

Instruction for use



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Formerly product of
MSA
The Safety Company

Part Number D3188702 (Edition 25 Mar. 16)

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6. Maintenance

6.1 General

In view of the significance of the accuracy of measuring results, the test device must be treated with care. Dirt must be avoided at all time, especially at the high-pressure connection.

Flushing and cleaning of the test device must be made as described in para. 5.2. After measuring is completed, the test device shell is stored in the case.

Functional checks should be made at regular intervals and if erroneous measurements are suspected.

6.2 Disorders

If the hand wheel of the test device cannot be loosened while it is connected to a compressed gas cylinder or compressor, check if connection is under pressure. In this case close the cylinder valve or compressor valve and release air from test device.

Leaks at the connection to the cylinder or compressor could be due to a defect gasket. In this case replace the gasket.

If the high pressure gauge or the detector tube holder is defective, they must be replaced.

In case of other disorders the device should be returned for repair to UNIPHOS or any authorized service station.

7. Part Numbers

UNIPHOS KWIK DRAW Airtester HP D3188702
(Compressed air monitoring set)

Complete with case containing:
Test device consisting of pressure reducer with high pressure gauge, manifold, flow meter detector tube holder.

Adapter for 200 and 300 bar one each for connecting to compressor charging panel

Timer

Device for breaking off detector tube tips,

Detector tubes for measuring carbon monoxide, carbon dioxide, water vapor, oil - one package each.

Accessories and Spare Parts

Detector tubes CO-HP*	D5085847
Detector tubes CO ₂ -HP*	D5085848
Detector tubes H ₂ O-HP*	D5085849
Detector tubes Oil- HP Synth.* for testing of mineral and synthetic Oil	10040887
Pressure reducer with pressure gauge	D4074937
Manifold	CR001444
Gaskets-lifter	D4060241
Detector tube holder	D4074058
Timer	D5185020
Tube tip breaking device	D5085012
Case	D5185911
Case insert	D5185931
Flow meter	CR001452

* = Package of 10 pieces

UNIPHOS KWIK DRAW
Airtester HP (Multiport Sampling)
for compressed air according to EN 12021

Instruction for use

1. Use

The compressed air monitoring set "UNIPHOS KWIK DRAW Airtester HP" (HP = high pressure) is used to determine the content of carbon monoxide, carbon dioxide, oil and water vapour in respirable air from compressors and compressed gas cylinders. According to EN Standard 12021 air for respiratory equipment must meet the following quality requirements:

- CO content max. 15 ppm
- CO₂ content max. 500 ppm
- Free of odor and taste, i.e. practically free of critical mineral oil content (from experience the oil content is less than 0.5 mg/m³)
- Water content in compressed air cylinders:
max. 50 mg/m³ at a charging pressure of 200 bar
max. 35 mg/m³ at a charging pressure of 300 bar
max. 25 mg/m³ of the air from the compressor

The requirements concerning the maximum water vapour content refer to the type of equipment used (200 or 300 bar) and, therefore, apply also to each pressure level of the compressed gas cylinders below the maximum values given above. All maximum values are based on air not under pressure.

2. Measuring Principle

The pressure in the compressed gas cylinders, or in the compressor charging panel is reduced by a pressure reducer. The air to be sampled is taken continuously via a regulatory valve in the manifold. There are four outlets for this manifold which release fixed flow rate of gas. The flow rate of each port is printed on the body of the manifold, viz 0.3 l/min, 0.3 l/min 1.0 l/min and 2.5 l/min. The air coming out from these ports is taken through detector tube for a specific time. The length of stain in the detector tube is an index of the concentration of the measured substance. This can be read directly from the detector tube scale.

3. Design

The case contents all parts required for measuring (see fig. 1):

- The test device, consisting of pressure reducer, Pressure gauge, manifold, flow meter, detector tube holder, adapter for connection to a compressor charging panel (for charging connection 300 or 200 bar), timer, detector tube tip breaker, tubes (package of 10) for measuring CO, CO₂, water vapor and oil content (sum of Oil vapor and mist).

The standard case contents one package of each of



Fig. 1 UNIPHOS KWIKDRAW Airtester HP

the four types detector tubes. In addition, the case has space for storing four additional spare packages.

4. Technical Data

Operation medium: air
Maximum pressure: 300 + 30 bar
Flow: 0.3 , 1.0 and 2.5 l/min.
(The detector tubes are to be fitted in an appropriate port of manifold to pass required sample air.)
Weight (with case): 5 kg
Dimensions: h= 120; w= 320; l= 420 mm

Measuring ranges of the Detector Tubes:

Carbon monoxide detector tubes

5 to 70 ppm carbon monoxide at a flow rate of 0.3 l/min in a measuring time of 5 minutes. (required sampling volume 1.5 l).

See also specific instructions for use of the KWIK DRAW detector tubes CO-HP.

Carbon dioxide detector tubes

100 to 2000 ppm carbon dioxide at a flow rate of 0.3 l/min in a measuring time of 5 minutes. (required sampling volume 1.5 l).

See also specific instructions for use of the KWIK DRAW detector tubes CO₂-HP.

Oil detector tubes

Check for oil contents (vapor + mist) at a flow rate of 2.5 l/min in a measuring time e.g. 24 minutes. (required sampling volume e.g. 60 l). The content of oil is determined as per the instruction given to use the KWIK DRAW detector tube Oil-HP Synth.

This type of tube indicates semi-quantitatively mineral and synthetic Oils.

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Notice!

Like any piece of complex equipment, this product will do the job designed to do only if it is used and serviced in accordance with the manufacturer's instructions.

This manual must be carefully read by all individuals who have or will have the responsibility for using or servicing the product. Before choosing and using this product, it is required to assess whether this product is suitable for the application intended. Choice and use are beyond the control of UNIPHOS. Therefore, the liability of UNIPHOS covers only the consistent quality of this product. The above does not alter statements regarding the warranties and conditions of sale and deliveries of UNIPHOS.

Water vapour detector tubes

20 to 160 mg/m³ water vapor at a flow rate of 1 l/min and a measuring time of 5 min. (required sampling volume 5 l) or 5 to 70 mg/m³ water vapor at a flow rate of 1 l/min and a measuring time of 10 min. (required sampling volume 10 l).

See also specific instructions for use of the KWIK DRAW detector tubes H₂O-HP.

All values above are based on air not under pressure and at room temperature and normal pressure.

5. Operating Instruction

5.1 Preparing for Measuring

- Clean valve of compressed gas cylinders or charging connections of compressor with brief burst of air.
- Chose and connect the adapter suitable for the prescript maximum pressure of the compressor charging panel (300 or 200 bars).
- Connect pressure reducer to compressed gas cylinder, or to charging connection of compressor using the adapter.
- Insert and firmly fit the nozzle of manifold on the pressure reducer as shown in fig. 2

5.2 Measuring on Compressed Air Cylinders

- Slowly open cylinder valve
- The flow rate of air through each port of manifold can be confirmed if necessary by using the flow meter provided with the kit. (To measure the flow rate connect tubing of flow meter to the desired manifold port- Fig:3)
- Insert the detector tube holders in the manifold ports- fig:4
- Flush device for sufficient time to make the test device free from other gases if any.

When the test device is clean and dry flushing for 2 min. is sufficient. If the condition of device is not known, or if during a previous measurement higher values were found than are permissible according to EN 12021, flushing at 2 l/min. must be continued. This must be done until 2 water vapor measurements, made at an interval of approx. 15 min., give identical results within the permissible measuring accuracy range. It then can be assumed that the test device is sufficiently clean for making measurements.

Liquid/ water (droplets) can only be removed from the test device through long flushing with dry, if necessary warm air.

Observe arrow on the detector tube. The arrow points in the flow direction of the test air; therefore, after inserting the tube, the arrow must point away from the test device.

- Break off the detector tube tips at air exit side (see fig. 5)
- Put detector tube into the tube holder, inserting broken-off end tightly into holder side away from test device.
- Break off other end of the detector tube (air entry side) and immediately insert open tube tightly into other end of detector tube holder (close to test device). (see fig. 6).
- Immediately thereafter set the timer to the time designated for the type of detector tube and start the timer.
- Wait for the timer bell to ring and then remove detector tube from the holder.
- Take reading from the printed scale on the tube.

5.3 Measuring on compressors

- Switch on the compressor
- Wait until 200 or 300 bar are reached
- Switch off the compressor
- Slowly open valve on compressor
- Flush test device as scripted in para. 5.2

The water content that is measured in air from a compressor only corresponds to the water content of compressor gas cylinders simultaneously charged, or cylinders charged immediately after measuring, if a pressure retaining valve is built into the compressor at the exit side of the drying cartridges. A prerequisite, however, is that the cylinders to be charged are dry.

The pressure retaining valve assures that the pressure inside the compressor drops only insignificantly from the maximum pressure of 300 or 200 bar, when cylinders are being charged. With compressor that has no pressure retaining valve behind the filters, water from the drying cartridge can be released to the sudden decompression when the charging connection is opened. The air has then higher water content as was measured on the compressor charging panel.

5.4 Permissible Test Results:

CO Contents	max. 15 ppm
CO ₂ Contents	max. 500 ppm
Oil Contents	e.g.max. 0.5 mg/m ³
Water Contents	max. 50mg/m ³ rel. to 200 bar
	max. 35 mg/m ³ (rel. to 300 bar
	max. 25 mg/m ³ (if sampled from compressor)

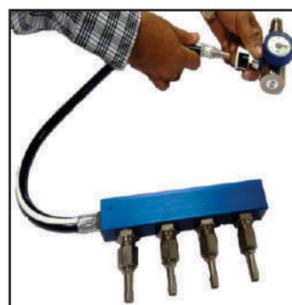


Fig. 2: Inserting manifold nozzle to Pressure reducer coupling



Fig. 3: Connecting flow meter to manifold port

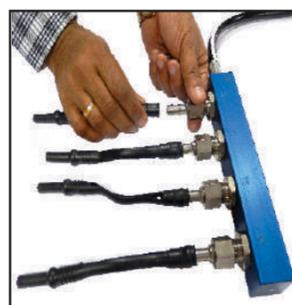


Fig. 4: Inserting detector tube holder in manifold port



Fig. 5: Breaking off detector tube tips

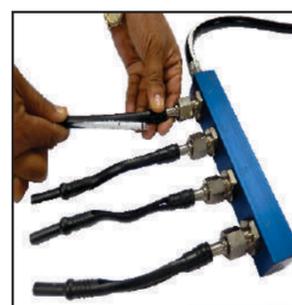


Fig. 6: Inserting detector tube into detector tube holder