



RISK MITIGATION FOR ELECTRIC VEHICLES

WITH THE
EV EMERGENCY PLUG





POTENTIAL HAZARDS OF ELECTRIC VEHICLES



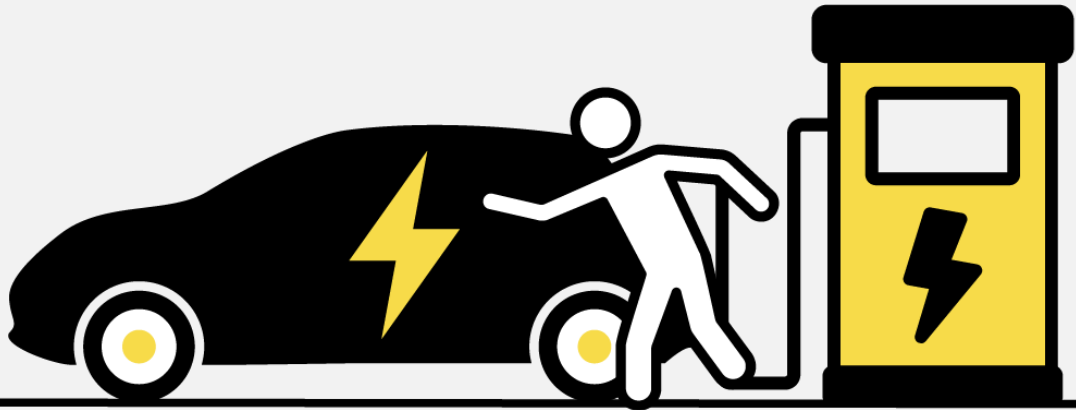
ELECTROCUTION



THERMAL RUNAWAY



UNEXPECTED MOVEMENT

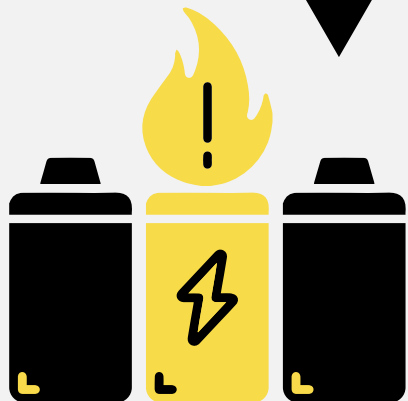


ELECTROCUTION

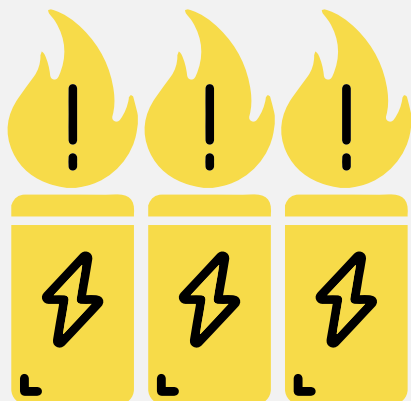
- SMALL RISK
- LOW LEVEL OF KNOWLEDGE / UNDERSTANDING
- LOT OF DISINFORMATION



1 CELL FAILURE



2 THERMAL RUNAWAY

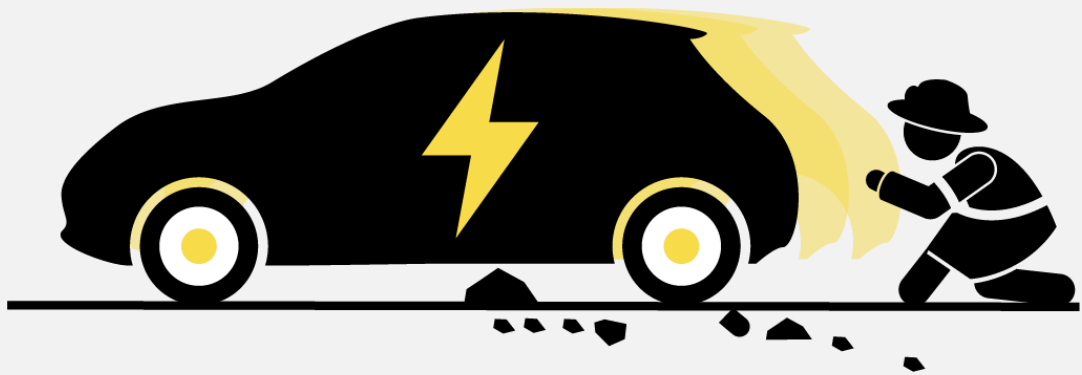


3 PROPAGATION



THERMAL RUNAWAY

DESCRIBES A PROCESS THAT IS ACCELERATED BY INCREASED TEMPERATURE, IN TURN RELEASING ENERGY THAT FURTHER INCREASES TEMPERATURE



UNEXPECTED MOVEMENT

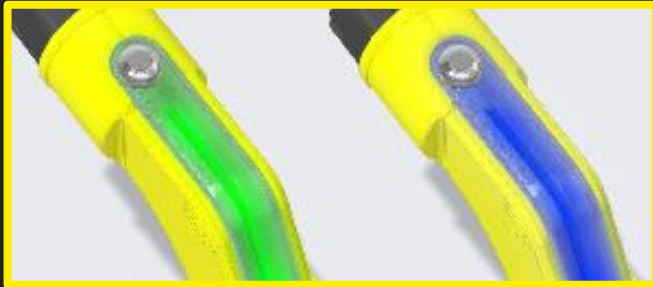
THE RISK OF INADVERTENT MOVEMENT OF THE EV DURING
A RESCUE SCENARIO



WHAT EXACTLY DOES THE **EMERGENCY PLUG** DO?

The Emergency plug sends a charging signal to the vehicle. As a result, the vehicle assumes that it is charging. And this is confirmed continuously by the EP. This causes an EV to change mode from <D> (drive mode) and automatically switch to <P> (park mode) or <N> (neutral mode).



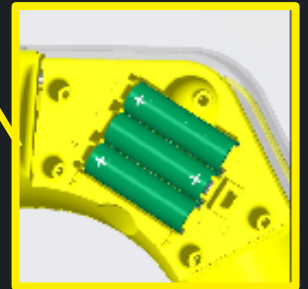


This shows the user that the plug emits the correct values so that the car will no longer move (green) and that the Emergency plug connects to the vehicle (blue).

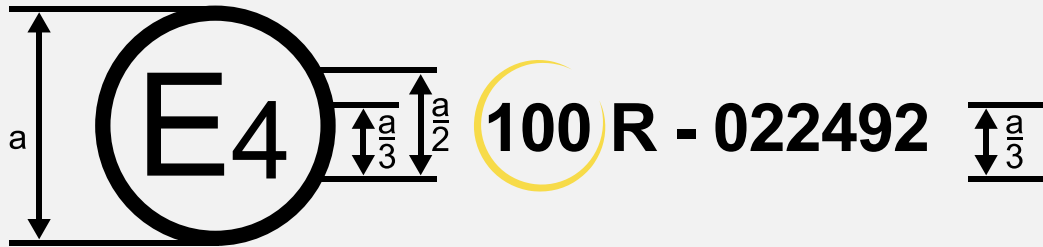
ON-OFF BUTTON & TESLA COVER OPENING BUTTON



3x AA BATTERIES



USB CONNECTION



VN/ECE regulation no. R100.01

SAFETY REQUIREMENTS FOR EV'S

Since 1 April 2011, the 1994 Road Traffic Act has also included requirements for issuing National small-series type-approvals and individual type-approvals for electrically driven and hybrid electric vehicles. Vehicles must now comply with specific safety requirements when they are built as or converted into electrically driven or hybrid electric vehicles.



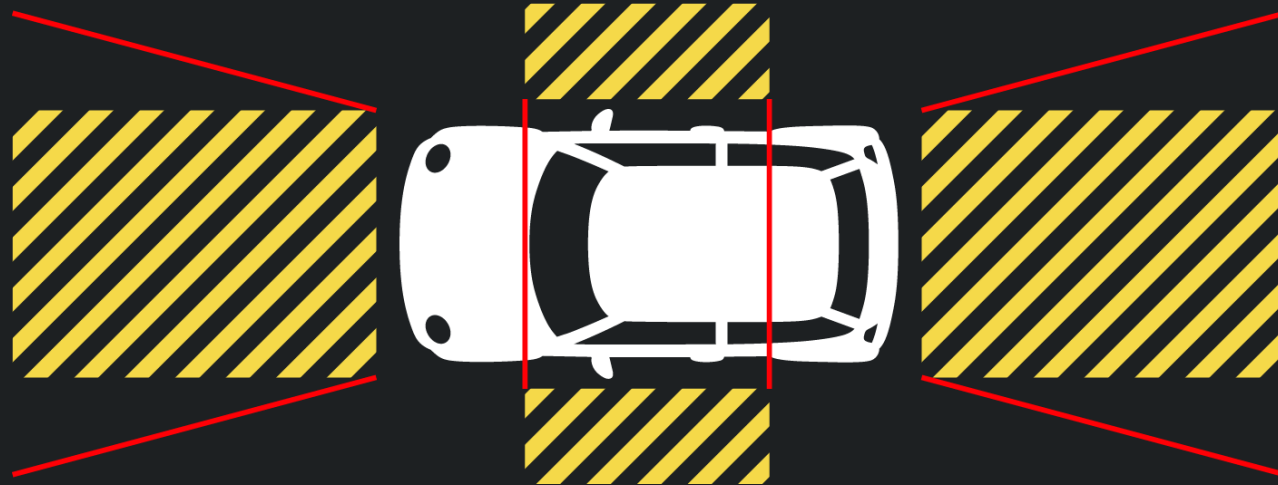
THE EMERGENCY PLUG

- PREVENTS AN EV FROM DRIVING AWAY
- COLOR FEEDBACK THAT EP IS WORKING
- NO OR MINIMAL WORKING TIME IN DANGER ZONE
- FITS IN EVERY SOCKET, WORLDWIDE
- CAN BE PLUGGED AND UNPLUGGED AT ANY TIME
- FOR MANY DIFFERENT USERS





UNEXPECTED MOVEMENT DANGER AREAS





TWO CONNECTORS

ALLOWS YOU TO INSERT IN EVERY SOCKET
NO DIRECT CONTACT WITH HIGH VOLTAGE

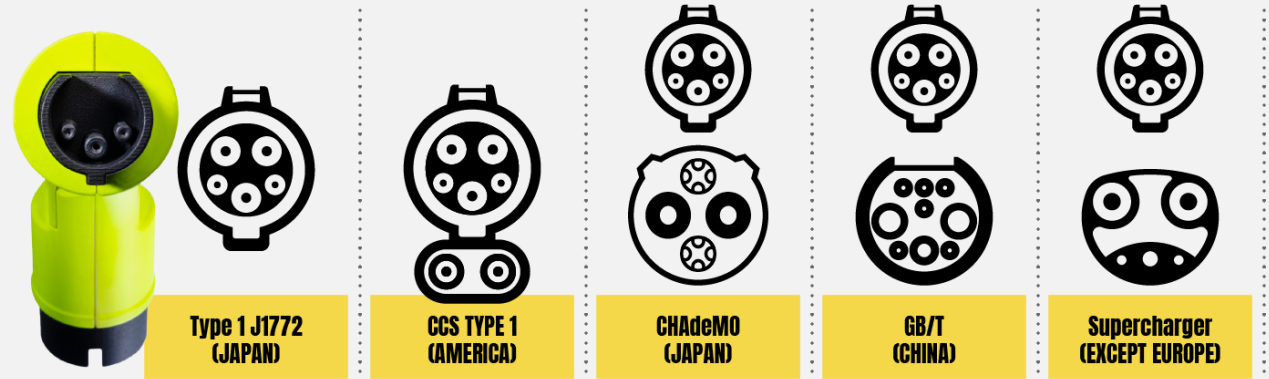
- Type 1, SAE J1772,
- "J-plug",
- North American



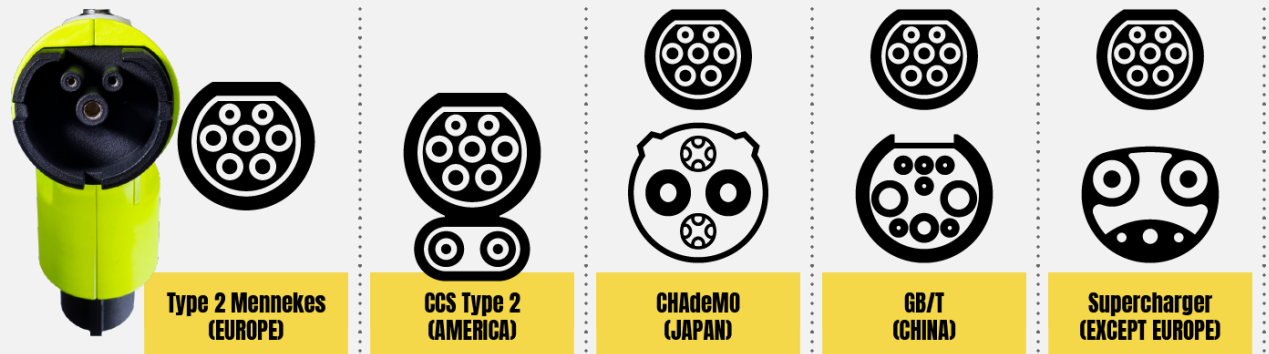
- Type 2, IEC 62196,
- "Mennekes Plug"
- Europe



**FITS ALWAYS
AND ANYWHERE**



PLUG TYPES & EMERGENCY PLUG





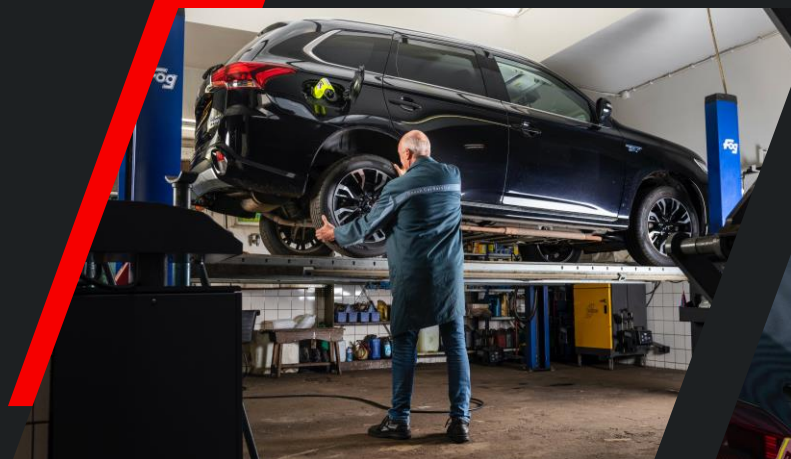
HASSLE FREE

- NO LOCKING MECHANISMS
- CAN BE PLUGGED OR UNPLUGGED AT ANY TIME



MARKETS

- Fire Brigades
- Ambulance Services
- Police
- Road Assistance
- Workshops
- Customs



FOR EACH PERSON FIRST TO ARRIVE AT A SCENE

PT
RESCUE



FIRE BRIGADES



PT
RESCUE



AMBULANCE SERVICES



PT
RESCUE



POLICE



ROAD ASSISTANCE





WORKSHOPS





CONTENT

- CASE INCL. INSTRUCTION
- EMERGENCY PLUG
- COVER OPENER ASSIST TOOL
- 3X AA BATTERY
- USER MANUAL



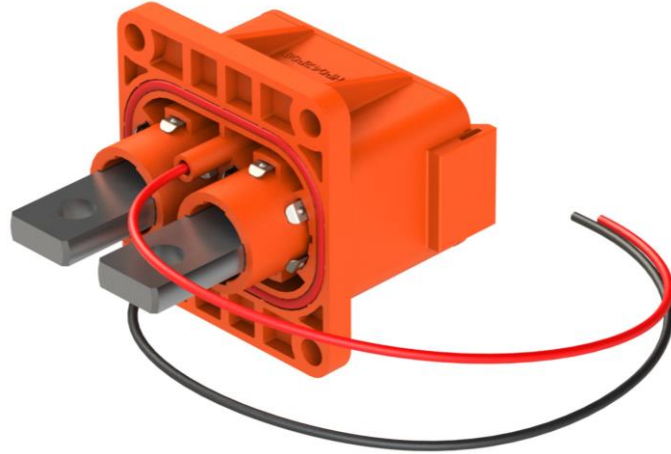
COMMON MISCONCEPTIONS





REMOVE THE KEY TO SWITCH-OFF AN EV

- SEAT PRESSURE TRANSMITTERS
- KEY IS LOST IN AN ACCIDENT
- MOBILE PHONE IS THE KEY
- YOU STILL NEED TO ENTER THE EV



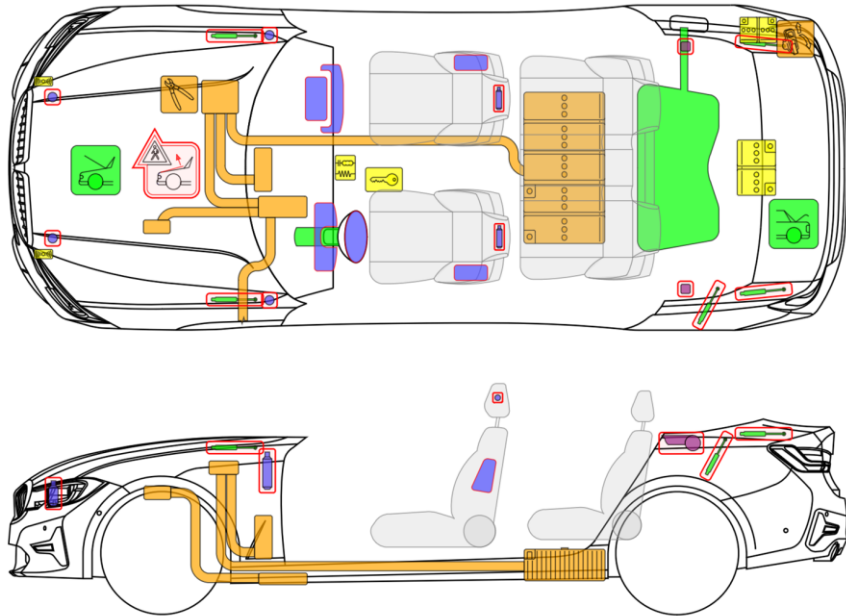
WHAT IS A HVIL

A HVIL is safety feature of EV's that protects people during the assembly, repair, maintenance, operation and in the even of an accident of a vehicle.

HVIL acts as a kind of circuit breaker that sends an alert or trouble code to the driver if a high-voltage connection becomes loose, disconnected or damaged during the operation of the vehicle.

HIGH-VOLTAGE INTERLOCK LOOP (HVIL) WILL DISCONNECT / SHUT OFF THE EV

- YOU NEVER KNOW IF IT IS ACTIVATED
- DOES IT ALWAYS WORK?
- IMAGINE ALL SITUATIONS THAT THE VEHICLE IS NOT SEVERLY DAMAGED



DISCONNECT / CUT HIGH VOLTAGE

- DANGEROUS TO CUT
- WHERE TO FIND THE "SWITCH"
- EACH EV IS DIFFERENT (CRASH RECOVERY SYSTEMS)
- STILL WORKING IN THE DANGER ZONE



FREQUENTLY ASKED QUESTIONS





FREQUENTLY ASKED QUESTIONS

Can you detect / hear that an electric car is operational?

No, because you cannot detect whether an electric car is operational. This makes the working environment for emergency responders extra difficult and dangerous. The emergency responder does not hear whether the car is going into drive mode and / or is operational. When one places the Emergency plug, the car can no longer be operational and therefore no inadvertent or unexpected movements can occur.

Why is there LED lighting attached to the Emergency plug?

This is an additional safety tool to show the user that the Emergency plug emits the correct values so that the car will no longer move (green) and that the Emergency plug connects to the vehicle (blue).

Does the Emergency cut all power from an EV?

No, the Emergency plug does not cut the power circuit. All electrical functions are still operational and can be used accordingly. Our courses demonstrate that an EV does not necessarily need to have all power cut in an emergency.



FREQUENTLY ASKED QUESTIONS

Is all electricity still operational when the Emergency plug is installed?

You can continue to operate all electrical functions. This is a great advantage when an emergency responder, for example, has to be able to operate the windows and / or seats.

Does the Emergency plug cause damage to the vehicle?

No, the Emergency plug does not cause any damage to the vehicle, its electronics or software.

Is the Emergency plug a replacement for the current/applicable protocols?

You can use the Emergency plug to safely execute the protocols.

When you remove the Emergency plug, is it possible that the vehicle can drive again?

When you removes the Emergency plug from the vehicle, the vehicle can drive again after you have pressed the start/stop button.



FREQUENTLY ASKED QUESTIONS

Is it dangerous to use an Emergency plug?

The Emergency plug does not come into contact with the high voltage pins of the vehicle and is therefore safe to use.

Is it difficult to use the Emergency plug?

No, it is the same procedure as placing a charging plug. Therefore one only has to plug into the car's charging socket.

Do you need to use the Emergency plug when airbags have been activated?

When airbags have been activated, it does not guarantee that the high-voltage interlock has done its job, so always make sure to place the Emergency plug.



DISCLAIMER

- THE EMERGENCY PLUG DOES NOT SUBSTITUTE YOUR STANDARD EV RESCUE PROCEDURE / PROTOCOL.
- IT IS A SAFETY MEASURE BEFORE YOU START THE REGULAR RESCUE PROCEDURE / PROTOCOL.
- ALWAYS STABILIZE THE VEHICLE.
- CAREFULLY READ THE USER MANUAL