

Rivet tools / Tools for Lockbolt-Systems

# H3030A + HP350

Operating manual



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## 1. Introduction

We present to you the user manual, which contains data and instructions for putting the device into operation, as well as instructions for its operation and maintenance. This documentation is intended for all workers who use the device. It is necessary to pay due attention to the entire contents, as possible ignorance of operation and maintenance can lead to device malfunctions and safety risks.

All data provided in this manual and in the documentation provided with the device are the intellectual property of the manufacturer and may only be used for the purpose of operating the device. Their misuse for other purposes establishes liability according to legal regulations.

Product Name:

H3030A + HP350 Riveting Equipment

TTA Catalog number:

HP350 - 99-0128

H3030A - 99-0135

Titgemeyer Article number:

HP350 - 385 122 005

H3030A - 385 300 004

Product description:

H3030A + HP350 is a riveting device with a hydraulic drive for lockbolts and high-strength blind rivets up to a breaking force of 30kN.

Manufacturer :

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## 2. General description of the device and its use:

The H3030A + HP350 is a riveting device with a hydraulic drive for two-piece (pin and collar) type lockbolts and high-strength blind rivets up to a breaking force of 30kN.

The device consists of a hydraulic aggregate equipped with a high-pressure piston pump with an electric motor and a riveting tool with a hydraulic double-sided cylinder. The unit is placed in a frame with wheels for easy movement and is equipped with a catch basin in case of oil leakage. The riveting tool is connected to the aggregate using hydraulic hoses equipped with quick couplings. The hydraulic hoses are protected in a bundle that ensures maximum flexibility, protection against damage and safety for the operator. The riveting tool (riveting head) is designed to be built into the machine. It is equipped with a high-precision clamping plate for easy disassembly and assembly. The clamping plate ensures precise clamping without the need for readjustment.

The riveting process is controlled from the superior device (production line) using signals. The hydraulic aggregate is equipped with an electronic control system that ensures communication between the aggregate, the riveting tool and the superior (external) system (if connected). A PLC touch screen is used as a human-machine communication interface, where all operational settings can be made, and operational parameters can be monitored.

The riveting device is intended for riveting of blind rivets and two piece lockbolts, up to the maximum size of the mandrel - diameter 6.8 mm and the maximum force required for breaking 30kN. The device is designed for use in production halls with a temperature range of 15 to 30 °C.

The device allows checking and evaluating the riveting process, using the TC unit, which is built into the riveting tool, including sensors, it allows to recognize various types of possible errors in the riveted joint, e.g. the use of the wrong rivet, missing material, riveting without a closing ring, etc. It can also check the correct placing the rivet head on the rivet to prevent the pulling head jaws from breaking. The results of the record of the riveting process and the evaluation of the results can be saved. The results can be saved to a PC if it is equipped with the "SAN Assist" software, or they can be sent to any compatible device after saving the data. The TC (Process Control) setting is done using

a PC with the "SAN Assist" program installed. The connection between the PC and the riveting device itself is made using an Ethernet cable. The device can be connected to another production device equipped with a control system or operated independently. The connection is possible thanks to the Ethernet cable and communication in the Modbus protocol. Connection to the network or to a superior system enables control of the operation of the riveting device and monitoring of its parameters.

### 3. Working environment

#### Location

- The equipment should be used in a production hall, i.e. in a closed room with stable climatic conditions. The device is designed for use in an ambient temperature range of 15 to 30 °C.

#### Working environment

- Riveting equipment does not require a different working environment than normal production equipment. No separate operating space is required. However, it is necessary to place and ensure order in the surroundings to ensure space for equipment maintenance and adjustment.
- If oil is splashed outside the unit, it is recommended to remove oil stains with sawdust or VAPEX desiccant.
- In case of oil leakage outside the tub, proceed as in an accident with

petroleum products. When disposing, proceed in accordance with the laws in force in the user's country (these are the details of waste management).

- During all work on the equipment, it is necessary to comply with the applicable regulations on environmental protection.
- When changing the hydraulic oil and filter elements, observe the local regulations regarding their disposal.
- When disposing of waste, it is necessary to consider possible health risks and compatibility with the environment.
- In the event of a hydraulic oil leak, immediately stop operation and proceed in accordance with the regulations for eliminating the effects of an accident with petroleum products. Re-commissioning and carrying out the operating instructions must only be done after the accident's causes are eliminated!

#### 4. Range of use

The riveting device is designed for riveting high-strength blind rivets, and two-piece (pin and collar) type lockbolts. The riveting device can install fasteners up to a mandrel diameter of 6.5mm, with a maximum breaking force of up to 30kN and a required stroke of 26mm.

To rivet a specific fastener, the corresponding pulling head must be mounted on the riveting tool. (Please contact your riveting equipment dealer for more information).

##### Working range: two-piece lockbolts

Mandrel Ø [mm]	4.8	6.4
Aluminium	SL, MG	SL, MG
Steel	SL, MG	SL, MG
Stainless steel	SL	SL

SL = Standard Lockbolts, TIFAS® LockBolt, DeltaBolt®, MG = TIFAS® Multi-Grip

##### Working range: High strength blind rivets

Rivet body Ø [mm]	6.4
Aluminium	TBU, TBO
Steel	TBU, TBO, MB, HL
Stainless steel	TBU, TBO

TBU = TIBULB, TBO = TIBOLT®, MB = MAGNA-BULB®, HL = HUCKLOK, etc.

## 5. Technical parameters of the aggregate and riveting tool

### Riveting tool H3030A

Features	Value	Comments
Control system power supply (V DC)	24	
Pulling force (kN)	30	At an oil pressure of 35 MPa (working pressure of the unit)
stroke (mm)	26	
weight (kg)	2.2 kg / 3.2 kg	Without hoses / with 2.5 m hose
Total cycle time (seconds)	1.9	No rivet, full stroke back and forth
Length (mm) x Height (mm) x Width (mm)	240 (Without nose piece, without deflector) x 125 (350 including hose bend) x 45	
Force sensor type	Digital oil pressure gauge	
Force sensor specifications	Accuracy at 25 °C = 1.50% Accuracy at 0-85 °C = 3.80% Max. power = 54.5 kN Accuracy at 25 °C = 0.8175 kN accuracy at 0-85 °C = 2.071 kN	
Lift sensor type	Digital non-contact track sensor	
Lift sensor specifications	Maximum displacement (travel) = 32 mm Sensitivity = 0.05 mm at 25 °C Repeat accuracy = 0.1 mm at 25 °C Operating conditions = 0-70 °C Maximum vibration = 55 Hz	

## HP350 Hydraulic pump / evaluation unit

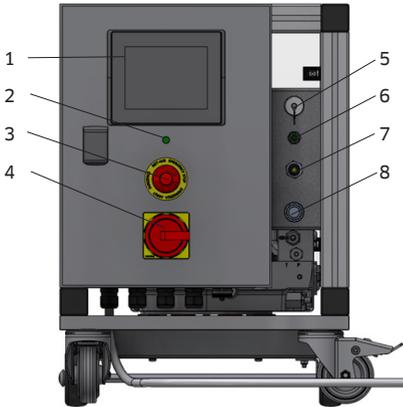
Features	Value	Comments
Power supply (V), Frequency (Hz), current (A)	400V 50Hz 16A	
Engine power (kW)	2.2	
Max. hydraulic oil safety pressure (Mpa)	50	
Hydraulic oil working pressure (MPa)	35	
Hydraulic oil return pressure (MPa)	15	
Maximum hydraulic oil flow rate (l/min)	1.7	
Tank volume (dm <sup>3</sup> )	6	
Working fluid	Mineral hydraulic oil class VG 46 acc ISO TC 28/SC4 (DIN 51524) with viscosity 46 mm <sup>2</sup> /s at 40°C	zinc-based hydraulic mineral oils
Purity of the working fluid	18/16/13 7	ISO 4406:1999 NAS 1638
weight (kg)	82	
Length (mm) x Height (mm) x Width (mm)	613x570x410	

## Riveting device H3030A and HP350

Features	Value	Comments
Sound power level (LWA)	92 dB(A)	Noise and vibration values were measured using a standardized measurement method and can be used to compare instruments. The values are also suitable for preliminary estimation of the effect. The data shown represents the use of the tool on the DeltaBolt part number 383 205 012. If used in a different way, with different rivets or in a different setting, the data may vary. The effect during the entire working time can be significantly increased. To accurately estimate the effect, it is necessary to consider the time when the tool is turned off or when it is running but not used. This can significantly reduce exposure throughout the working hours.
Uncertainty of sound power level (KWA)	3dB(A)	
Emitted sound pressure level (LpA)	85 dB(A)	
Sound pressure level uncertainty (KpA)	3dB(A)	
Vibration level (m/s <sup>2</sup> ), when installed DeltaBolt part number 383205012	5.5 m/s <sup>2</sup>	
Vibration level (m/s <sup>2</sup> ), uncertainty	1.5 m/s <sup>2</sup>	
Ambient temperature range in which the system can be operated (degrees C)	15-30	Ideally, the unit should be used in a production hall with constant climatic conditions.
Length of connecting hose between H3030A and HP350 (meters)	2.5 m	max 10m

## 6. Device description

### HP350 hydraulic unit



1. Display
2. Power light
3. E-STOP button
4. Main switch
5. LAN socket
6. Connector for connecting riveting tools
7. Hydraulic plug
8. Hydraulic socket
9. Oil filler cap

### Riveting tool H3030A



1. Pulling head (not included)
2. Deflector
3. Mounting plate
4. Hydraulic hoses
5. Hydraulic quick coupler
6. Hydraulic quick coupler
7. Rivet gun connection connector



## Description of the riveting tool

A riveting tool is a device whose piston is driven in both directions by hydraulic oil. The riveting tool is connected to the hydraulic unit by hydraulic hoses (4) terminated by quick couplings (5,6). The riveting tool is equipped with force and path sensors to evaluate the course of the riveting process. The riveting tool is equipped with a mounting plate (3), which enables a simple replacement of the riveting tool after mounting it in the machine without the need to adjust the position. The riveting tool is equipped with a deflector (a safety cover that directs the fall of broken mandrels (2)). The riveting tool is equipped as standard with a rubber attachment for catching broken mandrels.

Different types of pulling head (1) for different types of rivets can be mounted on the riveting tool. You will receive detailed information from the dealer of the H3030A+HP350 riveting device.

## 7. Occupational safety, health protection and occupational hygiene

### Machine user (machine operator)

- is a natural or legal person responsible for the operation of the machine and its technical condition, compliance with work safety standards and relevant state standards for machine operation

### Responsible person

- is the person authorized by the user

to check the operation of the machine and its technical condition, compliance with work safety standards and relevant state standards for machine operation

### Maintenance

- the person or persons tasked with transporting, installing, repairing and maintaining or cleaning the machine

### Adjuster

- the person or persons tasked with adjusting the machine or tool

### Service

- the person or persons responsible for the normal operation of the machine

### Dangerous space

- any space inside or outside the machine in which a person is exposed to danger, injury or damage to health

### Dangerous places

- there are places on the machine where there is a risk of injury or damage to health

### By repairing the device

- refers to the repair of a product with minor or even considerable wear, when the nature of the repair does not change the original parameters and safety of the device

### Additional safety notices

- All faults and malfunctions that have occurred must be reported to the shift manager and entered in the Equipment Operation Book, including the method of ensuring repair.
- The user is obliged to train workers for the operation, adjustment and

maintenance of the hydraulic equipment, and is obliged to periodically train and check them. Each briefing must be recorded in a diary with the signatures of the people involved.

- Operate and maintain hydraulic elements according to the manufacturer's regulations.
- The space where the device is located must be equipped with a fire-fighting device and the operator must be thoroughly familiar with it. It is necessary to observe the safety regulations for flammable and petroleum substances valid for the country where the equipment is operated.

### **Conditions for the use of equipment - Technical condition**

- The device may only be used in perfect technical condition.
- The operator is obliged to continuously ensure this state.
- Detected malfunctions, especially those that may adversely affect safety, must be rectified immediately.
- Protective devices, e.g. safety valve, must always be functional and in perfect technical condition

### **Organizational measures**

#### **Obligations of the machine operator**

- The operator of the equipment must draw up, considering the Technical Description, the Equipment Recorder, in which the inspection dates are determined, a list of the inspected parts

of the equipment and a list of the people who carry out the inspections.

- The equipment operator must keep the equipment in perfect condition and order in the workplace.
- Work on the equipment should only be carried out by competent, qualified people who have been properly trained and trained. Pay attention to the statutory minimum age for operators, maintenance and adjusters.
- The equipment operator must ensure a professional inspection (revision) of the production equipment, especially of its safety equipment, namely:
  - min. once a year
  - after changes or repairs

### **Compliance with regulations**

- The equipment operator must ensure compliance with the relevant safety regulations to ensure the safety of persons entrusted with operation, maintenance and repairs. The operator must check the persons using the device if they comply with the safety regulations.

### **Personal protective equipment, aids.**

If necessary, workers must use personal protective equipment and aids, in particular:

- Protective equipment against noise.
- Protective gloves
- Goggles
- Safety shoes

**Disorders**

- If malfunctions occur on the device that would endanger the safety of operation or if there are doubts about the flawless condition of the device during operation, the device must be stopped immediately and the malfunction removed. Faults must only be repaired by trained service technicians.

**Machine modifications**

- Without the manufacturer's consent, no modifications of a structural nature may be made to the device, as they may well have a detrimental effect on product safety.

**Spare parts**

- It is necessary to use only such spare parts that meet the specified requirements of the manufacturer. Improperly performed repairs and incorrect spare parts will result in the loss of the product warranty. The use of an incorrect spare part is considered an intervention in the machine's design. Therefore, the manufacturer does not assume responsibility for such an altered design.

**When the device is shut down for a long time**

- turn off the main switch of the device
- Disconnect the power supply cable from the mains

**Handling loads**

- In no case may the entire device be suspended by structural parts (motors, pipelines, pumps) or partial suspensions used to suspend only partial parts during their assembly (suspension eyes of motors, hydraulic blocks, etc.).
- If necessary, use a specially constructed and certified device for that purpose, e.g. a hanging traverse.
- Only suitable and technically faultless lifting equipment with sufficient load capacity and a valid inspection must be used.
- It is forbidden to work or stay under suspended loads

**Instructions for safety when operating the device.**

- As it is a pressure-generating device, the parts of which are therefore under fluid pressure, this device can present a real danger if handled improperly.

**Unprofessional or unintended use is prohibited.**

This is, for example, operation under the following conditions:

- with higher operating pressures
- with incorrect pressure fluid
- under insufficient operating and environmental conditions

**Risk of injury!**

- Unusual phenomena such as unusual noises, vibrations, defects and damage can indicate danger, so they must be removed immediately.

### **Duties of the operator during normal operation:**

- The operator must follow the operating instructions.
- Comply with all safety regulations and standards.
- Familiarize yourself with the Technical Description.
- Before each start of work with the device, make sure and continuously check that there are no unauthorized persons near dangerous places.
- In case of malfunctions, stop the device immediately and prevent it from starting, unless the malfunction is eliminated.
- When working on the device, use protective equipment, e.g. protective gloves, hearing protection, or other PPE depending on the operation being performed.
- Abandon any way of working that is contrary to safe operation.
- Report changes during operation immediately to the relevant persons or stop the device immediately and secure it.
- Put the device into operation only after the cause of the malfunction has been eliminated.

## **8. Warning of extraordinary types of danger**

### **Electrical energy**

The electrical parts of the equipment installed inside the electrical switch-

board may only be operated and repaired by a person professionally qualified to work on electrical equipment.

### **Dangerous places**

Dangerous places are those places where property can be damaged or people's health endangered if safety regulations are not observed.

Particularly dangerous places are:

- moving parts of the device
- equipment workspace
- movable leads
- hose connections

### **Dangers when handling fire**

- Working fluid - hydraulic oil is a flammable liquid with a flash point of approx. 200 °C.
- Work on the equipment, such as welding, burning or grinding, may only be carried out by an authorized person.

### **Noise**

- It is necessary to use the prescribed protective devices against noise.

### **Maintenance safety**

- Screw connections, flanges, valves may only be tightened if the pipes are not under pressure.
- Repairs and malfunctions must not be carried out on equipment under voltage and oil pressure. It is necessary to switch off the device and depressurize the hydraulic circuits.
- Comply with applicable regulations for environmental protection during all maintenance or repair work.

### Prohibited activities

- Carry out any repairs under voltage and oil pressure.
- Remove and deactivate safety devices and devices for signaling malfunctions and blocking the operation of the machine or disconnect them electrically.
- Operate the equipment by persons younger than permitted by legal regulations for the operation of such equipment in the operator's country. The record of their training must be in writing.
- Fill the equipment with other than the recommended operating materials of worse purity than prescribed.
- Carry out any welding work on the drive tank and hydraulic piping.
- Handle open flames near hydraulic equipment.
- It is forbidden to carry out structural modifications and interventions on the device that have not been recommended and approved by the device manufacturer. The same applies to the exchange of spare parts for another type or type.
- Carry out any repairs without the supervision of a trained maintenance person and with the consent of the responsible manager. Only a person trained for this activity is allowed to eliminate defects in the electrical installation and electrical equipment.
- Remove seals and handle safety valves
- Operate the unit without the riveting tool properly connected. Without

connecting both branches of the hydraulic line.

- Change the pulling head with the riveting tool connected to the hydraulic unit.
- Carry out maintenance on the riveting tool connected to the hydraulic unit.

### Documentation

- The accompanying documentation conforms to the relevant standards and regulations in force at the time of initial commissioning.
- The documentation contains all documents for the operation and maintenance of the equipment.
- The operator must ensure that the documentation is accessible to the group of workers ensuring the operation, adjustment and maintenance of the machine.

## 9. Storage and transport

### Shipping instructions

The device is delivered completely assembled. Basically, it is transported without a working filling, i.e. the oil or other working fillings are drained. Carry out transport in accordance with the transport plan.

### Storage

Storage areas must be dry and dust-free with low humidity. Fumes of acids and

other chemicals must not be present.  
For storage longer than 6 months, proper preservation with preservative oil is required.

Store rubber parts in plastic bags and preserve with glycerin.

Prevent access to ultraviolet radiation and moisture.

Spare parts (if the product contains them) are packed according to the requirements for functional subgroups.

A clear arrangement of spare parts and their storage is an obvious prerequisite for well-functioning maintenance.

## 10. Commissioning

### Special requirements for assembly and commissioning

- Radial, axial piston and other pumps with oil-lubricated internal parts must always be filled with clean, filtered working fluid according to the manufacturer's specifications before commissioning or after a long period of downtime.

### Preparation for commissioning

- The condition of the packaging must be checked before unpacking the device. Damage to the packaging may indicate damage to the equipment or parts of the unit, which could later cause malfunctions, e.g. water penetration due to long storage. After removing the packaging, the completeness and proper condition of the device must be checked before proceeding with further actions.

### Commissioning

- Putting the device into operation without the necessary documentation is not allowed.

### Unpacking and filling with operating fluid

- The unit must be unpacked from the shipping material and set up in the place where it will be operated.
- The hydraulic unit must be filled with operating fluid. Fill with the liquid prescribed by the manufacturer (included in the delivery), in a volume of 4 liters. To fill, use the filling hole located on the side of the device (see photo)

### Electrical connection

- Before connecting, check whether the electrical network used is in accordance with the technical parameters of the device.
- Connect the unit to the source using a 5-pin 16A / 400V plug. EN 60309-1
- The supply wire is 2.5 m long.

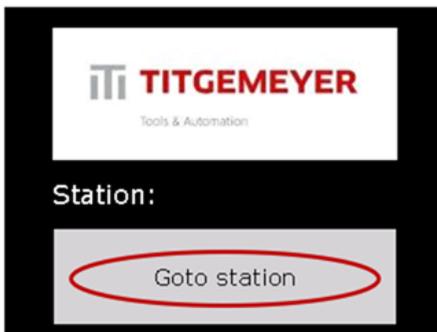
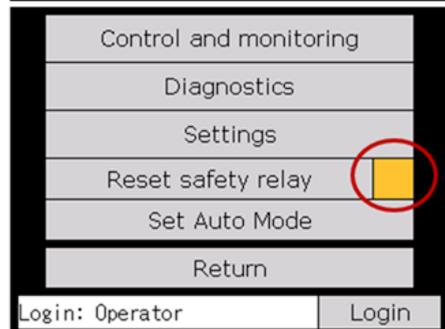
### Connecting the riveting tool with the hydraulic unit

- Connect the hydraulic quick couplers of the riveting tool to the hydraulic quick couplers of the power unit, if using a hose extension set, first connect the quick couplers of the rivet gun and the hose extension set, then the quick couplers of the hose extension set and the power unit quick couplers.

- Connect the connector of the electronic control of the riveting tool and secure it.

#### A/ Starting the device in local control mode

- Connect the device to the mains
- Turn the main switch on the device switch to the ON position - the green light on the device switch will light up, indicating that the device is powered on
- By pressing and then pulling out the central stop button, test the mechanical movement of the central stop button, when you pull it out you can hear and feel the button skipping
- On the main screen, press the GOTO station button (see Photo).



- On the subsequent screen, press the "Reset safety relay "(see photo)
- After a successful reset of the safety relay, the light indicator lights up next to the safety relay reset button (see photo)

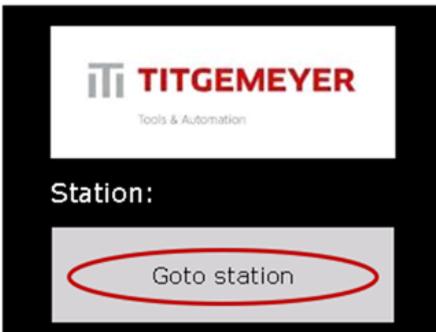
- To start the operation of the device, press the Set Auto Mode button ( see photo)



If you have problems starting your device, go to the Most common problems chapter.

### B/ Starting the device in external control mode

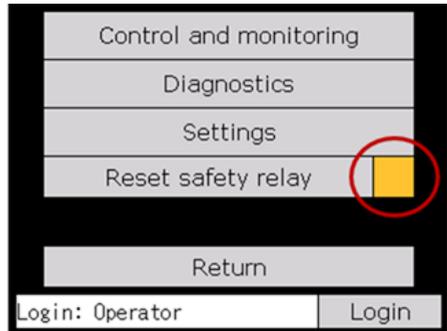
- Connect the device to the mains
- Turn the main switch on the device switch to the ON position - the green light on the device switch will light up, indicating that the device is powered on
- By pressing and then pulling out the central stop button, test the mechanical movement of the central stop button, when you pull it out you can hear and feel the button skipping
- On the main screen, press the GOTO station button (see photo)



- On the subsequent screen, press the Reset safety relay button (see photo)



- After a successful reset of the safety relay, the light indicator lights up next to the safety relay reset button (see photo)



- The device is now ready to be triggered by an external signal - for details on setting up external triggering, see chapter Installation and settings.

If you have problems starting your device, go to the Most common problems chapter

**Operating charge:**

Conversion table for zinc-based hydraulic mineral oils.

Performance class according to ISO-TC 28-SC4, CETOP RP91H HM according to DIN 51 524 part 2. HLP

Viscosity degree (ISO) - VG 46  
 ADDINOL - HYDRAULIKOL HLP 46  
 AGIP - OSO 46  
 ARAL - WELCOME GF 46  
 GASOLINE - OH-HM 46  
 BP - ENERGOL HLP 46  
 CASTROL - HYPIN AWS 46  
 DEA - ASTRON HLP 46  
 ELF - ELFOLNA DS 46  
 ESO - NUTO H 46  
 FIN - HYDRAN C 46  
 FUCHS - RENOLIN VG 46  
 KLUBER - LAMORA HLP 46  
 KORAMO - MOGUL HM 46  
 OMV - HLP 46, HYD HLP 46  
 PARAMO - PARAMOL HM 46  
 SHELL - TELLUS OIL 46  
 TEXACO - RANDO OIL HDB-46  
 TOTAL - AZOLLA ZS 46  
 VALVOLINE - ULTRAMAX HLP 46

This table is compiled based on documents and catalog sheets of oils and does not guarantee the quality or miscibility of oils from individual manufacturers. The use of oils must be consulted with the equipment manufacturer.

" or "ASH FREE" hydraulic oils. In the case of a requirement to use them, contact the manufacturer to see if the device is designed for this type of oil. Attention, both types of oils (zinc-based and zinc-free) are NOT MIXABLE!!

**11. Installation and setup - integrator**

This chapter describes the setup, operation and monitoring of a riveting device designed for equipment integrators. An integrator is a worker who has been trained by the equipment manufacturer and is perfectly familiar with all the functions and parameters of the equipment. All basic settings, control and monitoring can be done through the control panel of the device, under the integrator account. The manufacturer provides the password for the integrator account only to provably trained persons.

A detailed description of all the screens of the control panel is given in the paragraph "Description of the display screens in the integrator account". Start the HP350 hydraulic unit according to the procedure described in the "Commissioning" chapter.

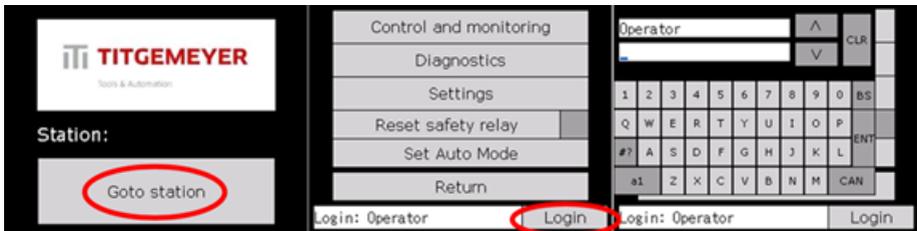
The HP350 hydraulic power unit can be operated as a stand-alone device without signals from an external system, or the request option for the function of the power unit as a controlled device from a superior system can be set via the display. Setting the aggregate control method can only be done after logging in to the " Integrator " user account

**Change user account:**

Operator " " is automatically logged in. Logging in with another user is only possible from the main menu screen. The "Login" button at the bottom of the screen opens the login dialog. Users can be selected with the up and down arrows. You must then enter a password on the keyboard (provided by the supplier). If the login is successful, the

dialog will close and the newly logged in user will appear in the line at the bottom of the main menu.

If no operation is performed on the screen for 5 minutes, access under the "Integrator" account is terminated and the system switches to the "operator" account.



User account	Password	Note
Operator	No password	Default user (always after power on and 5 minutes of inactivity under another account)
Integrator	XXXXXXXX	Account intended for system integrators. It allows the simulation of selected signals and extended monitoring options

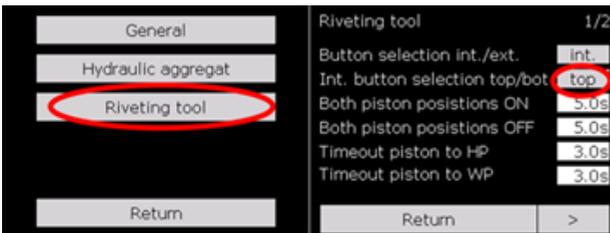
## Main function settings

Setting the control button on the riveting tool:

Button selection is done on the rivet tool settings screen. The settings screen can only be accessed after logging into the " Integrator " account.

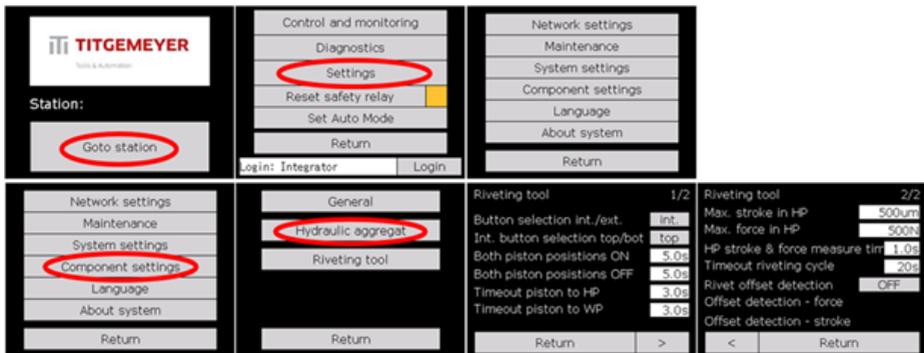


Select, top or bottom button.



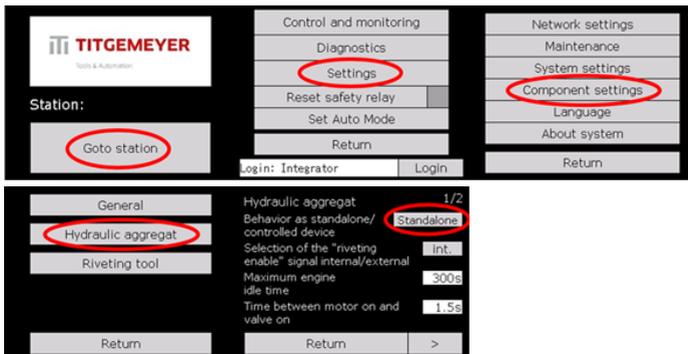
### Starting a check for the correct placement of the rivet.

This function is used to check the correct insertion of the rivet into the pulling head. This function has two tasks. The first is protection against destruction of collets. The second is to prevent the formation of a poor-quality rivet joint. The procedure for starting the function is visible from the screenshots. By switching the " Rivet offset detection " button to the ON position, the function is activated.



### Setting the method of control and communication of the riveting device:

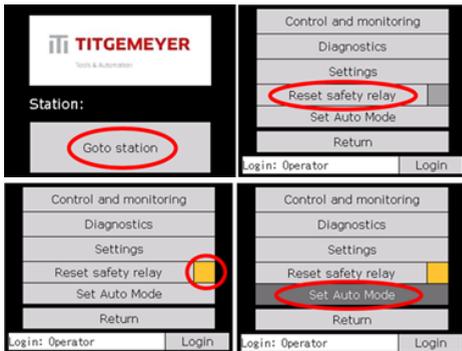
The control method is selected on the hydraulic aggregate setting screen. It is possible to choose operation as a separate autonomous device -A , or operation with a superior system -B. In the case of connecting the riveting tool H3030A, it is necessary to make a choice B, i.e. functioning with a superior system. The H3030A tool does not have control buttons.



### Separate autonomous control of the HP350+H3030A device

This type of control can be used in the case of the H3030A riveting tool if it is a test operation and a temporary control button is connected to the device (see XD4 terminal block).

Connect the device to the electrical network (see chapter Electrical connection). Turn the main switch on the distribution box to the ON position. The green light on the distribution box below the display lights up, indicating that the device is powered on. By pressing and then pulling out the emergency stop button, test the mechanical movement of the button, when you pull it out you can hear and feel the button skipping. On the main screen, press the "Go to station" button. On the main menu screen, press the "Reset safety relay". After a successful reset of the safety relay, the indicator next to the safety relay reset button lights up yellow. To start the automatic operation of the device, press the "Set Auto Mode" button.



Now the device is ready for riveting. The riveting cycle is started by pressing the temporary button, which the integrator connects to the relevant input. Only an integrator can perform this action. After pressing the button, the pump motor is switched on (if it is not running) and the valve for moving the piston of the riveting tool to the working position is switched on, after riveting, the valve is switched off and the second valve is switched on for moving the piston of the tool to the basic position. The pump motor will remain running and will be switched off only after the set period of inactivity. This means that riveting has not been started for the set time. The idle time after which the engine is turned off can be set on the hydraulic unit settings screen (account integrator).

## Superior device control HP350+H3030A Recommended settings for the H3030A riveting tool

The hydraulic aggregate can be set as a device controlled by signals from an external system (superior system). The aggregate can be connected to the superior system in two ways:

- Modbus TCP protocol is used for communication. Recommended connection.
- by connecting wires to the inputs and outputs of the control unit in the hydraulic unit, where each wire corresponds to one signal.

### Communication connection via Modbus TCP communication

The HP350 hydraulic power pack can be controlled via communication that is carried over a standard Ethernet cable and uses the Modbus TCP protocol. The control unit in the aggregate is configured as a Modbus TCP server. For connecting an Ethernet cable, the unit is equipped with two Ethernet sockets (see chapter description). To set up communication, you need to know the IP address of the hydraulic unit. The current IP address can be displayed on the aggregate display. You can get to the screen with the IP address by following the procedure described in the chapter Setting up the evaluation of the riveting process.

The IP address can be changed on the network settings screen, but you need to log in under the " Integrator " user account. See the paragraph "Description

Modbus address	Signal name
<b>Input signals</b>	
005000	Selection of parameter set 1
005001	Choice of parameter set 2
005005	External riveting permit
005007	Machine on
005008	External rivet button
005009	To the basic position
005010	AUTO operation
<b>Output signals</b>	
005064	OK
005065	NOK
005067	In the duty cycle
005068	System in basic position
005069	System error
005074	Machine in operation
005075	Automatic mode on
005076	TC online
005077	TC Ready
005078	Piston in basic position
005079	Piston in working position
005080	Riveting tool button
<b>Error messages</b>	
005184	Error message active
005185	Oil temperature exceeded
005186	Incorrect oil level
005187	TC online
005188	TC_error active
005189	Both piston positions deactivated
005190	Both piston positions activated
005191	Timeout - To the basic position
005192	Timeout - Piston to the basic position
005193	Timeout - Piston to working position
005194	Riveting process timeout
005195	Incorrect stroke value in the basic position of the piston
005196	Incorrect force value in the basic position of the piston

of the display screens in the integrator account".

The basic parameters of the hydraulic unit for setting Modbus TCP communication are IP address 192.168.1.5, port 502. The following table lists all signals and data available via Modbus TCP communication, including the Modbus address

It is possible to read the last measured curve (dependency of the riveting force on the track) (last riveting) in a simplified form from the device. The curve is rewritten with each new cycle. It is therefore necessary to first read the data and only then to start a new riveting. In addition to the curve data, the maximum force and its position on the track can also be read (only applies to the currently saved curve). In order to verify the correct setting of the tool during riveting, information about the currently selected parameter set is also available.

Length	512
Modbus starting address	001400
Data type	Word (punctuation)
Data format	Lane 1 ( addr . 001400), Force 1 ( addr . 001401), Lane 2 ( addr . 001402), Force 2 ( addr . 001403) ...
The position of the maximum on the track	Address 001259, 1x Word
Maximum force value	Address 001260, 1x Word
The current parameter set	Address 001267, 1x Word

Each device equipped with a TC unit can be identified based on the stored label. This marking can be read from the device.

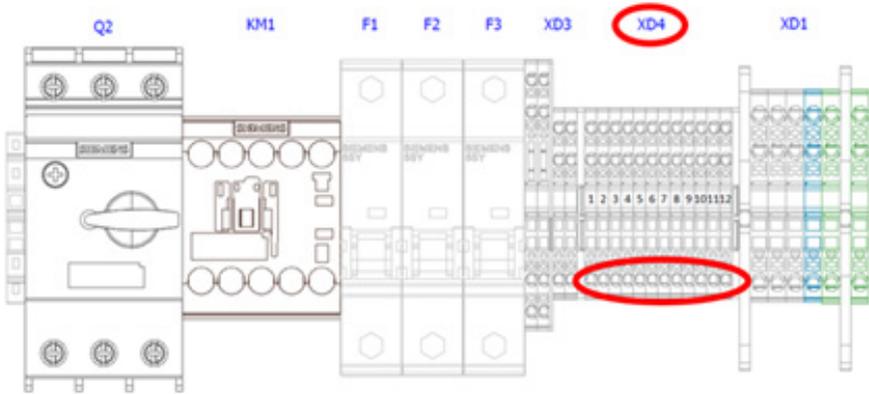
Modbus address	Item	Format
001200	Type designation	8x Word (16 ASCII characters)
001208	Serial number	8x Word (16 ASCII characters)
001216	Working range of tools	8x Word (16 ASCII characters)
001254	Date of manufacture	8x Word (16 ASCII characters)
001232	Commissioning date	8x Word (16 ASCII characters)

During operation, the device monitors work cycles and stores their statistics. The records kept are available at the addresses.

Modbus address	Item	Format
001269	Total number of cycles	2x Word
001271	Total number of OK cycles	2x Word
001273	Total number of NOK cycles	2x Word
001287	Daily number of OK cycles	2x Word
001289	Daily number of NOK cycles	2x Word

### Connection of communication through inputs and outputs

An XD4 terminal block inside the distribution box is reserved for connecting wires from the higher-level system. Due to the need to open the distribution box, the hydraulic unit must be disconnected from the power supply and the wires can only be connected by a person professionally qualified to work on electrical equipment.



The input signal from the superior system is active if the superior system connects the input terminal with +24VDC voltage.

The output signal for the superior system is active when the aggregate control unit applies +24VDC voltage to the output terminal.

The assignment of signals to individual terminals is shown in the following table.

Terminal block XD4		
Input signals		
Terminal number	Signal name	Description
-XD4:1	Selection of parameter set 1	Signals for selection of parameter set 1-4, according to which the quality evaluation of the riveting process will be performed. The setting of the parameter set is binary coded (P1=00, P2=01, P3=10, P4=11).
-XD4:2	Choice of parameter set 2	Signals for selection of parameter set 1-4, according to which the quality evaluation of the riveting process will be performed. The setting of the parameter set is binary coded (P1=00, P2=01, P3=10, P4=11).
-XD4:3	External riveting permit	In the event that the external riveting enable request option is active, this signal is used to enable or block the ability to start the riveting cycle in automatic mode from the superior system.
-XD4:4	Machine on	If the selection of the aggregate control method is set as a controlled device, this signal informs the aggregate about switching on the superior system. Without activation of this signal, the unit cannot be started and controlled.
-XD4:5	External rivet button	The signal enables the riveting cycle to be started in automatic mode by an external signal instead of pressing a button on the riveting tool. The buttons are blocked and their pressing is ignored.
-XD4:6	To the basic position	After this signal is activated, the hydraulic unit and the riveting tool will be set to their default state, including the reset of active error messages. This signal can only be used in manual mode, that is, in a state where the AUTO operation signal is not active.
-XD4:7	AUTO operation	When the signal is activated, the hydraulic unit is switched to automatic mode. Before switching to automatic mode, the safety relay must be switched on, the signal Machine on must be active and no error message must be active.

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**Terminal block XD4**


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**Output signals**

Terminal number	Signal name	Description
-XD4:8	OK	Riveting quality evaluation result signal of the last riveting process. OK means that the riveting took place according to the set criteria.
-XD4:9	NOK	Riveting quality evaluation result signal of the last riveting process. NOK means that at least one of the set parameters has been violated.
-XD4:10	In the duty cycle	The signal is active when a riveting cycle is in progress. After riveting is complete, the signal is deactivated again.
-XD4:11	System in basic position	The signal is active if both the hydraulic unit and the riveting tool are in the initial state and no error message is active.
-XD4:12	System error	If an error is diagnosed on the device, an error message is displayed on the display and this signal is activated at the same time.

**Description of the display screens in the integrator account**

control is divided into 3 basic categories

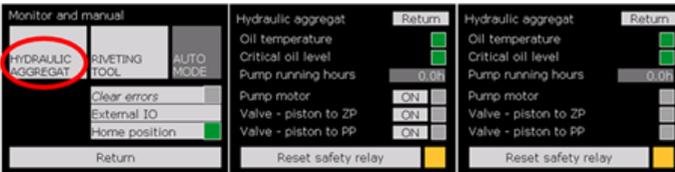
- Management and monitoring
- Diagnostics
- Settings

**Management and monitoring**

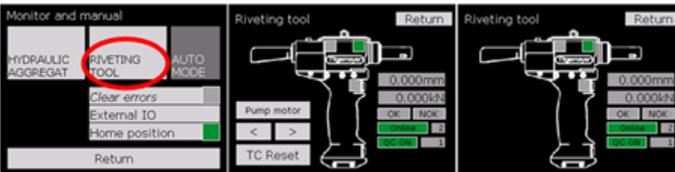
In the station management category, functions related to normal work tasks were included. These include the current status of the components, the possibility to control them in manual mode, or the display of current error messages.



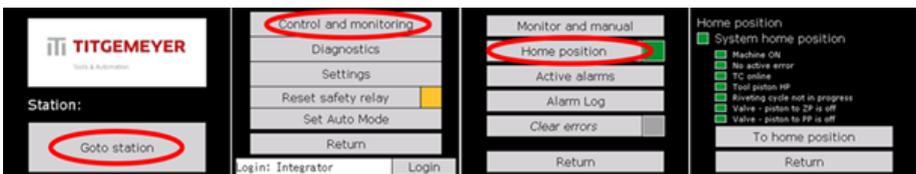
Hydraulic aggregate control screen. The engine hours of the unit are also displayed on this screen. Important for monitoring oil life and inspecting hydraulic hoses.



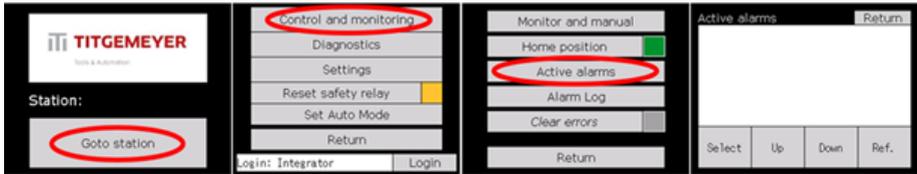
**Riveting tool control screen.**



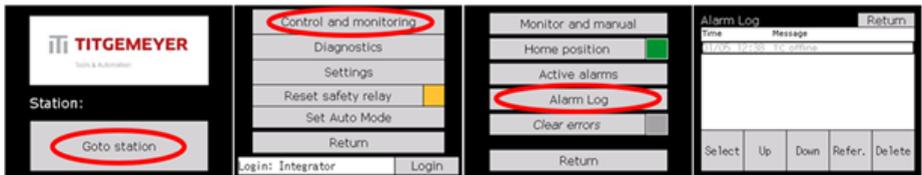
**Basic position screen of hydraulic unit and riveting tool.**



Active error messages screen.

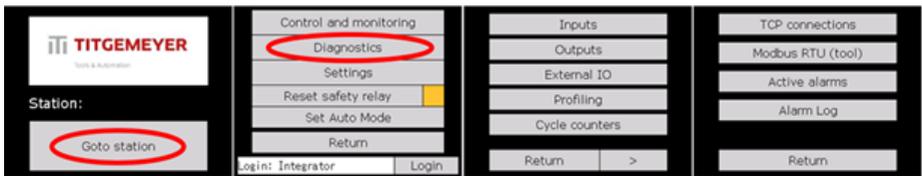


Error message log screen.



### Diagnostics

Diagnostics includes additional information about the system's state, along with test tools for recovery or troubleshooting.



Screens showing the status of input signals.



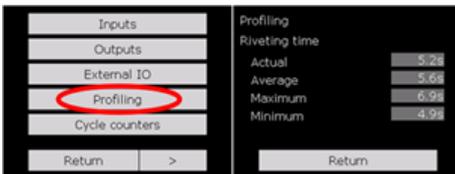
Screens showing the status of the output signals.



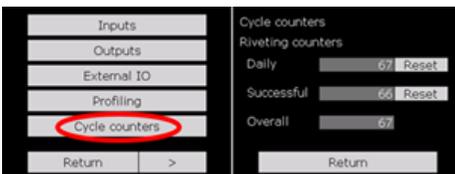
External IO screens allow the user to control individual virtual inputs and outputs (IO controlled via Modbus TCP). This is useful for parent system programming and integration testing. Switching on the forced input/output activates the virtual input/output, i.e. the bit at the address designated for Modbus TCP. Physical input/output is not affected.



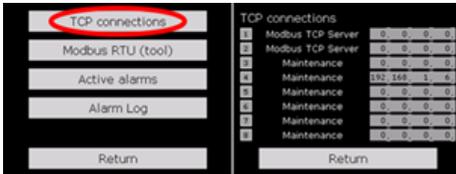
Profiling screens are used to monitor the timings of various operations performed by the system. For the user's needs, the times of the riveting operation are available for viewing. For the measured process, the times of the current cycle, average time, maximum and minimum measured time of one cycle are displayed.



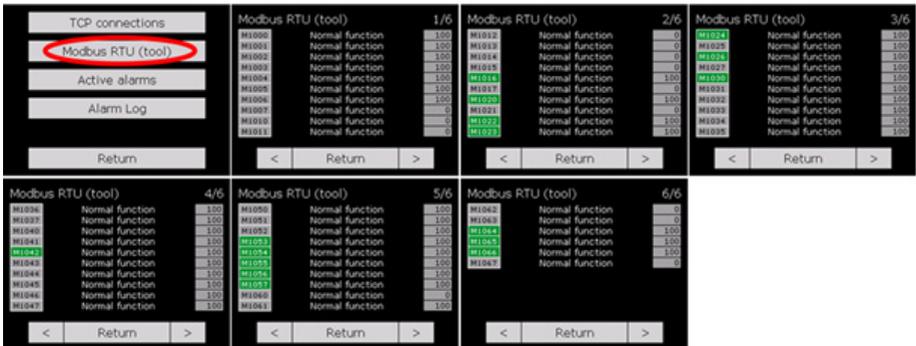
The system provides information on the number of riveting cycles. The daily counter indicates the number of times the riveting request has been activated. The success counter indicates how many times the riveting was successfully completed, i.e. the riveted signal has been activated. The last counter, total, counts the total number of riveting cycles during operation of the hydraulic unit.



The TCP Connection screen is used to check connected devices, e.g. superior PLC, touch panel, etc. The system controller allows up to 8 remote connections. For all of them, both the IP address of the connected device and the type of connection (by port) can be monitored.



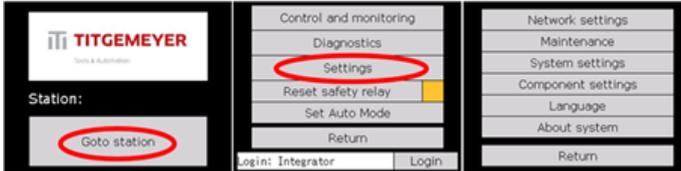
Modbus RTU screens are available to diagnose the communication between the riveting tool and the hydraulic unit. The screens provide an overview of the overall status of individual messages. In this way, it is possible to find out if the message is currently active or if the data exchange took place successfully.



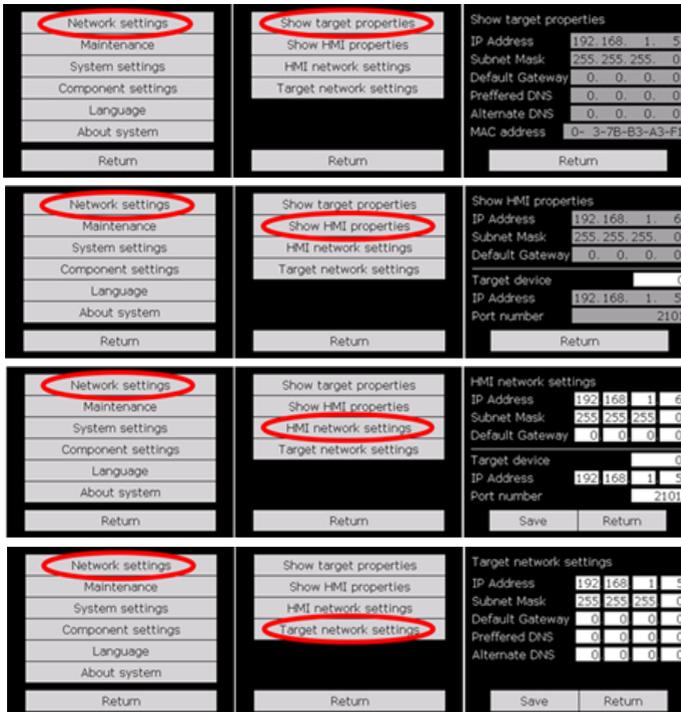
Buttons "Active alarms" and "Alarm Log" refer to the active alarm and alarm log screens.

## Settings

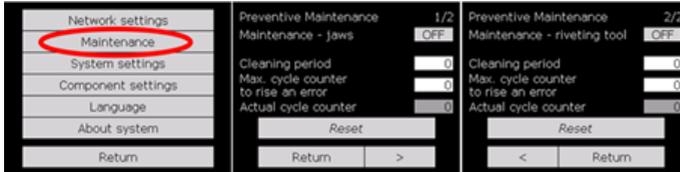
category, settings, contains all tools for setting system parameters, LCD panel language and version information.



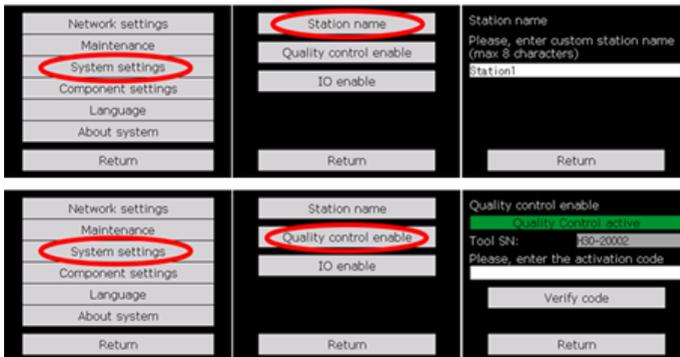
All settings related to Ethernet communication are included in this section. Both for the control unit and the touch panel (HMI).



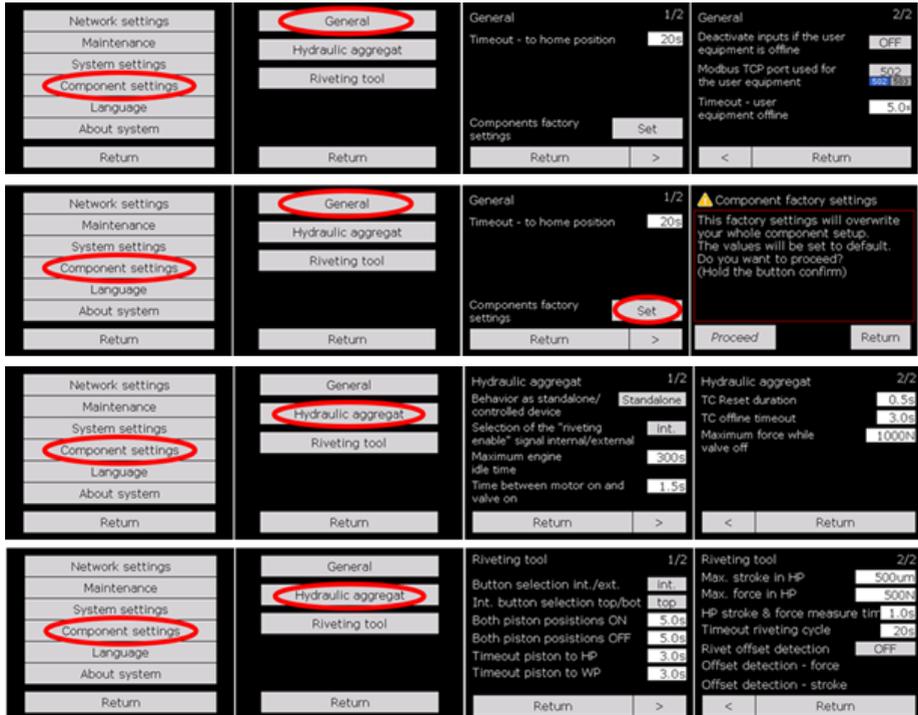
The maintenance setting allows you to activate the notification of the necessary performance of preventive inspection and maintenance, separately for the pulling head and the riveting tool. These messages are activated based on the number of riveting cycles performed. The number of cycles can be set based on experience, need and type of work.



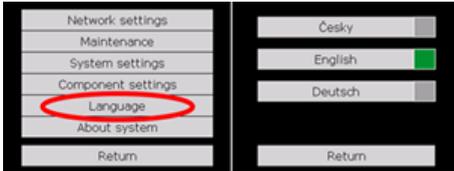
General system settings and riveting workplace configuration are summarized in the system settings section.



Each system component has a behavior defined by its own configuration. These configurations are included in the component settings menu.



The language menu allows the user to select the language to be used for the touch panel. There are currently Czech, English and German languages to choose from. The selected language is marked with a green signal.



The About System screen provides an overview of the software versions currently running on the system. At the same time, a basic contact for the manufacturer is available here. The next screen shows basic information about the connected rive-ting tool (type, serial number, range, etc.).



## 12. Setting up and running the TC process check

To set and monitor the riveting process quality evaluation parameters, you need a computer with the SanAssist application installed and an Ethernet cable. Contact the supplier of the HP350 hydraulic power pack to obtain the SanAssist application installation files.

SanAssist application is installed in the standard way. Run the installation file "SanAssistInstall.exe" and follow the instructions. After the installation is complete, restart your computer.

Now connect the Ethernet cable to the computer and to the socket on the HP350 hydraulic power pack. Unscrew the cover and plug the end of the cable into the socket.



Before starting the SanAssist application, find out the IP address of the aggregate (the default is 192.168.1.5). The current IP address can be displayed on the aggregate display. Follow the steps below to get to the IP address screen. Press the button "Go to station" and then " Settings ".



Now press "Network settings" and then "Show target properties".

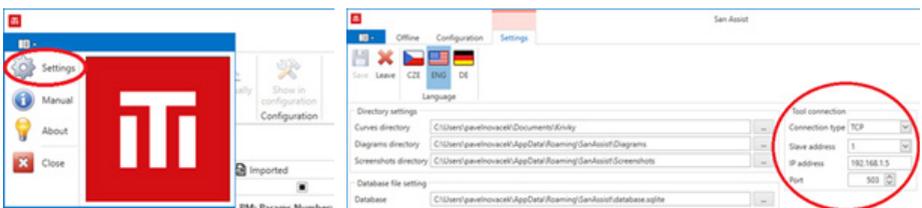


On the "Show target properties ", the required IP address of the aggregate is displayed on the first line.

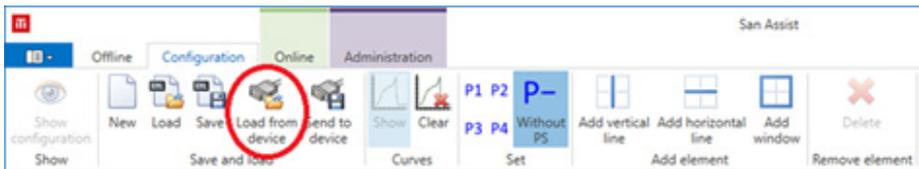
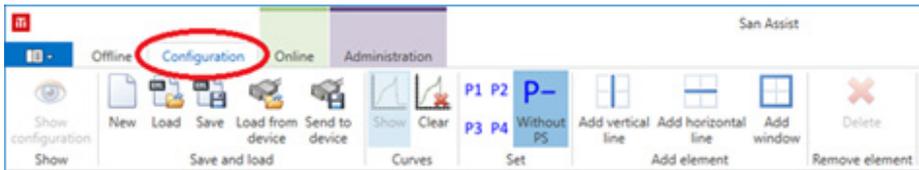
Set the IP address of your computer so that the first three numbers are the same as the IP address of the unit (192.168.1.x) and the last number (x) is different from the IP address of the unit and the LCD panel (the basic ones are 192.168.1.5, 192.168.1.6). When setting the basic IP address in the aggregate and LCD panel, use for example the IP address 192.168.1.1 for your computer.

Start the SanAssist application on the computer and enter the TCP connection type, Slave 1 address, aggregate IP address (default is 192.168.1.5), port number 503 in the application settings and press the "Save" button.

If the communication between the unit and the computer is established, the "Online" tab will appear in the SanAssist application.



To set the riveting process quality evaluation parameters, go to the "Configuration" tab and press the "Load from device" button.



The next procedure for setting up the process control is described in the manual, which is available directly in the " SanAssist " application.



Notice:

The process control setting should be performed by a trained worker who knows all the setting options of the H3030A+HP350 riveting device, controls the " SanAssist ", understands the riveting technological process, and has all the necessary data available to determine a quality rivet joint.

All necessary training can be provided by the manufacturer of the H3030A+HP350 device.

The manufacturer is not responsible for incorrect evaluation settings, and thus for the inspected rivet joint's quality.

### 13. Operation and control - operator

This chapter covers the basic operation of the riveting tool and the hydraulic power pack and shows the screens for the default user account " Operator ".  
 the H3030A+HP350 device according to the procedure described in the "Commissioning" chapter.

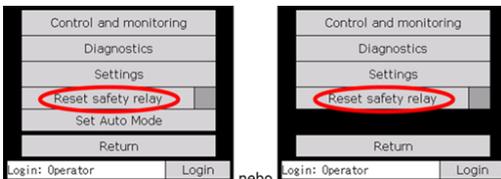
After turning on the power, the panel displays a welcome screen with the Titgemeyer Tools & Automation logo, a specific station designation and a "Go to station" button. The station designation is a purely user designation within the scope of his needs and can be changed in the system settings after logging in to the " Integrator " account.

Go to the main menu screen by pressing the "Go to station" button to start the hydraulic unit function.

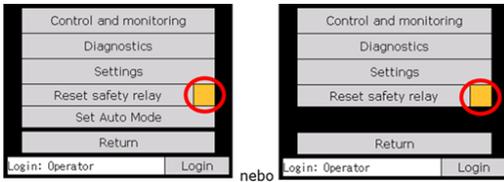


On the main menu screen, press the "Reset safety relay ", this will reset and then switch on the safety relay, the emergency stop switch must be in the extended position.

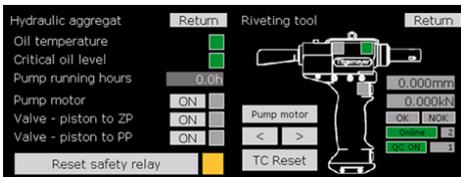
If the "SET AUTO MODE" button is visible on the screen, the device is installed as a standalone Autonomous Independent Device. See chapter "Installation and settings".  
 If the "SET AUTO MODE" button is not visible on the screen, the device is installed as linked to an external device and the signal to enable riveting must be given by the external device. See chapter "Installation and settings".



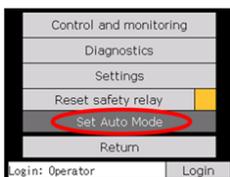
An activated safety relay is indicated by the light next to the button lighting up yellow.



If the aggregate control option is set to Autonomous, the hydraulic aggregate is now in manual mode (that is, the device can be controlled from the monitor screen). In case the control of the aggregate is selected as externally controlled, the superior system must activate the signal "Turn on the machine" to switch the aggregate to manual mode. In manual mode, on the "Control and monitoring" - "Hydraulic aggregate" or "Riveting tool" start the pump motor or close the valves.



To switch to autonomous mode, press the "Set Auto Mode" button, if the separate control (autonomous) of the aggregate is not set, then the "Set Auto Mode" button is not visible and the switch to autonomous mode is controlled by a signal from the superior system.



After activating the autonomous mode, it is possible to start the riveting cycle by pressing the temporary button (if installed). If process evaluation is set, the evaluation will take place automatically. If data saving is set, this is done automatically.

### Description of the display screens in the operator account

control is divided into 3 basic categories.

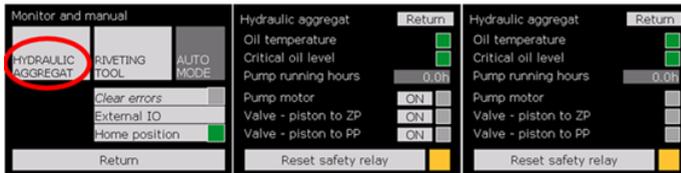
- Management and monitoring
- Diagnostics
- Settings

### Management and monitoring

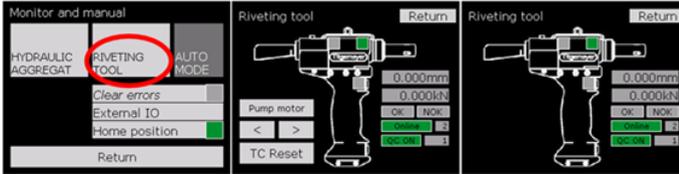
In the station management category, functions related to normal work tasks were included. These include the current status of the components, the possibility to control them in manual mode, or the display of current error messages.



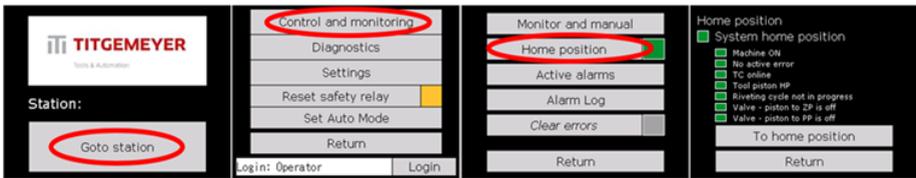
Hydraulic aggregate control screen. The engine hours of the aggregate are also displayed on this screen. Important for monitoring oil life and inspecting hydraulic hoses.



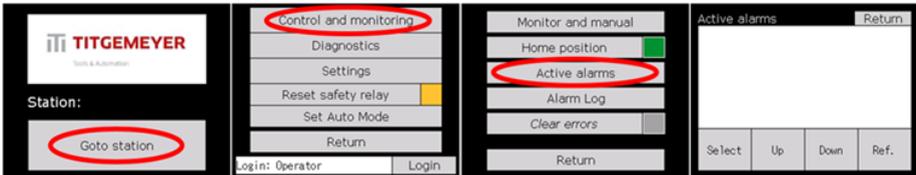
Riveting tool control screen.



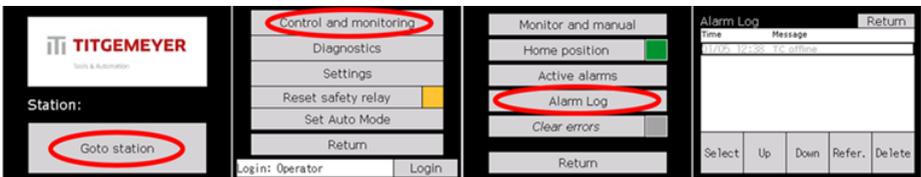
Basic position screen of hydraulic unit and riveting tool.



Active error messages screen.

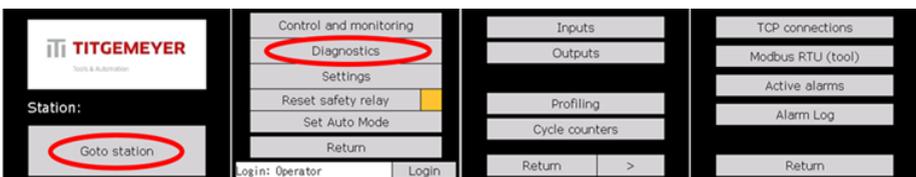


Error message log screen.

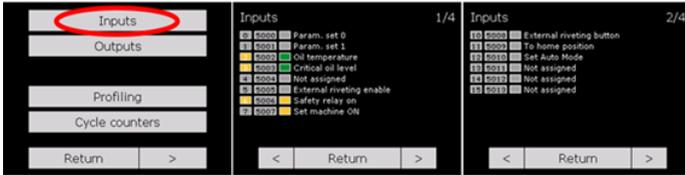


## Diagnostics

Diagnostics includes additional information about the state of the system, possibly test tools, which can be used especially in the case of recovery or troubleshooting.



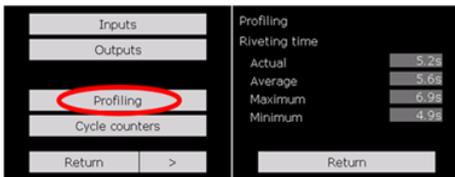
Screens showing the status of input signals.



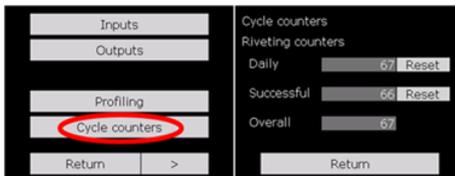
Screens showing the status of the output signals.



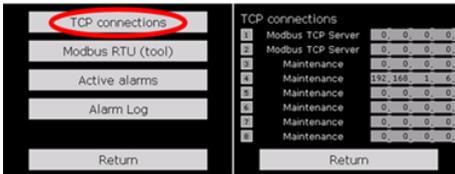
Profiling screens are used to monitor the timings of various operations performed by the system. For the user's needs, the times of the riveting operation are available for viewing. For the measured process, the times of the current cycle, average time, maximum and minimum measured time of one cycle are displayed.



The system provides information on the number of riveting cycles. The daily counter indicates the number of times the riveting request has been activated. The success counter indicates how many times the riveting was successfully completed, i.e. the riveted signal has been activated. The last counter, total, counts the total number of riveting cycles during operation of the hydraulic unit.



The TCP Connection screen is used to check connected devices, e.g. superior PLC, touch panel, etc. The system controller allows up to 8 remote connections. For all of them, both the IP address of the connected device and the type of connection (by port) can be monitored.



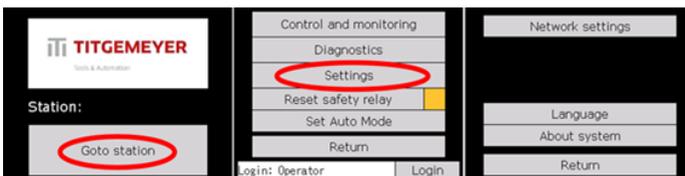
Modbus RTU screens are available to diagnose the communication between the riveting tool and the hydraulic unit. The screens provide an overview of the overall status of individual messages. In this way, it is possible to find out if the message is currently active or if the data exchange took place successfully.



Buttons "Active alarms" and "Alarm Log" refer to the active alarm and alarm log screens shown in the Control and Monitoring chapter.

## Settings

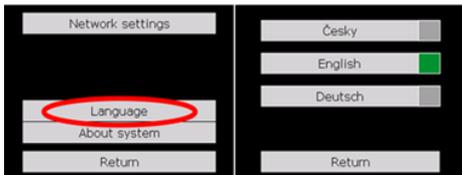
The last category, settings, contains all tools for setting system parameters, LCD panel language and version information.



All information related to Ethernet communication is included in this section. Both for the control unit and the touch panel (HMI).



The language menu allows the user to select the language to be used for the touch panel. There are currently Czech, English and German languages to choose from. The selected language is marked with a green signal.



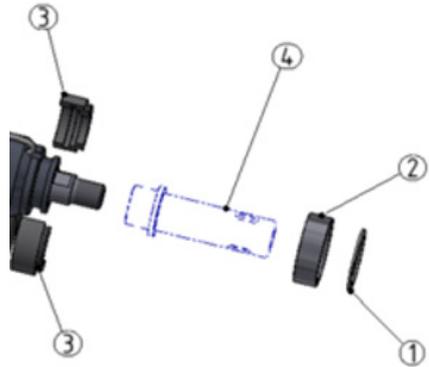
The About System screen provides an overview of the software versions currently running on the system. At the same time, a basic contact for the manufacturer is available here. The next screen shows basic information about the connected riving-tool (type, serial number, range, etc.).



## 14. Maintenance and service

### Maintenance of riveting tools

- Keep riveting tools clean.
- Every day before starting work, check the condition of securing the clamping mechanism and the entire pulling head (1,2,3).
- Every day before starting work, check the condition of the hydraulic hoses and the tightness of the hydraulic couplings.
- Regularly check for any oil leakage from the riveting tool.
- Riveting tools must be serviced once a year.
- Contact the equipment supplier for service.



### Maintenance of the pulling head (Not included.)

- Check and clean the clamping mechanism and the entire pulling head (4) daily according to the supplier's instructions.
- Regularly check the condition of the pulling head (4), if it is worn, replace it according to the supplier's instructions.

Set the maintenance intervals of the riveting tool or the pulling head based on the number of riveting cycles performed. This function can be turned on in the control system settings. For more, see the "installation and settings" chapter. If the function is turned on, the system will automatically notify the need to perform maintenance after reaching the set number of rivets.

## Power unit maintenance

The unit does not require special instructions for maintenance and repairs. It is sufficient to follow the general instructions for the maintenance and repair of hydraulic equipment:

- Perform a visual inspection of the entire hydraulic system once a week, especially ensuring the tightness of individual elements, pipes, hoses, valves and the tank.
- Regularly check the connections and tighten with the prescribed tightening torque.
- Before filling the system, it must be ensured that the pipes have been assembled completely clean.
- Use only prescribed, high-quality mineral oil in the hydraulic system.
- Maintain the required oil purity.
- It is recommended to flush the system before adding a new cartridge.
- The oil temperature must never exceed 55°C. Rapid aging of the oil occurs due to overheating and degradation of the seals.
- High oil temperature is detected by sensors located in the aggregate, if the permitted temperature is exceeded, the aggregate will be switched off. The error will appear in the error message.
- The lack of oil is automatically detected by the sensors in the aggregate and the aggregate will be switched off. The error will appear in the error message.

## Control actions

### Daily

- Checking the oil level
- Visual inspection of the tightness and integrity of the entire system

### Monthly

- Cleaning the aggregate surface from mechanical impurities
- Leakage check
- Checking the state of cleanliness
- Checking the tightness of the connections

### Annually

- Inspection of equipment parts for wear
- Heavily worn or damaged parts will be replaced
- Bleeding the hydraulic system
- Leakage check
- Checking the operating temperature and settings
- Checking electrical connections
- Inspection of hose lines
- Hose lines must be replaced after 5 years even if they do not show signs of wear - no visible damage. Or proceed according to DIN 20066.
- Cylinders, valves and other devices must be checked for leaks and, if necessary, leaky devices must be replaced.
- Take oil samples and analyse them in the manufacturer's laboratory or another certified laboratory. The oil analysis must at least include the place where the sample was taken - the tank, classified in the cleanliness class according to ISO 4406:1999. Use this information to decide on changing the oil or extending its use. Keep the protocol with the results of the analysis.

### Service operations

#### Oil change procedure

- Draining of old oil with a pumping device
- Draining old oil residues through the drain hole in the lower part of the tank
- Cleaning the tank after removing the cleaning covers. Always use cleaning agents - free of fibers that can become loose.
- For filling, use new high-quality oil according to the manufacturer's instructions.
- Filling the oil should always be done using the filling unit that is installed with a fineness filter of at least 10 µm
- Observe the maximum oil level specified by the label on the tank.

## Screwed connections and leaking hydraulic elements (Danger of injury!)

Inadequately pre-tensioned screw connections play a significant role in the occurrence of leaks in the contact surfaces under and between hydraulic elements, between flanges, etc. This condition is the cause of abnormal wear of the O-rings and subsequently loss of sealing effect. The impression that the screw is sufficiently tightened is usually deceptive and apparent. The screws on the hydraulic blocks are mostly easily accessible, so it is highly desirable to tighten them to the prescribed torque using torque wrenches.

The tightening torques are given in the table below.

M4	3 Nm	M10	47 Nm	M24	711 Nm
M5	6 Nm	M12	82 Nm	M30	1400 Nm
M6	10 Nm	M16	210 Nm	M36	2400 Nm
M8	24 Nm	M20	410 Nm	M42	3900 Nm

The values apply to high-quality screws made of materials with mechanical properties 8.8 (screws with a cylindrical head and an internal hexagon). Screws and nuts of lower quality must not be used. Screw joints are exposed to dynamic effects and shocks. The first tightening check for newly assembled equipment must be carried out after only 2-3 shifts. The second check after about the 1st week of operation. Further checks must be regular twice a month. Loose connections then cause seal leaks, oil losses and long equipment downtimes.

## Hoses and their maintenance (Danger of injury!)

Hoses are an important flexible member of the hydraulic line. They are stressed both by internal excess pressure and by external influences (surrounding environment, sunlight, etc.). At the same time, they are prone to incorrect assembly.

As a result of all these effects, the service life of the hoses is lower than that of other parts of the piping system of the machine.

If the hoses are damaged, an accident or injury may occur due to the injection of pressurized liquid or the ejection of one end of the hose. Therefore, it is necessary to pay special care to the hoses on the machine. It is not possible to clearly determine the service life of the hoses. It is determined by a combination of the above-mentioned influences and the number of machine cycles.

To reduce the risk, we recommend following these principles:

- Keep records of hoses on the machine, establish internal regulations for tracking and replacing hoses
- Use only hoses from the equipment manufacturer, original spare parts.
- Once every 12 months, carry out a detailed inspection of the hose when the machine is depressurised.
- In case of any damage to the surface or reinforcement, replace the hose with a new one
- Perform preventive replacement of all hoses on the device once every 5 years. Or proceed according to DIN 20066
- Shorten the replacement time if the machine is under significant dynamic stress.

## 15. Faults and their elimination:

When identifying the causes of a malfunction, it is always first necessary to determine whether the loss of function of the device is caused by a malfunction of the electrical or hydraulic part of the device.

### ATTENTION!!

- The hydraulic circuit is disconnected from the pressure source (hydraulic drive switched off and depressurised).
- The hydraulic circuit is disconnected from the power source (it is disconnected in the central electrical switchboard, the control voltage on the counter is switched off and the connectors of the electrical switchboards are removed).
- The individual branches of the hydraulic circuit are without pressure (check at the measuring points with a manometer, depressurize if necessary).
- During all disassembly work, always ensure that the workplace is as clean as possible to prevent damage to the disassembled parts and the introduction of dirt into the system.
- Replace individual parts only with original spare parts. The use of other than original parts may lead to loss of function of the device.
- After completing the assembly, carefully check the settings of the hydraulic elements according to the diagram.
- Before commissioning, clean the individual parts of the hydraulic equipment from oil.

## Basic Faults and their elimination:

Actions that can be performed by the device operator - marked with the letter B  
Other operations may only be performed by a trained, qualified person - marked with the letter F.

DISORDER	POSSIBLE CAUSE	TROUBLESHOOTING
The rivet cannot be riveted, but the hydraulic system works	Clogged jaws Worn jaws Loose nose piece	(B) Clean jaws (B) Replace jaws (B) Perform tightening
The mandrel cannot be riveted put in the nose piece	Incorrect nose piece Loose nose piece Clogged hole for removing mandrels	(B) Replace nose piece (B) Perform tightening (B) Clean the hole
Hydraulic leak . system	Loose connections Damaged seal	(B) Perform tightening (F) Replace via Authorised service centre
Hydraulic piston he did not return to the original position	Electrical disorder, Low working temperature	(B) Return the piston using buttons on the PLC
The unit does not work	High working temperature Lack of oil	(B) Allow the device to cool (F) Add oil
The riveter cannot be started	System power off	(B) check the network connection. deactivate the central stop button. Turn on the main supply.
The riveter cannot be started, the power supply is OK	Individual parts of the system do not meet the basic position condition. Active system error alarms	(B) Check whether all conditions of the base position are met. Put the device in the basic position - see the operation and control chapter. (F) Report system error alarms and perform service actions to eliminate the error. Contact the supplier's service.

If malfunctions occur on the device that would endanger the safety of operation or if there are doubts about the flawless condition of the device during operation, the device must be stopped immediately and the malfunction removed. Malfunctions must only be removed by personnel trained and designated by the operator or by the supplier's service.

## Error messages

The source of the error	Operational reporting	Caption	Message
M2603		The oil temperature is too high	The maximum oil operating temperature has been exceeded. Allow the oil to cool before using the device again
M2605		Critical oil level reached	The amount of oil in the pump has dropped below a critical level or has overflowed. The pump cannot be used until the oil is topped up or the level reduced to the correct level
M2606		TC offline	The TC unit in the rivet head does not match. Please check if the tool is properly connected and powered
M2607		TC reports an error	The TC unit reports an error. This error occurs if the mandrel or the entire rivet is stuck in the head. Please check the head, remove the jammed rivet and reset the TC unit in manual mode
M2610		Both head piston sensors open	Both head piston sensor positions are open. Please check the sensor for deviation from its position or malfunction. Try resetting the sensor with the button and plastic tool
M2611		Both head piston sensors active	Both head piston sensor positions are active. Please check the sensor for deviation from its position or malfunction. Try resetting the sensor with the button and plastic tool
M2612		Home position timeout	During the transition to the home position, the riveting system was unable to reach the home position. Please check the base position screen for more details
M2613		Head piston timeout to ZP	The piston of the tool did not reach the basic position in the specified time. The reason may be one of the following - a damaged or displaced sensor, a damaged hydraulic unit, an oil leak or shortage, or a disconnected hydraulic hose. Please check the system
M2614		Head piston timeout to PP	The piston of the tool did not reach the working position in the specified time. The reason may be one of the following - a damaged or displaced sensor, a damaged hydraulic unit, an oil leak or shortage, or a disconnected hydraulic hose. Please check the system

The source of the error	Operational reporting	Caption	Message
M2615		Riveting cycle timeout	The time set for the riveting cycle has been exceeded. An unknown error has occurred. Please check the riveting tool and the rivet itself. The rivet or its mandrel may have jammed
M2616	YES	Faulty track in ZP	The current stroke value does not correspond to the set control value in the basic position. Please check if the control value is set correctly. Then also check the sensor settings in manual mode. A new tool setting may also be necessary.
M2617	YES	Faulty power in ZP	The current force value does not correspond to the set control value in the basic position. Please check if the control value is set correctly. Then check the sensor settings in manual mode. A new tool setting may also be necessary.
M2620	YES	Maximum collet maintenance period exceeded	The set number of riveting cycles has been reached, after which the collets need to be cleaned or replaced with new ones. The default value is 10,000 riveting cycles.
M2621	YES	The maximum maintenance period of the riveting tool has been exceeded	The set number of riveting cycles has been reached, after which maintenance of the riveting tool must be carried out (check for possible damage, clean, adjust, etc.). The default value is 50,000 riveting cycles.

## 16. Disposal

### Waste disposal:

- Scope of validity
  - The following guidelines apply to hydraulic equipment operated with substances which are hazardous to water.
  - The domestic and international regulations for handling of these substances, applicable to the country of use of the hydraulic equipment, must be adhered to, in relation to the following general guidelines:
    - High-quality used oils, such as secondary refining components, can be recycled.
    - However, reprocessing is only possible if there are no other refining agents present in the oil, no impurities of other categories in the oil, and no contamination from waste in the oil. Such impurities are not acceptable.
    - Reprocessing of used oils is environmentally responsible and should be carried out whenever possible.
    - Spilled hydraulic fluid must be removed immediately with suitable cloths or absorbent agents. The resulting soaked waste must be handled carefully and professionally disposed of.
    - The operator will ensure proper disposal of auxiliary and operating substances. Necessary instructions are given in the safety data sheets.

### Device disposal:

- Dispose of the device in accordance with applicable regulations.
- Alternatively, entrust the disposal of the device to a professional company.

## 17. Guarantee

### Guarantee:

Titgemeyer GmbH provides a 6-month warranty from the date of purchase.

### Exceptions to the warranty are malfunctions caused by:

- Normal wear and tear
- Faulty installation and setup
- Improper use contrary to the instructions for use
- Faulty service
- Incorrect storage
- If regular maintenance and service is not carried out, or operations are carried out in an incorrect manner
- By using incorrect and non-original parts, components and operating fluids.
- By interfering with the design and setting.
- Service intervention performed by an unauthorized person
- Intentional or negligent damage

## 18. Package contents

- Riveting tool H3030A
- HP350 hydraulic unit

## 19. Safety pictograms



Wear protective goggles



Wear protective gloves



Wear ear protection



Tools &amp; Automation

# DECLARATION OF INCOMPLETE MACHINE EQUIPMENT

Product Name: Hydraulic tool H3030A + HP350

Catalog number: 99-0135 + 99-0128

Type number: 99013507102024/ 99012830082023

Product specification: Hydraulic riveting head designed to be built into the machine, for installing Lock-Bolts and high strength rivets and aggregate.

Manufacturer:

Titgemeyer Tools & Automation spol. s.r.o

At Vodarny 1506

CZ 397 01 Písek

ID number 60647761

Phone: +420 732 657 298

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We declare that the aforementioned incomplete machinery complies with all the corresponding provisions of directive **2006/42/ES** the Machinery Directive.

The commissioning of this incomplete machinery is forbidden until a declaration of conformity of the incomplete machinery, into which the incomplete machinery is to be integrated in accordance with the provision of the Machinery Directive 2006/42/EC, is issued.

The technical data for this incomplete machinery specific for the equipment in question are available and they can be electronically handed over to the domestic authorities upon a justified request. This does not affect the intellectual property rights of the incomplete machinery manufacturer.

For this incomplete machinery, technical documentation has been prepared pursuant to Part B of Appendix No. 7.

Name	Date and place	Signature
Approved by: Director Antonin Solfronk	In sand 10/10/2024	

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