

Art. 81K1045BOGWXGY



Instructions for use art. 81K1045BOGWXGY



INDEX

1. Proper use	2
2. Basic safety information.....	2
3. Definition of terms	3
4. Symbols on the device and information on the rating plate	3
4.1. Information on the rating plate.....	4
4.2. Explanation of possible pictograms	4
5. Scope of supply	4
6. Technical data	5
7. AXI102 expander.....	6
7.1. Automatic press cycle	6
7.2. Release button.....	6
8. AAP102 pusher tool	6
8.1. Automatic press cycle	6
8.2. Release button.....	7
8.3. Rotatable head.....	7
8.4. Pusher adaptor.....	7
8.5. Removing the battery.....	7
8.6. Inserting the battery.....	7
8.7. Battery level indicator	7
8.8. AXI102/AAP102 and Battery.....	8
9. Start-up and operation of AXI102	8
9.1. Preparing AXI102.....	8
10. Expanding operation.....	9
11. Start-up and operation of AAP102.....	9
11.1. Preparing AAP102.....	9
11.2. Performing the pressing operation	11
11.3. Meaning of the LED display.....	11
12. Cleaning, maintenance and repair.....	12
12.1. Service addresses	12
12.2. Service intervals	12
12.3 Before use.....	12
13. Disposal	13

Art. 81K1045BOGWXGY



1. PROPER USE

The expanders and pusher tools are intended solely for use with expander heads or adaptors that have been declared suitable by Icma in consultation with system suppliers.

The expander with the appropriate expander heads from the system manufacturer are intended exclusively for expanding pipes that are suitable for these expander heads.

The pusher tool and adaptors are to be employed solely for the pressing of pipes and fittings for which these adaptors have been designed.

Any use beyond or different to that described shall be regarded as improper use.

Proper use also includes compliance with the Operating Manual, adherence to the inspection and maintenance conditions as well as compliance with the latest versions of all relevant safety regulations.

Any work with this tool that does not correspond to proper use may lead to damage to the expander or pusher tool, the accessories or the pipes. Leaks and/or injury may result.

Icma is not liable for damage resulting from

- the use of unsuitable expander heads or adaptors from other manufacturers, or
- applications that do not conform to proper use.

2. BASIC SAFETY INFORMATION

The following pictograms are used to highlight sections of text. Please follow these instructions and act with particular caution in these cases. Pass all health and safety instructions on to other users and technicians.

	<p>WARNING! This information indicates a potentially dangerous situation that could result in serious injury or death.</p>
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	<p>CAUTION This information indicates a potentially dangerous situation that could result in minor injuries and/or material damage.</p>
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	<p>Information! This information is directly linked to the description of a function or an operating sequence.</p>
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**Please read this Operating Manual carefully.
The safety instructions it contains must be observed.**

	<p>WARNING! Read all safety information and instructions. Failure to comply with the safety information and instructions may result in electric shock, fire and/or serious injuries. Therefore:</p> <ul style="list-style-type: none"> • Keep all safety information and instructions for future use and only pass the devices on to others together with the instructions.
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Art. 81K1045BOGWXGY

**WARNING!****Risk of injury from ejected fragments**

Incorrect or improper use or the use of worn or damaged tools and devices carries a risk of injury from ejected fragments.

Therefore:

- Tools and devices may only be used by trained personnel.
- Compliance with the specified service work and service intervals is mandatory.
- Check tools and devices for cracks and other signs of wear before each use.
- Discontinue using tools and devices with material cracks or other signs of wear.
- Only use tools and devices that are in perfect technical condition.
- Following incorrect use, stop using the pressing tool and device and have them inspected by an authorised workshop.

**CAUTION****Unskilled use may lead to a damaged or malfunctioning tool and device.**

Therefore:

- Replace worn tools.
- Use carrying cases for transport and storage and keep tools and the device in a dry room.
- Have damage checked immediately by an authorised workshop.
- Comply with the safety instructions regarding the cleaning and anti-corrosion agents used.

**Information!**

Consult the documents provided by the system supplier for handling and assembly instructions for fittings and pipes.



3. DEFINITION OF TERMS

V	Volt
A	Ampere
Hz	Hertz
W	Watt
kW	Kilowatt
g	Gram
kg	Kilogram
Bj	Year of manufacture

Ah	Ampere/hour
dB(A)	Decibel (sound pressure)
bar	Bar
°C	Degree Celsius
kN	Kilonewton
a.c.	Alternating current voltage
d.c.	Direct current voltage
F	Force

Ø	Diameter
h	Hour
min	Minute
s	Second
m/s ²	Metre divided by square second (acceleration)
Nr	Number

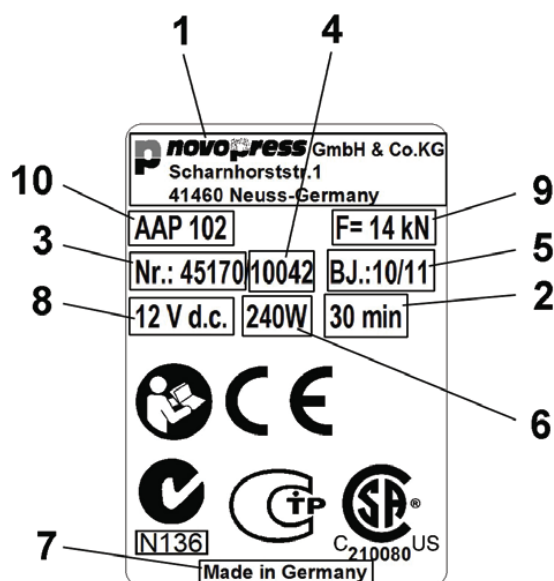
4. SYMBOLS ON THE DEVICE AND INFORMATION ON THE RATING PLATE

Symbol	Meaning
	Warning: Danger of crushing
	Service sticker; indicates when the next service is due.

Art. 81K1045BOGWGXGY



4.1. Information on the rating plate



1	Manufacturer logo incl. address	6	Power consumption
2	Permissible uninterrupted operating time	7	Country of manufacture
3	Part No.	8	Permissible voltage range in volt
4	Serial No.	9	Nominal force
5	Year of manufacture in mm.yy	10	Type designation of device

4.2. Explanation of possible pictograms

	Verification marking Canada and USA
	Verification marking Russia
	Read Operating Manual

	CE conformity marking product safety in Europe
	Verification marking Australia
	WEEE Directive on environmentally sound disposal of electrical and electronic equipment waste

5. SCOPE OF SUPPLY

The scope of supply for the standard equipment includes:

AXI102	AAP102
Expander incl. operating manual	Pusher tool incl. operating manual
Battery charger incl. operating instructions	Battery charger incl. operating instructions
Battery 12 V c.c.	Battery 12 V c.c.
Safety information	Safety information
Service addresses	Service addresses
Carrying case	Carrying case

Optional additional accessories (e.g. expander head, adaptor) may also be included. Please contact the system supplier for information on the scope of supply.

Art. 81K1045BOGWXGY



6. TECHNICAL DATA

AXI102 expander without expander head

Expander cone pitch:	18°
Expansion stroke:	25 mm
Expansion range:	In accordance with information from the system manufacturer
Rated voltage/battery:	12 V c.c. (lithium-ion) 1,5Ah/3,0Ah
Power consumption:	240 W
Nominal force:	10 kN
Height without battery:	324 mm
Length without battery:	131 mm
Width:	69 mm
Weight without battery:	1,75 kg
Max. noise level:	86,5 db(A) ¹⁾
Noise pressure level at user's ear:	75,5 db(A) ¹⁾
Vibration value:	<2,5 m/s ² ²⁾
Type of protection:	IP20
Temperature range during operation:	-10 °C - +50 °C

AAP102 pusher tool without adaptor

Adaptor mount	Ø 33 mm
Pushing range	In accordance with information from the system manufacturer
Rated voltage/battery	12 V c.c. (ioni litio) 1,5Ah/3,0Ah
Power consumption:	240 W
Nominal force:	23 kN
Height without battery:	330 mm
Length without battery:	219 mm
Width:	69 mm
Weight without battery:	2,34 kg
Max. noise level:	86,5 db(A) ¹⁾
Noise pressure level at user's ear:	75,5 db(A) ¹⁾
Vibration value:	<2,5 m/s ² ²⁾
Type of protection:	IP20
Temperature range during operation:	-10 °C - +50 °C

1) Measurement uncertainty 3 db(A)

2) Measurement uncertainty 1.5 m/s²

Art. 81K1045BOGWXGY



The stated vibration emission value was measured using a standard test procedure and can be employed for the purpose of comparison with another device.

The stated vibration emission value can also be used to obtain an initial estimate of interruptions during intermittent operation.

Caution: The vibration emission value may differ from the stated value while the device is actually in use, depending upon the manner in which the device is used. It may be necessary to establish safety measures to protect operating personnel, depending on the actual conditions of use (intermittent operation).

Battery charger

For information on the function and operation of the battery charger and the rechargeable batteries, please consult the battery charger operating instructions.

7. AXI102 EXPANDER

1. Start button
2. Battery
3. Expander head
4. Release button

7.1. Automatic press cycle

The expander features positive control. During expansion, the expander remains in the position reached, even if the start button (1) (fig. 1). is temporarily released. When the intended switch-off force is achieved, it is perceptible by means of an increase in the motor speed and a discernible decrease in pressure. When the start button (1) (fig. 1) is released, the device returns to its initial position. For safety reasons, the positive control is only activated after a minimum force has been attained. Until this force is achieved, the expansion process can be interrupted at any time by releasing the start button (1) (fig. 1). The device then automatically returns to its initial position.

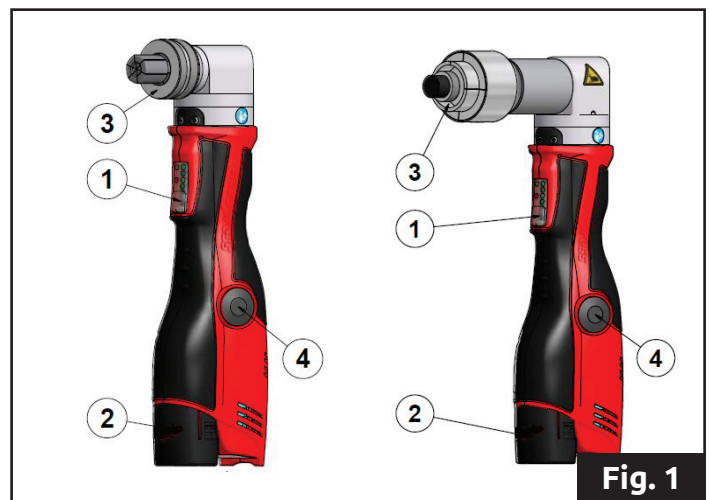


Fig. 1

7.2. Release button

The release button (4) (fig. 1) is used to return the tool to its initial position before the expansion process has been completed. In order to do this, press the release button (4) (fig. 1) until the expander head (3) (fig. 1) has moved back completely.

8. AAP102 PUSHER TOOL

1. Start button
2. Battery
3. Pusher adapter AAP102
4. Release button
5. LEDs

8.1. Automatic press cycle

The pusher tool features positive control. During compression, the pusher tool remains in the position reached, even if the start button (1) (fig.2) is temporarily released. When the intended switch-off force is achieved, it is perceptible by means of an increase in the motor speed and a discernible decrease in pressure. When the start button (1) (fig.2) is released the device returns to its initial position. For safety reasons, the positive control is only activated after a minimum force has been attained. Until this force is achieved, the pressing operation can be interrupted at any time by releasing the start button (1) (fig.2). The device then automatically returns to its initial position.

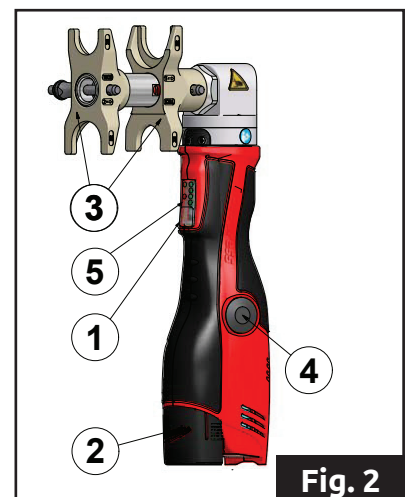


Fig. 2

Art. 81K1045BOGWXGY



8.2. Release button

The release button (4) (fig.2) is used to return the tool to its initial position before the pressing operation has been completed. In order to do this, press the release button (4) (fig.2) until the pusher adaptor (3) (fig.2) has moved back completely

8.3. Rotatable head

The pusher tool is equipped with a rotatable head. It cannot be rotating during the pressing operation.

8.4. Pusher adaptor

The nominal width and the name of the system supplier are inscribed on the pusher adaptors.

Furthermore, an arrow indicates the installation direction and a number indicates the order. If the nominal widths for a size are aligned with each other, the arrows and the numbers will be in line.

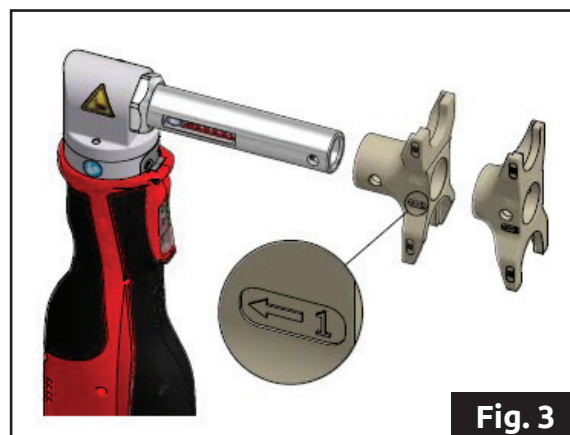


Fig. 3

8.5. Removing the battery

Push in (1) (fig.4) the two release buttons and then remove the battery (2) (fig.4).

8.6. Inserting the battery

Slide the battery into the device as illustrated (fig.5) until it clicks into place.

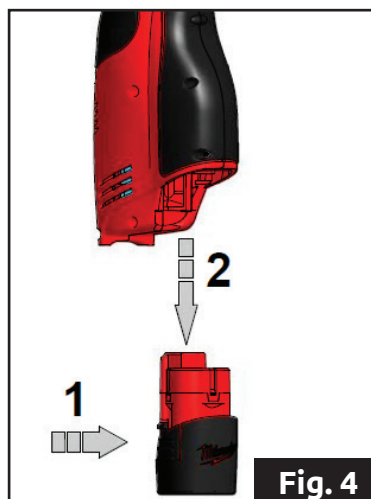


Fig. 4

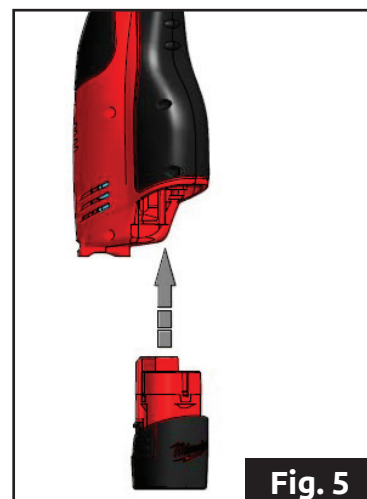


Fig. 5

8.7. Battery level indicator

The 4 green LEDs (5) (fig.2) indicate the charge level of the battery. The number of LEDs lit up denotes the battery charge. If the LED is flashing the battery is empty and no further travel is possible.

8.8. AXI102/AAP102 and Battery



Information!

The AXI102 expander and AAP102 pusher tool must only be operated with 12 V DC lithium-ion rechargeable batteries. The 12 V battery must only be used in the appropriate press devices



Information!

The batteries are not charged at the factory

Therefore:

- Charge the batteries before using for the first time..



Information!

Limited temperature range for charging and storing the batteries

Therefore:

- It is imperative that the operating instructions for the battery charger are complied with.

Behaviour of the press device after extended periods out of use or when changing the battery:

If the press device is out of use for approx. 30 minutes or the battery is reinserted, it switches off. No LED is lit up any longer. Press the start button (1) (fig.2) briefly to start the press device.

9. START-UP AND OPERATION OF AXI102

9.1. Preparing AXI102



CAUTION

Damage to the expander

Using expander heads from other system suppliers may result in damage to the expander. The pitch of the expander cones differs from one system supplier to another.

Therefore:

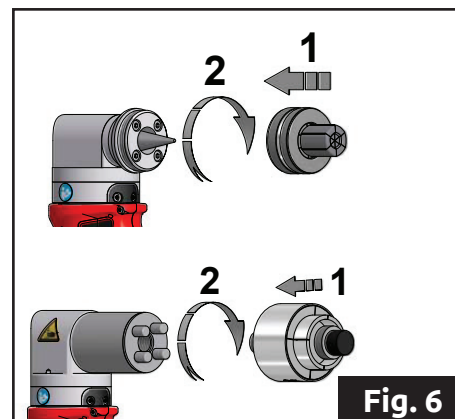
- Only use expander heads approved by the system supplier.
- Only use expanders with intact, clean expander heads.



Information!

- Grease the expander cone

- Screw the expander head onto the expander and tighten by hand.
- Insert the battery.



Art. 81K1045BOGWXGY



10. EXPANDING OPERATION

**CAUTION****Danger of crushing!**

There is a risk of crushed fingers and hands during the expanding process. Therefore:

- Keep body parts and foreign objects away from the operating zone during the expansion operation.
- Do not perform dry runs without expanding a pipe.
- Do not operate the device without the expander head.

**Information!**

Before an expanding process, observe the system manufacturer's instructions.

1. Check that the nominal width of the pipe matches the nominal width of the expander head.
2. Check that the pipe and expander head are from the same system manufacturer.
3. Slide the pipe into the expander head as far as the stop.
4. Press the start button and hold it until the pipe has been expanded.

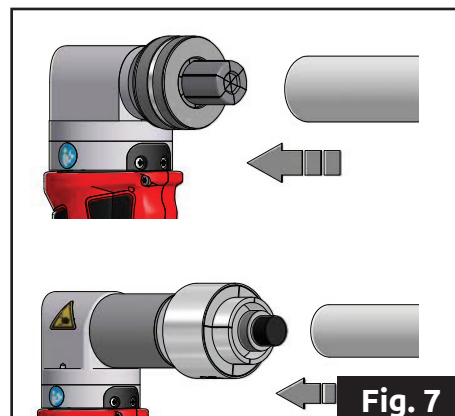


Fig. 7

11. START-UP AND OPERATION OF AAP102

11.1. Preparing AAP102

**CAUTION****Damage to pusher tool and pusher adaptors**

Pressing operations using a system from a manufacturer for which the pusher tool and pusher adaptors have not been designed may result in damage to the pusher tool and pusher adaptors. Therefore:

- Make sure that the system is press-fitted using the pusher tool and pusher adapters from the system manufacturer.

1. The guide rod must be clean and greased. If necessary, clean and lubricate the guide rod.
2. Press the pin into the bolt and keep it pressed (1). (fig. 8). Pull the bolt out completely (2). Release the pin.
3. Push the pusher adapter with inscription 1 onto the guide rod in the direction of the arrow (fig. 9).

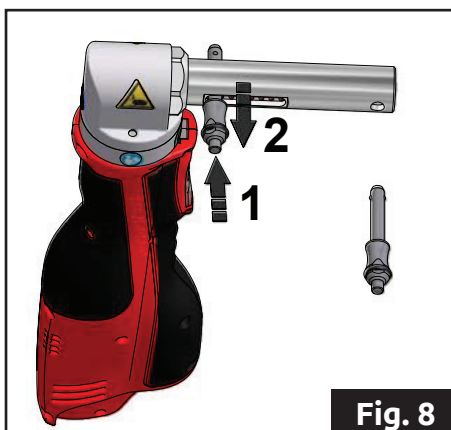


Fig. 8

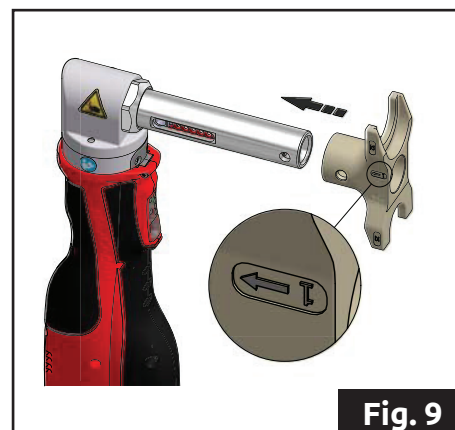


Fig. 9

Art. 81K1045BOGWXGY



4. Align the pusher adaptor with the guide rod such as to ensure that the transverse holes are on the same axis (fig. 10).
5. Lock the pusher adapter in place with the bolt (fig. 10). To do so:
Press the pin into the bolt and keep it pressed (1).
Push the bolt in fully (2).
Release the pin in the bolt.

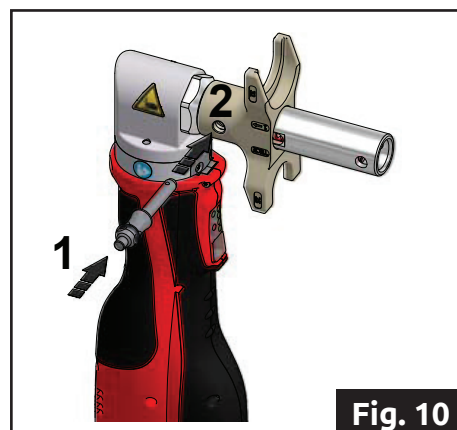


Fig. 10

**CAUTION**

Damage to pusher tool and pusher adaptors if the bolt is not pushed in correctly (fig. 11)

An incorrectly inserted bolt may result in damage to the pusher tool and pusher adaptors

Therefore:

- Make sure that bolts are fully inserted and locked in place.

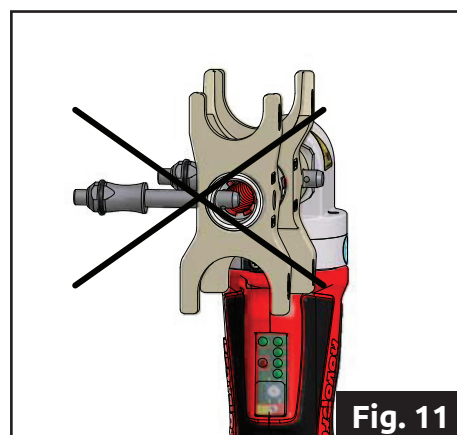


Fig. 11

**CAUTION**

Damage to pusher tool and pusher adaptors (fig. 12)

The pusher tool and pusher adaptors can be damaged by

- Fitting nominal widths that do not match
- Pressing a system from a manufacturer for which the pusher tool and pusher adaptors have not been designed.

Therefore:

- Make sure that adaptors have the same nominal width.
- Make sure that the matching nominal widths are lined up.
- Make sure that the system is press-fitted using the pusher tool and pusher adaptors from the system manufacturer.

6. Push the pusher adapter with the inscription 2 onto the guide rod in the direction of the arrow and lock it using the bolt (fig. 13).
7. Insert the battery.

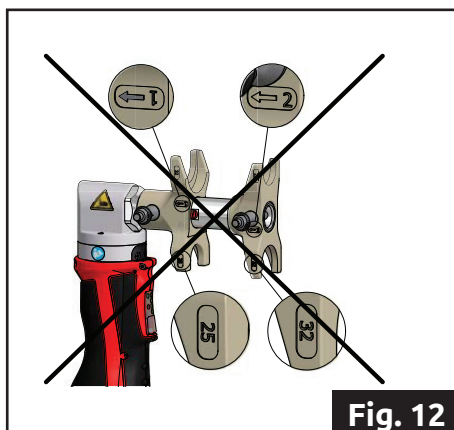


Fig. 12

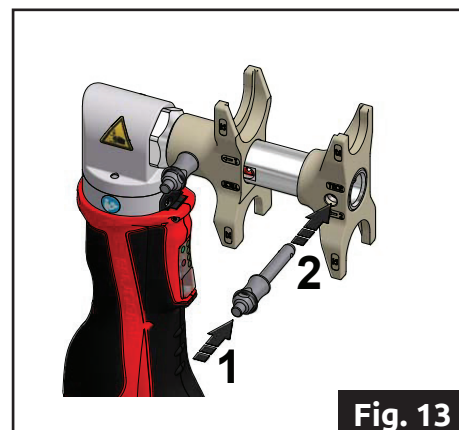


Fig. 13

Art. 81K1045BOGWXGY



11.2. Performing the pressing operation

**CAUTION****Faulty pressing!**

Dirt, swarf, etc. in the contours of the pusher adaptors leads to a risk of faulty pressing. Therefore:

- Ensure that there is no dirt, swarf, etc. in the contours of the pusher adapters.

**Information!**

To align the tool with the pipe, compliance with the system manufacturer's instructions is essential.

1. Place the pusher tool on the joint to be pressed in accordance with information from the system manufacturer.

**CAUTION****Danger of crushing by moving parts**

Fingers risk being crushed. Therefore:

- Keep all body parts and foreign objects away from the operating zone.

**Information!**

The pusher tool must be held in the aligned position during the entire pressing operation.

2. Press the start button and hold it until the pressing process is complete.

11.3. Meaning of the LED display

LED DISPLAY	Status/cause	Measure
All LEDs off.	The device is switched off	Briefly press the start button (1) (see chapter "8.8. AXI102/AAP102 and Battery" page 8).
Green LED (2) lights up.	Ready for operation.	
Green LED (2) flashes.	Insufficient battery charge	Charge or replace battery
Green LEDs (4).	Battery charge display	
Red LED (3) flashes.	Device not within the temperature range.	The device only works within a temperature range from -10 to +50 °C. If the red LED is flashing, the device must be moved into a warmer or colder area. The device can be warmed to operating temperature by means of dry runs.
Red LED (3) lights up.	Device fault.	Press the start button (1). If this is unsuccessful, the press device is defective. Send the device to a specialist workshop. NOTE The pressing operation may not have been completed; please check and repeat if required.
Red and green LED (2) flash alternately.	Service interval reached	Take the press device to be serviced.

12. CLEANING, MAINTENANCE AND REPAIR



CAUTION

Risk of injury when cleaning or carrying out maintenance work due to pressing the On switch unintentionally.

Therefore:

- Comply with the safety instructions and always remove the battery (Fig. 4) before performing cleaning, maintenance or repair work.

12.1. Service addresses

You can find the addresses of authorised specialist workshops on the "Service addresses" sheet provided.

12.2. Service intervals

Service and repair work may only be carried out by Headquarters manufacturer or the authorised specialist workshops. The next service is indicated by means of an inspection sticker on the expander/pusher tool. This sticker, the colour of which is changed each year, indicates the date of the next service (month/year). This applies both to new devices and components and to the individual service intervals for the equipment.

12.3. Routine inspection (before use, at the start of the working day) and when soiled

Check for visible damage, material cracks and other signs of wear. If defects are found, do not use the device and have it repaired.

Expander

- Clean expander head
- Clean and grease ram/expander cone

Pusher tool

- Clean all adaptors completely with a solvent.
- Remove deposits from the contours of the adaptors.
- Clean the contours of the adaptors with a solvent.
- Lubricate the pusher tool bolts with machine oil.
- Clean and grease the guide rod.



Fig. 14

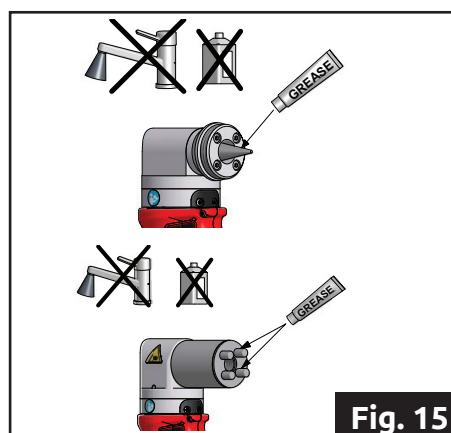


Fig. 15

13. DISPOSAL

**CAUTION!****Groundwater hazard****The device contains hydraulic fluid.**

Hydraulic fluids pose a hazard to groundwater. Uncontrolled drainage or improper disposal is punishable by law.

Therefore:

- Dispose of the device in an environmentally responsible manner.

The instructions in the operating instructions provided with the battery charger must be complied with when disposing of rechargeable batteries and the charger.

It is recommended that disposal be carried out by authorised specialist companies.

This product conforms to the requirements in EU Directive 2002/95/EC RoHS (Restriction of Hazardous Substances).

In accordance with EU Directive 2002/96/EC WEEE (Waste Electrical and Electronic Equipment), manufacturers of electrical devices are obliged to take back old devices and to dispose of them in an appropriate manner.