

# 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 exceed 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.

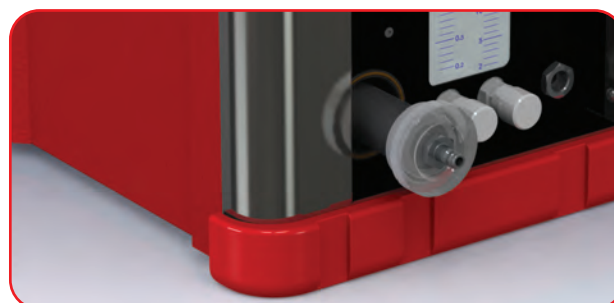
The flowmeter has an expanded scale for a more accurate setting and regulation of the flowrate. The built-in relative humidity indication allows to increase the protection of the instrument, verifying, at the same time, the efficiency of the condensation unit.

## 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 m<sup>3</sup>/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.



## Perfect solution for side sampling

The QB1 version V2x5DC, is a 2-ways sampling solution. 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.

## Available models

### QB1 V5.0

**Pump**  
5 m<sup>3</sup>/h rotary vane pump  
Nominal flowrate 75 l/min

**Flowmeters scales**  
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 scales**  
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 32 l/min

**Flowmeters scales**  
0.2 ÷ 3.0 / 2 ÷ 30 NL/min

**Weight**  
9 Kg

**Power Supply**  
230Vac ± 10% 50/60Hz

**Power**  
50 W

### QB1 V1.5DC

**Pump**  
Single head diaphragm pump  
Nominal flowrate 16 l/min

**Flowmeters scales**  
0.2 ÷ 3.0 / 2 ÷ 30 NL/min

**Weight**  
9.5 Kg

**Power Supply**  
230Vac ± 10% 50/60Hz

**Batteries input**  
24Vdc

**Power**  
50 W

### QB1 V2x5DC

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

**Flowmeters 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



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



QB1 V2x5DC

## Technical Characteristics

Sampled Gas Condition	Anhydrous, max temperature 45°C
Gas Inlet	With protection filter against solids and liquids
Operation conditions	Quick connectors
Stock conditions	-10 ÷ 40°C 95% RH
Power Supply	-10 ÷ 50°C 95% RH
	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	See table versions
Flow rate range	5% f.s.
Accuracy	

#### DGM Temperature

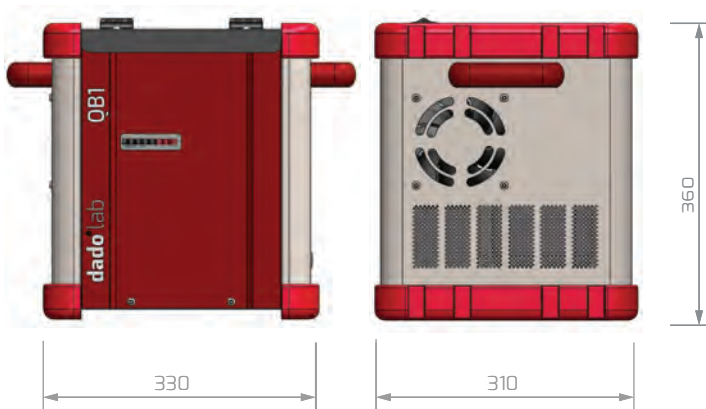
Range	-50 ÷ 70°C
Accuracy	± 1°C
Resolution	0.1°C

#### Pressure Drop

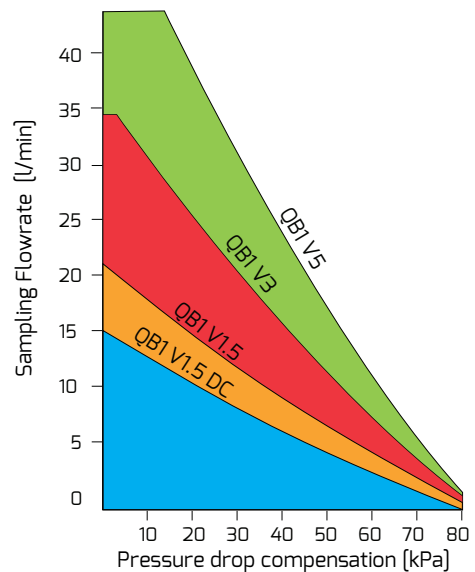
Vacuum meter	Range 0 ÷ 1 Bar
Accuracy	± 5%

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

External Dimensions [mm]



Pump characteristics



## Models, accessories and spare parts



- 101 110 1007** QB1 V5.0 Standard Supply
- 
- 5 m<sup>3</sup>/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
- 
- 55 l/min pump
  - suction protection against solids and liquids
  - Test and Certification report
  - Quick connector
  - Power cord
  - User Manuals



- 101 110 1002** QB1 V1.5 Standard Supply
- 
- 32 l/min pump
  - suction protection against solids and liquids
  - Test and Certification report
  - Quick connector
  - Power cord
  - User Manuals

- 101 110 1003** QB1 V1.5DC Standard Supply
- 
- 16 l/min pump
  - suction protection against solids and liquids
  - 24Vdc input connector
  - Test and Certification report
  - Quick connector
  - Power cord
  - User Manuals



- 101 110 1005** QB1 V2x5DC Standard Supply
- 
- n° 2 11 l/min pumps 24Vdc
  - n° 2 dry gas meters
  - protection filter
  - built-in battery
  - Test and Certification report
  - Quick connector
  - Power cord
  - User Manuals

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



**101 110 4005**

**47 mm open filterholder**

Aluminum filterholder for 47mm including cartridge for 47mm flat membranes.



**101 110 4006**

**47mm filterholder spare cassette**

Made of POM including steel support grid



**101 110 2001**

**QB1 V1.5DC Battery Pack**

External battery pack 24V/12Ah for the QB1 V1.5DC.  
Duration of the power depends on the set flowrate.  
Weight 10 Kg



**101 101 3010**

**Gas Inlet Protection Filter**

Pack of 10 filters



**101 110 4001**

**Spare Dry Gas Meter**

Supplied with test report on 2 points and assembling instructions



**101 101 4002**

**Silica Gel/Charcoal Trap**

100 cc capacity

**101 101 4003**

1 liter capacity