



# MDU

## Mobile Destruction Unit

### PRODUCT SHEET

State of the art, next generation destruction unit. Suited for any facility, hospitals, pediatrics, maternity wards, dentists or other facility where nitrous oxide is a suitable option for treatment. This Mobile MDU works when there is no option for a large collection system.

# Product specifications

- **Facilitates a healthy working environment for the personnel**
- **Eliminates more than 99 % of nitrous oxide entering the unit**
- **Low noise levels and no vibrations**
- **Low energy consumption**
- **Easy to use**

The mobile unit is a smart solution that easily can be moved between different treatment rooms. The unit is a solution for collecting residual Nitrous Oxide from exhaled air and decomposing it. The MDU is a self supporting system with low noise level and minimum energy consumption.

The mobile unit purifies more than 99 % of the nitrous oxide entering the unit. This facilitates a healthy work environment for healthcare professionals and a minimal impact on the external environment.

The MDU is specially adapted to suit the mobile needs of healthcare professionals allowing them to use it in an easy and reliable manner. The unit has room for a nitrous oxide cylinder (either pre-mixed or concentrated) as well as an oxygen tube, and if needed an associated mixing unit (titration unit.)

Both inhalation and exhalation equipment can be placed on the mobile unit together with gas cylinders. Inhalation devices such as demand valves or mixers can easily be placed on the MDU. Exhalation tubes for scavenging (collect and remove) are connected to the outlet of the MDU making it a complete closed system for removal of nitrous oxide from ambient air.

## Reliability

The MDU is constructed with few moving parts and components, which all have a high degree of reliability and long product lifespans.

The MDU has an integrated control system that continuously monitors a number of parameters, including temperature and gas flows, and stops automatically when overloaded.

## Control and monitoring

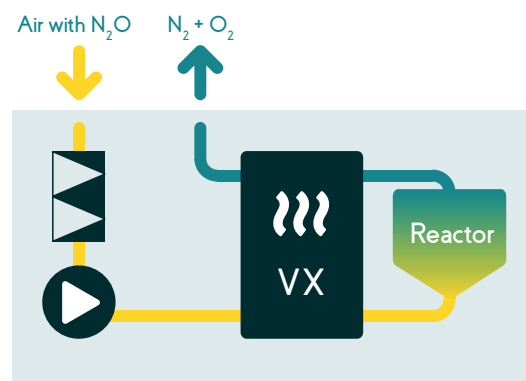
On delivery, the device is already set up for monitoring, and it is easy to connect the unit to Medclair's technician for remote monitoring.

The operation is continuously processing data, such as nitrous oxide concentration, gas flow and energy consumption.

## General principle

The MDU uses a catalytic process for decomposing nitrous oxide to nitrogen and oxygen, which are the main components of air.

For the decomposition process, where the nitrous oxide is decomposed into oxygen and nitrogen, a high temperature is needed. Medclair has developed a unique technique using a heat exchanger and isolation that results in a high degree of energy recycling which significantly reduces the energy consumption needed after the initial heating up of the unit.



Nitrous oxide in the exhaled air entering the MDU is purified to a degree of over 99 % with the use of the catalytic process in the reactor that breaks down the environmental aggressive nitrous oxide into nitrogen (N<sub>2</sub>) and oxygen (O<sub>2</sub>) which are the main constituents of air and can therefore safely be returned to the environment.

# Technical Data

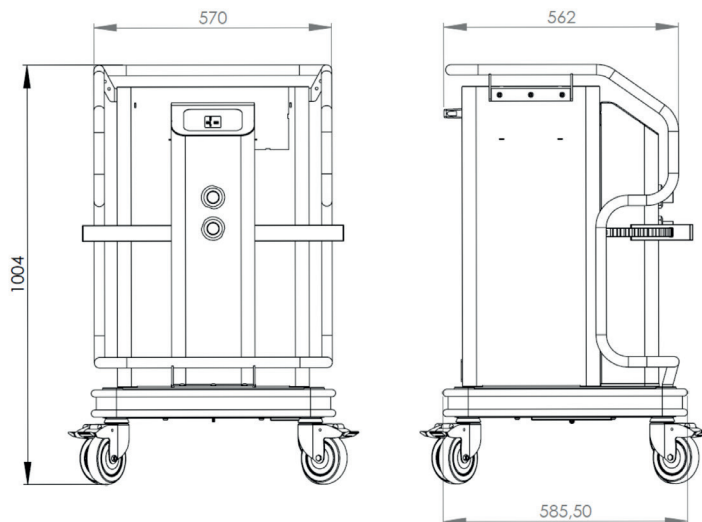
Power supply	230 VAC, 50Hz
Energy consumption, heating	750 W
Energy consumption, operation	< 100 W

## Operational conditions

Temperature, storage	-25°C to 50°C
Temperature, operation	10°C to 30°C
Relative humidity	10 – 80 %
Above sea level	< 2000 meter
Surrounding environment	No flammable environment. No combustible gases or presence of halogenated anaesthesia gases

## Max value for incoming gas

Nitrous oxide	16 grams of nitrous oxide per minute
Oxygen	Max 100 %
Temperature	Max 35°C
Relative humidity	Max 100 %
Total flow	40-50 l/m (configurable)
Start-up time	< 39 min
Purifying degree (nitrous)	> 99 %
Weight	70 kg (without gas bottles)
Volume, operation	< 35 dB



## 3<sup>rd</sup> Party verification

The MDU functionality have been verified by IVL, the Swedish Environmental Research Institute\*. A report from their testing is available at the Medclair web page, [www.medclair.com](http://www.medclair.com).

\* IVL was jointly founded in 1966 by the Swedish state and national business interests to carry out research on industrial air and water issues. Today they are an environmental agency concentrating on much more.

Common to all of their assignments is the interaction between ecological, economic and social perspectives.

Medclair, founded in 2013, is a Swedish research and development company with leading-edge expertise in process gas purification, gas measurement, ventilation and control. We solve healthcare and environmental challenges through innovation.

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**Medclair**