

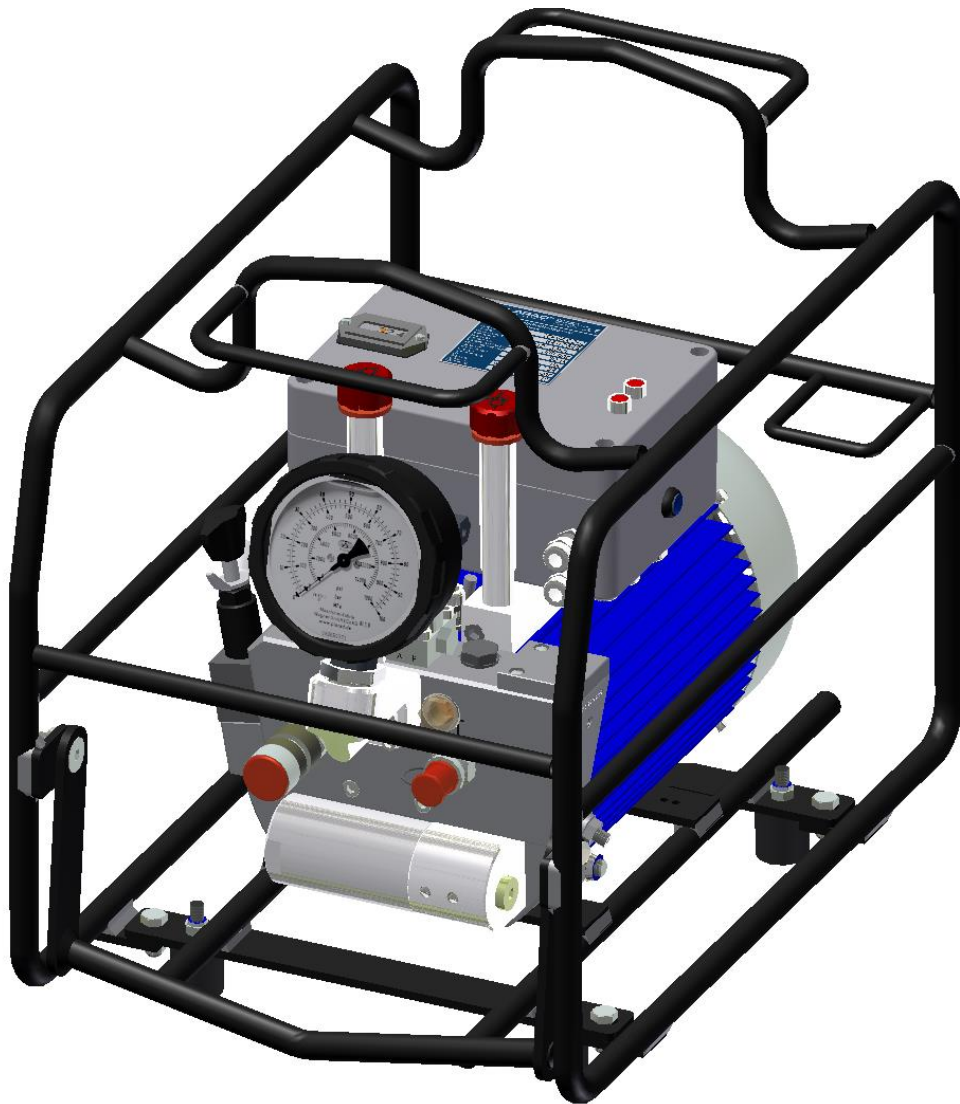
Electric power pack

VAX 2-XB

VAX 3.5-XB



Operating manual





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1. Notes

1.1. CE mark

The products are labelled with the CE mark. The Declaration of Conformity verifies that the products are in compliance with the safety directives of the European Union.

1.2. Directives

The product meets the requirements of the EC Machinery Directive 2006/42/EC.

1.3. Information about this manual

This manual contains important instructions on how to operate, set up and connect the unit. Read these instructions carefully before putting the unit into operation.

This is for your own protection and will provide you with important information on how to connect and use the unit in a safe manner.

The operating manual is an integral part of the unit. Store it close to the unit where it is available at all times. Observing every detail of the operating manual is a requirement for using the tool correctly and as intended. For this reason, pass this operating manual on to the next owner when selling the unit. Please note that details of the illustrations and technical specifications contained in this operating manual may deviate from the product you purchased.

The information provided in this operating manual is current as of the time it was printed. We reserve the right to make changes without prior notice.

1.4. Information about the workplace

We recommend that you use the bolting system in one-man operation. The operation of the bolting system is restricted to trained and authorised personnel. Conduct a risk assessment before deciding to use the unit in two-person operation. When using the unit in two-person operation, ensure that the two users have previously cleared the application, the communication and the coordination of the bolting system with one

another. The person positioning the torque wrench of the bolting system should give the instructions regarding the operation of the power pack even if he is not operating the remote control.

The safety of the operator and the trouble-free operation of the unit are only guaranteed if you use original PLARAD components. This applies both to parts of the unit and spare parts.

If different components are used, Maschinenfabrik Wagner cannot guarantee safe and reliable operation.

1.5. Safety instructions on how to use mobile electrical devices

Attention! When using electrical devices, you need to observe the following fundamental safety measures to ensure protection against electric shock and the risk of injury and fire hazards.

Read all of these instructions before using this unit and store the safety instructions in a safe place for future reference.

Safe working

1. Keep your work area neat and tidy.
 - Disorganisation in the work area may result in accidents.
2. Take environmental influences into consideration.
 - Do not expose the unit to rain.
 - Refrain from using the unit in a wet or moist environment.
 - Provide for proper lighting in the work area.
 - Do not use the unit in areas where there is a risk of fire or explosion.
3. Protect yourself against electric shock.
 - Avoid bodily contact with grounded components.
4. Keep other persons at a distance.
 - Do not allow other people, especially children, to touch the unit or the cable. Keep them away from the work area.



5. Store unused units in a safe location.
 - When not in use, the units should be stored in a dry, elevated or enclosed location and out of the reach of children.
6. Do not overload your unit.
 - You work better and more safely if staying within the specified range of capacity.
7. Use the correct unit.
 - Do not use low-capacity units for heavy-duty work.
 - Do not use the unit for purposes for which it is not intended.
8. Wear suitable clothing.
 - Do not wear loose-fitting clothing or jewellery as these may become caught in the moving parts of the unit.
 - We recommend that you wear non-slip shoes when working outdoors.
 - When wearing your hair long, secure it with a hairnet.
9. Use protective equipment.
 - Wear safety goggles whenever you perform work that may endanger your eyes.
10. Do not use the cable for purposes for which it is not intended.
 - Do not use the cable to pull the plug out of the outlet.
 - Protect the cable against heat,
 - oil and sharp edges.
11. Refrain from assuming abnormal body positions.
 - Assume a firm stand and keep your balance at all times.
12. Service your units with care.
 - Check the connecting cable of the unit on a regular basis and have it replaced by an authorised specialist if you detect any damage.
 - Regularly check extension cords and have them replaced if you discover any damage.
 - Keep grab handles dry, clean and free of oil and grease.
13. Pull the plug out of the power outlet.
 - When not using the unit, before performing maintenance and when changing tools, disconnect the unit from the power supply.
14. Use extension cords when working outside.
 - When working outdoors, use only extension cords that are approved for this type of usage and labelled accordingly.
15. Be alert.
 - Pay attention to what you are doing. Use reason while performing your work. Do not use the unit unless you are fully concentrated.
16. Inspect the unit for possible damage.
 - Before continuing to use the unit, you must inspect all safety devices or lightly damaged parts carefully to verify that they function properly and as intended.
 - Check if the moving parts work properly without sticking or whether parts have become damaged. All parts must be fitted properly and meet all requirements in order to ensure that the unit will work faultlessly.
 - Unless specified otherwise in the instructions for use, damaged safety devices and parts must be repaired or replaced properly by an authorised specialist workshop.
 - Damaged switches must be replaced by a customer service workshop.
 - Do not use any units on which switches cannot be turned on and off.

Maintenance, servicing, and repairs

Pull the power plug before adjusting any settings and prior to servicing or repairs.

Allow only an electrically skilled person to repair your unit.

- This electric power pack conforms to all applicable safety regulations. Repairs may only be performed by an electrically skilled person using original spare parts; otherwise, the user may experience accidents.



1.6. Fundamental safety instructions on how to use power packs

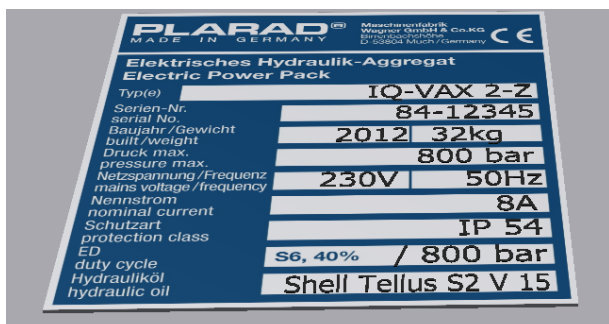
When operating the unit, observe all laws and regulations applicable at the site of operation. Verify every time before using the unit that the unit operates in a reliable manner and is in proper condition. The user must be familiar with the operation of the unit. Before putting the unit into operation, check the hose line(s) for damage. Replace any damaged hose lines, couplings and nipples without delay. Do not couple/uncouple connected tools unless the power pack is switched off. Otherwise, the unit may become damaged and allow hydraulic fluid to escape. This may result in eye injuries and burns. When contact with operating materials has occurred, follow the material safety data sheets and the product information relating to the operating materials. When using an extension cord with a small cross-section and a great length, a voltage drop may occur which would affect the start-up performance of the motor. Use only extension cords that meet the following requirements:

Mains voltage	Minimum cross-section
230 V	1.5 mm ²
100/110 V	2.5 mm ²

When working outdoors, use only extension cords that are approved for this type of usage and labelled accordingly.

1.7. Product identification

The power pack is marked by the type plate that is found on the cover of the control enclosure.



1.8. Symbols and warnings



CE mark



Follow the instructions for installation and use



Wear hearing protection



Use protective eyewear



Hazard warning:

The hazard category is specified in the text found next to the respective warning



Warning of dangerous electrical voltage



Warning of a hot surface



Service seal specifying the date of the next inspection



WEEE recycling/disposal instructions. This product must not be disposed of with regular household waste.



2. Product information

2.1. Intended use

The PLARAD power pack is a mobile hydraulic power generator that is used to power hydraulic tools. It may only be used for commercial purposes and only in connection with PLARAD tools.

When set to automatic mode, the unit will control the bolting process and terminate it automatically when the set pressure has been reached.

The power pack is designed for indoor and outdoor operation within an ambient temperature range of -20°C to +70°C. If intending to deviate from these conditions, consult the manufacturer first.

The power pack can be connected to a stationary factory mains network or a mobile power generator provided the power requirements specified under Technical specifications are observed.

Allow only Maschinenfabrik Wagner or bodies authorised by Maschinenfabrik Wagner to repair, readjust, expand and modify the unit. Use the unit only as described in the operating manual. Operating the unit in a safe and reliable manner will otherwise not be possible. Unauthorised modifications may lead to unexpected hazards.

The safety of the operator and the trouble-free operation of the unit are only guaranteed if you use original PLARAD components. This also applies to parts of the unit as well as spare parts.

If different components are used, Maschinenfabrik Wagner cannot guarantee safe and reliable operation.

2.2. Improper use

Any use deviating from or exceeding the scope of intended use is considered to be improper. The risk lies solely with the owner / user.

2.3. Other applicable operating manuals

- BGR/GUV-R 194
Use of hearing protection
- BGR 237
Rules regarding the safe use of hydraulic hose lines
- Shell Tellus S2 V 15, PD / MSDS

3. Scope of delivery

- Power pack, filled with oil and ready for use

Consumables (order more if necessary)

- Filter cartridge 10µm
- Hydraulic oil 1 l Shell Tellus S2 V 15
- Hydraulic oil 5 l Shell Tellus S2 V 15

4. Technical specifications

- Maximum operating pressure 800 bar
- Minimum power input for mobile power generators 4 kVA

VAX 2-XB

L x W x H (mm)	500 x 343 x 465
Volume flow up to 800 bar	1.2 l/min
Mains connection	see type plate
Weight	29 kg
Sound pressure level (800 bar)	85 dB (A)* 1 m

VAX 3.5-XB

L x W x H (mm)	500 x 350 x 350
Volume flow up to 800 bar	3.5 l/min
Mains connection	see type plate
Weight	33 kg
Sound pressure level (800 bar)	90 dB (A)* 1 m

* when the unit is in operation, the sound pressure level drops by 6 dB(A) with every meter of distance to the unit.

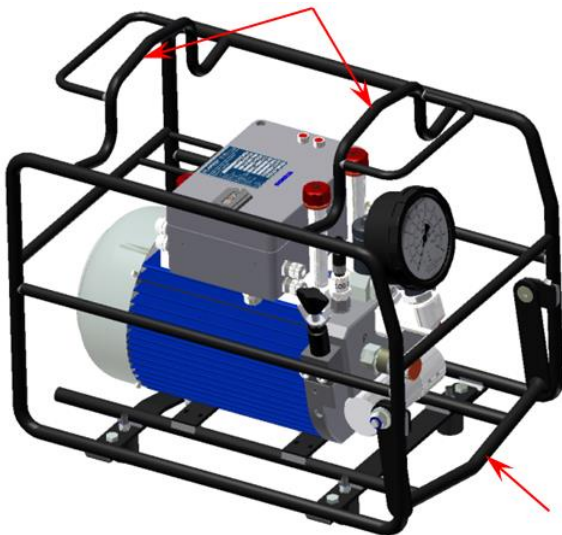
Information about operating temperatures

When operating in temperatures of -5 °C or less, keep starting the unit until the motor starts running (several times if necessary). Set the pressure relief valve to 400 bar.

- Do not connect a hose or tool and let the unit run for 5 minutes while holding down the button "manual."

5. Transport

When using a crane or similar lifting gear for transport, attach the power pack at the attachment points identified below.



6. Preparing operation

The power pack generates a hydraulic pressure which can be set using a pressure relief valve and read at a pressure gauge. The hydraulic fluid is supplied to the tool via high-pressure hoses (flow and return). The tool converts pressure into torque by means of a system of levers and ratchets.

This section contains a brief description of all controls and connections. The operating steps explained here are necessary for the safe use of the power pack.

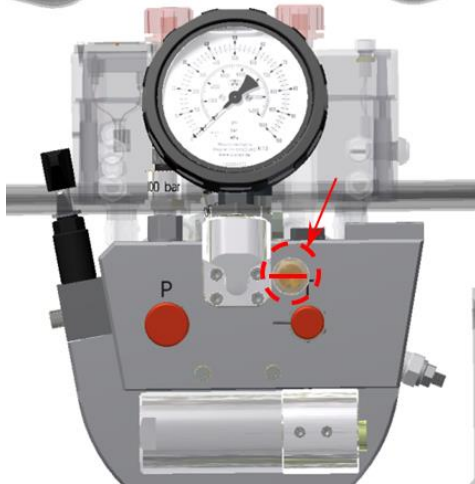
Safety instructions for operation

	<p>Caution! Noise emission of approx. 85 dB(A).</p> <ul style="list-style-type: none"> • Wear hearing protection in accordance with EN 458 if the distance between operator and power pack is less than 2 m during operation (BGR/GUV – R 194)
	<p>Warning! The power pack can reach surface temperatures of up to 80 °C during extended operation and in high ambient temperatures.</p> <ul style="list-style-type: none"> • Wear heat-resistant safety gloves! • Allow the power pack to cool off before moving it.
	<p>Warning! Unless set up securely, the power pack may tip over or fall down.</p> <ul style="list-style-type: none"> • Make sure the power pack always stands firmly on a level surface with all feet!
	<p>Warning! Hot hydraulic fluid may escape under great pressure and cause severe burns and cutting injuries.</p> <ul style="list-style-type: none"> • Verify that the power pack is tight before putting it into service and while operation is in progress. Take the unit out of operation if you find any leaks. Allow only trained experts to repair the unit.

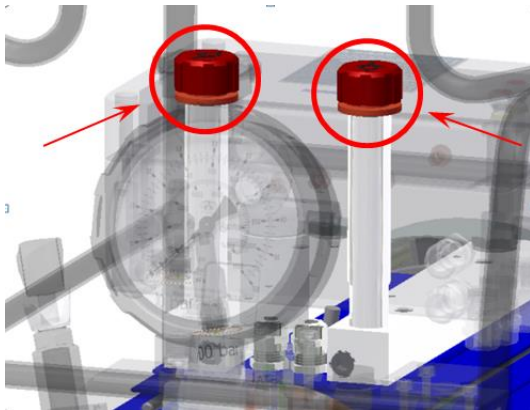


6.1. Start-up

1. Check the oil level prior to start-up. While doing so, make sure the power pack is standing horizontally to ensure a proper reading of the oil level.
 - The oil level is OK if the oil level sight glass is filled halfway.



2. If the oil level is too low, fill in hydraulic oil using the oil filler neck until the oil level sight glass is filled halfway.



- If the oil level is too high, oil may escape at the filler neck!

3. Compare the power supply specified on the type plate with the available mains supply or the specifications of the mobile power generator. Do not connect the power plug to the power supply unless the specifications match.
4. Check the mains connection lead for damage and do not connect it unless you find no damage.

5. Connect the power plug to the power supply.



- An indicator shows the hours of operation after the connection to the mains connection has been established.
- The lamps light up briefly (lamp check)

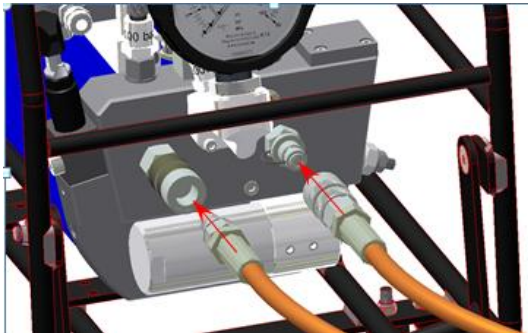
6. You start the unit by pressing the "manual" button.



- The unit is ready for operation after approx. 3 seconds.
- If the unit fails to start, see step 9 (Fehlermeldungen)
- Once the motor is started, the unit will switch off automatically after 60 seconds unless one of the buttons is pressed.

7. The "OFF" button on the remote control can now be used to switch the unit off.

8. Press the button "manual" to switch on the hydraulic power pack.
9. Connect the hydraulic hoses to the power pack.

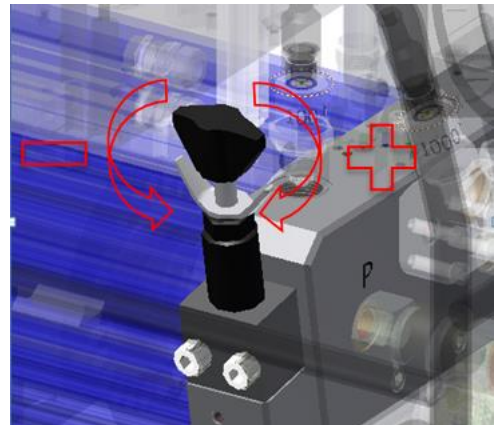


- Do not connect any hydraulic tools!
- The port on the power pack that is equipped with a coupling is the pressure port.

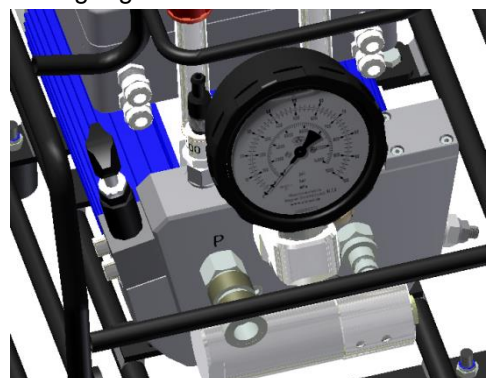
10. Connect the hydraulic hoses at the other end to bleed the hoses. (Connect both pairs of hoses if using torque wrenches in tandem)
11. Press and hold the button "manual" for approx. 30 seconds.
 - The hydraulic hoses are bled.
12. Press the button "off" to switch off the power pack.

6.2. Preparing the unit for the bolting application

1. Connect the PLARAD tool to the hydraulic hoses.
 - Do not yet position the tool on top of a bolting position!
2. Read the necessary pressure in the torque table of the PLARAD tool.
3. Press the button "manual" to switch on the hydraulic power pack.
4. Press and hold the "manual" button to set the read pressure at the pressure adjusting valve.



5. Verify the pressure that needs to be set at the pressure gauge.



6. Press the button "off" to switch off the power pack.
 - The power pack is now ready for manual operation.



6.3. Preparing the unit for automatic bolting

Automatic bolting requires that the unit be prepared in learning mode.

When set to learning mode, the power pack will take measurements. The power pack will use these measured values to control the bolting process automatically.



Important!

The torque wrench must not be positioned on top of a bolting position when the unit is set to learning mode

The green indicator light on the remote control blinks before the calibration begins. Slow blinking of the indicator light indicates that the calibration has not yet been performed. Proceed as follows:

1. Select tensioning or loosening mode.
 - A blinking green indicator light indicates that tensioning has been selected. A blinking red indicator light indicates that loosening has been selected.
 - The calibration can be performed in tensioning or loosening mode.
 - To switch to a different mode, press the "automatic" button on the remote control (unit must be switched off).
2. Press the button "manual" to switch on the hydraulic power pack.
 - The indicator light will now blink more rapidly, indicating that the unit is starting up.
 - The start-up process is not complete until the indicator light starts blinking slowly again. Wait until this has happened before moving on to the next step.
3. Press and hold the "automatic" button.
 - The automatic calibration process commences. The tool will complete several work cycles while the measurement is being taken.

- The unit will use these measured values to control the bolting process automatically. The measured values apply only to the currently connected tool.
- Once the calibration process is complete, the indicator light on the remote control stops blinking and comes on permanently.
- Switch off the unit.
- If both indicator lights blink after the calibration process is complete, an error has occurred, **see 9. Error messages.**

6.4. Deleting measured values stored in memory

You can delete the measured values that have been stored in the memory of the unit. This becomes necessary whenever you connect different components to the unit. Proceed as follows:

1. Press and hold the "off" button. Press the "automatic" button as well.
 - Once the measured values have been erased, the indicator light stops blinking and comes on permanently.
 - The stored measured values will also be deleted when the power pack is disconnected from the power supply.



7. Operation

7.1. Manual bolting

Manual bolting does not require a previous calibration of the power pack. Proceed as follows:

1. Read the necessary pressure in the torque table of the torque wrench.
2. Set the pressure at the pressure adjusting valve.
3. Press and hold the "manual" button.
The tool moves forward. The indicator light is blinking rapidly.
4. Press and hold the "manual" button until the tool stops rotating.
5. Release the "manual" button.
 - The tool moves back.
6. Wait until the indicator light starts blinking slowly.
7. Press and hold the "manual" button again until the tool stops rotating.
8. Alternate between pressing and releasing the "manual" button until the tool stops rotating when you press the button and the set pressure has been reached.

7.2. Automatic bolting

1. Place the torque wrench on top of the bolting position.
 - See the operating manual of the torque wrench for details.
2. Start the unit by pressing the "manual" button on the remote control.

3. Press and hold the "automatic" button on the remote control.
 - The automatic bolting process commences.
 - The indicator light on the remote control is blinking rapidly.
 - The indicator light comes on permanently as soon as the bolting process is complete.



Important!

If the indicator light blinks slowly, a calibration error has occurred.
See 9. Error messages.

If error messages are indicated, check the pressure of the power pack and repeat the calibration process if necessary.

7.3. Safety function

If the values reached during bolting deviate from the calibrated values, the control will indicate this deviation by an alternate blinking of the red and green indicator light on the remote control.



Important!

The hydraulic hoses will remain pressurised after the power pack has been switched off. Press the black cap on the multi-way valve to relieve the hoses. You can afterwards uncouple the hoses from the unit.

Confirm the error message by pressing the "automatic" button. All functions of the remote control will remain locked (except "off") until you have confirmed the error message.



8. Maintenance



Warning!

Dangerous electrical voltage.
Unexpected start-up as a result of inadvertent actuation.

- **Pull the power plug before adjusting any settings and prior to servicing or repairs.**

Observe the following points:

1. Check the oil level of the power pack at regular intervals as well as every time before putting it into operation.
2. Change the hydraulic oil every 150 hours of operation, but no later than every 12 months.
3. Keep the couplings and the nipples on the power pack, on the hydraulic hoses and on the torque wrenches clean. Use a clean, lint-free cloth to clean the couplings and nipples before connecting them.
4. Seal the couplings and nipples with sealing caps prior to transport and storage.

9. Error messages

Every time an error message occurs, the control locks the unit to prevent further operation. Confirm the error message by pressing the "automatic" button. The control releases the unit again for further operation.

- The pressure set at the pressure adjusting valve corresponds to the necessary torque (as listed in the torque table of the tool). The pressure reached upon switching off the power pack is the decisive factor for the correct bolting torque.
- Set the pressure to the necessary level in learning mode. To ensure this pressure (torque) is reached during every bolting process, the control monitors the actual pressure throughout the bolting process. Any inadvertent modification of the pressure will result in a wrong torque level.

If the generated pressure does not fall within ± 10 bar of the calibrated pressure, the bolting will be deemed NOT OK (NOK). The control will signal this assessment by an alternate blinking of the red and the green indicator light on the remote control.

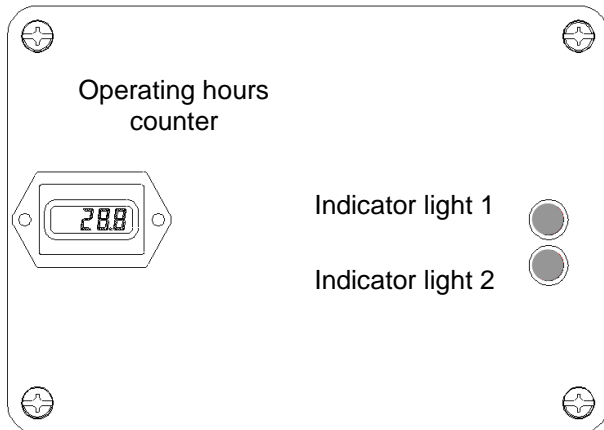
- If pressure can no longer be built up, even though the calibrated pressure has not yet been reached, the power pack will switch off after 2 seconds.
- If the pressure is set too high, the control will abort the bolting process when the actual value is 10 bar above the calibrated pressure level. By shutting down the unit immediately, the control prevents excess tensioning of the bolted connection.

9.1. Error message signalled by indicator lights on the control enclosure.

The power pack has two sets of indicator lights:

1. one inside the control enclosure cover and
2. one on the remote control housing.
 - The lights inside the control enclosure cover indicate different malfunctions during the operation of the power pack.
 - The lights on the remote control indicate the operating state of the bolting.
 - The various messages are indicated by different blinking frequencies.

9.2. Indicator lights on the control enclosure



Blinking frequency	Cause
Indicator light 1 Permanent light	In three-phase power packs: Wrong rotational direction. In general: Voltage incorrect, rotational direction sensor defective.
Indicator light 1 blinks	The maximum permissible temperature of the unit has been exceeded.
Indicator light 2 Permanent light	The voltage of the mains supply is outside of the permissible range.
Indicator light 2 blinks	The maximum permissible consumption of the unit has been exceeded.
Indicator lights 1 and 2 blink alternately	The maximum permissible pressure of the unit has been exceeded. Disconnect the unit from the mains, check pressure adjusting valve – the maximum permissible pressure is 820 bar. Connect the unit to the mains and restart it.

9.3. Indicator lights on the remote control

The **green** indicator light comes on when a bolted connection is tensioned.

The **red** indicator light comes on when a bolted connection is loosened.



The various operating states are indicated by different blinking frequencies.



Blinking frequency	Function
Indicator light green blinks slowly	The bolting system is in "tensioning" mode, and no calibration process has been completed yet.
Indicator light green blinks rapidly	Bolting system is set to "tensioning" mode. Rapid blinking is an indication of an ongoing process of the bolting system, e. g. the power pack is starting up or a tensioning process is currently underway.
Indicator light green Permanent light	Bolting system is set to "tensioning" mode. Function 1: following calibration if calibration was OK. Function 2: following the bolting process if bolting process was OK.
Indicator light red blinks slowly	The bolting system is in "loosening" mode, and no calibration process has been completed yet.
Indicator light red blinks rapidly	Bolting system is set to "loosening" mode. Rapid blinking is an indication of an ongoing process of the bolting system, e. g. the power pack is starting up or a loosening process is currently underway.
Indicator light red Permanent light	Bolting system is set to "loosening" mode. Following the loosening process if bolting process was OK.
Indicator light red and green blink rapidly in alternating fashion	An error has occurred. See also "Indicator lights on the control enclosure".
Indicator light red and green are blinking at the same time slowly	An error has occurred. See also "Indicator lights on the control enclosure".



10. Instructions on disposal

Dispose of the power pack as required by local regulations.



Attention!

This symbol points out that the product must not be disposed of with regular household waste as specified in the WEEE directive (Waste Electrical and Electronic Equipment Directive, 2002/96/EC) and national laws.

- **Dispose of this product at an authorised waste collection facility.**
- **Return the product if, for instance, purchasing a similar product or take it to a waste collection facility that is authorised to recycle waste electrical and electronic equipment.**
- **Turn to your local administration office, your public waste disposal authority, a facility that is authorised to dispose of waste electrical and electronic equipment or your waste management company.**



... a successful
connection!

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