

Constant Flow Samplers QB1





QB1 Constant Flow Samplers

Description

QB1 is a family of portable constant flow samplers designed to be used in every air sampling application requesting from low to mid-flow capabilities.

The QB1 has been developed to satisfy the every day job of technicians; it's easy to use, rugged and reliable thanks to the built-in protections for particulate matter and liquids, which are the main responsibilities for damages to the pump and dry gas meter.

More protection means less service and more availability of the instrument.

All the versions are capable of automatic pressure drop compensation, granting high flow constance, even for long-term operations.

The QB1 are equipped with Dry Gas Meter, high precision flowmeter and thermometer for volume normalization, as requested by the standards

The pneumatic circuit has been designed to eliminate flow pulsations due to the use of diaphragm pumps.



Main Characteristics

- Constant flow samplers with automatic pressure drop compensation
- Loop Over Pump - this solution allows the pump to work with high pressure drops, preventing the pump from stopping because of the vacuum. When pressure drop increase, the loop works like a constant pressure bypass regulating deviating part of the flow into the loop. This solution makes the QB1 perfect for side sampling applications.
- Wide application range, from stack emission, ambient and occupational hygiene.
- Features "leak free" diaphragm pumps, resistant to aggressive compounds.
- Protection filter against accidental suction of particulate matter and liquids.
- Meets and exceeds the requirements of the standard UNI EN 12919 related to ambient samplers and for the stack emission methods ISO EN 9096, EN 14385 and EN 13649.
- Compact, ergonomic, rugged design combined with low weights.



Rugged design and attention to details

QB1 are realized with high quality materials. The stainless steel structure make it unique on the market while the non-structural components are realized in light but robust aluminum alloy.

All the angles are rounded and the rubber borders make it safer to handle and transport.

Its construction allows to pile the instruments in order to save the space when stocking the instruments.

The internal components were selected and are assembled to grant longer life and operation in the most harsh conditions.

The control panel is protected by a transparent and resistant polycarbonate cover

The strong side handles, made in tecnopolymers, make it practical to move and lift even with a simple rope

Precise and reliable

Every unit is tested carefully and the calibration is taken over with certified references with traceability to international standards. Results of the tests are listed in the report coming with the instrument.

The combination of the flowmeter and dry gas meter satisfies the requests of the stack emission sampling standards.

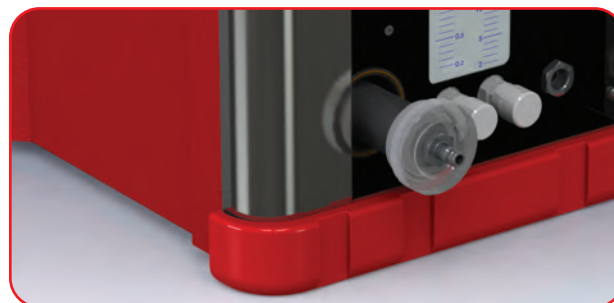
The flowmeter has an expanded scale for a more accurate setting and regulation of the flowrate. The built-in relative humidity indication allows to increase the protection of the instrument, verifying, at the same time, the efficiency of the condensation unit.

QB1 V5.0: More Power

To the standard QB1 V3.0 - V1.5 and V2x5DC units, the new QB1 V5.0 version has been added.

Equipped with a powerful 5 m³/h rotary vane pump, the V5.0 version can sample up to anominal flowrate of 75 lt/min, allowing this pump to work also with EN-LVS sampling heads.

The QB1 V5.0 is equipped with a bypass valve for the leak test.



QB1 V2x5DC

The QB1 version V2x5DC, is a 2-ways sampling solution suitable for ambient or stack emission applications, especially for derived line configuration. Each sampling line is equipped with flowmeter, dry gas meter, protection filter and, of course, a sampling pump.

Two separated timers allow to set different programs on the two lines.

The flow loop over the pump and the high compensation capability and accurate flowrate setting at low flow make this pump the perfect solution for stack emission sampling with side sampling configurations (derived lines), as requested by EN14385 for heavy metals or EN13211 for Mercury.

The performance curve of the adopted pump makes it perfect for gas sampling with tubes and impingers

Can be 230V powered by power supply or by built-in batteries.

QB1 V1.5BT - V2.0BT

QB1 V1.5BT and V2.0 are constant flow samplers equipped with the new Lithium polymers battery.

The Li-Po batteries offer many advantages compared to the classic lead acid batteries, typically used in such applications.

Most important, the extended battery life, for example, a QB1 V1.5BT can continuously sample for about 24 hours at a flowrate of 10 l/min and a pressure drop of 20 kPa.

This makes it the perfect solution for particulate matter or asbestos sampling in outdoor areas where power supply is not available.

Moreover, Li-Po batteries do not suffer of "deep drain" effect, are much lighter and smaller and can be recharged in less time than other solutions, the 15Ah battery used in the BT versions, can be charged in less than 8 hours.

Two versions are available, the V1.5BT and V2.0BT which differs for the installed pump.

Where safety reasons have to be respected, Li-Po batteries can be removed from the sampler.

The BTs can be also be powered through power network.



QB1 V1.5/V1.5BT
V2.0BT/V3.0/V5.0



QB1 V2x5DC

Available models

QB1 V5.0

Pump

5 m³/h rotary vane pump
Nominal flowrate 75 l/min

Flowmeters scale

2 ÷ 30 / 2 ÷ 30 NL/min

Weight

13 Kg

Power Supply

230Vac ± 10% 50/60Hz

Power

150 W

QB1 V3.0

Pump

Double head diaphragm pump
Nominal flowrate 55 l/min

Flowmeters scale

0.2 ÷ 3.0 / 2 ÷ 30 NL/min

Weight

11 Kg

Power Supply

230Vac ± 10% 50/60Hz

Power

100 W

QB1 V1.5

Pump

Single head diaphragm pump
Nominal flowrate 30 l/min

Flowmeters scale

0.2 ÷ 3.0 / 2 ÷ 30 NL/min

Weight

9 Kg

Power Supply

230Vac ± 10% 50/60Hz

Power

50 W

QB1 V1.5BT

Pump

Single head diaphragm pump
Nominal flowrate 16 l/min

Flowmeters scale

0.2 ÷ 3.0 / 2 ÷ 30 NL/min

Weight

12,5 Kg

Power Supply

230Vac ± 10% 50/60Hz

Batteries input

24Vdc

Power

50 W

QB1 V2.0BT

Pump

Single head diaphragm pump
Nominal flowrate 30 l/min

Flowmeters scale

0.2 ÷ 3.0 / 2 ÷ 30 NL/min

Weight

13 Kg

Power Supply

230Vac ± 10% 50/60Hz

Battery

Built-in 15Ah Li-Po

Power

50 W

QB1 V2x5DC

Pump

2x single head diaphragm pump
Nominal flowrate 11 l/min

Flowmeter scales

0.2 ÷ 5.0 / 0.2 ÷ 5.0 NL/min

Weight

13 Kg with batteries

Power Supply

230Vac ± 10% 50/60Hz

Built-in batteries

24Vdc 2.3 Ah

Technical Characteristics

Sampled Gas Condition	Anhydrous, max temperature 45°C
Gas Inlet	With protection filter against solids and liquids
	Quick connectors
Operation conditions	-10 ÷ 40°C 95% RH
Stock conditions	-10 ÷ 50°C 95% RH
Power Supply	230 Vac ±10% 50/60Hz
	24 Vdc (DC versions)
Materials	Combined steel/aluminum
Dimensions (LxDxH)	330 x 310 x 360 mm
Digital Timer (*)	ON/OFF Setting
	Date and hour
	1 min resolution
	Back up Lithium Battery
	Automatic restart in case of power failure
	Automatic/Manual Operation Mode

Sensors and measure specifications

Volume	
Dry Gas Meter	class G1.6
Flowrate Range	0.016 m³/h 2.5 m³/h
Accuracy	2% of the measure
Counter resolution	0.1 liters

Flow measurements	
Rotameter	
Flow rate range	See table versions
Accuracy	5% f.s.

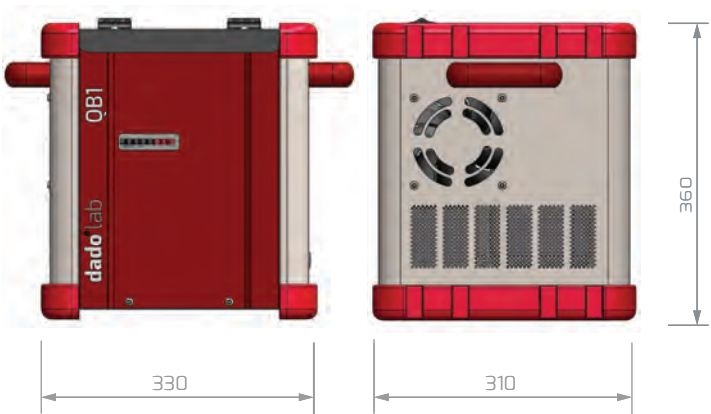
DGM Temperature	
Range	-50 ÷ 70°C
Accuracy	± 1°C
Resolution	0.1°C

Pressure Drop	
Vacuum meter	Range 0 ÷ 1 Bar
Accuracy	± 5%

(*) on request it's available the ON/OFF only version

Pump characteristics

External Dimensions [mm]



Sampling Flowrate [l/min]

Pressure drop compensation [kPa]

Models, accessories and spare parts



- 101 110 1007 QB1 V5.0 standard supply**
- 5 m³/h pump
 - suction protection against solids and liquids
 - Test and Certification report
 - Quick connector
 - Power cord
 - User Manuals



- 101 110 1001 QB1 V3.0 standard supply**
- Same as above but with 3 m³/h pump (55 l/min nominal flowrate)



- 101 110 1002 QB1 V1.5 standard supply**
- Same as above but with 1,5 m³/h pump (30 l/min nominal flowrate)

- 101 110 1013 QB1 V1.5BT standard supply**
- Same as above but with 1,5 m³/h pump (16 l/min nominal flowrate)

- 101 110 1014 QB1 V2.0BT standard supply**
- Same as above but with 1,5 m³/h pump (30 l/min nominal flowrate)

- 101 110 1005 QB1 V2x5DC standard supply**
- Same as above but with n. 2 pumps (11 l/min nominal flowrate)

- 101 110 4004 Support stand for 47mm filterholder**
- Steel support stand for the 47mm filterholder and directly fixed on the QB1



- 101 110 4005 47mm open filterholder**
- Aluminum filterholder for 47mm including cartridge for 47mm filters.

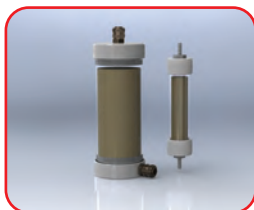
- 101 110 4006 47mm filterholder spare cassette**
- Made of POM including steel support grid



101 101 3010 inlet protection filter
10 pcs box



101 110 4001 Spare Dry gas meter
test report 2 points
Instruction and maintenance manual



101 101 4002 Silica Gel Trap
100cc
101 101 4003 Silica Gel Trap
1 lt



300 104 1111 CF1 - Digital flowmeter calibrator 0.4-45 NL/min with RH probe
Calibrator for flow, volume, temperature and relative humidity with ISO17025
certification available. Giano/Gemini/1PMx pneumatic connection included