

# A Robust, High Performance, Revolutionary Demountable ICP Torch

An Inductively Coupled Plasma (ICP) torch can be a costly consumable item requiring regular maintenance and replacement, particularly with aggressive sample matrices, such as hydrofluoric acid (HF), organic solvents and high total dissolved solids (TDS).

The patented D-Torch is a revolutionary demountable torch from Glass Expansion, the world's leader in the design of sample introduction systems for ICP. A single, precision-engineered D-Torch can lower running costs and provide the flexibility to run any sample matrix by simply interchanging the injector. There's no need to have different torches for samples with organics, HF or best detection limits. The Glass Expansion D-Torch (shown below) for the Agilent® 5100 and 5110 is also fully compatible with Agilent's® 5800 and 5900 instruments.



## Compared to other conventional torches, the D-Torch offers:

- A choice of quartz, alumina, sapphire and platinum injectors in a range of diameters for aqueous, organic, high salt, fusions or HF-containing samples
- Optional ceramic outer tube that produces a hotter, more robust plasma that is virtually indestructible
- Lower running costs as only the outer tube is replaced when it wears - not the whole torch
- Inert, self-aligning injector seal eliminates o-rings which quickly degrade and become brittle



**GLASS EXPANSION**  
Quality By Design

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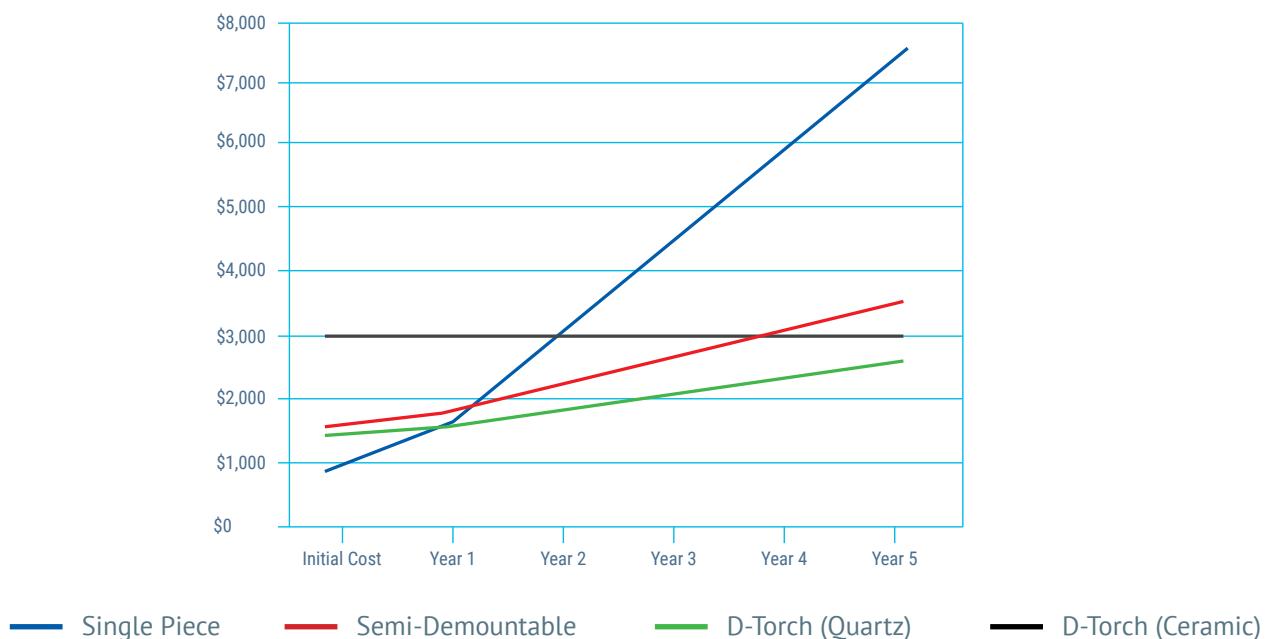
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### Comparative torch ownership costs versus the D-Torch



### Virtually Indestructible Ceramic Outer Tube

Glass Expansion pioneered the design of ceramic torches more than 25 years ago. Since then, we have provided ceramic versions of our D-Torch for dozens of different ICP models.

Using a ceramic outer tube on your ICP torch produces a hotter, more robust plasma, which reduces matrix effects and improves detection limits. Compared to a quartz outer tube, the ceramic outer tube has a much longer lifetime, greatly reducing maintenance, cleaning and downtime due to torch failure. In some sample matrices, quartz outer tubes can degrade in hours while the ceramic outer tube will last years under the same conditions.

### The ceramic outer tube is ideal for:

- Analyses at the detection limit as the hotter plasma increases sensitivity
- Monitoring of wear metals in engine oils, as quartz outer tubes often suffer cracking and shortened lifetimes due to thermal shock
- Analysis of fusion samples where the lithium salts rapidly attack quartz
- Measuring high TDS samples that will quickly devitrify the quartz outer tube

### Six hours of running 10% NaCl



Quartz outer tube



Ceramic outer tube

A combination of high temperature and salt deposit causes a quartz torch to devitrify. Higher concentrations of salt in the samples lead to more rapid devitrification. The quartz torch in the photo was run for only 6 hours with samples containing 10% NaCl and is already badly degraded. By contrast, the ceramic material does not devitrify and is not affected by salt deposits.

The ceramic D-Torch in the photo was run for the same period and with the same samples as the quartz torch but shows no degradation at all.

**Learn more at: [www.geicp.com/D-Torch](http://www.geicp.com/D-Torch)**