

Components	Description
Mechanical	
Casing	Peli [®] , model 1610, heavy-duty, water-tight and airtight, including a valve for automatic pressure purge
Z-movement: servo	Reely [®] Standard RS-610 MG, operating voltage 6.6 V, attached to the Z-slide containing the double-cannula via an elongated hole in the servo's horn
X-/Y-movement: motors	Sanyo Denki [®] , bipolar hybrid stepping motors, 1 A, 24 V, 1.8° step ⁻¹ , 0.265 Nm, four wires
Pump	Peristaltic (flexible-tube) pump, model AP-40; operating voltage 12 V,
Sample vials	Labco Exetainer [®] 738 W, soda glass, 12 mL, flat bottom, height (vial + cap) ≤ 101 mm; external $\varnothing \leq 15.5$ mm; internal $\varnothing \geq 13.2$ mm; including rubber septa with a thickness ≥ 3 mm
Tubing	Deutsch & Neumann [®] , FKM (synthetic rubber, “Viton”), Shore hardness 75, external $\varnothing \leq 6.2$ mm, internal $\varnothing 4$ mm
Double cannula	Braun Sterican [®] , metal, external $\varnothing 0.60$ mm; length excluding Luer-Lock connector 30 mm
Electronic	
Battery	Panasonic [®] , valve regulated Pb-acid battery 12 V, 20 Ah, maintenance-free, non-spillable, low self-discharge, 5.8 kg, 76 × 167 × 181 mm;
Microcontroller board	Arduino [®] Mega 2560 including an Atmel ATmega 2560 microcontroller with 54 digital I/O pins, 16 analogue inputs, 6 interrupt inputs, 4 serial interfaces, 1 I ² C interface and 4 KB EEPROM memory (non-volatile); hibernation mode enabled
Real-time clock	RTC PCF8563 powered by a separate 3 V lithium button cell battery as a buffer battery
Display	Liquid crystal display (LCD) with 2 lines of 16 characters
Other electronic components	operating voltage 5 V; three DC/DC converters; two stepping motor driver carriers: Pololu [®] A4988; relay board including two relays; keypad comprising the characters 1 to 9, * and #