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Declaration of Conformity

JØNI EV Fire Equipment Aps
Mølhavevej 1
DK-9440 Aabybro
Phone: +45 98241911
Web: www.joeni-as.dk
Hereby declare that the following product:

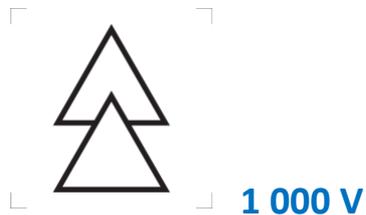
Model: EV FireGun

Type: 610-400

Serial no:

- In accordance with Annex I of Directive 2006/42/EC.

- Test in accordance with EN IEC 60900:2018
+ EN IEC 61010-1:2010+A1:2019



Aabybro d. 05.08.2025



Jan Villadsen

Preface

This user manual is an important part of the use of this penetration device. Read the manual carefully and use it as a reference book.

1. This manual contains important information about the safety and use of equipment.
2. This manual must be kept with the equipment or at the storage location. It is important that the user manual accompanies the equipment for resale and lending.
3. The user of the equipment must ensure that service personnel and others who have access to the equipment are, **instructed / trained in the proper use and handling of this system.**

Warnings

4. Nogle afsnit i brugervejledningen er markeret med advarselssymbolet. Symbolerne fortæller hvor du skal være ekstra opmærksom for at undgå skader eller personskader.



5. The EV Fire Gun may only be used for the purpose for which it is intended. Any other use will void the CE declaration.
6. **Use of EV Firegun <1000 V**
7. The operating instructions must always be available to the operator.

IMPORTANT

The EV Fire Gun must not be used if there are signs of damage / defects.

The EV Fire Gun must be stored / placed in a dry environment.

How to use the equipment

The EV Fire Gun is a penetration tool developed to cool down and stop an ongoing “Thermal Runaway” in batteries on electric vehicles. **The EV Fire Gun can be used as a multi-tool for piercing in places where there is no risk of electrical voltage. The EV Fire Gun can be used without cooling for piercing, as the drill can handle temperatures up to 800 degrees Celsius. Always check after use if cooling ducts are stopped / blocked.**

An extinguishing or rescue effort at a traffic accident with an electric car, that involves the battery pack, can be difficult for the rescue-personal and other actors at the scene of the accident - to handle. This is due, among other things, to the high voltage in live cables and in the vehicles’ Lithium-ion batteries, where there is a significantly higher voltage than in the cars’ ordinary 12 V batteries.

In a damaged electric car, it can also be complicated to gain correct access to the live parts and thereby ensure that cables and wires are de-energized. A fire in the high-voltage battery or the risk of fire can further complicate the effort.



TRAINING: THE TOOL MAY ONLY BE USED BY TRAINED / INSTRUCTED PERSONNEL, FOR USE ON ELECTRIC / HYBRID VEHICLES.

The action and circumstances surrounding fire extinguishing of electric / hybrid cars, cf. national descriptions and training courses.

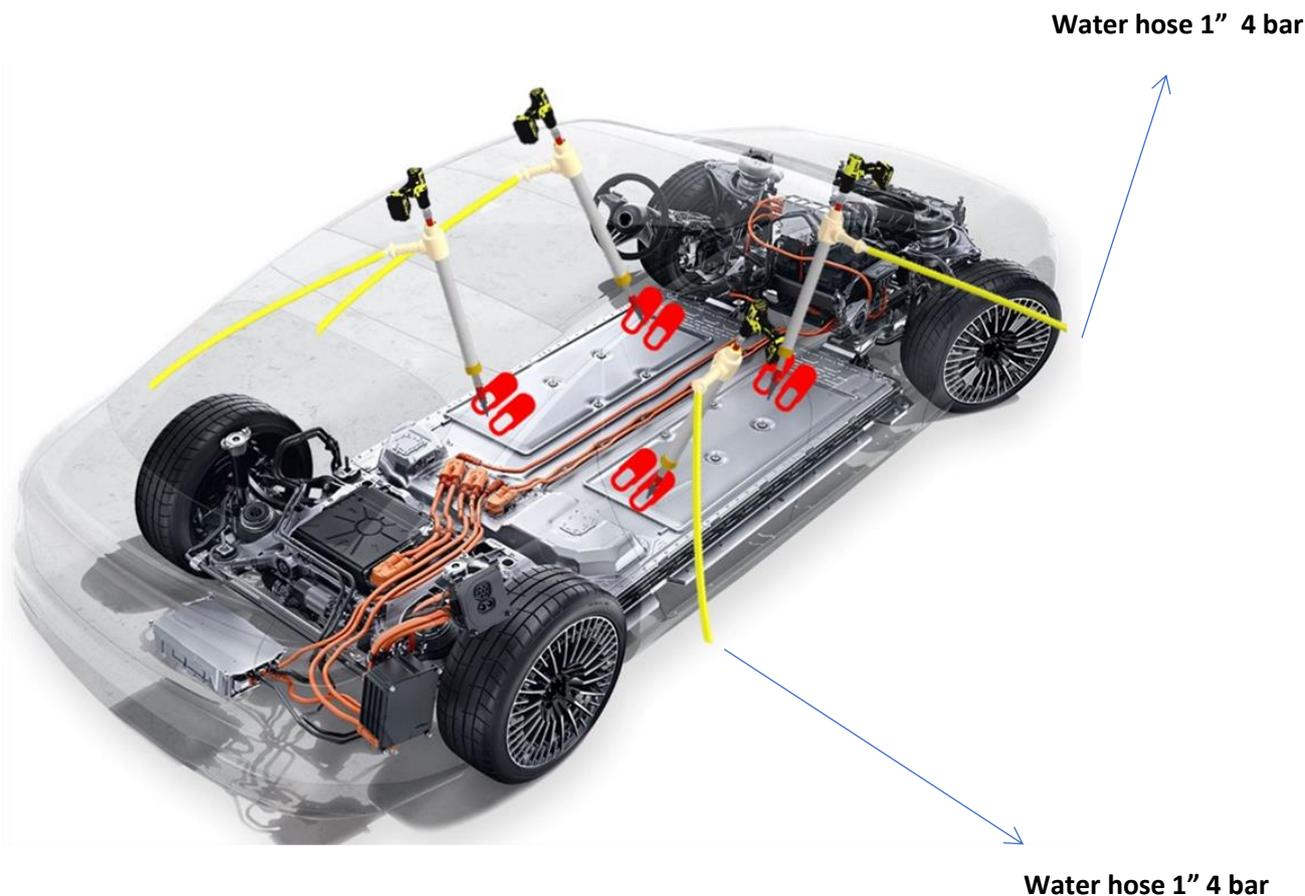
The EV FireGun is used when the fire is extinguished and a “Thermal Runaway” has been detected on the batteries, with a thermal camera. The purpose of the penetration with **the EV FireGun** is to stop and cool the heat generation on the individual cells, which will ensure that no further short-circuiting of the other cells and thereby a new fire can occur.

With the help of the thermal camera, it will be possible to see the development of heat, and where the intervention should take place.

See sketch drawing **and APP** with the best places to make the penetration.

Penetration **must not be directly into the live cables**, as this exposes the operator to the risk of voltage.

See attached overview for penetration locations: Depending on the type / model of the car, this can be displayed by using an APP.



Search for information about the location of **batteries / high-voltage cables** on the vehicle, before any penetration. Is made. **An APP might be available for this.**

The best places to penetrate an electric / hybrid car are the "footwells", where it's easy to gain access. (Try to make the penetration where there is the greatest heat development).

High-voltage cables (ORANGE) are **generally located** in the middle of the car, in the longitudinal direction.

The EV Firegun is also a multi-tool that can create access to closed spaces, and carry out the fire extinguishing / Cooling.

The tool can be used in places where quick access is required, to start extinguishing a fire, with water and spray cooling

Safety

Assessment of voltage in the electric car

In the concrete situation, it will be the technical manager who assesses whether the electric car and especially the high-voltage battery is sufficiently intact to ensure that it can be secured, i.e. power can be disconnected, cf. the manufacturer's description or rescue sheets.

However, the high-voltage battery will not be de-energized, but disconnecting the main switch will result in no voltage coming from the battery. The mere fact that the electric car has been involved in an accident (where the emergency services have been called) will in practice make it difficult to assess whether the high-voltage battery is still intact.

If there is doubt about this, it should basically be assumed, that no safety functions in the electric car work normally, and that it is therefore assumed that "all" parts of the electric car can potentially be energized.

The assumption that there may be voltage on the electric car means that, according to **EN 50110-1, suitable and sufficient personal protective equipment (PPE) should be used for work under voltage**. PPE, insulated tools and electrically insulating covering of conductive materials, minimize the possibility of contact in the areas of the electric car, where there may be a risk of contact during work.

In general, it would not make sense to carry out a control measurement of voltage in the electric car, in an operational context. Components with voltage will not necessarily be visible. They can also be damaged, so that voltage can be conducted via any random conductive material in the electric car, simply by small mechanical impacts on the chassis etc.

The rescue service is not expected to be able to carry out this measurement, as it will require prior skills (e.g. an electrician) to assess the possibility of use and the execution of the correct type of measurement, in relation to the voltage level.

The emergency crew should pay extra attention to whether the high-voltage battery starts emitting fumes, sound, sparks, etc. This may indicate that a heat effect in the high-voltage battery is developing. In addition, as with all work on cars, attention should be paid to the regular 12V battery.

Remember to instruct the Fire Gun users on the importance of using the additional handle – that comes with the drill when purchasing it.

It's important that this handle is placed between the side of the chest and the arm – as you can see in the picture here below.

Then some unpleasant twisting injuries to the arms and wrists are avoided.



Tools and marking

In electric cars, markings/signs are used by the manufacturer, to warn the crew and other emergency responders against the danger of electric shock. This marking / signage is visible in the places in the car, where there is a risk of getting in contact with the high voltage from high-voltage battery.

Orange colored cables will be high voltage. It's recommended that all contact or work on electrical components – even without visible damage – be carried out using insulated tools approved for 1000 V, as well as the use of approved safety gloves and other PPE.

During an extinguishing operation on electric cars, the work area should be cordoned off and separated from the danger of high voltage. As a general rule, this will correspond to a cordon off a danger area with a min. distance of 1 meter to the electric car. Blocking can be done physically with e.g. black / yellow mine strip or marking in the form of fire hoses and a statement of the danger area. A further visibility of the risk of contact with voltage in and around the electric car, can be made by marking the electric car with stickers or magnets – with a danger sign for high voltage.

Markings with mine strips and danger signs are maintained, at the end of the firefighting, when the crew is released from the scene of the accident, and hands over the crashed electric car to other actors – such as the police and carriers.

IMPORTANT REGARDING VOLTAGE IN ELECTRIC VEHICLES

Pay attention to the labeling of the vehicle near high-voltage components.

The high-voltage battery cannot be de-energized.

- Avoid touching or cutting orange cables.
- Due to visible and hidden damage to/in the electric vehicle, practical voltage measurements within the vehicle are not feasible.
- Consider the use of tread mats, safety covers, etc.
- Tools, instruments, and accessories should comply with DS/EN 61010-1 or equivalent standards.
- Use personal protective equipment (PPE) approved for 1000 V.
- When choosing PPE, insulated tools, and equipment, take the risk of arc flashes into account.
- The work area (danger zone) where the electric vehicle is located should be clearly marked and delimited at a distance of at least 1 meter from the vehicle.
- Handover to the police or transporter upon release from the accident site.

"A rescue operation or a traffic accident involving an electric car entails specific risks, compared to a similar operation involving a conventional gasoline or diesel-powered vehicle. When it comes to the use of equipment and protective gear, it is crucial that **the personnel are instructed** and **trained** in their use, and are aware of the special risks before being deployed.

In the context of a rescue operation, electrical components cover both obvious elements such as cables, wires, and the high-voltage battery, as well as components that may conduct electricity – special metal parts, bodywork, chassis, and cross members. EN 50110-1 specifies that screens, barriers, enclosures, or insulating covers for electrical components can be advantageously used when working near live parts.

Personal Protective Equipment (PPE) along with electrically insulating covers and insulated tools are essential measures to mitigate risks when working with electric cars under voltage. Personnel should use PPE such as protective eyewear and rubber gloves when in direct contact with the electric and voltage-conducting components of the electric vehicle.

In principle, electric vehicles should not be touched without proper PPE, including safety gloves approved for 1000 V. The following list provides European standards for various types of personal protective equipment (PPE), and the latest editions should be used."

Use of Equipment and Protective Gear:

According to the recommendations of the Emergency Management Agency.

Special Considerations:

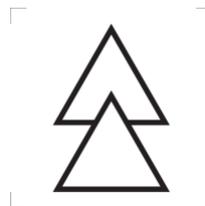
It should be noted that water, such as rain/snow and firefighting water, significantly increases conductivity. The risk of arc flashes should be taken into account when selecting personal protective equipment (PPE) and appropriate tools and equipment.

User Manual

Check if the EV FireGun is intact and free from visible damage before use.

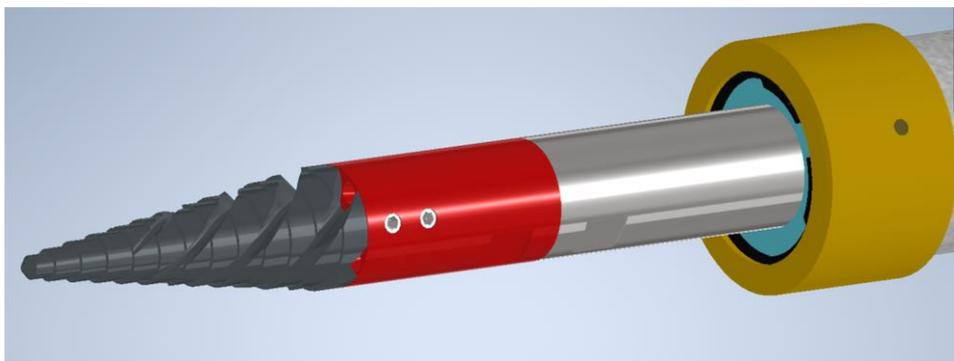
Use approved safety gloves according to the applicable EU standard.

1 000 V



When using the EV FireGun, the following is used:

EV Firegun with the drill attached / mounted. Make sure it's correctly positioned for optimal water flow. Extension pieces can be fitted as required.



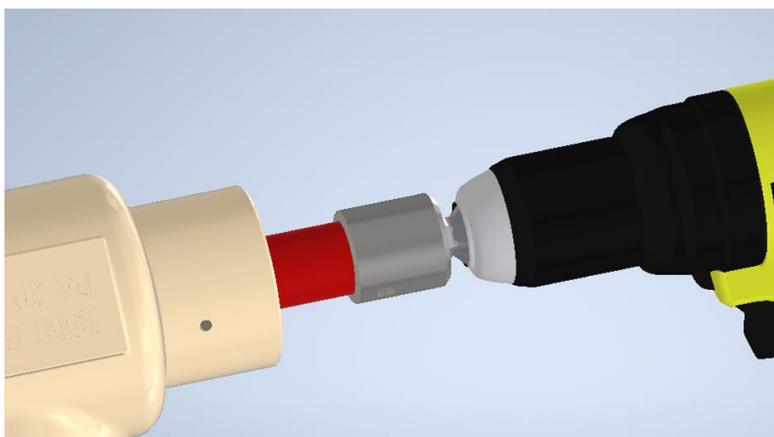
Be aware that the drill tip is sharp and can cause cuts to the hands.



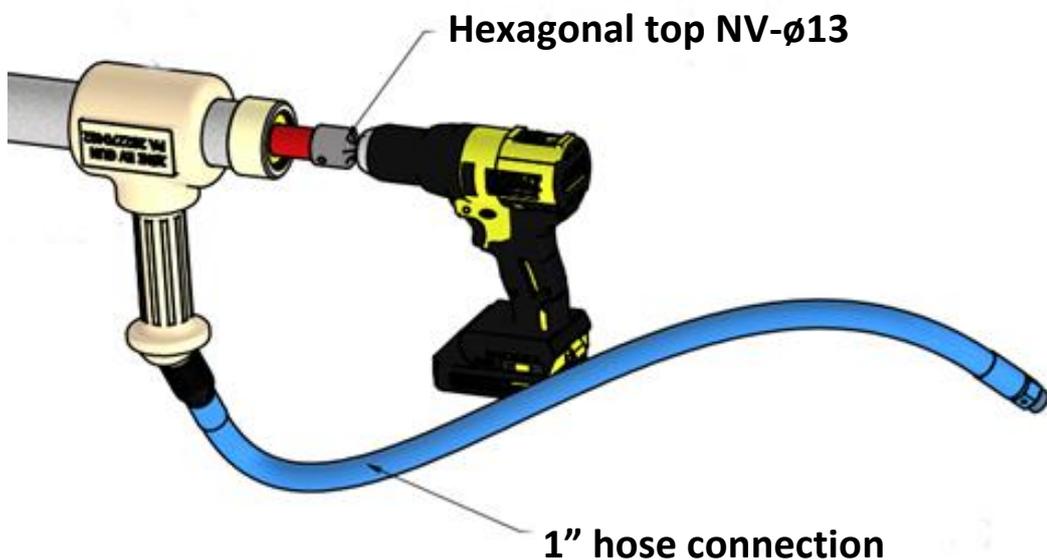
A suitable cordless drill is one with 2 rotation ranges and a torque output of a least 100 Nm. At low speed. The drill must be equipped with a $\varnothing 13$ self-tightening drill chuck, and MAX 500 RPM on stage 1.

USE LOW SPEED RANGE: 1 for penetration. (max 500 RPM)

Place the driver in the drill chuck, make sure it sits correctly and that it is fully tightened.



Connect the attached water hose to the water supply - and turn on the water.



Before drilling in to the chassis, to get in to the battery box, two people must be present when working under voltage, so that there is someone who can step in - in the event of an electric shock. During a rescue effort, this means that the security man has a special focus on this risk.

Drilling through the chassis/battery box takes place at speed range 1. (low speed/max torque)

Use the **support handle** on the drill, as it can subject hands/arms to twisting.



Important: The hammer function must not be used on the drill - and the tip must be drilled and not "pressed" through the material. Pay attention that the drill tip is not exposed to lateral forces when drilling through. The drill should preferably be in revolutions during the entire process, until it reaches the cells.

In case of danger/defects to people/surroundings, leave the EV FireGun behind.

Indicative rotational speed for the drill bit.

Baustahl: Ordinary structural steel S235/S355

CrNi Stahl: Alloy tool steel

Ne Metall: Aluminum

Kunststoff: Plastic

Ø	Bau-Stahl	CrNi-Stahl	Ne-Metall	Kunststoffe
4 - 12 mm	800 - 500	400 - 250	1500 - 1000	2000 - 1500
14 - 20 mm	500 - 300	240 - 150	1000 - 600	1500 - 500
21 - 30 mm	300 - 200	150 - 100	600 - 400	800 - 500

After drilling down to the battery cells, which are now filled with water for cooling/filling the battery box, the drilling machine can (if you need it for other purposes) be removed from the EV FireGun.

When the cells show no signs of further temperature rise, the EV FireGun can be removed and it's then possibly to insert a fire hose for refilling.

Do **NOT** twist the Fire Gun from side to side at any time, there is a risk that the drill-on-sprayhead unit will be damaged or break.



Cleaning / maintenance

After use:

EV FireGun shall be cleaned/wiped on surfaces.

The drill bit/adaptor is removed, then **cleaned** and checked for damage and **steel-chips in the radiator channels**, and possibly replaced to be ready for the next time.



Other parts are inspected for damage, suppliers/major defects.

See the front page for details.

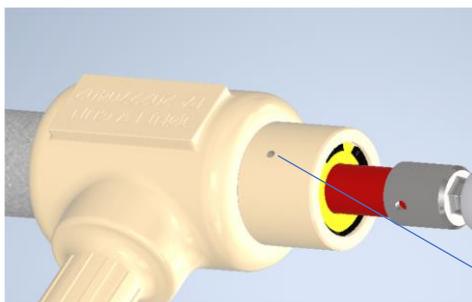
Flush with clean water to clean the internal parts.

Lubrication of pipe gaskets:

There are lubrication holes on the front and the tip, the screws are removed and lubricated with oil or spray oil.

This ensures that the inner gaskets do not dry out and are still functional for the next time.

When oil is applied to the packing housings, rotate the tube by hand a few times to ensure that the entire gasket is lubricated. Screw the screws back on.

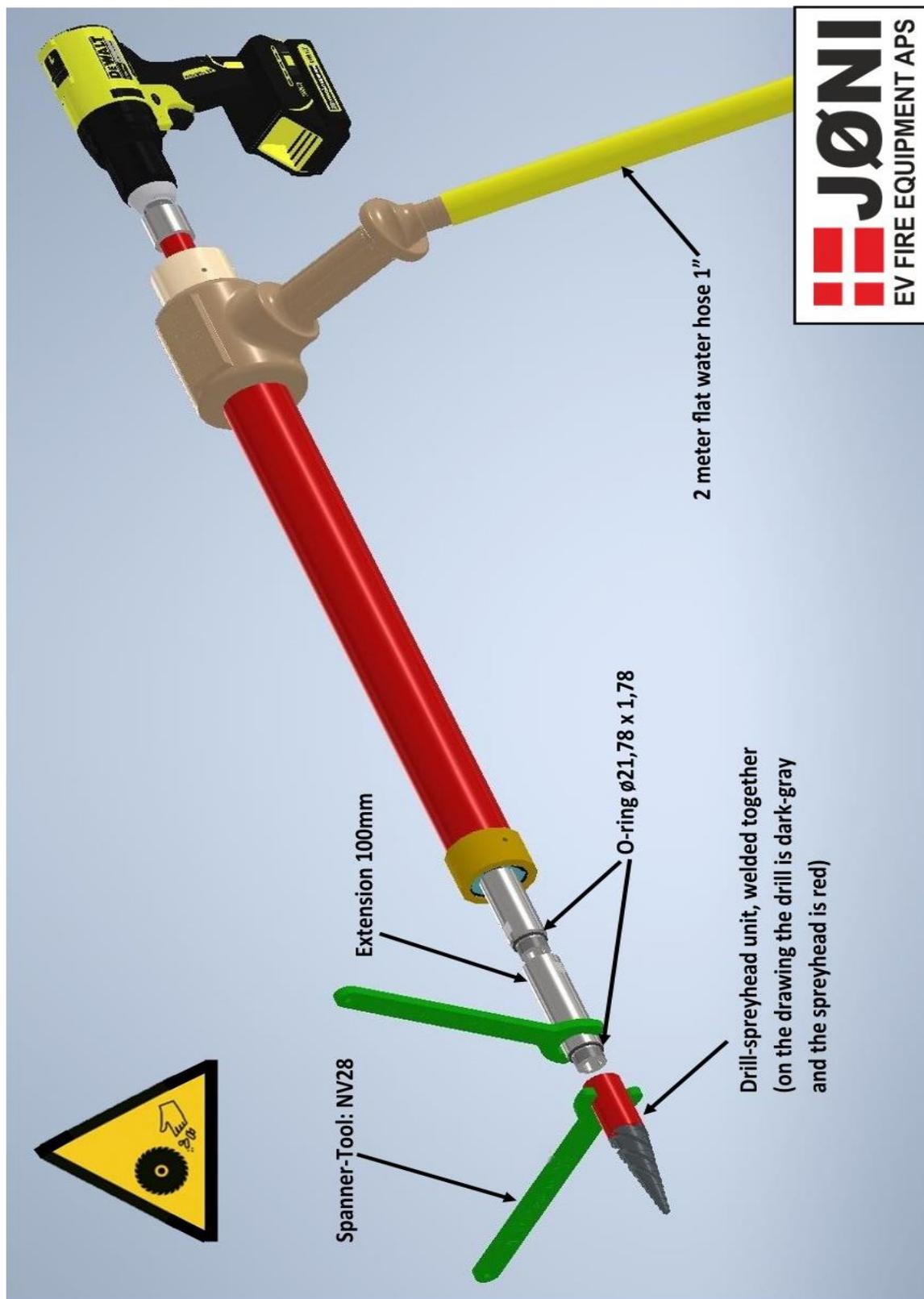


lubrication point / hole

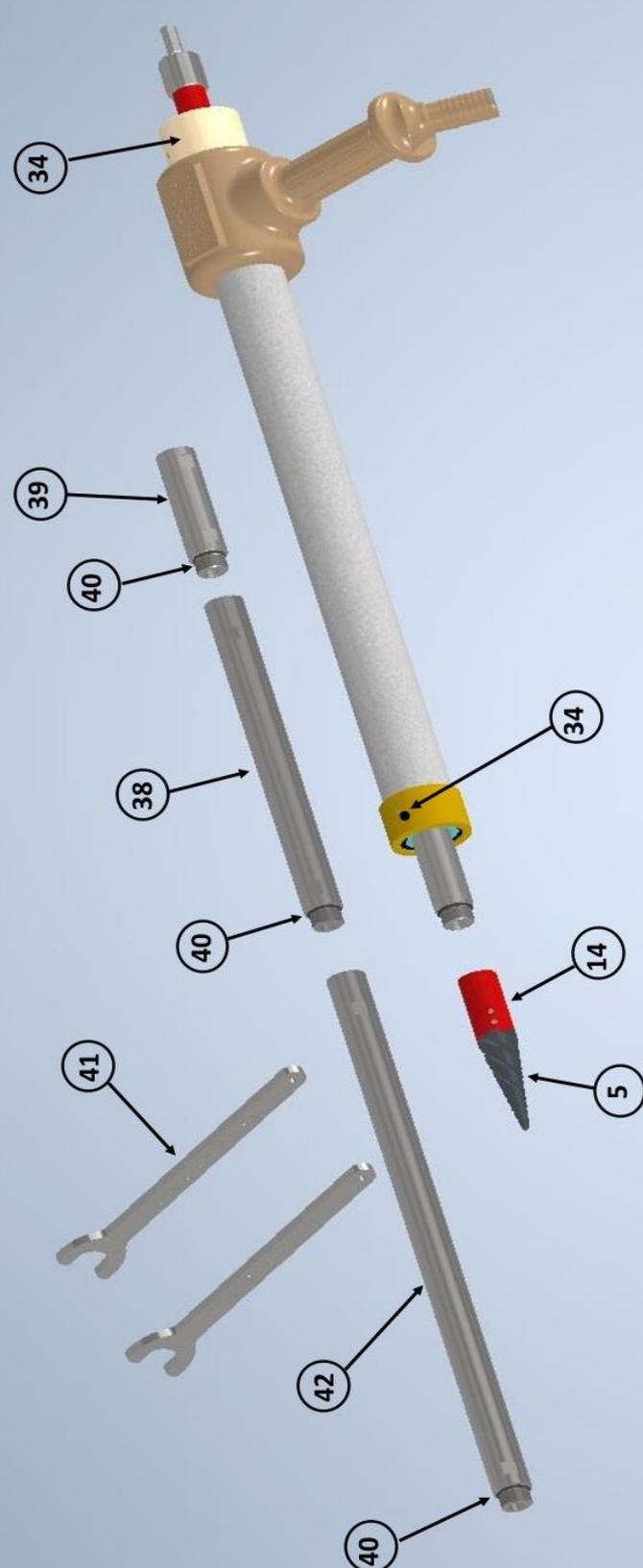


lubrication point / hole

Installation of Extensions & Drill-spray head unit



Spare parts for replacement





PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
5 + 14	1	610-430 Drill on spayhead (complete unit)	Item 5 welded on to Item 14
34	2	610-422 M5 x 12 Cup Point	
38	1	610-415 Extension 100 mm	
39	1	610-426 Extension 300 mm	
42	1	610-427 Extension 500 mm	
40	3	610-410 O-ring ø21,78 x 1,78	
41	2	610-401 Spanner Tool	For changing Drill and Extensions
	1	610-440 Red sticker with descriptions	
	1	610-441 ID-Sign	
	1	610-442 Protection "sock" for Drill-unit	For Drill-unit mounted on the Fire Gun



Test Report

Manufacturer: JØNI AABYBRO ApS

Product: EV Fire gun

Standards: EN IEC 60900: 2018
+ EN IEC 61010-1: 2010 + A1: 2019

Report No: B2023166

Date and Signature: 2023-09-01

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TEST REPORT EN / IEC 60900 Live working – Hand tools for use up to 1000 V a.c. and 1500 V d.c.	
Report Number.....:	B2023166
Date of issue.....:	2023-09-01
Total number of pages.....:	23
Name of Testing Laboratory preparing the Report.....:	Bolls ApS Ved Gadekæret 11F DK-3660 Stenløse, Denmark
Applicant's name.....:	JØNI AABYBRO ApS
Address.....:	Møllehavevej 1 DK-9440 Aabybro, Denmark
Test specification:	
Standard.....:	EN / IEC 60900:2018 + AC: 2020 + EN IEC 61010-1: 2010 + A1: 2019 (relevant parts)
Test procedure.....:	Non-CB Scheme
Non-standard test method.....:	N/A
TRF template used.....:	IECEE OD-2020-F1:2020, Ed.1.3
Test Report Form No.....:	IEC60900D
Test Report Form(s) Originator.....:	IMQ S.p.A.
Master TRF.....:	Dated 2021-04-30
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Test item description:	
Trade Mark(s):	JØNI
Manufacturer:	JØNI AABYBRO ApS
Model/Type reference:	EV Fire gun
Ratings:	1000V insulation

The EV Firegun does not fall directly under a product family standard. Therefore the following have been concluded:
The danish: Danish Emergency Management Agency have issued;

Folder indsats ved brand i el- og hybridbiler / 2023

where they conclude in annex 3 that tools used shall at least comply with insulation requirements in EN 61010-1, and that max voltage used in electrical vehicles is 900Vdc.

General hand tools shall also comply with EN IEC 60900. EV Firegun is bigger than general hand tools as described in EN IEC 60900, but this standard have many definitions that can be used on the EV Firegun, but still don't cover all parts of the design. Therefore EN IEC 61010-1 will be used to support EN IEC 60900.

Conclusion;

EV Firegun is bigger than hand tools as described in EN IEC 60900 therefore relevant parts from the two standards are used. Focus is placed on;

- insulation
- leakage current
- mechanical stability
- flammability
- thermal stability

Note:

This report is based on EN IEC 60900 and only when EN IEC 61010 have more severe and/or relevant requirements they are referred to.

This evaluation is based on customer requirements and Bolls have no responsibility for the conclusion.

Technical data sheet

EV FireGun

Type: 610-400

Materiale	GRP- S355-PA66-ALMg-TL
Length with drill-tip	1000 mm
Weight with drill-tip	3,2 kg
Weight without drill-tip	2,9 kg
Weight extension 100 mm	0,4 kg
Weight extension 300 mm	1,1 kg
Weight extension 500 mm	1,9 kg
Weight adapter-tip	0,3 kg
Working Temperature	-20/+70 degrees Celcius
MAX water pressure	10 bar
Recommended water pressure	2,0 bar
Water flow/2 bar	30/40 ltr.
Water connection	1" spigot

Recommendation of maintenance and annual inspection

After use:

EV FireGun shall be cleaned/wiped on surfaces.

The drill bit/adaptor is removed, then **cleaned** and checked for damage and **steel-chips in the radiator channels**, and possibly replaced to be ready for the next time.



Other parts are inspected for damage, suppliers/manufacturer are contacted for major defects.

See the front page for details.

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Lubrication of pipe gaskets:

There are lubrication holes on the front and the tip, the screws are removed and lubricated with oil or spray oil.

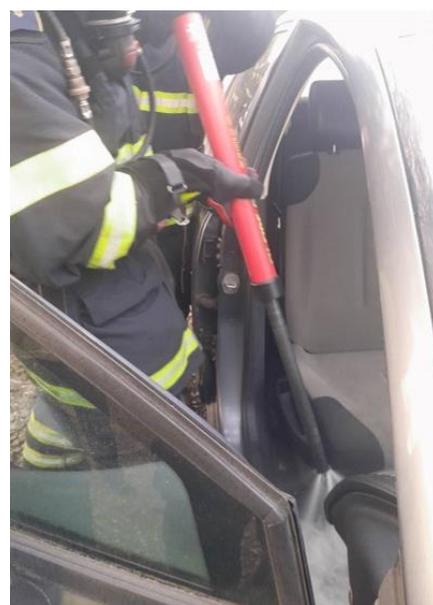
This ensures that the inner gaskets do not dry out and are still functional for the next time.

When oil is applied to the packing housings, rotate the tube by hand a few times to ensure that the entire gasket is lubricated. Screw the screws back on.

Annual inspection

For safety reasons and to achieve an optimal lifetime of the equipment, it is recommended that Jøni EV FIRE EQUIPMENT or one of the well-qualified dealers, carry out an annual inspection and test of the equipment.

EV FIRE GUN – EDUCATION at Brand & Redning Sønderjylland



Jøni EV Fire Gun and FF126-137 has its own place In the Fire truck – at Bornholm Fire Department.

