

# Oxygen Dialflow Meter

## Instructions for Use

---



# 1. Symbols

## Warning!

Indicates a potentially hazardous situation which, if not avoided, could result in injury to the patient, the user or others.

## Caution!

Indicates a potentially hazardous situation which, if not avoided, could result in damage to the equipment or property.



Use no oil



Service due date

# 2. Warnings and Cautions

## 2.1. Warnings!

- ▶ Read through this entire instruction manual before using or showing others how to use a Dialflow Meter. As with all medical equipment, attempting to use this device without a thorough understanding of its operation may result in patient or user injury.
- ▶ Medical gas is or should be considered a drug and should only be used for medical purposes as prescribed by a physician or authorised clinician and in accordance with the medicinal product labelling.
- ▶ The Dialflow Meter will deliver zero flow between flow settings. When selecting a new flow setting, ensure that the flow selection dial clicks into place and that a flow is correctly selected. Do not attempt to set it between settings.
- ▶ Never administer oxygen while smoking or when near an open flame.
- ▶ Oxygen is not flammable; however an oxygen enriched atmosphere will drastically increase the rate and severity of combustion. Oil and/or grease in the presence of an oxygen enriched atmosphere will become highly combustible. Oxygen must never be allowed to come into contact with oil, grease or other hydrocarbon based substances. Do not use oil or grease on this Dialflow Meter.
- ▶ Many hand creams and moisturisers contain paraffin and petroleum bases which are highly flammable and must never be allowed to contact the Dialflow Meter. Ensure hands are clean and dry before operating the equipment.
- ▶ Oxygen therapy may be a critical treatment. The effectiveness of supplemental oxygen therapy can only be determined by continuous monitoring of blood oxygen levels. It is essential that PaO<sub>2</sub> or SpO<sub>2</sub> monitoring is carried out when supplemental oxygen is prescribed for critical treatments.
- ▶ This flowmeter does not provide an indication that gas is flowing, it only provides an indication that an orifice has been selected for that flow rate.
- ▶ If using a cylinder and regulator, ensure that the device is connected to the regulator and the cylinder valve is open before beginning therapy.
- ▶ Ensure that the medical oxygen supply is sufficient for the proposed therapy and is supplied within the pressure range given in the Device Specification. If the supply is a gas cylinder, check the cylinder contents gauge regularly.

- ▶ Do not submerge the Dialflow Meter in any fluid.
- ▶ Dialflow Meters are not MRI compatible.
- ▶ The accuracy of the flowmeter will be adversely affected if the input pressure is other than stated in the specifications.
- ▶ A gas specific connector is fitted to the Dialflow Meter. Do not attempt to modify the fittings to suit other gases or connection types.
- ▶ Only appropriately trained personnel working in controlled conditions may disassemble or assemble this Dialflow Meter.

## 2.2. Cautions!

- ▶ The performance of the flowmeter may be affected if it is stored or transported in temperatures outside of the range -20 °C to +60 °C (-4 °F to +140 °F).
- ▶ The Dialflow Meter is not suitable for autoclaving.

## 3. Functional Description



### 3.1. Intended Use

The Dialflow Meter is intended to control the flow of medical oxygen during oxygen therapy in both homecare and clinical environments. The flow selection dial has 12 positions, including 11 discrete flow rates and an off position. Flow is indicated in litres per minute (l/min) and is visible through a window adjacent to the flow selection dial.

### 3.2. Technical Description

The Dialflow Meter has a flow selection dial that is rotated to select the desired oxygen flow. Rotating the dial changes the size of the orifice through which the gas passes and consequently adjusts the gas flow rate.

The Dialflow Meter has inlet and outlet connectors. The inlet connector is the larger of the two and is a gas specific oxygen probe for connection to the oxygen supply. The smaller outlet connector may be either a barbed outlet for direct connection to oxygen delivery tubing or a threaded DISS (9/16" UNF) connector for connection to a bubble humidifier.

## 4. Operating Instructions

### 4.1. Preparation and Connection

Check the connection type and the Dialflow Meter connector are compatible. Where applicable check the presence and condition of the input connector seal.

Connect the Dialflow Meter to the gas supply. If the supply is a gas cylinder, ensure the gas cylinder valve is open.

**Warning!** Where the gas specific connector is dependent on a threaded fastener (e.g. DISS CGA – V5 1240, AS 2902/SIS handwheel) offer device to outlet and connect a few turns. Align device to the final vertical position and fully hand tighten the connection before turning on the supply pressure. Do not use the device to tighten or lock the connection.

For quick connector probes (e.g. BS5682, DIN, AFNOR), ensure that the connection is correctly made by gently pulling the flowmeter before turning on the supply pressure.

Connect a sufficient length of tubing (not supplied) to the outlet barb.

### 4.2. Testing Prior to Use

Turn the flow selection dial to its highest setting and check that gas flow can be felt at the patient end of the supply tubing. If no gas flow is sensed, refer to the troubleshooting guide in section 7 of this manual.

Turn off the gas flow by turning the flow selection dial fully clockwise.

### 4.3. Operation

Connect the free end of the tubing to the patient or patient enclosure using the appropriate connector (not supplied).

Determine the appropriate flow rate in litres per minute (l/min) required for the patient. Turn the flow selection dial until the required rate is visible in the flow indication window; the dial 'clicks' into place and is obvious to the touch.

Continue to monitor the patient as advised by the clinician. Check the regulator contents gauge regularly.

### 4.4. After Use

Upon completion of the therapy, turn the flow selection dial to zero.

## 5. Maintenance

### 5.1. Interim Inspection

Dialflow Meters should be inspected and tested on an annual basis to ensure correct performance.

**Warning!** If any defect is found during inspection, the device must be taken out of service.

#### 5.1.1. Inspection

Check the exterior condition of the device and the gas inlet connector. Check that the flow control dial clicks securely into each position. Check the condition of the inlet connector seal if applicable.

### 5.1.2. Internal Leak Test

Set the flow selection dial to zero and connect to a gas supply. Connect tubing to the outlet barb and immerse the other end of the tube in water. Observe whether any bubbles are formed, which will indicate an internal leak.

### 5.1.3. Flow Rate Verification

Verify flow rates at all flow settings against those given in the Device Specification in section 6. Mass flow meters with appropriate full-scale ranges for the flow rates are particularly suitable for this.

Alternatively, where flow measuring equipment is not available, a qualitative check can be performed by confirming that gas flow can be sensed to be increasing with each step increase in flow across the full flow range. For higher flow rates, this can be sensed audibly or by holding a hand close to the flow outlet; moistening the skin can increase the cooling sensation and therefore sensitivity to the flow.

For very low flow rates, this may better be achieved by placing the end of a connected tube in a glass of water to observe the bubbles.

## 5.2. Cleaning

Wipe over the external surfaces of the Dialflow Meter with an alcohol or disinfecting wipe. Do not allow the ingress of water or other solution into the device.

## 5.3. Planned Preventative Servicing

The Dialflow Meter must be serviced every 4 years to ensure that it continues to perform in accordance with its specification. Dialflow Meters have a Service Due date on their labelling adjacent to the spanner / wrench symbol, indicating when the next service is due.

When serviced by BPR Medical Ltd, and where the time to end of life is less than the normal service interval, the Service Due date will be replaced by the End of Life date and preceded by a symbol (🕒). In these cases, the date now indicates when the device reaches end of life.

**Warning!** Servicing must be carried out by a competent person working in a controlled environment.

BPR Medical provides routine servicing if required. Full details of the recommended servicing requirements can also be found in the Service Manual or on our SupportWeb service training system. Please contact us for details.

## 6. Specification

Specification	Value
Supply Pressure Range	350-450 kPa
Flow Settings (l/min)	Range C: 0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1, 1.5
	Range D: 0, 0.5, 1, 1.5, 2, 3, 4, 5, 6, 8, 10, 15
Filtration	Sintered bronze: 40 µm nominal first stage, 5 µm nominal second stage
Flow Accuracy	±10 % of setting at 1 l/min and above, ±20 % of setting below 1 l/min
Effects on Accuracy	Varying Inlet Pressure: 10 % change in flow per 50 kPa change in inlet pressure
	Varying Temperature: ±3.4 % change in flow per ±20 °C deviation in temperature from 20 °C
	Varying Outlet Resistance: No effect up to 136 kPa back pressure. With higher back pressure, flow is reduced and the accuracy specifications herein will not be met.
Environmental	Transport, Storage and Operation: -20 °C to +60 °C (-4 °F to +140 °F) Humidity: 0-100 % RH non-condensing
Regulatory	CE: Medical Device Directive 93/42/EEC – Class IIa
Intended Life	12 years
Applied Standards	
BS EN ISO 15001	Anaesthetic and respiratory equipment. Compatibility with oxygen
BS EN ISO 15002	Flow-metering devices for connection to terminal units of medical gas pipeline systems
BS 5682	Specification for probes (quick connectors) for use with medical gas pipeline systems

## 7. Troubleshooting

Fault	Possible Cause	Solution
No gas flow	Gas supply turned off	Check gas supply
	Flowmeter not connected properly	Check gas specific probe is correctly connected
	Gas cylinder empty	Replace gas cylinder
	Medical gas terminal unit on a pipeline system is isolated	Seek advice from someone authorised to operate the medical gas pipeline system isolation valves
	Filter blocked	Service or repair required
	Selection dial set to '0'	Select a positive flow rate
Internal/external leak	Seal failure	Service or repair is required
Insufficient gas flow	Filter partially occluded	Service is required
	Supply pressure too low and/or gas cylinder nearly empty	Check gas supply and/or replace gas cylinder

## 8. Parts and Spares List

Part Number	Description
817-0001	Dialflow Meter - O2 - Range C - Hose Barb Outlet (BS 5682)
817-0002	Dialflow Meter - O2 - Range D - Hose Barb Outlet (BS 5682)
817-0005	Dialflow Meter - O2 - Range C - DISS Outlet (BS 5682)
817-0009	Dialflow Meter - O2 - Range D - DISS Outlet (BS 5682)
817-0015	Dialflow Meter - Air - Range D - Hose Barb Outlet (BS 5682)
817-0017	Dialflow Meter - O2 - Dual Range D - Indirect (BS 5682)
817-0018	Dialflow Meter - O2 - Range C & D - Indirect (BS 5682)

### Spare Parts and Servicing

604-0034	Dialflow Meter Output Barb Assembly
604-0035	Dialflow Meter DISS Assembly
610-0040	Micro Dialflow Meter Service Kit (5 pack)
610-0098	Dialflow Meter Service Kit (5 pack)
999-0003	Dialflow Meter Service



BPR Medical Limited  
22 Hamilton Way, Mansfield, Notts.  
NG18 5BU, United Kingdom

☎ +44 (0)1623 628 281  
info@bprmedical.com  
www.bprmedical.com



Qarad EC-REP BV  
Pas 257, 2440 Geel  
Belgium