



**GLASS EXPANSION**

Quality By Design

# Installation Guide

**D-Torch\* for Radial (Quartz outer tube)**

**30-808-2877**

## Before you Start

Congratulations on the purchase of your D-Torch.

As supplied, the D-Torch is fully assembled. Table 1, lists the D-Torch parts that can be ordered separately.

Item no.	Part Number	Description	Qty
1	31-808-2895	D-Torch injector adaptor	1
2	31-808-2897	D-Torch injector ferrule	1
3	Refer Note	D-Torch injector	Ref
4	31-808-3083	D-Torch plug	1
5	31-808-2932	D-Torch body	1
6	31-808-2878	D-Torch radial quartz outer tube	1
7	31-808-2707	Retainer	1
8	70-803-0915	Injector ferrule tool	1
9	SAFEGLOVE-MED	Safety gloves	1

**Note:** Item 3, Torch injector is not supplied with standard D-Torch assembly – Shown for reference only. There is a range of Injectors suitable for iCAP D-Torch – These can be purchased from your D-Torch supplier.



# Scope

**The following pages of this document will explain:**

1. General safety
2. Removal of the D-Torch outer tube
3. Attach the D-Torch outer tube
4. Access the D-Torch injector
5. Replacement of the injector ferrule

## **1. Precautions for personal safety and D-Torch preservation.**

- Always wear safety gloves (item 9) and safety glasses when handling ICP torches.
- It is recommended you read and understand this procedure before starting.
- The person performing this work must be competent in making basic ICP connections
- The ICP torch is made from high grade engineered materials – Handle with extreme care

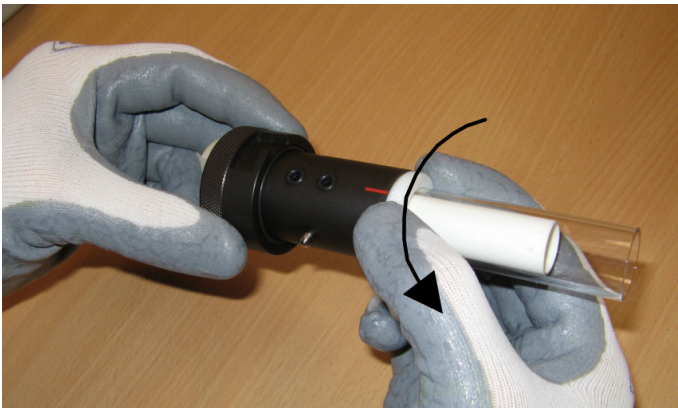
\* The D-Torch is covered by US Patent 8,232,500 B2

# Instructions

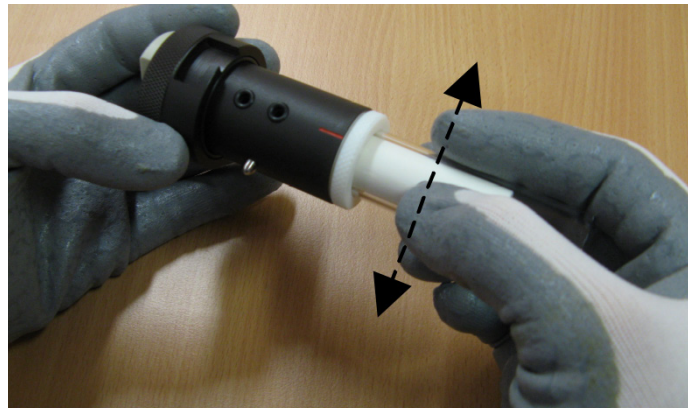
## 2. Removal of the D-Torch outer tube

The D-Torch's outer tube is accurately located in the D-Torch body with a retainer cap. The outer tube can be removed at any time by completing the following steps: -

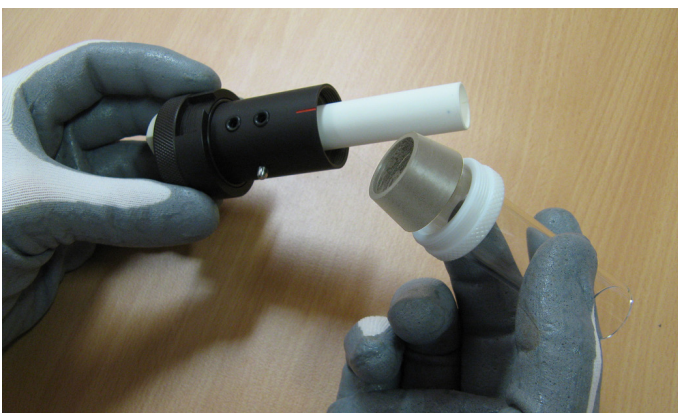
- 2.1 If fitted, remove the D-Torch assembly from your ICP (not shown).
- 2.2 Unscrew Retainer ½ turn.
- 2.3 Grip outer tube (lower end, near D-Torch body) then gently wriggle the tube from side to side (figure 2.3). You will hear a “click” as the outer tube releases.
- 2.4 Fully unscrew the retainer then carefully withdraw the outer tube from the D-Torch body.



Step 2.2



Step 2.3



Step 2.4

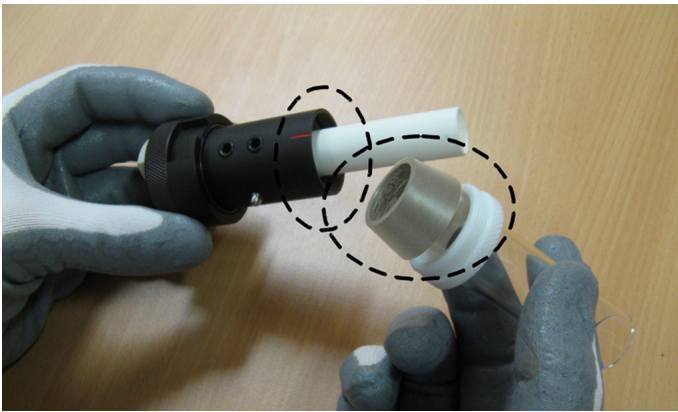
**Note:** D-Torch outer tube is permanently fitted with a taper ferrule - Do not attempt to remove ferrule from outer tube.

Inner tube is permanently fixed to the D-Torch body - Do not attempt to remove this inner tube from D-Torch body.

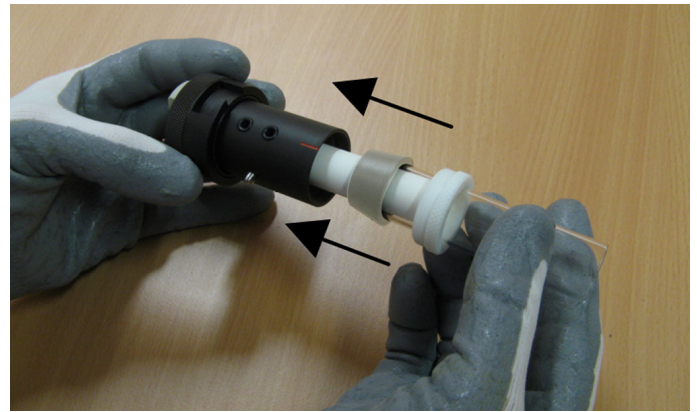
### 3. Attach D-Torch outer tube

To attach the outer tube, complete the following steps: -

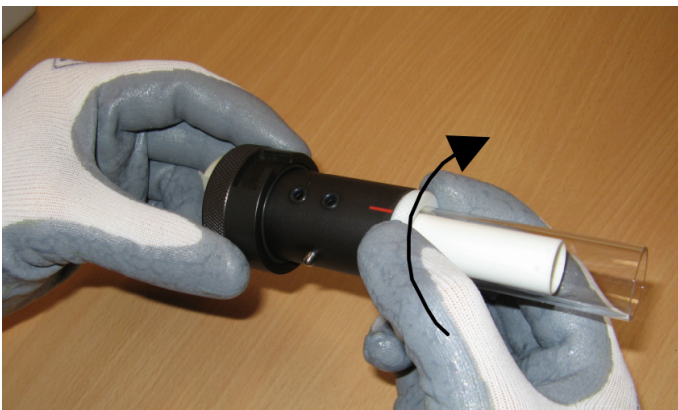
- 3.1 **Check**, that both locating surfaces (outer tube and torch body) are clean and free from damage.
- 3.2 Carefully slide the outer tube over the D-Torch inner tube – The outer tube will self locate into the D-Torch body.
- 3.3 Tighten the retainer to fix the outer tube in place (Moderate pressure by hand is adequate – Do not over tighten).
- 3.4 If desired, return D-Torch assembly to ICP and connect as normal. (Not Shown)



Step 3.1



Step 3.2



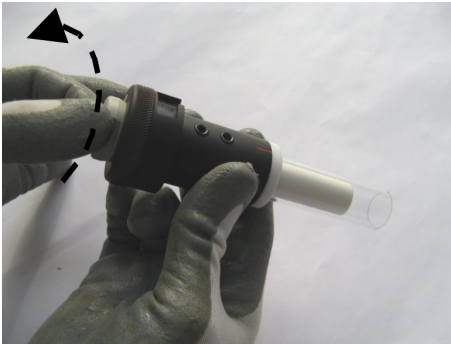
Step 3.3



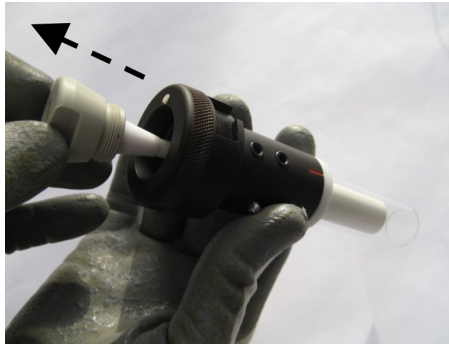
## 4. Access the D-Torch injector

To remove the injector: -

- 4.1 Unscrew the injector adaptor from rear of D-Torch then carefully remove the adaptor (with injector) from D-Torch.



Step 4.1a



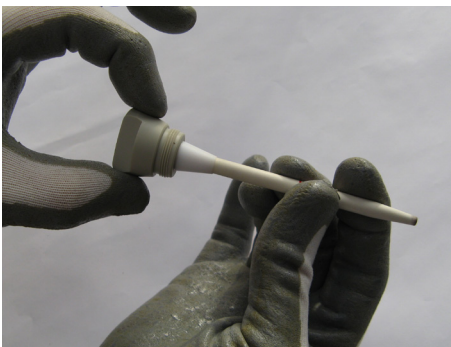
Step 4.1b



Step 4.1c

- 4.2 Pull the injector out from the injector adaptor.

**Note!** Check condition of the ferrule. Replace ferrule if damaged or deteriorated. (Refer section 5.)



Step 4.2a



Step 4.2b



iCAP Plug - Refer note below

**iCAP Plug:** Do not remove this Plug from the D-Torch body - This Plug must be left in place for all iCAP Radial applications

### To reinstall the injector with the D-Torch:

Repeat steps 4.1 and 4.2 in reverse order.

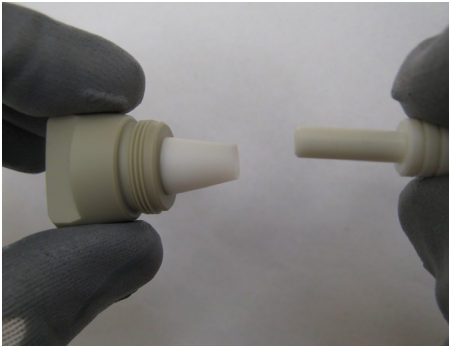
**Note!** Push injector all the way into the injector ferrule. (End of injector must butt-up against inside of adaptor).

## 5. Replacement of the injector ferrule

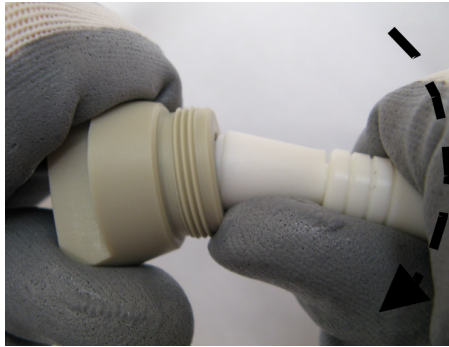
To replace the injector ferrule, complete the following steps: -

- 5.1 Insert the injector ferrule tool (item 8) into injector ferrule then pivot tool sideways to unseat the ferrule from the injector adaptor - Discard ferrule.

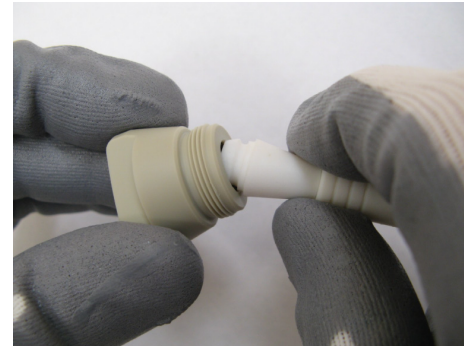
**Note!** You may need to apply a moderately high amount of force to un-seat the injector ferrule from the adaptor.



Step 5.1a



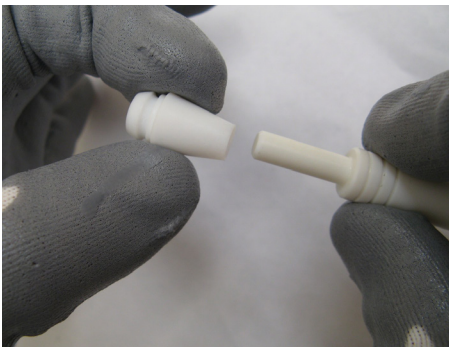
Step 5.1b



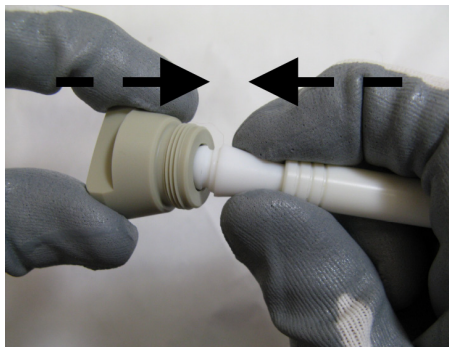
Step 5.1c

- 5.2 Place a new injector ferrule (from D-Torch injector consumable kit, item 2) onto the stem of injector ferrule tool. Position the ferrule into the adaptor and push together until you feel the ferrule seat with adaptor o-ring.

**Hint!** It can help if you swivel (pivot, like step 5.1) the injector ferrule tool whilst pushing-in the injector ferrule.



Step 5.2a



Step 5.2b



Step 5.2c

**Note!** If you have questions regarding the D-Torch or this document, please contact your supplier.

For more information please visit **[www.geicp.com](http://www.geicp.com)** or contact one of our offices below.

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