setting force	max. 25 kN
Setting speed	max. 23 mm/s
Power supply	22 ... 28VDC, 1A, max. 25 W
Operating altitude	< 2000 mNN
Operating temperature	10 - 40 °C
Storage temperature	0 - 50 °C
Dimensions (L × H × B)	309 × 189 × 110 mm (with 5,0 Ah Akku) 290 × 189 × 110 mm (with 2,5 Ah Akku)
Weight without battery	ca. 3,33 kg
Weight with battery 2.5 Ah	ca. 3,68 kg
Weight with battery 5.0 Ah	ca. 4,00 kg
HST-PR-1825 battery	Li-Ion, 18 V, 2,5 Ah
HST-PR-1850 battery	Li-Ion, 18 V, 5,0 Ah
HST-PR-2830 charger	220 - 240 VAC, 50 - 60 Hz, 65 W
Blind rivet nuts Blind rivet screws	M3 - M10 M3 - M8
24V Input	4 pieces, each approx. ca. 10mA
24V Output	4 pieces, max. 100mA

7 Drawings

1. Power supply & 24V IO interface
2. Serial interface, RS232
3. Compensation unit
4. 18 V Li-ion battery
5. Force sensor
6. Position sensor





Meassurements in mm

8 Troubleshooting and Fault repair

The RoboRiv by HS-Technik is a very stable and long-lasting tool.

If, however, a tool does not work properly you can find, and eliminate, the most frequent causes for errors in the table below.

Error	Possible cause	Remedy
Tool does not start, acoustic signal, red Light field appears	1. Battery empty 2. Defective battery	1. Replace and charge battery 2. Replace battery

If the error still persists or is not listed, please contact HS-Technik GmbH.

Repairs:
Telephone: +49 (0)7628 / 91 11-0
E-mail: repaircenter@hs-technik.com

Programming:
Telephone: +49 (0)7628 / 91 11-0
E-mail: support@hs-technik.com

Please note the following information:
- Serial number of the riveting device (see battery compartment of the device)
- What error has occurred?
- Display
- When did the error first appear?
- What have you done to fix the error?

We reserve the right to make errors, technical changes to our products and changes to the delivery programme in the course of further development.

Declaration of conformity in accordance with the electromagnetic compatibility directive 2014/30/EU

We, the manufacturer, hereby declare that the named tool complies with the essential protection requirements of the listed EU directives regarding design and construction type.

The prerequisite for this is the intended use of the tool as well as compliance with the installation and commissioning instructions.

If the product or its accessories are modified without our consent, this declaration becomes invalid.

Tool description:	Programmable cordless blind riveting tool
Type designation:	ROBORIV-BRN-xxx
Manufacturer:	HS-Technik GmbH Im Martelacker 12 D-79588 Efringen-Kirchen
Directives:	2014/30/EU
Applied standards:	EN 61000-6-3:2007+A1:2011+AC:2012 EN 61000-6-2:2005+ AC:2005 EN 55014-1:2006+A1:2009+A2:2011 EN 55014-2:1997+ AC:1997+A1:2001+A2:2008

HS-Technik GmbH
Im Martelacker 12, D-79588 Efringen-Kirchen

February 2022

Florian Hanke
CEO

HS-Technik GmbH
High - System - Technik

EC Declaration of Incorporation according to Machinery Directive 2006/42/EC, Annex II, 1. B

We as the manufacturer hereby declare that the specified device corresponds in terms of design and construction type to the following protection requirements according to Annex I of EC Machinery Directive 2006/42/EC.
The prerequisite for this is the intended use of the tool as well as compliance with the installation and commissioning instructions.

If the product or its accessories are modified without our consent, this declaration becomes invalid.

Tool description:	Programmable cordless blind riveting tool
Type designation:	ROBORIV-BRN-xxx
Manufacturer:	HS-Technik GmbH Im Martelacker 12 D-79588 Efringen-Kirchen
Directives:	2006/42/EC
Applied standards:	EN 62841-1:2015+AC:2015, EN 62841-2-2:2014

HS-Technik GmbH
Im Martelacker 12, D-79588 Efringen-Kirchen

February 2022

Florian Hanke
CEO

HS-Technik GmbH
High - System - Technik

Annex to the declaration of incorporation for incomplete machines according to 2006/42/EC, Annex II, 1 B

Description of the basic health and safety requirements according to 2006/42/EC, Annex I, which are used and met for the scope of the incomplete machine:

		For the scope of the incomplete machine fulfilled ↓	To be fulfilled by the system integrator ↓	Not relevant ↓
1.1	**General remarks**			
1.1.1	Definitions	×		
1.1.2	Principles of safety integration	×		
1.1.3	Materials and products	×		
1.1.4	Lighting		×	
1.1.5	Design of machinery to facilitate its handling	×		
1.1.6	Ergonomics		×	
1.1.7	Operating positions			×
1.1.8	Seating			×
1.2	**Control systems**			
1.2.1	Safety and reliability of control systems	×		
1.2.2	Control devices		×	
1.2.3	Starting	×		
1.2.4	Stopping		×	
1.2.4.1	Normal stop		×	
1.2.4.2	Operational stop		×	
1.2.4.3	Emergency stop		×	
1.2.4.4	Assembly of machinery			×
1.2.5	Selection of control or operating modes			×
1.2.6	Failure of the power supply	×		

Not relevant				↓
To be fulfilled by the system integrator			↓	
For the scope of the incomplete machine fulfilled		↓		
1.3	**Protection against mechanical hazards**			
1.3.1	Risk of loss of stability	×		
1.3.2	Risk of break-up during operation	×		
1.3.3	Risks due to falling or ejected objects	×		
1.3.4	Risks due to surfaces, edges or angles	×		
1.3.5	Risks related to combined machinery		×	
1.3.6	Risks related to variations in operating conditions		×	
1.3.7	Risks related to moving parts		×	
1.3.8	Choice of protection against risks arising from moving parts		×	
1.3.8.1	Moving transmission parts	×		
1.3.8.2	Moving parts involved in the process		×	
1.3.9	Risks of uncontrolled movements		×	
1.4	**Required characteristics of guards and protective devices**			
1.4.1	General requirements	×		
1.4.2	Special requirements for guards		×	
1.4.2.1	Fixed guards			×
1.4.2.2	Interlocking movable guards			×
1.4.2.3	Adjustable guards restricting access			×
1.4.3	Special requirements for protective devices			×
1.5	**Risks due to other hazards**			
1.5.1	Electricity supply	×		
1.5.2	Static electricity		×	
1.5.3	Energy supply other than electricity			×
1.5.4	Errors of fitting		×	
1.5.5	Extreme temperatures		×	

		For the scope of the incomplete machine fulfilled ↓	To be fulfilled by the system integrator ↓	Not relevant ↓
1.5.6	Fire	×		
1.5.7	Explosion			×
1.5.8	Noise		×	
1.5.9	Vibrations		×	
1.5.10	Radiation			×
1.5.11	External radiation			×
1.5.12	Laser radiation			×
1.5.13	Emissions of hazardous materials and substances	×		
1.5.14	Risk of being trapped in a machine			×
1.5.15	Risk of slipping, tripping or falling			×
1.5.16	Lightning			×
1.6	**Maintenance**			
1.6.1	Machinery maintenance		×	
1.6.2	Access to operating positions and servicing points			×
1.6.3	Isolation of energy sources		×	
1.6.4	Operator intervention			×
1.6.5	Cleaning of internal parts			×
1.7	**Information**			
1.7.1	Information and warnings on the machinery			×
1.7.1.1	Information and information devices	×		
1.7.1.2	Warning devices			×
1.7.2	Warning of residual risks	×		
1.7.3	Marking of machinery	×		
1.7.4	Instructions	×		
1.7.4.1	General principles for the drafting of instructions	×		

Not relevant				↓
To be fulfilled by the system integrator			↓	
For the scope of the incomplete machine fulfilled		↓		
1.7.4.2	Contents of the instructions	×		
1.7.4.3	Sales literature	×		
	Other from annex 1			
2	Supplementary essential health and safety requirements for certain categories of machinery			×
2.1	Foodstuffs machinery and machinery for cosmetics or pharmaceutical products			×
2.2	Portable hand-held and/or hand-guided machinery			×
2.2.2	Portable fixing and other impact machinery			×
2.3	Machinery for working wood and material with similar physical characteristics			×
3	Supplementary essential health and safety requirements to offset hazards due to the mobility of machinery			×
4	Supplementary essential health and safety requirements to offset hazards due to lifting operations			×
5	Supplementary essential health and safety requirements for machinery intended for underground work			×
6	Supplementary essential health and safety requirements for machinery presenting particular hazards due to the lifting of persons			×

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