

Maxtec Air/Oxygen Blenders – Technical Training

What is an air/oxygen blender and what does it do?

Hospitals use medical grade air and oxygen, which in modern hospitals is piped to the departments though gas pipeline systems installed in the walls.

An air/oxygen blender is a medical device used to mix air and oxygen to deliver gas with a precise concentration of oxygen to patients.

Blenders are connected to the gas source using 4 Bar* air and oxygen hoses, and can be operated from gas cylinders or from gas pipeline systems.

Types of Maxtec blender

Maxtec offers standard blenders (MicroMax), blenders with oxygen monitoring (MaxBlend 2) and blenders that can operate without piped air (MaxVenturi). Additionally, the BlenderBuddy 2 and MaxBlend Lite are add-ons for blenders to allow the use of an oxygen analyser.



MicroMax air/oxygen blender



MaxBlend2 air/oxygen blender



MaxVenturi blender



Blender Buddy 2



MaxBlend Lite

*4 Bar is a measure of pressure, equal to 4x atmospheric pressure or 50 psi

What are blenders used for?

Some patients require additional oxygen, but not necessarily at a concentration of 100% pure oxygen, which can be harmful at this concentration for certain patients, notably neonates.

A blender allows the oxygen concentration to be precisely adjusted according to the specific needs of the patient.

What types of blenders are available?

Generally, they can be broken down into 2 main types:

- **High Flow Blenders** – These are used for applications requiring higher flow rates, typically ranging from 15 to 120 litres per minute (lpm).
- **Low Flow Blenders** – These are designed for applications that require precise control at lower flow rates, typically delivering flow rates from 3 to 30 lpm, making them ideal for neonatal and paediatric settings.

Where are they used?

Blenders are used in many departments where precise control of supplemental oxygen is required, such as:

- Neonatal Intensive Care Unit (NICU)
- Adult Intensive Care Unit (ICU / ITU)
- Paediatric Intensive Care Unit (PICU)
- High Dependency Unit (HDU)
- Accident & Emergency
- Theatre Recovery
- Respiratory Wards

How do blenders work?

Blenders take medical grade air and oxygen into the device using hoses with keyed gas inlets.

There are a number of different international standards for gas connectors that determine their size and shape; they are designed to allow only the correct gas to be connected to a particular fitting for patient safety.

Each country will standardise on a particular fitting type. In the UK, blenders are supplied with NIST* fittings and require the corresponding NIST hoses. For other countries, we need to determine the connection type; the next most common type is DISS**.



Air hose with NIST connector (right side of image)



Oxygen hose with NIST connector (right side of image)

Hoses in the UK are colour coded black for air (or less commonly, black and white stripes) and white for oxygen.

Hose are not supplied with Maxtec blenders and must be ordered separately.

*NIST - National Institute of Standards and Technology

**DISS - Diameter Index Safety System

MicroMax air/oxygen blender



The MicroMax blender uses internal diaphragms and a valve that is connected to the adjustable concentration knob on the front of the blender, which regulates the amount of each gas that is put into the mixture, allowing mixes from 21% to 100% oxygen.

When calibrated, the delivered gas concentration can be known to within +/- 3% of Full Scale.

The flow of gas from the blender is regulated using a flowmeter, typically 0-15 lpm on a low-flow blender and 0-60 lpm on a high-flow.

Note: hoses and flowmeter must be ordered separately.

MicroMax Maintenance

Maxtec recommends that the MicroMax blender undergoes a full overhaul service every 2 years with an annual performance check. Viamed can perform a calibration check annually if required.

- 0380050 MicroMax Blender 2yr Overhaul Service – Back to Base (excludes overhaul service kit)
- 0332004 Blender, Low Flow – Overhaul Kit. 2yr service kit
- 0332006 Blender, High Flow – Overhaul Kit. 2yr service kit

Return carriage is chargeable for all devices returned to Viamed for service.

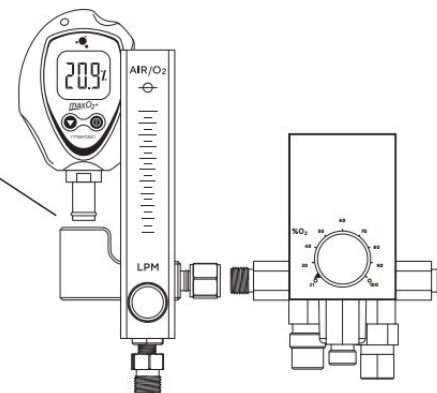
Viamed can supply service kits direct to customers, however, we are not able to offer service training.

BlenderBuddy 2



Insert oxygen analyzer with sensor diverter into the sensor port to measure the delivered gas from the blender.

NOTE: Use the sensor diverter provided with your BlenderBuddy 2 or genuine Maxtec replacement.



- Connects to the outlet of a blender to allow the use of an oxygen analyser or monitor.
- Provides a sensor analysis port which may be used to measure the gas concentration from the blender.
- Available with different flow ranges: 3 LPM, 15 LPM, 30 LPM and 70 LPM.
- Available as a package complete with a MaxO2+A oxygen analyser.
- Features a Maxtec 'Designed for Blenders' (DFB) flowmeter which is designed and calibrated specifically for air/oxygen blenders.
- Has dual-scale graduations to offer increased accuracy at lower flows.

BlenderBuddy 2 Maintenance

The BlenderBuddy 2 does not require any periodic maintenance or contain any user serviceable components.

MaxBlend 2 air/oxygen blender



The MaxBlend 2 is a blender with integrated oxygen monitor to offer continuous verification of the oxygen concentration being delivered.

- Available with different flow ranges: 3 LPM, 15 LPM, 30 LPM and 70 LPM.
- Oxygen analyser with adjustable high and low alarms
- Includes flowmeter but hoses must be ordered separately

MaxBlend 2 Maintenance

Maxtec recommends that the MaxBlend 2 blender undergoes a full overhaul service every 3 years with an annual performance check. Viamed can perform a calibration check annually if required.

- 0380060 MaxBlend 2 Performance Check Service
- 0380061 MicroMax Blender 2yr Overhaul Service – Back to Base (excludes overhaul parts kit)
- R200P02 MaxBlend 2 service kit

Return carriage is chargeable for all devices returned to Viamed for service.

Viamed can supply service kits direct to customers, however, we are not able to offer service training.

MaxBlend Lite



The MaxBlend Lite is designed to provide all of the features of the MaxBlend 2 to customers already using a stand-alone blender.

It connects to the outlet of an existing blender to allow the use of the integrated oxygen monitor to offer continuous verification of the oxygen concentration being delivered.

- Available with different flow ranges: 3 LPM, 15 LPM, 30 LPM and 70 LPM.
- Oxygen analyser with adjustable high and low alarms
- Includes flowmeter but requires a compatible blender*

***Note:** connects directly to Bird, Bio-Med Devices, Inspiration Healthcare blenders, whereas MicroMax and Precision Medical blenders require the use of an adapter kit.

Ask customers which model blender they have and then seek advice from the Technical Support Manager or Commercial Director.

MaxBlend Lite Maintenance

Maxtec recommends that the MaxBlend Lite undergoes an annual performance check but does not require an overhaul service.

Viamed can perform a calibration check annually if required. There is no part number currently in the system for this, check with the Commercial Director if enquiries for service are received.

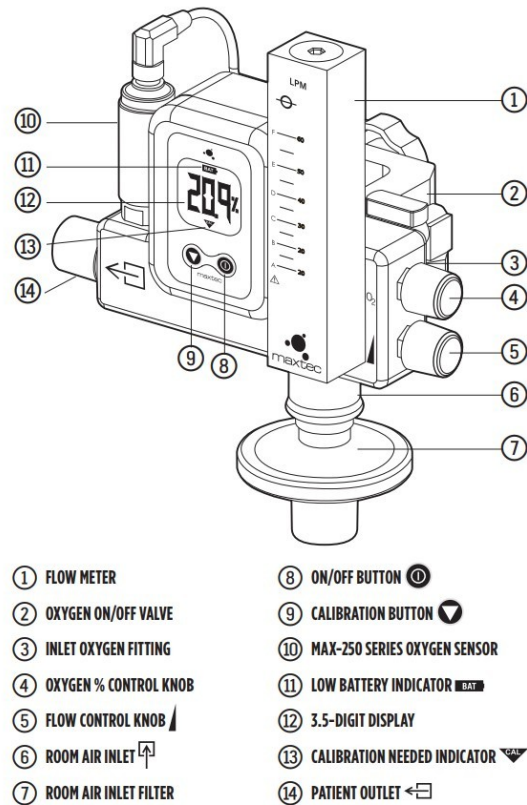
Return carriage is chargeable for all devices returned to Viamed for service.

MaxVenturi blender



The MaxVenturi offers the ability to mix ambient air and piped oxygen using the **venturi principle** without the need for piped air.

- Complete with MaxO2+ analyser and flow meter.
- Independently adjustable O2% and flow.
- Built-in pole clamp.
- Specifically designed to work with high-flow humidification systems for adult high-flow oxygen therapy.
- Oxygen hose must be ordered separately.



“Designed to reduce noise, which is commonly associated with high flow therapy”



Noise-Dampening Foam Core

The MaxVenturi is supplied with 1 inlet filter, additional filters are available separately, p/n 0330400 / RP34P02.

A separate muffler is available to reduce noise during high flow applications.

Note: The MaxVenturi is designed for use with specific humidifiers and patient circuits from other manufacturers. A list of approved delivery circuits and patient interfaces is detailed in the user manual.

MaxVenturi Maintenance

Maxtec recommends that the MaxVenturi undergoes an annual service with a full overhaul service every 4 years, which involves replacing the flow and oxygen valves.

- 0380400 MaxVenturi Annual Service
- 0380401 MaxVenturi Overhaul Service
- 0330411 MaxVenturi Flow Valve Replacement Kit
- 0330412 MaxVenturi Oxygen Valve Replacement Kit

Return carriage is chargeable for all devices returned to Viamed for service.

Viamed can supply service parts direct to customers, however, we are not able to offer servicing training.

Flow diverter for use with Maxtec devices

- Used with MaxBlend 2, MaxBlend Lite and BlenderBuddy 2 (note: MaxVenturi uses a standard flow diverter).
- Narrower in diameter than a standard flow diverter.
- Features a small bleed hole to allow the gas to escape and prevent pressure build-up.
- Replaces the standard flow diverter and fits onto all the same sensors as the standard flow diverter.



0120086 Flow Diverter

Warranty

The customer warranty is listed on the stock screens for each device in Intrastats.

Latex

All products and packaging are latex-free.

Where to find additional information

- Viamed website
- Manufacturer's website
- User manual
- Service manuals
- Product leaflets – linked to stock pages
- Technical datasheets – linked to stock pages
- FAQs on the stock page
- Memos on the stock page