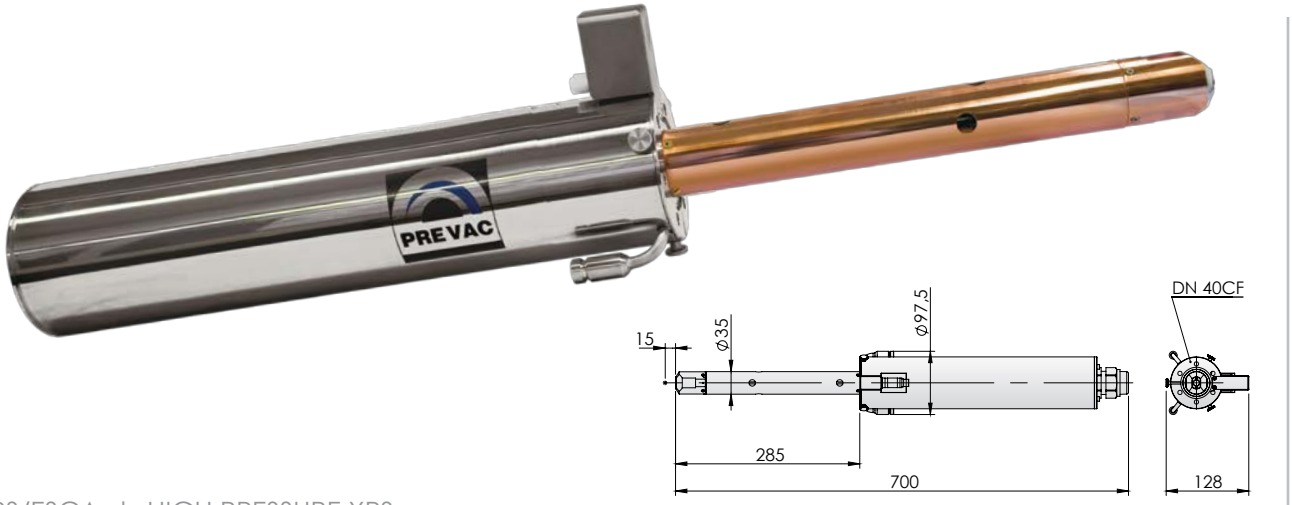
RS 40B1
X-RAY SOURCE



XPS/ESCA | HIGH PRESSURE XPS

DESCRIPTION

The RS 40B1 X-ray Source is a high intensity twin anode Al/Mg source optimized for XPS and high pressure XPS experiments (option). Design of the anode, filament and source housing guarantees maximum X-ray intensity and very low crosstalk between the anode faces. A specially configured nose cone allows maximum access to the sample. Twin anode used in standard source, allows for separated emission of two different characteristic X-radiation emission lines: Mg (1253 eV), Al (1487 eV) – other coating materials on request.

FEATURES

- High intensity twin anode Al / Mg
- Specially configured nose cone
- Very low cross-talk
- Low magnetic field
- Hermetically sealed housing
- Very efficiently water-cooled inner housing in order to reduce thermal damage to the sample during operation
- In-built double high voltage protection together with hermetically sealed housing
- Able to work in high pressure experiments in the mbar range (option)

OPTIONS

- High Pressure version, up to 5 mbar (20 mbar in development)
- Linear shift with tilt 75 - 100 mm (for HP X-ray source equipped with additional pumping port)
- Chiller

TECHNICAL DATA

Mounting flange	DN 40CF (non-rotatable)
Anode	Al/Mg (other materials on request)
Power	Al 600 W / Mg 400 W
Energy range	7 - 15 keV
Cathode current (I_{catch})	up to 2.5 A
Emission current range (I_e)	0 - 50 mA
Cross talk	< 0.35 %
Magnetic field at sample	< 0.5 µT
Increased sample temperature	< 5 °C
Cathode type	thoriated tungsten
Water cooling	required, pressure 3.5 - 5 bar (max. 6 bar), flow ≥ 3 l/min., T_{max} = 30 °C
Insertion length	285 mm; OD: 35 mm
FWHM	dependent on working distance (e.g. 30 mm for distance 15 mm)
Typical working distance	5 - 30 mm (optimum 15 mm)
Bakeout temperature	up to 250 °C
Working pressure	< 5×10^{-6} mbar

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RS40B1

XR40B

X-RAY SOURCE ELECTRONICS SET

DESCRIPTION

The **XR40B set** comprises 3 units for full control of the X-ray Source RS40B1: **XR40B-EC Emission Controller**, **XRHV01-PS High Voltage Power Supply** and **XRCB-02 Cooling Controller**.

The XR40B-EC unit controls the emission current of the X-ray source and also the XRHV01-PS high voltage power supply, displaying both, the high voltage and emission current, on a single display. The XR40B-EC displayed emission current is the exact emission current (corrected by the water leakage current of the cooling system). This combination allows very convenient and stable control of the X-ray source. The unit stores information about total anode working time and dissipated power. Communication with cooling box is via fiber optic wire. The XR40B set has both operational and standby modes, guaranteeing the most accurate and stable emission at the start of an experiment. The XRCB02 Cooling Controller delivers water cooling safely and efficiently to the anode and to the housing. It is fully interlocked, monitoring water temperature, pressure and flow, so that the instrument can only operate if fully safe to do so. The cooling box can handle up to two X-ray sources. The unit is equipped with autosave function (the device save your parameters, preset and apply them automatically after restart).

OPTIONS

- Capability to operate up to two X-ray sources.

NOTE | If any interlock condition is not met, the source cannot be powered on. In addition to these three interlocked safety mechanisms, water leakage current is continuously monitored.

TECHNICAL DATA

Supply voltage XR40B-EC XRHV01-PS XRCB02	 100 - 240 VAC, 50/60 Hz 85 - 260 VAC, 50/60 Hz 230 VAC (with water pump) 110 VAC (with water pump) 110-240VAC (without water pump)
Emission current range (I_e)	0 - 50 mA, accuracy 0.1 mA
Anode high voltage range (U_{HV})	0.5 kV - 15 kV, accuracy 0.1 kV
Cathode current (I_{cath})	output 1: 2.5 A output 2: up to 6 A in operate mode
Anode power limit	750 W
Emission current ramp	0.1 - 50 mA/sec
High voltage ramp	1 - 1000 V/sec
Interlocks XR40B-EC	master, 2 X-ray cover, high vacuum, cooling water, remote
Water cooling XRCB02	max. 6 bar, 5 l/min. prepared for de-ionized water
Communication interface	RS232/485, Ethernet
Communication protocol	MODBUS-TCP
User interface XR40B-EC	7" TFT display with touchscreen, digital encoder
Interface languages	English, German, Polish
Dimensions XR40B-EC	483 × 133 × 380 mm (W×H×D), 19" rack mountable
Dimensions XRHV01-PS	483 × 45 × 420 mm (W×H×D), 19" rack mountable
Dimensions XRCB02	483 × 133 × 295 mm (W×H×D), 19" rack mountable

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XR40B ELECTRONICS