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PRODUCT SPECIFICATIONS



Thermo Scientific iCE 3000 Series AAS

# High performance flame solutions

## Benefits

- Compact systems that offer a simple and reliable solution to trace elemental analysis
- Single or dual atomizer systems that offer a unique user experience


**Keywords**
Elemental analysis, Flame analysis, Rapid, Robust, Reliable


Flame Atomic Absorption Spectrometry (FAAS) is a globally recognized analytical technique used for analyzing over 60 elements. It is widely accepted in many industries, which continue to utilize the unique and specific benefits of the technique.

During the analysis, liquid samples are aspirated and directed to a flame via a spray chamber, which breaks the aspirated liquid into fine droplets. The flame is typically created using air/acetylene or nitrous oxide/acetylene gases, which causes desolvation, vaporization and atomization of the sample. Hollow cathode lamps provide specific elemental light output, which is directed through the flame to allow measurement of elements during atomization. High-performance optics and precise monochromator operation ensure the light path is always perfectly aligned for analysis.

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Flame solutions from the Thermo Scientific™ iCE™ 3000 Series Atomic Absorption Spectrometers have been developed to allow rapid, robust and reliable analysis, even for samples with high levels of dissolved solids or acidic content. The Wizard-driven Thermo Scientific SOLAAR™ software guides the novice user through tasks, including fuel flow optimization and set-up of the burner position. In addition, a wide range of safety interlocks, a fully automatic MFC gas box and automatic flame shut-down features ensure complete user safety and confidence.

## Flame Atomic Absorption Spectrometers

Flame systems provide the ideal solutions for laboratories requiring percent level to parts-per-million detection of a wide range of elements. Flame atomic absorption requires only a few milliliters of sample for analysis and takes just a few seconds to acquire multiple replicates. Flame systems can be automated with the use of autosamplers, providing enhanced productivity and sample throughput.

The iCE 3000 Series Atomic Absorption Spectrometers provides two options for those users requiring flame capabilities:

1. The Thermo Scientific iCE 3300 AA Spectrometer is a compact system which offers a simple and reliable solution to trace elemental analysis
2. The Thermo Scientific iCE 3500 AA Spectrometer is a dual atomizer system which offers a unique user experience

Both models are future proof, options to add a graphite furnace. Add the GFS33 to the iCE 3300 spectrometer to create a compact, interchangeable double atomizer, or add a GFS35 or GFS35Z to the iCE 3500 spectrometer to create a permanently aligned flame and furnace dual atomizer system.

## Features and accessories

- The universal finned titanium burner allows the use of both air/acetylene and nitrous oxide/acetylene flame types and maintains a stable, reproducible flame.
- The solvent resistant flame kit and auxiliary oxidant kit are designed for those who analyse organic solvents on a regular basis – can be factory fitted if ordered with the spectrometer. (Optional).
- A dedicated Flame Validator package is available, providing Installation Qualification (IQ) and fully automated Operational Qualification (OQ). (Optional).
- Thermo Scientific SOLAAR security is an addition to the SOLAAR software, enabling permission controls to functionality and application of electronic signatures. This is essential for regulated laboratories and those requiring 21 CFR Part 11compliance. (Optional).

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**Table 1. Summary of the dedicated flame features from the iCE 3000 Series Atomic Absorption Spectrometers.**

| | iCE 3300 AAS | iCE 3500 AAS |
|---|---|---|
| **General** | | |
| Number of sample compartments | 1 | 2 |
| PC control | Yes | Yes |
| Software | Included as standard | Included as standard |
| Lamp carousel | Auto aligning | Auto aligning |
| Lamp capacity | 6 | 6 |
| Lamp type | Coded and uncoded, single and multi element | Coded and uncoded, single and multi element |
| **Optics** | | |
| Monochromator | Ebert | Echelle |
| Spectral bandwidths | 0.2, 0.5 and 1.0 nm | 0.1 (below 400 nm), 0.2, 0.5 and 1.0 nm |
| Reciprocal linear dispersion | 2.0 nm/mm at 200 nm | 0.5 nm/mm at 200 nm |
| Grating | 1800 lines/mm | 2D spectrum |
| Optical set up | Automatic | Automatic |
| Wavelength range | 180–900 nm | 180–900 nm |
| Drift correction | Double beam | Double beam |
| **Flame features** | | |
| Burner type | Choose 50 mm finned universal burner or 100 mm burner | Choose 50 mm finned universal burner or 100 mm burner |
| Gas box | MFC fully automatic | MFC fully automatic |
| Flame background correction | Deuterium | Deuterium |
| Flame autosampler | Compatible with Cetac ASX-280, Cetac ASX-560 | Compatible with Cetac ASX-280, Cetac ASX-560 |
| **Options available** | | |
| Furnace upgrade | Yes | Yes |
| Vapor upgrade | Yes | Yes |
| Validator packages | Yes | Yes |
| Security software | Yes | Yes |

Find out more at **thermofisher.com/AAS**

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