

## Thermo Scientific Jet Interface

ELEMENT 2 / ELEMENT XR ICP Mass Spectrometers



### The Jet Interface – a Sensitivity Breakthrough for ICP-MS

The new Jet Interface for the ELEMENT series of Sector Field ICP-MS sets a new standard for sensitivity in elemental analysis. With the Jet Interface sensitivities of up to  $200 \times 10^6$  cps / ppb can be achieved. With such high instrumental sensitivity, ppt (i.e. sub ppq) detection limits are routinely achievable and high precision isotope ratio determinations can be made at single digit ppt concentrations.

### The Jet Interface – Enhancing Sensitivity of Sector Field ICP-MS

The Jet Interface consists of a High Capacity Dry Interface Pump and a specially designed set of cones (X-Skimmer and Jet-Sampler). It increases the sensitivity of the Thermo Scientific ELEMENT 2 and Thermo Scientific ELEMENT XR mass spectrometers dramatically, especially for low matrix containing samples.



## Hardware Requirements

The Jet Interface can be ordered as a factory installed option (replacing the standard interface pump) or as an upgrade kit for existing ELEMENT systems. The following items should be ordered:

- Either a factory installed Jet Interface (PN 1301780) or the Field Upgrade Kit for the Jet Interface (PN 1289760) have to be ordered. The main components are the High Capacity Dry Interface Pump (PN 1260650) and components to integrate the High Capacity Dry Interface Pump into the ELEMENT2/XR cabinet as well as the special cones.
- The High Capacity Dry Interface Pump requires increased water cooling (> 2 kW). Therefore, either an additional chiller (TF2500) or in-house water cooling is required or alternatively the current ELEMENT 2/XR chiller has to be replaced by a chiller with higher cooling capacity (TF5000) for both the mass spectrometer and the interface pump. The part numbers of the chillers are:
  - 121161010000004 TF2500 (water-air, 50Hz, 230V)
  - 121121010000005 TF2500 (water-air, 60Hz, 230V)
  - 141161110000005 TF5000 (water-air, 50Hz, 230V)
  - 141121110000019 TF5000 (water-air, 60Hz, 230V).
- A desolvating system is required for the increased sensitivity. Either the Apex Q (PN 1299560) or the ARIDUS II™ (PN 1114021) desolvator can be used. They have to be operated with the Apex nebulizer (ESI) or with the Aspire™ 100 µL/min nebulizer (CETAC). Nitrogen has to be added at the desolvator.

## Software Requirements

The ELEMENT software version 3.1.2 (or later) is required for the operation of the the Jet Interface. Installation of the Field Upgrade of the Jet Interface takes approximately 2 days and has to be done by a service engineer.

### Specification Test Using Tune Solution (1099601)

	ELEMENT (Standard)	ELEMENT (Jet Interface)
Sensitivity $^{115}\text{In}$	$\geq 1,000,000$ cps / ppb	$\geq 20,000,000$ cps / ppb

#### Please note:

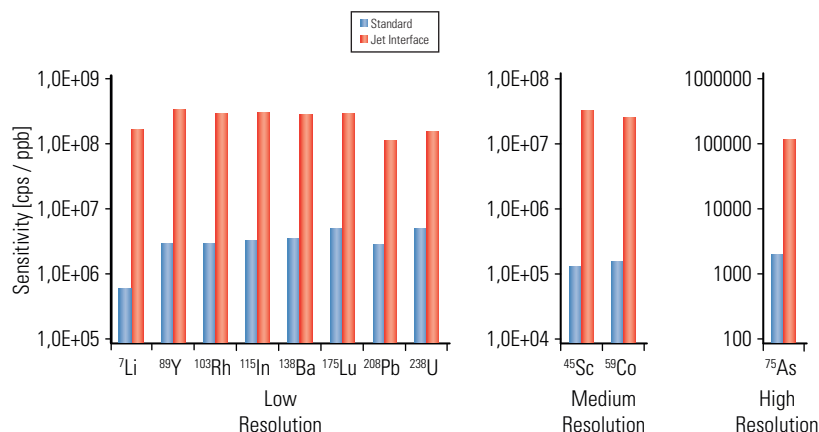
The 20 000 000 cps/ppb In specification will be demonstrated only if an ARIDUS II or Apex Q is ordered together with the Jet Interface.

Before installation of the Field Upgrade of the Jet Interface, the ELEMENT 2/XR has to fulfil the standard specifications, especially regarding sensitivity ( $\geq 1\,000\,000$  cps / 1 ppb In).

For applications where the extra sensitivity is not required, the ELEMENT 2/XR can be still operated with the standard cones and without the desolvator.

For further information, please refer to the Jet Interface User Guide for ELEMENT 2/XR (1288030).

## Sensitivity Improvement with Jet Interface



## Related Products

Thermo Scientific NEPTUNE Plus Multicollector ICP-MS and Thermo Scientific XSERIES 2 Quadrupole ICP-MS

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