

# MIR Turbine Instruction Guide

## **Introduction**

The Turbine sensor is a mechanical sensor and gives both reliable and repeatable performance. Being a mechanical item it is not sensitive to air temperature, pressure or gas density. Providing it is cleaned frequently, it is not damaged and the mobile parts are moving freely and are free of foreign matter, there is no need for calibration.

## **Cleaning**

The Turbine sensor should be removed from the MIR device and checked for foreign matter.

Once the device is clear of foreign matter, immerse the turbine in luke-warm water containing a cleaning detergent or sterilizing solution. (MIR recommends PERSAFE as a cleaning solution)

Do not pass the Turbine under running water.

After cleaning, air dry the Turbine until no droplets of water remain on the Turbine.

PLEASE UNDER NO CIRCUMSTANCES SHOULD HEAT BE USED TO CLEAN THE TURBINE.

## **Free movement**

The Spirobank will emit a constant beep during a test when the blade is rotating at very low flow rates. This is an indicator that the blade is able to move freely.

The beep will be present at the start and at the end of every test providing the test is carried correctly.

The same beep may be heard by starting a test and then moving the unit gently from side to side. If this noise is **not** present then the blade is not free of foreign matter, a hair or foreign body is inside the turbine preventing free rotation, in which case the turbine must be cleaned and the foreign body removed.

## **Calibration check**

Even if calibration is not required, many users will wish to make a calibration check.

This is done simply by connecting a 3 Litre Calibration syringe to the MIR device and making an FVC test. The FVC and FIVC figures are the expiratory and inspiratory calibration values and should correspond to 3 litres – not quite, as of course the MIR device is correcting all volumes to BTPS.

The correction to expiration (FVC) is a fixed 2.6%, so a correctly calibrated device should read 3.08L.

In the case of inspiration, the MIR device has a temperature sensor and corrects for the difference between ambient temperature and body temperature (37 degrees). This correction will depend on the ambient/room temperature.

As an example, at 20 degrees the correction factor is 10%, so a correctly calibrated turbine will read 3.3L for FIVC. This important point is more fully explained in the User's manual.

