

COLO.SCIENCE • EXPEC DISTRIBUTION FOR THE EUROPEAN UNION
ELEMENTAL ANALYSIS • FULL-SPECTRUM ICP-OES

EXPEC 6500 ICP-OES

Vertical-torch dual-view spectrometer • 165–900 nm • 1024 × 1024 ECCD • 500–1600 W solid-state RF

EXPEC 6500 is a full-spectrum, simultaneous ICP-OES for laboratories that must report trace, minor and major elements in the same run – from µg/L in drinking water to percent levels in alloys, ores and fertilisers. A vertical torch with axial and radial observation, a thermostatted echelle optic and a one-inch ECCD detector capture the whole spectrum in one exposure: up to **72 elements in about 10 s**, with **8-hour stability RSD ≤ 1 %**.

COLO.Science delivers the 6500 as a complete system: instrument, chiller, software, sample introduction for your matrices, installation, IQ/OQ qualification, operator training and local application support.

DUAL VIEW (AXIAL + RADIAL)

VERTICAL TORCH

165–900 NM

1024 × 1024 ECCD

500–1600 W

ISTANDBY 5 L/MIN AR

21 CFR PART 11

DELIVERY • TRAINING • SERVICE

SKU PRO6868

Document type: Technical Specification Sheet

Product: EXPEC 6500D ICP-OES (dual view) • 6500R (radial view) on request

Main unit SKU: PRO6868 • Format: A4 landscape • CORE-TECHSPEC

DETECTION

0.02 µg/L

Mg 279.553, axial

ELEMENTS

72 in ~10 s

simultaneous

SPAN

µg/L to %

one run, no re-dilution

EXPEC 6500D ICP-OES

EXPEC Overview

EXPEC Catalogue

Request a quotation



EXPEC 6500 ICP-OES • main unit, front view • SKU PRO6868



► Watch the EXPEC 6500 video (1:14) • plasma, dual-view optics and sample introduction

EU DISTRIBUTION

COLO.Science

EXPEC 6500D ICP-OES

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Product overview

One instrument for trace, minor and major elements – without re-dilution and without a second method

WAVELENGTH

165–900 nm

Full coverage, one exposure

DETECTOR

1024 × 1024

ECCD, 24 µm pixels, 1 inch²

SPEED

72 el. / ~10 s

~200 spectral lines per minute

STABILITY

≤ 1 % RSD

8 hours, 1–10 mg/L mix

RF POWER

500–1600 W

Self-excited, solid state

ARGON STANDBY

≤ 5 L/min

iStandby at 500 W, –50 %

Application profile

Environment: drinking, surface and waste water, soil and sediment digests, sludge – trace metals next to Na, K, Ca, Mg at high levels.

Metals and alloys: ferroalloys (FeSi, FeSiMg, CaSi), steels, non-ferrous metals and precious-metal refining control.

Geology and mining: ores, concentrates, coal and ash, rare-earth elements after fusion or acid digestion.

Petrochemistry: wear metals and additives in oils, fuels and solvents with the organic introduction kit.

Food, feed and agriculture: nutrients and contaminants in food, fertilisers, plant material and feed.

Industry and research: chemicals, batteries, catalysts, pharmaceuticals (21 CFR Part 11) and university teaching.

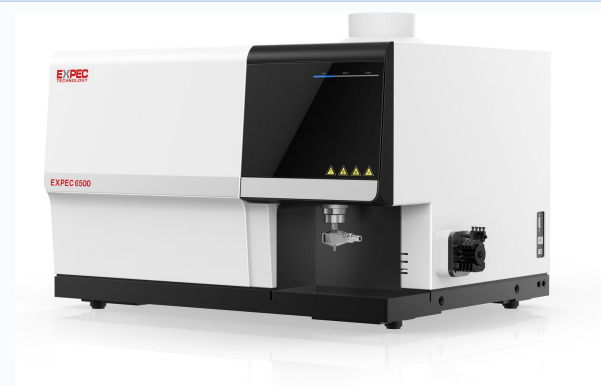
Why laboratories choose the 6500

Wide concentration span in one run: intelligent attenuation handles samples across a 100× range without re-dilution.

Robust plasma for difficult matrices: vertical torch against salt build-up, self-excited RF that keeps the plasma on organic solvents.

Lower running cost: iStandby halves argon between batches; the demountable torch needs only a new centre tube per application.

Traceable data: full spectrum stored with every sample, audit trail and electronic signature for regulated work.



EXPEC 6500 • compact bench-top instrument, 930 × 700 × 560 mm, approx. 100 kg

Feature	EXPEC 6500	What it means for your laboratory
Observation	Axial, radial, dual, simultaneous dual	Axial sensitivity for traces, radial robustness for matrix elements
Detector	1 million pixels, single exposure	Full spectrum per sample – re-process later, check interferences
Wavelength range	165–900 nm	Al 167 nm, P, S, Cl/Br region in the deep UV, K and Li lines in the red
RF power	500–1600 W, 1 W steps	Stable plasma from aqueous to high-solvent samples
Wavelength calibration	C, N, Ar lines + Ne reference (FSC)	No calibration solution at start-up, real-time drift correction
Purge	Argon, no vacuum pump	No pump oil in the optics, less maintenance

Values from the manufacturer technical specification and brochure of the EXPEC 6500 series. Detection limits, speed and stability depend on configuration, method and matrix; the quotation lists the configuration that applies to your delivery.

EXPEC 6500D ICP-OES

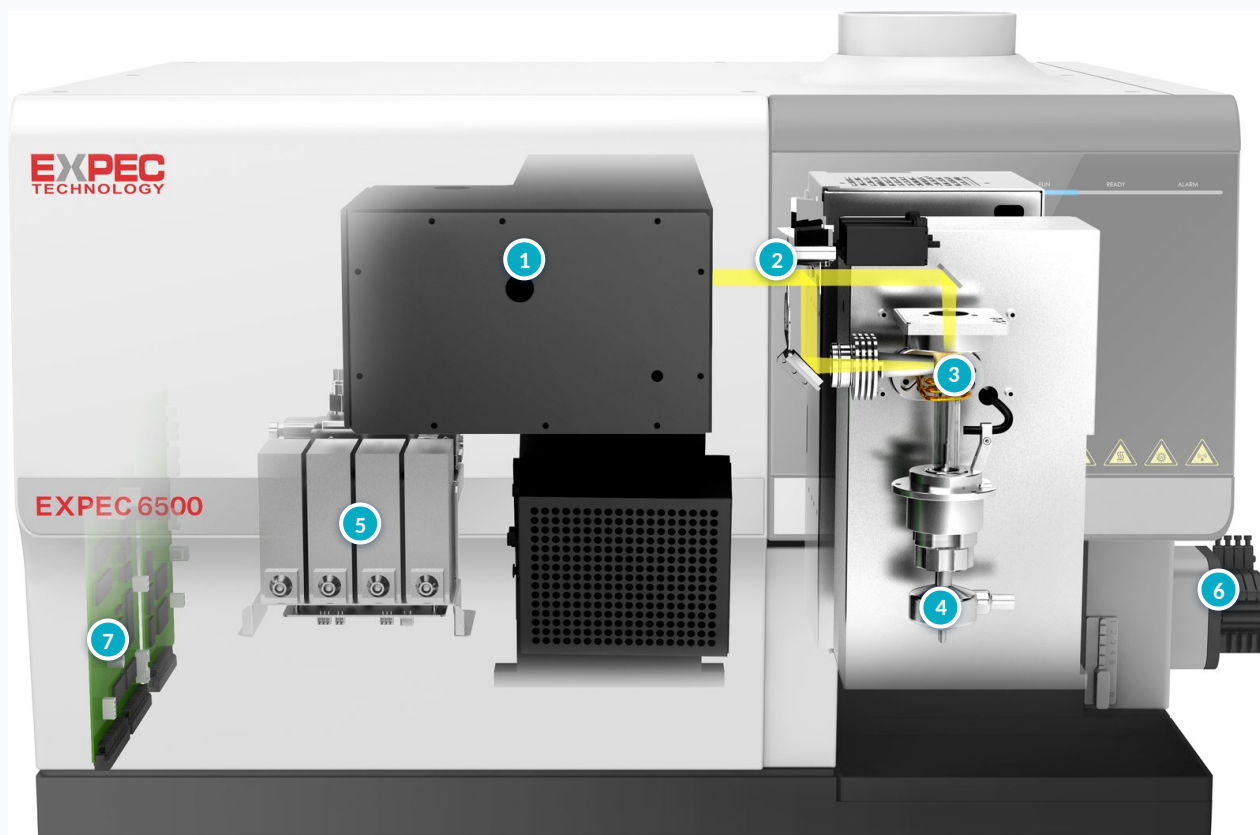
EXPEC Overview

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Request a quotation

Inside the instrument

Seven subsystems engineered for stability – from the argon inlet to the detector pixel



Cutaway view • the yellow path shows the axial and radial light collected from the vertical plasma and transferred into the optical chamber

- 1 Thermostatic optical chamber.** Echelle grating 87 L/mm with quartz prism, 380 mm focal length, held at 36 ± 0.1 °C and thermally isolated from the main body.
- 2 Dual-view transfer optics.** Axial and radial light is switched or combined by the motorised mirror; radial observation height is adjustable per element.
- 3 Vertical torch and load coil.** Demountable quartz torch, 27.12 MHz induction, metal cooled cone removes the tail flame in axial view – no shear gas or compressor.
- 4 Sample introduction.** Quartz concentric nebulizer, cyclonic spray chamber; HF, high-salt and organic kits interchangeable.
- 5 Multi-channel mass-flow control.** Plasma, auxiliary and nebulizer argon plus two expansion channels (Ar dilution, O₂), 0.01 L/min resolution.
- 6 12-roller, 4-channel peristaltic pump.** 0–125 rpm, sample, internal standard, drain and reagent at the same time.
- 7 Digital control electronics.** Instrument status, remote diagnostics and the network link to the software.

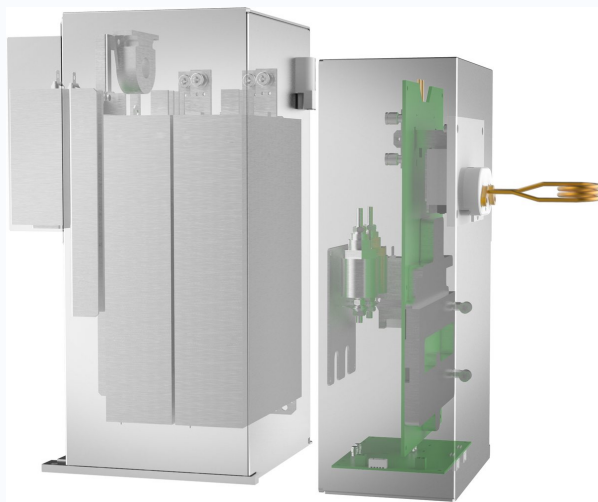
Designed for long, unattended runs

Thermal design verified by temperature-gradient and airflow simulation; the optics do not follow room temperature swings.

No moving parts in the RF generator and in the echelle optics – resistant to vibration, also suitable for mobile (vehicle) laboratories.

Plasma, RF generator and sample introduction

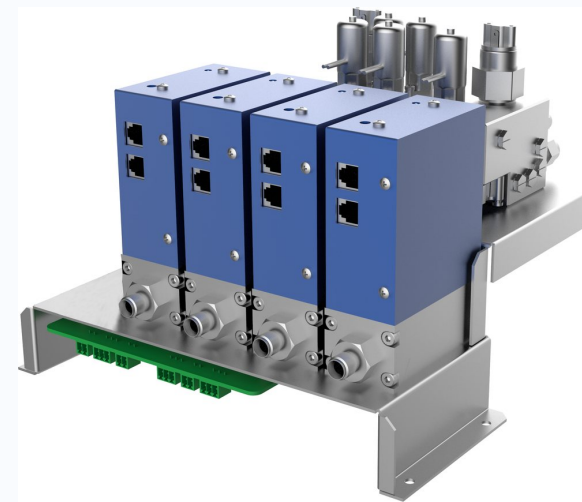
A plasma that stays stable from clean water to 100 % toluene and high-salt digests



Self-excited, all-solid-state RF generator and load coil



Vertical demountable torch, spray chamber and nebulizer



Multi-channel digital mass-flow controllers

RF generator

500–1600 W, fully digital dual-supply control, adjustable in 1 W steps – a wider range than most instruments in this class.

Self-excited, 27.12 MHz, coupling efficiency > 80 %; fast matching keeps the plasma on when organic samples or even air enter the torch.

Power stability ≤ 0.1 %, frequency stability ≤ 0.01 %, water-cooled, no moving parts.

iStandby: 500 W standby with ≤ 5 L/min argon, analysis-ready in < 5 minutes – no cold restarts between batches.

Vertical torch, dual view

Vertical torch prevents salt deposits, extends torch life and reduces consumables.

Axial view for lowest detection limits; the metal cooled cone removes the cool tail flame without a compressor.

Radial view avoids matrix interference; the observation height is adjustable to the emission zone of each element.

Intelligent attenuation in both views: concentrations up to 100× apart in one measurement.

Demountable torch: self-aligning mount; only the centre tube (0.75 / 1.5 / 2.0 / 3.0 mm) is changed per application.

Gas and liquid handling

Mass-flow control of plasma, auxiliary and nebulizer argon, 0.01 L/min resolution; up to 5 channels.

Argon on-line dilution (option): MFC-controlled aerosol dilution for samples above 10 % dissolved salts – no manual dilution.

Peristaltic pump: 12 rollers, 4 channels, 0–125 rpm, low pulsation; internal standard added on-line.

Standard kit: quartz concentric nebulizer, quartz cyclonic spray chamber, vertical quartz torch, connecting tube and 2.0 mm centre tube.

Typical argon use: approx. 13.7 L/min in analysis (12 + 1 + 0.7 L/min).

Argon consumption in analysis is a typical value from EXPEC application methods (RF 1150 W). Your method settings determine the actual consumption.

EXPEC 6500D ICP-OES

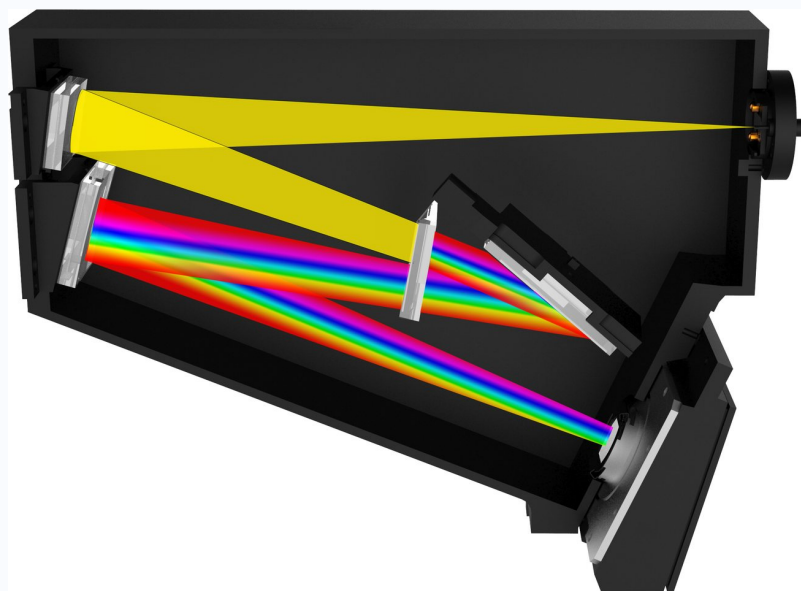
EXPEC Overview

EXPEC Catalogue

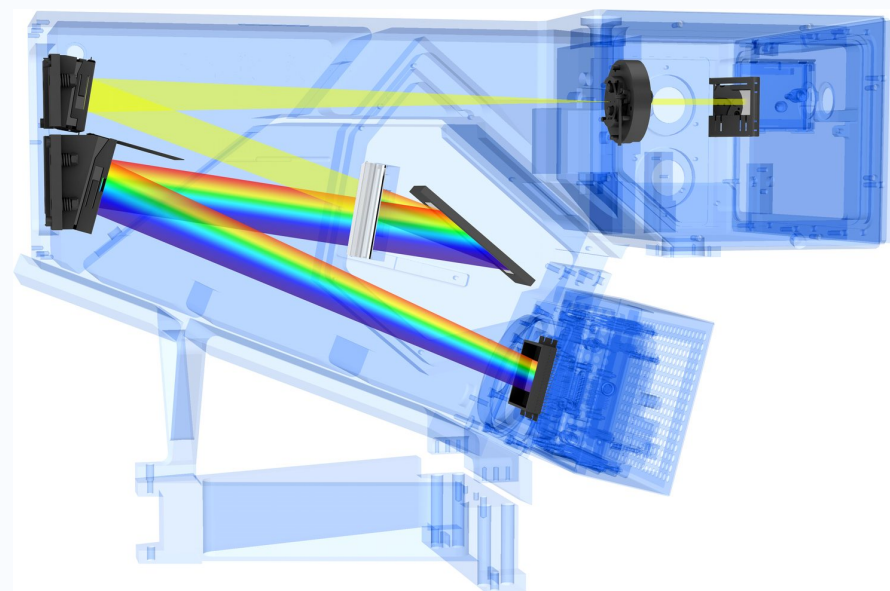
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Optical system and ECCD detector

The complete spectrum from 165 to 900 nm in one exposure, corrected in real time



Echelle optical chamber • light path from entrance slit to the detector



Two-dimensional dispersion: echelle grating orders separated by the quartz prism

Echelle optics

Fixed echelle system with no moving parts: 87 L/mm grating, 63.5° blaze, quartz prism cross-dispersion, 380 mm focal length.

Resolution ≤ 7 pm at 200 nm (FWHM) – separates line-rich matrices such as Fe, W and rare earths.

Stray light ≤ 2.0 mg/L (10 000 mg/L Ca, measured at As 188.980 nm).

Thermostatted at 36 ± 0.1 °C, sealed and thermally isolated; few reflections for high UV throughput.

Wavelength calibration without solutions: C, N and Ar lines at every ignition; the patented FSC system uses a neon reference line for real-time drift correction.

Deep-UV purge with argon below 189 nm – distributed purge design, no vacuum pump and no pump oil.

ECCD detector

1024 × 1024 pixels (≈ 1 million) on a 25.4 × 25.4 mm area; 24 × 24 μ m pixels for high sensitivity.

Single exposure captures all lines – up to 72 elements in about 10 s, full spectrum stored with every result.

Pixel-level TEC cooling inside the sensor: no condensation, no gas purge, ready shortly after power-on.

Anti-blooming on every pixel: strong lines, including Ar lines at 800–900 nm, do not spill into neighbouring lines.

Intelligent integration: exposure time set per line from its intensity, microsecond control – bright and weak lines at best signal-to-noise in the same run.

No phosphor coating on the sensor – no UV-response loss from coating ageing.

Detection limits and analytical performance

65 elements measured in axial and radial view • instrument detection limits in µg/L

PRECISION ≤ 0.5 % RSD 10 replicates, 1–10 mg/L				8 H STABILITY ≤ 1 % RSD no recalibration				INTERNAL STANDARD < 0.1 % RSD twin internal standard method				LINEAR RANGE ≥ 10 ⁵ Mn 257.6 nm, r ≥ 0.999				SAMPLE VOLUME ~2 mL per multi-element analysis				LINE LIBRARY > 50 000 ≥ 30 pixels per line			
El.	Line, nm	Axial	Radial	El.	Line, nm	Axial	Radial	El.	Line, nm	Axial	Radial	El.	Line, nm	Axial	Radial	El.	Line, nm	Axial	Radial	El.	Line, nm	Axial	Radial
Li	670.784	0.08	3.5	Ge	265.118	3.55	20	Eu	420.505	0.49	2.5	Gd	342.247	1.95	11.5	Tb	350.917	4.15	24	Dy	353.170	1.04	6.5
Be	313.042	0.06	0.16	As	189.042	9.42	67	Se	196.090	10.5	100	Sr	421.552	0.04	0.2	Y	371.030	0.25	1.2	Zr	339.168	0.75	2
B	249.773	2	3.6	Se	196.090	10.5	100	Nb	309.418	1.38	5.5	Mo	281.615	2.2	6.6	Ru	267.876	2.36	9.7	Rh	343.490	3.8	28
Na	589.592	0.83	16	Sr	421.552	0.04	0.2	Mo	281.615	2.2	6.6	Ru	267.876	2.36	9.7	Rh	343.490	3.8	28	Pd	340.458	2.66	16
Mg	279.553	0.02	0.1	Y	371.030	0.25	1.2	Zr	339.168	0.75	2	Nb	309.418	1.38	5.5	Ag	328.068	4.18	4	Cd	214.438	0.44	2
Al	167.079	0.65	5	Zr	339.168	0.75	2	Nb	309.418	1.38	5.5	Mo	281.615	2.2	6.6	Ru	267.876	2.36	9.7	Rh	343.490	3.8	28
Si	251.611	1.38	8	Nb	309.418	1.38	5.5	Mo	281.615	2.2	6.6	Ru	267.876	2.36	9.7	Rh	343.490	3.8	28	Pd	340.458	2.66	16
P	177.495	6.89	40	Mo	281.615	2.2	6.6	Ru	267.876	2.36	9.7	Rh	343.490	3.8	28	Pd	340.458	2.66	16	Ag	328.068	4.18	4
S	180.731	6.5	60	Ru	267.876	2.36	9.7	Rh	343.490	3.8	28	Pd	340.458	2.66	16	Ag	328.068	4.18	4	Cd	214.438	0.44	2
K	766.490	2.01	25	Rh	343.490	3.8	28	Pd	340.458	2.66	16	Ag	328.068	4.18	4	Cd	214.438	0.44	2	In	325.609	11.72	62
Ca	396.847	0.04	0.4	Pd	340.458	2.66	16	Ag	328.068	4.18	4	Cd	214.438	0.44	2	In	325.609	11.72	62	Sn	189.989	7	18
Sc	361.384	0.64	0.38	Ag	328.068	4.18	4	Cd	214.438	0.44	2	In	325.609	11.72	62	Sn	189.989	7	18	Sb	231.147	1.85	9.5
Ti	334.941	0.31	1.75	Cd	214.438	0.44	2	In	325.609	11.72	62	Sn	189.989	7	18	Sb	231.147	1.85	9.5	I	178.276	7	80
V	309.311	1	3.2	In	325.609	11.72	62	Sn	189.989	7	18	Sb	231.147	1.85	9.5	I	178.276	7	80	Ba	455.403	0.04	0.25
Cr	267.716	0.47	2.5	Sn	189.989	7	18	Sb	231.147	1.85	9.5	I	178.276	7	80	Ba	455.403	0.04	0.25	La	333.749	1.58	8.5
Mn	257.610	0.06	0.5	Sb	231.147	1.85	9.5	I	178.276	7	80	Ba	455.403	0.04	0.25	La	333.749	1.58	8.5	Pr	414.311	4.1	13.5
Fe	238.204	0.62	3	I	178.276	7	80	Ba	455.403	0.04	0.25	La	333.749	1.58	8.5	Pr	414.311	4.1	13.5	Nd	401.225	4.25	18
Co	228.616	0.99	5.5	Ba	455.403	0.04	0.25	La	333.749	1.58	8.5	Pr	414.311	4.1	13.5	Nd	401.225	4.25	18	Sm	359.260	5.66	21
Ni	221.647	0.79	5	La	333.749	1.58	8.5	Pr	414.311	4.1	13.5	Nd	401.225	4.25	18	Sm	359.260	5.66	21	Eu	420.505	0.49	2.5
Cu	324.754	0.8	2.5	Pr	414.311	4.1	13.5	Nd	401.225	4.25	18	Sm	359.260	5.66	21	Eu	420.505	0.49	2.5	Gd	342.247	1.95	11.5
Zn	213.856	0.34	2	Nd	401.225	4.25	18	Sm	359.260	5.66	21	Eu	420.505	0.49	2.5	Gd	342.247	1.95	11.5	Tb	350.917	4.15	24
Ga	294.364	5.6	25	Sm	359.260	5.66	21	Eu	420.505	0.49	2.5	Gd	342.247	1.95	11.5	Tb	350.917	4.15	24	Dy	353.170	1.04	6.5
				Eu	420.505	0.49	2.5	Gd	342.247	1.95	11.5	Tb	350.917	4.15	24	Dy	353.170	1.04	6.5	Ho	345.600	1.16	7.5
				Gd	342.247	1.95	11.5	Tb	350.917	4.15	24	Dy	353.170	1.04	6.5	Ho	345.600	1.16	7.5	Er	337.271	1.4	11.5
				Tb	350.917	4.15	24	Dy	353.170	1.04	6.5	Ho	345.600	1.16	7.5	Er	337.271	1.4	11.5	Tm	313.126	1.27	8
				Dy	353.170	1.04	6.5	Ho	345.600	1.16	7.5	Er	337.271	1.4	11.5	Tm	313.126	1.27	8	Yb	328.937	0.12	0.9
				Ho	345.600	1.16	7.5	Er	337.271	1.4	11.5	Tm	313.126	1.27	8	Yb	328.937	0.12	0.9	Lu	261.542	0.16	0.85
				Er	337.271	1.4	11.5	Tm	313.126	1.27	8	Yb	328.937	0.12	0.9	Lu	261.542	0.16	0.85	Hf	277.336	1.77	8
				Tm	313.126	1.27	8	Yb	328.937	0.12	0.9	Lu	261.542	0.16	0.85	Hf	277.336	1.77	8	Ta	240.063	2.44	13
				Yb	328.937	0.12	0.9	Lu	261.542	0.16	0.85	Hf	277.336	1.77	8	Ta	240.063	2.44	13	W	239.709	3.5	26
				Lu	261.542	0.16	0.85	Hf	277.336	1.77	8	Ta	240.063	2.44	13	W	239.709	3.5	26	Re	221.426	1.6	12
				Hf	277.336	1.77	8	Ta	240.063	2.44	13	W	239.709	3.5	26	Re	221.426	1.6	12	Pt	214.423	5.8	36
				Ta	240.063	2.44	13	W	239.709	3.5	26	Re	221.426	1.6	12	Pt	214.423	5.8	36	Au	242.795	1.19	6
				W	239.709	3.5	26	Re	221.426	1.6	12	Pt	214.423	5.8	36	Au	242.795	1.19	6	Hg	184.950	3.5	24
				Re	221.426	1.6	12	Pt	214.423	5.8	36	Au	242.795	1.19	6	Hg	184.950	3.5	24	Tl	190.856	11.5	90
				Pt	214.423	5.8	36	Au	242.795	1.19	6	Hg	184.950	3.5	24	Tl	190.856	11.5	90	Pb	220.353	5.5	40
				Au	242.795	1.19	6	Hg	184.950	3.5	24	Tl	190.856	11.5	90	Pb	220.353	5.5	40	Bi	223.061	13.85	74
				Hg	184.950	3.5	24	Tl	190.856	11.5	90	Pb	220.353	5.5	40	Bi	223.061	13.85	74	Th	283.730	2.6	24
				Tl	190.856	11.5	90	Pb	220.353	5.5	40	Bi	223.061	13.85	74	Th	283.730	2.6	24	U	385.958	11.32	105
				Pb	220.353	5.5	40	Bi	223.061	13.85	74	Th	283.730	2.6	24	U	385.958	11.32	105				
				Bi	223.061	13.85	74	Th	283.730	2.6	24	U	385.958	11.32	105								
				Th	283.730	2.6	24	U	385.958	11.32	105												
				U	385.958	11.32	105																

How to read the table: instrument detection limits in µg/L, measured by EXPEC on the 6500 in axial and radial view with the standard quartz introduction system and optimised lines. Method detection limits in real samples are higher and depend on digestion, dilution and matrix. Axial view gives typically 3–20× lower limits; radial view is preferred for high-matrix samples and major elements. Deep-UV lines down to 165 nm also allow Cl and Br determination with dedicated methods.

EXPEC 6500D ICP-OES

EXPEC Overview

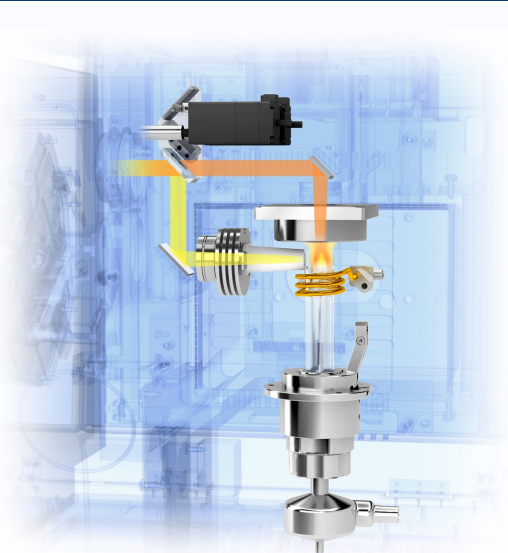
EXPEC Catalogue

Request a quotation

EXPEC 6500D or 6500R – choosing the configuration

Same platform, optics, detector and software • the observation system matches your samples

EXPEC 6500D • dual view

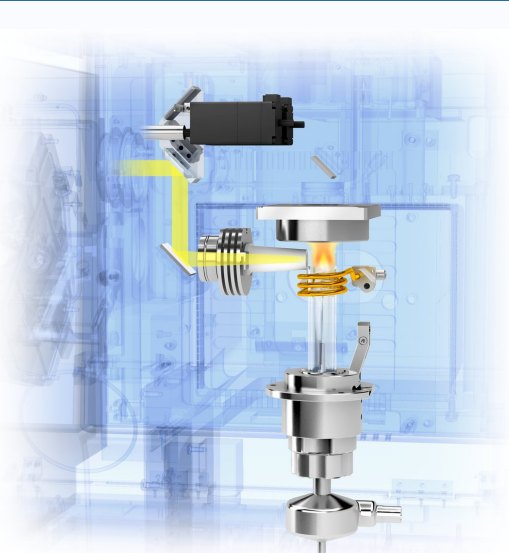


Axial + radial light paths, switched or combined in one method.

Best for: the widest range of samples and the lowest detection limits – water, environment, food, pharma, research and contract laboratories.

SKU: PRO6868

EXPEC 6500R • radial view



Radial light path, observation height adjustable per element.

Best for: complex, high-matrix samples – metals and alloys, oil products, geological and mineral samples, where elements are at mg/L to % level.

Availability: on request

Your requirement	6500D	6500R
Trace elements below 10 µg/L (drinking water, food)	✓ recommended	–
Environmental methods (EN ISO 11885 type)	✓ recommended	✓
Traces and majors in the same run	✓ dual view	✓ attenuation
Alloys, steels, ferroalloys, slags	✓	✓ recommended
Ores, geology, fusion digests	✓	✓ recommended
Oils and organic solvents (TC-100 kit)	✓	✓ recommended
Mixed laboratory, many sample types	✓ recommended	–

Application evidence from the EXPEC ICP-OES platform

Coal (6500, axial): 16 elements after ashing and HF digestion – RSD 0.04–7.37 %, recovery 95.4–107.6 %.

Ferrosilicon (radial): Cr, Cu, Mn, Ni, P, Ti with matrix-matched calibration; certified reference materials confirmed.

Soil and sediment: aqua regia, hot-plate and microwave digestion, As and Hg by hydride generation – recovery 91.5–98.3 %.

Iron, manganese and lead ores: major and minor elements on the radial platform with CRM verification.

Not sure which one? Send us samples.

COLO.Science arranges a **test measurement on your samples** before the offer. Fill in the sample list (matrix, elements, expected concentrations, number of samples per day) and we propose the configuration with the results.

Application results come from EXPEC application notes on the 6500 and on the previous 6000 series, which uses the same measurement principle. Results on the 6500 with your configuration are confirmed by the test measurement.

EXPEC 6500D ICP-OES

EXPEC Overview

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Request a quotation

Complete technical parameters

EXPEC 6500D ICP-OES • values for the standard configuration

RF GENERATOR AND PLASMA	
RF generator	Self-excited, all-solid-state, dual power supply, fully digital control, automatic tuning, water-cooled
Frequency / coupling	27.12 MHz / coupling efficiency > 80 %
RF power	500–1600 W, continuously adjustable
Power / RF stability	≤ 0.1 % / ≤ 0.01 %
Standby (iStandby)	500 W, argon ≤ 5 L/min (–50 % and more)
Warm-up	< 5 min from standby to analysis-ready plasma
Torch	Vertical, demountable quartz torch, self-aligning; centre tubes 0.75 / 1.5 / 2.0 / 3.0 mm
Observation modes	Axial, radial, dual and simultaneous dual view (6500D); radial (6500R)
Tail flame removal	Metal cooled cone (axial) – no compressed air required
Attenuation	Axial and radial attenuation, concentration span up to 100×
SAMPLE INTRODUCTION	
Standard	Quartz concentric nebulizer, quartz cyclonic spray chamber, vertical torch
Peristaltic pump	12 rollers, 4 channels, 0–125 rpm, continuously adjustable
Gas control	Mass-flow controllers, up to 5 channels (plasma, auxiliary, nebulizer, Ar / O ₂), 0.01 L/min
Options	Argon on-line dilution (> 10 % salts), HF-resistant, high-salt, organic (TC-100), hydride generator HG-5000, rapid sampling valve, autosampler SA-240
ENVIRONMENT AND INSTALLATION	
Power supply	220 V AC ± 10 %, 50 Hz, separate 40 A circuit, instrument < 4.5 kW
Room	10–30 °C (± 2 °C in 3 h), 20–80 % RH, exhaust 8–12 m/s
Argon	≥ 99.999 %, 0.6–0.8 MPa
Dimensions / weight	930 × 700 × 560 mm (W × D × H) / approx. 100 kg

OPTICAL SYSTEM	
Design	Fixed echelle, two-dimensional dispersion (quartz prism), no moving parts
Wavelength range	165–900 nm, continuous coverage
Focal length	380 mm, total-reflection imaging
Echelle grating	87 L/mm, blaze angle 63.5°
Resolution (FWHM)	≤ 7 pm at 200 nm
Stray light	≤ 2.0 mg/L (10 000 mg/L Ca at As 188.980 nm)
Optical chamber	Thermostatted 36 ± 0.1 °C, sealed, thermally isolated
Wavelength calibration	C, N, Ar lines at ignition; patented FSC real-time correction with Ne line
UV purge	Argon below 189 nm, no vacuum pump
DETECTOR	
Type	Large-area ECCD, 1024 × 1024 pixels, single exposure
Sensor area / pixel	25.4 × 25.4 mm / 24 × 24 μm
Cooling	Pixel-level TEC inside the sensor, no purge gas
Overflow protection	Anti-blooming drain on every pixel
Integration	Intelligent integration, exposure per line, μs control
ANALYTICAL PERFORMANCE	
Speed	~200 spectral lines/min; up to 72 elements in ~10 s
Precision / stability	≤ 0.5 % RSD (n = 10) / ≤ 1 % RSD over 8 h
Linear dynamic range	≥ 10 ⁵ (Mn 257.610 nm, r ≥ 0.999)
Detection limits (μg/L)	Zn 213.856: 0.5 • Ni 231.604: 1 • Mn 257.610: 0.5 • Cr 267.716: 1 • Cu 324.754: 1 • Ba 455.403: 0.1 (acceptance values, JIG 768-2005)

EXPEC 6500D ICP-OES

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Request a quotation

Configuration, options and software

Start with the standard system and add what your samples need

Standard delivery

EXPEC 6500D main unit with dual-view vertical torch, RF generator, optics, ECD detector and MFC gas control.

Standard sample introduction: quartz concentric nebulizer, quartz cyclonic spray chamber, vertical quartz torch, connecting tube, 2.0 mm centre tube.

Installation kit: argon regulator and hoses, exhaust hose, drain and pump tubing, tools.

EXPEC ICP-OES software (English), method library and remote-service assistant.

Required for operation

CW-200 recirculating chiller: cooling capacity 2.1 kW, 5–35 °C, ± 0.1 °C, 10 L tank, 2000 L/h pump, 560 × 440 × 680 mm.

PC (Windows 10/11 Pro, i3 or better, 8 GB RAM, 500 GB, 22" monitor) – supplied by COLO.Science or by the customer.

Recommended: UPS or voltage stabiliser 10 kVA, single-phase.

Software and compliance

Qualitative, semi-quantitative, quantitative analysis on any line; full-spectrum storage and re-processing.

Interference correction: background correction in real time, internal standard, IEC, standard addition.

21 CFR Part 11 design: three user levels, electronic signature, audit trail; IQ/OQ/PQ qualification document set.

Remote diagnostics over the network; automation interfaces for digestion, on-line and ion-exchange systems.

Recommended first-year consumables kit

Spare vertical quartz torch and centre tubes (1.5 / 2.0 mm) • concentric nebulizer • cyclonic spray chamber

Pump tubing set (sample, drain, internal standard) • O-ring set • argon filter • RF load coil

Autosampler tubes and racks (with SA-240) • optical dust-protection window



SA-240 autosampler

Up to 240 positions on 4 racks (15 mL) or 84 × 50 mL; 10-position standards rack; rinse station; controlled from the ICP software.

Unattended overnight runs



TC-100 organic introduction system

Spray chamber cooled from –15 to +10 °C (± 0.1 °C), O₂ addition 0–100 mL/min – oils, fuels and solvents without carbon build-up.

Petrochemistry, lubricants, solvents

HG

HG-5000 hydride generator

On-line hydride generation for As, Se, Sb, Bi, Sn and cold vapour Hg – about 10× lower detection limits for these elements.

Drinking water, soil, food

HF

HF-resistant introduction system

Inert nebulizer, spray chamber and centre tube for digests containing hydrofluoric acid.

Silicates, geology, ferroalloys

NaCl

High-salt kit and argon on-line dilution

High-TDS nebulizer plus MFC-controlled aerosol dilution for samples with more than 10 % dissolved solids.

Brines, fusion digests, fertilisers



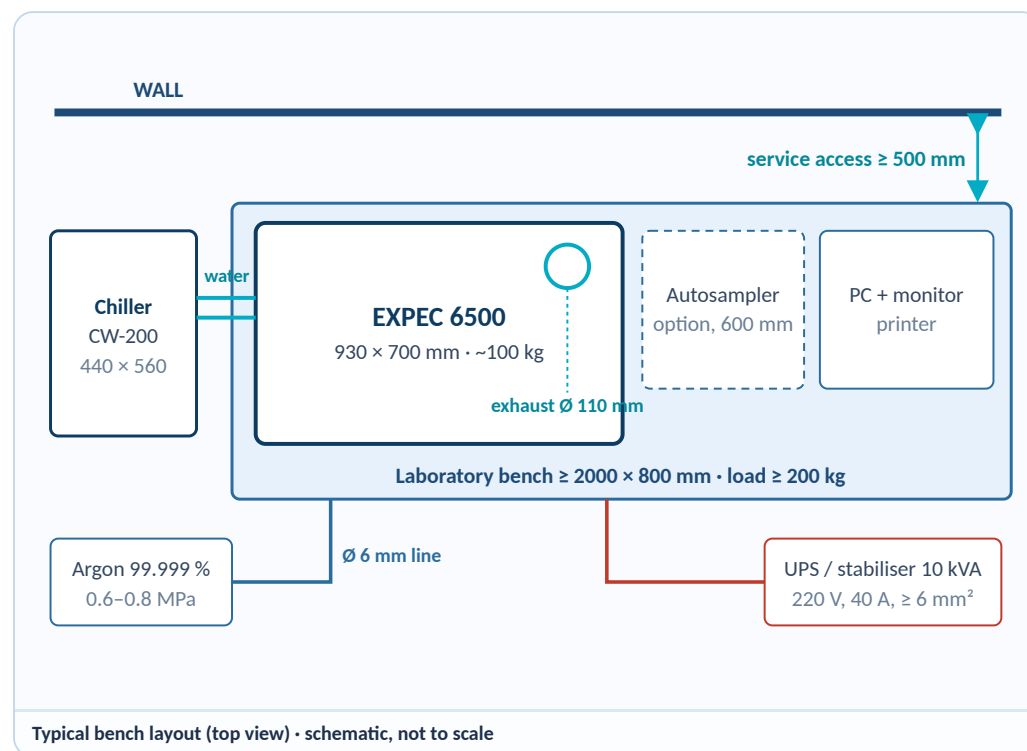
Rapid sampling system

Valve-based fast introduction that shortens uptake and rinse time for high sample loads.

High-throughput routine laboratories

Site requirements and installation

Prepare the room once – COLO.Science checks it with you before delivery



Installation path with COLO.Science

- 1. Site check:** we send the checklist and review photos of bench, exhaust, power and gas.
- 2. Installation and IQ/OQ:** on-site installation by our engineer, performance test against the specification, signed protocol.
- 3. Training and methods:** operator training on your samples, method set-up and PQ support for accredited laboratories.

Item	Requirement
Room	Dedicated laboratory ≥ 10 m ² , door ≥ 800 mm, no corrosive or flammable gases; air conditioning 10–30 °C, variation < 2 °C in 3 h, outlet not directed at the instrument
Humidity	20–80 % RH (below 60 % recommended); dehumidifier in humid seasons
Bench	Stable bench $\geq 2000 \times 800$ mm, load ≥ 200 kg, 500 mm service access behind the bench
Exhaust	Duct Ø 110 mm, outlet 1.2–1.5 m above the instrument, air speed 8–12 m/s, adjustable damper; condensate protection
Power	Separate circuit 220 V ± 10 %, 50 Hz, breaker ≥ 40 A, cable ≥ 6 mm ² , no RCD on the instrument line; neutral-earth voltage < 5 V; one 16 A and four 10 A sockets
Earthing	Dedicated protective earth for the instrument
Argon	Purity ≥ 99.999 %, 0.6–0.8 MPa, 6 mm OD line (5 m hose supplied); approx. 4 h per 40 L cylinder – a bundle or liquid argon is recommended for routine use
Cooling	Chiller in a ventilated place ≤ 25 °C; 5 m water hoses supplied; third-party chillers: 18–25 °C, 0.2–0.4 MPa
Water and reagents	Deionised water 18.2 MΩ-cm, high-purity nitric acid, standards for your elements
Installation standard	Multi-element standard solution for the acceptance test is provided by COLO.Science

Electrical protection (RCD type and rating) is agreed with your electrician according to local regulations; COLO.Science provides the manufacturer data for this decision.

EXPEC 6500D ICP-OES

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Delivery, training and service

One partner from the first sample test to routine operation – EXPEC distribution for the European Union

1 Delivery

Application check first: consultation and test measurement on your samples, configuration confirmed before the quotation.

Site preparation: checklist, review of bench, exhaust, power and argon before shipment.

Delivered to your laboratory in the EU: transport, insurance and import handled by COLO.Science.

Indicative delivery time: approx. 30 days from order, depending on the time of ordering; the binding date is confirmed with the pro-forma invoice.

Installation by our engineer: unpacking, set-up, chiller and gas connection, software on your PC.

IQ/OQ and acceptance test against this specification, with a signed protocol.

2 Training

Operator training on site at installation, in your language, with your own samples.

Content: safe operation, plasma ignition and standby, method set-up, calibration and internal standards, interference correction, reporting.

Daily and weekly maintenance: torch, nebulizer, pump tubing, cones, cleaning and performance checks.

Method support for your standards (e.g. EN ISO 11885) and PQ for accredited laboratories.

Follow-up session after the first weeks of routine work; training record for your QA system.

3 Service

12-month warranty with warranty service by COLO.Science.

Remote diagnostics through the instrument software for fast fault finding.

Local service engineers for on-site repair and relocation.

Preventive maintenance: annual PM with calibration and performance check to the EXPEC PM checklist.

Spare parts and consumables from stock: torches, nebulizers, spray chambers, pump tubing, cones, RF coils.

Service contracts on request.



▶ Watch the product video



Product page

Scan to open the EXPEC 6500D page on colo.si.

EXPEC DISTRIBUTION FOR THE EU • SALES AND APPLICATION SUPPORT

COLO Lab Experts

Polje ob Sotli 4
 SI-3255, Slovenia
 E-mail: sales@colo.si • Phone: +386 70 713 437 • Web: colo.si

FOR THE FASTEST QUOTATION, SEND US

Sample types and matrix • elements and expected concentrations • samples per day • required standards (e.g. EN ISO 11885) • need for autosampler, organic, HF or hydride options.

COLO.SCIENCE • EXPEC 6500 ICP-OES

Plan your ICP-OES with us

Send your samples and requirements. We propose the configuration, the site preparation and the delivery plan – and show the results on your samples.

Specification notice. Values in this document describe the standard configuration and may change with product development. The binding configuration and specification for a delivery is the COLO.Science quotation with its technical annex.

EXPEC 6500D ICP-OES

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