

UHPLC system
on the platform

Nexera X2



While maintaining the reliability and functionality of the Prominence series modules, the Nexera X2 UHPLC system delivers outstanding performance in terms of analysis speed and chromatographic resolution.

Pump providing ultra-high (up to 130 MPa) pressure

The new Shimadzu pump, based on a parallel twin-plunger technology proven over more than 20 years, creates a pulsation-free mobile phase flow and maintains column inlet pressures of up to 130 MPa (at flow rates of up to 3 ml/min). Improved plunger and gasket designs provide a service life that until now was only available in HPLC systems operating at pressures below 40 MPa.

Ultrafast chromatography and the highest level of peak resolution

The ability to use column inlet pressures of up to 130 MPa at a relatively high mobile phase flow rate not only significantly reduces analysis time, thereby increasing system productivity, but also achieves the highest level of peak resolution by using longer chromatographic columns with small stationary phase particle sizes (< 2 μm).

New gradient mixer

The Nexera X2 system features a new gradient mixer based on a specially designed microreactor with a mixing volume of only 20 μl . The use of a microreactor is one of the significant advantages of the Nexera X2 system, as it allows for minimizing the dead volume of the chromatographic system and, accordingly, for fast gradient elution.

Autodispenser with outstanding features Another component that ensures the highest system performance is the SIL-30AC autosampler. Its characteristics - contamination level, injection time and sample dosing reproducibility - make it a unique device among other HPLC equipment. The new design of the valves, designed for operation in the ultra-high pressure range, ensures absolute reliability of the autosampler and a long period of trouble-free operation, typical of traditional HPLC. The design of the needle and the sample injection port allows minimizing the contact zone between them to reduce contamination. For the same purpose, two additional lines for washing the outer surface of the needle and its internal volume have been added to the autosampler. All three lines can be controlled independently of each other using a separate pump.

Column thermostat for analysis at temperatures up to 150°C

The new CTO-30A thermostat allows for chromatographic separation at temperatures up to 150 °C. A special control device - "thermal balance" - is designed to equalize the temperature gradient that occurs in the chromatographic column during operation with ultra-high pressures. The thermostat can be used as a post-column reactor, which significantly expands the scope of application of the system. As an option, a special cooler for the eluent leaving the column can be added to the thermostat.

Compatible with the full range of Shimadzu HPLC detectors

The Nexera X2 HPLC system can be equipped with the latest RF-20A/AXS spectrofluorometric and SPD M30A diode array detectors, the time-tested Prominence series spectrophotometric, diode array and refractometric detectors, the 10th series conductometric detector, as well as ultrafast liquid mass spectrometric detectors. All detectors provide the highest signal-to-noise ratio and, consequently, the highest sensitivity of the analysis.

The Nexera X2 system can be used for conventional, semi-micro and ultra-fast liquid chromatography without replacing modules or changing any mobile phase supply lines. Thus, the Nexera X2 is the only universal high-performance chromatographic system on the market today that can be successfully used in the pharmaceutical and food industries, for biological and biotechnological research, for the analysis of environmental objects, in short, wherever the user needs high performance, unsurpassed sensitivity of the analysis, the reliability of the obtained results and the reliability of the equipment.

Technical specifications

Ultra High Pressure Pump LC-30AD

Pump type:	Parallel Double Micro Plunger
Method of controlling the supply of mobile phase:	Constant flow/constant pressure
Mobile phase flow rate range:	0.0001–10.0000 ml/min
Maximum pressure at the column inlet:	130 MPa (0.0001–3.00 ml/min); 80 MPa (3.0001–5.00 ml/min); 22 MPa (5.0001–10.00 ml/min)
Micro plunger cleaning device:	Built-in automatic

Autoinjector SIL-30AC

Injection method:	Direct sample injection; loop injection (optional)
Sample volume:	0.1–50.0 µl (direct injection); 0.1–20.0 µl (loop injection)
Number of samples loaded:	175 x 1.0 ml vials or 105 x 1.5 ml vials or two 96- or 384-well plates
Maximum number of injections per sample:	30
Contamination:	Not more than 0.0015% (direct injection method)
Maximum working pressure:	130 MPa
Temperature control range:	from +4 to +40° C
Sample preparation:	Dilution, mixing, addition of reagents/internal standards

Column thermostat CTO-30A

Capacity:	Two chromatographic columns, two valves for switching mobile phase flows
Temperature control range:	from "room temperature +5 °C" to 150 °C
Number of temperature program steps:	Up to 320
Duration of temperature program:	0.1–999.9 minutes
Temperature setting step:	1 ° C

Diode Matrix Detector SPD-M30A

Elements of a photodiode matrix	1024
Cell	Volume: 1 µl, path length: 10 mm, pressure: 8 MPa
Light source	Deuterium lamp
Measured wavelengths	From 190 nm to 700 nm, wavelength accuracy ± 1 nm
Element Resolution	0.5 nm/element
Slit width	1nm, 8nm, gap switching possible
Spectral resolution	1.4 nm or less (using the low voltage mercury lamp emission line 253.7 nm; slit 1 nm)
Noise level	± 0.2 x 10 ⁻⁵ AU max .
Drifting	0.5 x 10 ⁻³ AU/hour . max .
Temperature coefficient	0.5 x 10 ⁻³ AU/°C max .



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