



HEP-2 RECHARGABLE BATTERY POWERED HIGH ENERGY PORTABLE IGNITER

GENERAL

The device generates a life-threatening voltage of 2kV DC.

For safety reasons it is necessary to carefully read and fully understand this manual before any attempt of assembling or usage of the components.

DESCRIPTION

The portable high-energy ignition assembly consists of a hand held 2kV ignition generator with integrated battery charger. HEP-2 needs a cable set and ignition lance and the HEP-2-INT needs to be completed with a fixed ignition rod. The length of the ignition rod can be freely chosen by combining one tip adapter, one spark tip and one or multiple extension tubes. All components are individually available and need to be assembled before use.

APPLICATION

The HEP-2 series is used for safe ignition of burners of all kinds, e.g. in refineries, the steel industry and in the petrochemical industry. The total weight and the compact size of the complete set makes these igniters the perfect 'match' for downfired reformers or burners on great heights.

OPERATION

The power cord with US/EU plug accepts a voltage between 100 & 230 VAC to charge the batteries. The device has a LED status indicator and informs the user when the device needs to be recharged. The device is switched ready for operation via a latching switch. After a correct positioning of the spark tip, the ignition can be started with a push-button with a limit of 180 seconds of 4kJ/spark. A full charge provides a total spark time of 1 hour.

WARNING



The equipment described in this manual is capable of causing property damage, severe injury, or death. It is the responsibility of the owner or operator to ensure that the equipment described is installed, operated and commissioned in compliance with the manufacturer's instructions and all applicable codes and regulations.

When this equipment is fitted to an appliance, due regard must also be given to the requirements of that appliance.

Before attempting to install, commission, or operate this equipment, all relevant sections of this document must be read and fully understood. If in doubt about any requirements consult your supplier.

Installation, commissioning or adjustment of this product MUST be carried out by suitably trained engineers or personnel qualified by training and experience.

The manufacturer of this equipment accepts no liability for any consequences resulting from inappropriate, negligent or incorrect installation, commissioning or adjustment of operating parameters of the equipment.

Before attempting any work on this equipment or any equipment controlled by or connected to this equipment, all related electrical supplies or batteries MUST be isolated.

DO NOT energize or use the device, unless the area is known to be non-hazardous and free of explosive gases.

These paragraphs indicate a risk of potential serious personal injury, unless these instructions are followed carefully.

This device and its accessories are designed to operate in extreme environments and temperatures. Do not attempt to work on this device until it has reached a safe handling temperature.

Do not operate a device that has damaged threads, components or one that has been disassembled.

Explosion hazard. Do not disassemble, connect or disconnect when energized.

The High Energy Portable Igniter (or any part thereof) is not intended for climbing or standing on.

Electromagnetic interference may occur during the ignition period.

Compliance with the permissible ambient temperatures must be checked.

During ignition, 2000 VDC is applied to the ignition electrode. There is a danger to life if touched!

The portable High Energy Igniter may only be operated with the spark tip inside the combustion chamber, with the lid of the ignition unit closed, undamaged components, and a complete ignition electrode installed.

The portable High Energy Igniter requires at least 120 seconds for a complete discharge. Opening the unit or touching any of the internal components during this discharging may result in electric shock or injury.

DATASHEET

P/N	HEP-2
Ignition Voltage	2000 VDC
Ignition Frequency	3 sparks/sec
Ignition energy	4J/spark
Max. ignition duration	180 sec (ED 30%)
Max. current consumption (during charging)	1.0 A
Supply voltage for charging	100 - 240 VAC, 50/60Hz
Operational availability	Approx. 1 hour
Charging time	Approx. 2 hours
Protection class	IP 54
Max. operating temperature	+65°C or 149°F
Min. operating temperature	-20°C or -4°F
Dimensions	255 x 90 x 180mm 10.03 x 3.54 x 7.08in
Housing Material	Die-cast aluminium, powder coated
Weight	2.70kg or 5.92lb

P/N	HEP-2-INT
Ignition Voltage	2000 VDC
Ignition Frequency	3 sparks/sec
Ignition energy	4J/spark
Max. ignition duration	180 sec (ED 30%)
Max. current consumption (during charging)	1.0 A
Supply voltage for charging	100 - 240 VAC, 50/60Hz
Operational availability	Approx. 1 hour
Charging time	Approx. 2 hours
Protection class	IP 54
Max. operating temperature	+65°C or 149°F
Min. operating temperature	-20°C or -4°F
Dimensions	255 x 90 x 180mm 10.03 x 3.54 x 7.08in
Housing Material	Die-cast aluminium, powder coated
Weight	2.70kg or 5.92lb

P/N	HE-S
Material	Stainless Steel 1.4571
Max. temperature	+650°C or 1202°F
Max. temperature (short)	+800°C or 1472°F
Length	200mm/ 7.87in
Diameter	16mm/ 0.63in
Weight	0.23kg or 0.50lb

P/N	HE-L
Material	Stainless Steel 1.4571
Max. temperature	+650°C or 1202°F
Max. temperature (short)	+800°C or 1472°F
Length	675mm/ 26.57in
Diameter	16mm / 0.63in
Weight	0.78kg or 1.72lb

P/N	ET x.xx
Material	Stainless Steel 1.4571
Diameter	16mm/ 0.63in

P/N	HEP-2-C-1.5
Material Junction box	Aluminium
Material Handle	Aluminium
Material Cable Insulation	Rubber EPR 3GI3
Material Cable Gasket	Rubber CR 5GM5
Protection class	IP54
Cable Length	1.5 meter or 5 feet
Weight	0.85kg or 1.87lb

P/N	HE-SSR-0.0
Diameter	16mm/ 0.63in
Weight	0.35kg or 0.77lb

OPERATION

DO NOT energize or use the device, unless the area is known to be non-hazardous and free of explosive gases.

Before commissioning, potential equalization should be carried out between the grounding bolt on the housing and the front panel of the burner, for example with the optionally available potential equalization line (at least 4 mm² PE cable with grounding clamp, length 3m).

A ready-made PE cable with mounted grounding clip is available as an accessory (HEP-2-CLIP).

Press the Power ON/OFF momentary switch with LED indicator

* LED OFF : Power OFF

* LED WHITE : Power ON

Position the spark tip in the combustible fuel mixture.

A correct mixture is where the fuel/air ratio is between the %LEL (lower Explosion Level) and %UEL (Upper Explosion Level)

FUEL	% LOWER EXPLOSION LEVEL	% UPPER EXPLOSION LEVEL
NATURAL GAS	5	17
PROPANE	2.1	9.5
HYDROGEN	4	75
AMMONIA	15	28

Outside these conditions, the ignition of the fuel mixture is likely to fail.

Wait until the fuel valves open, then start sparking by pressing the IGNITION button.

The maximum ignition time is 180 sec.

The total ignition time for a full charged device is approx. 1 hour

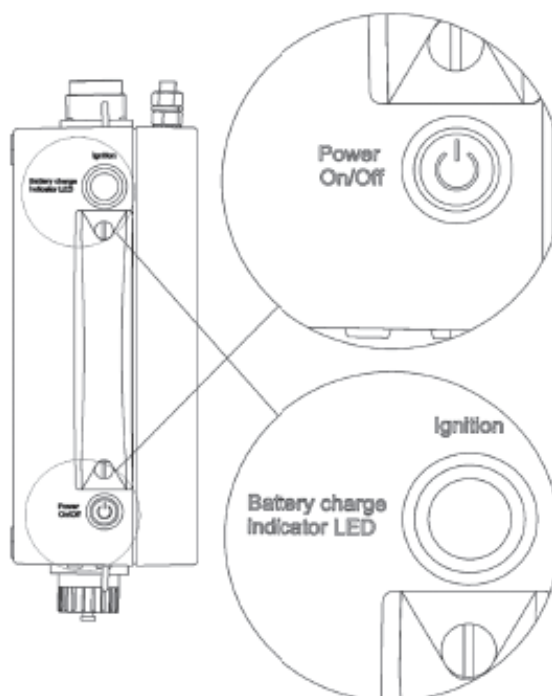
After a successful ignition, it is recommended to release the ignition button.

Press the power ON/OFF switch to turn the power OFF.

* LED OFF : Power OFF

* LED WHITE : Power ON

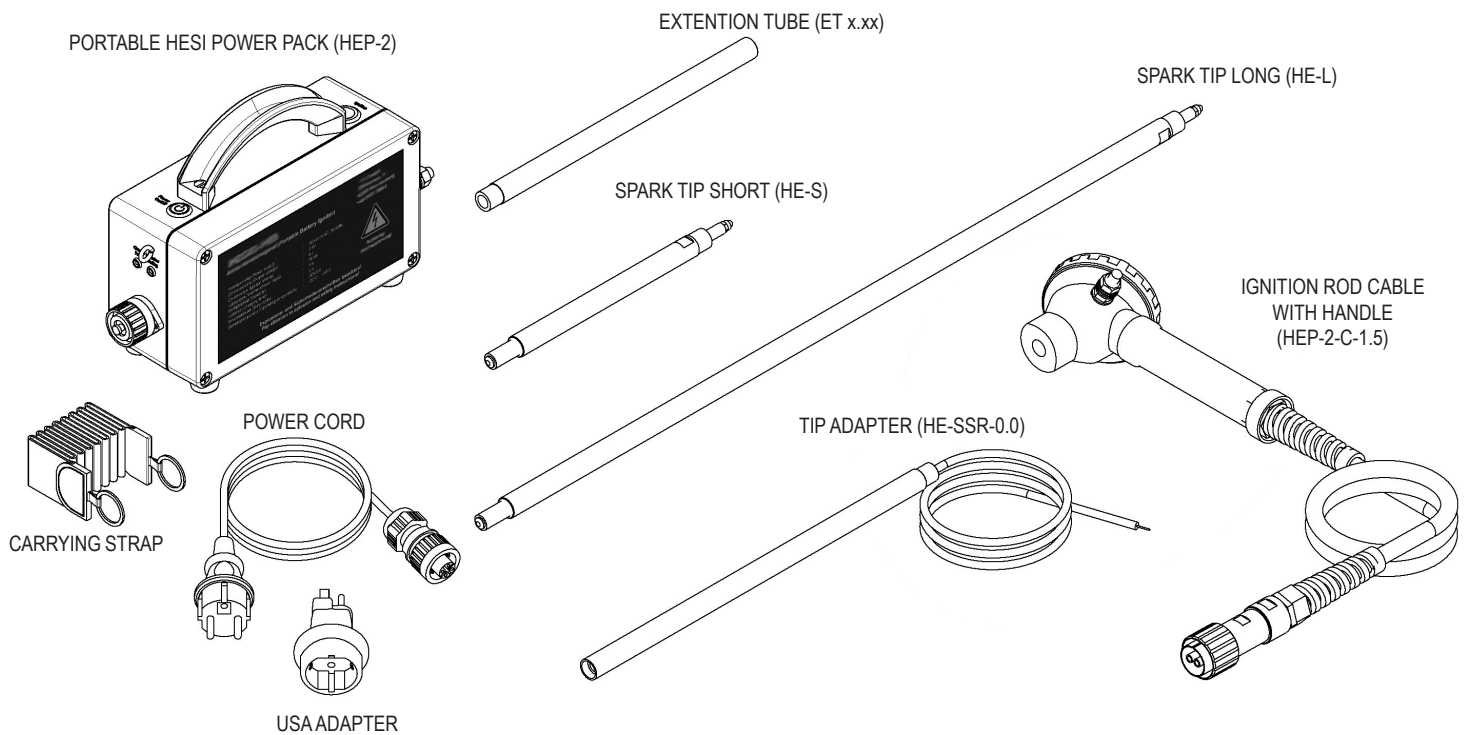
CHECK



MODEL HEP-2 with quick-disconnect plug, cable and ignition rod



BILL OF MATERIALS FOR HEP-2 PORTABLE HIGH ENERGY IGNITER



NECESSARY COMPONENTS FOR A COMPLETE HEP-2 SYSTEM (CABLE VERSION)

Main components

1x	HEP-2	Portable HESI Power Pack with quick-disconnect connector. Including batteries, power cord, USA plug adapter.
1x	HEP-2-C-1.5	Ignition rod cable with handle, 1.5m/5ft cable and male Quick-Disconnect connector.

Components that define the length of the Ignition Rod.

1x	HE-SSR-0.0	Tip adapter, 325mm or inch including spring and 3m high temperature cable
1x	HE-x	High Energy Spark tip
OPTION	ET x.xx	Extention Tube

ET 0.20	200mm	7.87"
ET 0.30	300mm	11.81"
ET 0.40	400mm	15.75"
ET 0.50	500mm	19.69"
ET 0.60	600mm	23.62"
ET 0.70	700mm	27.56"
ET 0.80	800mm	31.49"
ET 0.90	900mm	35.43"
ET 1.00	1000mm	39.37"
ET 2.00	2000mm	78.74"

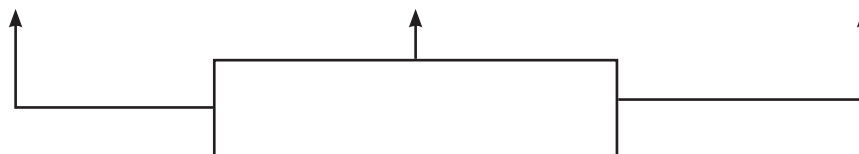
CHECK OUT OUR ONLINE PARTNUMBER GENERATOR



HE-S	High Energy Spark tip Short	200mm	7.87"
HE-L	High Energy Spark Tip Long	675mm	26.77"

Calculate the length of the Ignition Rod

HE-SSR-0.0 TIP ADAPTER	TOTAL LENGTH OF EXTENTION TUBE	LENGTH OF THE SELECTED SPARK TIP
325mm
12.8"

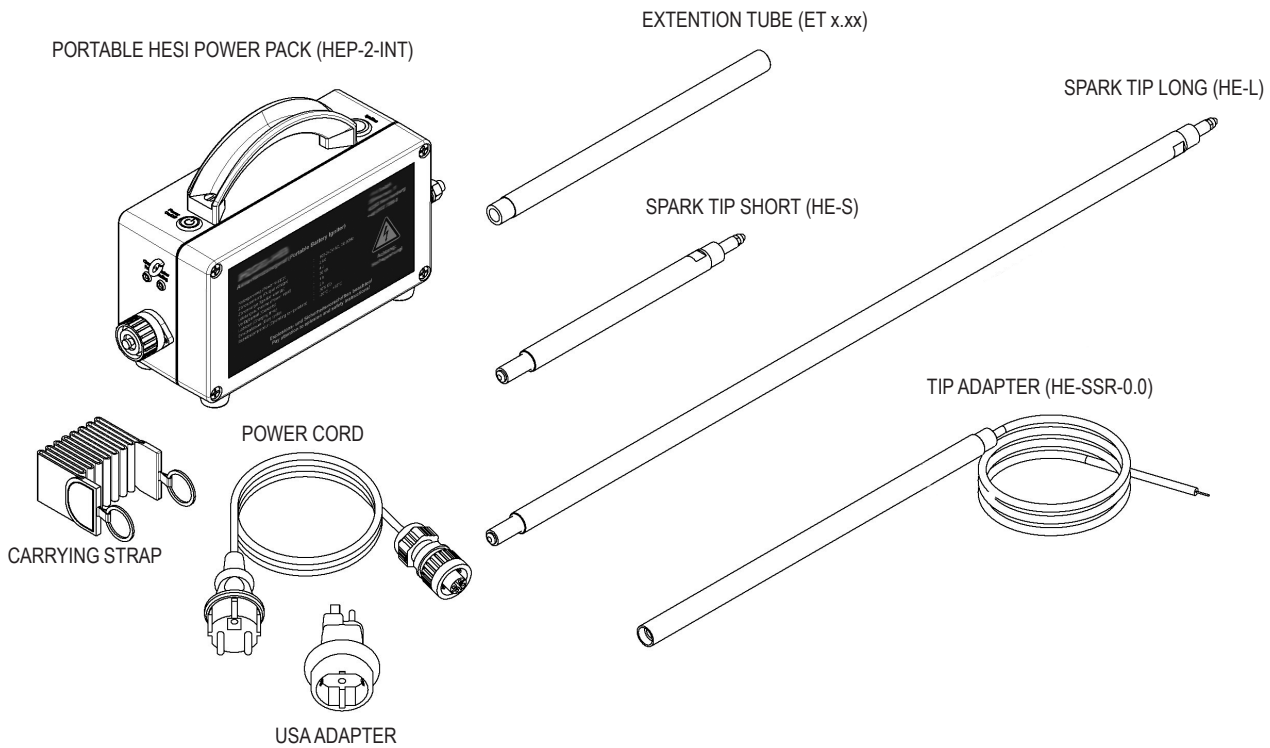


SUM IS THE TOTAL LENGTH OF THE IGNITION ROD

MODEL HEP-2-INT with Integrated Ignition Rod



BILL OF MATERIALS FOR HEP-2-INT PORTABLE HIGH ENERGY IGNITER



NECESSARY COMPONENTS FOR A COMPLETE HEP-2-INT SYSTEM (INTEGRATED VERSION)

Main components

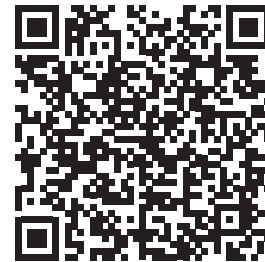
1x	HEP-2-INT	Portable HESI Power Pack with Ignition tip adapter connection including batteries, power cord, USA plug adapter.
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Components that define the length of the Ignition Rod.

1x	HE-SSR-0.0	Tip adapter, 325mm or 12.79 Inch including spring and 3m high temperature cable
1x	HE-x	High Energy Spark tip
OPTION	ET x.xx	Extention Tube

ET 0.20	200mm	7.87"
ET 0.30	300mm	11.81"
ET 0.40	400mm	15.75"
ET 0.50	500mm	19.69"
ET 0.60	600mm	23.62"
ET 0.70	700mm	27.56"
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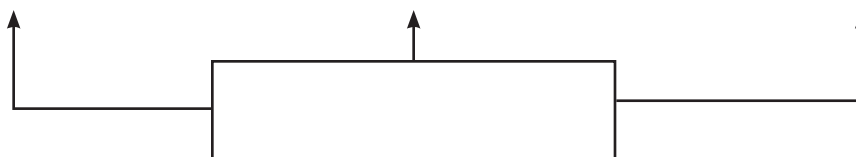
CHECK OUT OUR ONLINE PARTNUMBER GENERATOR



HE-S	High Energy Spark tip Short	200mm	7.87"
HE-L	High Energy Spark Tip Long	675mm	26.77"

Calculate the length of the Ignition Rod

HE-SSR-0.0 TIP ADAPTER	TOTAL LENGTH OF EXTENTION TUBE	LENGTH OF THE SELECTED SPARK TIP
325mm
12.79in

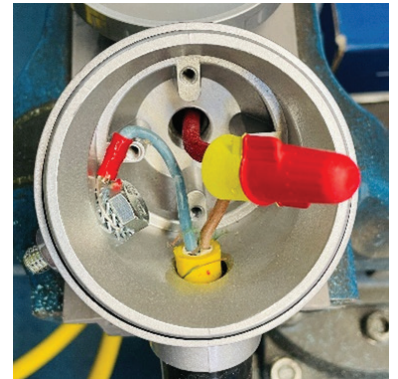
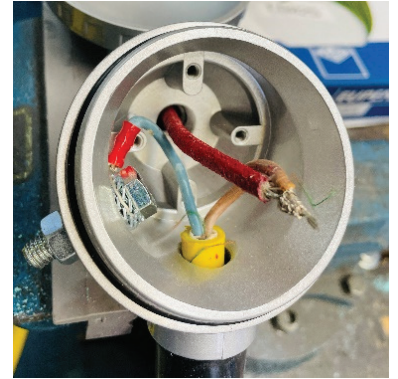


SUM IS THE TOTAL LENGTH OF THE IGNITION ROD

ASSEMBLY INSTRUCTIONS HEP-2

- Open the cover of the junction box.
- Mount the extension tube(s) to the junction box
- Pull red high-voltage cable inside the tip adapter, through the Extension Tube(s) into Junction Box and screw all tubes together.
Mount the tip adapter directly to the junction box if no Extension Tube is needed.
- Mount the selected Spark Tip on the tip adapter.
- Inside the junction box, the RED high-voltage cable is to be cut so that approx 8 cm or 3.15 Inch remains
- Strip the RED wire down to about 1 cm or 0.4 Inch
Strip the BROWN wire down to about 1 cm or 0.4 Inch
- Insert the BROWN and RED wire into the rotary connector and ensure solid connection by turning the connector clockwise until full stop.
- Close the cover of the junction box.

CHECK



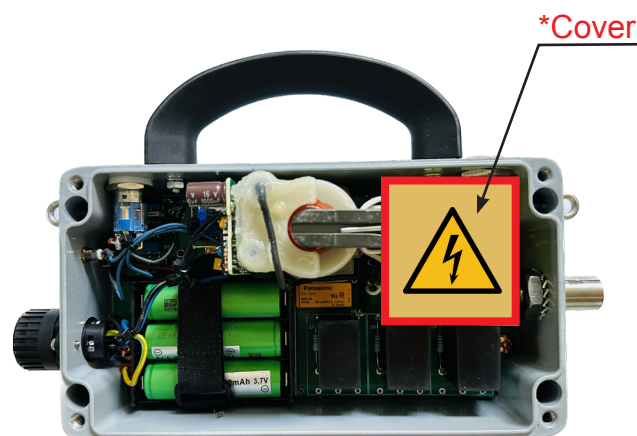
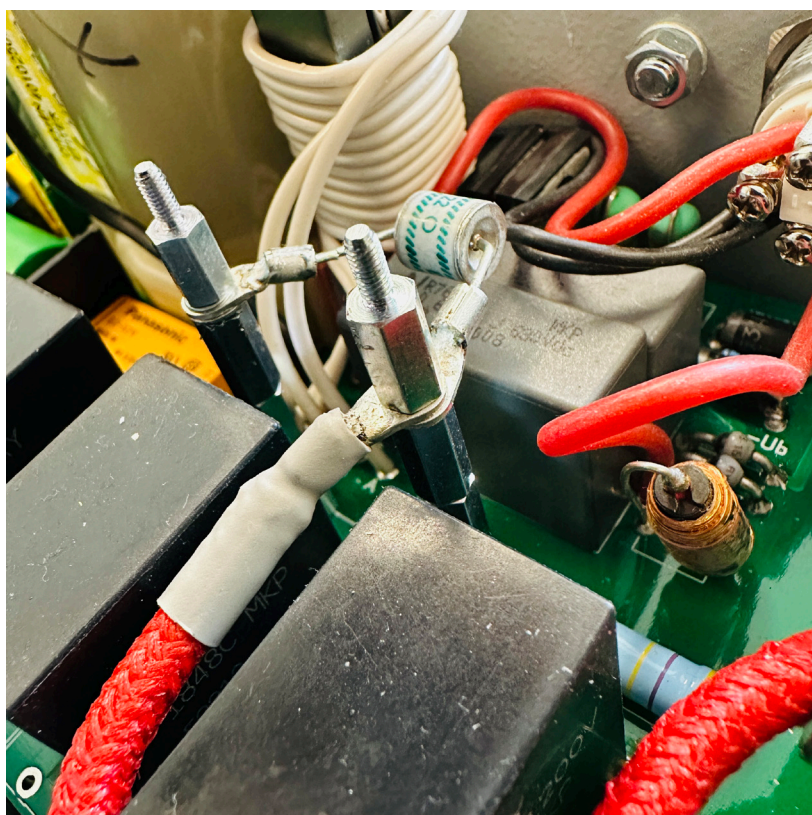
TIP ADAPTER WITH INTEGRATED ISOLATOR
INCLUDING SPRING & 3M HIGH TEMPERATURE CABLE
(HE-SSR-0.0)



ASSEMBLY INSTRUCTIONS HEP-2-INT

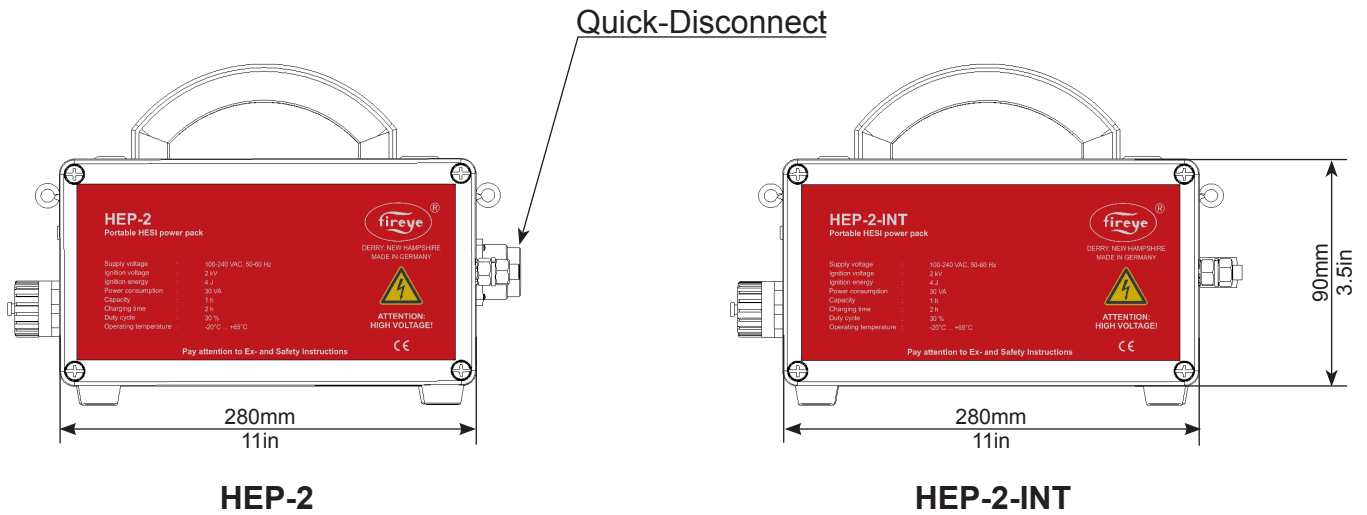
- Open the cover of the portable HESI Power Pack and remove the plastic **cover***.
- Mount the extension tube(s) on the Portable HESI Power Pack.
- Pull red high-voltage cable inside the tip adapter, through the Extension Tube(s) into portable HESI Power Pack and screw all tubes together.
(Mount the tip adapter directly to the Portable HESI Power Pack if no Extension Tube is needed)
- Inside the portable HESI Power Pack, the RED high-voltage cable is to be cut so that approx 12cm/4.72in remains
- Strip the RED high voltage cable down to about 1cm or 0.4in and connect ring cable lug. Isolate with heat shrink tube.
- Connect the ring cable lug (2) to High Energy Connection bolt.
- Put plastic ***cover** back to protect against unwanted contact with high voltage circuit.
- Mount the selected Spark Tip
- Close the cover of the portable HESI Power Pack.

CHECK

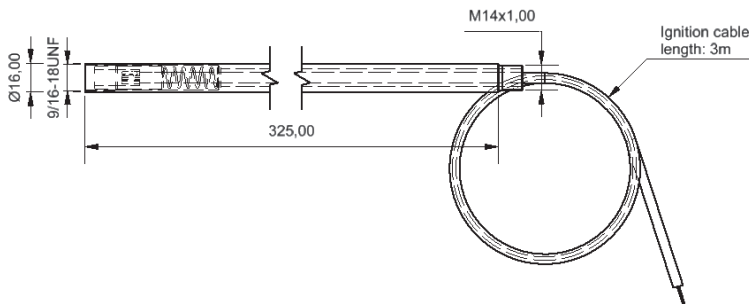


DRAWINGS

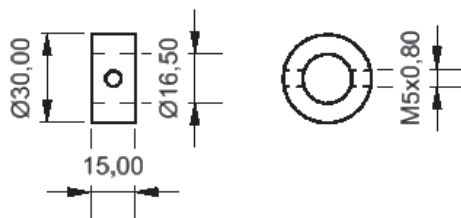
HIGH ENERGY POWER PACK



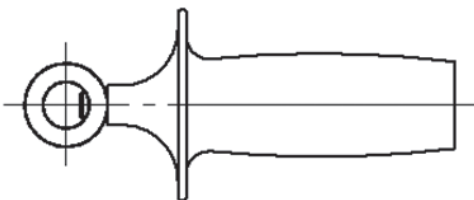
HE-SSR-0.0 TIP ADAPTER WITH INTEGRATED ISOLATOR, INCL SPRING AND 3M HIGH TEMPERATURE CABLE



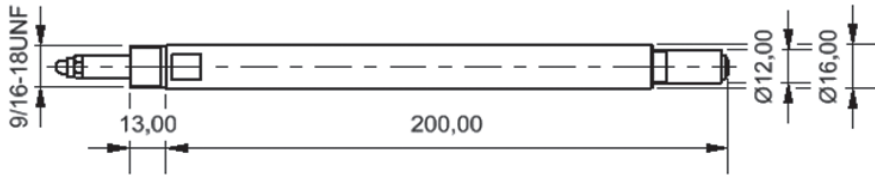
HEP-SR : SPACER RING WITH ALLEN SCREW FOR LOCKING



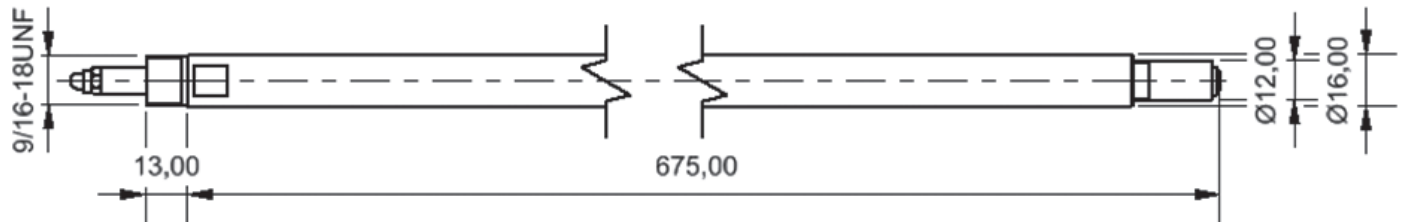
HEP-2-GRIP : GRIP HANDLE



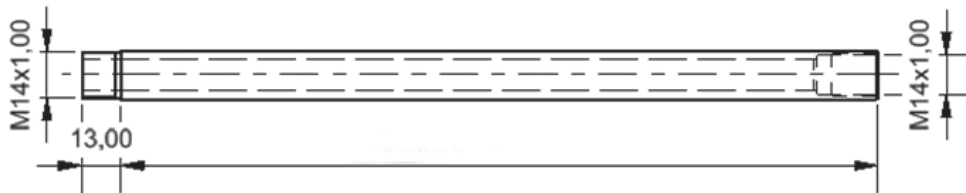
HE-S : SPARK TIP SHORT



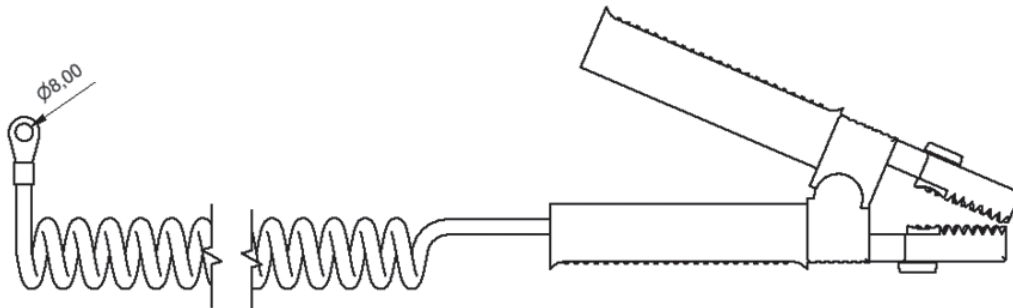
HE-L : SPARK TIP LONG



ET x.xx Extention tube (see datasheet for selection of different lengths)



HEP-2-CLIP



HEP-BP : BATTERY PACK (3x Li-Ion batteries 3.7 VDC, 3000mAh)



CHARGING

A weak ignition spark and a RED LED around the ignition button indicates the need for charging.

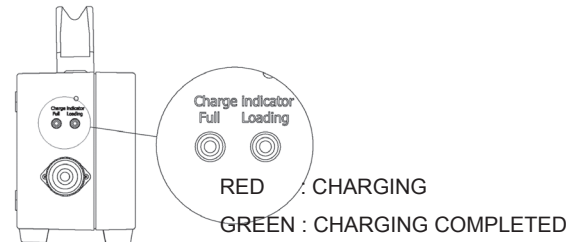
For charging, connect the power cord to the portable High Energy Power Pack.

Ignition is not possible during the charging process.

A complete charge can take up to 2 hours.

Disconnect the power cord after charging.

The voltage of each battery cell should not drop below 1.23 VDC otherwise they may be permanently damaged.



BATTERY REPLACEMENT

WARNING :

Batteries may only be replaced by a qualified electrician.

Inverting the polarity of the batteries will destroy the unit.

Before opening the ignition unit, it is absolutely necessary to disconnect the main connection and power switched OFF.

The Portable High Energy Power Pack requires at least 120 seconds for a complete discharge.

Opening the unit or touching any of the internal components during this discharging may result in electric shock or injury.

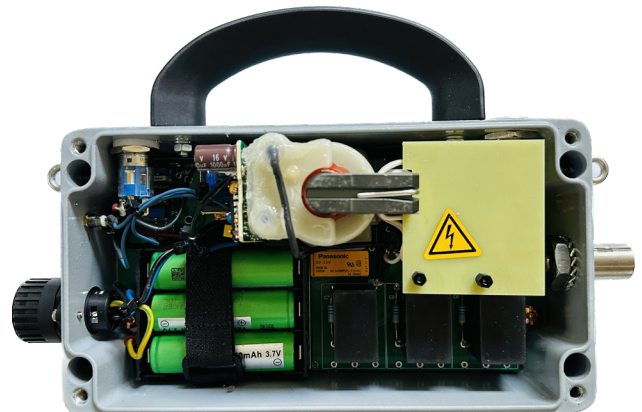
The housing cover is removed using the four (4) screws (on the side of the label).

Beware of live parts!

It must be ensured that the PE connection between cover and base is not interrupted.



The polarities must be observed when changing the battery.
Inverting the polarity will destroy the unit !



To avoid compensating currents, all batteries must always be replaced at the same time.

When installing the housing cover, make sure that the PE connection between the housing parts is not pinched.

After replacing the batteries, the housing cover must be attached again with the four previously loosened screws.

Proper operation can only be guaranteed with the batteries installed by the manufacturer.



CERTIFICATIONS

CE DETAILS

NOTICE

When Fireeye products are combined with equipment manufactured by others and/or integrated into systems designed or manufactured by others, the Fireeye warranty, as stated in its General Terms & Conditions of Sale, pertains only to the Fireeye products and not to any other equipment or to the combined system or its overall performance.

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Fireeye guarantees for one year from the date of installation or 18 months from the date of manufacture, whichever occurs first, to replace, or at its option, to repair any product or part thereof which Fireeye, in its sole discretion, deems to be defective in material or workmanship or which otherwise fails to conform to the description of the product on the face of its sales order. Fireeye's obligations pursuant to this warranty do not extend to any products or parts thereof which Fireeye determines to have been installed, operated, maintained, repaired, or altered improperly or otherwise than in conformity to Fireeye's applicable instructions, or which have been subject to misuse, accident or neglect.

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