

uno.

BOXER® PUMPS

Boxer S
Boxer D
Boxer 3000
Boxer VIB
MicroBoxer
Boxer 3300



Brief history of Boxer®Pumps

The Boxer range of pumps is a product of Uno. Uno was established in 1984 as a product design and development partnership focussing on the development of medical and scientific instrumentation. The first Boxer pump was developed by us in 1995 as we required a reliable and competitively priced pump with an exceptional performance to size ratio. The pump had to fit into a tight space within an instrument designed by Uno. Failing to find the right manufacturer for the pump, we decided to produce the pumps by ourselves with the benefit of offering it to other potential customers in other areas.

As the design proved itself in the field, the interest in the pumps grew and new targets were set for further pump developments. The range expanded rapidly.

We are in essence a design and development company and pride ourselves in our ability to provide quick and flexible solutions for individual requirements. We can adapt our pumps and develop custom solutions for wide variety of applications.

All pumps are manufactured in the United Kingdom under stringent quality control procedures.



Boxer S

The most popular of the Boxer range, this pump has proved itself as a primary component in many thousands of laboratory pipetting equipment and personal gas detectors.

As with the Micro-Boxer, the Boxer S is available with either the permanent magnet DC motors or with the core-less motors.

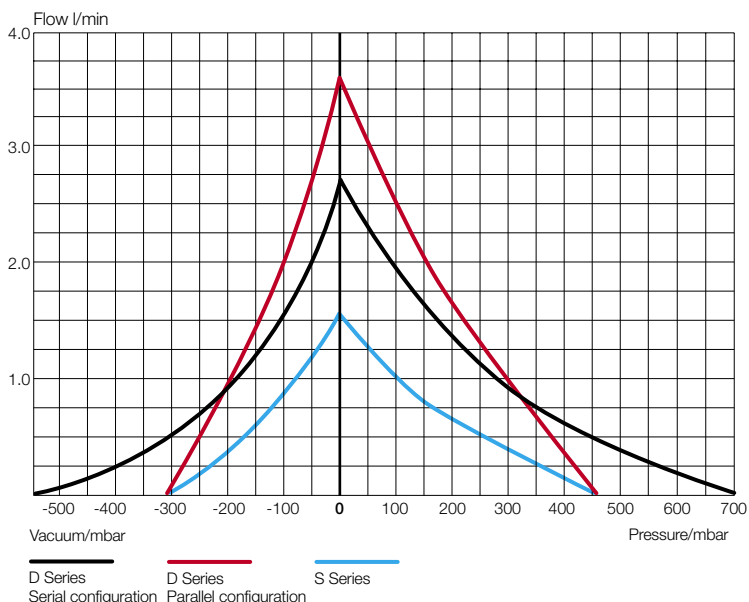
The design has been optimised to offer a good performance at minimal current requirement. A typical Boxer S pump equipped with a core-less motor will, for example, consume merely 18mA for an air flow of 0.8l/min at 4.5V supply and will start and work at environmental temperature of -20°C (-4F).

Permanent Magnet motor ratings	4.5V DC or 6.5V DC
Core Less motor ratings	6V, 9V, 12V, 18V, 24V
Max free flow	1.8 l/min
Max Vacuum	300 mbar
Max Pressure	500mbar
Wetted path materials:	PPO(Polyphenylene oxide) & Silicone
Dimensions	23mm x 44mm x 28mm
Tube connection	Ø3.5mm
Weight	32g

Ordering information:

Permanent magnet – specify voltage	SM
Core less motor – specify voltage	SF

Boxer S Performance chart



This brochure is intended as a general technical aid for the selection of our products. It is the responsibility of the user to determine the suitability of our products to its intended use. In our constant attempt to achieve perfection, we reserve the right to make dimensional adjustment and other changes to the product, which might not be reflected in the information above.

Boxer D

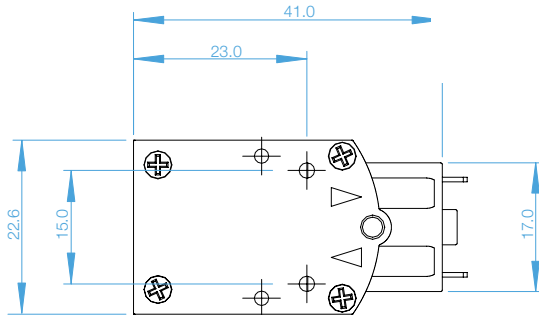
The Boxer D is essentially two of the Boxer S powered by a single motor. The double arrangement of ports allows to connect the pump heads in either parallel for maximum flow, or in a serial configuration for maximum pressure/vacuum application.

Having in essence two separate pumping heads, the pump can be used to pump two different gasses. This pump has an excellent size to performance ratio with up to 3.7l/min free flow.

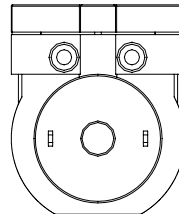
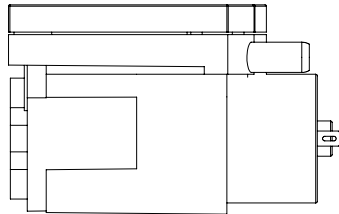
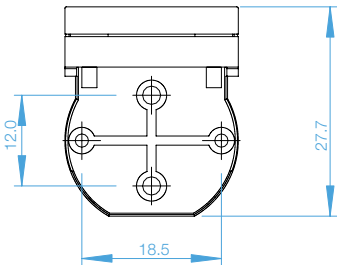
Permanent Magnet motor ratings	4.5V DC or 6.5V DC
Core Less motor ratings	6V, 9V, 12V, 18V, 24V
Max free flow	3.7 l/min
Max Vacuum – parallel/serial configuration	300mbar/550mBar
Max Pressure – parallel/serial configuration	450mbar/700mbar
Wetted path materials:	PPO(Polyphenylene oxide) & Silicone
Dimensions	23mm x 44mm x 34mm
Tube connection	Ø3.5mm
Weight	39g

Ordering information:

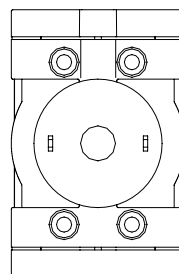
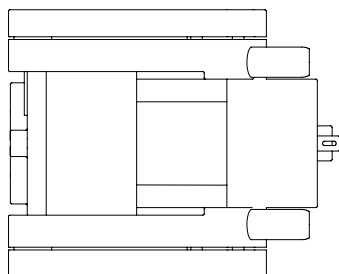
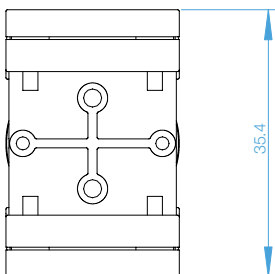
Permanent magnet – specify voltage	DM
Core less motor – specify voltage	DF



Boxer S



Boxer D



Boxer 3000

For fluid and gas delivery

The DC motor driven Boxer 3000 diaphragm pump is ideal for pressure or vacuum application where current and reliability are prime requirement. Boxer 3000 pumps are manufactured in non-corrosive engineering materials. The wetted path is metal free. Silicone or EPDM diaphragm and valves allow its trouble free operation even in extremely low temperatures with a wide variety of gasses and liquids. Highest quality Stainless Steel ball bearings on motor shafts and cranks ensure the lowest current consumption with maximal operational life.

The Boxer 3000 is available in dual- or quad-head construction. Each of its pumping heads can be run as a separate entity or combined with the other heads in a series or parallel configuration to match a large variety of applications. This unique construction of the Boxer 3000 series pump allows it to be configured for the simultaneous delivery of gas, in two of its heads, and liquid on the other two heads.

Boxer 3000 pumps are oil free. The absence of any sliding seals or ferrous components in the fluid path of the pump, guarantees a contamination free transfer of media – whether liquid or gas.

The fluid version is self priming and can run dry without any adverse effect.

Exit and entry port plate can be rotated and fixed in four different orientations.

Motor	24VDC or 12VDC permanent magnet
Typical current free flow gas (20°C)	350mA
1.7Bar pressure gas (20°C)	450mA
Min. operating temp gas	-20°C
Materials in flow path	Silicone or EPDM GF Polypropylene
Weight	Dual Head – 420g Quad head – 510g
Hose connection	Ø5.5-8.5mm
Accessories	Vibration mounts/dust filters with condensation traps/noise dampers, hoseclips

Pump types		
Boxer 3102	Dual head gas pump	12v or 24v
Boxer 3104	Quad head gas pump	12v or 24v
Boxer 3202	Dual head fluid pump	12v
Boxer 3204	Quad head fluid pump	12v
Boxer 3304	Dual head gas/ dual head fluid pump	12v

Rear shaft extension available in dual head pumps.

Performance characteristics for gas pumps (operated at the nominal voltage)

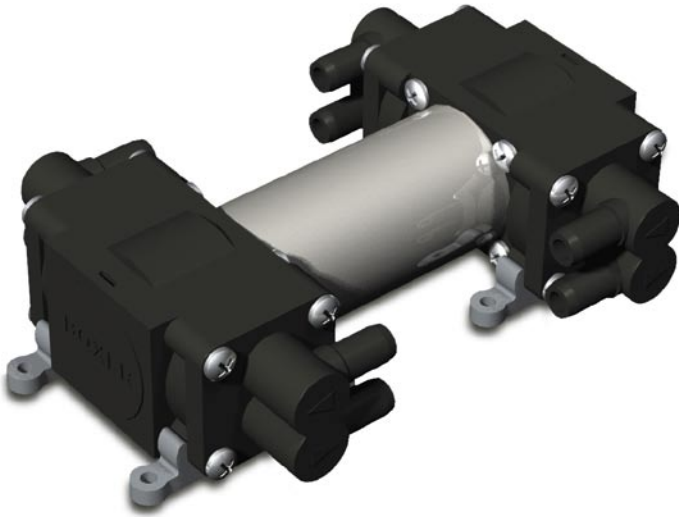
	Boxer 3102	Boxer 3104
Max free flow suction	15l/min Gas	30l/min Gas
Max pressure:		
Parallel configuration	800mbar	800mbar
Series configuration	2Bar	2Bar
Max vacuum:		
Parallel configuration	500mbar	500mbar
Series configuration	700mbar	700mbar

Performance characteristics for liquid pumps (operated at half the nominal voltage – distilled water at 20°C)

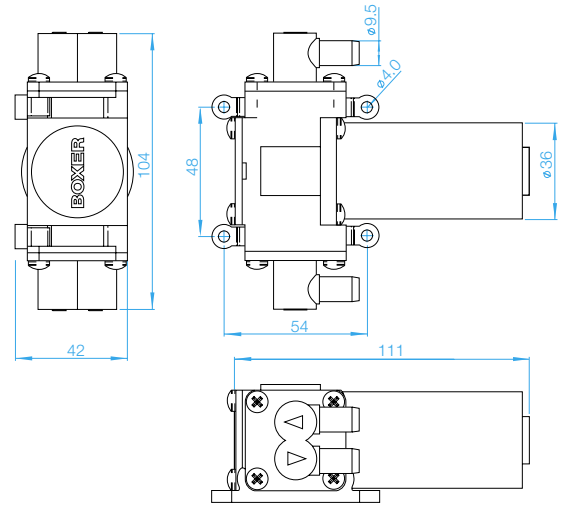
	Boxer 3202	Boxer 3204
Max free flow – parallel	2.4l/min	4.5l/min
Max free flow – series	1.5l/min	3.0l/min
Max system pressure	2Bar	2Bar
Suction height – parallel	3mH ₂ O	3mH ₂ O
Suction height – series	5mH ₂ O	5mH ₂ O

Performance will vary according to valve and diaphragm materials.

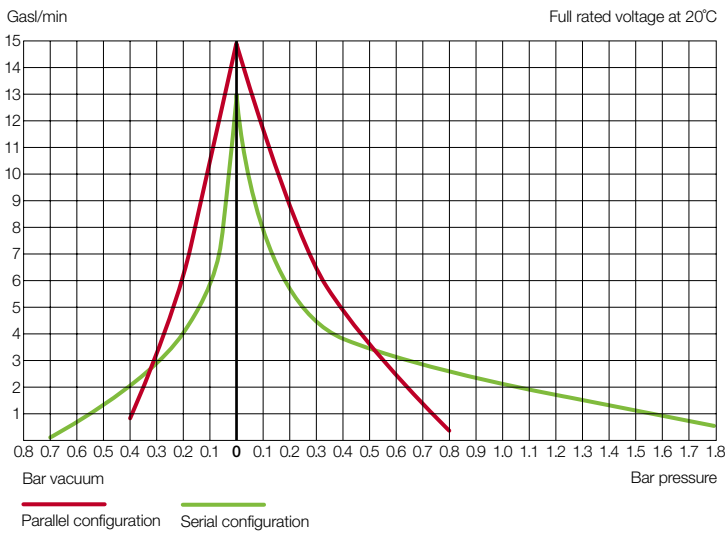




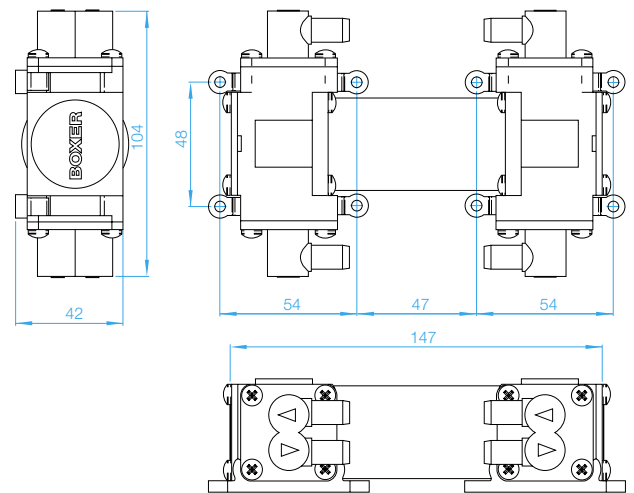
Boxer 3102 dual-head



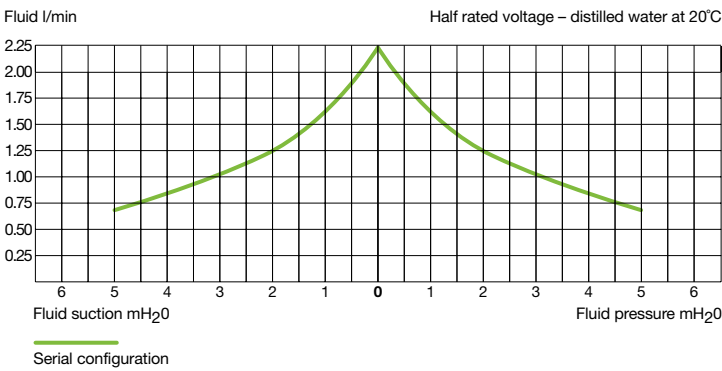
Boxer 3102 performance chart
Showing dual-head output



Boxer 3104 quad-head



Boxer3202 performance chart
Dual-head output



Boxer VIB

The AC range of Boxer Pumps has been specifically developed for applications which require high and constant performance over long period of time.

The Boxer VIB pumps are used in medical equipment, gas analysers and other instrumentation where reliability under continuous operation is of paramount importance.

The unique compact vertical construction of the pump allows installation in tight spaces.

Special features such as diodes or thermal cut-off devices can be integrated into the coil windings and the pump can be supplied virtually in any voltage specification.

Key features:

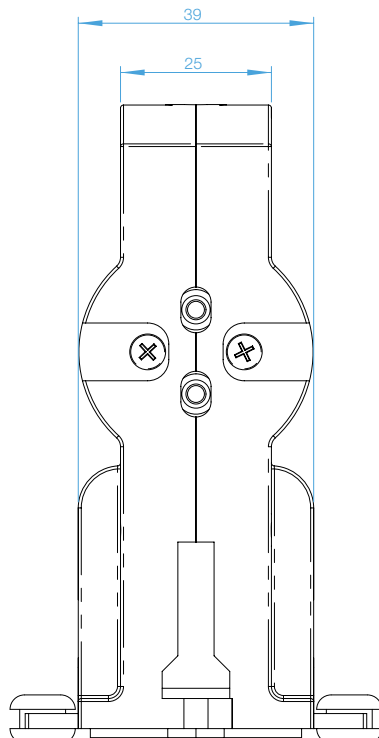
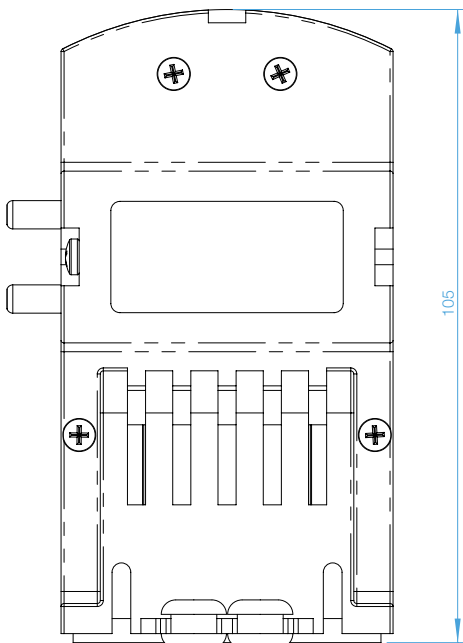
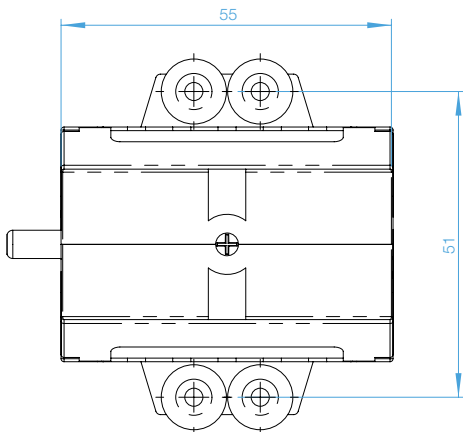
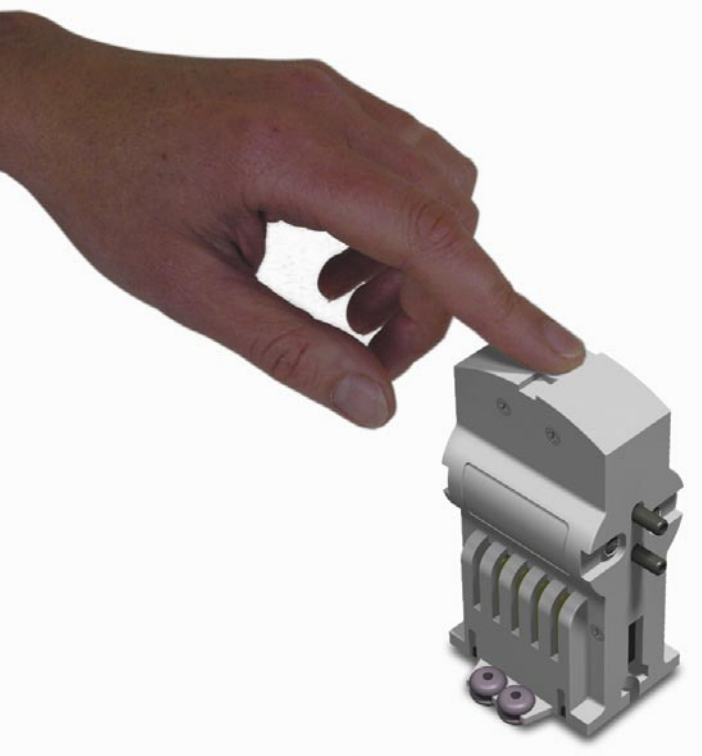
- Contamination and metal free path
- Maintenance free
- Quite, compact and reliable long life operation

Technical data:

AC Voltages	12V/24V/110V/230V
Max free flow l/min	3.75
Max vacuum	120mbar
Max pressure	100mbar
Wetted path materials:	Neoprene & Polypropylene
Dimensions	105mm x 39mm x 55mm
Weight	245g
Housing material	Lustran©

Ordering information:

Boxer VIB	VIB12/VIB24/VIB110/VIB230
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MicroBoxer

Uno has combined the latest technological advances to produce a gas pump which is unmatched in its class by any competition. The size-to-performance ratio of this pump opens the product engineer new unexplored possibilities in designing even smaller and lighter equipment without to compromise its technical specification.

The very large pumping chamber, which is contained within its small outer parameters, means that the pump can work relatively slowly whilst delivering a large volume of air. A slow running pump means a quite operation with the benefit of improved motor and diaphragm life.

This micro-pump, like the others of the Boxer range of pumps, can be tailored to your special requirements. Our access to a variety of DC motors ensures that we are able to optimise the pump's performance for a minimal power consumption. The MicroBoxer is ideal for battery operated instrumentation.

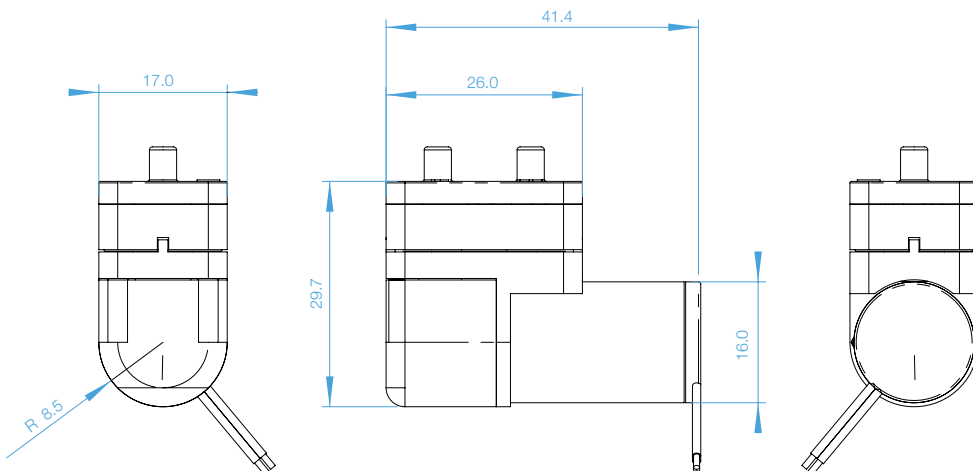
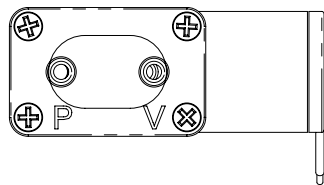
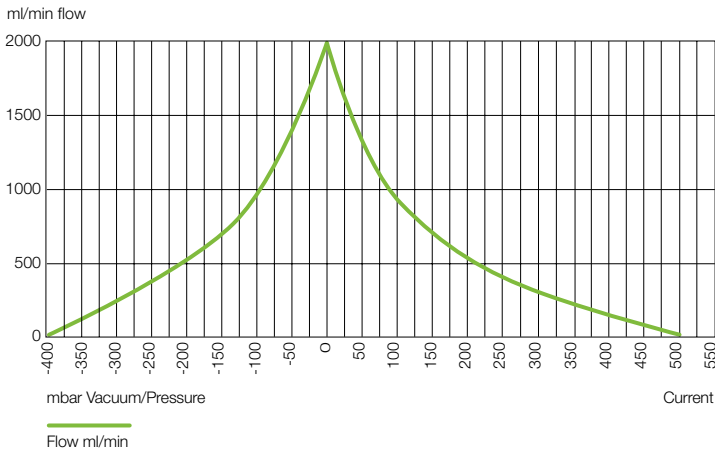
Technical data:

Permanent Magnet motor ratings	4.5V DC or 6.5V DC
Core Less motor ratings	6V, 9V, 12V, 18V, 24V
Max free flow	2.0 l/min
Max Vacuum	400 mbar
Max Pressure	500mbar
Wetted path materials:	PPO(Polyphenylene oxide) & Silicone
Dimensions	17mm x 30mm x 42mm
Tube connection	Ø3.0mm
Weight	29g

Ordering information:

Permanent magnet – specify voltage	MSM
Core less motor – specify voltage	MSF

MicroBoxer performance chart



The Boxer 3300 Series 'Ready-to-use' air pump

The Boxer 3300 is the ideal laboratory accessory for a wide range of applications. The unprecedented high performance to size ratio of this model offers a perfect solution wherever suction or pressure applications are required.

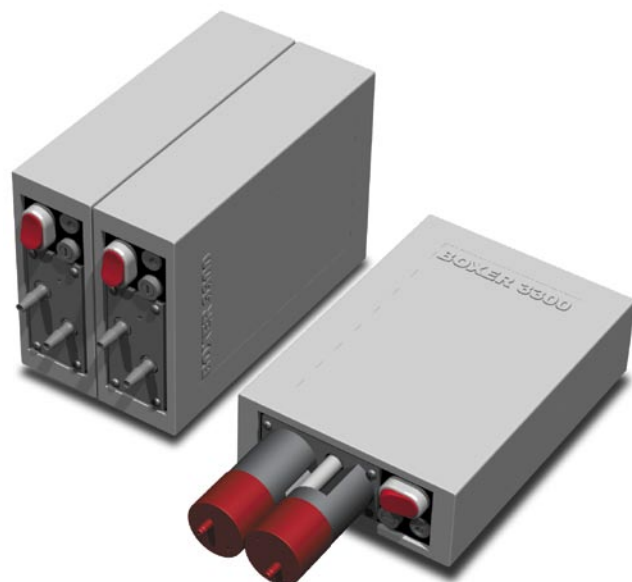
The unit is based on the well established Boxer 3000 range of pumps.

The pump is particularly designed as a flat package to compliment any laboratory shelf, and can be operated in any orientation.

The pump operates on 12V DC and being a low voltage pump is safe to operate in any laboratory environment. A remote switch-mode power supply supplies the correct voltage to the equipment from any 110V to 240V source. Air flow can be adjusted via the selectable voltage switch on the remote power supply.

The 3300 series pump can be easily fitted with the filter and silencer which are offered as economical semi-disposable accessory.

- Contamination and metal free path
- Maintenance free
- Low voltage supply (12V DC)
- Quite in operation
- Flow control via selectable voltage supply



Technical data:

Model P – parallel configuration	
Max free flow l/min	20
Max vacuum	700mbar
Max pressure	1200mbar

Model S – serial configuration	
Max free flow l/min	17
Max vacuum	900mbar
Max pressure	1400mbar

Wetted path materials:	Polypropylene & Silicone
Dimensions	155mm x 61mm x 222mm
Weight (with PSU)	1.7Kg
Power requirement	110V/230V AC

Ordering information:

Boxer 3300S Ready-to-use air pump	3300S
Boxer 3300P Ready-to-use air pump	3300P
Set of air filter and silencer	3320

Boxer 3102 performance chart Showing dual-head output

